



U.S. Department of the Interior
Bureau of Land Management

Bering Sea - Western Interior

Proposed Resource Management Plan and Final Environmental Impact Statement

Volume 1: Executive Summary, Chapters 1–3 and Appendices

December 2020

Prepared by:
US Department of the Interior
Bureau of Land Management

In Cooperation with:
U.S. Fish and Wildlife Service
Native Village of Chuathbaluk
Nulato Village
Native Village of Shaktoolik
Iqurmiut Traditional Council
Nikolai Village
Anvik Village
Stebbins Community Association
Holy Cross Village
Native Village of Unalakleet
Organized Village of Grayling
State of Alaska

Estimated Lead Agency Total Costs Associated
with Developing and Producing this EIS:
\$8,552,000

Mission

To sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

Cover Photo

Old Woman Mountain, located on the Iditarod National Historic Trail between the Yukon River and the Bering Sea. Photo by Kevin Keeler (BLM).

DOI-BLM-AK-A010-2013-0039-RMP-EIS
BLM/AK/PL-21/001+1610+A020

Bering Sea-Western Interior Proposed Resource Management Plan and Final Environmental Impact Statement

Volume 1: Executive Summary, Chapters 1–3, and Appendices

Prepared by:

U.S. Department of the Interior
Bureau of Land Management
Anchorage, Alaska

In cooperation with:

U.S. Fish and Wildlife Service
Native Village of Chuathbaluk
Nulato Village
Native Village of Shaktoolik
Iqurmiut Traditional Council
Nikolai Village
Anvik Village
Stebbins Community Association
Holy Cross Village
Native Village of Unalakleet
Organized Village of Grayling
State of Alaska

December 2020

**Estimated Lead Agency
Total Costs Associated with Developing
and Producing this EIS: \$8,552,000**

Bering Sea–Western Interior Proposed Resource Management Plan and Final Environmental Impact Statement

Responsible Agency: United States Department of the Interior, Bureau of Land Management

Document Status: Draft () Final (X)

Abstract: This Proposed Resource Management Plan (RMP) and associated Final Environmental Impact Statement (EIS) for the Bering Sea–Western Interior (BSWI) planning area has been prepared by the United States Department of the Interior, Bureau of Land Management (BLM) Anchorage Field Office. The planning area extends south from the Central Yukon watershed through the Kuskokwim River watershed, including all lands west of Denali National Park and Preserve to the Bering Sea, and covers 13.5 million acres managed by the BLM within the broader 62.3-million-acre planning area. This RMP replaces the 1981 Southwest Management Framework Plan and a small portion of the 1986 Central Yukon RMP, including amendments.

The purpose of this RMP is to make decisions that guide future land management actions and site-specific implementation decisions. The decisions will address goals and objectives for resource management (desired outcomes) and establish land uses (allocations) that are allowable, restricted, or prohibited to achieve the goals and objectives. The need for this RMP is to provide guidance that will address the significant alterations in resources, circumstances, laws, policies, and regulations in the planning area since 1981.

This Proposed RMP/Final EIS evaluated five alternatives for managing the planning area. Alternative A, the no action alternative, represents existing management described by current land use plans and provides the benchmark against which to compare the other alternatives. Alternative B emphasizes reducing the potential for competition between recreational or developmental uses and subsistence resources by identifying key areas for additional management actions. Alternative C emphasizes adaptive management at the planning level to maintain the long-term sustainability of resources while providing for multiple resource uses. Alternative D provides additional flexibility at the site-specific implementation level and fewer management restrictions at the planning level. Alternative E is the Proposed RMP. Alternatives B, C, and D were developed using input from the public, stakeholders, and cooperating agencies. Alternative E was developed after the release of the Draft RMP/EIS by combining elements of Alternatives B, C, and D and analysis within the range of alternatives to balance the public feedback received. Major planning issues addressed include subsistence resources, including water resources, fisheries, and wildlife; forestry; minerals and mining; recreation; travel management and access; and areas of critical environmental concern.

Protests: Protests on the BSWI Proposed RMP/Final EIS must be received within 30 days from publication of the United States Environmental Protection Agency's Notice of Availability in the *Federal Register*.

For Further Information, Contact: Jorjena Barringer, Project Manager
Bureau of Land Management, Anchorage Field Office
(907) 267-1246
4700 BLM Road
Anchorage, AK 99507
Email: BSWI_RMP_COMMENT@blm.gov
Website: <https://www.blm.gov/alaska/BSWI>



United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Alaska State Office
222 West Seventh Avenue, #13
Anchorage, Alaska 99513-7504
www.blm.gov/alaska



In reply refer to: BLM/AK/PL-20/019+1610+A010
AKA020

December 2020

Dear Reader:

Enclosed is the Proposed Resource Management Plan (PRMP) and Final Environmental Impact Statement (FEIS) for the Bering Sea-Western Interior planning area (planning area). The Bureau of Land Management (BLM) prepared the PRMP/FEIS in consultation with cooperating agencies, considering public comments received during this planning effort. The document contains land use planning decisions to guide the BLM's management of the planning area.

This PRMP and FEIS have been developed in accordance with the National Environmental Policy Act of 1969, as amended, and the Federal Land Policy and Management Act of 1976, as amended. The PRMP is based on Alternative E and was developed by the BLM after reviewing public comments on the Draft Resource Management Plan/Environmental Impact Statement (DRMP/DEIS), which was released on March 15, 2019. The PRMP/FEIS contains a description of Alternative E (the PRMP), a summary of changes made between the DRMP/DEIS and PRMP/FEIS, impacts of the PRMP, a summary of the written and verbal comments received during the public review period for the DRMP/DEIS, and responses to the comments.

Pursuant to BLM's planning regulations at 43 CFR 1610.5-2, any person who participated in the planning process for this PRMP and has an interest which is or may be adversely affected by the planning decisions may protest approval of the RMP within 30 days from date the Environmental Protection Agency (EPA) publishes the Notice of Availability in the *Federal Register*.

The regulations specify the required elements of your protest and are provided in the pages that follow (labeled at Attachment 1). Take care to document all relevant facts. As much as possible, reference or cite the planning documents or available planning records (e.g. meeting minutes or summaries, correspondence, etc.).

Full instructions for filing a protest may be found at <https://www.blm.gov/programs/planning-and-nepa/public-participation/filing-a-plan-protest> and at 43 CFR 1610.5-2. All protests must be in writing and mailed to the appropriate address, as set forth below, or submitted electronically through the BLM ePlanning project website. Protests submitted electronically by any means other than the ePlanning project website protest section will be invalid unless a protest is also submitted in hard copy. Protests submitted by fax will also be invalid unless also submitted either through ePlanning project website protest section or in hard copy. All protests submitted in writing must be mailed to one of the following addresses:

Regular Mail:

Director (210)
Attn: Protest Coordinator
P.O. Box 261117
Lakewood, CO 80226

Overnight Delivery:

Director (210)
Attn: Protest Coordinator
2850 Youngfield Street
Lakewood, CO 80215

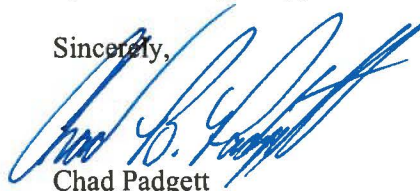
Before including your address, phone number, email address, or other personal identifying information in your protest, be advised that your entire protest – including your personal identifying information – may be made publicly available at any time. While you can ask us in your protest to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so.

The BLM will make every attempt to promptly render a decision on each protest. The decision will be in writing and will be sent to the protesting party by certified mail, return receipt requested. The decision shall be the final decision of the Department of the Interior on each protest. Responses to protest issues will be compiled and formalized in a Protest Resolution Report made available following issuance of the decisions.

Upon resolution of all land use plan protests, the BLM will issue an Approved RMP and Record of Decision (ROD). The Approved RMP and ROD will be mailed or made available electronically to all who participated in the planning process and will be available on the BLM website at <https://www.blm.gov/programs/planning-and-nepa/plans-in-development/alaska/BSWI>.

Unlike land use planning decisions, implementation decisions included in this PRMP/FEIS are not subject to protest under the BLM planning regulations, but are subject to an administrative review process, through appeals to the Office of Hearings and Appeals (OHA), Interior Board of Land Appeals pursuant to 43 CFR, Part 4 Subpart E. Implementation decisions generally constitute the BLM's final approval allowing on-the-ground actions to proceed. Where implementation decisions are made as part of the land use planning process, they are still subject to the appeals process or other administrative review as prescribed by specific resource program regulations once the BLM resolves the protests to land use planning decisions and issues an Approved RMP and ROD. The Approved RMP and ROD will therefore identify the implementation decisions made in the plan that may be appealed to the OHA.

Sincerely,



Chad Padgett
Alaska State Director

Attachment 1

Protest Regulations

[CITE: 43CFR1610.5-2]

TITLE 43--PUBLIC LANDS: INTERIOR
CHAPTER II--BUREAU OF LAND MANAGEMENT, DEPARTMENT OF THE INTERIOR
PART 1600--PLANNING, PROGRAMMING, BUDGETING--Table of Contents
Subpart 1610--Resource Management Planning
Sec. 1610.5-2--Protest procedures.

- (a) Any person who participated in the planning process and has an interest which is or may be adversely affected by the approval or amendment of a resource management plan may protest such approval or amendment. A protest may raise only those issues which were submitted for the record during the planning process.
 - (1) The protest shall be in writing and shall be filed with the Director. The protest shall be filed within 30 days of the date the Environmental Protection Agency published the notice of receipt of the final environmental impact statement containing the plan or amendment in the *Federal Register*. For an amendment not requiring the preparation of an environmental impact statement, the protest shall be filed within 30 days of the publication of the notice of its effective date.
 - (2) The protest shall contain:
 - (i) The name, mailing address, telephone number and interest of the person filing the protest;
 - (ii) A statement of the issue or issues being protested;
 - (iii) A statement of the part or parts of the plan or amendment being protested;
 - (iv) A copy of all documents addressing the issue or issues that were submitted during the planning process by the protesting party or an indication of the date the issue or issues were discussed for the record; and
 - (v) A concise statement explaining why the State Director's decision is believed to be wrong.
 - (3) The Director shall promptly render a decision on the protest.
- (b) The decision shall be in writing and shall set forth the reasons for the decision. The decision shall be sent to the protesting party by certified mail, return receipt requested. The decision of the Director shall be the final decision of the Department of the Interior.

Table of Contents

Volume 1 – Executive Summary, Chapters 1–3, Appendices

Volume 2 – Maps

Volume 1

Executive Summary	ix
Introduction.....	ix
Summary of Notable Changes from the Draft RMP/EIS.....	ix
Purpose and Need	ix
Alternatives.....	x
Environmental Consequences.....	xi
Decisions to be Made.....	xi
Chapter 1. Introduction	1-1
1.1 Summary of Notable Changes from the Draft RMP/EIS.....	1-2
1.2 Purpose and Need for the Resource Management Plan	1-3
1.3 Description of the Planning Area.....	1-4
1.3.1 Overview.....	1-4
1.3.2 Land Uses	1-4
1.3.3 Land Tenure/Land Ownership	1-5
1.3.4 Ecoregions	1-6
1.4 Scoping and Planning Issues.....	1-6
1.4.1 Scoping Process	1-6
1.4.2 Issue Identification.....	1-6
1.4.3 Issues Considered but Not Further Analyzed	1-7
1.5 Planning Criteria	1-7
1.6 Relationship to Other Plans, Policies, and Programs.....	1-7
1.6.1 Other Related Plans.....	1-7
1.6.2 Policy and Programs	1-8
1.7 Implementation and Monitoring of the Resource Management Plan	1-8
1.7.1 Compliance with NEPA.....	1-8
1.7.2 Adaptive Management and Regional Mitigation Strategies	1-8
1.8 Consultation and Coordination	1-9
1.8.1 Introduction.....	1-9
1.8.2 Specific Consultation and Coordination Activities.....	1-9
1.8.3 Public Involvement Opportunities	1-9
Chapter 2. Alternatives	2-1
2.1 Introduction.....	2-1

2.2	Alternative Development Process for the BSWI RMP	2-1
2.3	Management Common to All Alternatives	2-1
2.3.1	Alaska National Interest Lands Conservation Act (ANILCA) Access – Implementing Sections 811 and 1110(a) of ANILCA	2-2
2.3.2	Mitigation.....	2-3
2.3.3	Land Disposals and Exchanges.....	2-3
2.4	Description of Alternatives	2-5
2.5	Alternatives Eliminated from Detailed Analysis	2-6
2.5.1	Areas of Critical Environmental Concern.....	2-6
2.5.2	Retain all ANCSA 17(d)(1) Withdrawals.....	2-6
2.6	Resource Management by Alternative	2-12
2.6.1	Air Quality and Air Quality-Related Values.....	2-12
2.6.2	Soils	2-14
2.6.3	Water Resources and Fisheries	2-16
2.6.4	Vegetation.....	2-23
2.6.5	Wildlife	2-28
2.6.6	Nonnative Invasive Species	2-36
2.6.7	Wildland Fire	2-38
2.6.8	Cultural Resources	2-40
2.6.9	Paleontological Resources	2-44
2.6.10	Visual Resources Management.....	2-46
2.6.11	Lands with Wilderness Characteristics.....	2-51
2.6.12	Forestry and Woodland Products.....	2-53
2.6.13	Reindeer Grazing	2-57
2.6.14	Locatable and Salable Minerals	2-60
2.6.15	Leasable Minerals	2-64
2.6.16	Lands and Realty	2-69
2.6.17	Recreation and Visitor Services.....	2-77
2.6.18	Travel and Transportation Management.....	2-83
2.6.19	Areas of Critical Environmental Concern.....	2-91
2.6.20	National Trails	2-94
2.6.21	Wild and Scenic Rivers.....	2-99
2.6.22	Hazardous Materials and Health and Human Safety	2-104
2.6.23	Reference Theme: Support for BSWI Communities	2-106
Chapter 3.	Affected Environment and Environmental Consequences.....	3-1
3.1	Introduction.....	3-1
3.2	Resources	3-1
3.2.1	Air- and Air Quality-Related Issues	3-1

3.2.2	Climate Change.....	3-6
3.2.3	Soils	3-11
3.2.4	Water Resources	3-17
3.2.5	Fisheries	3-27
3.2.6	Vegetation.....	3-39
3.2.7	Wildlife and Special Status Species.....	3-48
3.2.8	Nonnative Invasive Species (Wildlife and Plant)	3-58
3.2.9	Wildland Fire	3-64
3.2.10	Cultural Resources	3-72
3.2.11	Paleontological Resources	3-81
3.2.12	Visual Resources Management.....	3-88
3.2.13	Lands with Wilderness Characteristics	3-94
3.3	Resource Uses	3-101
3.3.1	Forestry and Woodland Products.....	3-101
3.3.2	Reindeer Grazing	3-109
3.3.3	Locatable and Salable Minerals	3-113
3.3.4	Leasable Minerals	3-119
3.3.5	Lands and Realty	3-122
3.3.6	Recreation and Visitor Services.....	3-130
3.3.7	Travel and Transportation Management.....	3-140
3.3.8	Renewable Energy	3-147
3.4	Special Designations	3-154
3.4.1	Areas of Critical Environmental Concern.....	3-154
3.4.2	National Trails	3-171
3.4.3	Wild and Scenic Rivers.....	3-179
3.5	Social and Economic Features	3-189
3.5.1	Socioeconomic & Environmental Justice	3-189
3.5.2	Subsistence.....	3-202
3.5.3	Hazardous Materials and Health and Human Safety	3-226
3.6	Unavoidable Adverse Impacts	3-232
3.7	Irreversible and Irretrievable Commitment of Resources.....	3-232
3.8	Relationship of the Short-Term Uses of the Environment to Long-Term Productivity.....	3-233

List of Figures

Figure 1-1: Land Status Percentages within the Planning Area.....	1-5

List of Tables

Table ES-2: Implementation Decisions	xii
Table 1-1: Land Status Acreages within the Planning Area	1-6
Table 1-2: Resources with Issues Identified During Scoping.....	1-7
Table 2-1: Comparative Summary of Alternatives	2-8
Table 2-1a: Comparative Summary of Alternatives – Resources	2-8
Table 2-1b: Comparative Summary of Alternatives – Resource Uses.....	2-9
Table 2-1c: Comparative Summary of Alternatives – Special Designations.....	2-12
Table 2-2: Soils Actions by Alternative.....	2-15
Table 2-3: Priority Fish Species in the Planning Area.....	2-18
Table 2-4: Water Resources and Fisheries Actions by Alternative	2-19
Table 2-4a: Water Resources and Fisheries Actions by Alternative – Watershed Actions	2-19
Table 2-4b: Water Resources and Fisheries Actions by Alternative – Fisheries Actions.....	2-20
Table 2-5: Vegetation Actions by Alternative	2-26
Table 2-6: Wildlife Actions by Alternative	2-31
Table 2-7a: Cultural Resources Actions for Alternative A.....	2-43
Table 2-7b: Cultural Resources Actions by Alternative	2-44
Table 2-8: Paleontological Resources Actions by Alternative	2-46
Table 2-9: Visual Resources Management Actions by Alternative	2-48
Table 2-9a: Visual Resources Management Actions by Alternative	2-48
Table 2-9b: Visual Resources Management Actions by Alternative – Total VRM Class Acreage.....	2-51
Table 2-10: Lands with Wilderness Characteristics Actions by Alternative	2-52
Table 2-10a: Lands with Wilderness Characteristics Actions by Alternative	2-52
Table 2-10b: Management Actions for Lands Managed to Protect Wilderness Characteristics as a Priority under Alternative B	2-53
Table 2-11: Forestry and Woodland Products Actions by Alternative	2-55
Table 2-12: Reindeer Grazing Actions by Alternative	2-58
Table 2-13: Locatable and Salable Mineral Actions by Alternative.....	2-63
Table 2-14: Leasable Mineral Actions by Alternative.....	2-68

Table 2-15: Realty/Lands and Use/FLPMA ROW Avoidance and Exclusion Actions by Alternative	2-73
Table 2-16: Recreation and Visitor Services Actions by Alternative	2-79
Table 2-16a: Recreation and Visitor Services Actions by Alternative – BSWI ERMA	2-79
Table 2-16b: Recreation and Visitor Services Actions by Alternative – INHT SRMA	2-81
Table 2-16c: Recreation and Visitor Services Actions by Alternative – Planning Area-Wide	2-83
Table 2-17: Travel and Transportation Management Actions by Alternative	2-87
Table 2-18: Areas of Critical Environmental Concern Actions by Alternative	2-92
Table 2-19: National Trails Actions by Alternative	2-96
Table 2-20: WSR Actions by Alternative	2-101
Table 2-21: Hazardous Materials and Health and Human Safety Actions by Alternative	2-106
Table 2-22: Support of BSWI Communities Actions by Alternative	2-108
Table 3.2.1-1: Summary of Potential Effects to Air Quality and Air Quality-Related Values by Management Action	3-2
Table 3.2.1-2: Portions of Planning Area Analyzed for Potential Impacts to Air Quality and Air Quality-Related Values by Indicator	3-2
Table 3.2.2-1: Summary of Potential Effects to Climate Change by Management Action	3-7
Table 3.2.2-2: Portions of Planning Area Analyzed for Potential Impacts to Climate Change by Indicator	3-7
Table 3.2.3-1: Types of Effects to Soils	3-12
Table 3.2.3-2: Portions of Planning Area Analyzed for Potential Impacts to Soils by Indicator and Management Decision	3-12
Table 3.2.4-1: Summary of Potential Effects to Water Resources by Management Action	3-19
Table 3.2.4-2: Portions of Planning Area Analyzed for Potential Impacts to Water Resources by Indicator	3-19
Table 3.2.5-1: Summary of Potential Effects to Fisheries by Management Action	3-28
Table 3.2.5-2: Portions of Planning Area Analyzed for Potential Impacts to Fisheries by Indicator ...	3-28
Table 3.2.6-1: Summary of Potential Effects to Vegetation by Management Action	3-40
Table 3.2.6-2: Portions of Planning Area Analyzed for Potential Impacts to Vegetation by Indicator	3-41
Table 3.2.7-1: Summary of Potential Effects to Wildlife and SSS by Management Action	3-49
Table 3.2.7-2: Portions of Planning Area Analyzed for Potential Impacts to Wildlife and SSS by Indicator	3-50
Table 3.2.8-1: Summary of Potential Effects to NNIS Resource by Management Action	3-59
Table 3.2.8-2: Portions of Planning Area Analyzed for Potential Impacts to NNIS by Indicator	3-59

Table 3.2.9-1: Summary of Potential Effects to Wildland Fire by Management Action.....	3-66
Table 3.2.9-2: Portions of Planning Area Analyzed for Potential Impacts to Wildland Fire Resource by Indicator.....	3-66
Table 3.2.10-1: Summary of Potential Effects to Cultural Resources by Management Action.....	3-73
Table 3.2.10-2: Portions of Planning Area Analyzed for Potential Impacts to Cultural Resources by Indicator.....	3-73
Table 3.2.11-1: Potential Fossil Yield Classification Description.....	3-81
Table 3.2.11-2: Summary of Potential Effects to Paleontological Resources by Management Action	3-82
Table 3.2.11-3: Portions of Planning Area Analyzed for Potential Impacts to Paleontological Resources by Indicator	3-83
Table 3.2.12-1: Summary of Potential Effects to Visual Resources by Management Action	3-88
Table 3.2.12-2: Visual Resources Inventory and Management Classes by Alternative	3-90
Table 3.2.13-1: Summary of Effects to Lands with Wilderness Characteristics by Management Action	3-95
Table 3.2.13-2: Portions of Planning Area Analyzed for Potential Impacts to Lands with Wilderness Characteristics by Indicator	3-96
Table 3.3.1-1: Summary of Potential Effects to Forestry and Woodland Products by Management Action	3-103
Table 3.3.1-2: Portions of Planning Area Analyzed for Potential Impacts to Forestry and Woodland Products by Indicator	3-104
Table 3.3.2-1: Summary of Potential Effects to Grazing by Management Action	3-110
Table 3.3.2-2: Portions of Planning Area Analyzed for Potential Impacts to Grazing by Indicator	3-110
Table 3.3.3-1: Summary of Potential Effects to Locatable and Salable Minerals by Management Action	3-114
Table 3.3.3-2: Portions of Planning Area Analyzed for Potential Impacts to Locatable and Salable Minerals by Indicator	3-114
Table 3.3.4-1: Types of Effects to Leasable Minerals by Management Action.....	3-119
Table 3.3.4-2: Portions of Planning Area Analyzed for Potential Impacts to Leasable Minerals by Indicator	3-120
Table 3.3.5-1: Summary of Potential Effects to Lands and Realty by Management Action.....	3-123
Table 3.3.5-2: Portions of Planning Area Analyzed for Potential Impacts to Land and Realty by Indicator	3-124
Table 3.3.6-1: Summary of Potential Effects to Recreation and Visitor Services by Management Action	3-131
Table 3.3.6-2: Portions of Planning Area Analyzed for Potential Impacts to Recreation and Visitor Services by Indicator	3-131

Table 3.3.7-1: Summary of Potential Effects to Travel and Transportation Management by Management Action	3-141
Table 3.3.7-2: Portions of Planning Area Analyzed for Potential Impacts to Travel and Transportation Management by Indicator	3-142
Table 3.3.8-1: Summary of Potential Effects to Renewable Energy Resources by Management Action	3-148
Table 3.3.8-2: Portions of Planning Area Analyzed for Potential Impacts to Renewable Energy Resources by Indicator	3-149
Table 3.4.1-1: Potential Existing and Nominated ACECs.....	3-155
Table 3.4.1-2: Summary of Potential Effects to ACECs by Management Action.....	3-157
Table 3.4.1-3: Portions of Planning Area Analyzed for Potential Impacts to Potential Relevant and Important Values by Action Alternative, ACEC, and Indicator	3-158
Table 3.4.2-1: INHT Segments and Associated Historic Sites on BLM-Managed Land in the Planning Area.....	3-172
Table 3.4.2-2: Summary of Potential Effects to the INHT by Management Action.....	3-172
Table 3.4.2-3: Portions of Planning Area Analyzed for Potential Impacts to the INHT by Indicator..	3-173
Table 3.4.3-1: Rivers Eligible for Wild and Scenic Designation.....	3-179
Table 3.4.3-2: Summary of Potential Effects to Wild and Scenic Rivers by Management Action	3-180
Table 3.4.3-3: Summary of Beneficial or Adverse Impacts to WSRs by Indicator.....	3-181
Table 3.4.3-4: Alternative B, Approximate Acreage of Management Actions by Waterway	3-183
Table 3.4.3-5: Alternative C, Approximate Acreage of Management Actions by Waterway	3-184
Table 3.4.3-6: Alternative D, Approximate Acreage of Management Actions by Waterway	3-185
Table 3.4.3-7: Alternative E, Approximate Acreage of Management Actions by Waterway	3-187
Table 3.5.1-1: Summary of Effects to Social and Economic Conditions by Management Action.....	3-192
Table 3.5.1-2: Portions of Planning Area Analyzed for Potential Impacts to Social and Economic Conditions by Indicator.....	3-193
Table 3.5.2-1: Summary of Potential Effects to Subsistence by Management Action	3-204
Table 3.5.2-2: Portions of Planning Area Analyzed for Potential Impacts to Subsistence by Indicator	3-205
Table 3.5.3-1: Summary of Potential Effects to Hazardous Materials and Health and Human Safety by Management Action.....	3-227
Table 3.5.3-2: Portions of Planning Area Analyzed for Potential Impacts to Hazardous Materials and Health and Human Safety by Indicator	3-227

List of Appendices

Appendix A: Acronyms

Appendix B: Glossary

Appendix C: Preparers

Appendix D: References

Appendix E: Summary of Notable Changes from the Draft RMP/EIS

Appendix F: Management Regulations, Policy, and Program Guidance

Appendix G: Goals and Objectives

Appendix H: Responses to Comments on the Draft RMP/EIS

Appendix I: Parcels Available for Exchange or Disposal

Appendix J: Climate Change and Adaptive Management

Appendix K: Mitigation Standards

Appendix L: Aquatic Resource Value (ARV) Model Information

Appendix M: BLM Sensitive Species List

Appendix N: Proposed Special Management of Areas of Critical Environmental Concern

Appendix O: Best Management Practices (BMPs) and Standard Operating Procedures (SOPs)

Appendix P: Recreation Management Areas (RMAs)

Appendix Q: Impact Methodology

Appendix R: Final Alaska National Interest Lands Conservation Act (ANILCA) Section 810
Analysis

Executive Summary

Introduction

The United States (U.S.) Department of the Interior, Bureau of Land Management (BLM) Anchorage Field Office, has prepared this Proposed Resource Management Plan (PRMP) and associated Final Environmental Impact Statement (FEIS) for the Bering Sea–Western Interior (BSWI) planning area (planning area). The planning area extends south from the Central Yukon watershed through the Kuskokwim River watershed, including all lands west of Denali National Park and Preserve to the Bering Sea and covers 13.5 million acres managed by the BLM within the broader area of 62.3 million acres. The BSWI PRMP/FEIS does not apply to non-BLM lands, including lands conveyed through the Alaska Native Claims Settlement Act or Alaska Statehood Act; federal lands administered by the U.S. Fish and Wildlife Service; private lands; or Native allotments (including townsite lots).

This PRMP replaces the 1981 Southwest Management Framework Plan (SWMFP; BLM 1981) and a small portion of the 1986 Central Yukon Resource Management Plan (CYRMP; BLM 1986a), including amendments. It provides:

- Consolidated direction to address land and resource use and development on BLM-managed lands within the planning area and under one RMP, and
- Analysis of the environmental effects that could result from the implementation of the alternatives proposed in the PRMP/FEIS.

Summary of Notable Changes from the Draft RMP/EIS

Several notable changes were made from the Draft RMP/EIS to the PRMP/FEIS. Changes to Chapter 1 included adding examples of substantial alterations that have occurred in the planning area since 1981, additional information on consultation and outreach activities, explanations of “land tenure” and “top-filed lands,” and information about the protest period and governor’s consistency review. In Chapter 2, a new alternative was added, Alternative E, which is also the Proposed RMP. Acreage for high-value watersheds (HVWs) and decisions that include HVWs were updated to account for 12 watersheds that were previously not included in the HVW identification due to an error in methodology. Clarifications and refinements were also made to management actions for most resources. Changes to Chapter 2 generally focused on revising text for clarity and for consistency with the best management practices (BMPs) in Appendix O and with State laws and regulations. Changes to Chapter 3 were made to reflect changes made in Chapter 2 and incorporate new data references. Five new appendices were added: Impact Methodology, BLM Sensitive Species List, Aquatic Resource Value (ARV) Model Information, Responses to Comments on the Draft RMP/EIS, and Summary of Notable Changes from the Draft RMP/EIS.

Purpose and Need

The purpose of this RMP is to make decisions that guide future land management actions and subsequent site-specific implementation decisions. The decisions would establish goals and objectives for resource management (desired outcomes) and the identified uses (allocations) that are allowable, restricted, or prohibited to achieve the goals and objectives. Management actions are also identified where they could

help to achieve desired outcomes and include measures or criteria that could guide day-to-day as well as long-term management.

The need for this RMP is to provide guidance that will address the substantial alterations in resources, circumstances, laws, policies, and regulations in the planning area since 1981. The 1981 SWMFP and the 1986 CYRMP lack guidance garnered from professionals in the environmental, natural, and social science fields, BLM staff, and the public, including Alaska Natives and subsistence resource users. These existing land use plans do not take into consideration current management policy; current issues of environmental and social concern; the need to prevent unnecessary or undue degradation of the land, resources, and the environment; or the influence of modern land and resource management tools and techniques.

Alternatives

Four alternatives (three action alternatives and one no action alternative) from the alternatives development process were carried forward for analysis in the Draft RMP/EIS. The Proposed RMP (Alternative E) was developed based on input collected during the public comment period for the Draft RMP/EIS and is analyzed in this PMRP/FEIS along with the four alternatives evaluated in the Draft RMP/EIS. All the action alternatives, including the Proposed RMP, share common goals and objectives; however, they address these goals and objectives to varying degrees, with the potential for different long-range outcomes and conditions. Table 2-1 in Chapter 2 provides a complete comparative across summary of all alternatives.

Additionally, all four of the action alternatives (Alternatives B-E) consider the revocation of existing ANCSA 17(d)(1) withdrawals. These withdrawals prevent fulfillment of State and ANCSA land entitlements and prevent BLM from making lands available for selection under the Dingell Act. Revocation of the ANCSA 17(d)(1) withdrawals would make those lands available for selection under the Dingell Act. Under Alternative A (No action alternative), all existing ANCSA 17(d)(1) withdrawals would be retained.

Alternative A (No Action): This alternative represents existing management mandated by current land use plans for the planning area. Alternative A meets the National Environmental Policy Act (NEPA) requirement in 40 Code of Federal Regulations (CFR) 1502.14(d), which instructs the BLM to include the alternative of No Action. This alternative provides the benchmark for what would happen to the environment if present management direction and practices were continued. Direction contained in existing laws, regulations, policies, and standards would also continue to be implemented, sometimes superseding provisions of the 1981 SWMFP (BLM 1981) and the 1986 CYRMP (BLM 1986a) and subsequent amendments. The current levels, methods, and mix of multiple use management of BLM-managed lands in the planning area would continue, and resource values would continue to receive attention at present levels.

Alternative B: This alternative emphasizes reducing the potential for competition between recreational or developmental uses and subsistence resources by identifying key areas for additional management actions, which focuses on maintaining long-term resource values within the planning area. These areas include identified HVWs, connectivity corridors, Visual Resource Management (VRM) Class I areas, lands managed for wilderness characteristics, ACECs, and Iditarod National Historic Trail (INHT) segments located on BLM-managed public lands and associated sites (e.g., Rohn Site, Kaltag Portage, Farewell Burn). This alternative seeks to support subsistence uses through sustainable management of the resources on which subsistence depends, but also by attempting to reduce competition for those resources

in key areas surrounding rural communities. Alternative B provides clear guidance on the requirements for subsequent site-specific management and projects, which ensures consistency, but limits flexibility at the site-specific implementation level.

Alternative C: This alternative emphasizes adaptive management at the planning level to avoid and minimize impacts to the long-term sustainability of resources while providing for multiple resource uses. It provides for planning-level management that would avoid and minimize impacts on key areas, such as the portions of the INHT on BLM-managed lands, while allowing for flexibility in resource use in those areas depending on the monitoring of resource impacts. It emphasizes collaboration with and education of permit applicants to address potential competition for use of existing resources. This alternative is meant to provide flexibility at the planning level while still providing enough direction to make processing of site-specific projects easier and more consistent.

Alternative D: This alternative provides the fewest management restrictions at the planning level and the most flexibility at the site-specific implementation level. Alternative D relies on existing federal laws and implementation-level NEPA to a greater extent than Alternative B, C, or E to determine how to best manage multiple uses of sensitive resources while preserving long-term sustainability.

Alternative E (Proposed RMP): This alternative emphasizes adaptive management at the planning level to protect the long-term sustainability of resources while providing for multiple resource uses. This alternative is meant to provide flexibility at the planning level while still providing enough direction to make processing of site-specific projects easier and more consistent.

Environmental Consequences

The purpose of the environmental consequences analysis in this RMP/EIS is to determine the potential for significant impacts of the federal action on the human environment. The “federal action” is the BLM’s selection of an RMP on which future land use actions will be based. Chapter 3 objectively evaluates the likely direct, indirect, and cumulative impacts on the human and natural environment in terms of environmental, social, and economic consequences that are projected to occur from implementing the alternatives.

Decisions to be Made

This PRMP includes both land use plan decisions and implementation decisions. Land use decisions are broad-scale decisions that guide future land management actions and subsequent site-specific implementation decisions. As noted in the BLM Land Use Planning Handbook, proposed land use plan decisions are protestable but are not reviewable by the Office of Hearings and Appeals (BLM 2005a). Implementation decisions generally constitute the BLM’s final approval allowing on-the-ground actions to proceed. As discussed in the BLM Land Use Planning Handbook, “Where implementation decisions are made as part of the land use planning process, they are still subject to the appeals process or other administrative review as prescribed by specific resource program regulations after the BLM resolves the protests to land use plan decisions and makes a decision to adopt or amend the RMP (High Desert Multiple Use Coalition, Inc. et al. Keith Collins, 142 IBLA 285 (1998))” (BLM 2005a).

Decisions listed in the table below are implementation decisions that are not protestable but are subject to the appeal process. Under the Department of the Interior’s regulations, an appeal of a BLM decision to

the Interior Board of Land Appeals or the Office of Hearings and Appeals must be filed in the office of the deciding official (43 CFR 4.411(a)(1)).

All other decisions from this PRMP (not included in the table below) are land use plan decisions that are protestable” to the BLM Director’s Office. Protests on the BSWI PRMP/FEIS must be received within 30 days from publication of the United States Environmental Protection Agency’s Notice of Availability in the *Federal Register*. Pursuant to BLM’s planning regulations at CFR 1610.5-2, any person who participated in the planning process for this PRMP/FEIS and who has an interest which is or may be adversely affected by the planning decisions may protest approval of the RMP.

Table ES-2: Implementation Decisions

Resource/Resource Use/Special Designation	Implementation Decision	Document Reference for Decision in PRMP/FEIS
Wildlife	To minimize impacts to subsistence resources and reduce subsistence conflict, casual use airboats and hovercraft would not be allowed on BLM managed waterways on BLM-managed public lands in the proposed Innoko Bottoms Priority Wildlife Habitat Area.	Table 2-6; Innoko Bottoms Priority Wildlife Habitat Area; Travel Management Decisions; Alternative E; page 2-31
Nonnative Invasive Species	Only feed, mulch (e.g., hay cubes, hay pellets, or straw), and erosion control materials certified as weed-free through the Alaska Weed-Free Forage certification program (or other programs with approval of the Authorized Officer [AO]) would be authorized on BLM-managed public lands. Where Alaska-certified sources are not available, locally produced forage, mulch, and erosion control materials could be used with approval from the AO. If no certified weed-free or local sources are available, other products could be used with the approval of the AO.	Actions Common to All Action Alternatives, including the Proposed RMP, for NNIS; Weed Free Material; page 2-36
Forestry and Woodland Products	All commercial harvesting would require a permit for any forest products harvested with the intent to sell (e.g., house logs, saw logs, Christmas trees, berries, mushrooms).	Actions Common to All Action Alternatives, including the Proposed RMP, for Forestry and Woodland Products; page 2-52
Forestry and Woodland Products	All BLM-managed public lands except for the Unalakleet Wild River Corridor would be open to permitting for Commercial Woodland Harvest.	Table 2-11; Commercial Woodland Harvest Areas; Alternative E; page 2-54
Forestry and Woodland Products	Personal use and subsistence house log harvesting would not be allowed within the riparian areas of streams.	Table 2-11; Personal Use and Subsistence Woodland Harvest Areas; Alternative E; page 2-55
Forestry and Woodland Products	Non-subsistence house log harvest would be prohibited within designated WSR corridors.	Table 2-11; Personal Use and Subsistence Woodland Harvest Areas; Alternative E; page 2-55
Forestry and Woodland Products	Personal use gathering of forest firewood of more than 10 cords of firewood per household per year and gathering forestry products would require a permit.	Table 2-11; Personal Use and Subsistence Woodland Harvest Areas; Alternative E; page 2-55
Forestry and Woodland Products	All BLM-managed lands outside of the riparian areas of streams would be open to subsistence woodland harvest. All BLM-managed lands outside of the WSR corridors and the riparian areas of streams would be open to personal use woodland harvest.	Table 2-11; Personal Use and Subsistence Woodland Harvest Areas; Alternative E; page 2-55
Recreation and Visitor Services	Non-permitted use would be limited to 3 consecutive days, and to no more than 6 days in total in a calendar year.	Actions Common to All Action Alternatives, including the Proposed RMP, for Recreation and Visitor Services; In Rohn Recreation Management Zone; page 2-77

Resource/Resource Use/Special Designation	Implementation Decision	Document Reference for Decision in PRMP/FEIS
Recreation and Visitor Services	Stay limits for non-permitted dispersed camping would be limited to 14 consecutive days within a 28-day period. After a camp has been occupied for 14 days, the camp must be moved at least 2 miles to start a new 14-day period unless reviewed and approved by the AO.	Table 2-16a; General; Alternative E; page 2-78
Recreation and Visitor Services	The INHT SRMA would follow travel and transportation management decisions for the INHT TMA under Alternative B: Summer Casual and Subsistence Access: - Casual and subsistence summer OHV access would be prohibited. Winter Casual and Subsistence Access: - Winter cross-country casual and subsistence access allowed for snowmobiles only. - If winter casual and subsistence snowmobile access results in degradation of the resources or prevents trail management that meets requirements of the National Trails Act, then this would be prohibited in affected areas.	Table 2-16b; Travel Decisions; Alternative E; page 2-80
Recreation and Visitor Services	The Rohn Site would have separate travel management: Summer Casual and Subsistence Use: - The Rohn Site would eliminate summer seasonal casual use and subsistence OHV use if the AO finds that such use is causing or is likely to cause an adverse impact. Winter Casual and Subsistence Use: - Winter casual and subsistence OHV use would be open to cross-country travel with snowmobiles only (as defined in Appendix B).	Table 2-16b; Travel Decisions; Alternative E; page 2-80
Recreation and Visitor Services	There would be 3-day stay limit in public shelter cabins for casual use.	Table 2-16b; BLM INHT Public Shelter Cabin Use; Alternative E; page 2-81
Travel and Transportation Management	To minimize impacts to subsistence resources and reduce subsistence conflict, casual use airboats and hovercraft would not be allowed on non-navigable waterways on BLM-managed public lands in the proposed Innoko Bottoms Priority Wildlife Habitat Area.	Table 2-17; Vegetation and Wildlife Travel Management; Innoko Bottoms Priority Wildlife Habitat Area; Alternative E; page 2-85
Travel and Transportation Management	Summer Casual and Subsistence Access: - Summer subsistence overland travel use would be limited to all-terrain vehicles (ATVs) and utility terrain vehicles (as defined in Appendix B) unless the AO determines that such use is causing or is likely to cause an adverse impact. - Summer OHV casual use would be limited to existing routes (as shown in the BLM's current route inventory once implementation planning occurs).	Table 2-17; All Lands Not Designated as CSUs; Alternative E; page 2-86
Travel and Transportation Management	Summer Casual and Subsistence Access: - Casual summer OHV access would be limited to existing trails (not including the INHT), primitive roads, and roads (as shown in the BLM's current route inventory once implementation planning occurs) and would include ATVs only (as defined in Appendix B). - Subsistence cross-country summer OHV access would be allowed and would include ATVs only if the AO finds that such use is causing or is likely to cause an adverse impact. Winter Casual and Subsistence Access: - Winter cross-country OHV access allowed for snowmobiles only (as defined in Appendix B).	Table 2-17; Unalakleet Wild River Corridor Travel Management Decisions; Alternative E; page 2-87
Travel and Transportation Management	Summer Casual and Subsistence Access: - Casual and subsistence summer OHV access would be prohibited. Winter Casual and Subsistence Access: - Winter cross-country casual and subsistence access allowed for snowmobiles only. - If winter casual and subsistence snowmobile access results in degradation of the resources or prevents trail management that meets requirements of the National Trails Act, then this would be prohibited in affected areas.	Table 2-17; INHT NTMC TMA; Alternative E; page 2-88

Resource/Resource Use/Special Designation	Implementation Decision	Document Reference for Decision in PRMP/FEIS
Travel and Transportation Management	Summer Casual and Subsistence Use: - The Rohn Site would allow seasonal casual and subsistence OHV use but would be limited to existing routes (as shown in BLM current route inventory once implementation planning occurs). Subsistence use would be limited if the AO finds that such use is causing or is likely to cause an adverse impact. Winter Casual and Subsistence Use: - Winter cross-country casual and subsistence access would be allowed for snowmobiles only.	Table 2-17; Rohn Site Travel Decisions; Alternative E; page 2-88
Wild and Scenic Rivers	Limit stays for non-permitted/non-cabin casual use to 14 consecutive days within a 28-day period. After a camp has been occupied for 14 days, the camp must be moved at least 2 miles to start a new 14-day period.	Actions Common to All Action Alternatives, including the Proposed RMP, for Wild and Scenic Rivers; WSR Corridor Management; page 2-98
Wild and Scenic Rivers	Summer Casual and Subsistence Access: - Casual summer OHV access would be limited to existing trails (not including the INHT), primitive roads, and roads (as shown in the BLM's current route inventory once implementation planning occurs) and would include ATVs only (as defined in Appendix B). - Subsistence cross-country summer OHV access would be allowed and would include ATVs only if the AO finds that such use is causing or is likely to cause an adverse impact. Winter Casual and Subsistence Access: - Winter cross-country OHV access allowed for snowmobiles only (as defined in Appendix B).	Table 2-17; Unalakleet Wild River Corridor Travel Management Decisions; Alternative E; page 2-87
Wild and Scenic Rivers	Within WSR corridor, takeoff and landing of casual use UAS would not be allowed, except as approved by the BLM AO.	Table 2-20; UAS Uses; Alternative E; page 2-102
Wild and Scenic Rivers	All BLM-managed public lands except for the Unalakleet Wild River Corridor would be open to permitting for Commercial Woodland Harvest.	Table 2-11; Commercial Woodland Harvest Areas; Alternative E; page 2-54

Chapter 1. Introduction

The United States (U.S.)¹ Department of the Interior (DOI), Bureau of Land Management (BLM) Anchorage Field Office has prepared this Proposed Resource Management Plan (PRMP) and associated Final Environmental Impact Statement (FEIS).² The PRMP/FEIS has been developed in coordination with federal, State, and local governments, Alaska Native tribes, and interested members of the public, and it provides:

- consolidated direction to address land and resource use and development on BLM-managed lands within the Bering Sea-Western Interior (BSWI) Planning Area (planning area); and
- analysis of the environmental effects that could result from the implementation of the alternatives proposed in the PRMP.

The RMP would replace the 1981 Southwest Management Framework Plan (SWMFP; BLM 1981)³ and a small portion of the 1986 Central Yukon RMP (CYRMP; BLM 1986a), including amendments. This PRMP/FEIS provides planning-level guidance for the management of resources and designation of uses on all BLM-managed public lands within the planning area and any BLM-managed subsurface estate, including the subsurface beneath private surface estate if the subsurface estate was reserved to the BLM. Nothing in this plan will impact Alaska Native Claims Settlement Act (ANCSA) or Alaska Statehood Act land conveyances for lands that are currently segregated by a State and/or ANCSA selection. ANCSA 17(d)(1) withdrawals prevent fulfilling State and ANCSA land entitlements and prevent making lands available for selection under the Dingell Act (Public Law 116-9). Revocation of ANCSA 17(d)(1) withdrawals could allow top-filings by the State of Alaska to become valid selections, thereby segregating those lands. Revocation of ANCSA 17(d)(1) withdrawals would also make lands that are vacant, unappropriated, and unreserved available for qualified veterans under the Dingell Act. Lands covered by the RMP include the following:

- **BLM-unencumbered:** These are lands that will most likely be retained in long-term federal ownership. These lands, which constitute approximately 17.2 percent of the planning area, are not selected by the State of Alaska or by ANCSA Native corporations or communities. Some of these lands that are currently withdrawn under ANCSA 17(d)(1) are top-filed by the State of Alaska and would become selected under the Alaska Statehood Act if the ANCSA 17(d)(1) withdrawal was revoked, which would then encumber those lands.
- **BLM State-selected:** These are formerly unappropriated and unreserved public lands that were selected by the State of Alaska as part of the Alaska Statehood Act, as amended by the Alaska National Interest Lands Conservation Act (ANILCA). Lands selected by the State of Alaska would remain "segregated" (unavailable) to locatable mineral entry. BLM State-selected lands comprise approximately 4 percent of the planning area.
- **BLM ANCSA Native corporation-selected:** ANCSA gave Alaska Natives an entitlement of 44 million acres to be selected from a pool of public lands specifically defined and withdrawn by the Act for that purpose. Lands selected by ANCSA corporations would remain "segregated"

¹ See Appendix A for a list of acronyms and other abbreviations used in this document. A glossary of commonly used terms is presented in Appendix B.

² See Appendix C for a list of PRMP/FEIS preparers.

³ See Appendix D for a complete list of references cited in this document.

(unavailable) to locatable mineral entry. Native-selected lands constitute approximately 0.2 percent of the planning area.

- **Dual-selected:** These are lands that have been selected by both the State and ANCSA Native corporations and represent overlap in the State-selected and ANCSA Native corporation-selected lands described above.
- **Mineral estate:** The BLM administers federal mining claims located in the planning area. There are no active oil and gas leases in the planning area. In addition to potential leases on BLM managed lands, if such leases were offered on lands managed by the U.S. Fish and Wildlife Service (USFWS), BLM may enter into oil and gas leases under the Mineral Leasing Act of 1920, authorizing BLM's management of subsurface estate within USFWS lands.
- **Military lands:** These lands are under withdrawal to the military. If released and returned to BLM management during the life of the plan, direction contained in this PRMP/FEIS would apply. Military lands constitute less than 0.1 percent of the planning area.

Lands within the planning area not covered by the RMP include the following:

- **State of Alaska lands:** These are lands that have already been conveyed to the State of Alaska. This includes lands under navigable waters and navigable waters up to the ordinary high-water mark (OHWM). These lands constitute approximately 29 percent of the planning area.
- **ANCSA Native-corporation lands:** These are lands already conveyed to village and regional Native corporations. These lands constitute approximately 16 percent of the planning area.
- **NPS lands:** These are lands managed by the NPS within the Lake Clark National Park and Preserve. These lands constitute approximately 1.0 percent of the planning area.
- **USFWS lands:** These are lands managed by the USFWS within the Yukon Delta and Innoko National Wildlife Refuges (NWRs). These lands constitute approximately 30 percent of the planning area.
- **Private lands:** These lands are privately owned, aside from Native corporations or communities. These lands constitute less than 0.1 percent of the planning area.
- **Native allotments:** These are lands acquired by Alaska Natives under the Alaska Native Allotment Act of 1906 and the Native Townsite Act of 1926. These lands are held in trust by the federal government and are trust responsibility of the Bureau of Indian Affairs. These lands constitute approximately 1 percent of the planning area.
- **ANILCA Section 304(c):** ANILCA Section 304(c) is addressed in the *Mineral Occurrence and Development Potential Report for Leasable Minerals within the Bering Sea – Western Interior Planning Area* (BLM 2015a) and are not subject to this plan.
- **Certain Prior Existing Claims:** Any prior existing mining claims administered by the BLM within USFWS or U.S. National Park Service (NPS) lands are not covered by the RMP.

1.1 Summary of Notable Changes from the Draft RMP/EIS

Several notable changes were made from the Draft RMP/EIS to the PRMP/FEIS, which are described by chapter and appendix in Appendix E. In addition to the changes listed in Appendix E, several minor editorial changes have been made to the document, including spelling and grammar corrections, revised sentence structuring to improve readability and clarity, and revised appendix lettering. Some appendices had no substantive changes from the Draft RMP/EIS and are not included in the summary of edits in Appendix E.

1.2 Purpose and Need for the Resource Management Plan

Because the SWMFP did not follow the current land use process for development of RMPs, the BLM chose not to revise the 1981 plan, but to replace it with the RMP. The BLM is also replacing the 1986 CYRMP for the portions of that planning area that changed under a BLM district boundary realignment and are now in the current planning area. See Map 1-1.⁴

The purpose of this PRMP/FEIS is to document decisions that guide future land management actions and subsequent site-specific implementation decisions. The decisions would establish goals and objectives for resource management (desired outcomes) and the identified uses (allocations) that are allowable, restricted, or prohibited in order to achieve the goals and objectives. Management actions are also identified where they could help to achieve desired outcomes and include measures or criteria that may guide both day-to-day and long-term management. All decisions are pursuant to the multiple-use and sustained-yield mandate of the Federal Land Policy and Management Act (FLPMA). In addition, the purposes of this plan include the following:

- Reevaluate, with public involvement, existing conditions, resources, and uses, and reconsider the mix of new resource allocations and management decisions designed to balance use and the protection of resources pursuant to FLPMA and applicable law.
- Resolve multiple-use conflicts or issues between resource values and resource uses. The RMP would establish consolidated guidance and updated goals, objectives, and management actions for BLM public lands in the planning area. The RMP would be comprehensive in nature and address issues that have been identified through agency, interagency, and public scoping efforts.
- Disclose and assess the direct, indirect, and cumulative impacts of the reasonably foreseeable future actions resulting from the management decisions in this PRMP/FEIS and alternatives pursuant to the requirements of the National Environmental Policy Act of 1969 (NEPA), its implementing regulations, and other applicable laws.
- Integrate landscape findings and model outputs from relevant rapid ecoregional assessments (found at <https://landscape.blm.gov/geoportal/catalog/REAs/REAs.page>) into management alternatives, impact assessments, and cumulative impacts, as appropriate.
- Review the SWMFP and its amendments and determine which management decisions should be retained in the RMP.

The need for the RMP is to provide guidance that would address the substantial alterations in resources and circumstances such as changes to resources or their abundance, climate change, and changes in transportation. Additionally, alterations to laws, policies, and regulations have also occurred in the planning area since 1981. The 1981 SWMFP and the 1986 CYRMP do not incorporate current management policy considerations or:

- guidance garnered from the counsel of professionals in the environmental, natural, and social sciences, BLM staff, and the public, including Alaska Natives and subsistence resource users;
- consideration of environmental and social concern issues;
- measures to prevent unnecessary or undue degradation of the land, resources, and the environment; and

⁴ Volume 2 includes all maps referenced in this PRMP/FEIS and written descriptions of all maps referenced in this PRMP/FEIS.

- modern land and resource management tools and techniques.

This PRMP/FEIS is relevant to the current and future issues of BLM-managed lands within the planning area and allocates resources under the multiple use and sustained yield mandate.

1.3 Description of the Planning Area

1.3.1 Overview

The planning area extends south from the Northwest Alaska and Lower Yukon watersheds (Hydrologic Unit Code [HUC] 4) to the northern portion of the Southwest Alaska watershed (HUC 4), including all lands west of Denali National Park and Preserve to the Bering Sea and covers 13.5 million acres managed by the BLM within the broader area of 62.3 million acres. There are very few roads in the planning area; the longest is a 43-mile gravel road that connects Takotna on the Kuskokwim River with the historic mining community of Ophir on the Innoko River. Map 1-2 provides a general overview of the planning area.

The planning area includes BLM-managed lands selected by the State of Alaska or ANCSA Native corporations that have not been conveyed; USFWS-managed NWRs that fall partially (Yukon Delta NWR) or wholly (Innoko Unit of the Innoko NWR) within the planning area; and Lake Clark National Park and Wood-Tikchik State Park, which reach into the southeastern portion of the planning area. Management direction in the plan only applies to BLM lands within the planning area.

Sixty-five rural communities are found within the planning area. Based on 2010 data from the U.S. Census Bureau for these communities, the population of the planning area is approximately 25,000 (U.S. Census 2010a). Of these communities, there are 27 communities and census-designated places in the vicinity of BLM-managed public land within or near the planning area. These communities range in population from 23 (Red Devil) to 6,080 (Bethel – the largest population center in the region), with 8 having a 2010 population under 100, 12 between 100 and 500, and 7 over 500 (U.S. Census 2010b).

The State of Alaska's primary administrative divisions are referred to as boroughs. There are small portions of four organized boroughs in the planning area: Denali Borough, Lake and Peninsula Borough, Matanuska-Susitna Borough, and Kenai Peninsula Borough. Collectively, 942,292 acres (1.5 percent) of the planning area is within one of these organized boroughs; the remainder is within the Unorganized Borough.

1.3.2 Land Uses

The planning area is characterized by large tracts of generally undisturbed ecosystems that support a variety of native wildlife and fish species. Subsistence use is the most prevalent land use in the planning area. Wildlife and fish resources are a key to subsistence use supporting rural communities, particularly Alaska Native communities. Subsistence hunting can be geographically described according to the Wildlife Management Units identified by the Federal Subsistence Management Program, which correspond with the State's Game Management Units (GMUs). The planning area contains large portions of GMU 18 in the west, GMU 19 in the east, GMU 21 in the north central region, and GMU 22 in the northwest, and includes a small portion of GMU 20 in the northeast.

The undeveloped nature of the planning area, the existence of unique historical features such as the INHT, and the presence of surrounding NWRs provide unique outdoor recreational opportunities and events,

including guided hunting, fishing, and eco-tourism. The medium and high potential for locatable minerals in certain parts of the planning area supports both small- and large-scale placer and hard rock mining. Levels of oil, gas, geothermal (leasable), and coal (leasable) development in the planning area are currently very low, due to relatively low potential or lack of knowledge regarding potential (Map 1-3). Forest resources within the planning area have historically provided materials for sheltering and heating. Firewood is a staple of the subsistence lifestyle for heating and, in some instances, cooking. BLM forests could play a role in the long-term supply of wood—in particular, those BLM lands near rivers that could assist in wood transport.

1.3.3 Land Tenure/Land Ownership

The entire 62.3-million-acre planning area comprises various landowners, with BLM-managed lands representing approximately 13.5 million acres. The land status percentages for the entire 62.3-million-acre planning area are shown graphically (Figure 1-1).

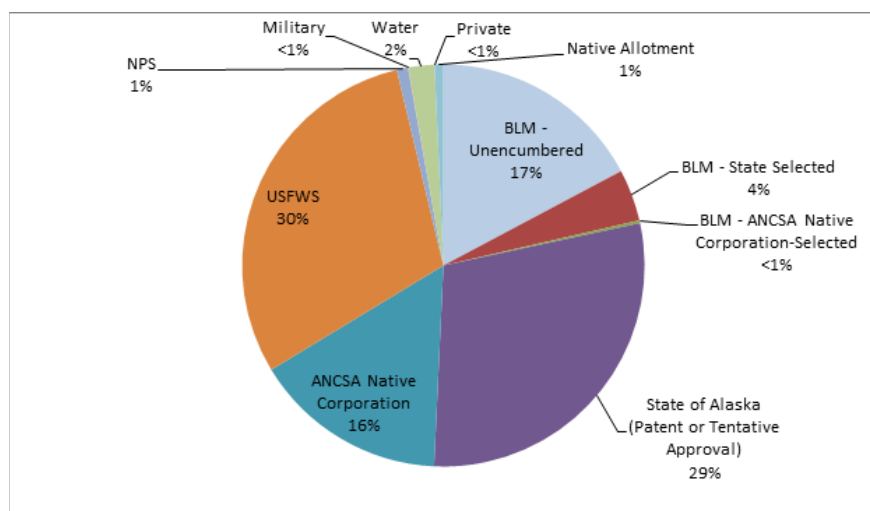


Figure 1-1: Land Status Percentages within the Planning Area

“Land tenure,” or a land tenure system, is a reference to land being owned by an individual or an entity who is said to “hold” the land. The terms of the instrument of conveyance (deed, grant of easement, land patent, and Alaska-only interim conveyances and tentative approvals) determine the owner’s rights and responsibilities in connection with their holding.

Within the 62.3-million-acre planning area and as presented in Table 1-1, roughly 13.5 million acres are managed by the BLM, including lands that are selected but not yet conveyed under the Alaska Statehood Act and ANCSA, as amended. These lands are referred to as State-selected and ANCSA Native corporation-selected lands and comprise approximately 2.6 million acres and 143,220 acres, respectively. Due to selections exceeding remaining entitlements under these statutes, some lands under selection may not ultimately be conveyed.

A subset of BLM-managed lands is considered “top-filed,” meaning that the State of Alaska’s selection application for lands under the Statehood Act will attach if the lands become available for selection in the future. This would occur if a withdrawal preventing the State of Alaska from filing a selection application under the Alaska Statehood Act were modified or revoked. Additionally, top-filings on ANCSA Native

corporation-selected lands would require the relinquishment or rejection of the ANCSA Native corporation selection before the State's top-filing could attach as a selection.

Table 1-1: Land Status Acreages within the Planning Area

Administering Agency/Ownership	Acreage
BLM Administered (no selections by State of Alaska or ANCSA corporation)	10,711,424
BLM Administered (Encumbered with State Selection)	2,611,353
BLM Administered (Encumbered with ANCSA Selection)	143,220
State of Alaska owned (Tentatively Approved or Patented)	18,126,167
ANCSA corporation owned (Interim Conveyed or Patented)	9,709,062
USFWS Administered	18,651,212
NPS Administered	562,035
Private (includes Native Allotment 437,565 acres)	439,528
Military	22,882
Water	1,301,557
TOTAL	62,278,440

Note: BLM-administered acreages in this table are based on a combination of 2020 and 2016 land status GIS data.

1.3.4 Ecoregions

The planning area primarily consists of eight ecoregions that provide the resources for all planning area land uses (see Map 1-4). The RMP is committed to the concept of landscape-level ecosystem management as the most effective tool to maintain the long-term sustainability of these uses by conserving major ecological services. Accordingly, these ecoregions form the basis for developing the landscape-level adaptive management in the range of RMP alternatives. The eight ecoregions are Yukon-Kuskokwim Delta, Nulato Hills, Yukon River Lowlands, Kuskokwim Mountains, Tanana-Kuskokwim Lowlands, Lime Hills, Alaska Range, and the Ahklun Mountains ecoregions.

1.4 Scoping and Planning Issues

The *Federal Register* (FR) published BLM's Notice of Intent to develop the RMP/EIS on July 18, 2013 (78 FR 42970). The scoping period was open for 180 days.

1.4.1 Scoping Process

A summary of the public and agency involvement for the Draft RMP/EIS and PRMP/FEIS, including the scoping process, is described below in Section 1.8, Consultation and Coordination.

1.4.2 Issue Identification

The BLM received 49 comment letters and 60 form letters from agencies, tribal members, industry organizations, interest groups, and individuals during the scoping process (BLM 2014a). Additionally, nearly 900 comments were received during preliminary alternatives development in 2015 (BLM 2015b). Based on scoping, 27 planning issues were identified (Table 1-2). See the BSWI Summary Scoping Report (BLM 2014a) for the list of commenters and summary of the comments and additional issues not expressed during the scoping period. The BLM used the planning issues to help guide the development of a reasonable range of alternative management strategies (see Chapter 2) and to assist in determining the scope of impact analysis for this PRMP/FEIS (see Chapter 3).

Table 1-2: Resources with Issues Identified During Scoping

Nonnative Invasive Species Threats (including plant, terrestrial, and aquatic species)	Forestry and Woodland Products
Vegetative Communities	Reindeer Grazing
Soil, Water, Air	Renewable Energy
Climate / Climate Change	Lands and Realty
Fish and Aquatic Species	Recreation, Visitor Services, and Recreation Authorization Permits
Wildlife	Trails and Travel Management including OHVs
Special Status Species	Areas of Critical Environmental Concern
Wildland Fire Ecology and Management	Wild and Scenic Rivers
Cultural Resources	National Trails
Paleontological Resources	Interpretation and Environmental Education
Visual Resources	Subsistence
Lands with Wilderness Characteristics	Social, Economic (Non-market Values), and Environmental Justice
Mineral Management: Leasable Fluid and Solid Minerals	Public Safety and Hazardous Materials
Mineral Management: Locatable and Salable Minerals	

1.4.3 Issues Considered but Not Further Analyzed

Comments addressing issues outside of the scope of the RMP include those pertaining to reservation of ANCSA 17(b) easements and issues under the State of Alaska's jurisdiction, including hunting regulations, law enforcement, and predator control. These issues are beyond the scope of the RMP because they involve decisions the BLM does not have authority to make at the planning level or the issues are not appropriate planning decisions. These issues are discussed in more detail in the BSWI Scoping Summary Report (BLM 2014a).

1.5 Planning Criteria

The BLM develops planning criteria to establish standards, rules, and other factors to guide the planning process. Planning criteria assist the BLM in defining the scope of work and estimating the extent of data collection and analysis and help guide the final plan selection and provide a basis for judging the responsiveness of the planning options. Prior to the public scoping process, the BLM internally developed 19 preliminary planning criteria as described on page 36 of the Scoping Summary Report (BLM 2014a). These criteria focus the BSWI planning effort and guide decision-making identified in the Notice of Intent (78 FR 42970).

1.6 Relationship to Other Plans, Policies, and Programs

1.6.1 Other Related Plans

According to BLM planning regulations found in 43 Code of Federal Regulations (CFR) 1610, BLM RMPs and amendments must be consistent, to the extent practical, with officially approved or adopted resource-related plans of state and local governments, other federal agencies, and tribal governments. State agency and other federal agency plans for neighboring areas or cross jurisdictional purposes include the USFWS, NPS, BLM, and State of Alaska. The BSWI RMP will strive to be consistent with other BLM-administered plans pertaining to lands included in and surrounding the planning area: *Iditarod National Historic Trail, Seward to Nome Route: A Comprehensive Management Plan* (BLM 1986b); *Unalakleet National Wild River Management Plan* (BLM 1983); *Alaska Statewide Land Health*

Standards (BLM n.d.); *Decision Record for the Land Use Plan Amendment for Wildland Fire and Fuels Management for Alaska Environmental Assessment* (BLM 2005b); and *Alaska Interagency Wildland Fire Management Plan* (Alaska Wildland Fire Coordinating Group 2016). Appendix F provides a listing of the management regulations used to develop the RMP.

1.6.2 Policy and Programs

The Alaska Statehood Act, ANILCA, and ANCSA, as well as other legislation, govern BLM programs and influence policies that drive decisions, constrain alternatives, or affect implementation of the Approved RMP. Appendix F provides a listing of the policy and program guidance used for developing the RMP. The list is not intended to be comprehensive, but rather provide an indication of the key laws and regulations that govern resource management in the planning area.

1.7 Implementation and Monitoring of the Resource Management Plan

The BLM will implement the RMP when the responsible BLM State Director signs the Record of Decision (ROD) for the Approved RMP. The availability of the Approved RMP/ROD will be announced in the FR and posted on the BSWI RMP website. The BLM will develop a schedule for systematically implementing the decisions in the Approved RMP contingent on BLM budget constraints and applicable federal laws, regulations, and policies.

The BLM will monitor implementation of the RMP and periodically evaluate the need for revisions or amendments every 5 years at a minimum per the BLM Handbook H-1601-1, *Land Use Planning* (BLM 2005a). RMP evaluations will also be completed prior to any plan revisions and for major RMP amendments. Revisions to the RMP will be required to comply with FLPMA planning guidelines, as well as the environmental review requirements in NEPA.

1.7.1 Compliance with NEPA

This PRMP includes proposed goals, objectives, and decisions subject to environmental analysis through the preparation of the Draft and Final EIS. The Approved RMP will include a final set of goals, objectives, and decisions that were the outcome of the environmental analysis performed in compliance with NEPA. Goals and objectives are provided in Appendix G. Subsequent planning at the project or activity plan level would require additional analysis under NEPA or an amendment to the RMP.

1.7.2 Adaptive Management and Regional Mitigation Strategies

The RMP will be implemented using an adaptive management process. The DOI Office of Environmental Policy and Compliance Environmental Statement Memoranda 13-11 defines adaptive management as “[...] a system of management practices based on clearly identified outcomes, monitoring to determine if management actions are meeting outcomes, and, if not, facilitating management changes that will best ensure that outcomes are met or to re-evaluate the outcomes” (BLM 2005a). Under adaptive management, decisions, plans, and proposed activities are treated as working hypotheses rather than final solutions to management of resources and uses. Some alternatives analyzed in this PRMP/FEIS afford greater opportunities for flexible management at the implementation stage than others.

1.8 Consultation and Coordination

1.8.1 Introduction

The BLM conducts the decision-making process in accordance with the requirements of NEPA, Council on Environmental Quality (CEQ) regulations, and department policies and procedures. NEPA, and its associated regulatory and policy framework, requires that all federal agencies involve interested groups of the public, as well as state and local governments, other federal agencies, and interested tribes, in their decision-making process.

A variety of strategies have been implemented to foster a collaborative approach, improve communication, and develop understanding of the issues and the process in development of this PRMP/FEIS. The BLM has conducted public consultation and coordination opportunities throughout the development of this PRMP/FEIS. Opportunities included formal and informal consultation with agencies, federally recognized tribes, ANCSA corporations, groups, and individuals. Public meetings, workshops, informational bulletins, a project website, correspondence, meetings with agencies and interest groups, and individual contacts were some of the ways for interested stakeholders to participate in the planning process.

1.8.2 Specific Consultation and Coordination Activities

During preparation of the Draft RMP/EIS and this PRMP/FEIS, the BLM conducted specific consultation and coordination efforts with cooperating agencies, federally recognized tribes, and ANCSA corporations, federal and State agencies, and interest groups. Consultation is ongoing throughout the planning process. Government-to-government consultation and ANCSA corporation consultation has occurred throughout the planning process to ensure consideration of the tribes' and ANCSA corporations' special knowledge and input through the issuance of the Approved RMP and ROD. These outreach activities are not limited to public comment periods.

1.8.3 Public Involvement Opportunities

Scoping

The BLM initiated the scoping process with the publication of a Notice of Intent in the FR on July 18, 2013 and concluded it 180 days later on January 17, 2014. The BLM requested agencies, tribes, groups, and the public to identify issues and concerns within the planning area. Scoping comments collected at public meetings and by email, letters, and phone calls were used to identify issues and define the scope of analysis for management alternatives. Meetings were held in 10 communities with proximity to substantial blocks of BLM lands, the INHT, the Unalakleet Wild River Corridor, and major watersheds in the planning area (Kuskokwim and Yukon Rivers). Additional detail on the public outreach efforts related to the scoping process is included in the Scoping Report (BLM 2014a).

Preliminary Alternatives Outreach

During February and March 2015, the BLM held public meetings in 14 communities that focused on explaining the preliminary alternatives (BLM 2014a). The BLM released the Preliminary Alternatives Comment Summary Report in August 2015, which summarized input received on preliminary alternatives for this PRMP/FEIS. The BLM used the comments, along with subsequently identified issues and planning criteria, to help formulate a reasonable range of alternatives for analysis in the Draft RMP/EIS.

Additional Public Outreach

The BLM provided additional public outreach when there were substantial project updates through its BSWI ePlanning website; mailing of postcards and flyers; six newsletter publications; eNews Blasts; and through press releases, newspaper advertisements, and radio public service announcements.

Public Comment on Draft RMP/EIS

The 90-day public comment period on the Draft RMP/EIS ran from March 15, 2019, to June 13, 2019. The BLM engaged in a collaborative outreach and public involvement process during the public comment period that included federally recognized tribes; ANCSA corporations; city, State, and federal agencies; non-governmental organizations; and the general public. The intent of the comment period was to provide the public with an opportunity to review the Draft RMP/EIS and provide feedback on the analysis. The BLM collected comments on alternatives, objectives, and actions described in the Draft RMP/EIS. This PRMP/FEIS reflects changes and adjustments based on information received during public comment and new information as described in Section 1.1. The *Bering Sea-Western Interior Comment Summary Report* (BLM 2019) provides additional detail on the public comment period, comments received, and how those comments were addressed in this PRMP/FEIS. A summary of comments received during the public comment period and responses to those comments is also included in Appendix H.

Protest Period and Governor's Consistency Review on the PRMP/FEIS

The 30-day protest period will begin when the U.S. Environmental Protection Agency publishes a Notice of Availability of the PRMP/FEIS in the FR. A 60-day governor's consistency review begins when the BLM submits the PRMP/FEIS to the Governor. Upon resolution of any protests and the conclusion of the Governor's review, the plan could then be approved through issuance of a ROD.

Continuing Opportunities for Public Participation

During implementation of the RMP, continuing opportunities for public participation could include, among other things, Resource Advisory Council recommendations relating to the management of the planning area; volunteer partnerships or assistance agreements with other agencies to complete assessments, establish baseline data, monitor, and recommend management actions as a result of these processes; working groups, agreements, and memorandums of understanding with State and tribal governments; and public involvement associated with subsequent NEPA compliance at the project or activity plan level.

Chapter 2. Alternatives

2.1 Introduction

This chapter describes proposed Alternatives A through D and the Proposed RMP (Alternative E) for the BSWI PRMP/FEIS. It includes detailed descriptions of each alternative and accompanying references to maps identifying the geographic location and extent of proposed management actions. The identified alternatives, including the Proposed RMP, were developed in response to issues and concerns identified through internal agency scoping, public scoping, the Area of Critical Environmental Concern (ACEC) comment and nomination period, the preliminary alternatives outreach period, and the Draft RMP/EIS public comment period. The identified alternatives address current management needs and propose adaptive management strategies to best manage for known and anticipated resource trends.

2.2 Alternative Development Process for the BSWI RMP

The BSWI RMP Interdisciplinary (ID) Team used the BLM planning process according to BLM's Land Use Planning Handbook (BLM 2005a) to develop a range of reasonable alternatives for the RMP that would (1) meet multiple use and sustained yield mandates of the FLPMA; (2) address the planning issues compiled from the public, cooperating agencies, and the BLM ID Team; and (3) fulfill the purpose and need for the RMP (see Section 1.2) by addressing management needs and opportunities for the planning area. The alternatives development process began in 2013 with the scoping effort and continued through 2015.

The ID Team is composed of personnel from the BLM and cooperating agencies and tribes with jurisdictional authority over or special expertise in resources affected by the RMP. During the alternatives development process, cooperating agencies and tribes included the USFWS, the State of Alaska, and the Native Village of Chuathbaluk. The steps in alternatives development involved frequent reexamination following periods of public and staff review.

2.3 Management Common to All Alternatives

Some allowable uses and management actions from the 1981 SWMFP and 1986 CYRMP remain valid and do not require revision in this RMP. All of the proposed action alternatives, including the Proposed RMP, carry the following forward:

- Comply with State and federal laws, regulations, policies, and standards, including the FLPMA multiple use and sustained yield mandates.
- Implement actions originating from laws, regulations, and policies and conform to day-to-day management, monitoring, and administrative functions not specifically addressed.
- Preserve valid existing rights, which include any leases, claims, or other use authorizations established before a new or modified authorization, change in land designation, or new or modified regulation is approved.
- Offer diverse recreational opportunities that foster outdoor-oriented lifestyles and enhance quality of life.
- Make every effort to avoid adverse effects if cultural or paleontological sites are found at project locations. Consult with the State Historic Preservation Office (SHPO) and the Advisory Council on Historic Preservation in accordance with Section 106 of the National Historic Preservation Act

of 1966, as amended (NHPA) and its implementing regulations (36 CFR 800); the procedures for Section 106 compliance in the BLM's 2012 National Programmatic Agreement for Section 106 compliance, which is implemented in Alaska by the BLM's Protocol for Managing Cultural Resources on Lands Administered by the Bureau of Land Management in Alaska agreement between the BLM and Alaska SHPO, dated February 5, 2014 (BLM 2014b); and the Paleontological Resources Preservation Act of 2009.

- Seek to enhance collaborative opportunities, partnerships, and communications with other agencies and interested parties to implement the RMP, including education and outreach and project-specific activities.
- Identify and apply mitigation measures (as defined by 40 CFR 1508.20) and conservation actions to achieve land use plan goals and objectives. The sequence of mitigation action would be the mitigation hierarchy (avoid, minimize, rectify, reduce, or eliminate over time).

2.3.1 Alaska National Interest Lands Conservation Act (ANILCA) Access – Implementing Sections 811 and 1110(a) of ANILCA

This section provides guidance on implementing Sections 811 and 1110(a) of ANILCA. ANILCA provides specific guidance on access for the following:

- The use of snowmobiles, motorboats and other means of surface transportation traditionally used for subsistence purposes by residents on all federal public lands (Section 811). See ANILCA Section 102(3) for the definition of “public lands.”
- The use of snowmobiles, motorboats, airplanes, and non-motorized surface transportation methods for traditional activities and travel to and from villages and homesites on conservation system units, national recreation areas, and national conservation areas (Section 1110).

Pursuant to ANILCA Sections 811 and 1110, such uses are subject to reasonable regulation. The NPS and USFWS have developed regulations to implement Section 811 of ANILCA. While the BLM has not developed similar regulations, a process similar to that promulgated by NPS and USFWS will be followed.

The BLM will ensure that rural residents engaged in subsistence uses shall have reasonable access to subsistence resources (ANILCA Section 811(a)) and will implement reasonable regulations to the use of snowmobiles, motorboats, and other means of surface transportation traditionally employed for subsistence purposes by local rural residents (ANILCA Section 811(b)) only if the AO determines that such use is causing or is likely to cause an adverse impact on public health and safety, resource protection, protection of historic or scientific values, subsistence uses, conservation of endangered or threatened species, or other purposes, values, and uses for which the lands are being managed under FLPMA.

The BLM will follow the regulations implementing Section 1110 of ANILCA, as found in 43 CFR Part 36 for access in and across Conservation System Units (CSUs). The BLM will implement restrictions and closures to use of snowmobiles, motorboats, aircraft, and non-motorized surface transportation methods (e.g., domestic dogs, horses, and other pack or saddle animals) for traditional activities only if the AO makes a finding, pursuant to 43 CFR 36.11(h), that such use would be detrimental to the resource values of the area.

To meet the requirements of ANILCA, decisions in this PRMP/FEIS that are covered by Sections 811 and 1110 of ANILCA will be listed as “Proposed” Supplemental Rules in the ROD. Where transportation and

travel management planning is deferred, interim rules will be identified. After the RMP/EIS ROD and travel management decision record are signed, the BLM will undertake the following process as appropriate for both interim and final decisions:

- Publish and provide notice of proposed Supplemental Rules in the FR and other formats and locations reasonably calculated to inform residents in the affected vicinity.
- Allow a minimum of 60 days for the public comment period on the proposed Supplemental Rules.
- Hold public hearings in the affected vicinity and other locations as deemed appropriate by the BLM.
- Respond to comments and publish the final Supplemental Rules in the FR.
- Make the final Supplemental Rules known by the following methods (at a minimum):
 - Supplemental Rules and maps with relevant information will be available for public inspection at the BLM office and at other places convenient to the public, and locations and formats reasonably calculated to inform residents in the affected vicinity.
 - Signs will be posted at appropriate sites.
 - BLM brochures and websites will list Supplemental Rules and show relevant maps.

The Supplemental Rule process described above will be followed to address any travel management plan decisions that are covered by Sections 811 and 1110 of ANILCA. Additional ANILCA provisions are summarized in Appendix F.

2.3.2 Mitigation

Under all alternatives (including the Proposed RMP), the BLM will apply mitigation measures to BLM-authorized activities within the planning area to achieve land use plan goals and objectives while continuing to honor the BLM multiple-use mission.

The BSWI RMP/EIS alternatives (including the Proposed RMP) include the following proposed mitigation management actions:

- Adaptive management, including options for shifts in mitigation strategy and intensity based on monitoring results
- Proactive prioritization of survey and monitoring of resources/resource areas that could be evolving due to climate change and implementation of mitigation to address those impacts
- Increased collaboration with other agencies and landowners to provide for landscape-level management and coordinated monitoring and mitigation efforts at an appropriate scale for impacts
- Management to maintain or improve subsistence access

2.3.3 Land Disposals and Exchanges

As stated in Section 1.3.3, “Land tenure” or a land tenure system is essentially a reference to land being owned by an individual or an entity, who is said to “hold” the land. It determines the owner’s rights and responsibilities in connection with their holding. An important component of the BLM’s land-management strategy is transfer of land ownership or land interests through purchases and donations,

sales and exchanges, and withdrawals. The BLM Land Use Planning Handbook requires RMPs identify parcels of land that could be made available for disposal through sale or exchange of the BLM land.

The BLM may choose to exchange with other landowners to improve land management, consolidate ownership, and/or protect environmentally sensitive areas. By exchanging public land that is of limited interest to the BLM but of value to others, the BLM can acquire other lands with important recreation, conservation, scenic, cultural, and other resource uses.

The BLM develops most RMPs to guide management of land over 20 or more years. Situations may arise over the life of an RMP, especially in areas where public land tracts are isolated and difficult to manage, where BLM may find it useful to have identified tracts as suitable for sale or exchange. Most RMPs include identification of specific tracts of public land that meet the disposal (sale) criteria listed in Section 203 of FLPMA. The RMP therefore identifies tracts that meet criteria for disposal but does not provide a decision of whether to dispose of land. The BLM has authority to consider discretionary land tenure options such as sale under Section 203 of FLPMA; exchange under Section 206 of FLPMA, Section 22(f) of ANCSA, or Section 1302(c) of ANILCA; or sale or lease to state or local governments under the Recreation and Public Purposes Act (R&PP).

Decisions regarding whether or not to dispose of a particular parcel would require site-specific consideration and analysis, including, but not limited to, considerations of access, popular recreational uses, the existence of cultural resources or habitat for species, and whether such a parcel, isolated from the rest of the public lands, could be better suited for non-federal ownership. All land tenure decisions would be consistent with Secretarial Order 3373, *Evaluating Public Access in Bureau of Land Management (BLM) Public Land Disposals and Exchanges* and BLM Informational Bulletin No. 2020-010, which requires documentation of impacts to recreational access as well as a comparison of acres disposed of and exchanged since 2017.

Section 203 of FLPMA specifies that BLM may only sell a tract of public land under Section 203 if the tract is identified through the land use planning process, pursuant to Section 202 of FLPMA, as meeting one or more of the disposal criteria listed in Section 203. The RMP determination that a particular tract meets one or more of the criteria for disposal through sale does not necessarily mean the BLM will sell or dispose of the land. Rather, the process for disposing of public lands under FLPMA Section 203 (Sales) or Section 206 (Exchanges) or any other authority is a lengthy multi-decisional process requiring comprehensive site-specific analysis, and cadastral, cultural, and other resource surveys, when necessary, prior to the sale or other disposition of a tract of public land. BLM bases the determination whether a tract meets one or more of the Section 203 disposal criteria on its ongoing inventory of all public lands and their resources conducted pursuant to Section 201 of FLPMA. The requirement under Section 203 that this determination be made through land use planning is consistent with the Section 202 requirement to manage public lands under land use plans, where these represent a broader scope, longer-term approach to management of public lands in an entire planning area that considers a wide variety of possible uses of the public lands.

In preparation for this land use planning initiative, the BLM conducted an inventory of the public land in the planning area to determine whether there are tracts that meet one or more of the following FLPMA Section 203 criteria for disposal out of federal ownership:

- (1) Such tract because of its location or other characteristics is difficult and uneconomic to manage as part of the public lands, and is not suitable for management by another federal department or agency; or
- (2) Such tract was acquired for a specific purpose and the tract is no longer required for that or any other federal purpose; or
- (3) Disposal of such tract will serve important public objectives including, but not limited to, expansion of communities and economic development, which cannot be achieved prudently or feasibly on land other than public land and which outweigh other public objectives and values including, but not limited to, recreation and scenic values, which would be served by maintaining such tract in federal ownership.

The above criteria were used to identify tracts available for exchange or disposal. Appendix I provides a list of tracts, with legal descriptions, in the planning area identified as meeting one or more of these criteria, with an explanation for the basis for the BLM's determination. Appendix I also provides the maps for each identified tract.

An exchange of public land combines the disposal and acquisition of land into one transaction. The BLM may only exchange a tract of public land if the exchange is in the public interest. Exchanges are authorized in Alaska by FLPMA, ANCSA, and ANILCA and must be of equal value unless, under Section 206(h)(1) of FLPMA or Section 1302(h) of ANILCA, the Secretary of the Interior (Secretary) determines that it is in the public interest to exchange lands for other than equal value.

2.4 Description of Alternatives

Four alternatives (three action alternatives and one no action alternative) from the alternatives development process were carried forward for analysis in the Draft RMP/EIS. The Proposed RMP (Alternative E) was developed for this PRMP/FEIS based on input collected during the public commenting period for the Draft RMP/EIS and is analyzed in this PMRP/FEIS along with the four alternatives evaluated in the Draft RMP/EIS. All the action alternatives share common goals and objectives; however, they address these goals and objectives to varying degrees, with the potential for different long-range outcomes and conditions. Maps in Volume 2 depict the different proposed management scenarios for the alternatives.

Alternative A (No Action): This alternative represents existing management mandated by existing land use plans for the planning area and provides the benchmark against which to compare the other alternatives.

Alternative B: This alternative emphasizes reducing the potential for competition between recreational or developmental uses and subsistence resources by identifying key areas for additional management actions, which focuses on maintaining long-term resource values within the planning area.

Alternative C: This alternative emphasizes adaptive management at the planning level to maintain the long-term sustainability of resources while providing for multiple resource uses.

Alternative D: This alternative provides additional flexibility at the site-specific implementation level and fewer management restrictions at the planning level.

Alternative E (Proposed RMP): This alternative emphasizes adaptive management at the planning level to protect the long-term sustainability of resources while providing for multiple resource uses. This

alternative is meant to provide flexibility at the planning level while still providing enough direction to make processing of site-specific projects easier and more consistent. To craft the Proposed RMP, the BLM used Alternative C (the Preferred Alternative from the Draft RMP/EIS) as a starting point and pulled in different management actions from the other alternatives to meet this emphasis.

All of the management actions incorporated in Alternative E fall within the range of actions considered in the Draft RMP/EIS as part of the existing action alternatives (B-D) and the impacts of those management actions were considered in the Draft RMP/EIS. Although comprised of a configuration of management actions previously considered across the other alternatives, the Proposed RMP does not represent a substantial change to the proposed action. Additionally, none of the information or comments submitted in response to the Draft RMP/EIS was significant new information and a significant change in circumstances relevant to the planning area has not occurred since the Draft RMP/EIS was published. Thus, the Draft RMP/EIS does not require supplementation pursuant due to the addition of Alternative E or for purposes of considering new information or changed circumstances. 40 CFR § 1502.9.

Table 2-1 compares the meaningful and quantifiable differences in management actions across the five alternatives (four action alternatives, including the Proposed RMP, and one no action alternative). Resources, resource uses, and special designations with no meaningful, quantifiable differences between alternatives are excluded from the table. For Alternative A, GIS data were not available for some management decisions. In those cases, acreages were approximated if possible or a brief text description was included to provide some context for comparison with the action alternatives.

2.5 Alternatives Eliminated from Detailed Analysis

The BLM considered the following when evaluating alternatives but eliminated them from further consideration for the reasons provided below.

2.5.1 Areas of Critical Environmental Concern

Throughout this RMP planning process, the BLM accepted ACEC nominations from the general public. The BSWI interdisciplinary team members reviewed all nominations to determine if the area meets both the relevance and importance criteria described in 43 CFR 1610.7-2 and BLM Manual 1613. The ACECs that met both the relevance and importance criteria are analyzed in this document. Twelve externally nominated ACECs were considered but not retained for detailed analysis as alternatives because they did not meet both the relevance and importance criteria required for consideration as an ACEC under 43 CFR 1610.7-2(a). The *BSWI Areas of Critical Environmental Concern: Report on the Application of the Relevance and Importance Criteria and Special Management Report* provides details on the nominated ACECs eliminated from detailed analysis (BLM 2018c).

2.5.2 Retain all ANCSA 17(d)(1) Withdrawals

ANCSA authorized the Secretary to withdraw and reserve public lands for study and classification. This was done through a series of public land orders issued between 1972 and 1975. These are referred to as ANCSA 17(d)(1) withdrawals. The withdrawals kept the lands unencumbered for selection by ANCSA corporations and prevented the creation of new third-party interests that would interfere with land conveyance. The withdrawals also allowed time to study and classify the lands. An alternative retaining all existing ANCSA 17(d)(1) withdrawals was considered but eliminated from detailed analysis because the ANCSA selection process is now complete, ANILCA has since legislatively withdrawn tens of

millions of acres of the lands originally withdrawn under ANCSA to establish or expand numerous CSUs and has determined that further similar withdrawals are not warranted (see e.g., ANILCA Sections 101(d) and 1326), and because the land use planning process is being utilized to determine appropriate final classifications of the lands. In sum, upon completion of this land use planning process, the purposes of the ANCSA 17(d)(1) withdrawals will have been fulfilled. The ANCSA 17(d)(1) withdrawals are now preventing lands from being available for selection under the Dingell Act and State top-filings from attaching.

Table 2-1: Comparative Summary of Alternatives**Table 2-1a: Comparative Summary of Alternatives – Resources****Water Resources and Fisheries**

Resource	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
HVWs (River Miles [RM])	0	21,682	15,035	13,070	13,070
HVWs (acres)	0	8,401,262	5,614,504	4,924,662	4,924,662

Wildlife

Resource	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Connectivity Corridors (acres)	0	845,670	576,038	0	576,038

Visual Resource Management (VRM)

Resource	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
VRM Class I (acres)	46,953	1,335,771	46,953	46,953	46,953
VRM Class II (acres)	0 ¹	6,490,087	2,766,229	679,553	2,645,370
VRM Class III (acres)	0	3,516,066	6,095,778	6,140,235	5,809,494
VRM Class IV (acres)	0	2,123,971	4,556,934	6,599,152	4,964,076
Undesignated (acres)	13,418,941	0	0	0	0
TOTAL (acres)	13,465,894	13,465,894	13,465,894	13,465,894	13,465,894

Lands with Wilderness Characteristics

Resource	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Acres managed for wilderness characteristics as a priority over other resources values and multiple uses	0	277,489	0	0	0
Acres managed to reduce impacts on wilderness characteristics	0	12,049,536	8,125,183	0	0
Acres that do not consider wilderness characteristics	0	1,138,977	5,340,820	13,466,003	13,466,003
TOTAL (acres) ²	0	13,466,003	13,466,003	13,466,003	13,466,003

Notes:

1) Per the SWMFP (BLM 1981), Alternative A also manages seen areas of the Unalakleet River outside the Wild River Corridor as VRM II. These areas are not considered mappable and therefore do not have acreage reported. Analysis presented in Chapter 3 accounts for this management direction.

2) Total acres for the Lands with Wilderness Characteristics inventory do not equal the current acres of BLM-managed land in the planning area (13,465,894) due to a different planning area boundary at the time the inventory was conducted.

Table 2-1b: Comparative Summary of Alternatives – Resource Uses**Forestry and Woodland Products**

Resource Uses	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Commercial Woodland Harvest Open to Permitting (acres)	11,882,094	8,403,829	13,418,941	13,465,894	13,418,941
Closed to Commercial Woodland Harvest (acres)	1,583,800	5,062,065	46,953	0	46,953

Reindeer Grazing

Resource Uses	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Open to Grazing (acres)	13,304,555	0	12,848,472	13,465,894	12,848,472
Closed to Grazing (acres)	161,340	13,465,894	617,422	0	617,422

Minerals (Locatable and Salable)

Resource Uses	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Withdrawn from Locatable (acres)	4,804,488	9,917,834	46,953	46,953	46,953
Open to Locatable Mineral Entry (acres)	8,661,406	3,548,061	13,418,941	13,418,941	13,418,941
Open to Locatable Mineral Entry - Segregated due to selection (acres)	1,620,141	635,623	2,752,047	2,752,047	2,752,047
Closed to Salable (acres)	4,804,488	9,917,833	283,509	283,509	283,509
Open to Salable (subject to terms and conditions) (acres)	0	0	6,576,064	0	3,774,373
Open to Salable (acres)	8,661,406	3,548,061	6,606,321	13,182,385	9,408,012

Minerals (Leasable)

Resource Uses	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
No Surface Occupancy (NSO) Leasable (acres)	17,521 Acreage includes 300 feet on either side of Rodo River, Kateel River, South Fork Huslia River, Tagagawik River, Ray River, and three tributaries of Squaw Creek and Nulato River. Fisheries habitat is also NSO leasable.	1,564,573	6,863,464	236,556	4,062,543
Open to Leasing Subject to Special Stipulations (acres)	INHT in the Village block, grizzly/brown bear denning areas, and raptor nesting areas.	0	0	0	0

Resource Uses	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Open to Leasing Subject to Standard Stipulations (acres)	8,246,152 (approximate) Remaining portion of the planning area not identified as NSO Leasable, Open Subject to Special Stipulations, or Closed to Leasing.	2,460,649	6,555,476	13,182,385	9,356,398
Closed to Leasing (acres)	5,202,221 Acreage includes the Drainages of the Unalakleet ACEC, Peregrine falcon nesting areas, Anvik River ACEC, Kuskokwim River Raptor Nesting Habitat ACEC. Caribou winter habitat areas are also closed to mineral leasing.	9,440,672	46,953	46,953	46,953

Lands and Realty

Resource Uses	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Recommended FLPMA Withdrawals (acres) ³	0	9,795,543	4,991	0	4,991
Retained ANCSA 17(d)(1) Withdrawals (acres) ³	13,461,531	8,637,275	0	0	0
Revoked ANCSA 17(d)(1) Withdrawals (acres) ³	0	4,824,256	13,461,531	13,461,531	13,461,531
ROW Exclusion Areas (acres) ^{4, 5}	0	1,464,069	0	0	0
ROW Avoidance Areas (acres) ^{4, 6}	0	8,895,920	7,528,863	5,163,653	509,798
ROW Avoidance Areas for Linear Realty Actions (acres) ^{4, 7}	0	0	151,853	0	413,179
Open to ROW Location (acres) ⁴	13,465,894	3,105,905	5,785,178	8,302,241	12,542,918
Available for Exchange Only (acres)	0	341,761	356,343	0	356,343
Available for Disposal or Exchange (acres)	0	0	0	450,575	0

Recreation and Visitor Services

Resource Uses	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Iditarod Special Recreation Management Area (SRMA) (acres)	N/A	355,799	340,574	340,574	340,574
BSWI Extensive Recreation Management Area (ERMA) (acres)	N/A	13,110,096	13,125,320	13,125,320	95,307
Community Focus Zones (CFZs) (acres)	N/A	818,395	95,307	0	95,307
Undesignated Recreation Lands (acres)	N/A	0	0	0	13,030,013

Travel and Transportation Management

Resource Uses	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
INHT Travel Management Area (TMA) (acres)	N/A	288,466	273,242	273,242	273,242
Lands with Wilderness Characteristics TMA (acres)	N/A	277,489	0	0	0
Summer Casual OHV Access Prohibited (acres)	46,953	565,955	225,925	225,925	225,925
Summer Subsistence OHV Access Prohibited (acres)	46,953	241,512	225,925	0	225,925
Summer Casual OHV Access Limited to Existing Trails (acres)	None designated	12,899,939	13,239,969	46,953	13,239,969
Summer Subsistence OHV Access Limited to Existing Trails (acres)	None designated	324,443	363	225,925	363
Winter Casual Use – snowmobiles only (acres)	None designated	13,465,894	3,097,798	225,925	3,097,798
Winter Subsistence Use – snowmobiles only (acres)	None designated	4,243,914	3,097,798	225,925	3,097,798

Notes:

1) Acres for this category in Alternative A include areas identified as open and open on a case-by-case basis in previous management plans.

2) State top-filings that become valid selections due to ANCSA corporation selections being relinquished or rejected will be managed like all other State selections. Alternatives that recommend revocation of 17(d)(1) withdrawals where the withdrawal prevents State selections would allow for the State selections to become valid once revocation is complete. These lands would be managed like all other State selections.

3) There is overlap of recommended, retained, and revoked withdrawal areas. GIS data for withdrawals included 4,363 acres that could not be classified.

4) Per the BLM Land Use Planning Handbook, Lands and Realty RMP Decisions for ROW should include:

- ROW avoidance or exclusion areas (areas to be avoided but may be available for location of ROWs with special stipulations, and areas that are not available for location of ROWs under any conditions)
- Terms and conditions that may apply to ROW corridors or development areas, including BMPs to minimize environmental impacts and limitations on other uses, which would be necessary to maintain the corridor and ROW values.

5) ROW Exclusion Areas are areas that are not available for location of ROWs under any conditions. A plan amendment would be required for a new ROW within a ROW Exclusion Area.

6) ROW Avoidance Areas are areas to be avoided but may be available for location of ROWs with special stipulations, as long as new ROW application documentation demonstrates: (1) the other locations researched and reasons each is not feasible, and (2) project design features/mitigation measures are incorporated to minimize resource concerns. Decisions to grant a ROW within a ROW Avoidance Area would be made by the AO after project-specific NEPA has been completed.

7) ROW Avoidance Areas for Linear Realty Actions are areas where new linear ROWs are to be avoided and placed in other areas if feasible. Areas may be available to location of linear ROWs with special stipulations as long as the new linear ROW application documentation demonstrates: (1) the other locations researched and reasons each is not feasible, and (2) project design features/mitigation measures are incorporated to minimize resource concerns. Decisions to grant a linear ROW within a linear ROW avoidance area would be made by the AO after project-specific NEPA has been completed.

Table 2-1c: Comparative Summary of Alternatives – Special Designations**Areas of Critical Environmental Concern**

Special Designations	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Total ACECs (acres)	1,884,376	3,912,698	0	0	0

National Trails

Special Designations	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
INHT National Trail Management Corridor (NTMC) (acres)	NTMC not designated	288,466	273,242	273,242	273,242

Wild and Scenic Rivers

Special Designations	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Designated (Unalakleet Wild River Corridor) (acres)	46,953	46,953	46,953	46,953	46,953
Eligible (acres)	332,176	0	0	0	0
Recommended Suitable (acres)	0	332,176	0	0	0

2.6 Resource Management by Alternative

This section describes the proposed management actions being evaluated under each of the alternatives. BLM's actions and decisions in this planning area will always be informed by and may be limited by valid, existing rights that exist on the landscape (e.g. existing federal mining claims in otherwise withdrawn areas, etc.). In cases where different levels of management for the same resource overlap, the strictest management supersedes the less stringent management. Goals and objectives are not included in this section because they are not being evaluated for potential impacts. Refer to Appendix G for the goals and objectives by resource, resource use, and special designation. Climate Change and Adaptive Management Standards and Mitigation Standards are included in Appendix J and Appendix K, respectively.

2.6.1 Air Quality and Air Quality-Related Values**Actions Common to All Action Alternatives, including the Proposed RMP, for Air Quality and Air Quality-Related Values**

All BLM-permitted actions with the potential for criteria-pollutant emissions, greenhouse gases (GHGs), air quality-related values (AQRVs), national emissions standards for hazardous air pollutants, or volatile organic compounds would use BMPs to meet the National Ambient Air Quality Standards (NAAQS) and reduce emissions to the extent possible. The need for detailed air quality analysis, such as dispersion modeling and mitigation to reduce emissions to a level that meets NAAQS and reduce GHG emissions to the extent possible, would be made at the implementation level.

1. Where BLM-permitted activities have the potential to affect air quality in or near Class I areas, sensitive receptors, urban interface areas, and in or near areas that contain sensitive resources in the planning area, analysis and mitigation would be considered.
2. Best management dust abatement procedures would be required to reduce particulate emissions related to permitted roads and road development. Dust abatement methods would be decided at the implementation level and may include methods such as clearing minimal vegetation, mulching, construction of wind barriers, applying water to cleared areas, reducing vehicular speed limits and chemical dust suppressants to trafficked areas.
3. Transportation ROWs near communities would require design features or mitigation measures to minimize fugitive dust emissions from travel on unpaved surfaces.
4. Proposals that introduce new pollutant effects within the INHT NTMC (see Section 2.6.20), and the Unalakleet Wild River Corridor (see Section 2.6.21), would be authorized only if they do not cause more than short-term, minimal adverse impacts on air quality.
5. All prescribed burning would be conducted in accordance with guidance and direction in the Alaska Enhanced Smoke Management Plan (ADEC 2015a) and any future updates.
6. Consistent with shared wildland fire management responsibilities, the BLM would continue to work with the Alaska Department of Environmental Conservation (ADEC) in the siting and operation of emergency air quality monitoring stations when necessary to assess smoke impacts from wildland fire (BLM Manual 7300, Air Resources Management Program; BLM 2009).
7. Permitted activities would adhere to the Noise Control Act of 1972 and the Quiet Communities Act of 1978.
8. BMPs would be applied to BLM-authorized activities to reduce emissions of GHGs, where feasible.
9. Monitoring of NAAQS criteria pollutants would be conducted as deemed necessary by the AO and pollutant control measures would be adjusted as necessary to continue to meet NAAQS for criteria pollutants, including particulates. An estimate of current and future downstream GHG emissions that are attributed to the project actions would be included in the air analysis.

Description of Air Quality and Air Quality-Related Values Actions by Alternative

There are no proposed air and AQRVs management actions specific to the action alternatives, including the Proposed RMP (Alternative E). For Alternative A, the BLM would continue to cooperate with other agencies in monitoring air quality to verify compliance with lease or permit requirements per the existing land use plans.

2.6.2 Soils

Actions Common to All Action Alternatives, including the Proposed RMP, for Soils

1. The BLM would prioritize (subject to availability of resources) monitoring of targeted sites observed to be at risk of degrading highly erodible soils using Assessment, Inventory, and Monitoring (AIM) terrestrial protocols for changes in condition associated with climate change. If that monitoring determines that soil properties are becoming impaired, timing and weight restrictions related to motorized travel, surface-disturbing development and the use of heavy equipment would be modified as necessary to meet the original intent of any soils-related management.
2. In areas of permafrost thawing, the BLM would adjust requirements for surface-disturbing activities as necessary to prevent long-term erosion of associated soils and associated loss of soil function. This may include not authorizing activities in areas where the changing condition of the permafrost would not allow for the effective mitigation of erosion and soil function degradation (see Map 2-1).
3. General Performance Standards for All BLM Permitted Surface-Disturbing Activities
 - The surface-disturbing activity would be required to avoid unnecessary impacts and facilitate reclamation by following a reasonable and customary sequence of operations.
 - Surface-disturbing activities would be required to implement mitigation measures specified by the BLM to protect public lands.
 - Surface-disturbing activities would be required to initiate reclamation at the earliest practicable time on those portions of the disturbed area that the activity would not disturb further. Initial reclamation would stabilize soil, manage runoff, and otherwise prevent unnecessary and undue degradation.
 - Prior to surface-disturbing activities, when feasible, remove, segregate, and preserve topsoil or other suitable growth medium for reclamation. The topsoil or growth medium would be applied after reshaping of the disturbed area has been completed and would be used to promote and sustain revegetation and, subsequently, to minimize erosion. Stockpiling activities must be implemented to preserve soil viability and promote concurrent reclamation.
 - After surface-disturbing activities have been completed, permittees must revegetate disturbed lands by attaining approximately 70 percent or more native plant foliar cover for a minimum of two growing seasons, with a self-sustaining upward trend in native plant species foliar cover and an absence of nonnative plant species above baseline (i.e., nonnative invasive species [NNIS] cover is no greater than NNIS cover in the pre-existing condition or surrounding area). The BLM may develop site-specific revegetation criteria based on site-specific analysis as part of the baseline condition measurements.
4. Specific Performance Standards for Mining, as per 43 CFR 3809.420
 - Mining Waste: The operator would be required to manage all tailings, rock dumps, deleterious material or substances, and other waste produced from operations to minimize impacts.

- Performance of Reclamation: Operators would be required to reclaim disturbed areas in accordance with the performance standards and their approved reclamation plans.
5. Rehabilitation and Reclamation
- The BLM would prioritize rehabilitation of soils impacted by human use to prevent unacceptable loss of permafrost, where it is not thought to be able to recover from disturbance naturally.
 - When applicable, the BLM would implement post-wildfire emergency stabilization and rehabilitation (ES&R) where soil degradation is unacceptable or to minimize threats to life or property and where soils are not thought to recover naturally.
6. Cumulative Management Decisions
- BLM would use existing Rapid Ecoregional Assessment (REA) or other comparable data in the cumulative impacts analysis for surface-disturbing activities.
 - Coordinate the sharing of inventory and monitoring information with USFWS and National Resources Conservation Service (NRCS) to help discern causes of resource condition change.
7. Subject to valid existing rights, Excluded Unconveyed Claim Areas (EUCAs) within the planning area would have the following soils-related management decisions:
- Soil Surveys same as Alternative D in Table 2-2
 - Floodplains and Springs same as Alternative C in Table 2-2

Description of Soils Actions by Alternative

Table 2-2 describes proposed Soils actions by alternative, including the Proposed RMP (Alternative E). See Map 2-1 for additional information regarding permafrost distribution.

Table 2-2: Soils Actions by Alternative

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
<u>ROW Decisions</u> No current management direction exists. Decisions to grant a ROW within a ROW Avoidance Area would be made by the AO after project-specific NEPA has been completed.	<u>ROW Decisions</u> See Section 2.6.16, Table 2-15, for ROW decisions for permafrost areas. Decisions to grant a ROW within a ROW Avoidance Area would be made by the AO after project-specific NEPA has been completed.	<u>ROW Decisions</u> See Section 2.6.16, Table 2-15, for ROW decisions for permafrost areas. Decisions to grant a ROW within a ROW Avoidance Area would be made by the AO after project-specific NEPA has been completed.	<u>ROW Decisions</u> See Section 2.6.16, Table 2-15, for ROW decisions for permafrost areas. Decisions to grant a ROW within a ROW Avoidance Area would be made by the AO after project-specific NEPA has been completed.	<u>ROW Decisions</u> Same as Alternative C. Decisions to grant a ROW within a ROW Avoidance Area would be made by the AO after project-specific NEPA has been completed.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Soil Survey <i>SWMFP (BLM 1981)</i> The SWMFP lists soil surveys as a support need for recommendations: 3-3.1 (Calista mineral rights), M-1.1 (oil and gas leasing), M-1.2 (coal leasing), M-1.3, (geothermal leasing), F-1.1 (forestry management), RM-1.1 (livestock grazing), and WL-7.1 (riparian habitat protection). No specific threshold of activity triggers a requirement for a soil survey.	Soil Survey For all surface-disturbing BLM-permitted activities greater than 5 acres, a soils survey would be required. The extent and detail of survey would be determined at the implementation level. The purpose of the soil survey would help to determine existing soil types on-site and therefore guide the selection of more appropriate reclamation measures and project site selection.	Soil Survey For all surface-disturbing BLM-permitted activities greater than 5 acres, a randomly selected basic soil nutrient assessment would be conducted. The need for additional, more comprehensive soil surveys would be determined at the site-specific level for BLM-permitted activities. The project proponent would provide global positioning system (GPS) coordinates, photographs, and soil samples from each soil profile to the BLM.	Soil Survey The need for soil surveys would be determined at the site-specific level for BLM-permitted activities. This determination would be based on the existing known soils information.	Soil Survey Same as Alternative D.
Floodplains and Springs <i>SWMFP (BLM 1981)</i> W-3.1: The BLM is mandated to protect floodplains by executive orders and must consider protection of floodplains wherever affected by BLM action. No specific restrictions are listed.	Floodplains and Springs Any BLM-permitted surface-disturbing activities within the 100-year floodplain would require detailed reclamation plans and use of overburden materials. No surface-disturbing activities would be allowed within 100 feet of a natural spring.	Floodplains and Springs Determination of BLM-permitted surface-disturbing activities in the vicinity of floodplains and natural springs would be authorized at the AO's discretion.	Floodplains and Springs Same as Alternative C.	Floodplains and Springs Same as Alternative C.

2.6.3 Water Resources and Fisheries

Actions Common to All Action Alternatives, including the Proposed RMP, for Water Resources and Fisheries

1. Water Resources Actions Common to All Action Alternatives, including the Proposed RMP

- Follow Total Maximum Daily Load recommendations on streams listed under Section 303(d) of the Clean Water Act.
- To minimize watershed resource impacts, all mining activities would incorporate environmental BMPs and techniques that prevent Unnecessary or Undue Degradation and the attainment of the 43 CFR 3809.420 performance standards.
- Technology and practices must be used such that, at the completion of reclamation, the affected stream segment would be, at minimum, geomorphically stable, with adequate vegetation to reduce erosion, dissipate stream energy, and promote the recovery of instream habitats per the BLM Handbook H-3809-1, *Surface Management* (BLM 2012a). Stream reclamation would be evaluated using metrics of geomorphic stability based on established science, policy, and/or regional datasets (e.g., AIM National Aquatic Monitoring Framework).
- Implement specific recommendations regarding surface and subsurface pipeline crossings found in the U.S. Department of the Interior's *Hydraulic Considerations for Pipelines Crossing Stream Channels* guidance document (DOI 2007) to prevent breakage and subsequent contamination.

- Subject to valid existing rights, for all surface-disturbing activity, the BLM would require compliance with general performance standards for all BLM-permitted surface-disturbing activity requirements as described under Actions Common to all Action Alternatives, including the Proposed RMP, for Soils (see Section 2.6.2).
 - Operators submitting new or modified plans would be required to submit a detailed Reclamation Cost Estimate (RCE) before their Notice is acknowledged or Plan approved if they are operating within the 100-year floodplain. If the RCE calculations show that the reclamation cost could exceed one-third of the available bond pool assets the operator may be required to provide an individual financial guarantee in accordance with the requirements of 43 CFR 3809 and within the provision of the Bond Pool Agreement between the Alaska Department of Natural Resources (ADNR) and BLM.
 - The list of priority watersheds and community water supplies present would be identified and maintained based on current information, including updates to the following values: essential fish habitat present, fish species diversity, anadromous species present (non-salmon), and unique or rare fishery resources or habitat (including BLM special status species [SSS]).
 - Unalakleet Wild River federal reserve water rights would be secured and protected. In addition, reservation of instream flows would be pursued through the State of Alaska in HVWs, subject to funding constraints and management priorities.
 - Permanent structures and disturbance greater than 5 acres would be avoided within the 100-year floodplain areas of streams in accordance with Executive Order 11990 and 11988 (excluding operations conducted under the Mining Law of 1872, as amended). Given the difficulty of remotely mapping the 100-year floodplain and the desire to convey the intent of the various management alternatives to the reader, riparian buffer distances are used in this RMP as proxies for the 100-year floodplain as follows: 1st and 2nd order streams: 100 feet; 3rd order streams: 500 feet; 4th and 5th order streams: 1,000 feet; and 6th, 7th, 8th, and 9th order streams: 1,500 feet. See Appendix B for the full definition of the 100-year floodplain.
 - Locatable Mining
 - In accordance with BLM Surface Management Handbook (BLM 2012a) and CFR 3809.420 performance standards, all new and modified reclamation plans would address riparian and fish habitat rehabilitation for activities that include stream disturbance and should incorporate measures to rehabilitate wildlife habitat and reestablish vegetation in uplands and floodplain areas. Reclamation and Monitoring plans would include measurable criteria to effectively demonstrate reclamation stability and upward trending rehabilitation.
2. Fisheries and Aquatic Resources Actions Common to All Action Alternatives, including the Proposed RMP
- All actions would be compliant with Executive Orders 11990 and 11988.
 - All activities below the ordinary high-water mark (OHWM) would be compliant with Alaska Statutes Title 16, Fish and Game.
 - Any proposal to use or develop the lands, waters, or resources within the 100-year floodplain in an HVW must effectively mitigate or minimize impacts to ensure that aquatic and streambank riparian habitat conditions remain within Potential Natural Condition (PNC, defined in App. B), and that floodplain riparian habitat recovery is accelerated to the maximum extent practicable.

- BLM sensitive fish species and their habitat would be managed to promote their conservation and to minimize the likelihood and need for listing under the Endangered Species Act (ESA). Proactive management and monitoring would occur, as appropriate (BLM-Alaska Sensitive Species List current version; Appendix M).
- Priority Species
 - Table 2-3 lists the current priority aquatic species that occur within the planning area. This species list may change based on habitat shifts due to climate change or changes in the regulatory environment.
 - Where priority species are present, manage habitat to support self-sustaining populations. Priority aquatic species include those species that meet one or more of the following criteria:
 - Utilized for subsistence
 - Designated as BLM sensitive
 - Federally listed under the ESA
 - Recreationally important species
 - The BLM would continue to cooperate and coordinate with State agencies, federal agencies, Native organizations, and other groups to ensure efficient and effective program implementation toward conservation of priority species.

Table 2-3: Priority Fish Species in the Planning Area

Common Name	Scientific Name
Alaska brook lamprey	<i>Lampetra laskense</i>
Arctic grayling	<i>Thymallus arcticus</i>
Broad whitefish	<i>Coregonus nasus</i>
Burbot	<i>Lota</i>
Chinook salmon (king)	<i>Oncorhynchus tshawytscha</i>
Chum salmon	<i>Oncorhynchus keta</i>
Coho salmon	<i>Oncorhynchus kisutch</i>

Common Name	Scientific Name
Humpback whitefish	<i>Coregonus pidschian</i>
Least cisco	<i>Coregonus sardinella</i>
Northern pike	<i>Esox lucius</i>
Round whitefish	<i>Prosopium cylindraceum</i>
Sheefish	<i>Stenodus leucichthys</i>
Whitefish (unidentified)	Coregoninae

3. Watershed Restoration

- Watersheds prioritized for restoration would be those watersheds classified as Medium-High or High aquatic resource value (ARV) and degraded habitats (see Appendix L for methods used to assess ARVs).

- Baseline hydrological data would be required to establish reference for rehabilitation purposes. The BLM may require the operator to provide this data and would be available to advise operators on the exact type of baseline data and details needed to meet this requirement.
4. BLM would use existing REA or other comparable data in the cumulative impacts analysis for surface-disturbing activities.
 5. Coordinate the sharing of inventory and monitoring information with USFWS to help discern causes of resource condition change.
 6. For work below the OHWM in fish-bearing streams and all river crossings, a Title 16 permit from ADF&G Habitat Division is required, regardless of the AO's determination. In addition, the BLM would consult with the ADF&G Fish Passage Improvement Program to ensure fish passage standards are maintained.

Description of Water Resources and Fisheries Actions by Alternative

Table 2-4 describes proposed Water Resources and Fisheries actions by alternative, including the Proposed RMP (Alternative E). See Maps 2-2 through 2-5 for additional information.

Table 2-4: Water Resources and Fisheries Actions by Alternative

Table 2-4a: Water Resources and Fisheries Actions by Alternative – Watershed Actions

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
<u>HVW Criteria</u> Identification criteria are not specified in current plans.	<u>HVW Criteria</u> Criteria for identifying HVWs include the following: • ARV¹ • Protecting area of sufficient size to ensure hydrologic connectivity and resiliency of the landscape • Watersheds with High, Medium-High, and Medium ARV	<u>HVW Criteria</u> Criteria for identifying HVWs include the following: • ARV¹ • Watersheds with High and Medium-High ARV	<u>HVW Criteria</u> Criteria for identifying HVWs include the following: • ARV¹ • Watersheds with High ARV	<u>HVW Criteria</u> Same as Alternative D.
<u>Proposed HVWs</u> No current management direction identified. Management direction is determined on a case-by-case basis.	<u>Proposed HVWs Include:</u> High ARV – 13,070 RMs; 4,924,662 acres (199 HUC 12 watersheds) Medium-High ARV – 1,965 RM; 689,842 acres (37 HUC 12 watersheds) Medium ARV – 6,647 RM; 2,786,758 acres (173 HUC 12 watersheds) Total: 21,682 RM; 8,401,262 acres See Appendix B for a detailed definition of HVWs and Map 2-2 for HVWs in Alternative B.	<u>Proposed HVWs Include:</u> High ARV – 13,070 RMs; 4,924,662 acres (199 HUC 12 watersheds) Medium-High ARV – 1,965 RMs; 689,842 acres (37 HUC 12 watersheds) Total: 15,035 RM; 5,614,504 acres See Appendix B for a detailed definition of HVWs and Map 2-3 for HVWs in Alternative C.	<u>Proposed HVWs Include:</u> High ARV – 13,070 RMs; 4,924,662 acres (199 HUC 12 watersheds) Total: 13,070 RMs; 4,924,662 acres See Appendix B for a detailed definition of HVWs and Map 2-4 for HVWs in Alternative D.	<u>Proposed HVWs Include:</u> High ARV – 13,070 RMs; 4,924,662 acres (199 HUC 12 watersheds) Total: 13,070 RMs; 4,924,662 acres All management actions specific to HVWs described in this section would apply only to the 100-year floodplain within the HVWs (800,995 acres). See Appendix B for a detailed definition of HVWs and Map 2-5 for HVWs in Alternative E.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Locatable Mining CYRMP (BLM 1986a) 300-foot occupancy setbacks on the following river segments will provide additional buffering against any possibility of pollution to downstream subsistence fishery areas in the Tag, Lower Kateel, and Gisasa Rivers and tributaries to the Nulato and Ray Rivers and Squaw Creek.	Locatable Mining Operator is required to submit a plan for preventing NNIS infestations as a result of their mining operation. All permitted mining operations would be required to implement 100% water recycle systems (zero discharge) and may be required to use a settling pond liner based on site specific conditions, where possible.	Locatable Mining If NNIS are found then a comprehensive NNIS plan would be developed to address monitoring, prevention, and abatement. Operators would comply with the Alaska Pollutant Discharge Elimination System (APDES) if they have anticipated discharges. Based on proposed discharge volume and location. ADEC may require an individual mixing zone permit to attain required water quality at discharge.	Locatable Mining For Plans of Operations, development of the stream reclamation objectives would rely substantially upon the characterization of stream potential as determined from the baseline environmental information provided by the operator.	Locatable Mining Same as Alternative C.

Notes:

1) The methodology for evaluating aquatic resource values in the planning area is included as Appendix L.

Table 2-4b: Water Resources and Fisheries Actions by Alternative – Fisheries Actions

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Surface-Disturbing Activities CYRMP (BLM 1986a) Objective: Protect selected crucial salmon spawning beds from adverse environmental impacts by mineral location and development.	Surface-Disturbing Activities For entire planning area (with the exception of locatable mineral development and permitted activities by other agencies [ADF&G]): The disturbance buffer would be the 100-year floodplain area. Subject to valid existing rights, no surface-disturbing activities or permanent structures would be allowed within these buffer areas.	Surface-Disturbing Activities Within HVWs (with the exception of locatable mineral development and permitted activities by other agencies [ADF&G] and subsistence users for permitted camps within HVWs): The disturbance buffer would be the 100-year floodplain area. Subject to valid existing rights, no surface-disturbing activities or permanent structures would be allowed within these buffer areas.	Surface-Disturbing Activities Surface-disturbing activities or permanent structures would be allowed within the 100-year floodplain of streams if permittees demonstrate that these activities would not substantively impact floodplain function.	Surface-Disturbing Activities Within HVWs (with the exception of locatable mineral development and permitted activities by other agencies [ADF&G] and subsistence users for permitted camps within HVWs): The disturbance buffer would be the 100-year floodplain area. Subject to valid existing rights, no surface-disturbing activities or permanent structures would be allowed within these buffer areas. All management actions specific to HVWs described in this section would apply only to the 100-year floodplains within the HVWs (800,995 acres).
Forestry and Woodlands Decisions within HVWs No current management direction identified. Management direction is determined on a case-by-case basis.	Forestry and Woodlands Decisions within HVWs Commercial woodland harvest would be prohibited in 100-year floodplains within HVWs.	Forestry and Woodlands Decisions within HVWs The BLM would monitor watershed health and determine if it would issue commercial woodland harvest or timber harvest permits in the 100-year floodplain of HVWs.	Forestry and Woodlands Decisions within HVWs The BLM would monitor watershed health and determine if it would issue commercial woodland harvest or timber harvest permits in the 100-year floodplain of HVWs.	Forestry and Woodlands Decisions within HVWs The BLM would issue permits for Commercial Woodland Harvest following the normal permitting process, consistent with an ongoing assessment of HVW health.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
<u>Mineral Decisions within HVWs</u> <i>SWMFP (BLM 1981)</i> SWMFP directs the BLM to mitigate fisheries conflicts in fisheries-based ACECs by use of seasonal restrictions, area withdrawals, and other measures.	<u>Mineral Decisions within HVW</u> The following mineral decisions would apply to the entire HVW geography (8,401,262 acres): • Closed to salable mineral development • Closed to mineral leasing • Recommended withdrawn from locatable mineral entry (ANCSA 17(d)(1) withdrawal, Public Land Order [PLO] 5180, currently open to metalliferous minerals) If the recommended locatable withdrawal is not approved for HVWs, locatable development would comply with all other management under this alternative and the following management would apply (subject to valid existing rights): • No casual use suction dredging on non-navigable waterways within HVWs.	<u>Mineral Decisions within HVWs</u> The following mineral decisions would apply to the entire HVW geography (5,614,504 acres): • Open to salable mineral development (subject to terms and conditions) • NSO leasable • Open to locatable entry (unless other restrictions apply for other resource protections) Locatable development would comply with all other management under this alternative and the following management would apply (subject to valid existing rights): • No casual use suction dredging on non-navigable waterways within HVWs.	<u>Mineral Decisions within HVWs</u> The following mineral decisions would apply to the entire HVW geography (4,924,662 acres): • Open to salable mineral development (subject to terms and conditions) • Standard Stipulations leasable • Open to locatable entry (unless other restrictions apply for other resource protections) Locatable development would comply with all other management under this alternative and the following management would apply (subject to valid existing rights): • Suction dredging would be considered casual use on non-navigable waterways within HVWs.	<u>Mineral Decisions within HVWs</u> The following mineral decisions would apply only to the 100-year floodplains within HVWs (800,995 acres): • Open to salable mineral development (subject to terms and conditions) • NSO leasable • Open to locatable entry (unless other restrictions apply for other resource protections) Locatable development would comply with all other management under this alternative and the following management would apply (subject to valid existing rights): • No casual use suction dredging on non-navigable waterways within HVWs.
<u>FLPMA ROW Exclusion & Avoidance Decisions within HVWs</u> No current management direction was identified.	<u>FLPMA ROW Exclusion & Avoidance Decisions within HVWs</u> Subject to valid existing rights, the entire geography of HVWs (8,401,262 acres) would be FLPMA ROW avoidance areas.	<u>FLPMA ROW Exclusion & Avoidance Decisions within HVWs</u> Subject to valid existing rights, the entire geography of HVWs (5,614,504 acres) would be FLPMA ROW avoidance areas.	<u>FLPMA ROW Exclusion & Avoidance Decisions within HVWs</u> Subject to valid existing rights, the entire geography of HVWs (4,924,662 acres) would be FLPMA ROW avoidance areas.	<u>FLPMA ROW Exclusion & Avoidance Decisions within HVWs</u> The entire geography of HVWs would be open to ROW location.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
<u>Travel and Transportation Management Decisions within HVWs</u> No current management direction was identified. Management direction is determined on a case-by-case basis.	<u>Travel and Transportation Management Decisions within HVWs (applies to entire geography)</u> OHV Designation = Limited Summer Casual and Subsistence Access: • Summer subsistence overland travel use would be limited to all-terrain vehicles (ATVs, as defined in Appendix B) if the AO determines that such use is causing or is likely to cause an adverse impact. • Summer casual OHV use (as defined in Appendix B) would be limited to existing routes (as shown in BLM's current route inventory once implementation planning occurs) only. Winter Casual and Subsistence Access: • Winter subsistence have no restrictions. • Winter casual use would be snowmobiles only (as defined in Appendix B).	<u>Travel and Transportation Management Decisions within HVWs (applies to entire geography)</u> OHV Designation = Limited Summer Casual and Subsistence Access: • Summer subsistence overland travel use would be limited to ATVs and UTVs (as defined in Appendix B) if the AO determines that such use is causing or is likely to cause an adverse impact. • Summer OHV casual use would be limited to existing routes (as shown in the BLM's current route inventory once implementation planning occurs). Winter Casual and Subsistence Access: • No limitations on winter subsistence and casual use cross-country travel. • Work in coordination with the State of Alaska to designate stream crossing routes; these routes would be designated within the 100-year floodplain.	<u>Travel and Transportation Management Decisions within HVWs (applies to entire geography)</u> OHV Designation = Limited Summer Casual and Subsistence Access: • No limitations on summer subsistence overland travel use. • No limitations on summer casual use. Winter Casual and Subsistence Access: • No limitations on winter subsistence and casual use cross-country travel. • Work in coordination with the State of Alaska to designate stream crossing routes; these routes would be designated within the 100-year floodplain.	<u>Travel and Transportation Management Decisions within HVWs</u> Same as Alternative C, except the decisions would only apply to the 100-year floodplain within HVWs.
<u>Fish Passage Design Requirement/Standard</u> No current management direction was identified. Management direction is determined on a case-by-case basis.	<u>Fish Passage Design Requirement/Standard</u> At least 3 years of hydrologic and fish data shall be collected prior to construction of any proposed stream crossing whose structure is designed to occur, wholly or partially, below the stream's OHWM. These data shall include, but are not limited to, the range of water levels (highest and lowest) at the location of the planned crossing, and the seasonal distribution and composition of fish populations using the stream. The gathering of these data would help assess design requirements resulting from potential changes in hydrologic flow regimes resulting from climate change.	<u>Fish Passage Design Requirement/Standard</u> Determinations on required data collection to support implementation of these BMPs would be made at the implementation level.	<u>Fish Passage Design Requirement/Standard</u> Same as Alternative C.	<u>Fish Passage Design Requirement/Standard</u> Same as Alternative C.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
River Crossing BMPs No current management direction was identified. Management direction is determined on a case-by-case basis.	River Crossing BMPs Except for approved crossings and approved locatable mine plans and Notice Level Operations, alteration of the banks of a waterway and floodplains should be avoided. If they cannot be avoided, BMPs would be used to reduce impacts; cut plugs or similar means would be used to restore stream banks. Waterways include natural features with sufficient water to create riparian habitat such as rivers, streams, deep and shallow lakes, tundra ponds, and shallow-water tracks (swales) in permafrost areas. Clearing of riparian vegetation along the riparian area shall be avoided whenever possible. Movement of equipment through riparian vegetation shall be avoided whenever possible.	River Crossing BMPs Same as Alternative B.	River Crossing BMPs The determination of when permitted activities could alter the banks of a waterway would be made at the implementation level by the AO.	River Crossing BMPs Same as Alternative B.

2.6.4 Vegetation

Actions Common to All Action Alternatives including the Proposed RMP, for Vegetation

1. BLM sensitive plant species and their habitat would be managed to promote their conservation and to minimize the likelihood and need for listing under the ESA. Proactive management and monitoring would occur, as appropriate (BLM-Alaska Sensitive Species List current version; Appendix M).
2. Landscape resiliency projects would be prioritized in parcels near or contributing to the resiliency of neighboring NWRs (Innoko NWR, Yukon Delta NWR, Koyukuk NWR, and Selawik NWR).
3. Monitoring
 - The BLM would implement the AIM strategy, which uses a probabilistic sample design. A monitoring plan, as deemed appropriate for the planning area, would be developed at the implementation level.
 - The BLM would, as deemed appropriate, prioritize targeted monitoring of the following rare ecosystems if found in the planning area. If identified, the BLM would determine appropriate management of:
 - Pingos in Interior Alaska that support forests
 - Tamarack (*Larix laricina*)–dominated associations

- Dunes that have been stabilized by forests, typically aspen/black spruce
- Limestone geologic substrate
- Serpentine geologic substrate
- The BLM would prioritize using State and Transition Models developed from approved Ecological Site Descriptions to evaluate changes in vegetative communities when completing land health assessments.

4. Reclamation and Mitigation

- All reclamation opportunities (including abandoned mine land) would be identified by ecoregion (see Map 1-4 and Map 2-9). Based on current circumstance, vegetation reclamation priorities would be :
 - Areas in riparian zones
 - Areas with lichen-rich habitat
 - Areas near BLM-sensitive plant species or rare ecosystems
 - HVWs
 - Areas with potential for permafrost degradation
- Subject to valid existing rights, areas found to have substantial surface disturbance would be prioritized (as determined by the AO) for rerouting, restoring, hardening, or closing unauthorized OHV trails, especially in wetlands or underlain with permafrost, to make progress toward restoring ecosystem health.

5. Surface-Disturbing Permits

- All surface-disturbing BLM-permitted activities must adhere to reclamation general performance standards for all BLM-permitted surface-disturbing activity requirements described under Actions Common to All Action Alternatives including the Proposed RMP, for Soils (see Section 2.6.2) and Actions Common to All Action Alternatives, including the Proposed RMP, for Water Resources and Fisheries (see Section 2.6.3).
- For surface-disturbing BLM-permitted activities which require vegetation removal, where beneficial and feasible, BLM would request the removal be conducted in such a way to help ensure a desired mix of successional states and to assist with maximizing revegetation success.
- Tundra areas are ROW avoidance. If tundra mat and vegetation is disturbed through permitted activities, and if technically and economically feasible, tundra mat would need to be preserved for reclamation/restoration.
- Existing roads and trails would be utilized for access where feasible, rather than creating new roads and trails.

- When possible, ground operations, including heavy equipment overland moves, would occur when frost and snow cover are at sufficient depths to prevent long-term damage to tundra or wetland vegetation and soils. Ground operations would be avoided during spring break-up.
 - Winter trails or ice roads would be located and designed to minimize compaction of soils and the breakage, abrasion, compaction, or displacement of vegetation. Offsets may be required to avoid using the same route or track in subsequent years.
 - When ground operations are required in snow-free months, routes that utilize naturally hardened sites would be prioritized. Methods and techniques would be employed to minimize vegetation and soil disturbance (e.g., the use of air or watercraft, utilization of existing roads or trails, or the use of low-ground-pressure vehicles and equipment). Ground operations would be avoided during spring break-up.
 - Construction of road or trails in wetlands and floodplains would be avoided, where practicable.
6. Subject to valid existing rights, EUCAs within the planning area would have the following Vegetation-related management decisions applied:
- SSS Flora and Lichen Areas (caribou habitat) Travel Management Decisions same as Alternative B in Table 2-5
 - BLM-Permitted Surface Disturbance same as Alternative E in Table 2-5
 - Seeding and Planting for Reclamation/Restoration – same as Alternative E in Table 2-5

Description of Vegetation Actions by Alternative

Table 2-5 describes proposed Vegetation actions by alternative, including the Proposed RMP (Alternative E). See Maps 2-6 through 2-9 for additional information.

Table 2-5: Vegetation Actions by Alternative

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
<u>SSS Flora and Lichen Areas (caribou habitat) – Travel Management Decisions</u> <i>CYRMP (BLM 1986a)</i> Crucial caribou habitats within the Tozitna and Ullbi subunits have been designated as ACECs. All forest lands within this planning area are open to subsistence and commercial timber harvest except crucial wildlife habitat and the eight Research Natural Areas (RNAs). Timber may be harvested on subsistence study/exchange withdrawals under a subsistence or personal use type permit. No commercial sales will be permitted on these withdrawals. Data on forest lands will be accumulated and maintained until identified needs require a more intensive forest inventory.	<u>SSS Flora and Lichen Areas (caribou habitat) – Travel Management Decisions</u> If monitoring shows observable or quantifiable degradation of dwarf shrub, lichen, or sparse vegetation habitats due to OHV use, then appropriate management actions would be developed and implemented. These actions could include: • OHV use limitations • Trail relocation • Trail hardening • Trail closure	<u>SSS Flora and Lichen Areas (caribou habitat) – Travel Management Decisions</u> Same as Alternative B.	<u>SSS Flora and Lichen Areas (caribou habitat) – Travel Management Decisions</u> No limitations on OHV use.	<u>SSS Flora and Lichen Areas (caribou habitat) – Travel Management Decisions</u> Same as Alternative B.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
BLM-Permitted Surface Disturbance No current management direction was identified. Management direction is determined on a case-by-case basis.	BLM-Permitted Surface Disturbance For BLM-authorized surface-disturbing activity in known habitat for SSS flora or rare ecosystems (as determined by the BLM), applicants would be required to conduct a vegetation and SSS plant survey using BLM-approved protocol. The map of known habitat would be revised when new information becomes available. In all other areas, BLM-authorized surface-disturbing activities over 5 acres would be required to conduct a vegetation and SSS flora survey using BLM-approved protocol. Permittees would receive reporting instructions if SSS species are found. Subject to valid existing rights, BLM-permitted activities would be required to establish a 300-foot setback for SSS flora populations when discovered during surveys for short-term and long-term surface-disturbing activities. Special construction design and implementation measures, including operation measures, may be required to avoid more than 300 feet as necessary to prevent further impacts on SSS flora. If limestone or serpentine geologic substrate is found during survey or monitoring, subject to valid existing rights, those areas would be evaluated for further resource protection measures to protect sensitive vegetation associated with those geologic substrates.	BLM-Permitted Surface Disturbance For BLM-authorized surface-disturbing activity in known habitat for SSS flora or rare ecosystems (as determined by the BLM), applicants would be required to conduct a vegetation and SSS plant survey using BLM-approved protocol. The map of known habitat would be revised when new information becomes available. In all other areas, BLM-authorized surface-disturbing activities over 5 acres would be required to provide the BLM a geo-located photo inventory of the site along with soil samples. If an SSS species were identified via the photo inventory, then the permittee would be required to conduct a vegetation and SSS flora survey using BLM-approved protocol. Permittees would receive reporting instructions if SSS species are found. Subject to valid existing rights, BLM-permitted activities would be required to have a 100-foot setback from SSS flora populations when discovered during surveys for short-term and long-term disturbances.	BLM-Permitted Surface Disturbance For BLM-authorized surface-disturbing activity in known habitat for SSS flora or rare ecosystems (as determined by the BLM), applicants would be required to provide a geo-located photo inventory of the site along with soil samples to the BLM. In all other areas, BLM-authorized surface-disturbing activities over 5 acres would be required to provide the BLM a geo-located photo inventory of the site along with soil samples. If SSS species are found, avoidance and minimization to mitigate impacts to those species would be determined by the BLM AO at the site-specific implementation level.	BLM-Permitted Surface Disturbance If the BLM determines that a permitted action has the potential to impact special status flora or occurs in a unique vegetation community, a survey may be required, as deemed appropriate. Permittees would receive reporting instructions if special status flora are found as a result of the required survey. Site-specific measures may be required to prevent the listing of special status flora under the ESA.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
<u>Seeding and Planting for Reclamation/Restoration</u> No current management direction was identified. Management direction is determined on a case-by-case basis.	<u>Seeding and Planting for Reclamation/Restoration</u> If seeding or planting is part of reclamation/restoration, permittees must use native seed and propagules appropriate for existing climatic conditions and desired ecosystem function as demonstrated by undisturbed areas or applicable vegetation outplanting trials (planting of raised nursery plants or seeds into the natural environment). If applicable, these would be native species as certified through the State of Alaska Plant Materials Center. Coordination with the Seeds of Success program must begin during the BLM permitting process and final seed/propagule mixes must be approved by the BLM AO or the BLM national seed warehouse program.	<u>Seeding and Planting for Reclamation/Restoration</u> If seeding or planting is part of reclamation/restoration, permittees must use native seed and propagules appropriate for existing climatic conditions and desired ecosystem function as demonstrated by undisturbed areas or applicable vegetation outplanting trials (planting of raised nursery plants or seeds into the natural environment). If applicable, these would be native species as certified through the State of Alaska Plant Materials Center. Coordination with the Seeds of Success program must begin during the BLM permitting process and final seed/propagule mixes must be approved by the BLM AO or the BLM national seed warehouse program. Nonnative seed and propagules would be allowed if determined appropriate for the climatic condition and ecosystem function and if native plants are either unavailable or unable to establish with current climatic conditions. This would be determined at the AO's discretion.	<u>Seeding and Planting for Reclamation/Restoration</u> If conducting restoration or reclamation, permittees must use seed and propagules appropriate for the existing climatic condition and ecosystem function. Final seed/propagule mixes would be determined at the implementation level and approved by the BLM AO.	<u>Seeding and Planting for Reclamation/Restoration</u> If seeding or planting is part of reclamation/restoration, permittees must use native seed and propagules appropriate for existing climatic conditions and desired ecosystem function. If applicable, these would be native species as certified through the State of Alaska Plant Materials Center. Coordination with the Seeds of Success program must begin during the BLM permitting process, and final seed/propagule mixes must be approved by the BLM AO or the BLM national seed warehouse program. Nonnative seed and propagules would be allowed if determined appropriate for the trending climatic condition and ecosystem function and if native plants are either unavailable or unable to establish with current climatic conditions. This would be determined on a case-by-case basis and approved by the BLM AO.

2.6.5 Wildlife

Actions Common to All Action Alternatives, including the Proposed RMP, for Wildlife

1. BLM sensitive species and their habitat would be managed to promote their conservation and to minimize the likelihood and need for listing under the ESA. Proactive management and monitoring would occur, as appropriate (BLM-Alaska Sensitive Species List current version; Appendix M).
2. Adaptive Management
 - The BLM would monitor (subject to availability of resources) wildlife habitat and phenological (life-cycle) shifts. Applicable management would be evaluated and adapted to respond to those shifts at the 5-year effectiveness review stage. Accordingly, the BLM management for wildlife habitat would be flexible and would be informed by resulting changes in both wildlife habitat and species presence.

- Aircraft operating in support of special recreation permit (SRP) activities would be required to maintain a minimum altitude of 1,000 feet above ground level (AGL) within 0.50 mile from occupied raptor nests (such as golden eagle, bald eagle, peregrine, gyrfalcon), except during takeoff and landing and when adherence would compromise safety (USFWS 2007).
3. Caribou, Moose, Muskox, Dall Sheep, Mountain Goats
 - The BLM would continue to coordinate with ADF&G and USFWS to help accomplish the population inventory and monitoring surveys for moose (see Map 2-10), caribou (Map 2-11), and muskox (Map 2-12), as deemed appropriate. Data from these surveys would be used by the Alaska Board of Game and the Federal Subsistence Board inform decisions for both State and federal hunts.
 - To minimize the potential for disease transmission to wildlife, applications for the use of pack animals would be reviewed on a project-specific basis.
 - If reindeer grazing is permitted, prior to issuing a grazing permit, the BLM may require a survey, as deemed appropriate, to determine the presence and baseline quality of caribou wintering and calving habitat. Additionally, permit requirements may include moving the reindeer herd as necessary to avoid caribou wintering and calving habitat if those wintering and calving areas shift.
 - Reclamation, including required rehabilitation of wildlife habitat, for all surface-disturbing activities would be in accordance with general performance standards for all BLM-permitted surface-disturbing activity requirements described under Actions Common to All Action Alternatives, including the Proposed RMP, for Soils (see Section 2.6.2) and Actions Common to All Action Alternatives, including the Proposed RMP, for Water Resources and Fisheries (see Section 2.6.3).
 - The Plan of Development for linear project ROWs must address caribou passage in all known caribou migration routes. To support the site-specific NEPA analysis, applicants must incorporate design features or stipulations to minimize impacts on and avoid substantially impeding caribou migration.
 4. Migratory Birds: Permitted activities would comply with all requirements of the Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, and applicable BLM guidance (see Appendix F) and follow USFWS national and Alaska guidelines (e.g., USFWS 2020) for timing recommendations for land disturbance and vegetation clearing.
 5. Raptors
 - Priority raptor species are defined as peregrine falcon, gyrfalcons, golden eagle, and bald eagle. Nesting seasons are defined as: From March 1–August 31 for bald eagles and golden eagles, and from May 1–July 15 for gyrfalcons and peregrine falcons.
 - Permitted surface-disturbing activities would be required to conduct pre-work priority raptor nesting surveys, when determined necessary by the AO.
 - Communications towers would use industry BMPs to reduce bird strikes.
 - All transmission powerlines would comply with current Avian Power Line Interaction Committee (APLIC) guidelines to minimize raptors and other birds from colliding with or being electrocuted by utility lines, alternative energy structures, towers, and poles (current version; APLIC 2012).

- If practicable, the BLM would require that utility lines running through raptor nesting areas be buried.
- Where raptors are likely to nest on human-made structures (such as cell phone towers) and such use could impede operation or maintenance of the structures or jeopardize the safety of the raptors, the BLM would require that the structures be equipped with either (1) devices engineered to discourage raptors from building nests, or (2) nesting platforms that would safely accommodate raptor nests without interfering with structure performance.
- To reduce disturbance to nesting priority raptors, campsites authorized by the BLM, including short- and long-term camps and agency work camps, would be evaluated in site-specific NEPA analysis to determine appropriate distances for campsites from any known priority raptor nest site during the nesting season. Site-specific NEPA analysis would reference current published guidance from the USFWS (USFWS 2020; available at <https://www.fws.gov/alaska/pages/migratory-birds/eagles-other-raptors/eagle-permits/disturbance-guidance>). Exceptions may be granted with additional minimization measures by the AO if no feasible alternative exists.
- When it is not possible to avoid and minimize disturbance to eagles, a USFWS permit may be required.

6. Bats

- All BLM-permitted activities and mine closures with the potential to affect bat hibernacula would be required to perform bat surveys as per agency accepted protocols to determine presence/absence of bats prior to project implementation.
- BLM-permitted activities would avoid disturbing known bat hibernacula to the extent practicable. This would include (but may not be limited to) occupied cave/karst features, abandoned mine adits and shafts, and abandoned structures.
- The BLM would require provisions for bat ingress and egress for bat-occupied mine shaft/adits that are proposed to be closed or abandoned.
- White-nose syndrome decontamination protocol would be applied when working in bat hibernacula or breeding areas.

7. ESA-Listed Species

- The BLM would incorporate objectives and actions identified in endangered species recovery plans into BLM documents, as appropriate.
 - In line with the BLM's ESA Section 7(a)1 responsibilities, the BLM would use its authorities for the proactive conservation and management of ESA-listed species where feasible.
8. Pollinators: The BLM would incorporate all commitments, as applicable, from the U.S. Department of the Interior Pollinator Protection Plan (BLM 2015c, including any future IM updates or policy replacements) and any subsequently tiered BLM Alaska-specific guidance.
9. The BLM would work in cooperation with ADF&G and the State of Alaska AO to understand proposed predator control plans on BLM-managed lands. This would include the BLM meeting with the ADF&G annually to discuss species, control methods, objectives, locations, and timing and to resolve any potential areas of concern or conflict with other authorized BLM land uses.

10. The BLM would designate 236,556 acres as the Innoko Bottoms Priority Wildlife Habitat Area (see Map 2-14), which corresponds to BLM land within the Paradise Controlled Use Area designated by ADF&G 2016-2017 Hunting Regulations. Management actions would vary between alternatives.
11. Subject to valid existing rights, EUCAs within the planning area would have the following Wildlife-related management decisions applied:
- Caribou and Moose Leasable Minerals same as Alternative E in Table 2-6
 - Migratory Birds same as Alternative D in Table 2-6
 - Raptors same as Alternative E in Table 2-6

Description of Wildlife Actions by Alternative

Table 2-6 describes proposed Wildlife actions by alternative, including the Proposed RMP (Alternative E). See Maps 2-10 through 2-14 for additional information.

Table 2-6: Wildlife Actions by Alternative

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
<u>Caribou and Moose</u> <i>SWMFP (BLM 1981)</i> <u>Leasable Minerals</u> Impacts of mineral leasing could be mitigated through stipulations for seasonal use or NSO in crucial habitat area. <u>Fire Management</u> Prescribed burns and natural fires would benefit winter moose range. Fire is a management tool that should be utilized to maintain quality moose habitat. <u>Land and Realty</u> Protect caribou habitat. Improve, maintain, or protect wintering areas, migration routes, and calving areas.	<u>Caribou and Moose</u> <u>Leasable Minerals</u> Subject to valid existing rights, NSO for leasable minerals in known caribou and moose calving and wintering concentrations. <u>Locatable and Salable Minerals</u> Locatable and salable mineral development would be allowed subject to actions common to all alternatives for wildlife described above. <u>Seasonal Use Restrictions</u> Seasonal use restriction on construction in moose and caribou calving habitat (April 15–May 31) and in known winter concentrations (October 31–April 1). These seasonal restrictions may be changed based on changes in known caribou or moose concentrations.	<u>Caribou and Moose</u> <u>Leasable Minerals</u> Controlled surface use stipulation: Permitted activities in areas identified as occupied caribou and moose calving habitat must avoid or minimize impacts to calving caribou and moose from April 15–May 31. Standard leasing terms and conditions would apply for leasable minerals in known moose calving and wintering concentrations. <u>Locatable and Salable Minerals</u> Same as Alternative B. <u>Seasonal Use Restrictions</u> Seasonal use restriction on construction in known moose and caribou calving concentrations (April 15–May 31). These seasonal restrictions may be changed based on changes in known caribou or moose concentrations.	<u>Caribou and Moose</u> <u>Leasable Minerals</u> Mineral leasing allowed in known calving and wintering concentrations under standard stipulations but also subject to actions common to all alternatives described above. <u>Locatable and Salable Minerals</u> Same as Alternative B. <u>Seasonal Use Restrictions</u> No seasonal use limitations on construction in moose and caribou calving and known winter concentrations.	<u>Caribou and Moose</u> <u>Leasable Minerals</u> Same as Alternative C: <u>Locatable and Salable Minerals</u> Same as Alternative B: <u>Seasonal Use Restrictions</u> Same as Alternative C:

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
<u>Innoko Bottoms Priority Wildlife Habitat Area</u> No current management direction was identified. Management direction is determined on a case-by-case basis.	<u>Innoko Bottoms Priority Wildlife Habitat Area</u> <u>Mineral Decisions</u> To protect unique wildlife and subsistence resources, BLM-managed wildlife habitat in Innoko Bottoms would be managed with the following stipulations subject to valid existing rights: • Recommend withdrawal from locatable mineral entry. • NSO for leasable development • Closed to salable development • NSO for surface-disturbing BLM-permitted activities <u>ROW Decisions</u> Subject to ANILCA Title XI and valid existing rights, the Innoko Bottoms Priority Wildlife Habitat Area would be a FLPMA ROW exclusion area. <u>Travel Management Decisions</u> To minimize impacts to subsistence resources and reduce subsistence conflict, casual use airboats and hovercraft would not be allowed on non-navigable waterways on BLM-managed public lands in the proposed Innoko Bottoms Priority Wildlife Habitat Area.	<u>Innoko Bottoms Priority Wildlife Habitat Area</u> <u>Mineral Decisions</u> To protect unique wildlife and subsistence resources, BLM-managed wildlife habitat in Innoko Bottoms would be managed with the following stipulations subject to valid existing rights: • Open to locatable development • NSO for leasable development • Closed to salable development <u>ROW Decisions</u> Subject to ANILCA Title XI and valid existing rights, the Innoko Bottoms Priority Wildlife Habitat Area would be a FLPMA ROW avoidance area. <u>Travel Management Decisions</u> Same as Alternative B.	<u>Innoko Bottoms Priority Wildlife Habitat Area</u> <u>Mineral Decisions</u> Same as Alternative C. <u>ROW Decisions</u> Subject to ANILCA Title XI and valid existing rights, the Innoko Bottoms Priority Wildlife Habitat Area would be a FLPMA ROW avoidance area. <u>Travel Management Decisions</u> There would be no restrictions on motorized watercraft in non-navigable waters on BLM-managed public lands in the proposed Innoko Bottoms Priority Wildlife Habitat Area.	<u>Innoko Bottoms Priority Wildlife Habitat Area</u> <u>Mineral Decisions</u> To protect unique wildlife and subsistence resources, BLM-managed wildlife habitat in Innoko Bottoms would be managed with the following stipulations subject to valid existing rights: • Open to locatable development • NSO for leasable development • Closed to salable development <u>ROW Decisions</u> Same as Alternative C: <u>Travel Management Decisions</u> Same as Alternative B:

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Connectivity Corridors No connectivity corridors would be managed.	Connectivity Corridors The BLM would work with adjacent landowners in the management of two connectivity corridors (North Connectivity Corridor and South Connectivity Corridor) to facilitate adaptive management by retaining connectivity between USFWS refuges in the planning area (see Map 2-13). See Appendix B for connectivity corridor definition and Magness et al. 2018. <u>Mineral Decisions</u> To protect resources within these corridors, BLM-managed public lands within the corridors would be managed with the following stipulations subject to valid existing rights: • Recommend withdrawal from locatable mineral entry • NSO for leasable development • Closed to salable development • NSO for surface-disturbing BLM-permitted activities <u>ROW Decisions in Connectivity Corridors</u> Subject to ANILCA Title XI and valid existing rights, the North and South Connectivity Corridors would be FLPMA ROW exclusion areas. <u>Travel Management Decisions</u> OHV Designation = Limited Summer Casual and Subsistence Access: • Summer subsistence overland travel use would be limited to ATVs (as defined in Appendix B) if the AO determines that such use is causing or is likely to cause an adverse impact. • Summer casual OHV use (as defined in Appendix B) would be limited to existing routes (as shown in BLM's current route inventory once implementation planning occurs) only. Winter Casual and Subsistence Access: • Winter subsistence have no restrictions. • Winter casual use would be snowmobiles only (as defined in Appendix B).	Connectivity Corridors The BLM would work with adjacent landowners in the management of one connectivity corridor (South Connectivity Corridor) to facilitate adaptive management by retaining connectivity between USFWS refuges in the planning area (see Map 2-13). <u>Mineral Decisions</u> To protect resources within this corridor, BLM-managed public lands within the corridor would be managed with the following stipulations subject to valid existing rights: • Open to locatable development • NSO for leasable development • Open to salable development (subject to terms and conditions) <u>ROW Decisions in Connectivity Corridors</u> Subject to ANILCA Title XI and valid existing rights, the South Connectivity Corridor would be FLPMA ROW Avoidance Area for linear realty actions. <u>Travel Management Decisions</u> OHV Designation = Limited Summer Casual and Subsistence Access: • Summer subsistence overland travel use would be limited to ATVs (as defined in Appendix B) if the AO determines that such use is causing or is likely to cause an adverse impact. • Summer casual OHV use (as defined in Appendix B) would be limited to existing routes (as shown in BLM's current route inventory once implementation planning occurs) only. Winter Casual and Subsistence Access: • No limitations on winter subsistence and casual use cross-country travel. Work in coordination with the State of Alaska to designate stream crossing routes; these routes would be designated within the 100-year floodplain.	Connectivity Corridors BLM would not provide for management of any connectivity corridors.	Connectivity Corridors Same as Alternative C

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Migratory Birds Comply with the Migratory Bird Treaty Act. <i>CYRMP (BLM 1986a)</i> Objective: Manage crucial peregrine falcon habitat in conformance with the Peregrine Falcon Recovery Team Plan guidelines by limiting or precluding habitat destruction or human activity abatement.	Migratory Birds <u>ROW Decisions</u> To protect migratory birds, riparian areas would be ROW avoidance areas. See Section 2.6.16, Table 2-15. <u>Mineral Decisions</u> No mineral leasing in riparian areas. <u>Surface-Disturbing Activity</u> During the nesting season (generally May 1–July 15), prohibit BLM-permitted surface-disturbing activities, auditory disturbance, and vegetation-altering projects in migratory bird habitat. These dates may vary by species and seasonal conditions or based on changes in habitat used. In cases where avoidance of clearing vegetation during nesting season is not practicable (as determined by the AO), apply appropriate avoidance and/or mitigations to minimize impacts on migratory birds. Those restrictions and mitigations would be at the implementation level and may include site-specific nesting surveys to guide minimization. Exceptions may be granted by the AO in coordination with USFWS if no other feasible alternative exists.	Migratory Birds Same as Alternative B.	Migratory Birds <u>Surface-Disturbing Activity</u> Apply appropriate avoidance and/or mitigations to minimize impacts on migratory birds. Those restrictions and mitigations would be determined at the implementation level. Exceptions must be coordinated with the USFWS. According to USFWS, nesting season is from March 1–August 31 for bald eagles and golden eagles, from May 1–July 15 for gyrfalcons and peregrine falcons, and from May 1–July 15 for most other forest, shrub, tundra, and wetland nesting birds.	Migratory Birds Same as Alternative D.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Raptors SWMFP (BLM 1981) WL-3.1: Peregrine falcon nesting sites are designated ACECs. There is a buffer zone for oil, gas, and mining activities of one-quarter mile around active peregrine nests from April 15 to August 15. WL-3.2: Develop habitat management plans (HMPs) for raptors on the Kuskokwim River and its tributaries with special emphasis on golden eagles, bald eagles, ospreys, and gyrfalcons. CYRMP (BLM 1986a) Prescription: Designate 91,520 acres as ACECs to protect crucial riparian habitat for peregrine falcons.	Raptors <u>Surface- and Non-Surface-Disturbing Activity Buffers</u> NSO and no surface-disturbing BLM-permitted activities around active priority raptor nests for 1 mile. <u>Permanent Structures</u> To minimize the direct loss of priority raptor foraging habitat, all reasonable and practicable efforts would be made to locate permanent facilities as far from priority raptor nests as feasible and to minimize habitat loss to the extent feasible. Of particular concern for avoidance are cliffs, ponds, lakes, streams, wetlands, and riparian habitats. <u>Human Activity Buffers</u> BLM permittees will minimize human activity within 1 mile of priority raptor nest sites during the nesting season. The cumulative number of authorized visits (defined as each day in which work is done within 1 mile of a nest site) to any nest site per nesting season, by all authorized users, must be limited to three visits per nest site. Exceptions may be granted by the AO in coordination with USFWS if no other feasible alternative exists. <u>Motorized Ground Vehicle Use Buffers</u> To reduce disturbance impacts on priority raptors, motorized ground vehicle use by BLM permittees would be minimized within 1 mile of any known priority raptor nest during the nesting season. Such use is prohibited within one-half mile of nests during the nesting season unless an exception is granted by the AO in coordination with USFWS. <u>Construction Buffers</u> Construction within one-half mile of known priority raptor nests is prohibited during the nesting season. No facilities that will be used or accessed during the nesting period (including the area of associated human activity by facility users) could be constructed within one-half mile of known priority raptor nesting sites. Exceptions may be granted by the AO in coordination with USFWS if no feasible alternative exists.	Raptors <u>Surface- and Non-Surface-Disturbing Activity Buffers</u> In the event of discovery of priority raptor nest within 1 mile of BLM-permitted activities, the permittee would cease all activity and report to the BLM and coordinate future activity. <u>Permanent Structures</u> Same as Alternative B. <u>Human Activity Buffers</u> Same as Alternative B. <u>Motorized Ground Vehicle Use Buffers</u> Same as Alternative B. <u>Construction Buffers</u> Same as Alternative B.	Raptors The BLM would follow USFWS recommendations for buffers around raptor nests for BLM-permitted activities at the implementation level. BLM-permitted activities would be required to use practices to avoid impacts on raptors, and to include visual screening and/or noise controls as necessary to avoid raptor nest abandonment or nest failure. Identification of these required measures would be made through site-specific implementation-level NEPA.	Raptors Same as Alternative D.

2.6.6 Nonnative Invasive Species

Actions Common to All Action Alternatives, including the Proposed RMP, for NNIS

1. All actions implemented or authorized by the BLM would include measures to prevent the introduction and spread of NNIS.
2. BLM-Permitted Activities
 - Authorized BLM permit holders would be responsible for costs and coordination related to eradicating prioritized NNIS infestations if those infestations are demonstrated to result from the permitted activity. An applicant should implement an NNIS survey or coordinate with the BLM to determine if an infestation is present prior to the granting of their permit. Authorized BLM permit holders would be responsible for the eradication of any increase in prioritized NNIS if that increase is demonstrated to result from the permitted activity.
 - Annual Reports from all permitted operations must include an update on NNIS presence and extent.
 - BLM-permitted activities would comply with the following:
 - Development of an NNIS Management Plan commensurate with the size and intensity of the activity, including where appropriate Hazard Analysis Control Points (HACCP) strategy. The BLM can provide examples of NNIS management plans.
 - At the discretion of the AO, permittees of proposed and existing authorized activities may be required to work with surrounding land management agencies/owners to establish Cooperative Weed Management Areas and would assist in developing and implementing NNIS management plans.
 - Develop BMPs to prevent the introduction and spread of NNIS. Permittees would work with the BLM to develop project-specific BMPs where needed. Such BMPs would include but are not limited to such things as Early Detection Rapid Response prevention measures such as cleaning all equipment before entering a permitted site, containment measures such as timing NNIS mowing before seed set, and treatment measures such as developing an integrated pest management plan.
 - Methods of chemical control authorized by the Vegetation Treatments using Herbicides on BLM Land in 17 Western States Record of Decision (BLM 2007a) and Vegetation Treatments using Aminopyralid, Fluroxypyr, and Rimsulfuron on BLM Land in 17 Western States (BLM 2016a) are allowed. Permittees are responsible for upholding the requirements related to the use of those herbicides. Treatment monitoring and reporting requirements are outlined in the vegetation treatments RODs (BLM 2007a; BLM 2016a). Additionally, the BLM would use all other methods of chemical control authorized by subsequent BLM NEPA decisions, as appropriate. Any use of chemical control on BLM-managed public lands must be approved by the BLM and must follow BLM requirements for type and application method, including the use of a certified applicator.
3. Cooperate with other agencies and landowners in the prioritization of treatment areas with known infestations of NNIS, including the INHT NTMC, anadromous streams, lakes, lichen-rich habitats, moose habitat, and berry-picking areas, for prevention and eradication of NNIS.

4. Coordinate with other applicable agencies in the implementation of the Safeguarding America's Lands and Waters from Invasive Species: A National Framework for Early Detection and Rapid Response (DOI 2016) and other region-specific plans.
5. Wildland Fire
 - The BLM would continue to coordinate and provide training and information on NNIS to the protection agencies.
 - When deploying onto BLM-managed lands, the responsible fire protection agency/organization would be required to inspect personal gear, tools, and equipment prior to deployment to fire sites, and clean if necessary.
 - NNIS monitoring in burned areas would be prioritized based on risk of invasion, presence of surface-disturbing activities, use of motorized equipment for fire management, and resource value of the burned area. This would be determined at the implementation level.
 - When appropriate as determined by the AO, the BLM would apply for ES&R funds for inventorying, monitoring, and treatment of NNIS in burned areas based on risk of invasion and resource values.
 - Water delivery aircraft would not dip or scoop from waters infested by elodea or other aquatic invasive species unless necessary to protect human health and safety.
6. Weed-Free Material
 - Only feed, mulch (e.g., hay cubes, hay pellets, or straw), and erosion control materials certified as weed-free through the Alaska Weed-Free Forage certification program (or other programs with approval of the AO) would be authorized on BLM-managed public lands. Where Alaska-certified sources are not available, locally produced forage, mulch, and erosion control materials could be used with approval from the AO. If no certified weed-free or local sources are available, other products could be used with the approval of the AO.
 - When practical and available within a reasonable proximity as determined by the AO, permittees should use gravel and material certified as weed-free on BLM-managed public lands. Where weed-free gravel and materials are not available, other sources may be used with the approval of the AO.
 - Use of approved weed-free materials does not relieve project proponents of their requirement to control NNIS related to their authorized activity.
7. Casual Use
 - The BLM would post NNIS educational materials.
 - The BLM would continue to cooperate with rural communities and regional land managers to help raise awareness about invasive species and how to prevent their spread.
 - The State of Alaska continuously promotes NNIS prevention related to the use of navigable waterways by casual and subsistence use of motorboats and floatplanes and the BLM would cooperate.

Description of NNIS Actions by Alternative

All proposed actions related to NNIS are common to all action alternatives, including the Proposed RMP (Alternative E).

2.6.7 Wildland Fire

Actions Common to All Action Alternatives, including the Proposed RMP, for Wildland Fire

1. Preparedness

- Fire management direction for the planning area would be incorporated into the BLM Alaska Fire Management Plan and the Wildland Fire Decision Support System (or other appropriate systems used by the BLM or other federal land management agencies).
- The BLM Alaska Fire Management Plan would inform the initial response to wildland fires occurring on BLM-managed public lands.
- The locations of BLM assets and resources vulnerable to wildland fire or fire management actions would be geospatially identified, valued, and assigned a default initial fire management response. Default initial responses would be made available to the protecting agencies.
- Fire management planning and implementation would be coordinated through the Alaska Master Cooperative Wildland Fire Management and Stafford Act Response Agreement and Alaska Statewide Annual Operating Plan to ensure a multi-jurisdictional, landscape-scale approach.

2. Wildfire and Fuels Management

- Naturally occurring wildfires may be managed for multiple objectives including resource benefit on all BLM-managed public lands within the planning area.
- The initial action on human-caused wildfires would be to suppress the fire at the lowest cost and least risk to firefighter and public safety.
- Secretarial Order 3372, Reducing Wildfire Risks on Department of the Interior Land through Active Management, is intended to enhance Department of Interior's management of federal lands to "(1) better protect people, communities, wildlife habitat, and watersheds ... and (2) promote the sustainable recovery of damaged lands." As such, principles of active management would be used to facilitate wildfire prevention, suppression, and recovery planning measures designed to protect people, communities, landscapes, and water quality, and to mitigate the severe flooding and erosion caused by wildfire.
- Prioritize (subject to availability of resources) hazard fuel management projects in areas with known or high probability of vertebrate fossils or significant non-vertebrate fossils to prevent damage to those resources from the impacts of wildfire, such as increased erosion.

- Fuels treatments would be initiated and maintained at cabins, cultural and paleontological sites, and at other BLM values where needed to protect resources from fire. Methods of hazard fuel reduction may include prescribed fire (e.g., broadcast or pile burning), and mechanical, chemical, or manual disposal. Specific priorities include:
 - Fuel reduction in black spruce areas where wildfire has been excluded due to land use and allocation decisions that conflict with the natural role of fire
 - Fuel breaks in and around communities
 - Areas with known or high probability of cultural resources, vertebrate fossils, or significant non-vertebrate fossils that are at risk to damage from wildfire
 - Historically eligible roadhouses within the INHT NTMC
 - Public shelter cabins within the INHT NTMC
 - The BLM would use Good Neighbor Authority agreements and pursue long-term land stewardship contracts in order to support fuels reduction activities on neighboring lands where it benefits public land resources.
 - The BLM would manage wildland fire in a manner that avoids (where possible) damaging impacts to resources and other values including the introduction and spread of nonnative and invasive species, introduction of suppression chemicals into waterways, disturbance of erodible soils or ecologically sensitive systems, and the degradation of air quality. Use minimum impact suppression techniques wherever possible. Repair or mitigate any damage that occurs.
 - The BLM would continue to cooperate and collaborate with other federal, state, Native, and local land managers and with other stakeholder groups to effectively and efficiently manage wildland fire in Alaska in accordance with interagency and BLM plans and agreements.
3. Prevention, Education, Enforcement, and Cost Recovery
- The BLM would participate in outreach and prevention efforts and coordinate through the Alaska Wildland Fire Coordinating Group Wildland Fire Education and Prevention committee.
 - Actions would be taken to recover costs and damages incurred by the BLM resulting from human-caused fires when the responsible party(s) is identified and legal liability or intent exists.
4. Nonnative Invasive Species
- The BLM would continue to coordinate and provide training and information on NNIS to the protection agencies.
 - When deploying onto BLM-managed lands, the responsible fire protection agency/organization would be required to inspect personal gear, tools, and equipment prior to deployment to fire sites and clean if necessary.

- NNIS monitoring in burned areas would be prioritized (subject to availability of resources) based on risk of invasion, presence of surface-disturbing activities, use of motorized equipment for fire management, and resource value of the burned area. This would be determined at the implementation level.
- When appropriate as determined by the AO, the BLM would apply for ES&R funds for inventorying, monitoring, and treatment of NNIS in burned areas based on risk of invasion and resource values.
- Water delivery aircraft would not dip or scoop from waters infested by elodea or other aquatic invasive species unless necessary to protect human health and safety.

5. Smoke and Air Quality

- Smoke would continue to be recognized as both a human health threat and an inevitable natural result of wildfire. All fire management actions would consider the impacts of smoke on human health and safety. The effects of smoke on economic activities, recreation, and tourism would be considered.

Description of Wildland Fire Actions by Alternative

All proposed Wildland Fire Management actions for the action alternatives, including the Proposed RMP, are summarized above; there are no alternative-specific management actions for the action alternatives or Proposed RMP. Under Alternative A, the BLM would continue to manage wildland fire in the planning area according to the goals and objectives identified in the 2005 *Land Use Plan Amendment Environmental Assessment for Wildland Fire and Fuels Management for Alaska* (BLM 2005b).

2.6.8 Cultural Resources

Actions Common to All Action Alternatives, including the Proposed RMP, for Cultural Resources

1. Monitor cultural resources to identify effects from climate change.
2. Prioritize cultural resource surveys, as deemed appropriate and dependent on changing funding and circumstances, to include the following:
 - Unique or significant cultural resources threatened by wildland fire
 - Unique or significant cultural resources threatened by other phenomena related to climate changes, including permafrost thawing, or exposure through coastal, riverine, or other erosion
 - Areas known to have high OHV use
 - Cultural resource surveys in these areas (listed in descending order of priority, subject to change by the AO). This would include inventory and monitoring for potential loss or degradation:

- Kaltag Portage
 - Farewell Burn
 - ACECs with cultural relevance and importance
 - Unalakleet River corridor and watershed
 - Historic mining communities of Iditarod, Flat, and Ophir; Yukon-Kuskokwim Portage
 - Kuskokwim River corridor and watershed
 - Yukon River corridor
 - Nulato River corridor
 - Pitka River corridor and watershed
 - Big River corridor
 - Mouth of Seal Oil Creek on Norton Sound
3. Prioritize hazard fuel management projects (subject to availability of resources) in areas with known or high probability of cultural resources that are at risk to damage from wildfire. Continue to monitor shifts in vegetation types to assess changing fire risk to cultural resources.
 4. As deemed appropriate, prioritize areas that are high probability for cultural sites eligible for the National Register of Historic Places (NRHP) for post-wildland fire survey.
 5. Stabilize or excavate threatened unique or significant cultural sites.
 6. Support partnerships with other federal agencies, State of Alaska, tribes, ANCSA Native corporations, and private landowners for documentation, stewardship, and protection of cultural resources, including historic mining districts such as Iditarod, Flat, and Ophir.
 7. For BLM-permitted activities that occur, the following stipulations would be attached to all permits, leases, ROW grants, etc.:
 - All operations shall be conducted in such a manner as to avoid (where feasible) damage or disturbance to any prehistoric or historic sites or modern camp sites. The Archaeological Resource Protection Act prohibits the unauthorized excavation, removal, damage, or disturbance of any archaeological resource located on public lands. Violation of this law could result in the imposition of both civil and criminal penalties on the violator, and revocation of present and future BLM permits or authorizations. Human remains on federal lands are additionally protected by the Native American Graves Protection and Repatriation Act (Public Law 101-601, 25 U.S. Code [U.S.C.] 3001 et seq., 104 Stat. 3048).
 - Should any historic or prehistoric sites, including potential human remains be located during the course of operations, the applicant shall immediately stop work and notify the BLM AO, and the BLM Archaeologist would evaluate the discovery. If the applicant

proposes surface disturbance in the future other than what is authorized herein, a cultural resource survey and evaluation would be needed before the disturbance is authorized.

8. In the event that a discovery is made at an active mining claim, BLM and permitted operators would follow the regulations mandated in 43 CFR 3809.420(b)(8).
9. Prioritize the preparation of NRHP Determinations of Eligibility and nominations for INHT contributing properties (including trail segments and associated sites).
10. Land Use Plan Criteria for Cultural Allocation
 - Cultural properties allocated to uses are subject to the management actions listed in Table C-2 of BLM's Land Use Planning Handbook (BLM 2005a) to realize their use potential. Designate all sites for scientific use, except INHT trail segments. Consider the following INHT historic sites for public use: the Rohn Civilian Conservation Corps Cabin (MCG-00019) and the Kaltag and Farewell segments of the INHT (UKT-00044 and NOB-00057 [Kaltag]). Prioritize developing partnerships with Doyon Native Corporation to work toward preservation of the existing historical mining town of Flat.
 - Categorize geographic areas as high/medium/low priority for future inventory of cultural properties. High-priority areas include the Kaltag Portage and Farewell Burn areas of the INHT and their associated resources. High-priority areas also include areas of high mineral potential, both because of the probability of historic mining sites, and because of the potential for adverse effects on resources from proposed mining. All authorizations for land and resource use would comply with Section 106 of the NHPA, consistent with and subject to the objective established in the RMP for the proactive use of cultural properties in the public interest (NHPA Sec. 106, 101(d)(6), 110(a)(2)(E); U.S.C. 306108; BLM et al. 2012).
 - BLM would continue to consult with tribes to identify Traditional Cultural Properties or traditional use areas within the planning area as part of future planning process.

Description of Cultural Resources Actions by Alternative

Table 2-7a below only includes management actions for Alternative A. Management actions that pertain to cultural resources related to the INHT NTMC and are specific to the action alternatives, including the Proposed RMP (Alternative E), are all described in Table 2-19. Management actions that pertain to cultural resources in proposed ACECs are described in Table 2-18. Table 2-7b illustrates an action that varies based on alternatives. There are no additional proposed management actions that pertain to cultural resources that vary based on alternative.

Table 2-7a: Cultural Resources Actions for Alternative A

Alternative A
<u>Unalakleet WSR Management Plan 11.1</u>: Inventory will be conducted prior to surface-disturbing projects and will be oriented toward finding sites representative of early prehistoric occupation and sites representing the theme of transportation and trade. <u>INHT Comprehensive Management Plan</u>: To increase public use and enjoyment, all trail segments identified for active management should be managed to protect and interpret their historic values and should be identified by the placement of uniform markers. Certain segments and all historic sites identified in Appendix 5 of the INHT Comprehensive Management Plan should be further evaluated for possible nomination to the NRHP. This should be done prior to making any binding management decisions that eventually may include various degrees of protection, interpretation, and recordation of their historic values. It is recommended that Level 1 and 2 sites be given the highest priority. Detailed management and use plans for accomplishing this objective should be prepared by the appropriate land management agency. Nominations to the NRHP should be by a thematic group format submission. If not possible, then each managing agency should consider undertaking site-specific nominations of the site recommended. <u>CYRMP (Management Actions)</u>: Management of these resources with other land use proposals would avoid or mitigate impacts, where possible and warranted. Consumptive uses of archaeological and historical sites would be allowed for scientific use and interpretation. <u>CYRMP (Management Prescriptions)</u>: Maintain the relatively undisturbed resource values on 43,010 acres of land, by withdrawal from all forms of appropriation, including mineral location under the 1872 Mining Law, and mineral leasing under the Mineral Leasing Act of 1920 as amended and supplemented. Eight areas have been identified in this plan for designation as RNAs. <u>Wildland Fire and Fuels Management</u>: The requirements in 36 CFR Section 800, NHPA, and the BLM-Alaska SHPO Protocol Agreement (2014) apply. Site-specific designations will be applied, and the map atlas maintained by suppression agencies updated yearly by Field Office staffs. The "Critical" management option is assigned to National Historic Landmark sites and "Full" to structures in or eligible for inclusion in the NRHP. "Full" may also be assigned to sites currently under excavation. When a site or structure is discovered during any fire management activity, the appropriate Field Office will be notified immediately. A cultural resource evaluation is required for fuel treatment projects. To reduce the risks and costs of wildland fires, the management emphasis for Full Management Option lands is to minimize the effects of wildland fire by... maintaining known sites on or eligible for NRHP in a viable condition. <u>Wildland Fire Management, 3.1.4c NHPA Compliance</u>: Potential impacts to significant cultural resources from both emergency and planned fire-related actions taken by the BLM will be avoided or minimized to the maximum extent possible through application of existing BLM policies and procedures. These include following procedures for Section 106 compliance in the BLM's 2012 National Programmatic Agreement for Section 106 compliance, which is implemented in Alaska by the BLM's 2014 Protocol with the Alaska SHPO (BLM 2014b). The BLM would also use its Policy for Cabin/Structure Protection to further proactively help identify and protect significant standing structures in rural parts of the state.

Table 2-7b: Cultural Resources Actions by Alternative

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
<u>Cultural Landscape Reports</u> <i>SWMFP (BLM 1981)</i> CR-1 Objective: Protect and preserve cultural sites from damage or destruction. Rationale: The study of Alaskan history requires that the integrity of cultural and historical sites be maintained. The loss of sites due to damage or destruction caused by other land uses as well as natural causes could leave substantial gaps in the study of Alaskan history. Current federal law requires protection of antiquities. BLM policy also requires that the cultural resources are managed in a manner that will preserve and protect the resource.	<u>Cultural Landscape Reports</u> The BLM would work collaboratively with rural communities in the planning area and other partners to develop Cultural Landscape Reports. Cultural landscapes are "a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person, or that exhibit other cultural or aesthetic values." These reports would utilize traditional and other knowledge to give a contemporary picture of resources uses and their social and historical context and would help communities in their own planning efforts as well as allow the BLM and other agencies to assess impacts of proposed projects and plans. Cultural Landscape Reports would be developed for 2-3 high-priority communities in the planning area. Priority would be determined in conjunction with village representatives.	<u>Cultural Landscape Reports</u> Same as Alternative B, except Cultural Landscape Reports would be developed for 4-6 high-priority communities in the planning area.	<u>Cultural Landscape Reports</u> Same as Alternative B, except Cultural Landscape Reports would be developed that cover the entire planning area.	<u>Cultural Landscape Reports</u> Same as Alternative B.

2.6.9 Paleontological Resources

Actions Common to All Action Alternatives, including the Proposed RMP, for Paleontological Resources

1. All Potential Fossil Yield Classification (PFYC) 4 and 5 areas that are discovered in locations where erosion potential is increasing the risk of fossil exposure would be prioritized for BLM survey. Apply as necessary for certain Class 3 and U units.
2. Prioritize hazard fuel management projects in areas with known or high probability of vertebrate fossils or significant non-vertebrate fossils to prevent damage to those resources from the impacts of wildfire, such as increased erosion.
3. Inadvertent discovery stipulation to be included on all ROW grants, leases, and authorizations (BLM-permitted use). These stipulations would be consistent with Chapter III of the BLM Handbook H-8270-1, *General Procedural Guidance for Paleontological Resource* (BLM 1998) and would include the following steps:
 - An assessment by a BLM paleontologist (or other qualified paleontologist approved by the BLM) of the paleontological resources likely to be present in the area and the threat of damage to the resource
 - A determination of whether avoidance of the resource is possible
 - If avoidance is not possible, an assessment of appropriate mitigation and monitoring for project impacts on the resource
4. The BLM would work with the project applicant and other parties (if applicable) to develop a mitigation plan to address resource impacts.

5. Criteria or use restrictions would be identified to ensure that: (a) areas containing, or that are likely to contain vertebrate or noteworthy occurrences of invertebrate or plant fossils are identified and evaluated prior to authorizing surface-disturbing activities; (b) management recommendations are developed to promote the scientific, educational, and recreational uses of fossils as appropriate; and (c) threats to paleontological resources are identified and mitigated as appropriate.
6. As allowed under existing regulations, recreational collectors may collect and retain reasonable amounts of common invertebrate and plant fossils for personal, non-commercial use. Surface disturbance must be negligible, and collectors may only use non-power hand tools.
7. Collection, removal, excavation, or casting of vertebrate fossils, including dinosaur tracks and scientifically significant invertebrate and plant fossils, would be prohibited unless allowed under a scientific/research permit issued by the BLM Alaska State Office.
8. BLM would continue to promote the stewardship, conservation, and appreciation of paleontological resources through appropriate educational and public outreach programs.
9. In areas with high potential for significant fossil discovery:
 - The BLM would educate on-the-ground personnel conducting fuel and vegetation treatments on the identification of significant fossil resources and require reporting of discoveries.
 - All permit administrators would provide applicable regulatory and curation requirements related to paleontological resources to permittees as a condition of their permit. All BLM-permitted activities would be required to contact the BLM if they encounter vertebrate fossils or significant invertebrate fossils, and document and inform the BLM of the discovery.
10. In those cases where vertebrate or significant invertebrate fossils are reported to the BLM, the BLM would consider the following options:
 - Partnering with, or contracting, a qualified permitted paleontologist to further assess or excavate the find
 - Collecting by a BLM paleontologist or someone appointed by them for BLM interpretive use in collaboration with the University of Alaska-Fairbanks Museum of the North
 - Collecting by a BLM paleontologist or someone appointed by them and sending the specimens to University of Alaska-Fairbanks Museum of the North for curation
 - Leaving the discovery as-is in its original location
 - In the event that a discovery is made at an active mining claim, the BLM and permitted operators would follow the regulations mandated in 43 CFR 3809.420(b)(8), as described in Section 2.6.8 for cultural resources.
11. The EUCAs within the planning area would have the following Paleontological-related management decisions applied:
 - Protection Measures for Paleontological Resources same as Alternative C in Table 2-8
 - Resource Surveys and Discovery same as Alternative D in Table 2-8

Description of Paleontological Resources Actions by Alternative

Table 2-8 describes proposed Paleontological Resource actions by alternative, including the Proposed RMP (Alternative E). See Map 2-15 for additional information.

Table 2-8: Paleontological Resources Actions by Alternative

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
<u>Protection Measures for Paleontological Resources</u> Resources are managed on a case-by-case basis under the procedures of NEPA, FLPMA, and BLM IM 2009-11, Attachment 1: Guidelines for Assessment and Mitigation of Potential Impacts to Paleontological Resources (BLM 2008a).	<u>Protection Measures for Paleontological Resources</u> Mineral extraction (leasable, locatable, salable) permittees in areas with high likelihood of finding vertebrate fossils would require monitoring during initial excavation with periodic monitoring thereafter. Educate mineral extraction (leasable, locatable, salable) permittees on the identification of significant fossil resources and require development of a monitoring plan and reporting of discoveries. The education would clarify that paleontological resources are federal property, not the private property of those doing mineral extraction. If discoveries are made, then actions common to all described above would apply. Monitoring would be focused on vertebrate fossils; however, if significant invertebrate or plant fossils are accidentally discovered during operations, they should be properly reported and associated mitigation actions be undertaken.	<u>Protection Measures for Paleontological Resources</u> Educate mineral extraction (leasable, locatable, salable) permittees on the identification of significant fossil resources and require development of a monitoring plan and reporting of discoveries. The education would clarify that paleontological resources are federal property, not the private property of those doing mineral extraction. If discoveries are made, then actions common to all described above would apply.	<u>Protection Measures for Paleontological Resources</u> Educate mineral extraction (leasable, locatable, salable) permittees on the identification of significant fossil resources and require reporting of discoveries. The education would clarify that paleontological resources are federal property, not the private property of those doing mineral extraction. If discoveries are made, then actions common to all described above would apply.	<u>Protection Measures for Paleontological Resources</u> Same as Alternative C.
<u>Resource Surveys and Discovery</u> Resources are managed on a case-by-case basis under the procedures of NEPA and of BLM IM No. 2009-11 (BLM 2008a).	<u>Resource Surveys and Discovery</u> An on-the-ground survey prior to approval of surface-disturbing activities not associated with mineral extraction and/or monitoring by a qualified BLM or BLM-permitted paleontologist during surface-disturbing activities would be required for all activities authorized within PFYC Class 4 and 5 formations. Apply as necessary to Class 3 and U units. If discoveries are made, then actions common to all described above would apply.	<u>Resource Surveys and Discovery</u> Same as Alternative B.	<u>Resource Surveys and Discovery</u> If paleontological resource discoveries are made, then actions common to all described above would apply.	<u>Resource Surveys and Discovery</u> Same as Alternative D.

2.6.10 Visual Resources Management

Visual resources on BLM-managed lands are managed per the VRM System (BLM 1986). The VRM system provides the framework by which to manage visual values by classifying all BLM-managed lands into one of four VRM Classes. Classification of lands occurs during the RMP development process by considering the relative visual value of lands within the context of other resource and land management needs. Visual values are established through the visual resource inventory (VRI) process, which classifies scenery based on the assessment of three components:

scenic quality, visual sensitivity, and distance zones. Each VRM class is defined by a specific management objective that describes the acceptable level of change to visual resources. The VRM Class objectives are defined as follows:

- Class I – Preserve the existing landscape character.
- Class II – Retain the existing landscape character. The level of change to the existing landscape should be low.
- Class III – Partially retain the existing landscape character. The level of change to the characteristic landscape should be moderate.
- Class IV – Allow major modification of the existing landscape character that minimizes visual impacts to the extent possible.

Actions Common to All Action Alternatives, including the Proposed RMP, for Visual Resources Management (VRM)

1. Summer and Winter Travel Routes (excluding the INHT and connector routes, and the Unalakleet River designated WSR and non-designated segments): Apply VRM Class III for BLM-managed public lands within a 5-mile offset from centerline of existing Summer and Winter Travel Routes (for a total 10-mile-wide corridor): 2,176,440 acres or 16 percent of the planning area.
2. Coastal Areas: Apply VRM Class III for BLM-managed public lands 3 miles inland from coastlines: 47,659 acres or less than 1 percent of the planning area.
3. Primary Rivers (Travel Routes): Apply VRM Class III for BLM-managed public lands within a 5-mile offset from the centerline of each side of the main river travel routes, for an approximate total 10-mile-wide corridor on the Yukon, Anvik, and Kuskokwim Rivers: 1,277,851 acres or 9 percent of the planning area.
4. Subsistence Use Areas (Map 3.5.2-1)
 - Apply VRM Class II for Subsistence Use Areas located in BLM-managed public lands ranked as scenic quality A: 373 acres or less than 1 percent of the planning area.
 - Apply VRM Class III for Subsistence Use Areas located in BLM-managed public lands ranked as scenic quality B or C: 4,429,165 acres or 33 percent of the planning area.
5. Two parcels near Takotna and McGrath: Apply VRM Class III for management of these parcels (9,900 acres or 0.07 percent of the planning area).
6. EUCAs within the planning area would have the following VRM-related management decisions applied:
 - Nyac and Nixon Fork EUCAs managed as VRM Class III
 - Flat and Ophir EUCAs same as INHT (Main Trail) and Connecting/Side Trails Alternative C in Table 2-9a

Description of Visual Resources Actions by Alternative

Table 2-9 describes proposed Visual Resources actions by alternative, including the Proposed RMP (Alternative E). See Maps 2-16 through 2-19 for additional information.

Table 2-9: Visual Resources Management Actions by Alternative

Table 2-9a: Visual Resources Management Actions by Alternative

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
<u>Communities</u> CYRMP (BLM 1986a) Objective: Manage lands in conformance with visual quality standards to maintain scenic values. Mitigate visual impacts where surface disturbance occurs.	<u>Communities</u> Manage BLM-managed public lands within 5 miles of Communities within the planning area as VRM Class II: 99,980 acres	<u>Communities</u> Manage BLM-managed public lands within 5 miles of Communities within the planning area as VRM Class III: 99,980 acres	<u>Communities</u> Same as Alternative C.	<u>Communities</u> Same as Alternative C.
<u>INHT (Main Trail)</u> CYRMP (BLM 1986a) Objective: In cooperation with the McGrath Resource Area, manage the INHT.	<u>INHT (Main Trail) and Iditarod-Anvik Connecting Trail</u> BLM-managed public lands along the INHT would be managed per the following VRM Classes: • Manage a 7.5-mile offset from the INHT as VRM Class I: 914,265 acres • Manage a 7.5-15-mile offset from the INHT as VRM Class II: 1,008,617 acres	<u>INHT (Main Trail) and Iditarod-Anvik Connecting Trail</u> BLM-managed public lands along the INHT would be managed per the following VRM Class: • Manage a 15-mile offset from the INHT as VRM Class II: 1,922,881 acres	<u>INHT (Main Trail)</u> BLM-managed public lands along the INHT would be managed per the following VRM Class: • Manage a 7.5-mile offset from the INHT as VRM Class II: 726,457 acres • Manage a 7.5 to 15-mile offset from the INHT as VRM Class III: 821,055 acres	<u>INHT (Main Trail) and Iditarod-Anvik Connecting Trail</u> Same as Alternative C.
<u>INHT Connecting/Side Trails</u> No current management direction was identified. Management direction is determined on a case-by-case basis.	<u>INHT Connecting/Side Trails</u> Manage a 15-mile offset of INHT connecting/side trails, with the exception of the Iditarod-Anvik Connecting Trail, as VRM Class II: 1,663,440 acres	<u>INHT Connecting/Side Trails</u> Manage a 15-mile offset of the INHT connecting/side trails, with the exception of the Iditarod-Anvik Connecting Trail, as VRM Class III: 1,663,440 acres	<u>INHT Connecting/Side Trails</u> Manage a 15-mile offset of the INHT connecting/side trails as VRM Class III: 1,730,773 acres	<u>INHT Connecting/Side Trails</u> Same as Alternative C.
<u>Old Woman Mountain</u> No current management direction was identified. Management direction is determined on a case-by-case basis.	<u>Old Woman Mountain</u> Manage a 15-mile offset from the center point as VRM Class I: 447,809 acres	<u>Old Woman Mountain</u> Manage a 15-mile offset from the center point as VRM Class II: 447,809 acres	<u>Old Woman Mountain</u> Manage a 15-mile offset from the center point as VRM Class III: 447,809 acres	<u>Old Woman Mountain</u> Same as Alternative C.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
<u>Unalakleet Wild River Corridor</u> <i>SWMFP (BLM 1981)</i> Manage as VRM Class I: - The Unalakleet Wild River Corridor is managed per VRM Class I to provide for "primarily natural ecological changes." Manage as VRM Class II: - MFP-2: Define the seen areas of the Unalakleet River and manage those sections outside of the Wild River corridor as VRM Class II. Management will particularly address potential tributary crossings for transportation, ROWs, and utilities outside of the WSR corridor withdrawal.¹	<u>Unalakleet Wild River Corridor and Recommended Suitable WSR Segments</u> Manage as VRM Class I: - Inside the designated Unalakleet Wild River Corridor: 46,953 acres 1/2-mile offset from the centerline of suitable river segments: 331,176 acres Manage as VRM Class II: 15-mile offset from the centerline of the Unalakleet River (including below the designated WSR corridor): 976,185 acres 15-mile offset from the centerline of suitable river segments: 4,396,984 acres	<u>Unalakleet Wild River Corridor</u> Manage the Unalakleet Wild River Corridor as VRM Class I: 46,953 acres Manage a 15-mile offset from the centerline of the river (where outside of designated WSR) as VRM Class II: 976,185 acres	<u>Unalakleet Wild River Corridor</u> Manage the Unalakleet Wild River Corridor as VRM Class I: 46,953 acres Manage a 15-mile offset from the centerline of the river (where outside of designated WSR) as VRM Class III: 976,185 acres	<u>Unalakleet Wild River Corridor</u> Manage the Unalakleet Wild River Corridor as VRM Class I: 46,953 acres Manage as VRM Class II: 5-mile offset from the centerline of the designated WSR corridor: 284,592 acres Manage as VRM Class III: 5-mile to 15-mile offset from the centerline of the Unalakleet River (including below the designated WSR corridor): 694,539 acres
<u>Pike Lake</u> No current management direction was identified. Management direction is determined on a case-by-case basis.	<u>Pike Lake</u> Manage a 7.5-mile offset from the lake as VRM Class II: 137,695 acres Manage a 7.5- to 15-mile offset from the lake as VRM Class III: 207,176 acres	<u>Pike Lake</u> Manage a 5-mile offset from the lake as VRM Class II: 84,249 acres Manage a 5- to 15-mile offset from the lake as VRM Class III: 260,533 acres	<u>Pike Lake</u> No offset would be provided. Lands would be managed as VRM Class IV unless they overlap with a more stringent VRM Class.	<u>Pike Lake</u> Same as Alternative C.
<u>NWR Border</u> No current management direction was identified. Management direction is determined on a case-by-case basis.	<u>NWR Border</u> Manage a 5-mile offset from the border as VRM Class III: 1,627,637 acres	<u>NWR Border</u> Manage a 2.5-mile offset from the border as VRM Class III: 810,188 acres	<u>NWR Border</u> No offset would be provided around NWRs. Lands would be managed as VRM Class IV unless they overlap with more stringent VRM Class.	<u>NWR Border</u> Same as Alternative D.
<u>National Park/Wilderness/State Park Boundaries</u> No current management direction was identified. Management direction is determined on a case-by-case basis.	<u>National Park/Wilderness/State Park Boundaries</u> Manage a 5-mile offset from the border as VRM Class II: 33,363 acres	<u>National Park/Wilderness/State Park Boundaries</u> Manage a 5-mile offset from the border as VRM Class II: 33,363 acres	<u>National Park/Wilderness/State Park Boundaries</u> No offset would be provided around National Parks/ Wilderness/State Park boundaries. Lands would be managed as VRM Class IV unless they overlap with more stringent VRM Class.	<u>National Park/Wilderness/State Park Boundaries</u> Same as Alternative D.
<u>Community of Flat</u> No current management direction was identified. Management direction is determined on a case-by-case basis.	<u>Community of Flat</u> Manage a 15-mile offset from Community center as VRM Class II: 122,201 acres	<u>Community of Flat</u> Manage a 15-mile offset from Community center as VRM Class III: 122,201 acres	<u>Community of Flat</u> No offset would be provided. Lands would be managed as VRM Class IV unless they overlap with a more stringent VRM Class.	<u>Community of Flat</u> Same as Alternative C.
<u>Lands Managed for Wilderness Characteristics as a Priority</u> No current management direction was identified. Management direction is determined on a case-by-case basis.	<u>Lands Managed for Wilderness Characteristics as a Priority</u> Manage as VRM Class II: 277,489 acres	<u>Lands Managed for Wilderness Characteristics as a Priority</u> No acres managed for wilderness characteristics as a priority	<u>Lands Managed for Wilderness Characteristics as a Priority</u> No acres managed for wilderness characteristics as a priority	<u>Lands Managed for Wilderness Characteristics as a Priority</u> Same as Alternative C.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
ACECs No current management direction was identified. Management direction is determined on a case-by-case basis	ACECs VRM Class II for the ACECs relevant and important for cultural resources (1,753,307 acres, or 13.0% of the planning area): • Unalakleet River watershed: 733,995 acres • Sheefish Spawning Area: 696,902 acres • Anvik Traditional Trapping Area: 21,366 acres • Tagagawik River: 301,044 acres VRM Class III for all other ACECs relevant and important for fisheries and/or related watershed resources (2,160,064 acres, or 16.0% of the planning area): • Kateel River ACEC: 692,659 acres • Anvik River Watershed ACEC: 248,872 acres • Inglutalik ACEC: 70,891 acres • Ungalik River ACEC: 113,455 acres • Gisasa River ACEC: 278,247 acres • Shaktoolik River ACEC: 191,725 acres • Nulato River ACEC: 344,183 acres • Swift River Whitefish Spawning ACEC: 220,032 acres See Appendix N for Proposed Special Management for ACECs.	Undesignated ACEC geographies VRM Class II for areas with important cultural resource values (1,219,211 acres, or 9.1% of the planning area). VRM Class III for areas with important fisheries and/or related watershed resources (1,825,535 acres, or 13.6% of the planning area).	ACECs No ACECs proposed under Alternative D (0 acres).	Undesignated ACEC geographies Same as Alternative C.

Notes:

1) Per the SWMFP (BLM 1981), Alternative A also manages seen areas of the Unalakleet River outside the Wild River Corridor as VRM II. These areas are not considered mappable and therefore do not have acreage reported. Analysis presented in Chapter 3 accounts for this management direction.

Table 2-9b: Visual Resources Management Actions by Alternative – Total VRM Class Acreage

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
VRM Class I CYRMP (BLM 1986a) VR-1.1: Define the seen areas of the Unalakleet Wild River Corridor and manage wild sections of these areas as VRM Class I. Management will particularly address potential tributary crossings for transportation, ROWs, and utilities outside of the WSR corridor withdrawal.	VRM Class I 1,335,771 acres, or 10% of the planning area	VRM Class I 46,953 acres, or <1% of the planning area	VRM Class I 46,953 acres, or <1% of the planning area	VRM Class I 46,953 acres, or <1% of the planning area
VRM Class II None specified under current management plans	VRM Class II 6,490,087 acres, or 48% of the planning area	VRM Class II 2,766,229 acres, or 21% of the planning area	VRM Class II 679,553 acres, or 5% of the planning area	VRM Class II 2,645,370 acres or 20% of the planning area
VRM Class III None specified under current management plans	VRM Class III 3,516,066 acres, or 26% of the planning area	VRM Class III 6,095,778 acres, or 45% of the planning area	VRM Class III 6,140,235 acres, or 46% of the planning area	VRM Class III 5,809,494 acres or 43% of the planning area.
VRM Class IV None specified under current management plans	VRM Class IV 2,123,971 acres, or 16% of the planning area	VRM Class IV 4,556,934 acres, or 34% of the planning area	VRM Class IV 6,599,152 acres, or 49% of the planning area	VRM Class IV 4,964,076 acres or 37% of the planning area

2.6.11 Lands with Wilderness Characteristics

Actions Common to All Action Alternatives, including the Proposed RMP, for Lands with Wilderness Characteristics

1. Consistent with ANILCA Section 1320 and BLM Manual 6310 Conducting Wilderness Characteristics Inventory on BLM Lands, BLM must maintain and update as necessary the inventory of wilderness characteristics across the BLM managed lands in the planning area when site-specific NEPA actions are considered.
2. EUCAs within the planning area would have the Alternative D Lands with Wilderness Characteristics-related management decision apply.

Description of Lands with Wilderness Characteristics Management Actions by Alternative

An inventory of lands with wilderness characteristics (LWC) throughout the planning area was performed as part of the BSWI RMP planning effort (BLM 2018b). When LWC inventories are conducted on BLM Alaska lands, it is rare to find blocks of land less than 5,000 acres where inventories do not have to be done and once complete, it is routine for inventories to contain 98 percent or more LWC. Unlike BLM lands in the lower-48, Lands with Wilderness Characteristics are not a scarce resource in BLM-AK RMP planning areas. Moreover, due to the remoteness and lack of infrastructure and facilities in Alaska, there exists a low present and future potential for development that would impact LWC. As such, the LWC inventory and the premise that wilderness characteristics are ubiquitous in BLM-AK was used to guide development of a range of

alternatives from Alternative B, which considers management of 12,049,536 acres (89 percent of the BLM lands in the planning area) to reduce impacts to LWC and 277,489 acres (2 percent of the BLM lands in the planning area) to manage for wilderness characteristics as a priority, to Alternative D, which does not consider LWC.

Table 2-10a describes proposed Lands with Wilderness Characteristics management actions by alternative, including the Proposed RMP (Alternative E). Table 2-10b includes management actions with wilderness characteristics as a priority. See Maps 2-20 through 2-22 for additional information.

Table 2-10: Lands with Wilderness Characteristics Actions by Alternative

Table 2-10a: Lands with Wilderness Characteristics Actions by Alternative

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Wilderness characteristics not addressed <i>SWMFP (BLM 1981)</i> Goals Maintain the area's existing natural conditions. Maintain opportunities for solitude or primitive and unconfined types of recreation. <i>CYRMP (BLM 1986a):</i> No references to wilderness resources identified in this planning document	Managed for wilderness characteristics as a priority over other resources values and multiple uses: • 277,489 acres (2%)¹ of BLM-managed lands in planning area • See Section 2.6.16, Table 2-14 (ANCSA 17(d)(1) withdrawals) for recommended mineral withdrawals for lands managed to protect wilderness characteristics as a priority. Managed to emphasize other resource values and multiple uses while applying management restrictions to reduce impacts on wilderness characteristics: • 12,049,536 acres (89%)¹ Managed to emphasize other resource values and multiple uses as a priority and does not consider wilderness characteristics: • 1,138,977 acres (8%)¹	Managed for wilderness characteristics as a priority over other resources values and multiple uses: • 0 acres (0%)¹ Managed to emphasize other resource values and multiple uses while applying management restrictions to reduce impacts on wilderness characteristics: • 8,125,183 acres (60%)¹ Managed to emphasize other resource values and multiple uses as a priority and does not consider wilderness characteristics: • 5,340,820 acres (40%)¹	Managed for wilderness characteristics as a priority over other resources values and multiple uses: • 0 acres (0%)¹ Managed to emphasize other resource values and multiple uses while applying management restrictions to reduce impacts on wilderness characteristics: • 0 acres (0%)¹ Managed to emphasize other resource values and multiple uses as a priority and does not consider wilderness characteristics: • 13,466,003 acres (100%)¹	Same as Alternative D.

Notes:

1) Percentage based on all BLM-managed land in the planning area.

Table 2-10b: Management Actions for Lands Managed to Protect Wilderness Characteristics as a Priority under Alternative B

Alternative B	
1.	Manage areas allocated for wilderness characteristics as a priority as VRM Class II.
2.	Maintain and enhance opportunities for solitude and primitive and unconfined recreation present in areas managed for wilderness characteristics as a priority.
3.	Motorboat use allowed for designated wilderness areas as provided for under ANILCA Sections 811 (subsistence) and 1110 (general public use) would also be allowed for lands managed for wilderness characteristics as a priority.
4.	Airplane landings and takeoffs allowed, as provided for under ANILCA Section 1110 (general public use) for designated Wilderness Areas would also be allowed for lands managed for wilderness characteristics as a priority. [Restrictions on landing areas should not be attributed to ANILCA allowances.]
5.	Limit summer OHV subsistence use to ATVs on existing routes only, with the exception of subsistence game retrieval. During travel management planning, close and rehabilitate routes that substantially reduce the naturalness of these areas.
6.	Allow, consistent with ANILCA, subsistence and casual cross-country winter snowmobile use during periods of adequate snow cover or frozen river conditions (as defined in Appendix B).
7.	The BLM would issue SRPs at the implementation level only for activities that are compatible with the goals and objectives of the lands managed for wilderness characteristics as a priority. This would include activities that provide opportunities for solitude or primitive and unconfined types of recreation.
8.	Facility construction would be limited to those built in a manner consistent with long-term management of lands with wilderness characteristics as a priority. Construction techniques would give first consideration to using native materials found within the wilderness. A project review would occur to determine of the necessity of using any non-natural materials for trail construction.
9.	Fire management actions taken in areas managed for wilderness characteristics as a priority would be conducted to protect life and safety, to meet natural and cultural resource objectives.
10.	Fire in lands managed for wilderness characteristics as a priority would be managed consistent with BLM Manual 6340, Management of Designated Wilderness Areas (Public) (BLM 2012b) or subsequent guidance.
11.	Retain all lands managed for lands with wilderness characteristics as a priority in BLM management.
12.	Prohibit cutting of live trees for both commercial and personal-use. Gathering dead and/or fallen wood for personal use would be allowed.
13.	Withdraw all allocated lands from locatable mineral entry, subject to valid existing rights.
14.	NSO to leasable development with no exceptions, waivers, or modifications.
15.	Any CSU, national recreation area, or national conservation area in the State of Alaska is subject to Title XI of ANILCA, and Section 1102(4)(B) defines the types of transportation or utility systems that may be approved or disapproved. Areas outside the CSU, national recreation area, or national conservation area are not subject to ANILCA provisions in Title XI.
16.	Close the areas to salable mineral permits and free use mineral material development.

2.6.12 Forestry and Woodland Products

Actions Common to All Action Alternatives, including the Proposed RMP, for Forestry and Woodland Products

1. All harvest activities that include surface disturbance may require surveys, as deemed appropriate, for sensitive resources that could be affected by the surface disturbance. The determination of what surveys may be required would depend on the location and type of disturbance and would be identified by the BLM at the site-specific implementation level.
2. In areas where timber harvest permits are approved, excluding pre-1955 mining claims, the following would be required:
 - Skid trails and roads constructed for the timber sale would be recontoured and reclaimed to BLM requirements, unless authorized by the AO upon termination of the timber sale activity.
 - All pre-existing routes and trails within the timber harvest area would be left open and in a passable condition during and after harvest operations.
 - Dispersed slash and unused tree portions would be no longer than 18 inches in length.

- Maximum stump height would be 8 inches, unless otherwise specified in the permit.
 - Harvest would follow State Forest Practices Act BMPs and AS 41.17.115, Riparian Standards Matrix: Summary of Regulations and Statutes.
3. Use of trees or vegetation for trapping purposes would be allowed. All harvest activities would be prohibited from cutting or otherwise disturbing trees that are actively being used for trapping.
 4. Harvest of dead or downed wood for immediate use in the immediate vicinity such as recreational uses (camping on all BLM-managed lands throughout the planning area) would be allowed without a permit.
 5. For BLM-permitted activities, recommend types of cultural training for people unfamiliar with rural Alaska life and culture.
 6. Encourage BLM-permitted operators to use local hire to the extent possible.
 7. Subject to valid existing rights, EUCAs within the planning area would have the following Forestry and Woodland Products-related management decisions applied:
 - Commercial Woodland Harvest Areas same as Alternative E in Table 2-11
 - Personal Use and Subsistence Woodland Harvest Areas same as Alternative C in Table 2-11
 - Forestry BMPs for Commercial Activities (Does Not Apply to Subsistence Use) same as Alternative C in Table 2-11

Description of Forestry and Woodland Products Actions by Alternative

Table 2-11 describes proposed Forestry and Woodland Products actions by alternative, including the Proposed RMP (Alternative E). See Maps 2-23 through 2-26 for additional information.

Table 2-11: Forestry and Woodland Products Actions by Alternative

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
<u>Commercial Woodland Harvesting Areas</u> <i>SWMFP (BLM 1981)</i> F-1.1: Provide for sustained yields of forest resources for use as firewood, houselogs, poles, and other forest products. Unalakleet National Wild River Management Plan (BLM 1983) The only subsistence use, which may require restrictions is house log and fuel wood harvesting, which will be regulated through permits issued by the BLM. <i>CYRMP (BLM 1986a)</i> All forest lands within this planning area are open to subsistence and commercial timber harvest except crucial wildlife habitat and the eight RNAs. Timber may be harvested on subsistence study/exchange withdrawals under a subsistence or personal use type permit. No commercial sales will be permitted on these withdrawals. Data on forest lands will be accumulated and maintained until identified needs require a more intensive forest inventory.	<u>Commercial Woodland Harvest Areas</u> Commercial woodland harvest would be prohibited within: • Unalakleet Wild River Corridor; • ACECs; • Lands managed for wilderness characteristics as a priority; • INHT NTMC; and • 100-year floodplain within an HVW. Commercial woodland harvest would be open to permitting by the BLM on all BLM-managed public land except for those areas described as prohibited above. Permits would be issued at the AO's discretion.	<u>Commercial Woodland Harvest Areas</u> Commercial woodland harvest would be prohibited within the Unalakleet Wild River Corridor. All BLM-managed public lands except for the Unalakleet Wild River Corridor would be open to permitting for Commercial Woodland Harvest. The BLM would monitor watershed health and determine if it would issue commercial woodland harvest or timber harvest permits in the 100-year floodplain of HVWs. Within the INHT NTMC, the BLM would manage harvest permits to maintain the nature and purpose of the INHT and avoid substantial interference to the INHT nature and purpose. Permits would be issued at the AO's discretion.	<u>Commercial Woodland Harvest Areas</u> All BLM-managed public lands would be open to Commercial Woodland Harvest. The BLM would monitor watershed health and determine if it would issue commercial woodland harvest or timber harvest permits in the 100-year floodplain of HVWs. Within the INHT NTMC, the BLM would manage harvest permits to maintain the nature and purpose of the INHT and avoid substantial interference to the INHT nature and purpose. Permits would be issued at the AO's discretion.	<u>Commercial Woodland Harvest Areas</u> Commercial woodland harvest would be prohibited within the Unalakleet Wild River Corridor. All BLM-managed public lands except for the Unalakleet Wild River Corridor would be open to permitting for Commercial Woodland Harvest. The BLM would issue permits for Commercial Woodland Harvest following the normal permitting process, consistent with an ongoing assessment of HVW health. Within the INHT NTMC, the BLM would manage harvest permits to maintain the nature and purpose of the INHT and avoid substantial interference to the INHT nature and purpose. Permits would be issued at the AO's discretion.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
<u>Personal Use and Subsistence Woodland Harvest Areas</u> F-1.1: Permits for the harvest of house logs, poles, and firewood are issued on a case-by-case basis.	<u>Personal Use and Subsistence Woodland Harvest Areas</u> The following restrictions would be applied to personal use and subsistence woodland harvest: - House log harvesting would not be allowed within the riparian areas of streams. - Non-subsistence house log harvest would be prohibited within suitable and designated WSR corridors, the entire geography of HVWs, and ACECs. - Personal-use wood cutting in areas managed for lands with wilderness characteristics as a priority would be prohibited. - Subsistence use and personal use gathering of forest firewood more than that required for incidental use for camping and forestry products would require a permit (e.g., by instituting a pilot project to hire a local in a targeted area to issues permits and collect use information and/or include maps or questions in local subsistence surveys). Subsistence and personal use woodland harvest would be open on all BLM-managed public lands unless they are described as prohibited or restricted above. Permits would be granted dependent on resource concerns. These permits would include required stipulations to minimize harvesting impacts. See Map 2-26 (Casual Use and Subsistence Woodland Harvest).	<u>Personal Use and Subsistence Woodland Harvest Areas</u> Personal use and subsistence house log harvesting would not be allowed within the riparian areas of streams. Non-subsistence house log harvest would be prohibited within designated WSR corridors. Personal use gathering of forest firewood of more than 10 cords of firewood per household per year and gathering forestry products would require a permit. All BLM-managed lands outside of the riparian areas of streams would be open to subsistence woodland harvest. All BLM-managed lands outside of the WSR corridors and the riparian areas of streams would be open to personal use woodland harvest. See Map 2-26 (Casual Use and Subsistence Woodland Harvest).	<u>Personal Use and Subsistence Woodland Harvest Areas</u> Non-subsistence house log harvest would be prohibited within designated WSR corridors. Subsistence use gathering of forest firewood and forestry products and personal use gathering of forest firewood would <u>not</u> require a permit. Personal use gathering of forestry products would require a permit. Unless otherwise restricted by other resource management actions in this RMP, all of the planning area would be available for subsistence woodland harvest, and all areas outside of the WSR corridors would be available for personal use subsistence harvest.	<u>Personal Use and Subsistence Woodland Harvest Areas</u> Same as Alternative C.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
<u>Forestry BMPs for Commercial Activities</u> <u>SWMFP (BLM 1981)</u> F-1.1: Prioritizes providing for the use of forestry products in settlement areas. Permits for house logs, poles, and firewood issued on a case-by-case basis. The SWMFP does not specifically address subsistence use of forestry. The CYRMP (BLM 1986a) permits subsistence and commercial forestry on all lands except for crucial wildlife habitat and eight identified RNAs.	<u>Forestry BMPs for Commercial Activities (Does Not Apply to Subsistence Use)</u> Timber sale operations would be confined to time periods when the combination of snow and frost depth allow access and skidding without long-term disturbance to underlying soils. Timber sale operations would not be allowed within the riparian area of streams.	<u>Forestry BMPs for Commercial Activities (Does Not Apply to Subsistence Use)</u> Locations and timing of permitted timber sales would be determined based on soil moisture content, soil erosivity, and micro-topography (e.g., steepness of slopes, presence of hummocky ground). Timber sale operations would be allowed during thaw conditions with presence of stable soils.	<u>Forestry BMPs for Commercial Activities (Does Not Apply to Subsistence Use)</u> Same as Alternative C.	<u>Forestry BMPs for Commercial Activities (Does Not Apply to Subsistence Use)</u> Same as Alternative C.

2.6.13 Reindeer Grazing

Actions Common to All Action Alternatives, including the Proposed RMP, for Reindeer Grazing

1. Permittees must demonstrate herd management, as demonstrated by the ability to gather, move, or contain their herds as necessary to avoid commingling with caribou herds and to address rangeland health standards.
2. Surface-disturbing rangeland improvements would be subject to applicable site surveys, as deemed appropriate.
3. Permitted grazing would be subject to State of Alaska animal health, disease, import/export, slaughtering, and processing requirements (ADEC, Division of Environmental Health).
4. Limitations in OHV TMAs (as described in Section 2.6.18, Travel and Transportation Management) would apply to permitted grazing areas, unless otherwise authorized by the BLM AO. Specific allowances or requirements regarding OHV use by grazing permittees would be authorized as part of their grazing permit.
5. Herders are responsible for developing grazing plans and are encouraged to seek assistance from the NRCS and/or the University of Alaska, Fairbanks.
6. If necessary, a notice of non-compliance would be issued identifying corrective actions that must be made within 1 year of notification. A second notice of non-compliance would be issued if a permittee fails to comply within 1 year of the first notice. If non-compliance continues after the second year, the case would be referred to law enforcement for trespass.
7. Supplemental feeding of reindeer may be authorized. Only weed seed-free feed certified through the Alaska Weed-Free Forage certification program (or other programs with approval of the AO) would be allowed. If no weed seed-free feed is available, other products could be used with the approval of the AO.
8. The BLM would work cooperatively with the Kawerak, Inc. Natural Resources Division's Reindeer Herders Association, the University of Alaska-Fairbanks Reindeer Research Program, and the NRCS to support operators' ability to maintain rangeland health.

9. In areas managed as NSO, permanent range improvements would also not be allowed.
10. EUCAs within the planning area would be closed to reindeer grazing.

Description of Reindeer Grazing Actions by Alternative

Table 2-12 describes proposed Reindeer Grazing actions by alternative, including the Proposed RMP (Alternative E). See Maps 2-27 through 2-29 for additional information.

Table 2-12: Reindeer Grazing Actions by Alternative

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
<u>Areas Open/Closed to Grazing</u> <u>SWMFP (BLM 1981)</u> <u>Goals</u> Provide range for seasonal grazing of domestic livestock on a local level where public demand warrants and where compatible with other resources. BLM policy has been to provide grazing leases for domestic livestock including reindeer and musk oxen where feasible. Where range is available and a need exists for seasonal grazing, this policy may be maintained.	<u>Areas Open/Closed to Grazing</u> All BLM-managed public lands within the planning area would be closed to grazing.	<u>Areas Open/Closed to Grazing</u> Grazing would not be permitted on BLM-managed land in the following areas: • Areas with important fisheries and watershed values in the Nulato River watershed; • Unalakleet Wild River Corridor; and • INHT NTMC. Any area not listed above would be open to permitting for reindeer grazing at the implementation level where ecological conditions could support that grazing. This would be determined at the site-specific level and analyzed through implementation-level NEPA.	<u>Areas Open/Closed to Grazing</u> No areas would be closed to grazing. New applications would be considered in the planning area at the implementation level where ecological conditions could support that grazing. This would be determined at the site-specific level and analyzed through implementation-level NEPA. Grazing would be permitted in the Unalakleet Wild River Corridor and the INHT NTMC only if it is determined by the AO that the proposed permitted grazing is consistent with maintenance of the outstandingly remarkable values (ORVs) for which the Unalakleet Wild River Corridor was designated and does not substantially interfere with the nature and purpose of the INHT NTMC.	<u>Areas Open/Closed to Grazing</u> Same as Alternative C.
<u>Grazing Management Plans</u> Current management plans do not specify requirement for Grazing Management Plan	<u>Grazing Management Plans</u> All BLM-managed public lands within the planning area would be closed to grazing.	<u>Grazing Management Plans</u> Proposed grazing operations must submit a grazing permit application that includes a detailed Grazing Management Plan.	<u>Grazing Management Plans</u> No requirement for a Grazing Management Plan when applying for a grazing permit.	<u>Grazing Management Plans</u> Same as Alternative C.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Grazing Permits Current management plans do not specify permit fees or grazing terms.	Grazing Permits All BLM-managed public lands within the planning area would be closed to grazing.	Grazing Permits New applications would be considered if the applicant could (1) provide a detailed Grazing Management Plan which includes management objectives and how the applicant would ensure separation between domestic and wild animals and (2) conduct all land health monitoring activities as determined appropriate by the BLM AO. Applicants would provide assurance that their Business Plan has considered the markets and cost of operations for their proposed operation. Herd crossing permit applications would be addressed per direction in 43 CFR 4300.80 for proposals to move reindeer across BLM-managed public lands that are currently not administered under an existing grazing permit. Permitted grazing would require satellite collars/VHF tracking devices on at least one animal (for herds of up to 75) and at two least collars (for herds larger than 75). These data would be immediately available to the BLM upon request, and BLM would be provided with annual reports showing location(s) of the herd throughout the year.	Grazing Permits New applications would be considered in the planning area and would be processed according to the normal permitting process. Herd crossing permit applications would be addressed as per direction in 43 CFR 4300.80 for proposals to move reindeer across BLM-managed public lands that are currently not administered under an existing grazing permit.	Grazing Permits New applications would be considered in the planning area. Herd crossing permit applications would be addressed as per direction in 43 CFR 4300.80 for proposals to move reindeer across BLM-managed public lands that are currently not administered under an existing grazing permit. If in consultation with ADF&G there are concerns with reindeer grazing interacting with caribou populations, BLM could require permits to have satellite collars/VHF tracking devices on at least one animal for herds of up to 75 and at least two animals for herds larger than 75. These data would be immediately available to the BLM upon request, and BLM would be provided with annual reports showing location(s) of the herd throughout the year.
Utilization No current management direction for grazing classes was identified. Management direction is determined on a case-by-case basis.	Utilization All BLM-managed public lands within the planning area would be closed to grazing.	Utilization Monitoring Grazing operations would be administered to a maximum utilization threshold of Grazed Class 4 (50–75% of primary forage species utilized). This utilization would be revised if scientific research indicates a different level of utilization is necessary to maintain rangeland health. The Alaska Grazed Class Method (AGCM) would be used for monitoring permitted reindeer herds to determine utilization and lichen abundance. The BLM would monitor range utilization and herd location(s) every 3 years, at a minimum, or more frequently if deemed necessary for permit compliance.	Utilization Monitoring Grazing operations would be administered to a maximum utilization threshold of Grazed Class 5 (75–100% of primary forage species utilized). This utilization would be revised if scientific research indicates a different level of utilization is necessary to maintain rangeland health. The AGCM would be used for monitoring permitted reindeer herds to determine utilization and lichen abundance. The BLM would monitor range utilization when deemed necessary for permit compliance.	Utilization Monitoring Same as Alternative D.

2.6.14 Locatable and Salable Minerals

Lands currently selected by the State of Alaska and ANCSA Native corporations are segregated from locatable mineral entry to avoid potential encumbrances on selected lands prior to conveyance. Out of the 13.5 million acres currently managed by the BLM, State-selected and ANCSA Native corporation-selected lands comprise approximately 2.6 million acres and 143,220 acres, respectively. Lands selected by the State of Alaska or an ANCSA corporation would continue to be segregated from mineral entry under the mining laws until the selection is either rejected by BLM, relinquished by the applicant, or the lands are conveyed out of federal ownership under the Statehood Act or ANCSA. BLM management of the 2.6 million acres of lands selected by the State is subject to 43 CFR 2627.4(b) and ANILCA Section 906(k).

Actions Common to All Action Alternatives, including the Proposed RMP, for Locatable and Salable Minerals

1. All Plan-level and mineral material mining operations shall submit a nonnative, invasive plant species inventory, monitoring, and control plan in accordance with the BLM Alaska NNIS management policy.
2. All Plan-level mining operations would submit to the BLM office a copy of any water quality annual report required by the APDES permit (mainly turbidity above and below discharge point) (43 CFR 3809.401).
3. All new and existing mineral material and Notice- and Plan-level placer operations shall designate a specific GPS point, clearly marked on the ground, from which photos of the operation would be taken and submitted to the BLM in the end-of-year report for reclamation. Operations that include stream reclamation would submit photos upstream and downstream of both ends of the reclaimed channel. These photos v be taken at the start and finish of mining operations each mining season until such time as the reclamation has been released from bonding requirements.
4. All lode/hard rock tailings ponds that retain deleterious material shall incorporate best management/industry practices and standards, including backup/alternative water treatment systems that would allow controlled discharge of the treated effluent to avoid overtopping or uncontrolled release of the material/water to the environment.
5. All tailings dam operators that are required to submit a third-party engineering stability/measurement report to meet the State of Alaska Dam Safety Control Criteria would submit a copy of the report to the BLM by September 30 of every other year.
6. All mining operations would comply with the following soils and vegetation reclamation requirements:
 - Mine operators must remove, segregate, and preserve topsoil or other suitable growth medium for reclamation as much as reasonably possible. The topsoil or growth medium would be applied after reshaping of the disturbed area has been completed and would be used to promote and sustain revegetation and, subsequently, to minimize erosion. Stockpiling activities must be implemented to preserve soil viability and promote concurrent reclamation.
 - Mine reclamation shall include revegetation of disturbed areas where practicable and rehabilitation of fish and wildlife habitat. Revegetation shall comply with the Actions Common to All Action Alternatives, including the Proposed RMP, for Vegetation (see

Section 2.6.4) regarding plant cover and other applicable solid mineral actions. Successful revegetation may lead to the wildlife habitat rehabilitation, but other site and species-specific considerations may be included.

- Mine operators should avoid conducting mining activities in wetlands or riparian areas where possible and minimize impacts on wetlands and riparian areas that operations cannot avoid. Mine operators should reclaim disturbed stream channels and wetlands to a properly functioning condition. Technology and practices must be used such that, at the completion of reclamation, the affected stream segment would be, at minimum, geomorphically stable, with adequate vegetation to reduce erosion, dissipate stream energy, and promote the recovery of instream habitats per the BLM Handbook H-3809-1, *Surface Management* (BLM 2012a). Stream reclamation would be evaluated using metrics of geomorphic stability based on established science, policy, and/or regional datasets (e.g., AIM-National Aquatic Monitoring Framework). At the completion of reclamation, floodplain conditions should be able to withstand moderate flood discharge events (5- to 10-year flood event) through implementation of features such as, appropriate channel design, proper floodplain grading, vegetation mats or transplants, integrated rock and organic debris, and seeding (if appropriate).
7. Notice- and Plan-level operations that wish to use the State of Alaska Mining Reclamation Bond Pool must submit a reclamation cost estimate as described in 43 CFR 3809.500 if they propose any of the following activities on BLM-managed lands: operations proposing to mine in the 100-year floodplain; operations on uplands with slopes or cuts greater than 33 percent or with the potential for substantial slope failure related to mining activities; operations at a site where demobilization can only be completed by air or during frozen conditions (winter months); operators with greater than 25 acres of unreclaimed disturbance; or, operations that have an unresolved noncompliance order at the time of bond payment or operators that have a history of noncompliance with BLM regulations.
8. Use and Occupancy Qualifications for Notice-level Operations within the planning area
- Criteria for Use and Occupancy for Notice-level Operations:
 - The applicant must demonstrate the need for the cabin or structure related to the level of mining proposed.
 - The applicant must use minimal occupancy facilities.
 - Structures/Conditions – For Notice-level exploration activities (5 acres or less), all the following are applicable unless the AO determines permanent structures would be allowed based on site-specific analysis:
 - No permanent structures shall be authorized.
 - No grading to accommodate occupancy structures is allowed.
 - No excavation for footings or placement of buried structures is allowed.
 - Related pit privies must be constructed in accordance with State of Alaska regulations. If a privy cannot meet Alaska regulations, all human waste must be carried out.
 - Protective matting required on top of sensitive lichen-rich habitat to protect those areas from pedestrian and motorized traffic. The BLM would make the determination on when this is necessary based on project-specific site clearances.

- Structures Allowed According to Temporary Mining Activities
 - For mining activities that occur up to 8 months annually for a total mine life duration, a temporary tent with platform may be allowed. Tents and platforms must be dismantled and removed from the site at the end of the use season.
 - No permanent structures (as defined in Appendix B) are allowed in riparian areas.
- 9. For BLM-permitted activities, recommend types of cultural training for people unfamiliar with rural Alaska life and culture.
- 10. Encourage BLM-permitted operators to use local hire to the extent possible.
- 11. Potential locatable mineral withdrawals would be recommended by BLM to the Secretary in this PRMP pursuant to Section 204(a) of FLPMA. BLM would comply with the congressional notice provisions of Section 204(c) of FLPMA (43 U.S.C. 1714(c)) and ANILCA Section 1326(a) for withdrawals of 5,000 acres or more.
- 12. EUCAs within the planning area would have the following Locatable and Salable Mineral-related management decisions applied:
 - Closed to Salable Minerals
 - Locatable Minerals same as Alternative C in Table 2-13

Description of Locatable and Salable Minerals Actions by Alternative

Table 2-13 describes proposed Locatable and Salable Mineral actions by alternative, including the Proposed RMP (Alternative E). See Maps 2-30 through 2-35 for additional information.

Table 2-13: Locatable and Salable Mineral Actions by Alternative

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
<u>Locatable Minerals</u> All lands in the planning area would be managed as undesignated. <i>CYRMP (BLM 1986a)</i> <u>Prescriptions:</u> Maintain the existing water quality of the Kaltag and Nulato watersheds through closure of all public lands within these watersheds to operation of the 1872 mining law. There are approximately 460,000 acres of public land included in this prescription. Protect, through withdrawal, 20,480 acres of crucial peregrine falcon habitat from mineral entry under the 1872 Mining Law. Maintain the relatively undisturbed resource values on 43,010 acres of land, by withdrawal from all forms of appropriation including mineral location under the 1872 Mining Law and the Mineral Leasing Act of 1920 as amended and supplemented. Eight areas have been identified in this plan for designation as RNAs. The Unalakleet Wild River Corridor is withdrawn from locatable mineral entry. PLO 5180, 5184, 5173, 5172, 5179, and 5186 are withdrawn from mineral location and entry.	<u>Locatable Minerals</u> <u>Water Resources and Fisheries Actions</u> The entire geography of HVWs (8,401,262 acres) would be recommended withdrawn from locatable mineral entry (ANCSA 17(d)(1) withdrawal, PLO 5180, currently open to metalliferous minerals) <u>Wildlife Actions</u> Locatable mineral development would be allowed in caribou and moose habitats subject to actions common to all alternatives for wildlife. BLM-managed wildlife habitat in Innoko Bottoms would be recommended for withdrawal from locatable mineral entry. The North and South Connectivity Corridors would be recommended for withdrawal from locatable mineral entry. <u>Lands with Wilderness Characteristics Actions</u> Retain ANCSA 17(d)(1) withdrawals until a new withdrawal for the stated purpose is completed for areas proposed for the management of wilderness characteristics as a priority: • Tonzona River (200,259 acres) • Highpower Creek (12,809 acres) • North Fork Kuskokwim River (53,006 acres) • Sethkokna River (11,499 acres) <u>National Trails Actions</u> Subject to valid existing rights, the INHT NTMC would be withdrawn from locatable mineral exploration and development. <u>WSRs</u> All suitable and designated WSR corridors would maintain withdrawals from mineral entry within the WSR corridor, subject to valid existing rights. See Appendix N for mineral decisions for Proposed Special Management of Areas of Critical Environmental Concern. Map 2-30 shows Alternative B locatable mineral decisions.	<u>Locatable Minerals</u> No new locatable mineral withdrawals recommended. Withdrawal of the Unalakleet Wild River Corridor would be maintained. Map 2-31 shows Alternative C locatable mineral decisions.	<u>Locatable Minerals</u> Same as Alternative C. Map 2-31 shows Alternative D locatable mineral decisions.	<u>Locatable Minerals</u> Same as Alternative C. Map 2-31 shows Proposed RMP (Alternative E) mineral decisions.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Salable Minerals The Unalakleet Wild River Corridor is closed to salable mineral development. Management direction is determined on a case-by-case basis in all other areas.	Salable Minerals All areas recommended for withdrawal from locatable development under this alternative would also be closed to salable development. Salable development reclamation would comply with soil and vegetation reclamation and riparian and stream disturbance/ reclamation and fisheries rehabilitation requirements described under Actions Common to All Action Alternatives, including the Proposed RMP, for Locatable and Salable Minerals. Map 2-32 shows Alternative B salable mineral decisions.	Salable Minerals <u>Wildlife Actions</u> To protect unique wildlife and subsistence resources, BLM-managed wildlife habitat in Innoko Bottoms would be closed to salable mineral development subject to valid existing rights. The South Connectivity Corridor would be open to salable mineral development (subject to terms and conditions). Salable mineral development would be allowed in caribou and moose habitats subject to Actions Common to All Action Alternatives, including the Proposed RMP, for wildlife. <u>WSRs</u> The Unalakleet Wild River Corridor would remain withdrawn from mineral entry within the WSR corridor, subject to valid existing rights. <u>Water Resources and Fisheries Actions</u> The entire geography of HVWs would be open to salable mineral development (subject to terms and conditions). <u>INHT NTMC Actions</u> Subject to valid existing rights, the INHT NTMC would be open for salable mineral development. Map 2-33 shows Alternative C salable mineral decisions.	Salable Minerals <u>Wildlife Actions</u> To protect unique wildlife and subsistence resources, BLM-managed wildlife habitat in Innoko Bottoms would be closed to salable mineral development subject to valid existing rights. <u>WSRs</u> The Unalakleet Wild River Corridor would remain withdrawn from mineral entry within the WSR corridor, subject to valid existing rights. Map 2-34 shows Alternative D salable mineral decisions.	Salable Minerals Same as Alternative C. However, because the HVW acreages in the Proposed RMP (Alternative E) are different from Alternative C, the acres open to salable mineral development are also different. Map 2-35 shows Alternative E salable mineral decisions.

2.6.15 Leasable Minerals

Actions Common to All Action Alternatives including the Proposed RMP, for Leasable Minerals

Requirements prescribed for federal mineral development in split-estate situations would only apply to the development of the federal minerals. These requirements would not dictate surface management.

1. Oil and Gas

- As described in BLM's Handbook H-1624-1, *Planning for Fluid Mineral Resources* (BLM 2018d), federal oil and gas resources (including coalbed natural gas) fall into one of four categories that become increasingly restrictive:
 - Open Subject to Standard Lease Terms and Conditions: These are areas where it has been determined through the planning process that the standard terms and conditions of the lease form are sufficient to protect other land uses or resource values. In these areas, fluid mineral leasing stipulations and BMPs and SOPs (Appendix O) would also apply unless specifically excluded under a particular alternative.
 - Open Subject to Special Stipulations: These are areas where it has been determined that moderately restrictive lease stipulations may be required to mitigate impacts to other land uses or resource values. These leases frequently involve timing limitations such as restricting construction activities in designated big game habitats, or Controlled Surface Use stipulations such as creating a buffer zone around an essential resource.
 - Open Subject to NSO: These are areas where it has been determined through the planning process that highly restrictive lease stipulations are necessary to protect resources. These leases may prohibit the construction of well production and support facilities. These areas could be subject to directional drilling, if technologically and economically feasible.
 - Closed to Leasing: These are areas where it has been determined that other land uses or resource values cannot be adequately protected, and appropriate protection can be ensured only by closing the land to leasing through either statutory or administrative requirements.
 - Implementation Decisions
 - Conditions of Approval (COAs) for Applications for Permit to Drill would allow necessary impacts in order for development to be technically feasible or economically viable.
 - Exceptions to lease stipulations and COAs would be allowed when site-specific analyses showed impacts to sensitive resources were within acceptable limits.
 - Well spacing requirements for oil and gas resource protection would defer to the Alaska Oil and Gas Conservation Commission guidance with consideration for surface resource values.
2. Any locations within the planning area recommended for withdrawal from locatable mineral entry would also be NSO for oil and gas.
3. Coal
- All BLM-managed public lands within the planning area subject to leasing under 43 CFR 3400.2 are open to coal exploration and study, with the exception of the INHT NTMC. The coal screening process (as identified by 43 CFR 3420.1-4) has not been conducted in this planning area; therefore, leasing is deferred until this screening process has been completed. Interest in exploration or leasing of federal coal would be handled on a case-by-case basis. If an application for a coal lease should be received in the future, an appropriate land use and environmental analysis, including the coal screening process, would be conducted to determine whether or not the coal areas are acceptable for further consideration for leasing and development under 43 CFR 3420.1-4. The BSWI RMP

would be amended as necessary before coal leasing could occur. In accordance with 43 CFR 3400.2, coal leases shall not be issued on federal lands within the National System of Trails (see BLM M5280 4.2 E.6.i.).

- Leasing would be subject to BMPs and SOPs (Appendix O).
- Coal exploration and leasing would comply with the Mineral Leasing Act of 1920; the Surface Mining Control and Reclamation Act of 1977; the Federal Coal Leasing Amendments Act of 1976; the Mineral Leasing Act for Acquired Lands of 1947, as amended; FLPMA; coal regulations; and coal planning criteria.
- With appropriate limitations and mitigation requirements for the protection of other resource values, all BLM-managed public lands and federal coal lands in the planning area, except for those lands identified as closed, would be open to coal resource inventory and exploration to help identify coal resources and development potential.
- Only those BLM-managed public lands that have development potential may be identified as acceptable for further consideration for coal leasing (Map 2-36).

4. Oil Shale

- Oil shale exploration and leasing would comply with the Mineral Leasing Act of 1920; the Mineral Leasing Act for Acquired Lands of 1947, as amended; FLPMA; and oil shale regulations and planning criteria.
- Oil shale shall be leased in accordance to 43 CFR 3900.

5. Non-Energy Solid Minerals

- Non-energy leasable minerals exploration and leasing would comply with the Mineral Leasing Act of 1920; the Mineral Leasing Act for Acquired Lands of 1947, as amended; FLPMA; the Reorganization Plan No. 3 of 1946; and non-energy leasable minerals regulations and planning criteria.
- Non-energy leasable minerals would be subject to 43 CFR 3500.

6. Other Leasable Minerals: Unless already closed under other legal or regulatory requirements or proposed to be closed in Table 2-14 below, the entire planning area would be open to development of other leasable minerals/products (e.g., geothermal). Issuance of these mineral leases would be determined based on compatibility with the resource objectives and management requirements of this plan.
7. For BLM-permitted activities, recommend types of cultural training for people unfamiliar with rural Alaska life and culture.
8. Encourage BLM-permitted operators to use local hire to the extent possible.
9. Appropriate SOPs listed in Appendix O would be applied to operations conducted under future leases.
10. EUCAs within the planning area would be closed to Leasable Minerals.

Description of Leasable Minerals Actions by Alternative

Table 2-14 describes proposed Leasable Mineral Actions by alternative, including the Proposed RMP (Alternative E). See Maps 2-36 through 2-40 for additional information.

Table 2-14: Leasable Mineral Actions by Alternative

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Management Decisions SWMFP (BLM 1981) <u>Oil and Gas:</u> Open BLM-managed lands to oil and gas leasing under ANILCA Section 1008 with the following exclusions: <u>The Unalakleet River Drainage</u> Peregrine Falcon active or historically active nesting areas <u>Anvik River Drainage</u> Raptor nesting areas along the Kuskokwim. The portion of the INHT in the Lime Village block should be leased with stipulations to protect the integrity of the historic trail and historic sites. Lease other wildlife habitat areas (i.e., caribou wintering range), grizzly/brown bear denning and high use area, fisheries habitat, and raptor nesting area, with seasonal closures to prevent disturbance during crucial wildlife use periods. HMPs would set the periods for closures and would formulate other mitigating measures. NSO or seasonal closures are recommended to protect fisheries habitat. First lease priorities for tract selection, based on petroleum potential and State lease sales should be: • Minchumina Block (Secretarial decision) • Lime Village Block (Minchumina and Holitna Basins) • Goodnews Block • Anvik River Block (Norton Sound basin) • Sleetmute Block <u>CTAI</u> Provide opportunities for leasing or permitting of CTAI reserves for local use. Use of local CTAI resources could provide an alternative to diesel fuel for space heating and power generation. <u>Geothermal</u> Local geothermal resources could be used for space heating as an alternative to fossil fuels. Inventory the potential geothermal resource areas. CYRMP (BLM 1986a) Management Decisions: There are presently 69,000 acres of land within the Central Yukon Planning Area which are open for oil and gas leasing. Under this RMP there will be approximately 8,768,334 acres of land open to mineral leasing (including oil and gas leasing), under the Mineral Leasing Act of 1920 as amended and supplemented. An additional 1,349,673 acres within the Seward 1008 Buckland Basin and Purcell Mountains SMUs will be opened to mineral leasing under this plan (10,118,007 acres total). The following areas totaling 706,450 acres will be closed to all mineral leasing. 1. The Unalakleet Wild River Corridor withdrawal – 28,249 acres. 2. Eight RNAs - 43,010 acres. 3. All subsistence withdrawal study areas (except linear withdrawals) – 174,144 acres. 4. Withdrawal/Exchange lands – 461,047 acres. Mineral leases within areas having an identified subsistence interest but not designated as withdrawn from mineral leasing (Rodo River, Kateel River, South Fork Huslia River, Tagagawik River, Ray River and the three tributaries of Squaw Creek [northwest of Rampart] will be subject to a 300-foot NSO setback zone along either side of the water course (measured from the mean high-water line or center line of non-navigable water courses). Mineral leases within areas withdrawn for anadromous fish spawning habitat will have an NSO setback zone which corresponds with the outer withdrawal limits. Designated portions of the Nulato River, having important anadromous fish spawning habitat, will have an NSO setback zone that runs along both sides of the river and is measured 300 feet back from the mean high-water line. PLO 5180, 5184, 5173, 5172, 5179, and 5186 closed to mineral leasing.	<u>Water Resources and Fisheries</u> The entire geography of HVWs would be closed to mineral leasing. <u>Wildlife</u> Subject to valid existing rights, NSO for leasable minerals in known caribou and moose calving and wintering concentrations. Innoko Bottoms Priority Wildlife Habitat area and the North and South Connectivity Corridors would be NSO leasable. To protect migratory birds, no mineral leasing in riparian areas. NSO around active priority raptor nests for 1 mile. <u>ACECs</u> See Appendix N. <u>National Trails</u> Subject to valid existing rights, the INHT NTMC would be closed for leasable development. <u>Wild and Scenic Rivers</u> All suitable and designated WSR corridors would maintain withdrawals from mineral entry within the WSR corridor, subject to valid existing rights. See Map 2-37.	<u>Water Resources and Fisheries</u> The entire geography of HVWs would be NSO leasable. <u>Wildlife</u> Controlled surface use stipulation: No leasable or salable operations allowed in known caribou calving concentrations from April 15–May 31. Standard leasing terms and conditions would apply for leasable minerals in known moose calving and wintering concentrations. Innoko Bottoms Priority Wildlife Habitat area and the South connectivity corridor would be NSO for leasable development. To protect migratory birds, no mineral leasing in riparian areas. <u>National Trails</u> Subject to valid existing rights, the INHT NTMC would be NSO leasable. <u>Wild and Scenic Rivers</u> The Unalakleet Wild River Corridor would remain closed to leasable mineral development, subject to valid existing rights. See Map 2-38.	<u>Water Resources and Fisheries</u> Same as Alternative C: The entire geography of HVWs would be Standard Stipulations leasable. <u>Wildlife</u> Mineral leasing allowed in known calving and wintering concentrations under standard stipulations but also subject to Actions Common to all Action Alternatives for leasable minerals. Innoko Bottoms Priority Wildlife Habitat would be NSO for leasable development. <u>National Trails</u> Subject to valid existing rights, the INHT NTMC would be open with standard stipulations for oil and gas leasing. <u>Wild and Scenic Rivers</u> The Unalakleet Wild River Corridor would remain closed to leasable mineral development, subject to valid existing rights. See Map 2-39.	Areas identified as Closed to Leasing and Open to NSO Leasing would be the same as Alternative C. However, because the HVW acreages in Alternative E are different from Alternative C, the actual acres identified as NSO leasable and open to leasing subject to special stipulations would also be different. See Map 2-40.

2.6.16 Lands and Realty

Actions Common to All Action Alternatives, including the Proposed RMP, for Lands and Realty

1. Recreation and Public Purposes (R&PP) Act
 - Lands would be made available for lease or sale to benefit local communities per the criteria for R&PP Act.
 - R&PP Act patents in which the United States has reserved a reversionary interest would be evaluated and addressed at the implementation level, based on BLM management needs. Reserved federal interests in split estate lands anywhere in the planning area may be considered for conveyance out of federal ownership.
2. Land Exchange Criteria
 - Land exchange would be considered at the implementation level to benefit public interests. Exchanges would focus on efficient management of public lands and objectives including protection of fish and wildlife habitats, cultural resources, wilderness and aesthetic values, enhancing recreational opportunities, and community expansion. Exchanges generally would not be pursued until final State and Native entitlement is reached.
 - Once ANCSA and State of Alaska conveyances are completed, retain large blocks of BLM-managed public lands in the following areas:
 - Unalakleet south to Yukon River and east to Yukon River
 - Nikolai south to Lime Village
 - Exchange small, isolated parcels to manage more contiguous landscape-level ecosystem health units, to reduce fragmentation and improve ecosystem health and to allow more efficient, cost-effective management.
3. Withdrawals
 - All withdrawals held by BLM or other agencies would be maintained unless the BLM or other agency requests relinquishment (e.g., Department of Army withdrawal for a 1.48-acre parcel in Tuluksak for a National Guard Armory).
4. Land Acquisition Criteria
 - The BLM generally would prioritize acquisitions in the event there is a willing seller.
 - Acquire parcels that would allow management of a more contiguous landscape that would reduce the potential for habitat fragmentation to improve ecosystem health and maximize land management goals.
 - Prioritize acquisitions of inholdings in the Unalakleet Wild River or INHT inholdings where no INHT easement reservation exists (easements only or entire parcel if the surrounding lands are in federal ownership).

- Acquired parcels would be managed consistent with management of adjacent parcels until specific management is identified for the acquired parcels.

5. ROWs

- Unless otherwise stated, the term “ROW” means FLPMA or Mineral Leasing Act ROW and does not refer to a Section 7(h)(2) ROW under the National Trails System Act (NTSA) of 1968, 16 U.S.C. 1241 et seq.
- ROW Exclusion Areas are areas that are not available for location of ROWs under any conditions. A plan amendment would be required for a new ROW within a ROW Exclusion Area.
- ROW Avoidance Areas are areas to be avoided but may be available for location of ROWs with special stipulations as long as new ROW application documentation demonstrates: (1) the other locations researched and reasons each is not feasible, and (2) project design features/mitigation measures are incorporated to minimize resource concerns. Decisions to grant a ROW within a ROW avoidance area would be made by the AO after project-specific NEPA has been completed.
- ROW Avoidance Areas for Linear Realty Actions are areas where new linear ROWs are to be avoided and placed in other areas if feasible. Areas may be available to location of linear ROWs with special stipulations as long as the new linear ROW application documentation demonstrates: (1) the other locations researched and reasons each is not feasible, and (2) project design features/mitigation measures are incorporated to minimize resource concerns. Decisions to grant a linear ROW within a linear ROW avoidance area would be made by the AO after project-specific NEPA has been completed.
- Authorizations for ROW would be processed according to the standard process subject to any designated exclusion or avoidance areas. This process allows the proposed action to be reviewed based on the project being proposed and the site-specific resources or issues that relate to the project. Each analysis and decision is separate and distinct from another.
- As required based on changes in climate, the BLM would consider providing opportunities for community relocation through the use of ROW grants, permitting, exchanges, R&PP, leases, or other appropriate permitting actions as determined mutually beneficial for the community and the long-term sustainability of BLM-managed public lands.
- Linear projects would be co-located within existing ROWs to the maximum extent practical. Determination of ROW routes would be made in consultation with the State of Alaska and other relevant cooperating agencies.
- Authorized ROWs would incorporate design features to minimize disruption of caribou passage in all known caribou migration routes or where essential winter habitat exists.
- Existing roads and trails would be utilized for access where feasible, rather than creating new roads and trails.
- The BLM would consider the safety and navigation benefits to inter-village travelers when processing communication site ROW applications.
- ROW authorizations issued on selected lands would be treated as follows:

- ANCSA corporation Native-selected: Prior to the issuance of a ROW use authorization, the views of the ANCSA Native corporation would be obtained and considered. Rent received for any use authorization or trespass on Native-selected lands would go into an escrow account.
- State of Alaska–selected: In accordance with 906(k)(1) of ANILCA, the BLM must receive a letter of concurrence prior to issuance of any use authorization. If the lands are conveyed to the State of Alaska, the use authorization would be transferred to the State for future administration. In accordance with 906(k)(2) of ANILCA, 90 percent of any rent received from any use authorization or trespass on State-selected lands would go into an escrow account. This is not required on top-filed lands unless, and then from the date, the selection attaches.
- For BLM-permitted activities, recommend types of cultural training for people unfamiliar with rural Alaska life and culture.

6. Permits and Leases

- No permits or leases would be granted for private recreational cabins unless otherwise provided for in BLM policy or regulation.
- Proposals for non-private recreational cabin permits and leases would be processed on a case-by-case basis subject to FLPMA and 43 CFR 2920.
- In accordance with 43 CFR 2920, existing trespass cabins would be removed, put under permit or lease, or turned into government administrative sites. This would be determined at the site-specific implementation level, as determined by the AO.
- Use authorizations issued on selected lands would be treated as follows:
 - ANCSA corporation Native-selected: Prior to the issuance of a use authorization, the views of the ANCSA Native corporation would be obtained and considered. Rent received for any use authorization or trespass on Native-selected lands would go into an escrow account.
 - State of Alaska–selected: In accordance with 906(k)(1) of ANILCA, the BLM must receive a letter of concurrence prior to issuance of any use authorization. If the lands are conveyed to the State of Alaska, the use authorization would be transferred to the State for future administration. In accordance with 906(k)(2) of ANILCA, 90 percent of any rent received from any use authorization or trespass on State-selected lands would go into an escrow account. This is not required on top-filed lands unless, and then from the date, the selection attaches.

7. ANCSA Section 17(b) Easements

- The BLM would continue to review and reserve ANCSA Section 17(b) easements under the law and regulations to ensure legal access to publicly owned lands while the remainder of the ANCSA corporations' land entitlements are conveyed. On-the-ground management of easements is the responsibility of the federal DOI landowner the easement accesses; i.e., the BLM, National Park Service, or the USFWS. Other federal agencies, the State of Alaska, or an Alaska borough or municipal government may assume administration of a specific easement, or easements.

- The BLM is committed to working with the landowner, State, and other federal agencies to locate, mark, and monitor easements and help educate easement users to understand the rights reserved to the United States and the rights of the private landowner, subject to availability of funds, personnel, and approval. Priority would be based on the following:
 - Easements accessing lands that would be permanently managed by the BLM or that are important to BLM programs
 - Easements receiving high use
 - Easements required to implement an activity or implementation plan
 - Easements where landowners support the activity allowed by the easement
 - Easements where maintenance or education would mitigate environmental damage to the easement or BLM-managed lands

These criteria would be used to prioritize other discretionary actions, such as maintenance on 17(b) easements. Realignment of reserved 17(b) easements would be considered at the implementation level to resolve on-the-ground issues.

- Authorization from the BLM is not necessary prior to use of a 17(b) easement. 17(b) easements are reserved on specific routes for specific kinds of vehicles and can be subject to seasonal restrictions (e.g., summer use only or winter use only). Public uses not reserved in the easement would have to seek authorization from the landowner for any use of the lands outside of what is reserved in the easement.
 - Some 17(b) easements are made discontinuous by private lands. Acquisition of easements across or around these lands would be from willing landowners as the need or opportunity arose, subject to the availability of funds.
8. The Unalakleet Administrative Site would be recommended for withdrawal from mineral location and entry under the mining laws and leasing under the Mineral Leasing Act to the Secretary.
 9. Subject to valid existing rights, EUCAs within the planning area would have the following Lands and Realty-related management decisions applied:
 - ANCSA 17(d)(1) withdrawals same as Alternative C in Table 2-15
 - FLPMA Withdrawals same as Alternative C in Table 2-15
 - FLPMA ROW Exclusion & Avoidance Areas same as Alternative E in Table 2-15
 - Wind Energy Development same as Alternative B in Table 2-15
 - Permits and Leases same as Alternative C in Table 2-15
 - Exchanges same as Alternative C in Table 2-15

- Should these EUCAs become null and void after the State's entitlement is fulfilled (the BLM would not be able to convey additional land to the State) or, if the State declines to accept one of these parcels, the claims would meet BLM's disposal criteria of being impractical or uneconomical to manage.

Description of Lands and Realty Actions by Alternative

Table 2-15 describes proposed Lands and Realty actions by alternative, including the Proposed RMP, (Alternative E). See Maps 2-41 through 2-48 for additional information.

Table 2-15: Realty/Lands and Use/FLPMA ROW Avoidance and Exclusion Actions by Alternative

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
<u>ANCSA 17(d)(1) withdrawals</u> Keep all existing 17(d)(1) withdrawals in place.	<u>ANCSA 17(d)(1) withdrawals</u> Revoke ANCSA 17(d)(1) withdrawals except: Within the entire geographies of HVWs Proposed for the management of wilderness characteristics as a priority: • Tonzona River (200,259 acres) • Highpower Creek (12,809 acres) • North Fork Kuskokwim River (53,006 acres) • Sethkokna River (11,499 acres) The area of the INHT in the following locations: • Farewell Burn unit (1,000-foot-wide buffer centered on the treadway plus the Bear Creek Cabin and access trail): 2,732 acres • Kaltag Portage unit (1,000-foot buffer centered on the Treadway, but outside of Unalakleet Wild River withdrawal): 1,897 acres In these areas, ANCSA 17(d)(1) withdrawals would be retained until a new withdrawal for the stated purpose is completed (see FLPMA withdrawals below). Existing PLO 6098 and 6787 would remain as well as designations of the Unalakleet Wild River Corridor and the INHT.	<u>ANCSA 17(d)(1) withdrawals</u> Revoke all ANCSA 17(d)(1) withdrawals.	<u>ANCSA 17(d)(1) withdrawals</u> Same as Alternative C.	<u>ANCSA 17(d)(1) withdrawals</u> Same as Alternative C.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
FLPMA Withdrawals No current managed direction identified. Management direction is determined on a case-by-case basis.	FLPMA Withdrawals Subject to valid existing rights, recommended new FLPMA withdrawals for salable, locatable, and leasable minerals for the existing INHT treadway in the following locations: - Farewell Burn unit (1,000-foot-wide buffer centered on the treadway plus the Bear Creek Cabin and access trail): 2,732 acres retained - Kaltag Portage unit (1,000-foot buffer centered on the Treadway, but outside of Unalakleet Wild River withdrawal): 1,897 acres - Rohn Site (entire parcel): 363 acres See Map 2-42. Locatable mineral withdrawals (subject to ANILCA Section 1326(a)) are recommended for: - Entire geography of HVWs - Innoko Bottoms - North and South Connectivity Corridor - ACECs The withdrawal for the Unalakleet Wild River Corridor would be maintained. See Maps 2-30, 2-37, and 2-42. A new FLPMA withdrawal would be established at the Unalakleet Administrative Site.	FLPMA Withdrawals Subject to valid existing rights, recommended new FLPMA withdrawals for the existing INHT treadway in the following locations: - Farewell Burn unit (1,000-foot-wide buffer centered on the treadway plus the Bear Creek Cabin and access trail): 2,732 acres - Kaltag Portage unit (1,000-foot buffer centered on the Treadway, but outside of Unalakleet Wild River withdrawal): 1,897 acres - Rohn Site (entire parcel): 363 acres The determination on whether the FLPMA withdrawal would include salable, leasable, and/or locatable minerals would be determined when the withdrawal is recommended. The withdrawal for the Unalakleet Wild River Corridor would be maintained. See Maps 2-31, 2-38, and 2-43. A new FLPMA withdrawal would be established at the Unalakleet Administrative Site.	FLPMA Withdrawals FLPMA withdrawal for the 1,000-foot-wide buffer centered on the existing INHT treadway would not be pursued and the area would be open for locatable, leasable, and salable mineral development. The withdrawal for the Unalakleet Wild River Corridor would be maintained. See Map 2-31, 2-39, and 2-44. A new FLPMA withdrawal would be established at the Unalakleet Administrative Site.	FLPMA Withdrawals Same as Alternative C. See Maps 2-31, 2-40, and 2-43.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
FLPMA ROW Exclusion & Avoidance Areas No current management direction was identified.	FLPMA ROW Exclusion & Avoidance Areas Subject to ANILCA Title XI and valid existing rights, the following would be <u>FLPMA ROW exclusion areas</u>¹ (1,464,069 acres): • Proposed Innoko Bottoms Priority Wildlife Habitat Area • Unalakleet Wild River Corridor • Recommended Suitable WSR corridors • Managed North and South Connectivity Corridors • INHT NTMC • Permafrost areas Subject to valid existing rights, the following would be <u>FLPMA ROW avoidance areas</u> (8,895,920 acres)²: • HVWs (entire geography) • ACECs • Tundra mats • Lands managed for wilderness characteristics as a priority • Riparian areas • Areas with BLM Sensitive Plants • The following five identified rare ecosystems: ○ Pingos in Interior Alaska that support forests ○ Tamarack (<i>Larix laricina</i>) dominated associations ○ Dunes that have been stabilized by forests; typically, Aspen-Black spruce ○ Limestone geologic substrate ○ Serpentine geologic substrate • Disturbance footprint of BLM public shelter cabins • Jurisdictional Waters of the U.S., including wetlands and floodplains • Highly erodible soils would be FLPMA ROW avoidance for underground utilities only See Map 2-45.	FLPMA ROW Exclusion & Avoidance Areas There would be no FLPMA ROW exclusion areas.¹ Subject to ANILCA Title XI and valid existing rights, the following would be <u>FLPMA ROW avoidance areas</u> (7,528,863 acres)²: • INHT NTMC • HVWs (entire geography) • Tundra mats • Riparian areas • Permafrost areas • Proposed Innoko Bottoms Priority Wildlife Habitat Area • Unalakleet Wild River Corridor • Areas with BLM Sensitive Plants • The following five identified rare ecosystems ○ Pingos in Interior Alaska that support forests ○ Tamarack (<i>Larix laricina</i>) dominated associations ○ Dunes that have been stabilized by forests; typically, Aspen-Black spruce ○ Limestone geologic substrate ○ Serpentine geologic substrate • Jurisdictional Waters of the U.S., including wetlands and floodplains • Highly erodible soils would be FLPMA ROW avoidance for underground utilities only • Portions of potential ACECs where management actions would most directly affect relevant and important values (R&Is) Subject to ANILCA Title XI and valid existing rights, the following would be <u>FLPMA ROW avoidance areas</u> for linear realty actions (151,853 acres): • South Connectivity Corridor See Map 2-46.	FLPMA ROW Exclusion & Avoidance Areas There would be no FLPMA ROW exclusion areas.¹ Subject to ANILCA Title XI and valid existing rights, the following would be <u>FLPMA ROW avoidance areas</u> (5,163,653 acres)²: • HVWs (entire geography) • Proposed Innoko Bottoms Priority Wildlife Habitat Area • Unalakleet Wild River Corridor • Tundra mats ROW decisions in the INHT NTMC must be consistent with the values these areas are managed for (see Sections 2.6.8 and 2.6.20) See Map 2-47.	FLPMA ROW Exclusion & Avoidance Areas There would be no FLPMA ROW exclusion areas.¹ Subject to ANILCA Title XI and valid existing rights, the following would be <u>FLPMA ROW avoidance areas</u> (509,798 acres)²: • INHT NTMC • Tundra mats • Riparian areas • Permafrost areas • Proposed Innoko Bottoms Priority Wildlife Habitat Area • Unalakleet Wild River Corridor • Areas with BLM Sensitive Plants • The following five identified rare ecosystems ○ Pingos in Interior Alaska that support forests ○ Tamarack (<i>Larix laricina</i>) dominated associations ○ Dunes that have been stabilized by forests; typically, Aspen-Black spruce ○ Limestone geologic substrate ○ Serpentine geologic substrate • Highly erodible soils would be FLPMA ROW avoidance for underground utilities only Subject to ANILCA Title XI and valid existing rights, the following would be <u>FLPMA ROW avoidance areas</u> for linear realty actions (413,179 acres): • South Connectivity Corridor See Map 2-48.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Wind Energy Development No current management direction was identified.	Wind Energy Development The INHT NTMC would be excluded from wind energy development unless it is permitted under ANILCA Title XI.	Wind Energy Development Same as Alternative B.	Wind Energy Development No specific management direction pertaining to wind development.	Wind Energy Development Same as Alternative B.
SWMFP (BLM 1981) R3-.1: Some historic sites within the FLPMA ROW of the INHT may be suitable for renovation and adaptive use as trapping cabins under caretaker agreements. Permanent occupancy of historic sites should be discouraged to protect the historical integrity of the trail. L-2.2: Assure that the existence and erection of temporary or permanent structures or shelters to be used in conjunction with hunting, trapping, and fishing are consistent with resource management principles.	Permits and Leases Occupancy leases or trapping/subsistence cabin permits would not be allowed within 300 feet of riparian areas (OHWM of streams). Existing trespass cabins within 300-foot setback of riparian areas within the entire geographies of HVWs would not be permitted. Trapping cabins would not be permitted within 30 trail-miles of the exterior boundary of any municipal boundary of a city organized under State law and a radius of 30 miles from the 14(c)(3) lands held in trust under ANCSA by the State Municipal Trustee. This distance may be altered based on identified resource damage or user conflict. No permits or leases would be granted for construction of structures within CSUs and lands managed for wilderness characteristics as a priority except as provided for under ANILCA.	Permits and Leases The distance between trapping cabins would be determined at the implementation level based on documented conflict. Granting of permits and leases in CSUs would be determined at the implementation level based on the compatibility of the permits and leases with management goals of these areas and the requirements in accordance with ANILCA allowances.	Permits and Leases Trapping cabin permits would be determined at the implementation level. Granting of permits and leases in CSUs would be determined at the implementation level based on the compatibility of the permits and leases with management goals of these areas in accordance with ANILCA allowances.	Permits and Leases Same as Alternative C.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Disposals <i>SWMFP (BLM 1981)</i> No current management direction identified.	Exchanges The areas available for disposal under Alternative D would be available for exchange under Alternative B, except Alternative B would not consider parcels for exchange if they are found in the following areas proposed under Alternative B. - Land with wilderness characteristics being managed as a priority - ACECs - Connectivity Corridors Under Alternative B, approximately 341,761 acres are available for exchange. Details on these parcels and their legal descriptions are found in Appendix I. No parcels are available for disposal under Alternative B.	Exchanges The areas available for disposal under Alternative D would be available for exchange under Alternative C except Alternative C would not consider parcels for exchange if they are found in the following areas proposed under Alternative C. - Areas with important cultural or fish values - South Connectivity Corridor Under Alternative C, a total of approximately 356,343 acres are available for exchange. Details on these parcels and their legal descriptions are found in Appendix I. No parcels are available for disposal under Alternative C.	Exchanges and Disposals¹ The following categories of parcels in the planning area are available for exchange or disposal. Category 1 includes unselected land in BLM ownership adjacent to State or Native patented lands that are 1.5 townships (34,560 acres) or smaller that the BLM would consider for disposal. Category 2 includes State or Native selected lands that are 1.5 townships (34,560 acres) or smaller that, if these selected lands remain in BLM ownership after the conveyance process, the BLM would consider for disposal. Category 3 includes unselected land in BLM ownership that are 1.5 townships (34,560 acres) or smaller that are adjacent to State or Native selected land that, if these selected lands are conveyed, the BLM would consider for disposal. Under Alternative D, a total of approximately 450,575 acres are available for exchange or disposal. Details on these parcels and their legal descriptions are found in Appendix I.	Exchanges Same as Alternative C.

Notes:

¹ Per Secretarial Order 3373, published on March 21, 2019, BLM-managed lands within the planning area will only be considered for exchange. As the Draft EIS/RMP was published on March 15, 2019, Alternative D will continue to reference land disposals to remain consistent with what was published, although these lands will no longer be available for disposal under current BLM guidance.

2.6.17 Recreation and Visitor Services

Actions Common to All Action Alternatives including the Proposed RMP, for Recreation and Visitor Services

- Extensive Recreation Management Area (ERMA) (Outside of CFZs) and Undesignated Recreation Lands General Management Actions
 - SRPs are issued according to BLM regulations, see 43 CFR 2932.50.
 - New facilities or development or site-specific restrictions are allowable consistent with site protection, visitor safety, or enhancement of targeted outcomes and setting character.
 - Aircraft use would be unrestricted and associated minimal clearing of rocks, downed logs, and brush would be allowed on landing areas.

- Issuance of SRPs would include appropriate stipulations for the protection and management of natural, cultural, and paleontological resources and would minimize potential impacts to those resources to the extent practicable.
- Commercial, competitive, organized group activities, vending, special area use, and commercial filming in conjunction with an SRP or a land use permit would be authorized according to the normal permitting process at the implementation level. Factors for approving an application for an SRP include, but may not be limited to:
 - Application is made at least 180 days prior to the requested use period, unless otherwise granted by the AO.
 - The proposed recreation use complies with this RMP's resource allocations and existing rules and regulations.
 - If applicable, the applicant is in good standing with other land management agencies.
 - For activities that require more than 50 hours of BLM staff time for planning or oversight, the applicant agrees to a cost recovery agreement, unless otherwise determined by the AO.
 - The duration of SRP permits would depend upon the precedent-setting nature or risk associated with the permit. New or riskier permits may be shorter duration whereas lower risk permits or permits for known activities may be issued for longer time periods. This would be determined at the permitting level by the AO.
- Following an adaptive management approach, the BLM would, as deemed appropriate, monitor in areas of recreational and/or concentrated use with baseline conditions, impact thresholds, and triggers for actions that would be established for the purposes of resource protection, visitor safety, or enhancing targeted outcomes and setting character.
- Develop new restrictions and facilities, as needed and deemed appropriate, for the purposes of site protection, visitor safety, or enhancing targeted outcomes and setting character (Appendix G and Appendix P).
- For BLM-permitted activities, recommend types of cultural training for people unfamiliar with rural Alaska life and culture.

2. CFZs

- No commercial hunting guide/outfitter SRPs would be issued on BLM lands in the CFZs.
- Limit permitting of commercial special forest product and vegetation permits on BLM lands in the CFZ.
- SRPs determined to be consistent with objectives for CFZs would be permitted.

3. INHT Special Recreation Management Area (SRMA) (see Maps 2-49 through 2-52)

- OHV area designation is established as Limited (details on limitations by alternative are provided in Section 2.6.18 and Table 2-17).
- See SRMA table for INHT SRMA for desired experiences, beneficial outcomes, and administrative decisions for this area (Appendix P).
- Apply administrative actions to create and maintain semi-primitive motorized recreation opportunities, experiences and outcomes.

4. In Rohn Recreation Management Zone

- The Rohn Site Recreation Management Zone would be established (363 acres) within the INHT SRMA.
- Except for emergency situations, only the use of dead and down trees for the wood stove in the BLM Public Shelter Cabin would be allowed.
- Non-permitted use would be limited to 3 consecutive days, and to no more than 6 days in total in a calendar year.

5. Unalakleet Wild River Decisions

- Apply administrative actions as needed to protect and enhance the river's free flowing condition, water quality, ORVs and the associated federal reserve water rights, and wild river classification.

6. EUCAs within the planning area would have the following Recreation and Visitor Management-related management decisions applied:

- ERMA (Outside of CFZs) and Undesignated Recreation Lands General management actions common to all would apply.
- INHT SRMA Decisions
 - INHT SRMA same as Alternative C in Table 2-16b
 - Travel Decisions same as Alternative B in Table 2-16b
 - BLM INHT Public Shelter Cabin Use same as Alternative B in Table 2-16b

Description of Recreation and Visitor Services Actions by Alternative

Table 2-16 describes proposed Recreation and Visitor Services actions by alternative, including the Proposed RMP (Alternative E). See Maps 2-49 through 2-52 for further information.

Table 2-16: Recreation and Visitor Services Actions by Alternative

Table 2-16a: Recreation and Visitor Services Actions by Alternative – BSWI ERMA

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
<u>BSWI ERMA</u> None established.	<u>BSWI ERMA</u> Designate the BSWI ERMA (13,110,096 acres) and apply CFZs within the ERMA. ERMA-specific objectives and the management framework for each can be found in Appendix P, Recreation Management Areas See Map 2-49.	<u>BSWI ERMA</u> Designate the BSWI ERMA (13,125,320 acres) and apply CFZs within the ERMA. ERMA-specific objectives and the management framework for each can be found in Appendix P, Recreation Management Areas See Map 2-50.	<u>BSWI ERMA</u> Designate the BSWI ERMA (13,125,320 acres). ERMA-specific objectives and the management framework for each can be found in Appendix P, Recreation Management Areas. See Map 2-51.	<u>BSWI ERMA</u> The ERMA would be composed of the CFZs, defined as the area within a 5-mile buffer surrounding BSWI communities (95,307 acres). ERMA-specific objectives and the management framework for each can be found in Appendix P, Recreation Management Areas. See Map 2-52.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
<u>Community Focus Zone</u> None.	<u>Community Focus Zone</u> Apply the CFZ within a 10-mile buffer surrounding BSWI communities (818,395 acres). CFZ-specific objectives and the management framework for each can be found in Appendix P, Recreation Management Areas. See Map 2-49.	<u>Community Focus Zone</u> Apply the CFZ within a 5-mile buffer surrounding BSWI communities (95,307 acres). CFZ-specific objectives and the management framework for each can be found in Appendix P, Recreation Management Areas. See Map 2-50.	<u>Community Focus Zone</u> No CFZ would be applied around BSWI communities. See Map 2-51.	<u>Community Focus Zone</u> Same as Alternative C. See Map 2-52.
<u>General</u> No stay limits in effect. New restrictions or facilities could be developed for the purposes of site protection, visitor safety, or enhancing targeted outcomes and setting character.	<u>General</u> Stay limits for non-permitted dispersed camping would be limited to 14 consecutive days within a 28-day period. After a camp has been occupied for 14 days, the camp must be moved at least 2 miles to start a new 14-day period.	<u>General</u> Same as Alternative B.	<u>General</u> Stay limits for non-permitted/dispersed camping would be limited to 30 consecutive days within a 40-day period. After a camp has been occupied for 30 days, the camp must be moved at least 2 miles to start a new 30-day period.	<u>General</u> Stay limits for non-permitted dispersed camping would be limited to 14 consecutive days within a 28-day period. After a camp has been occupied for 14 days, the camp must be moved at least 2 miles to start a new 14-day period unless reviewed and approved by the AO.
<u>OHV</u> Per Section 811 of ANILCA – All rural residents engaged in subsistence uses to have reasonable access to subsistence resources on public lands, which allows for appropriate use for subsistence purposes of snowmobiles, motorboats, and other means of surface transportation traditionally employed for such purposes by residents, subject to reasonable regulations.	<u>OHV</u> The BSWI ERMA would follow travel and transportation management decisions for “All BSWI lands not managed as Conservation System Units or Sensitive Resource Areas” under Alternative B as described in Section 2.6.18, Table 2-17.	<u>OHV</u> The BSWI ERMA would follow travel and transportation management decisions for “All BSWI lands not managed as Conservation System Units” under Alternative C as described in Section 2.6.18, Table 2-17.	<u>OHV</u> The BSWI ERMA would follow travel and transportation management decisions for “All BSWI lands not managed as Conservation System Units” under Alternative D as described in Section 2.6.18, Table 2-17.	<u>OHV</u> Same as Alternative C.
<u>Hunting Guide/Outfitter</u> No current management decisions identified. Management direction is determined on a case-by-case basis.	<u>Hunting Guide/Outfitter</u> SRPs for hunting guide/outfitters would not be authorized within CFZs.	<u>Hunting Guide/Outfitter</u> SRPs for hunting guide/outfitters would not be authorized within CFZs.	<u>Hunting Guide/Outfitter</u> N/A; no CFZs under Alternative D.	<u>Hunting Guide/Outfitter</u> Same as Alternative C.
<u>Shuttle Service Operations</u> No current management decisions identified. Management direction is determined on a case-by-case basis.	<u>Shuttle Service Operations</u> To maintain the objectives in the BSWI ERMA, all water, air, and over snow shuttle service operations (businesses that provides transportation services for a fee to and from public lands) would be required to obtain an SRP to access BLM-managed lands in the planning area.	<u>Shuttle Service Operations</u> If increases in use, conflict, and public interest exceed the objectives in the BSWI ERMA, the BLM would engage in additional planning to maintain the objectives of the BSWI ERMA. Possible remedies could include, but are not limited to, requiring SRPs, limiting SRPs, seasonal visitation restrictions, etc.	<u>Shuttle Service Operations</u> If increases in use, conflict, and public interest exceed the objectives in the BSWI ERMA (Appendix G and Appendix P) in a specific area, BLM would increase monitoring, outreach, education, and/or enforcement to those affected at the implementation level.	<u>Shuttle Service Operations</u> Same as Alternative C.

Table 2-16b: Recreation and Visitor Services Actions by Alternative – INHT SRMA

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
INHT SRMA Area No current management direction was identified.	INHT SRMA Area Designate the INHT SRMA. SRMA-specific objectives and the management framework for each can be found in Appendix P, Recreation Management Areas. The SRMA would comprise the following areas: • Farewell Burn – located south of Nikolai, Alaska (46,591 acres) • Kaltag Portage – located between Unalakleet and Kaltag, Alaska (241,512 acres) • Rohn – located southeast of Nikolai (363 acres) • Iditarod-Anvik Connecting Trail (67,333 acres) See Map 2-49.	INHT SRMA Area Designate the INHT SRMA. SRMA-specific objectives and the management framework for each can be found in Appendix P, Recreation Management Areas. The SRMA would comprise the following areas: • Farewell Burn – located south of Nikolai, Alaska (31,367 acres) • Kaltag Portage – located between Unalakleet and Kaltag, Alaska (241,512 acres) • Rohn – located southeast of Nikolai (363 acres) Iditarod-Anvik Connecting Trail (67,333 acres) See Map 2-50.	INHT SRMA Area Same as Alternative C. See Map 2-51.	INHT SRMA Area Same as Alternative C. See Map 2-52.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Travel Decisions Summer OHV use and associated resource impacts would continue on the INHT	Travel Decisions The INHT SRMA would follow travel and transportation management decisions for the INHT TMA under Alternative B: OHV designation = Limited Summer Casual and Subsistence Access: Casual and subsistence summer OHV access would be prohibited. Winter Casual and Subsistence Access: • Winter cross-country casual and subsistence access allowed for snowmobiles only. • If winter casual and subsistence snowmobile access results in degradation of the resources or prevents trail management that meets requirements of the National Trails Act, then this would be prohibited in affected areas. The Rohn Site would have separate travel management: OHV designation = Limited Summer Casual and Subsistence Use: The Rohn Site would eliminate summer seasonal casual use and subsistence OHV use if the AO finds that such use is causing or is likely to cause an adverse impact. Winter Casual and Subsistence Use: Winter casual and subsistence OHV use would be open to cross-country travel with snowmobiles only (as defined in Appendix B). The BLM would develop a Travel Management Plan for the INHT NTMC TMA and the Rohn Site, including the inventory and designation of routes for motorized, non-motorized, and non-motorized mechanized use.	Travel Decisions Same as Alternative B.	Travel Decisions OHV designation = Limited Summer Casual and Subsistence Access: • Casual summer OHV access would be prohibited. • Subsistence summer OHV access would be limited to existing summer routes and would include ATVs only. Winter Casual and Subsistence Access: • Winter cross-country casual and subsistence access allowed for snowmobiles only. • If winter casual and subsistence snowmobile access results in degradation of the resources or prevents trail management that meets requirements of the National Trails Act, then this would be prohibited in affected areas. The Rohn Site would have separate travel management: OHV designation = Limited Summer Casual and Subsistence Use: The Rohn Site would allow seasonal summer casual and subsistence OHV use. Would not be limited to existing routes. Winter Casual and Subsistence Use: Winter cross-country casual and subsistence access would be allowed for snowmobiles and over-the-snow vehicles. The BLM would develop a Travel Management Plan for the INHT NTMC TMA and the Rohn Site including the inventory and designation of routes for motorized, non-motorized, and non-motorized mechanized use.	Travel Decisions Same as Alternative B.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
BLM INHT Public Shelter Cabin Use No current management direction exists.	BLM INHT Public Shelter Cabin Use There would be 3-day stay limit in public shelter cabins for casual use Only the use of dead and down trees for shelter cabin wood stoves would be allowed. Cutting of live trees would be prohibited.	BLM INHT Public Shelter Cabin Use Same as Alternative B.	BLM INHT Public Shelter Cabin Use There would be a 14-day stay limit in public shelter cabins for casual use.	BLM INHT Public Shelter Cabin Use Same as Alternative B.

Table 2-16c: Recreation and Visitor Services Actions by Alternative – Planning Area-Wide

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
<u>Providing Assistance with Cultural Tourism</u> No current management direction was identified. Management direction is determined on a case-by-case basis.	<u>Providing Assistance with Cultural Tourism</u> The 2012 Memorandum of Understanding between the BLM (and other federal agencies) and the American Indian Alaska Native Tourism Association (AIANTA) provides for opportunities to mutually enhance tourism, travel, and recreation on federal and tribal lands. The 2016 Native American Tourism and Improving Visitor Experience Act (NATIVE Act) provides an additional mechanism to increase tourism capacity in Native communities and coordination with federal agencies. Under Alternative B, the BLM would cooperate with AIANTA to carry out activities that facilitate the development of sustainable projects and policies that promote the management of public and tribal lands in ways that enhance cultural tourism in the planning area.	<u>Providing Assistance with Cultural Tourism</u> Same as Alternative B.	<u>Providing Assistance with Cultural Tourism</u> Same as Alternative B, plus upon request from BSWI communities, the BLM would seek funding to provide grants, loans, and technical assistance to BSWI communities in order to increase cultural tourism capacity, spur associated important infrastructure development, and elevate living standards in BSWI communities.	<u>Providing Assistance with Cultural Tourism</u> Same as Alternative B.

2.6.18 Travel and Transportation Management

Actions Common to All Action Alternatives, including the Proposed RMP, for Travel and Transportation Management

1. General Transportation Management Actions

- Areas known to have high OHV use would be prioritized for natural and cultural resource surveys, as deemed appropriate and dependent on changing funding and circumstances, to assess levels of impact to these resources (see also Table 2-7, Cultural Resources).
- Those OHVs transported by aircraft or boats to areas with special designations would be subject to all OHV limitations specified for that special designation.
- BLM-managed public lands in the planning area would be designated as “Limited” to motorized travel with exceptions noted in Table 2-17. Designation of an area as “Limited” is a planning-level decision. Identification of specific limitations within the “Limited” designation (e.g., vehicle weight, vehicle width) are implementation-level planning decisions and would be developed as part of a travel and transportation plan that would be completed by the BLM subsequent to this RMP. The criteria guiding the development of

these implementation-level plans are described below. Additionally, this RMP provides interim-guidance on types of limitations until the implementation level plans are completed. The interim-guidance this RMP provides regarding types of limitations is provided in the alternatives table below. The “limited” designation for OHV use would be implemented based on 43 CFR 8342.1. Limitations to motorized access employed by rural residents engaged in subsistence uses would be implemented based on ANILCA Sections 811(a) and (b) and would not go into effect until the restriction or closure process is followed (36 CFR 13.460(b); 50 CFR 36.12(b)). Closures and restrictions to traditional activities and for travel to and from villages and homesites authorized in ANILCA Section 1110(a) would not go into effect until the closure process is followed and only upon a finding by the BLM that such use would be detrimental to the resource values of the unit or area in accordance with 43 CFR 36.11(h). This also applies to interim guidance (43 CFR Part 36).

2. Criteria for Implementation-Level Travel Planning

- Travel management planning would be completed in accordance with BLM’s Manual 1626, Travel and Transportation Management Manual (BLM 2016b).
- The BLM would develop travel management plans identifying travel routes.
- If summer use routes are identified during implementation-level travel management planning, these designations would be based on the minimization criteria found in 43 CFR 8342.1 and the following criteria:
 - Prioritize a route system on lands of high resilience to repeated passage of summer OHVs.
 - Include existing routes (including those on Map 3.3.7-1 and others identified during implementation-level travel planning) accessing subsistence resources in the designated route network.
 - Reduce redundant or social trails accessing the same areas and resources unless multiple routes are found necessary for multiple recreation experiences that are supported by the RMP.
 - Meet connectivity and destination goals for rural communities.
 - During implementation-level planning, consider resource impacts, other resource decisions, and resource use needs when developing a route system.
- Changes to travel management plans may be requested in writing to the AO and should include details and rationale for making the change. The AO would respond in writing regarding acceptance of the proposal for changes.
- Existing roads and trails would be utilized for access where feasible, rather than creating new roads and trails.

3. EUCAs within the planning area would have the following Travel Transportation Management-related management decisions applied:

- Vegetation and Wildlife Travel Management same as Alternative B in Table 2-17
- All Lands Not Designated as CSUs same as Alternative C in Table 2-17
- INHT NTMC TMA same as Alternative B in Table 2-17

Travel Management Definitions

The following travel management definitions are defined below for ease in understanding the alternatives:

1. Off-Highway Vehicle (OHV) Categories

- **Utility Terrain Vehicle (UTV):** Any recreational motor vehicle other than an ATV (as defined below), motorcycle, or snowmobile (as defined below) designed for and capable of travel over unpaved roads, traveling on four or more low-pressure tires, with a curb weight of 1,500 pounds or less, (2,000 pounds gross vehicle weight rating [GVWR]), and a maximum width of 66 inches. Examples include (but are not limited to) production “quad/side-by-sides” and Argos. Utility type vehicles do not include vehicles specially designed to carry a person with disabilities.
- **All-Terrain Vehicle (ATV):** A wheeled vehicle other than a snowmobile that is defined as having a curb weight of 1,000 pounds or less (1,500 pounds GVWR) and a maximum width of 50 inches, steered using handlebars, travels on three or more tires (no tracks), and has a seat designed to be straddled by the operator. Examples include (but are not limited to) production “four wheelers.”
- **Motorcycle:** Motorized vehicle with two tires and with a seat designed to be straddled by the operator. This includes motorcycles converted to run on a track(s) and ski(s) specifically over snow. A motorcycle is capable of either on- or off-highway use.
- **Snowmachine, Snowmobile:** A motorized vehicle designed for use over snow that runs on a track or tracks and uses a ski or skis for steering, has a curb weight of 1,000 pounds or less and a maximum width of 50 inches or less that is steered using handlebars and has a seat designed to be straddled by the operator. Examples include (but are not limited to) production snowmobiles. Snowmobiles do not include machinery used strictly for the grooming of non-motorized trails.
- **Over-Snow Vehicle (OSV):** A motor vehicle designed or converted for use over snow that is not a snowmobile (as defined above), runs on a track or tracks, uses a ski or skis or track for turning, and has a vehicle width greater than 50 inches. Examples include (but are not limited to) vehicles or trucks converted to tracks, snow cats, snow buses, and Nodwells. All OSVs would require a pre-use authorization for use of this vehicle type.

2. Seasons and Types of OHV Access

- **Winter:** Any time there is adequate snow cover or frost to allow the operation of OSVs or snowmobiles (as defined above) without damaging surface vegetation and soils (43 CFR 36 ANILCA Special Access Provision). Adequate snow cover or frost shall mean snow of sufficient depth, generally 6-12 inches or more, or a combination of snow and frost depth, sufficient to protect the underlying vegetation and soil.
- **Summer:** Any time there is not adequate snow cover or frost to allow the operation of OSVs or snowmobiles without damaging surface vegetation and soils.
- **Subsistence Use:** Includes any use of surface use transportation as a means of access to subsistence resources as provided for under ANILCA, Section 811 and/or 1110, described in detail under Section 2.3.1.

- **Casual Use:** Includes any use of motorized vehicle that is not for subsistence, military, or emergency purpose and is not related to a permitted, authorized or administrative activity authorized by the BLM or otherwise officially approved. Casual use is synonymous with Off-Road Vehicle/OHV use as defined by 43 CFR 8340.0-5.

3. Route Types

- **Road:** A linear route declared a road by the owner, managed for use by low-clearance vehicles having four or more wheels, and maintained for regular and continuous use.
- **Primitive Road:** A linear route managed for use by four-wheel drive or high-clearance vehicles. Primitive roads do not normally meet any BLM road design standards.
- **Trail:** A linear route managed for human-powered, stock, or OHV forms of transportation or for historical or heritage values. Trails are not generally managed for use by four-wheel drive or high-clearance vehicles.
- **Primitive Route:** Any transportation linear feature located within a wilderness study area or lands with wilderness characteristics prioritized for management of lands with wilderness character by a land use plan and not meeting the wilderness inventory road definition.
- **Transportation Linear Disturbance:** An existing user made route that is not actively managed by BLM. The decision regarding whether to retain or close this type of transportation linear feature would be made through implementation-level travel management planning.
- **Temporary Route:** Short-term overland roads, primitive roads, or trails authorized or acquired for the development, construction, or staging of a project or event that has a finite lifespan.
- **Treadway:** The actively used surface of a trail (FHWA 2007).

Description of Travel and Transportation Management Actions by Alternative

Table 2-17 describes proposed Travel and Transportation Management actions by alternative, including the Proposed RMP (Alternative E). See Maps 2-53 and 2-54 for further information.

Table 2-17: Travel and Transportation Management Actions by Alternative

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
All lands in planning area managed as undesignated.	<u>Vegetation and Wildlife Travel Management</u> <u>SSS flora and lichen areas (caribou habitat)</u> <u>Travel Management Decisions</u> If monitoring shows observable or quantifiable degradation of dwarf shrub, lichen, or sparse vegetation habitats due to OHV use, then appropriate management actions would be developed and implemented. These actions could include: • OHV use limitations • Trail relocation • Trail hardening • Trail closure <u>Innoko Bottoms Priority Wildlife Habitat Area</u> To minimize impacts to subsistence resources and reduce subsistence conflict, casual use airboats and hovercraft would not be allowed on non-navigable waterways on BLM-managed public lands in the proposed Innoko Bottoms Priority Wildlife Habitat Area. <u>Raptors</u> To reduce disturbance impacts on priority raptors, motorized ground vehicle use by BLM permittees would be minimized within 1 mile of any known priority raptor nest during the nesting season. Such use is prohibited within one-half mile of nests during the nesting season unless an exception is granted by the AO in coordination with USFWS. <u>Motorized Ground Vehicle Use Buffers</u> To reduce disturbance impacts on priority raptors, motorized ground vehicle use by BLM permittees would be minimized within 1 mile of any known priority raptor nest during the nesting season. Such use is prohibited within one-half mile of nests during the nesting season unless an exception is granted by the AO in coordination with USFWS.	<u>Vegetation and Wildlife Travel Management</u> Same as Alternative B.	<u>Vegetation and Wildlife Travel Management</u> <u>SSS flora and lichen areas (caribou habitat) Travel Management Decisions</u> No limitations on OHV use. <u>Innoko Bottoms Priority Wildlife Habitat Area</u> There would be no restrictions on motorized watercraft in non-navigable waters on BLM-managed public lands in the proposed Innoko Bottoms Priority Wildlife Habitat Area. <u>Raptors</u> No specific travel and transportation measures.	<u>Vegetation and Wildlife Travel Management</u> Same as Alternative B.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
All lands in planning area managed as undesignated	<u>All Lands Not Designated as CSUs or Sensitive Resource Areas</u> OHV Designation = Limited Summer Casual and Subsistence Access: • Summer subsistence overland travel use would be limited to ATVs (as defined in Appendix B) if the AO determines that such use is causing or is likely to cause an adverse impact. • Summer casual OHV use (as defined in Appendix B) would be limited to existing routes (as shown in BLM's current route inventory once implementation planning occurs) only. Winter Casual and Subsistence Access: • Winter subsistence have no restrictions. • Winter casual use would be snowmobiles only (as defined in Appendix B).	<u>All Lands Not Designated as CSUs</u> OHV Designation = Limited Summer Casual and Subsistence Access: • Summer subsistence overland travel use would be limited to ATVs and UTVs (as defined in Appendix B) unless the AO determines that such use is causing or is likely to cause an adverse impact. • Summer OHV casual use would be limited to existing routes (as shown in the BLM's current route inventory once implementation planning occurs). Winter Casual and Subsistence Access: • No limitations on winter subsistence and casual use cross-country travel. Work in coordination with the State of Alaska to designate stream crossing routes; these routes would be designated within the 100-year floodplain.	<u>All Lands Not Designated as CSUs</u> OHV Designation = Limited Summer Casual and Subsistence Access: • No limitations on summer subsistence overland travel use. • No limitations on summer casual use. Winter Casual and Subsistence Access: • No limitations on winter subsistence and casual use cross-country travel. Work in coordination with the State of Alaska to designate stream crossing routes; these routes would be designated within the 100-year floodplain.	<u>All Lands Not Designated as CSUs</u> Same as Alternative C.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
<u>Unalakleet National Wild River Plan (BLM 1983):</u> Traditional means of access such as outboard motorboats, airplanes, dogsleds, and snowmobiles are allowed for all river users. Other means of access, such as inboard motorboats, airboats, hovercraft, and ATVs are not allowed in the corridor.	<u>Unalakleet Wild River Corridor Travel Management Decisions</u> OHV Designation = Limited Summer Casual and Subsistence Access: - Casual summer OHV access would be prohibited. - Subsistence summer OHV access would be limited to existing trails (not including the INHT), primitive roads, and roads (as shown in the BLM's current route inventory once implementation planning occurs) and would include ATVs only (as defined in Appendix B) if the AO determines that such use is causing or is likely to cause an adverse impact. Winter Casual and Subsistence Access: - Winter cross-country OHV access allowed for snowmobiles only (as defined in Appendix B). In cases where the INHT NTMC is co-located with the Unalakleet Wild River, the management prescriptions for the INHT NTMC shall take precedence.	<u>Unalakleet Wild River Corridor Travel Management Decisions</u> OHV Designation = Limited Summer Casual and Subsistence Access: - Casual summer OHV access would be limited to existing trails (not including the INHT), primitive roads, and roads (as shown in the BLM's current route inventory once implementation planning occurs) and would include ATVs only (as defined in Appendix B). - Subsistence cross-country summer OHV access would be allowed and would include ATVs-only if the AO finds that such use is causing or is likely to cause an adverse impact. Winter Casual and Subsistence Access: - Same as Alternative B. In cases where the INHT NTMC is co-located with the Unalakleet Wild River, the management prescriptions for the INHT NTMC shall take precedence.	<u>Unalakleet Wild River Corridor Travel Management Decisions</u> OHV Designation = Limited Summer Casual and Subsistence Access: - Casual summer OHV access would be limited to existing trails (not including the INHT), primitive roads, and roads (as shown in the BLM's current route inventory once implementation planning occurs) and would include both UTVs and ATVs (as defined in Appendix B). - Subsistence cross-country summer OHV access would be allowed and would allow both UTVs and ATVs (as defined in Appendix B) if the AO finds that such use is causing or is likely to cause an adverse impact. Winter Casual and Subsistence Access: - Winter cross-country OHV access allowed and would include snowmobiles (as defined in Appendix B). In cases where the INHT NTMC is co-located with the Unalakleet Wild River, the management prescriptions for the INHT NTMC shall take precedence.	<u>Unalakleet Wild River Corridor Travel Management Decisions</u> Same as Alternative C.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
All lands in planning area managed as undesignated	INHT NTMC TMA OHV classification = Limited Summer Casual and Subsistence Access: Casual and subsistence summer OHV Access would be prohibited. Winter Casual and Subsistence Access: • Winter cross-country casual and subsistence access allowed for snowmobiles only. • If winter casual and subsistence snowmobile access results in degradation of the resources or prevents trail management that meets requirements of the National Trails Act, then this would be prohibited in affected areas. The Rohn Site would have separate travel management as shown below.	INHT NTMC TMA Same as Alternative B.	INHT NTMC TMA OHV classification = Limited Summer Casual and Subsistence Access: • Casual summer OHV access would be prohibited. • Subsistence summer OHV access would be limited to existing summer routes and would include ATVs only. Winter Casual and Subsistence Access: • Winter cross-country casual and subsistence access allowed for snowmobiles only. • If winter casual and subsistence snowmobile access results in degradation of the resources or prevents trail management that meets requirements of the National Trails Act, then this would be prohibited in affected areas. The Rohn Site would have separate travel management as shown below.	INHT NTMC TMA Same as Alternative B.
<u>Rohn Site Travel Decisions</u> No existing management direction. Per 43 CFR 36.11 Regulations for special access provisions of ANILCA - OHVs are prohibited except on roads and parking areas in CSUs, except by permit.	<u>Rohn Site Travel Decisions</u> OHV designation = Limited Summer Casual and Subsistence Use: The Rohn Site would eliminate summer seasonal casual use and subsistence OHV use if the AO finds that such use is causing or is likely to cause an adverse impact. Winter Casual and Subsistence Use: Winter casual and subsistence OHV use would be open to cross-country travel with snowmobiles only (as defined in Appendix B). The BLM would develop a Travel Management Plan for the INHT NTMC TMA and the Rohn Site, including the inventory and designation of routes for motorized, non-motorized, and non-motorized mechanized use.	<u>Rohn Site Travel Decisions</u> OHV designation = Limited Summer Casual and Subsistence Use: The Rohn Site would allow seasonal casual and subsistence OHV use but would be limited to existing routes (as shown in BLM current route inventory once implementation planning occurs). Subsistence use would be limited if the AO finds that such use is causing or is likely to cause an adverse impact. Winter Casual and Subsistence Use: Winter cross-country casual and subsistence access would be allowed for snowmobiles only. The BLM would develop a Travel Management Plan for the INHT NTMC TMA and the Rohn Site, including the inventory and designation of routes for motorized, non-motorized, and non-motorized mechanized use.	<u>Rohn Site Travel Decisions</u> OHV designation = Limited Summer Casual and Subsistence Use: The Rohn Site would allow seasonal summer casual and subsistence OHV use. Would not be limited to existing routes. Winter Casual and Subsistence Use: Winter cross-country casual and subsistence access would be allowed for snowmobiles and over-the-snow vehicles. The BLM would develop a Travel Management Plan for the INHT NTMC TMA and the Rohn Site including the inventory and designation of routes for motorized, non-motorized, and non-motorized mechanized use.	<u>Rohn Site Travel Decisions</u> Same as Alternative C.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
All lands in planning area managed as Undesignated.	<u>Lands Managed for Wilderness Characteristics TMA</u> OHV designation = Limited Summer OHV Casual and Subsistence Access: - Casual summer OHV access prohibited. - Summer subsistence OHV access would be limited to existing routes (as shown BLM's current route inventory once implementation planning occurs) and would include ATVs only (as defined in Appendix B) if the AO finds that such use is causing or is likely to cause an adverse impact. Winter Casual and Subsistence Access: - Winter casual and subsistence OHV access would be open to cross-country travel with snowmobiles only.	<u>Lands Managed for Wilderness Characteristics TMA</u> N/A	<u>Lands Managed for Wilderness Characteristics TMA</u> N/A	<u>Lands Managed for Wilderness Characteristics TMA</u> N/A
All lands in planning area managed as undesignated.	<u>Travel Management in ACECs</u> See Appendix N for travel management decisions specific to each ACEC.	<u>Travel Management in ACECs</u> N/A	<u>Travel Management in ACECs</u> N/A	<u>Travel Management in ACECs</u> N/A

2.6.19 Areas of Critical Environmental Concern

The term “ACEC” identifies areas within BLM-managed public lands where special management is required to protect and prevent irreparable damage to important historic, cultural, or scenic values; fish and wildlife resources, or other natural systems or processes; or to protect life and provide safety from natural hazards (BLM 2018c). The analysis and the resultant findings for ACEC relevance and importance criteria was performed pursuant to FLPMA Section 202(c)(3) (43 U.S.C. 1712), 43 CFR 1610.7-2, and BLM Manual 1613 *Areas of Critical Environmental Concern* (BLM 1988). The *Areas of Critical Environmental Concern Report on the Application of the Relevance and Importance Criteria and Special Management for the Bering Sea-Western Interior Resource Management Plan* (BLM 2018c) provides detailed information on the analysis and findings. The analysis from this report and BLM Manual 1613 Section 3.33.E, Rationale for Designating or Not Designating, were used to guide development of a range of alternatives from Alternative B, which designates 12 ACECs to Alternative C which provides plan-level management prescriptions that are area-specific to undesignated potential ACECs to Alternatives D and E, which emphasize flexibility in future site-specific implementation and reduce plan-level prescription and rigidity by making use of certain additional BMPs and SOPs (Appendix O) when authorizing site-specific projects where R&I's are present. Moreover, BLM considered the remoteness and lack of infrastructure and facilities in Alaska as well as a low present and future potential for development that could impact the R&I's identified and therefore informs the decision as to whether special management is needed. As such, Alternatives C, D, and, to the greatest extent, E also reflect an effort by BLM to balance between the provision of FLPMA that give priority to the designation and protection of ACECs, the recognition of low existing development and potential for future development, and the goals of allowing for the possibility of widespread multiple use across this planning

area. Table 2-18 summarizes the ACECs that are being considered in the BSWI RMP alternatives, as well as their respective relevance and importance criteria.

Actions Common to All Action Alternatives, including the Proposed RMP, for ACECs

There is no management common to all action alternatives for ACECs.

Description of Areas of Critical Environmental Concern Actions by Alternative

Table 2-18 describes proposed ACEC actions by alternative, including the Proposed RMP (Alternative E). See Map 2-55 for the proposed ACEC boundaries for Alternative B. Proposed special management for each ACEC under Alternative B is included in Appendix N.

Table 2-18: Areas of Critical Environmental Concern Actions by Alternative

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
<u>Anvik Traditional Trapping Area ACEC</u> Not managed as an ACEC.	<u>Anvik Traditional Trapping Area ACEC</u> (21,366 acres) Relevance and Importance criteria: Cultural Resources	<u>Anvik Traditional Trapping Area ACEC</u> Not designated as an ACEC.	<u>Anvik Traditional Trapping Area ACEC</u> Same as Alternative C.	<u>Anvik Traditional Trapping Area ACEC</u> Same as Alternative C.
<u>Anvik River ACEC</u> (114,386 acres) Relevance and Importance criteria: Fisheries	<u>Anvik River ACEC</u> Not managed as an ACEC. 100,948 acres within the existing Anvik River ACEC would be managed as the Anvik River Watershed ACEC. 13,438 acres within the existing Anvik River ACEC boundary would no longer be managed as an ACEC.	<u>Anvik River ACEC</u> Not designated as an ACEC.	<u>Anvik River ACEC</u> Same as Alternative C.	<u>Anvik River ACEC</u> Same as Alternative C.
<u>Anvik River Watershed ACEC</u> Not managed as an ACEC.	<u>Anvik River Watershed ACEC</u> (248,867 acres) Relevance and Importance criteria: Fisheries. Anvik River Watershed ACEC would encompass 100,948 acres of land within the existing Anvik River Watershed.	<u>Anvik River Watershed ACEC</u> Not designated as an ACEC.	<u>Anvik River Watershed ACEC</u> Same as Alternative C.	<u>Anvik River Watershed ACEC</u> Same as Alternative C.
<u>Gisasa River ACEC</u> (278,055 acres) Relevance and Importance criteria: Fisheries	<u>Gisasa River ACEC</u> Same as Alternative A, but would be 278,241 acres	<u>Gisasa River ACEC</u> Not designated as an ACEC.	<u>Gisasa River ACEC</u> Same as Alternative C.	<u>Gisasa River ACEC</u> Same as Alternative C.
<u>Inglutalik ACEC</u> (71,713 acres) Relevance and Importance criteria: Fisheries	<u>Inglutalik ACEC</u> Same as Alternative A, but would be 70,888 acres	<u>Inglutalik ACEC</u> Not designated as an ACEC.	<u>Inglutalik ACEC</u> Same as Alternative C.	<u>Inglutalik ACEC</u> Same as Alternative C.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Kateel River ACEC (568,083 acres) Relevance and Importance criteria: Fisheries	Kateel River ACEC Same as Alternative A, but would be 692,659 acres	Kateel River ACEC Not designated as an ACEC.	Kateel River ACEC Same as Alternative C.	Kateel River ACEC Same as Alternative C.
Nulato River ACEC Not managed as an ACEC.	Nulato River ACEC (344,182 acres) Relevance and Importance criteria: Fisheries Nulato River ACEC would encompass 649 acres of land within the existing North River ACEC boundary and 868 acres within the existing drainages of the Unalakleet ACEC boundary.	Nulato River ACEC Not designated as an ACEC.	Nulato River ACEC Same as Alternative C.	Nulato River ACEC Same as Alternative C.
Shaktoolik River ACEC (192,591 acres) Relevance and Importance criteria: Fisheries	Shaktoolik River ACEC Same as Alternative A, but would be 191,067 acres Shaktoolik River ACEC would encompass 1,621 acres of land within the existing North River ACEC boundary.	Shaktoolik River ACEC Not designated as an ACEC.	Shaktoolik River ACEC Same as Alternative C.	Shaktoolik River ACEC Same as Alternative C.
Sheefish Spawning ACEC Not managed as an ACEC.	Sheefish Spawning ACEC (696,901 acres) Relevance and Importance criteria: Cultural Resources, Fisheries	Sheefish Spawning ACEC Not designated as an ACEC.	Sheefish Spawning ACEC Same as Alternative C.	Sheefish Spawning ACEC Same as Alternative C.
Swift River Whitefish Spawning ACEC Not managed as an ACEC.	Swift River Whitefish Spawning ACEC (220,032 acres) Relevance and Importance criteria: Fisheries	Swift River Whitefish Spawning ACEC Not designated as an ACEC.	Swift River Whitefish Spawning ACEC Same as Alternative C.	Swift River Whitefish Spawning ACEC Same as Alternative C.
Tagagawik River ACEC Not managed as an ACEC.	Tagagawik River ACEC (301,044 acres) Relevance and Importance criteria: Cultural Resources	Tagagawik River ACEC Not designated as an ACEC.	Tagagawik River ACEC Same as Alternative C.	Tagagawik River ACEC Same as Alternative C.
Ungalik River ACEC (112,719 acres) Relevance and Importance criteria: Fisheries	Ungalik River ACEC Same as Alternative A, but would be 113,454 acres	Ungalik River ACEC Not designated as an ACEC.	Ungalik River ACEC Same as Alternative C.	Ungalik River ACEC Same as Alternative C.
North River ACEC (132,200 acres) Relevance and Importance criteria: Fisheries	North River ACEC Not managed as an ACEC. 67,315 acres within the existing North River ACEC would be managed as part of the Nulato River ACEC, Shaktoolik ACEC, and Unalakleet River Watershed ACEC. 64,885 acres within the existing North River ACEC boundary would no longer be managed as an ACEC.	North River ACEC Not designated as an ACEC.	North River ACEC Same as Alternative C.	North River ACEC Same as Alternative C.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
<u>Drainages of the Unalakleet ACEC</u> (403,378 acres) Relevance and Importance criteria: Fisheries and Cultural	<u>Drainages of the Unalakleet ACEC</u> Not managed as an ACEC. 300,836 acres within the existing drainages of the Unalakleet ACEC would be managed as part of the Nulato River ACEC and Unalakleet River Watershed ACEC. 102,542 acres within the existing drainages of the Unalakleet ACEC boundary would no longer be managed as an ACEC.	<u>Drainages of the Unalakleet ACEC</u> Not designated as an ACEC.	<u>Drainages of the Unalakleet ACEC</u> Same as Alternative C.	<u>Drainages of the Unalakleet ACEC</u> Same as Alternative C.
<u>Unalakleet River Watershed ACEC</u> Not managed as an ACEC.	<u>Unalakleet River Watershed ACEC</u> (733,995 acres) Relevance and Importance criteria: Cultural Resources, Fisheries. Unalakleet River Watershed ACEC would encompass 299,968 acres of land within the existing drainages of the Unalakleet ACEC boundary and 65,046 acres within the existing North River ACEC boundary.	<u>Unalakleet River Watershed ACEC</u> Not designated as an ACEC.	<u>Unalakleet River Watershed ACEC</u> Same as Alternative C.	<u>Unalakleet River Watershed ACEC</u> Same as Alternative C.
<u>Box River Treeline RNA</u> (13,592 acres) Relevance and Importance criteria: Not found to meet criteria	<u>Box River Treeline RNA</u> Not designated as an ACEC.	<u>Box River Treeline RNA</u> Same as Alternative B.	<u>Box River Treeline RNA</u> Same as Alternative B.	<u>Box River Treeline RNA</u> Same as Alternative B.
<u>Peregrine Falcon Nesting Habitat ACEC</u> (6,354 acres) Relevance and Importance criteria: Not found to meet criteria	<u>Peregrine Falcon Nesting Habitat ACEC</u> Not designated as an ACEC.	<u>Peregrine Falcon Nesting Habitat ACEC</u> Same as Alternative B.	<u>Peregrine Falcon Nesting Habitat ACEC</u> Same as Alternative B.	<u>Peregrine Falcon Nesting Habitat ACEC</u> Same as Alternative B.
<u>Kuskokwim River Raptor Nesting Habitat ACEC</u> (4,896 acres) Relevance and Importance criteria: Not found to meet criteria	<u>Kuskokwim River Raptor Nesting Habitat ACEC</u> Not designated as an ACEC.	<u>Kuskokwim River Raptor Nesting Habitat ACEC</u> Same as Alternative B.	<u>Kuskokwim River Raptor Nesting Habitat ACEC</u> Same as Alternative B.	<u>Kuskokwim River Raptor Nesting Habitat ACEC</u> Same as Alternative B.
<u>Total ACEC Acreage (percentage of planning area) by Alternative A</u> 1,884,376 acres (14%)	<u>Total ACEC Acreage (percentage of planning area) by Alternative B</u> 3,912,698 acres (29%)	<u>Total ACEC Acreage (percentage of planning area) by Alternative C</u> No acreage would be designated as ACECs.	<u>Total ACEC Acreage (percentage of planning area) by Alternative D</u> No acreage would be designated as ACECs.	<u>Total ACEC Acreage (percentage of planning area) by Alternative E</u> No acreage would be designated as ACECs.

2.6.20 National Trails

Actions Common to All Action Alternatives, including the Proposed RMP, for National Trails

1. Establish the INHT NTMC within the planning area, composed of three geographically distinct areas. The purpose of the NTMC is to conserve the resources, qualities, values, associated settings, and the primary uses that support the nature and purpose of the INHT.

Detailed goals and objectives for the INHT on BLM lands, aimed at fulfilling the intent of the NTSA, are found in Appendix G. The areas identified as the INHT NTMC (listed below) are further referenced in Table 2-19.

- **Farewell Burn** – located south of Nikolai, Alaska
 - **Kaltag Portage** – located between Unalakleet and Kaltag, Alaska
 - **Rohn** – located southeast of Nikolai
2. Approve and manage SRPs according to the standard permitting process at the implementation level.
 3. Designate the INHT as a TMA for route designation during a travel management planning process. See Section 2.6.18 for travel management decisions for the INHT TMA.
 4. Mineral actions in the INHT NTMC would be managed with the following prescriptions:
 - In accordance with 43 CFR 3400.2, coal leases shall not be issued on federal lands within the National System of Trails (see BLM M5280 4.2 E.6.i.).
 - New audible and atmospheric effects would not exceed current levels in the NTMC. Proposals that introduce new, or higher than current level, audible (noise) and atmospheric (e.g., smoke, dust) effects within the NTMC would be authorized only if they do not cause more than short-term, minimal impacts to the INHT, significant INHT-related historical or recreational sites, or INHT-related recreational activities (acceptable increases in sound levels in the short term would be 6 decibels and long term up to 3 decibels; smoke and dust would be limited to 50 percent opacity in the short term and 20 percent in the long term).
 5. If the INHT is located within any lands where a withdrawal is revoked and if the State of Alaska, through the Statehood Act, or an ANCSA corporation, through the ANCSA, desires conveyance of the parcels: at the time of any future conveyance to the State of Alaska or ANCSA corporation, a reservation would be made for the INHT under the NTSA and Section 906(I) of the ANILCA.
 6. While providing for ANILCA access provisions, the travel management classification for the INHT NTMC would be Limited. Travel management actions by alternative for the INHT NTMC (which corresponds to the INHT TMA) are included in Section 2.6.18 and Table 2-17.
 7. If winter casual and subsistence OHV use results in degradation of the resources or prevents trail management that meets requirements of the NTSA, then this may be prohibited in affected areas.
 8. Within the planning area, the BLM holds an NTSA reservation to the federal government for some INHT segments on blocks of land conveyed to the State of Alaska under the Alaska Statehood Act. These segments of trail would not be managed as part of the NTMC and would not be subject to the prescriptions described in this section. Similarly, these segments would not be managed as TMAs and/or for surface travel management, nor would they be managed as an SRMA. The BLM's authority is strictly limited to the NTSA and language found on the land patent documents agreed to by the State at the time of conveyance.

9. Fire management within the NTMC would be as follows:

- The Rohn Site and BLM public shelter cabins along the INHT NTMC would be prioritized for both fuels reduction and fire protection.
- NRHP-eligible historic roadhouses along the INHT NTMC would be prioritized for fuels treatment and fire protection.
- Fire management in the INHT NTMC would be implemented without ATVs, dozers, or other surface-disturbing vehicles unless specifically authorized by the AO.

Description of National Trails Actions by Alternative

Table 2-19 describes proposed National Trails actions by alternative, including the Proposed RMP (Alternative E). See Maps 2-41, 2-56, and 2-57 for additional information.

Table 2-19: National Trails Actions by Alternative

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
No current RMP management direction identified. Management direction is determined on a case-by-case basis. The Iditarod National Historic Trail, Seward to Nome Route: A Comprehensive Management Plan (BLM 1986b) is the only current planning document for the INHT.	<u>INHT National Trail Management Corridor</u> Establish the INHT NTMC within the planning area. This would comprise three geographically distinct areas: • Farewell Burn – located south of Nikolai, Alaska (46,591 acres) • Kaltag Portage – located between Unalakleet and Kaltag, Alaska (241,512 acres) • Rohn – located southeast of Nikolai (363 acres)	<u>INHT National Trail Management Corridor</u> Establish the INHT NTMC within the planning area. The INHT NTMC would comprise three geographically distinct areas: • Farewell Burn – located south of Nikolai, Alaska (31,367 acres) • Kaltag Portage – located between Unalakleet and Kaltag, Alaska (241,512 acres) • Rohn – located southeast of Nikolai (363 acres)	<u>INHT National Trail Management Corridor</u> Same as Alternative C.	<u>INHT National Trail Management Corridor</u> Same as Alternative C.
No current RMP management direction identified. Management direction is determined on a case-by-case basis. The Iditarod National Historic Trail, Seward to Nome Route: A Comprehensive Management Plan (BLM 1986b) is the only current planning document for the INHT.	<u>Lighting in the INHT NTMC Viewshed</u> Do not allow structures that require air safety lighting in the NTMC. Require hooded surface lighting.	<u>Lighting in the INHT NTMC Viewshed</u> Same as Alternative B.	<u>Lighting in the INHT NTMC Viewshed</u> Structure lighting restrictions determined with a site-specific analysis that considers the darkness/winter-time use of the trail and the effect of lighting colors on trail experiences.	<u>Lighting in the INHT NTMC Viewshed</u> Same as Alternative B.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
<u>VRM Decisions in the INHT NTMC Viewshed</u> No VRM level is currently designated.	<u>VRM Decisions in the INHT NTMC Viewshed</u> BLM-managed public lands along the INHT would be managed per the following VRM Classes: • Manage a 7.5-mile offset from the INHT as VRM Class I: 914,265 acres • Manage a 7.5 to 15-mile offset from the INHT as VRM Class II: 1,008,617 acres • Manage a 15-mile offset of INHT connecting/side trails, with the exception of the Iditarod-Anvik Connecting Trail, as VRM Class II: 1,663,440 acres	<u>VRM Decisions in the INHT NTMC Viewshed</u> BLM-managed public lands along the INHT would be managed per the following VRM Class: • Manage a 15-mile offset from the INHT as VRM Class II: 1,922,881 acres • Manage a 15-mile offset of the INHT connecting/side trails, with the exception of the Iditarod-Anvik Connecting Trail, as VRM Class III: 1,663,440 acres	<u>VRM Decisions in the INHT NTMC Viewshed</u> BLM-managed public lands along the INHT would be managed per the following VRM Class: • Manage a 7.5-mile offset from the INHT as VRM Class II: 726,457 acres • Manage a 7.5 to 15-mile offset from the INHT as VRM Class III: 821,055 acres • Manage a 15-mile offset of the INHT connecting/side trails as VRM Class III: 1,730,773 acres	<u>VRM Decisions in the INHT NTMC Viewshed</u> Same as Alternative C.
<u>FLPMA Withdrawals</u> No current management direction was identified. Management direction is determined on a case-by-case basis	<u>FLPMA Withdrawals</u> Subject to valid existing rights, recommended new FLPMA withdrawals for salable, locatable, and leasable minerals for the existing INHT treadway in the following locations: • Farewell Burn unit (1,000-foot-wide buffer centered on the treadway plus the Bear Creek Cabin and access trail): 2,732 acres retained • Kaltag Portage unit (1,000-foot-wide buffer centered on the Treadway, but outside of Unalakleet Wild River withdrawal): 1,897 acres • Rohn Site (entire parcel): 363 acres See Map 2-42.	<u>FLPMA Withdrawals</u> Subject to valid existing rights, recommended new FLPMA withdrawals for the existing INHT treadway in the following locations: • Farewell Burn unit (1,000-foot-wide buffer centered on the treadway plus the Bear Creek Cabin and access trail): 2,732 acres • Kaltag Portage unit (1,000-foot-wide buffer centered on the treadway, but outside of Unalakleet Wild River withdrawal): 1,897 acres • Rohn Site (entire parcel): 363 acres The determination on whether the FLPMA withdrawal would include salable, leasable, and/or locatable minerals would be determined when the withdrawal is recommended.	<u>FLPMA Withdrawals</u> FLPMA withdrawal for the 1,000-foot-wide buffer centered on the existing INHT treadway would not be pursued and the area would be open for locatable, leasable, and salable mineral development.	<u>FLPMA Withdrawals</u> Same as Alternative C.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Mineral Decisions in the INHT NTMC SWMFP (BLM 1981) R-3.1: Protect the federally managed portion of the INHT and associated historic sites from damage or disturbance due to other resources use. Section 7(c) of the NTSA (October 2, 1968) requires that other uses of a national trail do "not substantially interfere with the nature and purposes of the trail" and "to the extent practicable, efforts shall be made to avoid activities incompatible with the purposes for which such trails were established."	Mineral Decisions in the INHT NTMC Subject to valid existing rights, the INHT NTMC would be: • Withdrawn from locatable mineral exploration and development • Closed for leasable development • Closed for salable mineral development The INHT NTMC would be closed to seismic exploration.	Mineral Decisions in the INHT NTMC Subject to valid existing rights the INHT NTMC would be: • Open to locatable mineral exploration and development • NSO for leasable development • Open for salable mineral development The INHT NTMC would be closed to seismic exploration. Leasable, salable plans of development would be authorized if it is determined by the AO that impacts, both direct and cumulative, associated with the action would not substantially interfere with the nature and purpose of the INHT.	Mineral Decisions in the INHT NTMC Subject to valid existing rights the INHT NTMC would be: • Open to locatable mineral exploration and development • Open with Standard Stipulations for oil and gas leasing • Open for salable mineral development The INHT NTMC would be open for seismic exploration. Leasable, salable plans of development would be authorized if it is determined by the AO that impacts, both direct and cumulative, associated with the action would not substantially interfere with the nature and purpose of the INHT.	Mineral Decisions in the INHT NTMC Same as Alternative C.
SWMFP (BLM 1981) R-3.1: Protect the federally managed portion of the INHT and associated historic sites from damage or disturbance due to other resources use. Section 7(c) of the NTSA (October 2, 1968) requires that other uses of a national trail do "not substantially interfere with the nature and purposes of the trail" and "to the extent practicable, efforts shall be made to avoid activities incompatible with the purposes for which such trails were established."	Surface-Disturbing Activities and Other Realty Decisions Surface-disturbing activities would not be permitted in the NTMC unless they are allowed under ANILCA Title XI. While providing for ANILCA access provisions, realty actions could be authorized within the INHT NTMC if it is determined by the AO that: • They are not visible from the INHT NTMC. • Impacts (direct, indirect, and cumulative) associated with the action would be consistent with the nature and purpose of the INHT. Realty actions or surface-disturbing activities would be authorized if it is determined by the AO that the following could be achieved: • They are outside of the viewshed of the INHT NTMC.	Surface-Disturbing Activities and Other Realty Decisions While providing for ANILCA access provisions, realty actions could be authorized within the INHT NTMC if it is determined by the AO that: • They meet VRM class objectives (Section 2.6.10, Table 2-9) for the disturbance area, as viewed from Key Observation Points from the INHT impacted by the disturbance. • Impacts (direct, indirect, and cumulative) associated with the action would be not substantially interfere with the nature and purpose of the INHT. Other realty actions and surface-disturbing activities within the INHT NTMC would be authorized if it is determined by the AO that the following could be achieved: • They are outside of the viewshed of the INHT. • They meet the VRM class objective for the disturbance area, as viewed from portions of the INHT NTMC impacted by the disturbance.	Surface-Disturbing Activities and Other Realty Decisions Realty actions associated with access and improvements would be authorized at the discretion of the AO if it is determined by the AO that they would not substantively conflict or interfere with the purpose and nature of the INHT. Other realty actions and permitting of surface-disturbing activities within the INHT NTMC authorized if it is determined by the AO that they would not substantively conflict or interfere with the purpose and nature of the INHT.	Surface-Disturbing Activities and Other Realty Decisions Same as Alternative C.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
<u>Forestry and Woodland Decisions in the INHT NTMC</u> <i>SWMFP (BLM 1981)</i> R-3.1: Protect the federally managed portion of the INHT and associated historic sites from damage or disturbance due to other resources use. Section 7(c) of the NTSA (October 2, 1968) requires that other uses of a national trail do "not substantially interfere with the nature and purposes of the trail" and "to the extent practicable, efforts shall be made to avoid activities incompatible with the purposes for which such trails were established."	<u>Forestry and Woodland Decisions in the INHT NTMC</u> Commercial woodland harvest would be prohibited within the INHT NTMC.	<u>Forestry and Woodland Decisions in the INHT NTMC</u> Open to commercial woodland harvest.	<u>Forestry and Woodland Decisions in the INHT NTMC</u> Open to commercial woodland harvest.	<u>Forestry and Woodland Decisions in the INHT NTMC</u> Same as Alternative C.
<u>Grazing Decisions in the INHT NTMC</u> <i>SWMFP (BLM 1981)</i> R-3.1: Protect the federally managed portion of the INHT and associated historic sites from damage or disturbance due to other resources use. Section 7(c) of the NTSA (October 2, 1968) requires that other uses of a national trail do "not substantially interfere with the nature and purposes of the trail" and "to the extent practicable, efforts shall be made to avoid activities incompatible with the purposes for which such trails were established."	<u>Grazing Decisions in the INHT NTMC</u> Closed to reindeer grazing.	<u>Grazing Decisions in the INHT NTMC</u> Closed to reindeer grazing.	<u>Grazing Decisions in the INHT NTMC</u> Open to reindeer grazing.	<u>Grazing Decisions in the INHT NTMC</u> Same as Alternative C.

2.6.21 Wild and Scenic Rivers

Actions Common to All Action Alternatives, including the Proposed RMP, for Wild and Scenic Rivers

- WSR Corridor Management (applies to all suitable and designated WSR corridors):
 - Acquisition efforts would be focused on lands which meet acquisition standards from willing sellers within the designated WSR corridor.
 - Lands within one-half mile of the bank of any Alaskan river designated a wild river (includes the Unalakleet Wild River Corridor) have been withdrawn, subject to valid existing rights, from all forms of appropriation under the mining laws and the mineral leasing laws by Section 606 of ANILCA (BLM 1983). This existing ANILCA withdrawal would be maintained.
 - Prohibit harvesting of house logs on BLM-managed land within the WSR corridors except for subsistence use as provided for under ANILCA Title 8.

- Any campsite facilities associated with commercial activities must have the ability to be completely moved every 14 days without vegetation cutting or soil disturbance. Campsites and other semi-permanent developments which would be used for research, educational, subsistence, or other non-commercial endeavors would be issued according to the normal permitting process at the implementation level.
- Limit stays for non-permitted/non-cabin casual use to 14 consecutive days within a 28-day period. After a camp has been occupied for 14 days, the camp must be moved at least 2 miles to start a new 14-day period.
- Authorize commercial, competitive, organized group use, and commercial filming, in conjunction with an SRP or a land use permit, according to the normal permitting process at the implementation level.
- SRP activities that do not maintain or enhance the ORVs would not be permitted in the WSR corridor.

2. Travel-Related Decisions

- Maintain semi-primitive motorized recreation opportunities, experiences, and outcomes.
- Motorized transportation for all river users would be limited to outboard motorboats, airplanes, and snowmobiles on BLM-managed public lands and waters in the designated WSR corridor per the existing management plan (BLM 1983).
- To minimize noise intrusion, inboard jet boats, airboats, and hovercraft are not allowed on BLM-managed public lands and waters in the designated WSR corridors.
- Prohibit public helicopter landing within the WSR corridors except by permit. The BLM would make a determination regarding these permits as informed by appropriate site-specific NEPA analysis and disclosure.
- Helicopters would be allowed to land in WSR corridors as part of official duties conducted by State and federal employees, with approval of the BLM AO.
- Any BLM-permitted activities involving aircraft would be requested to maintain 2,000 feet AGL above special areas designated in Federal Aviation Administration (FAA) Advisory Circular AC 91-36D, Visual Flight Rules near Noise-Sensitive Areas. The BLM would modify these requests as needed based on updated FAA recommendations or requests. Administrative and permitted landing access or landing, taking off, or operating in an emergency situation are exempt from these requests.
- The landing and takeoff of fixed winged aircraft with minimal clearing of rocks, downed logs, and brush is allowed to provide for travel to and from communities and home sites or for administrative or permitted purposes. No construction or formal improvement of aircraft landing areas would be allowed.
- Provide adequate and feasible access to private inholdings, as mandated by ANILCA.

Description of Wild and Scenic Rivers Actions by Alternative

Table 2-20 describes proposed WSR actions by alternative, including the Proposed RMP (Alternative E). See Maps 2-58 and 2-59 for additional information.

Table 2-20: WSR Actions by Alternative

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
A WSR study was performed by BLM that identified the following eligible WSR segments. These eligible WSR segments would be managed according to BLM Manual 6400 (BLM 2012c), which includes guidelines that must be considered to protect ORVs, water quality, and free-flowing condition. - Anvik River – 61,100 acres - Bear Creek (Nikolai) – 17,224 acres - Big River – 21,859 acres - Blackwater Creek – 7,617 acres - Canyon Creek – 8,233 acres - Middle Fork Kuskokwim River – 23,212 acres - North Fork Unalakleet River – 28,987 acres - Otter Creek (Anvik) – 20,130 acres - Otter Creek (Tuluksak) – 3,247 acres - Pitka Fork Middle Fork Kuskokwim River – 24,921 acres - Salmon River (Nikolai) – 10,536 acres - Sheep Creek – 15,861 acres - Sullivan Creek – 9,192 acres - Swift River (Anvik) – 16,381 acres - Tatlawiksuk – 8,975 acres - Theodore Creek – 7,384 acres - Yellow River – 28,409 acres - Yukon River – 18,908 acres - The Unalakleet Wild River Corridor would continue to be designated: 46,953 acres <i>SWMFP (BLM 1981)</i> Goals: Identify and recommend for designation any rivers in the planning area that are suitable for designation as components of the National System. Objectives: Identify a water trail system for recreation use on BLM-managed lands. Central Yukon RMP (BLM 1986a): Goals: None. Objectives from 1983 Unalakleet National Wild River Plan (BLM 1983): To preserve the environment and ecosystems of the river and river corridor in a natural, primitive condition. To preserve the free-flowing condition of the waters and prevent degradation of water quality. To provide high-quality recreational opportunities in a primitive environment for present and future generations. To provide an environment for interpretive, scientific, educational and wildlife/wildlands-oriented use. To protect valid and existing rights and future rights granted pursuant to appropriate federal and State laws.	The following WSR would continue to be a designated Wild River: - Unalakleet Wild River Corridor – 46,953 acres The following eligible WSR segments are suitable as potential additions to the National WSR System. The acreage provided indicates the management corridor for each suitable WSR. All proposed management described above under Actions Common to All Action Alternatives would apply to these acreages (unless otherwise indicated). - Anvik River – 61,100 acres - Bear Creek (Nikolai) – 17,224 acres - Big River – 21,859 acres - Blackwater Creek – 7,617 acres - Canyon Creek – 8,233 acres - Middle Fork Kuskokwim River – 23,212 acres - North Fork Unalakleet River – 28,987 acres - Otter Creek (Anvik) – 20,130 acres - Otter Creek (Tuluksak) – 3,247 acres - Pitka Fork Middle Fork - Kuskokwim River – 24,921 acres - Salmon River (Nikolai) – 10,536 acres - Sheep Creek – 15,861 acres - Sullivan Creek – 9,192 acres - Swift River (Anvik) – 16,381 acres - Tatlawiksuk – 8,975 acres - Theodore Creek – 7,384 acres - Yellow River – 28,409 acres - Yukon River – 18,908 acres See Map 2-58.	The following WSR would continue to be a designated Wild River: Unalakleet Wild River Corridor – 46,953 acres All proposed management described above under Actions Common to All Action Alternatives would apply to this acreage (unless otherwise indicated). Eligible WSR segments are not suitable as potential additions to the National WSR System. The eligible WSR acreages shown in Alternative A would be managed under other land use allocations and management actions as described in this alternative. See Map 2-59.	Same as Alternative C. See Map 2-59.	Same as Alternative C. See Map 2-59.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
<i>SWMFP (BLM 1981)</i> Recreation management and administration will be directed by decisions in the existing MFP. Recreation management will generally emphasize the continued availability of dispersed and unstructured outdoor recreation opportunities. Manage the Unalakleet Wild River Corridor under the existing 1983 river management plan. Participate when other agencies initiate recreation river management planning when the BLM has partial responsibility. Actively participate in fire management planning. Determine reasonable OHV use for each proposed action. Protect the federally managed portion of the INHT and associated historic sites from damage or disturbance due to other resource uses. <i>Central Yukon RMP (BLM 1986a)</i> The primary objective for management of recreation resources is to allow opportunities that presently exist, and support and encourage opportunities for improving access. Require no permits for vehicles under 1500 pounds (GVWR). Restrict access to public lands for "off road vehicles" having a gross vehicle weight greater than 1,500 pounds. Access for ORVs having a GVWR greater than 1,500 pounds will be considered on a case-by-case basis. <i>Unalakleet National Wild River Plan (BLM 1983)</i> Traditional means of access such as outboard motorboats, airplanes, dogsleds, and snowmobiles are allowed for all river users. Other means of access, such as inboard motorboats, airboats, hovercraft, and ATVs are not allowed in the corridor.	<u>Travel Management Decisions</u> WSRs and recommended suitable WSR segments would follow travel and transportation management decisions for the Unalakleet Wild River Corridor under Alternative B. OHV Designation = Limited Summer Casual and Subsistence Access: - Casual summer OHV access would be prohibited. - Subsistence summer OHV access would be limited to existing trails (not including the INHT), primitive roads, and roads (as shown in the BLM's current route inventory once implementation planning occurs) and would include ATVs only (as defined in Appendix B) if the AO determines that such use is causing or is likely to cause an adverse impact. Winter Casual and Subsistence Access: - Winter cross-country OHV access allowed for snowmobiles only (as defined in Appendix B). In cases where the INHT NTMC is co-located with the Unalakleet Wild River, the management prescriptions for the INHT NTMC shall take precedence.	<u>Travel Management Decisions</u> OHV Designation = Limited Summer Casual and Subsistence Access: - Casual summer OHV access would be limited to existing trails (not including the INHT), primitive roads, and roads (as shown in the BLM's current route inventory once implementation planning occurs) and would include ATVs only (as defined in Appendix B). - Subsistence cross-country summer OHV access would be allowed and would include ATVs-unless the AO finds that such use is causing or is likely to cause an adverse impact. Winter Casual and Subsistence Access: - Same as Alternative B. In cases where the INHT NTMC is co-located with the Unalakleet Wild River, the management prescriptions for the INHT NTMC shall take precedence.	<u>Travel Management Decisions</u> OHV Designation = Limited Summer Casual and Subsistence Access: - Casual summer OHV access would be limited to existing trails (not including the INHT), primitive roads, and roads (as shown in the BLM's current route inventory once implementation planning occurs) and would include both UTVs and ATVs (as defined in Appendix B). - Subsistence cross-country summer OHV access would be allowed and would allow both UTVs and ATVs (as defined in Appendix B) unless the AO finds that such use is causing or is likely to cause an adverse impact. Winter Casual and Subsistence Access: - Winter cross-country OHV access allowed and would include snowmobiles (as defined in Appendix B). In cases where the INHT NTMC is co-located with the Unalakleet Wild River, the management prescriptions for the INHT NTMC shall take precedence.	<u>Travel Management Decisions</u> Same as Alternative C.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
<u>Visual Resource Management Decisions</u> <i>SWMFP (BLM 1981)</i> Manage as VRM Class I: - The Unalakleet Wild River Corridor is managed per VRM Class I to provide for “primarily natural ecological changes.” Manage as VRM Class II: - MFP-2: Define the seen areas of the Unalakleet River and manage those sections outside of the Wild River corridor as VRM Class II. Management will particularly address potential tributary crossings for transportation, ROWs, and utilities outside of the WSR corridor withdrawal.¹	<u>Visual Resource Management Decisions</u> Unalakleet Wild River Corridor and Recommended Suitable WSR Segments Manage as VRM Class I: - Inside the designated Unalakleet Wild River Corridor: 46,953 acres 1/2-mile offset from the centerline of suitable river segments: 331,176 acres Manage as VRM Class II: 15-mile offset from the centerline of the Unalakleet River (including below the designated WSR corridor): 976,185 acres 15-mile offset from the centerline of suitable river segments: 4,396,984 acres	<u>Visual Resource Management Decisions</u> Manage the Unalakleet Wild River Corridor as VRM Class I: 46,953 acres Manage a 15-mile offset from the centerline of the river (where outside of designated WSR) as VRM Class II: 976,185 acres.	<u>Visual Resource Management Decisions</u> Manage the Unalakleet Wild River Corridor as VRM Class I: 46,953 acres Manage a 15-mile offset from the centerline of the river (where outside of designated WSR) as VRM Class III: 976,185 acres.	<u>Visual Resource Management Decisions</u> Manage the Unalakleet Wild River Corridor as VRM Class I: 46,953 acres Manage as VRM Class II: 5-mile offset from the centerline of the river: 284,592 acres Manage as VRM Class III: 5-mile to 15-mile offset from the centerline of the Unalakleet River (including below the designated WSR corridor): 694,539 acres
<u>Improvements within Unalakleet Wild River Corridor</u> <i>Unalakleet National Wild River Plan (BLM 1983)</i> No current management direction. Management direction is determined on a case-by-case basis.	<u>Improvements within Unalakleet Wild River Corridor</u> Prohibit construction or formal improvement of landing areas, campsites, interpretive sites or toilets. Clearing of vegetation near shelter cabins would be limited to the minimum necessary to protect the cabin from fire.	<u>Improvements within Unalakleet Wild River Corridor</u> Allow construction or formal improvement of campsites, interpretive sites or toilets only as needed to maintain those facilities for use. These improvements would be completed with the minimal tools and materials necessary and would be compatible with the primitive setting and ORVs for which the WSR was designated and consistent with VRM Class II. This includes clearing of vegetation near shelter cabins.	<u>Improvements within Unalakleet Wild River Corridor</u> Allow construction or formal improvement of campsites, interpretive sites or toilets if they do not substantively conflict with the ORVs for which the WSR was designated and compatible with VRM Class II as determined by the AO.	<u>Improvements within Unalakleet Wild River Corridor</u> Same as Alternative C.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
<u>Unmanned Aerial System (UAS) Uses</u> No current management direction with regard to the use of UAS in WSR areas was identified. Management direction is determined on a case-by-case basis.	<u>UAS Uses</u> Within WSR corridor, takeoff and landing of casual use UAS would not be allowed. The BLM would provide educational materials for UAS casual users regarding the potential impacts of UAS use over the WSR corridor on the values for which that corridor is managed. Permitted UAS use would not be allowed to take off or land within the WSR corridor nor operate UAS over the WSR corridor. Administrative use of UAS, including takeoff and landing within the WSR corridor and operation over the WSR corridor, would be authorized per DOI Operational Procedures Memorandum (OPM)-11 and if the AO Officer determines it does not conflict with the ORVs for the WSR.	<u>UAS Uses</u> Within WSR corridor, takeoff and landing of casual use UAS would not be allowed. Administrative use of UAS, including takeoff and landing within the WSR corridor and operation over the WSR corridor, would be authorized per DOI OPM-11 and if the AO Officer determines it does not conflict with the ORVs for the WSR, the BLM would provide educational materials for UAS casual users regarding the potential impacts of UAS use over the WSR corridor on the values for which that corridor is managed.	<u>UAS Uses</u> Within WSR corridor, allow takeoff and landing of casual use UAS. Use of UASs for administrative use or permitted use would be analyzed per DOI OPM-11. The BLM would provide educational materials for UAS casual users regarding the potential impacts of UAS use over the WSR corridor on the values for which that corridor is managed.	<u>UAS Uses</u> Within WSR corridor, takeoff and landing of casual use UAS would not be allowed, except as approved by the BLM AO. Use of UASs for administrative or permitted use would be analyzed per DOI OPM-11.

Notes:

1) Per the SWMFP (BLM 1981), Alternative A also manages seen areas of the Unalakleet River outside the Wild River Corridor as VRM II. These areas are not considered mappable and therefore do not have acreage reported. Analysis presented in Chapter 3 accounts for this management direction.

2.6.22 Hazardous Materials and Health and Human Safety

Actions Common to All Action Alternatives, including the Proposed RMP, for Hazardous Materials and Health and Human Safety

1. Hazardous Materials

- All BLM-permitted activities, at a minimum, must comply with all applicable federal and State laws, regulations, and policy regarding use of hazardous materials.
- Prevent spills of hazardous materials by requiring:
 - Spill prevention control and countermeasures plan when applicable (1,320 gallons cumulative capacity for storage of oil, potential impact to Waters of the U.S., or causing unnecessary or undue degradation, as required by federal law)
 - Secondary containment of all hazardous materials in 55-gallon drum capacity and greater

- For BLM-permitted activities, no storage of hazardous materials allowed within 100 feet of OHWM of surface water (rivers, streams, lakes, ponds, springs) and wetlands.
- For BLM-permitted activities, no hazardous materials storage within 0.25 mile of centerline of designated WSRs.
- For BLM-permitted activities, no storage of hazardous materials would be allowed within the 100-year floodplain of rivers or streams or within 100 feet of the OHWM of lentic features, such as lakes, ponds, springs, and wetlands; or on frozen bodies of water. Exceptions could be allowed at the discretion of the AO when approved spill prevention practices are implemented to prevent accidental release of the hazardous materials. The storage area for any hazardous materials must be approved by the AO.
- All BLM-permitted activities using hazardous materials would have to comply with BMPs and SOPs (Appendix O).
- Compliance inspections/monitoring required for all BLM-permitted activities prior to permit closeout, unless waived by the BLM AO.
- All withdrawals relinquished to the BLM would be required to complete a Phase I Environmental Site Assessment documenting Recognized Environmental Conditions. If environmental liabilities are identified, the holder of the withdrawal would be required to complete cleanup prior to relinquishment. An updated Phase I Environmental Site Assessment would be completed to document cleanup and that there are no known environmental liabilities remaining on the property.
- The BLM would prioritize cleanup of hazardous materials sites with eminent or existing discharge of hazardous materials based on the following criteria:
 - Threatens public health and safety
 - Adversely impacts drinking water sources
 - Occurs within or adjacent to HVWs
 - Would affect Essential Fish Habitat
 - Would affect cultural resources
 - Are on lands priority selected for conveyance to ANCSA Native corporations or the State of Alaska
- BLM permittees are responsible for cleanup of any hazardous materials resulting from their activities.

2. Health and Human Safety

- The BLM State Aviation Plan would comply with FAA requirements for low-level flights, flights over sensitive resource areas, and use of UAS.
- All motorized vehicles on BLM-managed public lands, with the exception of off-road vehicles used in an areas with 3 inches or more of snow, would have U.S. Forest Service-approved spark arrestors (see 43 CFR 8343.1(c)).
- All locatable and salable operations would have to comply with Mine Safety Health Administration requirements for noise and safety.

Description of Hazardous Materials Actions by Alternative

Table 2-21 describes proposed Hazardous Materials actions by alternative, including the Proposed RMP (Alternative E).

Table 2-21: Hazardous Materials and Health and Human Safety Actions by Alternative

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
No current management direction identified. Management direction is determined on a case-by-case basis.	Where feasible, facilities using oil for energy production at sites where complete cleanup is not possible in the event of a spill, implementation of alternative power or fuel (e.g., liquified petroleum gas [LPG], liquified natural gas [LNG], propane, solar, wind, off-site generated electricity) is required to eliminate the risk of spills. Both the need and feasibility would be identified at the site-specific project level and analyzed with implementation-level NEPA. Existing facilities using oil in areas where complete cleanup is not possible would be retrofitted for alternative power or fuel (e.g., LPG, LNG, propane, solar, wind, off-site generated electricity) to eliminate the risk of spills. This need would be identified at the site-specific project level at time of permit/lease/ROW renewal and analyzed with implementation-level NEPA.	Where feasible, facilities using oil for energy production at sites where complete cleanup is not possible in the event of a spill, implementation of alternative power or fuel (e.g., LPG, LNG, propane, solar, wind, off-site generated electricity) is required to eliminate the risk of spills. Both the need and feasibility would be identified at the site-specific project level and analyzed with implementation-level NEPA.	Same as Alternative A.	Same as Alternative A.

2.6.23 Reference Theme: Support for BSWI Communities

This section serves as a reference to capture decisions of most interest to the rural communities in one place and for some decisions, provides reference back to the original section should the reader desire more detail. For this planning effort, the “Support for BSWI Communities” theme was developed, which allows everyone to see, in one place, the decisions that may be most relevant to rural BSWI communities. Similarly, in Chapter 3 the BLM identifies the net effects, beneficial and adverse, of each alternative on BSWI communities.

Actions Common to All Action Alternatives, including the Proposed RMP, for Support for BSWI Communities

3. In the Unalakleet Wild River Corridor, motorized transportation for all river users would be limited to outboard motorboats, airplanes, and snowmobiles on BLM-managed public lands and waters in the designated WSR corridor per the existing management plan (BLM 1983). Inboard jet boats, airboats, and hovercraft are not allowed on BLM-managed public lands and waters in the designated WSR corridor.

4. Per Section 811 of ANILCA, the BLM would manage lands such that all rural residents engaged in subsistence uses would have reasonable access to subsistence resources on public lands, which allows for appropriate use for subsistence purposes of snowmobiles, motorboats, and other means of surface transportation traditionally employed for such purposes by residents, subject to reasonable regulations.
5. If summer use routes are designated during implementation-level travel management planning, the criteria for designating routes would include existing routes accessing subsistence resources.
6. Lands would be made available for lease or sale to benefit local communities per the criteria for R&PP. Public objectives such as expansion of communities and economic development would be included as criteria for land exchange.
7. Numerous communities within the planning area have considered biomass heating projects. The need for biomass heating sources throughout the planning area was identified and analyzed in a range of alternatives found in Table 2-11 under the commercial woodland harvest-related management actions.
8. Maintain habitat for intact wild stock fish populations to sustain the diverse and intact ecosystems that support subsistence lifestyles and provide for rural economic opportunity.
9. Where priority species are present, manage habitat to support self-sustaining populations. Priority species include SSS and those species utilized for subsistence.
10. Support community-led development and maintenance of public shelter cabins in areas used for subsistence. Though the development could increase the size of the route network to provide access to these cabins, this management action would also provide additional safety for subsistence users.
11. For BLM-permitted activities, BLM would recommend training resources where the permittee may become familiar with rural Alaska life and culture.
12. Encourage BLM-permitted operators to use local hire to the extent possible.
13. The BLM would work cooperatively with residents from rural communities to maintain existing trail systems on BLM land to be compatible with those on adjacent private, State, and other non-BLM public lands.
14. The BLM would coordinate and collaborate with rural communities in the ongoing implementation of this RMP. Avenues for this collaboration include the NEPA and ANILCA 810 processes and associated opportunities for public involvement. BLM would also actively coordinate our management activities with the goal of minimizing burdens on communities for multiple planning processes.
15. The BLM would develop travel management plans to identify travel routes and corridors between communities. One of the criteria for implementation-level travel planning is to meet connectivity and destination goals for rural communities which would allow opportunities for local rural communities to be involved in the consideration of alternatives for designation of travel routes and the determination of

which transportation modes are allowed on those routes. Actions would include designation of winter trails system, identification of other safety cabin locations on BLM land that support inter-village travel, and winter trail system signage (see Section 2.6.18 for detailed travel and transportation management decisions).

16. The BLM would consider the safety and navigation benefits to inter-village travelers when processing communication site ROW applications.

Description of Support for BSWI Communities Actions by Alternative

Consistent with the intent of the theme Support for BSWI Communities, Table 2-22 provides the range of alternatives, in one place, specific to this section, as well as a summary of other management decisions developed that may be most relevant to rural BSWI communities. The decisions referenced from other sections of the plan contain a reference back to the section they originated to provide more depth for the reader, if desired. For details on those management decisions, see the respective alternatives section for that resource (Sections 2.6.1 through 2.6.22).

Table 2-22: Support of BSWI Communities Actions by Alternative

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
<u>HVW Summary</u> No current management direction was identified. Management direction is determined on a case-by-case basis.	<u>HVW Summary</u> (See Section 2.6.3 for detailed watershed management decisions.) Identification and management of HVWs would support BSWI communities by increasing protection of vulnerable, higher-priority aquatic resources. Commercial woodland harvest in 100-year floodplains would be prohibited. The entire geography of all HVWs would be ROW avoidance areas. Subject to valid existing rights, the entire geography of HVWs would be closed to mineral leasing, recommended withdrawn from locatable entry, and closed to salable mineral development.	<u>HVW Summary</u> (See Section 2.6.3 for detailed watershed management decisions.) Same purpose and objectives for HVWs as under Alternative B. Subject to valid existing rights, the entire geography of HVWs would be NSO leasable, open to the possibility of locatable entry, and open to the possibility of salable mineral development (subject to terms and conditions). The BLM would monitor watershed health and determine if it would issue commercial woodland harvest or timber harvest permits in the 100-year floodplain of HVWs. The entire geographies of all HVWs would be ROW avoidance areas.	<u>HVW Summary</u> (See Section 2.6.3 for detailed watershed management decisions.) Same purpose and objectives for HVWs as under Alternative B. The entire geographies of HVWs would be Standard Stipulations leasable, open to the possibility of locatable entry, and open to salable. The BLM would monitor watershed health and determine if it would issue commercial woodland harvest or timber harvest permits in the 100-year floodplain of HVWs. The entire geography of all HVWs would be ROW avoidance areas.	<u>HVW Summary</u> (See Section 2.6.3 for detailed watershed management decisions.) Same purpose and objectives for HVWs as under Alternative B. Subject to valid existing rights, 100-year floodplains within HVWs would be NSO leasable, open to the possibility of locatable entry, and open to the possibility of salable mineral development (subject to terms and conditions). The BLM would issue permits for Commercial Woodland Harvest following the normal permitting process, consistent with an ongoing assessment of HVW health.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
ACEC Summary Currently there are 11 existing ACECs covering 1,884,376 acres within the planning area; all from 1980-era land use plans.	ACEC Summary (See Section 2.6.19 and Appendix N for detailed ACEC management decisions.) Five existing ACECs would still exist Seven additional ACECs would be established, two for cultural resources, three for fisheries, and two for both cultural resources and fisheries. Three existing ACECs would no longer be managed as ACECs although some of their acreage would be managed as part of a new ACEC established under Alternative B Three existing ACECs would no longer be managed as ACECs and none of their acreage would be managed as an ACEC. Total ACECs would encompass a total of 3,912,698 acres (29% of planning area). For nominated ACECs not found to be relevant and important for cultural resources, the BLM would work with tribes to gather more information on the particular areas and resources. The BLM would work with tribes to document them as either archaeological sites or Traditional Cultural Properties, as appropriate, and evaluate them for their eligibility for inclusion on the NRHP.	ACEC Summary No similar action.	ACEC Summary No similar action.	ACEC Summary No similar action.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
<u>Wildlife Habitat Area Designation Summary</u> No current management direction was identified. Management direction is determined on a case-by-case basis.	<u>Wildlife Habitat Area Designation Summary</u> (See Section 2.6.5 for detailed wildlife management decisions.) To protect unique wildlife and subsistence resources, and minimize impacts to subsistence resources and reduce subsistence conflict, BLM-managed public land within the Innoko Bottoms Priority Wildlife Habitat Area would be managed with the following stipulations (subject to valid existing rights): • Recommend withdrawal from locatable mineral entry. • NSO for leasable development • Closed to salable development • NSO for surface-disturbing BLM-permitted activities • ROW exclusion area • Casual use airboats and hovercraft would not be allowed on non-navigable waterways on BLM-managed public lands.	<u>Wildlife Habitat Area Designation Summary</u> (See Section 2.6.5 for detailed wildlife management decisions.) Innoko Bottoms Priority Wildlife Habitat Area would be managed with the following stipulations: • Open to the possibility of locatable development • NSO for leasable development • Closed to salable development • ROW avoidance area • Casual use airboats and hovercraft would not be allowed on non-navigable waterways on BLM-managed public lands.	<u>Wildlife Habitat Area Designation Summary</u> (See Section 2.6.5 for detailed wildlife management decisions.) Innoko Bottoms Priority Wildlife Habitat Area would be managed with the following stipulations: • Mineral decisions would be the same as Alternative C • ROW avoidance area • There would be no restrictions on motorized watercraft in non-navigable waters on BLM-managed public lands.	<u>Wildlife Habitat Area Designation Summary</u> (See Section 2.6.5 for detailed wildlife management decisions.) Innoko Bottoms Priority Wildlife Habitat Area would be managed the same as Alternative C.
<u>Proposed WSR Travel Management</u> No current management direction was identified. Management direction is determined on a case-by-case basis.	<u>Proposed WSR Travel Management</u> (See Sections 2.6.18 and 2.6.21 for detailed management decisions.) Casual summer OHV access would be prohibited. Subsistence summer OHV access would be limited to existing roads, primitive roads, and trails (as shown in the BLM's current route inventory once implementation planning occurs) and would include ATVs only if the AO finds that such use is causing or is likely to cause an adverse impact. Snowmobiles only allowed for winter cross-country casual and subsistence access.	<u>Unalakleet Wild River Corridor Travel Management</u> (See Sections 2.6.18 and 2.6.21 for detailed management decisions.) Casual summer OHV access would be limited to existing roads, primitive roads, and trails (as shown in the BLM's current route inventory once implementation planning occurs) and would include ATVs only. Subsistence cross-country summer OHV access would be allowed and would include ATVs only if the AO finds that such use is causing or is likely to cause an adverse impact. Snowmobiles only allowed for winter cross-country casual and subsistence access.	<u>Unalakleet Wild River Corridor Travel Management</u> (See Sections 2.6.18 and 2.6.21 for detailed management decisions.) Casual summer OHV access would be limited to existing roads, primitive roads, and trails (as shown in the BLM's current route inventory once implementation planning occurs) and would include both UTVs and ATVs. Subsistence cross-country summer OHV access would be allowed and would include both UTVs and ATVs. Winter cross-country OHV access allowed and would include snowmobiles.	<u>Unalakleet Wild River Corridor Travel Management</u> Same as Alternative C.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Forestry and Woodland Resources <i>SWMFP (BLM 1981)</i> F-1.1 Provide for use of forestry products throughout the planning area with priority areas opened for settlement entry. <i>CYRMP (BLM 1986a)</i> Maximize opportunities for the harvest of forest products where feasible and practical.	Forestry and Woodland Resources (See Section 2.6.12, Table 2-11, for forestry and woodland management decisions.) Commercial woodland harvest would be prohibited within: • Unalakleet Wild River Corridor; • ACECs; • Lands managed for wilderness characteristics as a priority; • INHT NTMC; and • 100-year floodplain within an HVW. Commercial woodland harvest would be open to the possibility of permitting by the BLM on all BLM-managed public except for those areas described as prohibited above. Permits would be issued at the AO's discretion.	Forestry and Woodland Resources (See Section 2.6.12, Table 2-11, for forestry and woodland management decisions.) Commercial woodland harvest would be prohibited within the Unalakleet Wild River Corridor. All BLM-managed public lands except for the Unalakleet Wild River Corridor would be open to the possibility of permitting for Commercial Woodland Harvest. The BLM would monitor watershed health and determine if it would issue commercial woodland harvest or timber harvest permits in the 100-year floodplain of HVWs. Within the INHT NTMC, the BLM would manage harvest permits to maintain the nature and purpose of the INHT and avoid substantial interference to the INHT nature and purpose. Permits would be issued at the AO's discretion.	Forestry and Woodland Resources (See Section 2.6.12, Table 2-11, for forestry and woodland management decisions.) All BLM-managed public lands would be open to the possibility of Commercial Woodland Harvest. The BLM would monitor watershed health and determine if it would issue commercial woodland harvest or timber harvest permits in the 100-year floodplain of HVWs. Within the INHT NTMC, the BLM would manage harvest permits to maintain the nature and purpose of the INHT and avoid substantial interference to the INHT nature and purpose. Permits would be issued at the AO's discretion.	Forestry and Woodland Resources (See Section 2.6.12, Table 2-11, for forestry and woodland management decisions.) Commercial woodland harvest would be prohibited within the Unalakleet Wild River Corridor. All BLM-managed public lands except for the Unalakleet Wild River Corridor would be open to the possibility of permitting for Commercial Woodland Harvest. The BLM would issue permits for Commercial Woodland Harvest following the normal permitting process, consistent with an ongoing assessment of HVW health. Within the INHT NTMC, the BLM would manage harvest permits to maintain the nature and purpose of the INHT and avoid substantial interference to the INHT nature and purpose. Permits would be issued at the discretion of the AO.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
Reindeer Grazing Permits <i>SWMFP (BLM 1981)</i> RM-1.2: Provide seasonal grazing for reindeer or muskoxen on a level to protect other sources. Exclude the Unalakleet and Anvik Rivers and their major tributaries from grazing leases.	Reindeer Grazing Permits (See Section 2.6.13 for detailed management decisions.) All BLM-managed public lands within the planning area would be closed to grazing.	Reindeer Grazing Permits (See Section 2.6.13 for detailed management decisions.) Grazing would not be permitted on BLM-managed land in the following areas: • Areas with important fisheries and watershed values in the Nulato River watershed; • Unalakleet Wild River Corridor; and • INHT NTMC. Any area not listed above would be open to the possibility of permitting for reindeer grazing at the implementation level where ecological conditions could support that grazing. This would be determined at the site-specific level and analyzed through implementation-level NEPA. New applications submitted under the 1937 Reindeer Industry Act and the Alaska Livestock Grazing Act of 1927 would be processed according to the normal permitting process. New applications submitted under the 1937 Reindeer Industry Act would be considered if the applicant could (1) provide a management plan which includes management objectives and how the applicant would ensure separation between domestic and wild animals and (2) conduct all land health monitoring activities as determined appropriate by the BLM AO.	Reindeer Grazing Permits (See Section 2.6.13 for detailed management decisions.) No areas would be closed to grazing. New applications would be considered in the planning area at the implementation level where ecological conditions could support that grazing. This would be determined at the site-specific level and analyzed through implementation-level NEPA. Grazing would be permitted in the Unalakleet Wild River Corridor and the INHT NTMC only if it is determined by the AO that the proposed permitted grazing is consistent with maintenance of the ORVs for which the Unalakleet Wild River Corridor was designated and does not substantially interfere with the nature and purpose of the INHT NTMC. New applications would be considered in the planning area and would be processed according to the normal permitting process. Herd crossing permit applications would be addressed as per direction in 43 CFR 4300.80 for proposals to move reindeer across BLM-managed public lands that are currently not administered under an existing grazing permit.	Reindeer Grazing Permits (See Section 2.6.13 for detailed management decisions.) New applications would be considered in the planning area and would be processed according to the normal permitting process. Herd crossing permit applications would be addressed as per direction in 43 CFR 4300.80 for proposals to move reindeer across BLM-managed public lands that are currently not administered under an existing grazing permit. If in consultation with ADF&G there are concerns with reindeer grazing interacting with caribou populations, BLM could require permits to have satellite collars/VHF tracking devices on at least one animal for herds of up to 75 and at least two animals for herds larger than 75. These data would be immediately available to the BLM upon request, and BLM would be provided with annual reports showing location(s) of the herd throughout the year.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
<u>Cultural Landscape Reports</u> <i>SWMFP (BLM 1981)</i> CR-1 Objective: Protect and preserve cultural sites from damage or destruction. Rationale: The study of Alaskan history requires that the integrity of cultural and historical sites be maintained. The loss of sites due to damage or destruction caused by other land uses as well as natural causes could leave substantial gaps in the study of Alaskan history. Current federal law requires protection of antiquities. BLM policy also requires that the cultural resources are managed in a manner that will preserve and protect the resource.	<u>Cultural Landscape Reports</u> The BLM would work collaboratively with rural communities in the planning area and other partners to develop Cultural Landscape Reports. Cultural landscapes are "a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person, or that exhibit other cultural or aesthetic values." These reports would utilize traditional and other knowledge to give a contemporary picture of resources uses and their social and historical context and would help communities in their own planning efforts as well as allow the BLM and other agencies to assess impacts of proposed projects and plans. Cultural Landscape Reports would be developed for 2-3 high-priority communities in the planning area. Priority would be determined in conjunction with village representatives. See Table 2-7b.	<u>Cultural Landscape Reports</u> Same as Alternative B, except Cultural Landscape Reports would be developed for 4-6 high-priority communities in the planning area. See Table 2-7b.	<u>Cultural Landscape Reports</u> Same as Alternative B, except Cultural Landscape Reports would be developed that cover the entire planning area. See Table 2-7b.	<u>Cultural Landscape Reports</u> Same as Alternative B. See Table 2-7b.
<u>Providing Assistance with Cultural Tourism</u> No current management direction was identified. Management direction is determined on a case-by-case basis.	<u>Providing Assistance with Cultural Tourism</u> The 2012 Memorandum of Understanding between the BLM (and other federal agencies) and the American Indian Alaska Native Tourism Association (AIANTA) provides for opportunities to mutually enhance tourism, travel, and recreation on federal and tribal lands. The 2016 Native American Tourism and Improving Visitor Experience Act (NATIVE Act) provides an additional mechanism to increase tourism capacity in Native communities and coordination with federal agencies. Under Alternative B, the BLM would cooperate with AIANTA to carry out activities that facilitate the development of sustainable projects and policies that promote the management of public and tribal lands in ways that enhance cultural tourism in the planning area.	<u>Providing Assistance with Cultural Tourism</u> Same as Alternative B.	<u>Providing Assistance with Cultural Tourism</u> Same as Alternative B, plus upon request from BSWI communities, the BLM would seek funding to provide grants, loans, and technical assistance to BSWI communities in order to increase cultural tourism capacity, spur associated important infrastructure development, and elevate living standards in BSWI communities.	<u>Providing Assistance with Cultural Tourism</u> Same as Alternative B.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E (Proposed RMP)
<u>Community Focus Zones</u> No current management direction was identified. Management direction is determined on a case-by-case basis.	<u>Community Focus Zones</u> A CFZ would be applied within a 10-mile buffer surrounding BSWI communities 818,395 acres. SRPs for hunting guide/outfitters would not be authorized within CFZs. See Tables 2-16a, b, and c.	<u>Community Focus Zones</u> A CFZ would be applied within a 5-mile buffer surrounding BSWI communities (95,307 acres). SRPs for hunting guide/outfitters would not be authorized within CFZs. See Tables 2-16a, b, and c.	<u>Community Focus Zones</u> No CFZ would be applied, and therefore no management actions would apply. See Tables 2-16a, b, and c.	<u>Community Focus Zones</u> Same as Alternative C. See Tables 2-16a, b, and c.

Chapter 3. Affected Environment and Environmental Consequences

3.1 Introduction

This chapter describes the affected environment and environmental consequences of the alternatives being evaluated in this PRMP/FEIS. Impact discussions provided below focus on the proposed management actions and associated impacts that serve as key differentiators across alternatives. Appendix Q provides detailed background information used to develop the impact analysis including analytical assumptions and a complete description of the past, present, and reasonably foreseeable future actions used to evaluate cumulative effects. SOPs and BMPs that would be implemented under all the action alternatives are included in Appendix O of this PRMP/FEIS.

3.2 Resources

3.2.1 Air- and Air Quality-Related Issues

Affected Environment

The planning area is subarctic and located primarily within the transition climate zone, with influences of other climate zones in some portions. Climate variables in the transition zone lie between those of the continental and maritime zones; annual average temperature is 27 degrees F, ranging from approximately 0 degrees F in winter to the low 60s (degrees F) in summer, and annual average precipitation is approximately 30 inches.

The planning area is currently classified as attainment or unclassifiable/attainment for all criteria pollutants. Much of the area is remote and rural, and air quality is generally good; however, regional and local air quality is periodically affected by local, regional, and global natural events and human-caused activities as described in the following paragraph. Typical permitted facility sources include small diesel-fired power plants (and other diesel power generation), asphalt plants, rock and gravel plants, and bulk storage facilities. There are no known oil and gas development projects in the planning area (per public ADEC permitting records and ADNOR, Division of Oil and Gas, data) (ADEC 2018; ADNOR 2018a). Residential emissions include smaller sources, such as woodstoves, diesel generators, and mobile sources (vehicles and boats). The primary pollutants in the planning area are particulate matter: fugitive dust (primarily PM₁₀) and wood smoke (primarily PM_{2.5})⁵ (ADEC 2018).

The primary AQRV in Alaska is visibility. Data show that wildland fires are the largest source of haze-forming emissions, and the number of clear days is lowest in the summer months. Overall, Alaska's contribution of human-caused emissions contributing to visibility impairment at Class I areas is decreasing (ADEC 2015b). However, emissions from uncontrollable sources, including natural wildfires, international sources, global transport of emissions, and offshore shipping in the Pacific are still prominent influences on visibility in Alaska.

The three most relevant greenhouse gases associated with this planning area are carbon dioxide (CO₂), methane, and nitrous oxide. From about 1995 through 2003, GHG emissions were relatively stable at

⁵ Particulate matter (PM) less than or equal to 10 or 2.5 micrometers in diameter, respectively.

about 50 million metric tons (MMT) of CO₂ emissions. Emissions peaked in 2005, and by 2009 had declined by about 23 percent. The industrial sector, including the oil and gas industries, produces the most GHG emissions in the state, followed by the transportation, the residential and commercial, and the electric generation sectors. The waste, agriculture, and industrial process sectors each produce relatively small quantities of GHG in Alaska. A rough estimate of the net GHG emission rate for the planning area in 2010 was calculated to be 0.70 MMT. The planning area is outside of the North American Emission Control Area established by the International Convention for the Prevention of Pollution from Ships.

Direct and Indirect Effects

Table 3.2.1-1 below summarizes the nature and types of beneficial or adverse effects that could occur to air quality and AQRVs, the proposed management actions that could influence those effects, and the indicators used to measure the potential magnitude and extent of the effects. Table 3.2.1-2 discloses the potential magnitude and extent of the effects by indicator, across alternatives.

Table 3.2.1-1: Summary of Potential Effects to Air Quality and Air Quality-Related Values by Management Action

Types of Effects	Management Actions	Indicators
Emissions of criteria pollutants (including particulates), hazardous air pollutants, and GHGs from motorized vehicle and equipment used to support BLM management activities or BLM-approved activities in the planning area	- Air Quality Management Decisions - Travel Management Decisions - Lands and Realty Management Decisions - Forestry and Woodland Products Decisions	- Acres accessible for transportation (e.g., roads/trails open to vehicles) - Acres open to new ROWs (e.g., access for commercial woodland harvest and mineral development)
Emissions of criteria pollutants (including particulates), hazardous air pollutants, and GHGs from commercial woodland harvest and mineral development activities	- Forestry and Woodland Products Decisions - Air Quality Management Decisions - Mineral Management Decisions	- Acres open to commercial woodland harvest permitting - Acres accessible to mineral development
Emissions of criteria pollutants (including particulates), hazardous air pollutants, and GHGs from wildland fires	- Air Quality Management Decisions - Vegetation Management Decisions	- Potential for removal or degradation of vegetation associated with fire and fuels treatments (qualitative discussion) - Air quality (including visibility) within Class I areas within the planning area (qualitative discussion)
Increased GHG emissions due to permafrost degradation from climate change and surface-disturbing activities	Soils Management Decisions	Acres where BMPs could be required for allowable actions based on implementation-level decisions (qualitative discussion)

Table 3.2.1-2: Portions of Planning Area Analyzed for Potential Impacts to Air Quality and Air Quality-Related Values by Indicator

Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Summer casual OHV access prohibited	46,953 acres (<1%)	565,955 acres (4%) ¹	225,925 acres (2%) ¹	225,925 acres (2%) ¹	225,925 acres (2%) ¹
Acres open to commercial woodland harvest permitting (air pollutant emissions primarily associated with timber harvesting and processing)	11,882,094 acres (88%) ¹	8,403,829 acres (62%) ¹	13,418,941 acres (>99%) ¹	13,465,894 acres (100%) ¹	13,418,941 acres (>99%) ¹
Acres open to locatable mineral development in areas of medium to high locatable mineral potential (LMP)	294,325 acres (52%) ³	167,018 acres (30%) ³	565,489 acres (100%) ³	565,489 acres (100%) ³	565,489 acres (100%) ³
Acres open to locatable mineral development in areas of medium to high LMP segregated due to selection ²	195,632 acres (35%) ³	100,426 acres (18%) ³	317,531 acres (56%) ³	317,531 acres (56%) ³	317,531 acres (56%) ³

Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Air quality (including visibility) within Class I areas within the planning area	Potential air quality impacts from wildland fires would remain unchanged throughout the planning area.	Specified management actions would not minimize extent or frequency of wildland fires or prescribed burns, and therefore are likely to have negligible effects on air quality and AQRVs. However, planned fire management actions could have beneficial impacts by helping to ensure maintenance of air quality (including visibility) for recreation and subsistence use.			
Qualitative discussion regarding required BMPs to minimize degradation of permafrost areas	Negligible amounts of GHGs produced from surface-disturbing activities. Permafrost degradation due to climate change undetermined at this time.				

Notes:

- 1) Percentage is based on all BLM-managed lands in the planning area (13,465,894 acres).
- 2) State top-filings that become valid selections due to ANCSA corporation selections being relinquished or rejected will be managed like all other State selections. Alternatives that recommend revocation of 17(d)(1) withdrawals where the withdrawal prevents State selections would allow for the State selections to become valid once revocation is complete. These lands would be managed like all other State selections.
- 3) Percentage is based on total acres of medium and high LMP on BLM-managed land in the planning area (total = 565,489 acres).

Effects from Alternative A

Under Alternative A, existing air quality and AQRVs would not change substantially from current conditions. Should commercial woodland harvest occur in areas open to permitting, emissions would be dispersed throughout the planning area and would be temporary, only occurring during the harvesting season. While currently there is not a high demand for commercial woodland harvest in the planning area, nor an anticipated future increase in demand, Alternative A would open 11,882,094 acres for the possibility of commercial woodland harvest and therefore impacts may occur in 88 percent of the BSWI Planning Area. Alternative A would result in the second fewest acres open to commercial woodland harvest permitting (11,882,094 acres); second to Alternative B (8,403,829 acres) (Table 3.2.1-2). Adverse impacts from locatable mineral development are primarily tied to areas that are identified as having medium to high mineral potential. While currently there is not a high demand for locatable mineral development in the planning area, nor an anticipated future increase in demand, Alternative A would open 294,325 acres for the possibility of locatable mineral development and therefore impacts may occur in 52 percent of the BSWI Planning Area with medium to high LMP. Increased emissions resulting from mineral development would be higher under Alternative A than Alternative B, but less than under Alternatives C, D, and E. Alternative A includes 46,953 acres with restrictions or prohibitions on summer casual OHV access and therefore has the most potential for vehicle travel and resultant air emissions. Potential temporary air quality impacts from wildland fires and prescribed burns would remain unchanged. Permafrost degradation from other surface-disturbing activities would produce negligible amounts of GHGs. The existing good air quality within the planning area, BMPs/SOPs, and air regulations and permit requirements, as well as seasonal restrictions on certain activities, would ensure that there would be no violations of the NAAQS for any pollutants.

Effects Common to All Action Alternatives

Types of potential future effects on air quality would be similar among alternatives. Applicable air quality regulations and permits would not prevent all emissions of criteria pollutants including particulates, hazardous air pollutants, and GHGs. Implementing BMPs/SOPs and mitigation measures for surface-disturbing activities and initiating restoration and reclamation activities following such activities would reduce air pollutant and GHG emissions. Impacts from potential future BLM-authorized activities on air quality, GHGs, and AQRVs would be managed to a standard higher than those that would be achieved alone from compliance with federal and State air quality regulations due to additional BMPs and SOPs that would be implemented as part of BLM-permitted activity above what is required in the regulations. Temporary adverse effects on air quality from wildland fires and prescribed burns would not change.

However, efforts to minimize adverse effects of planned fire management actions could have a beneficial effect to ensure maintenance of air quality (including visibility) for recreation and subsistence use. Permafrost degradation from other surface-disturbing activities would produce negligible amounts of GHGs. The existing good air quality within the planning area, BMPs/SOPs, and air regulations and permit requirements, as well as seasonal restrictions on certain activities, would ensure that there would be no violations of the NAAQS for any pollutants.

Effects from Alternative B

While currently there is not a high demand for commercial woodland harvest in the planning area, nor an anticipated future increase in demand, Alternative B would open 8,403,829 acres for the possibility of commercial woodland harvest and therefore impacts may occur in 62 percent of the BSWI Planning Area. Alternative B allows commercial woodland harvest in fewer acres throughout the planning area than Alternatives A, C, D, and E (Table 3.2.1-2). While currently there is not a high demand for locatable mineral development in the planning area, nor an anticipated future increase in demand, Alternative B would open 167,018 acres for the possibility of locatable mineral development and therefore impacts may occur in 30 percent of the BSWI Planning Area with medium to high LMP. Alternative B would have the most restrictions on mineral development on medium and high locatable potential areas, which would result in the least potential for adverse air emissions from mineral development compared to Alternatives A, C, D, and E. Alternative B has the most acres with restrictions or prohibitions on summer casual OHV access and would therefore have the least potential for vehicle usage and the resultant emissions of air pollutants.

Effects from Alternative C

While currently there is not a high demand for commercial woodland harvest in the planning area, nor an anticipated future increase in demand, Alternative C would open 13,418,941 acres for the possibility of commercial woodland harvest and therefore impacts may occur in 99 percent of the BSWI Planning Area. Alternative C has more acres open to the potential for commercial woodland harvest permitting than Alternatives A and B, but slightly fewer acres (approximately 46,953 fewer acres) than Alternative D, and the same acres as Alternative E (Table 3.2.1-2). While currently there is not a high demand for locatable mineral development in the planning area, nor an anticipated future increase in demand, Alternative C would open 565,489 acres for the possibility of locatable mineral development and therefore impacts may occur in 100 percent of the BSWI Planning Area with medium to high LMP. Under Alternative C, all the medium and high LMP areas would be open to mineral development, the same as Alternatives D and E (though over half of this acreage would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected). This could result in higher air emissions from locatable mineral development than Alternatives A and B. Alternative C has fewer acres with restrictions or prohibitions on summer casual OHV access than Alternative B and the same amount of prohibited access as Alternatives D and E. The potential for air emissions would be less than Alternative A, greater than Alternative B, and similar to Alternatives D and E.

Effects from Alternative D

Because there is not a high demand for commercial woodland harvest in the planning area, nor an anticipated future increase in demand, Alternative D would open 13,465,894 acres for the possibility of commercial woodland harvest and therefore impacts may occur in 100 percent of the BSWI Planning Area. Alternative D is the least restrictive alternative regarding commercial woodland harvest, with

slightly more acres open to commercial woodland harvest than Alternatives C and E (Table 3.2.1-2). Because currently there is not a high demand for locatable mineral development in the planning area, nor an anticipated future increase in demand, Alternative D would open 565,489 acres for the possibility of locatable mineral development and therefore impacts may occur in 100 percent of the BSWI Planning Area with medium to high LMP. Under Alternative D, all of the medium and high LMP areas would be open to mineral development, as under Alternatives C and E (though over half of this acreage would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected). This could result in higher potential air emissions from locatable mineral development compared to Alternatives A and B. Alternative D has fewer acres with restrictions or prohibitions on summer casual OHV access than Alternative B and the same amount of prohibited access as Alternatives C and E. The potential for air emissions would be less than Alternative A, greater than Alternative B, and similar to Alternatives C and E.

Effects from Alternative E

Because there is not a high demand for commercial woodland harvest in the planning area, nor an anticipated future increase in demand, Alternative E would open 13,418,941 acres for the possibility of commercial woodland harvest and therefore impacts may occur in 99 percent of the BSWI Planning Area. Alternative E is one of the least restrictive alternatives with regard to commercial woodland harvest, similar to Alternatives C and D and less restrictive than Alternatives A and B (Table 3.2.1-2). Because currently there is not a high demand for locatable mineral development in the planning area, nor an anticipated future increase in demand, Alternative E would open 565,489 acres for the possibility of locatable mineral development and therefore impacts may occur in 100 percent of the BSWI Planning Area with medium to high LMP. Under Alternative E, all of the medium and high LMP areas would be open to locatable mineral development, as under Alternatives C and D (though over half of this acreage would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected). This could result in higher potential air emissions from mineral development compared to Alternatives A and B. Alternative E has fewer acres with restrictions or prohibitions on summer casual OHV access than Alternative B and the same amount of prohibited access as Alternatives C and D. The potential for air emissions would be less than Alternative A, greater than Alternative B, and similar to Alternatives C and D.

Cumulative Effects

Past and Present Actions

The planning area is currently classified as attainment or unclassifiable/attainment for all criteria pollutants. No large industrial facilities exist, and residential emissions are concentrated within rural and remote communities. Commercial timber production and mineral development activities are limited as is current and future predicted demand. Regional and local air quality is periodically affected by local, regional, and global natural events and human-caused activities. Wildland fire is anticipated to increase due to climate change, which would result in increased air emissions. Commercial activities (mining specifically) have decreased considerably in the last 100 years, and engineering of commercial operations is more efficient and subject to greater environmental regulation than in the past. Trend: Improving or Level.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative A)

The only commercial development anticipated in the planning area is the Donlin Gold Project located on non-BLM-managed lands and, potentially, limited requests for other mining development. Should Donlin or other development occur, there would be increases in population, road ROWs, and potential for new mining projects. Reasonably foreseeable future actions do not include oil and gas development or substantially increased commercial timber production, grazing, or recreation. Trend: Continues at current or similar rate.

Past, Present, and Reasonably Foreseeable Future Actions (Alternatives B, C, D, and E)

Management actions would provide some potential improvements to air quality over Alternative A. However, in consideration of past, present, and reasonably foreseeable future actions, they would not make a noticeable difference in the overall trend for air quality in the planning area. Variations in management actions would have little bearing on cumulative impacts on air quality; therefore, the trend would be the same for all action alternatives. Trend: Continues at current or similar rate.

3.2.2 Climate Change**Affected Environment**

The climate of the planning area is discussed in Section 3.2.1, Air Quality and Air Quality-Related Values, as climate and meteorology are essential to understanding the effects of natural and human-caused sources of air pollution on local and regional air quality. The planning area is subarctic, located primarily within the transition climatic zone. Climate variables in this zone lie between those of the continental and maritime zones (see Maps 3.2.2-1 through 3.2.2-7). Average annual temperature is 27 degrees F, with average winter temperature of approximately 0 degrees F and an average summer temperature in the low 60 degrees F. Annual average precipitation is approximately 30 inches. Climatic normals include maximum, minimum, and average temperatures, precipitation, snowfall, and daily wind speed.

The earth is experiencing a century-long warming trend in global average temperature that is understood in the scientific community to be likely due to human activities (NASA 2020; available at <https://climate.nasa.gov/scientific-consensus/>). Temperatures in Alaska have warmed twice as fast as the global average since the mid-twentieth century, leading to effects such as retreating sea ice, increased storm surges, coastal flooding and erosion, loss of shorelines, melting glaciers, and thawing permafrost (USGCRP 2018).

Direct and Indirect Effects

Table 3.2.2-1 below summarizes the nature and types of beneficial or adverse effects that could occur to climate change, the proposed management actions that could influence those effects, and the indicators used to measure the potential magnitude and extent of the effects. Table 3.2.2-2 discloses the potential magnitude and extent of the effects by indicator, across alternatives.

Table 3.2.2-1: Summary of Potential Effects to Climate Change by Management Action

Types of Effects	Management Actions	Indicators
GHG emissions from BLM activities such as OHV use, construction and maintenance equipment use, mineral development, commercial timber production, permafrost degradation, and fire would contribute to climate change. The following climate change scenarios are likely in the planning area: - Increased temperatures - Permafrost thaw - Decreased snow cover (albedo effect) - Increased wildfire intensity, size, and frequency - Increase in nonnative invasive species presence/spread - Later freeze-up and earlier break-up dates (river ice) - Sea level rise (salt intrusion, transportation changes) The only areas in the planning area expected to retain permafrost to a depth of 1 meter (which is the most influential on vegetation and surface conditions) in the future, aside from isolated pockets, are the Nulato Hills region. There is less agreement from researchers on the following two climate scenarios. There is empirical evidence of these scenarios already occurring, although the magnitude and rate are expected to increase in the future. - Shrub encroachment - Spruce trees replaced with aspen/birch hardwood trees	- Air Quality Management Decisions - Travel Management Decisions - Wildland Fire Management Decisions - Mineral Decisions	- Commercial woodland harvest - Casual and subsistence vehicle activity (OHV use) - Wildland fire management - Locatable and salable mineral development

Table 3.2.2-2: Portions of Planning Area Analyzed for Potential Impacts to Climate Change by Indicator

Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Acres of commercial woodland harvest permitted (GHG emissions primarily associated with timber harvesting and processing, which is only one of the types of woodland harvest that would occur)	11,882,094 acres (88%) ¹	8,403,829 acres (62%) ¹	13,418,941 acres (99%) ¹	13,465,894 acres (100%) ¹	13,418,941 acres (99%) ¹
Acres of summer casual OHV access prohibited	46,953 acres (<1%) ¹	565,955 acres (4%) ¹	225,925 acres (2%) ¹	225,925 acres (2%) ¹	225,925 acres (2%) ¹
Acres of summer subsistence OHV access prohibited	46,953 acres (<1%) ¹	241,512 acres (2%) ¹	225,925 acres (2%) ¹	0 acres (0%) ¹	225,925 (2%)
Wildland fire management	Wildland fire management actions are not specifically intended to minimize the extent or frequency of wildland fires and are therefore likely to have a negligible effect on minimizing GHG emissions. Wildland fire activity and associated GHG emissions are expected to increase as a result of climate change.				
Acres open to locatable mineral development in areas of medium to high LMP	294,325 acres (52%) ³	167,018 acres (30%) ³	565,489 acres (100%) ³	565,489 acres (100%) ³	565,489 acres (100%) ³
Acres open to locatable mineral development in areas of medium to high LMP segregated due to selection ²	195,632 acres (35%) ³	100,426 acres (18%) ³	317,531 acres (56%) ³	317,531 acres (56%) ³	317,531 acres (56%) ³

Notes:

1) Percentage is based on all BLM-managed lands in the planning area (13,465,894 acres).

2) State top-filings that become valid selections due to ANCSA corporation selections being relinquished or rejected will be managed like all other State selections. Alternatives that recommend revocation of 17(d)(1) withdrawals where the withdrawal prevents State selections would allow for the State selections to become valid once revocation is complete. These lands would be managed like all other State selections.

3) Percentage is based on all medium and high LMP areas on BLM-managed land in the planning area.

Effects from Alternative A

Emissions from commercial woodland harvest are primarily associated with timber production, would be dispersed throughout the planning area, and would be both temporary and long term. That is, Emissions from woodland harvest equipment would be temporary and only occur during the harvesting season,

while any long-term effects from the reduction of carbon sinks would be expected to continue until new, mature vegetation is established. While currently there is not a high demand for commercial woodland harvest in the planning area, nor an anticipated future increase in demand, this RMP would open 11,882,094 acres for the possibility of commercial woodland harvest and therefore impacts may occur in 88 percent of the BSWI Planning Area. Alternative A has higher potential for GHG emissions from commercial timber production than Alternative B, but lower potential than Alternatives C, D, and E, which are similar with respect to areas open to the potential for commercial harvest by permit (Table 3.2.2-2). Adverse impacts that could occur from mineral development are primarily tied to areas that are identified as having medium to high mineral potential. While currently there is not a high demand for locatable mineral development in the planning area, nor an anticipated future increase in demand, this RMP would open 294,325 acres for the possibility of locatable mineral development and therefore impacts may occur in 52 percent of the BSWI Planning Area with medium to high LMP. Alternative A has the potential to have more mineral-related GHG emissions than Alternative B, but less than Alternatives C, D, and E. Alternative A limits summer casual and subsistence OHV access in less than 1 percent of the planning area and therefore has the most potential for vehicle travel and resultant GHG emissions. Thawing permafrost resulting from climate change would alter available cross-country routes in the summer. Additionally, snow depth and the periods when snow covers the ground could both decrease as a result of climate change. Both decreases would affect areas in the planning area that are open to cross-country winter travel. Existing wildland fire and prescribed burn management actions are not specifically intended to minimize the extent or frequency of wildland fires and are therefore likely to have a negligible effect on minimizing GHG emissions. Wildland fire activity and associated GHG emissions are expected to increase from climate change. Alternative A has no soil management actions aimed specifically at reducing permafrost degradation from surface-disturbing activities. Permafrost thawing and degradation could result in long-term increases of GHG emissions.

Effects Common to All Action Alternatives

GHG emission effects on climate change would be similar among alternatives. The larger the area that is developed for commercial woodland harvest, the higher the potential for net GHG emissions related to activities and equipment used and the loss of vegetation that acts as carbon sink. All the action alternatives include management actions for vegetation reclamation related to locatable and salable mineral development, which would minimize impacts to climate change by restoring carbon-sequestering vegetation that would result in lower GHG emissions. Under the action alternatives, BLM would adaptively manage travel and transportation by limiting vehicle use to avoid and minimize impacts to sensitive vegetation cover types and habitats. Wildland fire management actions are not specifically intended to minimize the extent or frequency of wildland fires and are therefore likely to have a negligible effect on minimizing GHG emissions. Wildland fire activity and associated GHG emissions are expected to increase from climate change. Soil management actions under all the action alternatives include monitoring, assessing, and mitigating impacts to soils. BLM would adaptively manage areas where soils are prone to erosion and permafrost thawing by putting in place restrictions on motorized travel, surface disturbance, and the use of heavy equipment. The management actions for all action alternatives would slow the effects from climate change on soils, including reducing the rate of permafrost degradation, thereby reducing associated GHG emissions compared to Alternative A.

Effects from Alternative B

While currently there is not a high demand for commercial woodland harvest in the planning area, nor an anticipated future increase in demand, this RMP would open 8,403,829 acres for the possibility of

commercial woodland harvest and therefore impacts may occur on 62 percent of the BSWI Planning Area. Alternative B allows commercial woodland harvest on fewer acres in the planning area than Alternatives A, C, D, and E (Table 3.2.2-2). Alternative B would have a greater ability to sequester carbon due to less woodland harvest compared with other alternatives. While currently there is not a high demand for locatable mineral development in the planning area, nor an anticipated future increase in demand, this RMP would open 167,018 acres for the possibility of locatable mineral development and therefore impacts may occur in 30 percent of the BSWI Planning Area with medium to high LMP. Alternative B would allow for the least amount of mineral development on medium and high LMP areas, which would result in the least potential for emissions of GHGs compared to Alternatives A, C, D, and E. Alternative B has the most acres with limits on summer casual and subsistence OHV access as compared to Alternatives A, C, D, and E and therefore the least potential for vehicle usage and associated GHG emissions.

Effects from Alternative C

While currently there is not a high demand for commercial woodland harvest in the planning area, nor an anticipated future increase in demand, this RMP would open 13,418,941 acres for the possibility of commercial woodland harvest and therefore impacts may occur on 99 percent of the BSWI Planning Area. Alternative C, similar to Alternative E, has more acres open to commercial woodland harvest than Alternatives A and B, but approximately 49,953 fewer acres than Alternative D (Table 3.2.2-2). While currently there is not a high demand for locatable mineral development in the planning area, nor an anticipated future increase in demand, this RMP would open 565,489 acres for the possibility of locatable mineral development and therefore impacts may occur in 100 percent of medium and high LMP areas (though over half of this acreage would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected). This could result in the potential for higher GHG emissions from mineral development than Alternatives A and B and the same potential as Alternatives D and E. Alternative C has fewer acres with limits on summer casual OHV access than Alternative B, more acres with limits than Alternative A, and the same amount of limited access as Alternatives D and E. Alternative C has fewer acres with limits on summer subsistence OHV access than Alternative B, the same as Alternative E, and more than Alternatives A and D. Collectively, the potential for GHG emissions under Alternative C (due to limits on casual and subsistence travel and authorized land uses, such as commercial woodland harvest and locatable mineral development) would be more than Alternatives A and B and similar to Alternatives D and E.

Effects from Alternative D

While currently there is not a high demand for commercial woodland harvest in the planning area, nor an anticipated future increase in demand, this RMP would open 13,465,894 acres for the possibility of commercial woodland harvest and therefore impacts may occur on 100 percent of the BSWI Planning Area. Alternative D has more acres open to the potential for commercial woodland harvest permitting than Alternatives A, B, C, and E and therefore has the potential to result in higher GHG emissions (Table 3.2.2-2). While currently there is not a high demand for locatable mineral development in the planning area, nor an anticipated future increase in demand, this RMP would open 565,489 acres for the possibility of locatable mineral development and therefore impacts may occur in 100 percent of medium and high LMP areas, the same as Alternatives C and E (though over half of this acreage would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected). This could result in the higher GHG emissions from mineral development compared to Alternatives A and B, although emissions would be similar to Alternatives C and E.

Alternative D has fewer acres with limits on summer casual OHV access than Alternative B, more acres with limits than Alternative A, and the same amount of limited access as Alternatives C and E.

Alternative D has fewer acres with limits on summer subsistence OHV access than Alternatives A, B, C, and E, and the potential for GHG emissions would be higher than for the other alternatives. Collectively, the potential for GHG emissions due to casual and subsistence travel decisions and authorized land uses, such as commercial woodland harvest and locatable mineral development, would be more than Alternatives A and B and similar to Alternatives C and E.

Effects from Alternative E

While currently there is not a high demand for commercial woodland harvest in the planning area, nor an anticipated future increase in demand, this RMP would open 13,418,191 acres for the possibility of commercial woodland harvest and therefore impacts may occur on 99 percent of the BSWI Planning Area. Alternative E, similar to Alternative C, has more acres open to commercial woodland harvest than Alternatives A and B but approximately 49,953 fewer acres than Alternative D (Table 3.2.22). While currently there is not a high demand for locatable mineral development in the planning area, nor an anticipated future increase in demand, this RMP would open 565,489 acres for the possibility of locatable mineral development and therefore impacts may occur in 100 percent of medium and high LMP areas (though over half of this acreage would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected). This could result in the potential for higher GHG emissions from mineral development than Alternatives A and B and the same potential as Alternatives C and D. Alternative E has fewer acres with limits on summer casual OHV access than Alternative B, more acres with limits than Alternative A, and the same amount of limited access as Alternatives C and D. Alternative E has fewer acres with limits on summer subsistence OHV access than Alternatives A, B, and D, and the same as Alternative C. Collectively, the potential for GHG emissions due to casual and subsistence travel decisions and authorized land uses, such as commercial woodland harvest and locatable mineral development, would be more than Alternatives A and B and similar to Alternatives C and D.

Cumulative Effects

Past and Present Actions

Much of the planning area is remote and rural, and GHG emissions from human-caused sources are generally low. No large industrial facilities exist, and residential emissions are concentrated within rural and remote communities. Commercial timber production is primarily focused on local consumers, and mineral development activities are limited. Wildland fires and permafrost thawing are both anticipated to increase due to climate change and would result in increased GHG emissions. Trend: Degrade.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative A)

Increases in population, road ROWs, and potential for new mining projects (e.g., Donlin Gold) would incrementally increase GHG emissions compared to present conditions, and such increases would incrementally contribute to global climate change. Reasonably foreseeable future actions do not include oil and gas development or substantially increased commercial timber production, grazing, or recreation. GHG emissions from these activities are therefore anticipated to be similar to present conditions. Trend: Continues to degrade at a similar rate.

Past, Present, and Reasonably Foreseeable Future Actions (Alternatives B, C, D, and E)

Management actions would provide some reductions in potential GHG emissions over Alternative A. However, in consideration of past, present, and reasonably foreseeable future actions, they would have a negligible effect on the overall trend for potential GHG emissions in the planning area. Variations in management actions would have little effect on trends in climate change; therefore, the trend would be the same for all action alternatives. Trend: Continues to degrade at a similar rate.

3.2.3 Soils

Affected Environment

Soils and generalized geology in the planning area are depicted on Maps 3.2.3-1 through 3.2.3-4. Many of the soils in the planning area are poorly developed because the cold climate impedes most soil-forming processes (aside from minor, shallow organic matter accumulation) and leads to the formation and preservation of permafrost. In the uplands, permafrost underlies most of the north slopes and the toe of south-facing slopes. The well-drained and relatively warm soils of upland south-facing slopes are generally permafrost-free, with deeper and more mineral-dominated soils. In the lowlands, permafrost underlies much of the landscape except for major river terraces, alluvial fans, and active floodplains. The upland portions of the planning area generally have thin, poorly formed soils comprising coarse colluvium, fine alluvial sediments, and eolian loess.⁶ Lowland soils are more developed and consist of loess, sand and gravelly alluvium derived from mountainous regions, and higher amounts of organic matter. Large areas of wet organics form extensive plains within the lowland areas, particularly in the Yukon and Kuskokwim delta regions.

Permitted land use is limited on the BLM-managed lands within the planning area, with one airport lease, six FLPMA permits or leases, and 30 ROWs granted with six ROW applications pending.

Direct and Indirect Effects

Table 3.2.3-1 below summarizes the nature and types of effects that could occur to soils, the proposed management actions that could influence those effects, and the indicators used to measure the potential magnitude and extent of the effects. Table 3.2.3-2 summarizes the impacts to soils by indicator.

⁶ Silt-sized sediment formed by the accumulation of wind-blown dust.

Table 3.2.3-1: Types of Effects to Soils

Types of Effects	Management Actions	Indicators
Potential impacts to soils (including permafrost) could occur from mineral extraction, travel, development, and climate change. Surface disturbance from OHV use could occur where OHV use is unrestricted. Increased erosion and sedimentation to surface waters could occur when riparian areas and soils are disturbed. Water- and wind-induced erosion could increase following abrupt disturbances to vegetative communities as a result of surface-disturbing activities or wildfire. Impacts to soils could be minimized by soils management decisions, HVW management, and management actions assigned to ACEC designation.	• Woodland Harvest Management Decisions • Travel Management Decisions • Soils Management Decisions • Grazing Decisions • Mineral Decisions • Lands and Realty Decisions • HVW Decisions • Management Actions Applied to ACEC Designation	• Acres open to commercial woodland harvest permitting • Minimization of impacts to soils associated with acres of OHV restrictions • Minimization of impacts to soils associated with soils management • Acres open to reindeer grazing • Acres open to mineral leasing subject to standard stipulations • Acres open to locatable mineral development in areas of high to medium LMP, open to salable minerals, NSO for mineral actions, or open to mineral leasing • Acres open to ROW authorization • Acres and RM identified as HVW • Acres affected by management actions applied to ACEC designations

Table 3.2.3-2: Portions of Planning Area Analyzed for Potential Impacts to Soils by Indicator and Management Decision

Resource Indicator	Alternative A ¹	Alternative B ¹	Alternative C ¹	Alternative D ¹	Alternative E ¹
Soil disturbance from woodland harvesting areas	• Commercial woodland harvest open to permitting: 11,882,094 acres (88%)	• Commercial woodland harvest open to permitting: 8,403,829 acres (62%)	• Commercial woodland harvest open to permitting: 13,418,941 acres (99%)	• Commercial woodland harvest open to permitting: 13,465,894 acres (100%)	• Commercial woodland harvest open to permitting: 13,418,941 (99%)
Minimization of soil disturbance due to OHV use	• Summer casual OHV access prohibited: 46,953 acres (<1%) • Summer subsistence OHV access prohibited: 46,953 acres (<1%) • Summer casual OHV access limited to existing trails: No acres specified • Summer subsistence OHV access limited to existing trails: No acres specified	• Summer casual OHV access prohibited: 565,955 acres (4%) • Summer subsistence OHV access prohibited: 241,512 acres (2%) • Summer casual OHV access limited to existing trails: 12,899,939 acres (96%) • Summer subsistence OHV access limited to existing trails: 324,443 acres (2%)	• Summer casual OHV access prohibited: 225,925 acres (2%) • Summer subsistence OHV access prohibited: 225,925 acres (2%) • Summer casual OHV access limited to existing trails: 13,239,969 acres (98%) • Summer subsistence OHV access limited to existing trails: 363 acres (<1%)	• Summer casual OHV access prohibited: 225,925 acres (2%) • Summer subsistence OHV access prohibited: 0 acres (0%) • Summer casual OHV access limited to existing trails: 46,953 acres (<1%) • Summer subsistence OHV access limited to existing trails: 225,925 acres (2%)	• Summer casual OHV access prohibited: 225,925 acres (2%) • Summer subsistence OHV access prohibited: 225,925 acres (2%) • Summer casual OHV access limited to existing trails: 13,239,969 acres (98%) • Summer subsistence OHV access limited to existing trails: 363 acres (<1%)
Acres open to reindeer grazing permits	• 13,304,555 acres (99%)	• 0 acres (0%)	• 12,848,472 acres (95%)	• 13,465,894 acres (100%)	• 12,848,472 acres (95%)

Resource Indicator	Alternative A ¹	Alternative B ¹	Alternative C ¹	Alternative D ¹	Alternative E ¹
Soil disturbance from locatable mineral development	- Open to locatable mineral development: 8,661,406 acres (64%) - Open to locatable mineral development: Segregated due to selection²: 1,620,141 acres (12%)³ - Open in high and medium LMP: 294,325 (52%)³ - Open to locatable mineral development: Segregated due to selection²: 195,632 acres (35%)³	- Open to locatable mineral development: 3,548,061 acres (26%) - Open to locatable mineral development: Segregated due to selection²: 635,623 acres (5%)³ - Open in high and medium LMP: 167,018 acres (30%)³ - Open to locatable mineral development: Segregated due to selection²: 100,426 acres (18%)³	- Open to locatable mineral development: 13,418,941 acres (99%) - Open to locatable mineral development: Segregated due to selection²: 2,752,047 acres (20%)³ - Open in high and medium LMP: 565,489 acres (100%)³ - Open to locatable mineral development: Segregated due to selection²: 317,531 acres (56%)³	- Open to locatable mineral development: 13,418,941 acres (99%) - Open to locatable mineral development: Segregated due to selection²: 2,752,047 acres (20%)³ - Open in high and medium LMP: 565,489 acres (100%)³ - Open to locatable mineral development: Segregated due to selection²: 317,531 acres (56%)³	- Open to locatable mineral development: 13,418,941 acres (99%) - Open to locatable mineral development: Segregated due to selection²: 2,752,047 acres (20%)³ - Open in high and medium LMP: 565,489 acres (100%)³ - Open to locatable mineral development: Segregated due to selection²: 317,531 acres (56%)³
Soil disturbance from leasable mineral development	- Open under NSO: 17,521 acres (<1%) - Open subject to standard stipulations: 8,246,152 acres (61%)	- Open under NSO: 1,564,573 acres (12%) - Open subject to standard stipulations: 2,460,649 acres (18%)	- Open under NSO: 6,863,464 acres (51%) - Open subject to standard stipulations: 6,555,476 acres (49%)	- Open under NSO: 236,556 acres (2%) - Open subject to standard stipulations: 13,182,385 acres (98%)	- Open under NSO: 4,062,543 acres (30%) - Open subject to standard stipulations: 9,356,398 acres (69%)
Soil disturbance from ROWs	- Exclusion acres: 0 (0%) - Avoidance acres: 0 (0%) - Open acres: 13,465,894 (100%)	- Exclusion acres: 1,464,069 (11%) - Avoidance acres: 8,895,920 (66%) - Open acres: 3,105,905 (23%)	- Exclusion acres: 0 (0%) - Avoidance acres: 7,528,863 (56%) - Avoidance acres for linear actions: 151,853 (1%) - Open acres: 5,785,178 (43%)	- Exclusion acres: 0 (0%) - Avoidance acres: 5,163,653 (38%) - Avoidance acres for linear actions: 0 (0%) - Open acres: 8,302,241 (62%)	- Exclusion acres: 0 (0%) - Avoidance acres: 509,798 (4%) - Avoidance acres for linear actions: 413,179 (3%) - Open acres: 12,542,918 (93%)
Soil disturbance minimization from HVW decisions	No acres or RM identified	8,401,262 acres (62%) and 21,682 RMs in HVWs	5,614,504 acres (42%) and 15,035 RMs in HVWs	4,924,662 acres (37%) and 13,070 RMs in HVWs	800,995 acres (6%) and 13,070 RMs in the 100-year floodplain of HVWs
Soil disturbance minimization from management actions applied to ACEC designation	1,884,376 acres (14%)	3,912,698 acres (29%)	0 acres (0%)	0 acres (0%)	0 acres (0%)

Notes:

1) Unless otherwise specified, percentages are based on BLM-managed land in the planning area.

2) State top-filings that become valid selections due to ANCSA corporation selections being relinquished or rejected will be managed like all other State selections. Alternatives that recommend revocation of 17(d)(1) withdrawals where the withdrawal prevents State selections would allow for the State selections to become valid once revocation is complete. These lands would be managed like all other State selections.

3) Percentages based on all areas of medium or high LMP on BLM-managed land in the planning area.

Effects from Alternative A

Under Alternative A, current low rates of soil degradation on BLM-managed land in the planning area would be maintained because existing management would continue, and land use is generally low.

Alternative A poses no ROW restrictions, including in permafrost areas or floodplains. There are no specific BMPs for river crossings to limit riverbank disturbance and accelerated erosion. While currently there is not a high demand for commercial woodland harvest in the planning area, nor an anticipated future increase in demand, this RMP would open 11,882,094 acres for the possibility of commercial woodland harvest and therefore impacts may occur in 88 percent of the BSWI Planning Area

(Table 3.2.3-2). New ROWs would be potentially allowed anywhere in the planning area; no identified sensitive areas would be identified as exclusion or avoidance areas. No surface disturbance buffers for streams would be required to limit erosion and sediment deposition into streams. While BLM could manage such activities through site-specific analysis and permitting, the lack of areawide management for these activities could result in increased soil compaction, could reduce the soil's ability to support vegetation and reduce soil porosity, which could in turn inhibit root growth and reduce infiltration capacity of the soil. If left unchecked, increased erosion could contribute to increased turbidity in streams and sediment deposition on stream bottoms. Vegetation loss could also contribute to permafrost thaw. While currently there is not a high demand for locatable mineral development in the planning area, nor an anticipated future increase in demand, this RMP would open 294,325 acres for the possibility of locatable mineral development and therefore impacts may occur in 52 percent of the BSWI Planning Area with medium and high LMP locatable mineral development (though over 65 percent of this acreage would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected).

Effects Common to All Action Alternatives

Most management decisions impact soils in some way because a primary impact to soils is human activity. Impacts could intensify due to the sensitive nature of the soils in the region (e.g., thin, poorly developed, permafrost). Disturbances often result in increased rates of erosion, permafrost thaw, and overall soil destabilization. Alternatives that promote more uses allow for potentially greater soil disturbance (e.g., overland transportation, energy and mineral development, recreation use) which would have a corresponding impact on soil resources. However, specific management actions within each alternative could further increase soil disturbances within alternatives (exchange or disposal of BLM land allowing more land to be developed without restriction, a reduction of management restrictions or adaptive management strategies, etc.) or mitigate soil disturbances (lands managed for wilderness characteristics or HWV; or special designation areas, such as ACECs, INHT segments, etc.).

Surface-disturbing activities and surface occupancy could impact soil resources by compacting soil or removing soil. As soil compaction increases, the soil's ability to support vegetation could diminish because the resulting increase in soil strength and change in soil structure (loss of porosity) inhibit root system growth and reduce or increase water infiltration. As vegetative cover, water infiltration, and soil stability are diminished or disrupted, the surface water runoff rates increase, further accelerating rates of soil erosion. If left unchecked, this erosion could contribute or worsen turbidity in nearby streams and impact water quality as well as degrade soils. Vegetation loss and erosion could also contribute to thawing of permafrost. Travel across land could result in vegetation loss, soil compaction, and soil erosion. Management approaches that designate travel to specified routes could result in more predictable, localized, and manageable impacts.

All the action alternatives would be subject to management actions to avoid and minimize impacts to HWVs from actions associated with development that could impact soils. Management actions vary among the action alternatives and include allowing differing levels of surface-disturbing activity in caribou and moose calving and wintering areas, the Innoko Bottoms Priority Wildlife Habitat Area, and connectivity corridors. These actions would serve to minimize impacts on soils as well.

All action alternatives incorporate decisions for activities that would increase or decrease impacts to soils. Conditional requirements under each action alternative that minimize surface disturbances through

management actions and/or increased planning requirements are less likely to result in potential soil disturbances and associated impacts.

Effects from Alternative B

Under Alternative B, potential impacts would be minimized more than other alternatives, through management actions that would limit land uses and/or increase planning requirements. Under Alternative B, permafrost areas would be excluded from new ROW development, and there would be no development within 100 feet of springs. BMPs would be in place to avoid stream alteration and other impacts associated with new stream crossings. These measures would prevent soil impacts including compaction, erosion, and vegetation loss in areas that could experience the most damage from soil impacts, such as near waterbodies and in areas of permafrost. Additionally, while currently there is not a high demand for commercial woodland harvest or locatable mineral development in the BSWI Planning Area, Alternative B would have fewer acres than other alternatives open to the potential for commercial woodland harvesting permitting, mineral development (including in areas with medium or high potential), and new ROWs (Table 3.2.3-2); these are all actions that would result in soil compaction, erosion, degradation of permafrost, and vegetation loss. Compared to all other alternatives, Alternative B would result in the smallest geographic extent of impacts to soils, including soil compaction, erosion, degradation of permafrost, and vegetation loss.

Effects from Alternative C

Alternative C has fewer management actions that limit land uses and/or increased planning requirements than Alternative B, but generally more than Alternative D and somewhat more than Alternative E. Under Alternative C, permafrost areas would be avoidance areas for new ROWs, and development in the vicinity of floodplains and natural springs would be authorized at the AO's discretion. BMPs for river crossings would be the same as Alternative B. While currently there is not a high demand for commercial woodland harvest or locatable mineral development in the BSWI Planning Area, Alternative C would have more acres open to the potential for commercial woodland harvest permitting, mineral development (including in areas with medium or high mineral potential), and new ROWs than Alternative B. Alternative C would have similar impacts to Alternative E except it has fewer acres open to leasable development with standard stipulations, fewer acres open for ROW development, and more acres within HVWs (Table 3.2.3-2). Alternative C would have fewer acres open to leasable mineral development subject to standard stipulations and ROW development than Alternatives D and E. Alternative C would include management actions that limit activities that result in soil compaction, erosion, degradation of permafrost, and vegetation loss, although these restrictions would cover a smaller geographic extent than Alternative B and a larger geographic extent for ROW limitations than Alternatives D and E. Therefore, Alternative C would generally have the potential to result in more impacts to soils than Alternative B and somewhat less potential to result in impacts than Alternatives D and E.

Effects from Alternative D

Alternative D has some management actions that limit land uses and/or increase planning requirements, but many of these are simply better definitions and clarifications of the rules already present under Alternative A. Generally, Alternative D would result in slightly more impacts to soils than Alternative A, although it would open fewer acres to the possibility of ROW development. Alternative D would have substantially more impacts than Alternative B and would generally have similar impacts to Alternatives C and E, except for greater impacts from summer casual OHV access not being limited to existing trails,

increased acres open to grazing, and more acreage open to leasable mineral development (subject to standard stipulations). Alternative D would have greater potential for soil disturbance from new ROW development than Alternative C and less potential for impact than Alternative E. The amount of surface disturbance resulting from mineral development expected under this alternative is tempered by the generally low mineral potential of BLM-managed lands in the planning area. As shown in Table 3.2.3-2, the amount of medium or high locatable mineral open for development is the same as Alternatives C and E (100 percent), though over half of this acreage would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected. Additionally, the limited amount of non-winter transportation and recreation also tempers potential impacts to soils.

Effects from Alternative E

Alternative E has fewer management actions that limit land uses and/or increase planning requirements than Alternative B, but generally more than Alternative D and less than Alternative C. Under Alternative E, permafrost areas would be avoidance areas for new ROWs. BMPs for river crossings would be the same as Alternatives B and C. While currently there is not a high demand for commercial woodland harvest or locatable mineral development in the BSWI Planning Area, Alternative E would have more acres open to the potential for commercial woodland harvest permitting, mineral development (including in areas with medium or high mineral potential, though over half of this acreage would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected), and new ROWs than Alternative B, but the same acres open for the potential for commercial woodland harvest permitting and locatable mineral development as Alternative C (Table 3.2.3-2). Alternative E would have more acres open to the potential for new ROWs than Alternatives B, C, and D. Alternative E would include management actions that limit activities that result in soil compaction, erosion, degradation of permafrost, and vegetation loss, although these restrictions would cover a smaller geographic extent than Alternative B, a larger geographic extent for leasable mineral development (subject to standard stipulations) than Alternative C, and a much larger geographical extent for new ROWs than Alternative B, C, or D. Therefore, Alternative E would have the potential to result in greater impacts to soils than Alternative B, generally similar potential for soil impacts as Alternative C (except for greater impact from leasable mineral development and new ROWs), and generally less potential to result in impacts to soils than Alternative D (except for more impacts from new ROWs and more impacts related to the smaller area for which HVW management actions would apply).

Cumulative Effects

Past and Present Actions

Soil resources in the planning area predominantly consist of naturally occurring undisturbed conditions. The area is sparsely populated, and minimal human-caused disturbances exist from limited commercial facilities, roads, and trails. No large-scale commercial crop, livestock, or grazing activity exists in the planning area.

Climate change would continue to lead to increased soil temperatures in the planning area, which could in turn result in active layer destabilization (permafrost thaw), increased potential for stream channel incision (vertical downcutting), increased soil and streambank erodibility, and increased nutrient cycling and decomposition. The lowland portions of the planning area are extensively and intermittently affected by permafrost and their degradation often exhibits a thermokarst landscape. Trend: Degrading.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative A)

Management needs for soils in the planning area are predicted to be low in the foreseeable future, based on the remoteness of the area, lack of infrastructure, and low development potential. However, the lifting of the ANCSA 17(d)(1) withdrawals in the area, in combination with the present/reasonably foreseeable projects (such as the Donlin Gold Project and its associated infrastructure), could result in an increase in soil disturbance in certain areas.

Over time, climate change could affect the accessibility or impacts to soils in the planning area; however, the nature and extent of these impacts cannot be confidently predicted with currently available data.

Trend: Continue to degrade.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative B)

Management needs for soils in the planning area are predicted to be low in the foreseeable future based on the remoteness of the area, lack of infrastructure, and low development potential. However, the lifting of the ANCSA 17(d)(1) withdrawals in the area for all action alternatives, in combination with the present/reasonably foreseeable projects (such as Donlin Gold Project and its associated infrastructure), could result in an increase in soil disturbance in certain areas. These impacts are concentrated in a small number of watersheds.

Over time, climate change could affect the accessibility or impacts to soils in the planning area.

Management actions would prevent or minimize impacts to soils by limiting soil-disturbing activities in certain areas. These management actions are not expected to counteract degradation of soils from climate change but could slow the rate of degradation compared to Alternative A. Trend: Continue to degrade.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative C)

Cumulative impacts and trends for soils within the planning area would be similar to Alternative B. Because Alternative C would not have as many restrictions for soil disturbance as Alternative B, soil conditions would continue to degrade at a lesser rate than Alternatives D and E, but at a greater rate than Alternative B. Trend: Continue to degrade.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative D)

Cumulative impacts and trends for soils would be similar to the other alternatives, except that fewer management actions limiting land use could exacerbate the potential adverse long-term trends associated with climate change. Trend: Continue to degrade.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative E)

Cumulative impacts and trends for soils within the planning area would be similar to Alternatives B and C. Because Alternative E would not have as many restrictions for soil disturbance as Alternative B, soil conditions would continue to degrade at a lesser rate than Alternative D, but at a greater rate than Alternative B or C. Trend: Continue to degrade.

3.2.4 Water Resources**Affected Environment**

Water resources in the planning area are depicted on Maps 3.2.4-1 and 3.2.4-2.

Surface Water

There are approximately 133,853 miles of streams and rivers and 3.91 million acres of lakes and ponds within the planning area, with approximately 32,932 miles of streams and rivers and 53,798 acres of lakes and ponds (collectively known as “surface waters”) on BLM-managed lands within the planning area (BLM 2015d). Major rivers within the planning area include the Yukon, Kuskokwim, Anvik, and Unalakleet (see Map 1-2). Tributaries of the upper Yukon emanate from glaciated areas and carry heavy natural loads of sediment during summer. Except for suspended sediment, water quality is good to excellent, with low dissolved solids, dissolved oxygen near saturation, and neutral to moderately basic pH, though runoff in the vicinity of developed areas (roads, etc.) can contain natural or human-caused sediment and/or other pollutants during spring snowmelt and heavy rainfall events. Abandoned non-reclaimed placer gold mining, active placer mining with erosion control issues, and runoff from wildfire areas could contribute additional sediment and other pollutants to local streams. During summer, surface waters are typically less than 14 degrees C (57.2 degrees F). Flows in larger rivers are usually at a minimum in March and maximum during the snowmelt peak and from precipitation events typically in late July through August. Winter flows are generally about 20 percent of peak summer flows.

Groundwater

About half of Alaska’s population and 90 percent of the state’s rural residents depend primarily on groundwater (ADEC 2008; Map 3.2.4-1). Unconsolidated alluvial deposits or glacial outwash form the most productive aquifers. The groundwater level generally reaches a seasonal low during late winter months (March or April). Permafrost in the planning area is discontinuous. Where the permafrost is shallow, groundwater can be located near the land surface and promote rapid runoff to streams. Most of the groundwater in unconsolidated deposits is suitable for domestic uses with moderate or minimal treatment. The most common treatment problems in groundwater systems are naturally occurring concentrations of arsenic, antimony, iron, and manganese in excess of the federal drinking-water standards (ADEC 2008). Alluvial groundwater is typically a calcium bicarbonate or calcium magnesium bicarbonate type and is hard to moderately hard and may require treatment for some uses.

Water Quality

Water quality in most of the lakes and rivers is in a natural state, and existing impairments are due to natural conditions. Turbidity levels are naturally elevated in most Alaska streams during high-flow events regardless of land use. According to Alaska’s *Final 2012 Integrated Water Quality Monitoring and Assessment Report* (ADEC 2013), segments of Red Devil Creek and Kuskokwim River are on Alaska’s list of impaired waterbodies (i.e., Clean Water Act Section 303(d) list). Both are in the Kuskokwim watershed in the vicinity of the Red Devil mine site and exceed water quality standards for antimony, arsenic, and mercury. Other impaired waterbodies may exist in the planning area that are not currently 303(d) listed.

Direct and Indirect Effects

Table 3.2.4-1 below summarizes the nature and types of beneficial or adverse effects that could occur to water resources, the proposed management actions that could influence those effects, and the indicators used to measure the potential magnitude and extent of the effects. Table 3.2.4-2 discloses the potential magnitude and extent of the effects by indicator, across alternatives.

Table 3.2.4-1: Summary of Potential Effects to Water Resources by Management Action

Types of Effects	Management Actions	Indicators
Mining activities could adversely affect water quality by increasing erosion, sedimentation, and water temperature; causing alterations in river/stream flows; and adding point and non-point discharges to streams, rivers, and groundwater.	- Water Resources and Fisheries Decisions - Visual Resources Decisions - Mineral Decisions - Lands and Realty Decisions - Management Decisions Applied to ACECs	- RM within HVWs - Acres of VRM Class I and II lands - Acres open to locatable mineral development and open to salable minerals - RM and acres of waterbodies open to locatable mineral development - RM and acres of waterbodies open to salable mineral development - Acres open/closed to mineral leasing - Acres designated NSO leasable - Acres designated ACEC
Timber harvesting activities could adversely affect water quality by removing vegetation and increasing erosion, sedimentation, water temperature, and causing alterations in river/stream flows.	- Water Resources and Fisheries Decisions - Visual Resources Decisions - Forestry and Woodland Products Decisions - Management Decisions Applied to ACECs	- RM within HVWs - Acres of VRM Class I and II Lands - Acres open to commercial woodland harvest permitting - Acres designated ACEC
OHV access could adversely affect water quality by increasing erosion, sedimentation, altering river/stream flows, and increasing point and non-point discharges to streams, rivers, and groundwater.	- Water Resources and Fisheries Decisions - Visual Resources Decisions - Lands and Realty Decisions - Travel and Transportation Management Decisions - Management Decisions Applied to ACECs	- RM within HVWs - Acres of VRM Class I and II lands - Acres of ROW exclusion and avoidance areas - Acres open to OHV travel - Acres designated ACEC
ROW grants, permits, and leases could affect water quality by removing vegetation and increasing erosion and sedimentation, altering river/stream flows, and increasing point and non-point discharges to streams, rivers, and groundwater.	- Water Resources and Fisheries Decisions - Visual Resources Decisions - Lands and Realty Decisions - Management Decisions Applied to ACECs	- RM within HVWs - Acres of VRM Class I and II lands - Acres of ROW exclusion and avoidance areas - Acres designated ACEC

Table 3.2.4-2: Portions of Planning Area Analyzed for Potential Impacts to Water Resources by Indicator

Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
RM within HVWs	0	21,682 (66%) ¹	15,035 (46%) ¹	13,070 (40%) ¹	13,070 (40%) ¹
Acres of VRM Class I and II lands	Class I: 46,953 (<1%) ^{1, 2}	- Class I: 1,335,771 (10%)³ - Class II: 6,490,087 (48%)³	- Class I: 46,953 (<1%)³ - Class II: 2,766,229 (21%)³	- Class I: 46,953 (<1%)³ - VRM Class II: 679,553 (5%)³	- Class I: 46,953 (<1%)³ - VRM Class II: 2,645,370 (20%)³
Acres open to locatable mineral development in areas of medium to high LMP	294,325 (52%) ⁵	167,018 (30%) ⁵	565,489 (100%) ⁵	565,489 (100%) ⁵	565,489 (100%) ⁵
Acres open to locatable mineral development in areas of medium to high LMP segregated due to selection ⁴	195,632 (35%) ⁵	100,426 (18%) ⁵	317,531 (56%) ⁵	317,531 (56%) ⁵	317,531 (56%) ⁵
RM and acres of waterbodies open to locatable mineral development in areas of medium or high LMP	609 RM (2%)¹ 712 acres (1%)⁶	332 RM (1%)¹ 363 acres (1%)⁶	1,173 RM (4%)¹ 1,040 acres (2%)⁶	1,173 RM (4%)¹ 1,040 acres (2%)⁶	1,173 RM (4%)¹ 1,040 acres (2%)⁶
RM and acres of waterbodies open to locatable mineral development in areas of medium or high LMP segregated due to selection ⁴	421 RM (1%)¹ 530 acres (1%)⁶	210 RM (<1%)¹ 342 acres (<1%)⁶	669 RM (2%)¹ 830 acres (2%)⁶	669 RM (2%)¹ 830 acres (2%)⁶	669 RM (2%)¹ 830 acres (2%)⁶

Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Acres open to leasable mineral development with standard stipulations	8,246,152 (61%) ³	2,460,649 (18%) ³	6,555,476 (49%) ³	13,182,385 (98%) ³	9,356,398 (69%) ³
Total acres open to salable mineral development and open to salable mineral development (subject to terms and conditions)	8,661,406 (64%)	3,548,061 (26%)	13,182,385 (98%) ³	13,182,385 (98%) ³	13,182,385 (98%) ³
Acres designated ACEC (as an indicator of management actions applied to ACECs)	1,884,376 (14%) ³	3,912,698 (29%) ³	0	0	0
Acres open to commercial woodland harvest permitting	• Open: 11,882,094 (88%) ³	• Open: 8,403,829 (62%) ³	• Open: 13,418,941 (>99%) ³	• Open: 13,465,894 (100%) ³	• Open: 13,418,941 (>99%) ³
Acres of ROW designated exclusion and avoidance areas	0	Exclusion: 1,464,069 (11%) ³ • Avoidance: 8,895,920 (66%) ³	• Exclusion: 0 Avoidance: 7,528,863 (56%) ³ • Avoidance for Linear Actions: 151,853 (1%) ³	• Exclusion: 0 • Avoidance: 5,163,653 (38%) ³	• Exclusion: 0 • Avoidance: 509,798 (4%) ³ • Avoidance for Linear Actions: 413,179 (3%) ³
Acres closed to OHV travel or limited to existing trails	0 designated OHV regions	• Summer Casual Cross-Country OHV Access Allowed: 0 acres (0%)¹ • Summer Subsistence Cross-Country OHV Access Allowed: 12,899,939 acres (96%)¹ • Summer Casual OHV Access Limited to Existing Trails: 12,899,939 acres (96%)¹ • Summer Subsistence OHV Access Limited to Existing Trails: 324,443 acres (2%)¹	• Summer Casual Cross-Country OHV Access Allowed: 0 acres (0%)¹ • Summer Subsistence Cross-Country OHV Access Allowed: 13,239,606 acres (98%)¹ • Summer Casual OHV Access Limited to Existing Trails: 13,239,969 acres (98%)¹ • Summer Subsistence OHV Access Limited to Existing Trails: 363 acres (<1%)¹	• Summer Casual Cross-Country OHV Access Allowed: 13,193,016 acres (98%)¹ • Summer Subsistence Cross-Country OHV Access Allowed: 13,239,969 acres (98%)¹ • Summer Casual OHV Access Limited to Existing Trails: 46,953 acres (<1%)¹ • Summer Subsistence OHV Access Limited to Existing Trails: 225,925 acres (2%)¹	• Summer Casual Cross-Country OHV Access Allowed: 0 acres (0%)¹ • Summer Subsistence Cross-Country OHV Access Allowed: 13,239,606 acres (98%)¹ • Summer Casual OHV Access Limited to Existing Trails: 13,239,969 acres (98%)¹ • Summer Subsistence OHV Access Limited to Existing Trails: 363 acres (<1%)¹
Acres of mineral decisions in HVW	N/A	• N/A (closed to salable and leasable, and recommended for withdrawal from locatable mining)	• Open to salable subject to terms and conditions: 5,519,398 (98%)⁷ • NSO leasable: 5,582,926 (99%)⁷ • Open to locatable: 5,529,058 (99%)⁷	• Open to salable: 4,847,413 (99%)⁷ • Standard stipulations leasable: 4,847,413 (99%)⁷ • NSO leasable: 12,939 (<1%)⁷ • Open to locatable: 4,860,352 (99%)⁷	• Open to salable: 2,200,788 (45%)⁷ • Open to salable subject to terms and conditions: 2,679,355 (54%)⁷ • Standard stipulations leasable: 2,200,019 (45%)⁷ • NSO leasable: 2,693,064 (55%)⁷ • Open to locatable: 4,860,352 (99%)⁷

Notes:

1) Percentage based on total miles of streams on BLM-managed land in the planning area.

2) Per the SWMFP (BLM 1981), Alternative A also manages seen areas of the Unalakleet River outside the Wild River Corridor as VRM II. These areas are not considered mappable and therefore do not have acreage reported

3) Percentage based on all BLM-managed land in the planning area.

- 4) State top-filings that become valid selections due to ANCSA corporation selections being relinquished or rejected will be managed like all other State selections. Alternatives that recommend revocation of 17(d)(1) withdrawals where the withdrawal prevents State selections would allow for the State selections to become valid once revocation is complete. These lands would be managed like all other State selections.
- 5) Percentages based on all areas of medium or high LMP on BLM-managed land in the planning area.
- 6) Percentage based on total acres of waterbodies on BLM-managed land in the planning area.
- 7) Percentage based on acreage of HVWs within each alternative.

Surface water and groundwater resources within the planning area could be affected by localized erosion, permafrost degradation, sedimentation, water temperature changes, alterations in river/stream flows, and various types of point and non-point discharges as a result of a range of management actions applied to mining, timber harvesting, grazing, roadbuilding, OHV access, and the issuance of ROW grants, permits, and leases on BLM-managed lands. These management actions could impact water resources on BLM-managed lands to varying degrees depending on the amount and location of areas open to such uses and any conditions applied to such uses, particularly in proximity to water resources.

Table 3.2.4-2 identifies the indicators used to quantify the magnitude of potential impacts to water resources for each alternative. HVW management would minimize impacts to water resources by requiring all surface-disturbing activity in HVWs to comply with soil, vegetation, riparian, and stream disturbance/reclamation requirements to minimize impacts from soil erosion, sedimentation, and water quality and quantity changes. However, actual impacts would vary between alternatives due to the specific management actions applied to HVWs and the geographic area those management actions were applied to, for each alternative. Lands designated VRM Class I, VRM Class II, and ACECs would include management actions that would limit activities that could result in major landscape changes, surface disturbance, and vegetation removal that could result in erosion, sedimentation, and adverse impacts to water quality. Therefore, the more river miles within HVWs and the more acreage designated as VRM Class I and II and ACECs, the smaller the magnitude and extent of potential impacts on water resources. Appendix N includes all management actions that would apply to ACECs that would minimize erosion, sedimentation, and adverse impacts to water quality.

Similarly, the greater the acreage of BLM-managed lands withdrawn from locatable mineral development, closed to leasable mineral development, stipulated as NSO for leasable minerals, closed to commercial woodland harvest, grazing, and OHV access, or designated as ROW avoidance and exclusion areas, the lower the probability that water resources in those areas would be adversely affected by surface-disturbing activities. If not properly managed, such activities could degrade water quality by accelerating erosion and sedimentation, altering stream flows, or releasing pollutants to surface and groundwater. Note that even though large portions of BLM-managed lands would be open to permitting for certain types of activities such as commercial woodland harvesting, grazing, and leasable mineral development, the entire area would not be used for such purposes. A relative comparison of the impacts on water resources associated with each alternative is presented below.

Effects from Alternative A

Under Alternative A, no BLM-managed lands in the planning area would be designated as HVWs, and less than 1 percent would be designated VRM Class I, providing limitations to surface-disturbing activities (the remaining BLM-managed lands would be undesignated). Additionally, areas outside of Unalakleet Wild River Corridor but visible from the Unalakleet River would continue to be managed as VRM Class II. About 14 percent of the planning area would be designated as ACECs, providing some management to limit impacts on water quality and fisheries R&Is through management actions aimed at protecting R&Is. While currently there is not a high demand for locatable mineral development in the planning area, nor an anticipated future increase in demand, approximately half of all BLM-managed

lands in the planning area and about half of the river miles on BLM-managed lands with medium to high mineral potential would be open to the potential for locatable mineral development (though almost 70 percent of this mileage would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected). Surface-disturbing activities in these areas could impact water quality by increasing erosion, sedimentation, and water temperature; causing alterations in river/stream flows; and adding point and non-point discharges to streams, rivers, and groundwater. Similar impacts could result from leasable mineral development, which is allowed on about 61 percent of BLM-managed lands in the planning area with standard stipulations, although the likelihood for those impacts is less due to lower potential for development. While currently there is not a high demand for commercial woodland harvest in the planning area, nor an anticipated increase in demand, approximately 88 percent of BLM-managed lands in the planning area is currently open to the potential for commercial woodland harvest permitting.

Surface disturbance from new ROW and OHV use would also potentially occur due to a general lack of management direction for those uses. Alternative A would continue to allow activities that would impact water resources that could cause localized erosion, sedimentation, changes in temperature and stream flows, and point and non-point discharges that could adversely affect water quality compared to the action alternatives with few limitations.

Effects Common to All Action Alternatives

While each of the action alternatives would result in similar types of impacts to water resources, the magnitude of those impacts would be different. Those differences are shown in Table 3.2.4-2 and further described below.

Effects from Alternative B

Under Alternative B, fewer acres would be open to surface-disturbing activity than the other alternatives. Approximately 66 percent of the total river miles on BLM-managed lands would be managed within areas identified as HVW, which would be withdrawn from locatable mineral development and closed to salable and leasable mineral development. Therefore, potential impacts to streams within HVWs from mineral activity would be avoided under Alternative B. Additionally, considering all mineral decisions throughout the planning area, under Alternative B about 1 percent of the river miles on BLM-managed land in the planning area would be open to locatable mineral development in areas of medium to high LMP, with over 60 percent of this mileage closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected. Currently there is not a high demand for locatable mineral development in the planning area, nor an anticipated future increase in demand. The acreage available for LMP under Alternative B is the lowest of the alternatives and consequently would have the smallest potential magnitude and extent of associated water quality impacts compared with the other alternatives. Approximately 58 percent of BLM-managed lands would be designated VRM Class I or II, which allow up to a low level of change to the characteristic landscape. This would limit activities with large areas of surface disturbance and thereby minimize associated potential impacts to water resources, such as increased erosion and sedimentation. Approximately 29 percent of BLM-managed lands in the planning area would be designated as ACECs, which under Alternative B would limit surface-disturbing activities through management actions applied to this geographic area (see Appendix N for details). While currently there is not a high demand for commercial woodland harvest in the planning area, nor an anticipated future increase in demand, approximately 62 percent of BLM-managed lands would be open to potential commercial woodland harvest activities. Disturbance by activities authorized by ROW

permits could be avoided or minimized on the 77 percent of BLM-managed lands designated as ROW exclusion and avoidance areas. Summer casual OHV access would be allowed on 96 percent of BLM-managed lands but limited to use of existing trails. For most resource indicators, Alternative B would result in fewer potential impacts on water resources on BLM-managed lands such as accelerated erosion and sedimentation, variations in temperature and stream flows, and potential discharges of pollutants to streams, rivers, and groundwater than Alternatives A, C, D, and E.

Effects from Alternative C

Under Alternative C, more acres would be open to development than Alternative B. Approximately 98 percent of BLM-managed acreage would be open to the potential for salable mineral development (including those areas subject to terms and conditions). NSO leasable acreage would also be greater than Alternative E, somewhat mitigating potential effects to visual and water resources. While currently there is not a high demand for locatable mineral development in the planning area, nor an anticipated future increase in demand, approximately 46 percent of river miles on BLM-managed lands would be managed within HVWs, which under Alternative C would be open to locatable entry. All river miles on BLM-managed lands in areas of medium to high LMP would be open to the potential for locatable mineral development, though over half of this mileage would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected. The river miles open to locatable mineral development on medium to high LMP represent about 4 percent of streams on BLM-managed land in the planning area. Therefore, impacts from locatable mineral development on streams would be likely, but these would be localized to a very small geographic extent. Approximately half of BLM-managed lands would be open to mineral leasing, which is more than Alternative B but less than Alternative A, D, or E. However, likelihood of potential impacts to water quality from leasable mineral activity is small due to lower potential for development compared to locatable mineral development in the planning area. Under Alternative C, about 21 percent of lands would be designated VRM Class I or II, which allow a low level of change to the characteristic landscape. This would limit activities with large areas of surface disturbance and thereby minimize any associated impacts to water resources such as increased erosion and sedimentation. While currently there is not a high demand for commercial woodland harvest in the planning area, nor an anticipated increase in demand, greater than 99 percent of BLM-managed lands would be open to the potential for commercial woodland harvest activities. Disturbance by activities authorized by ROW permits could be avoided or minimized on the 56 percent of BLM-managed lands designated as ROW avoidance areas. Summer casual OHV access would be allowed on 98 percent of BLM-managed lands but would be limited to use of existing trails. Although grazing is not restricted in HVWs, reindeer are not prone to congregate in riparian areas and therefore no impacts to riparian areas from reindeer grazing are anticipated. For most resource indicators, Alternative C would result in a greater potential magnitude, extent, and likelihood of impacts to water resources on BLM-managed lands from activities that could cause accelerated erosion and sedimentation, variations in temperature and stream flows, and potential discharges of pollutants to streams, rivers, and groundwater than Alternative B, but less than Alternatives D and E. Alternative C would result in a greater potential magnitude, extent, and likelihood of impacts to water resources than Alternative A from any potential mineral development and commercial woodland harvest but fewer impacts associated with any potential ROW development and OHV travel.

Effects from Alternative D

Under Alternative D, 98 percent of BLM-managed acreage would be open to the potential for salable mineral development (including those areas subject to terms and conditions), more than the other action

alternatives with the exception of Alternative C, though areas open to ROW location would be less than under Alternative E. Approximately 40 percent of river miles on BLM-managed lands would be managed according to management action applied to HVWs, which would be open to the potential for locatable and salable mineral development and leasable mineral development under standard stipulations. While currently there is not a high demand for locatable mineral development in the planning area, nor an anticipated future increase in demand, all river miles on BLM-managed lands with medium to high LMP would be open to the potential for locatable mineral development so potential impacts to streams from locatable mineral development would be the same as Alternative C. Approximately 98 percent of BLM-managed lands would be open to the potential for mineral leasing, which is more than Alternative A, B, C, or E. However, the likelihood of impacts to water quality from leasable mineral activity is small due to lower potential for development compared to locatable mineral development in the planning area. About 5 percent of BLM-managed lands would be designated VRM Class I or II, providing limitations on surface-disturbing activities in a smaller area than Alternative B, C, or E but in a larger area than Alternative A. While currently there is not a high demand for commercial woodland harvest within the planning area, nor an anticipated increase in demand, all BLM-managed lands in the planning area would be open to the potential for commercial woodland harvest activities under Alternative D. Disturbance by activities authorized by ROW permits would be avoided on the 38 percent of BLM-managed lands managed as ROW avoidance areas. Summer casual OHV access would be allowed on 98 percent of BLM-managed lands, with few limitations requiring use of existing trails. For most resource indicators, Alternative D would result in a potentially greater magnitude, extent, and likelihood of impacts to water resources on BLM-managed lands from activities that could cause accelerated erosion and sedimentation, variations in temperature and stream flows, and potential discharges of pollutants to streams, rivers, and groundwater than Alternative B or C. Alternative D would result in a greater magnitude, extent, and likelihood of potential impacts to water resources than Alternative A from mineral development and commercial woodland harvest, fewer impacts associated with ROW development, and similar impacts associated with OHV travel.

Effects from Alternative E

Under Alternative E, more acres would be open to the possibility of development than under Alternative B, C, or D. There would be 13,070 river miles (approximately 40 percent of river miles in the planning area) and 4,924,662 acres (37 percent of the planning area) within HVWs under Alternative E; the 13,070 river miles within HVWs would thus be managed according to management actions applied to HVWs, which under Alternative E would be open to locatable entry. Those management actions that were applied to HVW at the watershed-level in Alternative C (5,614,504 acres) would be applied to the 100-year floodplain under Alternative E (800,995 acres). Unlike Alternatives C and D, Alternative E would not include HVWs as ROW avoidance areas. Under Alternative E, management actions, such as avoidance of permanent structures and restrictions on surface-disturbing activities or permanent structures, are limited to the 100-year floodplain of streams. Disturbance by activities authorized by ROW permits could be avoided or minimized on the 4 percent of BLM-managed lands designated as ROW avoidance areas under Alternative E. While currently there is not a high demand for locatable mineral development in the planning area, nor an anticipated increase in demand, as under Alternatives C and D, all river miles on BLM-managed lands in areas of medium to high LMP would be open to the potential for locatable mineral development, though over half of this mileage would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected. Only about 4 percent of streams on BLM-managed land in the planning area occur in areas of medium to high LMP. Approximately 69 percent of BLM-managed lands would be open to the potential for mineral leasing with

standard stipulations, which is more than Alternatives A, B, and C but less than Alternative D. However, likelihood of impacts to water quality from leasable mineral activity is small due to lower potential for development compared to locatable mineral development in the planning area. The same amount of BLM-managed lands would be open to the potential for salable mineral development (including those areas subject to terms and conditions). As under Alternative C, about 20 percent of lands would be designated VRM Class I or II, which allow up to a low level of change to the characteristic landscape. This would limit potential activities with large areas of surface disturbance and thereby minimize associated impacts to water resources. Greater than 99 percent of BLM-managed lands would be open to the potential for commercial woodland harvest activities.

Disturbance by activities authorized by ROW permits would be avoided on the 4 percent of BLM-managed lands designated as ROW avoidance areas under Alternative E. As under Alternative C, summer casual OHV access would be allowed on 98 percent of BLM-managed lands but would be limited to use of existing trails. Although grazing is not restricted in HVWs, reindeer are not prone to congregate in riparian areas and therefore no impacts to riparian areas from reindeer grazing are anticipated. For most resource indicators, Alternative E would result in a greater magnitude, extent, and likelihood of potential impacts to water resources on BLM-managed lands from activities that could cause accelerated erosion and sedimentation, variations in temperature and stream flows, and potential discharges of pollutants to streams, rivers, and groundwater than Alternatives B and C but less than Alternative D. Alternative E would result in a greater magnitude, extent, and likelihood of potential impacts to water resources than Alternative A from mineral development and commercial woodland harvest but fewer potential impacts associated with ROW development and OHV travel.

Cumulative Effects

Past and Present Actions

The lack of development and access to the planning area has minimized direct impacts to water resources on BLM-managed lands, and the extent of disturbances in the planning area is forecast to remain stable. Activities that occur within the planning area that would have the highest potential to affect water resources include mining, timber harvesting, grazing, transportation route use, and development of ROWs that cross or are within the vicinity of water resources. Impacts from these potential activities are not quantified, though they are not expected to substantially increase in the near future. Climate change would continue to cause increased soil temperatures in the planning area, which result in permafrost thaw that contributes to greater stream channel incision (vertical downcutting) potential and increased soil and streambank erodibility. Increased soil erosion, where it occurs, would contribute to and/or worsen turbidity in nearby streams, resulting in water quality impacts. Trend: Degrading.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative A)

There would be continued resource use and community development. Reasonably foreseeable actions that have the potential to impact water resources include potential mineral development such as the Donlin Gold Project, access road development, and potential new energy development. On a localized basis these could impact water quality, floodplain health, water quantity, and timing and magnitude of high flow events. In addition, climate change would continue to increase soil temperatures, resulting in permafrost thaw and soil erosion, thereby contributing to and/or worsening turbidity in streams and degrading water quality. Trend: Continue to degrade.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative B)

Alternative B would limit access or require more consideration of water quality than the other alternatives to gain access for development. The inclusion of larger and more numerous HVWs and several management actions applied to the entire HVW geography would help avoid and minimize potential impacts to water resources. Climate change would continue to cause soil erodibility and increase turbidity levels in existing streams in the planning area. In addition, localized surface-disturbing activities and surface occupancy could compact soil, decreasing soil's ability to support vegetation and infiltrate runoff. Localized surface water runoff rates would then increase and further accelerate rates of soil erosion, thereby impacting nearby streams. However, management actions would prevent or minimize potential impacts (except for those caused by climate change) to soils by limiting soil-disturbing activities in certain areas, resulting in fewer potential impacts to water resources compared to Alternative A. Trend: Continue to degrade.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative C)

Alternative C would allow more acres of resource use than under Alternative B but fewer acres than under Alternatives D and E. Climate change would continue to cause soil erodibility and increase turbidity levels in existing streams in the planning area. There would be continued resource use and community development, although management actions would keep impacts to water resources from soil erosion and associated turbidity limited. These management actions are not expected to counteract impacts to water resources from climate change but would result in fewer potential impacts to water resources compared to Alternative A. Trend: Continue to degrade (to a greater degree than Alternative B given increased acreage of resource use).

Past, Present, and Reasonably Foreseeable Future Actions (Alternative D)

Alternative D would open more acres and river miles to resource use (e.g., timber harvesting, locatable mineral entry, mining, grazing) than under Alternative B or C resulting in impacts to water resources. Climate change would continue to cause soil erodibility and increase turbidity levels in existing streams in the planning area. There would be continued resource use and community development, although management actions would keep impacts to water resources from soil erosion and associated turbidity limited. These management actions are not expected to counteract impacts to water resources from climate change but would result in fewer potential impacts to water resources compared to Alternative A. Trend: Continue to degrade (at a lesser rate than Alternative A or E but at a greater rate than Alternative B or C).

Past, Present, and Reasonably Foreseeable Future Actions (Alternative E)

Alternative E would open more acres to the possibility of resource use (e.g., ROW authorization, timber harvesting, locatable mineral entry, mining, grazing) than under Alternatives B, C, and D, resulting in potential impacts to water resources. Climate change would continue to cause soil erodibility and increase turbidity levels in existing streams in the planning area. There would be continued resource use and community development, although management actions would keep impacts to water resources from soil erosion and associated turbidity limited. These management actions are not expected to counteract impacts to water resources from climate change but would result in fewer potential impacts to water resources compared to Alternative A. Trend: Continue to degrade (at a lesser rate than Alternative A but at a greater rate than Alternative B, C, or D).

3.2.5 Fisheries

Affected Environment

Fish resources in the planning area are depicted on Maps 3.2.5-1 through 3.2.5-5. There are approximately 133,853 miles of streams and rivers and 3.91 million acres of lakes and ponds within the planning area, with approximately 32,932 miles of streams and rivers and 53,798 acres of lakes and ponds (collectively known as “surface waters”) on BLM-managed lands within the planning area. Of these, 17,962 miles of streams and 414,967 acres of lakes and ponds have been cataloged as important for the spawning, rearing and migration of anadromous fish (Johnson and Litchfield 2016a–c). Of the habitats cataloged in the Anadromous Waters Catalog (AWC) within the planning area, the majority are cataloged as Essential Fish Habitat for Pacific salmon, including spawning habitats (Map 3.2.5-2). Approximately 25 percent (32,932 miles) of all streams and 1.4 percent (53,798 acres) of pond/lake habitats in the planning area occur on BLM-managed public lands. Similarly, about 22 percent (3,997 miles) of anadromous streams, less than 1 percent (34 acres) of anadromous lakes and ponds in the AWC are on BLM-managed public lands in the planning area (see Map 3.2.5-4). However, the AWC is not a complete representation or comprehensive identification of important anadromous fish habitats, because the AWC reflects the extent of anadromous fish (including salmon) currently documented through fish surveys and not necessarily the actual limits of anadromous habitat.

The planning area is composed of three basins: the Unalakleet and Kuskokwim Rivers and the lower portion of the Yukon River. The Yukon and Kuskokwim drainages have the highest overall available fish habitat for both resident and anadromous fish, including spawning for salmon, whitefishes, and smelt.

Native species are widely distributed and occur in a variety of habitats. Forty native species are known to be supported by the planning area (USFWS 2004). Twenty-eight freshwater fish species occur within the planning area, possibly including two BLM sensitive species, Alaskan brook lamprey and Arctic char. All five Pacific salmon (Chinook, chum, pink, sockeye, and Coho salmon) occur within the planning area. Eight additional anadromous fish species are present within the freshwaters of the planning area: Pacific lamprey, broad whitefish, humpback whitefish, least cisco, Bering cisco, sheefish, Dolly Varden, and rainbow smelt.

Fish species in the planning area can be described by the following four general groupings: subsistence, commercial, sport, and forage. In rural Alaska, subsistence fish species are extremely important for both diet and culture and include all five Pacific salmon species and non-salmon species such as whitefish, sheefish, burbot (also known as lush), northern pike, Alaska blackfish, Dolly Varden, rainbow trout, rainbow smelt, and Arctic lamprey. Sport fish species include Arctic grayling, northern pike, burbot, rainbow trout, Dolly Varden, sheefish, and salmon. Forage species are important prey for other species and include longnose suckers, slimy sculpin, lake chub, and ninespine stickleback. The Alaska Board of Fisheries listed Yukon River Chinook salmon as a stock of yield concern in 2000, and Unalakleet River Chinook salmon as stock yield concern in 2004 (5 Alaska Administrative Code [AAC] 39.222; Kent and Bergstrom 2009). Appendix M includes the list of BLM Alaska sensitive fish species.

Human activity has been minimal in the majority of the watersheds in the planning area, and most riparian and stream habitats are in natural condition. The major activities that have affected fish habitat and aquatic productivity are localized activities that cause surface disturbances near waterbodies and activities that occur within waterbodies, including placer mining, hard rock mining, and gravel mining within or near important fish habitats; timber harvests near important fish habitats; and stream crossings of roads, trails,

and utility corridors in important fish habitats. These activities can affect fish productivity by causing increased turbidity, sedimentation, erosion, substrate embeddedness, and a loss of lower trophic level production.

Direct and Indirect Effects

Table 3.2.5-1 below summarizes the nature and types of relative beneficial or adverse effects that could occur to fisheries resources, the proposed management actions that could influence those effects, and the indicators used to evaluate the potential magnitude and extent of those effects among alternatives.

Table 3.2.5-2 discloses the potential magnitude and extent of the effects by indicator, across alternatives. The analysis presented in this section is a summary.

Table 3.2.5-1: Summary of Potential Effects to Fisheries by Management Action

Types of Effects	Management Actions	Indicators
Development and associated surface disturbance within the 100-year floodplain could potentially increase sediment loading in streams, alter stream processes, and degrade fish habitat.	- Water Resources and Fisheries Decisions - Lands and Realty Decisions, including ROW avoidance and exclusion	- River miles (RM) ROW open, avoidance, or exclusion areas - Waterbodies acreage within ROW open, avoidance, or exclusion areas
Timber harvest and associated surface disturbance could potentially increase sediment loading in streams, alter stream processes, and degrade fish habitat.	Forest and Woodland Harvest Decisions	- RMs open or closed to commercial woodland harvest permitting - Acres of waterbodies within areas open or closed to commercial woodland harvest permitting
Mining within streams and watersheds could alter stream processes and fish habitat directly by affecting riparian function: removing pools and overwintering areas, destroying spawning beds, and impacting short- and long-term water quality.	Mineral Decisions	Acres open to locatable, salable, and leasable mineral development
Stream crossings at ROW intersections for roads, trails, and/or utility corridors could increase sedimentation, affect fish passage, and alter fish habitat directly or indirectly by affecting riparian function, and/or access to fish habitat. Concentrated recreational use could increase nutrient inputs to streams and could alter aquatic productivity. Summer stream crossings with ATVs and UTVs could create localized degradation of fish habitat and affect fish passage. Winter stream crossings with UTVs could affect sensitive fish overwintering habitat (including eggs of summer/fall spawning species).	- Lands and Realty Decisions, including ROW avoidance and exclusion - Recreation and Visitor Services Decisions - Transportation and Travel Management Decisions	- Linear miles of potential stream/acres of potential pond/lake habitat potentially affected - Linear miles of documented anadromous stream/acres of documented anadromous pond/lake habitat potentially affected, including all documented anadromous fish spawning habitats potentially affected
Designation of ACECs would indirectly reduce effects on fisheries by applying management actions that would reduce development and associated stream alteration by increasing management prescriptions for such areas.	Management Actions Applied to Designated ACECs	Acres of designated ACECs

Table 3.2.5-2: Portions of Planning Area Analyzed for Potential Impacts to Fisheries by Indicator

Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Streams [RM (%)] ¹					
From Water Resources and Fisheries Management Practices (management decisions influence areas open and closed to ROW)					
ROW – Open	N/A ³	6,278 (19)	11,924 (36)	19,341 (59)	30,351 (92)
ROW – Avoidance	N/A ³	22,063 (67)	20,580 (62)	13,590 (41)	1,360 (4)
ROW – Avoidance for Linear Realty Actions	N/A ³	-	427 (1)	-	1,220 (4)
ROW – Exclusion	N/A ³	4,590 (14)	-	-	-
From Forestry and Woodland Products Management Actions					
Commercial – Closed	2,969 (9)	24,318 (74)	204 (1)	-	204 (1)
Commercial – Open	29,963 (91)	8,613 (26)	32,727 (99)	32,932 (100)	32,727 (99)
From Locatable Mineral Management Actions					
Locatable – Total Open – High LMP	85 (<1)	39 (<1)	92 (<1)	92 (<1)	92 (<1)

Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Locatable – Total Open – Medium LMP	524 (2)	293 (1)	1,082 (3)	1,082 (3)	1,082 (3)
Locatable – Total Open in High & Medium LMP segregated due to selection ⁴	422 (1)	209 (<1)	669 (2)	669 (2)	669 (2)
Locatable – Total Withdrawn – High LMP	7 (<1)	53 (<1)	-	-	-
Locatable – Total Withdrawn – Medium LMP	558 (2)	789 (2)	-	-	-
From Travel and Transportation Management					
Travel – Lands with Wilderness Characteristics TMA	N/A ³	666 (2)	-	-	-
Travel – Summer Casual OHV Limited	N/A ³	31,367 (95)	32,293 (98)	204 (<1)	32,293 (98)
Travel – Summer Casual OHV Prohibited	N/A ³	1,565 (5)	639 (2)	639 (2)	639 (2)
Travel – Summer Subsistence OHV Limited	N/A ³	871 (2)	-	639 (2)	-
Travel – Summer Subsistence OHV Prohibited	N/A ³	694 (2)	639 (2)	-	639 (2)
Travel – Winter Casual Snowmobiles	N/A ³	32,931 (100)	7,133 (22)	639 (2)	7,133 (22)
Travel – Winter Subsistence Snowmobiles	N/A ³	9,989 (30)	7,133 (22)	639 (2)	7,133 (22)
Travel – Summer OHV Subsistence Allowed	N/A ³	31,367 (95)	32,293 (98)	32,087 (97)	32,293 (98)
Travel – Summer OHV Subsistence Denied	N/A ³	1,565	844 (3)	844 (3)	844 (3)
Travel – Winter Subsistence – Allowed	N/A ³	32,265 (98)	32,931 (100)	32,931 (100)	32,931 (100)
Travel – Winter Subsistence – Prohibited	N/A ³	666 (2)	-	-	-
Waterbodies [acres (%)] ²					
From Water Resources and Fisheries Management Practices					
ROW – Open	N/A ³	13,425 (25)	30,814 (57)	37,117 (69)	44,961 (84)
ROW – Avoidance	N/A ³	29,843 (55)	22,303 (41)	16,680 (31)	7,420 (14)
ROW – Avoidance for Linear Realty Actions	N/A ³	-	679 (1)	-	1,416 (3)
ROW – Exclusion	N/A ³	10,528 (20)	-	-	-
From Forestry and Woodland Products Management Actions					
Commercial – Closed	372 (<1)	21,056 (39)	131 (<1)	-	131 (<1)
Commercial – Open	53,424 (99)	32,740 (61)	53,665 (>99)	53,796(100)	53,665 (>99)
From Locatable Minerals Management Actions					
Locatable – Total Open – High LMP	6 (<1)	1 (<1)	6 (<1)	6 (<1)	6 (<1)
Locatable – Total Open – Medium LMP	706 (1)	361 (1)	1,033 (2)	1,033 (2)	1,033 (2)
Locatable – Total Open in High & Medium LMP segregated due to selection ⁴	530 (1)	342 (1)	830 (2)	830 (2)	830 (2)
Locatable – Total Withdrawn – High LMP	0 (0)	5 (<1)	-	-	-
Locatable – Total Withdrawn – Medium LMP	328 (<1)	672 (1)	-	-	-
From Travel and Transportation Management					
Travel – INHT TMA	N/A ³	1,298 (2)	1,250 (2)	1,250 (2)	1,250 (2)
Travel – Lands with Wilderness Characteristics TMA	N/A ³	2,878 (2)	-	-	-
Travel – Summer Casual OHV Limited	N/A ³	49,623 (92)	52,678 (98)	131 (<1)	52,678 (98)
Travel – Summer Casual OHV Prohibited	N/A ³	4,175 (8)	1,118 (2)	1,118 (2)	1,118 (2)
Travel – Summer Subsistence OHV Limited	N/A ³	3,009 (6)	-	1,118 (2)	-
Travel – Summer Subsistence OHV Prohibited	N/A ³	1,167 (2)	1,118 (2)	-	1,118 (2)
Travel – Winter Casual Snowmobiles	N/A ³	53,796 (100)	6,301 (12)	1,118 (2)	6,301 (12)
Travel – Winter Subsistence Snowmobiles	N/A ³	15,929 (30)	6,301 (12)	1,118 (2)	6,301 (12)
Travel – Summer OHV Subsistence Allowed	N/A ³	49,621 (92)	52,678 (98)	52,547 (98)	52,678 (98)
Travel – Summer OHV Subsistence Denied	N/A ³	4,175 (8)	1,250 (2)	1,250 (2)	1,250 (2)
Travel – Winter Subsistence – Allowed	N/A ³	50,918 (95)	53,796 (100)	53,796(100)	53,796 (100)
Travel – Winter Subsistence – Prohibited	N/A ³	2,878 (5)	-	-	-

Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Designation Acres and RMs within Designated ACECs ¹					
From Areas of Critical Environmental Concern Management Actions					
Anvik River ACEC	114,386 acres 433 RMs (1%)	13,438 acres within existing Anvik River ACEC would no longer be managed as an ACEC 52 RM no longer managed as ACEC	0 ⁵	0 ⁵	0 ⁵
Anvik River Watershed ACEC	Not managed as an ACEC.	248,867 acres 760 RM (2%)	0 ⁵	0 ⁵	0 ⁵
Gisasa River ACEC	278,055 acres 521 RM (2%)	278,241 acres 521 RM (2%)	0 ⁵	0 ⁵	0 ⁵
Inglutalik River ACEC	71,713 acres 116 RM (<1%)	70,888 acres 116 RM (<1%)	0 ⁵	0 ⁵	0 ⁵
Kateel River ACEC	568,083 acres 1,032 RM (3%)	692,659 acres 1,262 RM (4%)	0 ⁵	0 ⁵	0 ⁵
Nulato River ACEC	Not managed as an ACEC.	344,182 acres 605 RM (2%)	0 ⁵	0 ⁵	0 ⁵
Shaktoolik River ACEC	192,591 acres 393 RM (1%)	191,067 acres 396 RM (1%)	0 ⁵	0 ⁵	0 ⁵
Sheefish ACEC	Not managed as an ACEC.	696,901 acres 2,208 RM (7%)	0 ⁵	0 ⁵	0 ⁵
Swift River Whitefish Spawning ACEC	Not managed as an ACEC.	220,032 acres 598 RM (2%)	0 ⁵	0 ⁵	0 ⁵
Ungalik River ACEC	112,719 acres 393 RM (1%)	113,454 acres 183 RM (1%)	0 ⁵	0 ⁵	0 ⁵
North River ACEC	132,200 acres 322 RM (1%)	64,855 acres no longer managed as an ACEC. 156 RM no longer managed as ACEC	0 ⁵	0 ⁵	0 ⁵
Unalakleet River Watershed ACEC	Not managed as an ACEC.	733,995 acres 1,926 RM (6%)	0 ⁵	0 ⁵	0 ⁵

Notes:

- 1) Percentage based on total RMs on BLM-managed land in the planning area.
- 2) Percentage based on total acres of waterbodies on BLM-managed land in the planning area.
- 3) There are no current management decisions identified for Alternative A.
- 4) State top-filings that become valid selections due to ANCSA corporation selections being relinquished or rejected will be managed like all other State selections. Alternatives that recommend revocation of 17(d)(1) withdrawals where the withdrawal prevents State selections would allow for the State selections to become valid once revocation is complete. These lands would be managed like all other State selections.
- 5) There are no ACECs proposed under this alternative.

Effects from Alternative A

Under Alternative A, management actions, including forestry and woodland products management, grazing, mineral management, and travel/transportation, have the potential to result in development and associated surface disturbance within the 100-year floodplain, which could increase sediment loading in the streams, alter stream processes, and degrade aquatic habitat in the vicinity where they occur. Alternative A does not limit development of aquatic habitat within the 100-year floodplain.

While currently there is not a high demand for commercial woodland harvest in the planning area, nor an anticipated future increase in demand, timber harvest and associated surface disturbance resulting from forest and woodland harvest decisions have the potential to increase sediment loading in streams, alter stream processes, and degrade fish habitat. Alternative A would allow for the possibility of commercial woodland harvest activities along about 29,963 miles of streams and 53,424 acres of other waterbodies.

Commercial woodland harvest activities have the potential to affect up to 91 percent of river miles and up to about 99 percent of pond and lake habitat on BLM-managed land in the planning area.

Reindeer are not known to congregate in riparian areas, so impacts to riparian areas from grazing are not anticipated.

Mineral extraction within streams and watersheds could alter stream processes and fish habitat directly by removing pools and overwintering areas, removing spawning beds, and impacting short- and long-term water quality. While currently there is not a high demand for locatable mineral development in the planning area, nor an anticipated future increase in demand, potential locatable mineral development would be open on about 85 miles of streams (less than 1 percent of BLM-managed stream habitats in the planning area) and 6 acres of other waterbodies (less than 1 percent of other waterbodies in the planning area on BLM-managed lands) in lands with high LMP. This would include about 524 miles of streams (about 2 percent of BLM-managed stream habitats in the planning area) and 706 acres of other waterbodies (about 1 percent of other waterbodies in the planning area on BLM-managed land) open to the possibility of development within medium or high LMP, where potential for mineral development and associated impacts would be most likely. Of the lands segregated due to selection, there would be 422 miles of streams (about 1 percent of BLM-managed stream habitats in the planning area) and 530 acres (about 1 percent of BLM-managed stream habitats in the planning area) open to the possibility of development within medium or high LMP, where potential for mineral development and associated impacts would be most likely.

Stream crossings at ROW intersections for roads, trails, and/or utility corridors could increase sedimentation, affect fish passage, and alter fish habitat directly or indirectly by affecting riparian function and/or access to fish habitat. Any concentrated vehicle use could increase nutrient inputs to streams and could alter aquatic productivity either beneficially or adversely. Summer stream crossings with ATVs and UTVs could create localized degradation of fish habitat and affect fish passage. Winter stream crossings with UTVs could affect sensitive fish overwintering habitat (including eggs of summer/fall spawning species). Alternative A includes no management decisions with regards to transportation and travel.

Designation of ACECs would indirectly reduce potential effects on fisheries by applying management actions to reduce potential development and associated stream alteration in these geographic areas. Alternative A would maintain the current ACEC designations on BLM lands; there would be no changes to current ACECs or the addition of new ACECs. Current ACECs that meet relevance and importance criteria for fisheries include Anvik River ACEC (114,386 acres); Gisasa River ACEC (278,055 acres); Inglutalik River ACEC (71,713 acres); Kateel River ACEC (568,083 acres); Shaktoolik River ACEC (192,591 acres); Ungalik River ACEC (112,719 acres); and North River ACEC (132,200 acres). Protection of fisheries is the primary relevance and importance for Anvik River ACEC, Inglutalik River ACEC, Kateel River ACEC, Shaktoolik River ACEC, Ungalik River ACEC, and North River ACEC. Alternative A could result in more impacts to fish habitat from new ROW, grazing, and OHV use than the other alternatives.

Although Alternative A would have fewer acres open to the possibility of commercial woodland harvest activities and locatable mineral development in medium to high LMP areas compared to Alternatives C and D, it would not include BMPs, SOPs, and detailed reclamation requirements to minimize associated impacts that would be included under Alternatives C, D and E.

Effects Common to All Action Alternatives

The effects of the proposed management actions are similar among alternatives but do vary in the magnitude of potential miles of stream habitat that could be affected. Under all action alternatives, permanent structures and disturbance over 5 acres would be avoided within floodplains, which would minimize impacts to fish habitat such as sediment loading and alteration of stream processes that could occur from disturbance in floodplains.

Effects from Alternative B

Under Alternative B, management actions, including forestry and woodland products management, grazing, mineral development, and travel/transportation, have the potential to result in development and associated surface disturbance within the 100-year floodplain, which could increase sediment loading in the streams, alter stream processes, and degrade aquatic habitat.

While currently there is not a high demand for commercial woodland harvest in the planning area, nor an anticipated increase in demand, timber harvest and associated surface disturbance resulting from forest and woodland harvest decisions have the potential to increase sediment loading in streams, alter stream processes, and degrade fish habitat. Alternative B would allow for the possibility of commercial timber harvest activities potentially affecting 8,613 miles of streams and 32,740 acres of other waterbodies.

Mineral extraction within streams and within watersheds could alter stream processes and fish habitat directly by removing pools and overwintering areas, removing spawning beds, and impacting short- and long-term local water quality. While currently there is not a high demand for locatable mineral development in the planning area, nor an anticipated increase in demand, under Alternative B, locatable mineral development has the potential to affect about 39 miles of streams (less than 1 percent of streams in the planning area on BLM-managed lands) and about 1 acre of other waterbodies (less than 1 percent of other water bodies in the planning area on BLM-managed lands) in high LMP areas and approximately 293 miles of streams (about 1 percent of BLM-managed stream habitats in the planning area) and 361 acres of other waterbodies (about 1 percent of other waterbodies in the planning area on BLM-managed lands) in medium LMP areas. Of the lands segregated due to selection, there would be 209 miles of streams (less than 1 percent of BLM-managed stream habitats in the planning area) and 342 acres (about 1 percent of BLM-managed stream habitats in the planning area) open to the possibility of development within medium to high LMP, where potential for mineral development and associated impacts would be most likely.

Stream crossings at ROW intersections for roads, trails, and/or utility corridors could increase sedimentation, affect fish passage, and alter fish habitat directly or indirectly by affecting riparian function and/or access to fish habitat. Any concentrated vehicle use could increase nutrient inputs to streams and could alter aquatic productivity either beneficially or adversely. Summer stream crossings with ATVs and UTVs could create localized degradation of fish habitat and affect fish passage. Winter stream crossings with UTVs could affect sensitive fish overwintering habitat (including eggs of summer/fall spawning species). Areas open to ROW include 6,278 miles of streams (about 19 percent of planning area river miles) and 13,425 acres of other waterbodies (about 25 percent of planning area pond and lake habitat) that could be affected (Table 3.2.5-2).

Designation of ACECs would indirectly reduce potential effects on fisheries by reducing potential for surface-disturbing development in the ACEC as well as requiring development within the 100-year floodplain to not adversely affect the condition and function of aquatic and riparian systems and habitats.

Alternative B would maintain the current designations for ACECs that meet relevant and importance criteria for fish on BLM lands with the exception of the elimination of the North River ACEC and shifting of management of some of those lands to new ACECs and additional ACECs. ACEC management would include the following: Anvik River ACEC would be expanded (248,867 acres); Gisasa River ACEC would be expanded (278,241 acres); Inglutalik River ACEC would be reduced (70,888 acres); Kateel River ACEC would be expanded (692,659 acres); Nulato River ACEC would be added (344,182 acres); Shaktoolik River ACEC would be reduced (191,067 acres); Sheefish Spawning ACEC would be added (696,901 acres); Swift River Whitefish Spawning ACEC would be added (220,032 Acres), Ungalik River ACEC would be expanded (113,454 acres); North River ACEC would be removed (however, approximately 50 percent of the existing acreage (67,315 acres) would be maintained and managed as ACECs within the new Nulato River and Unalakleet River Watershed ACECs and within the existing Shaktoolik ACEC); and Unalakleet River Watershed ACEC would be added (733,995 acres). Fisheries is the primary relevance and importance value for the ACECs listed above, with the exception of Nulato River ACEC and Gisasa River ACEC.

Compared to the other alternatives, Alternative B would manage the most river miles and acres of waterbodies to minimize potential impacts that could result from forestry and woodland products, grazing, mineral management, and travel and transportation. Alternative B provides the most measures to avoid and minimize impacts on fish and aquatic habitats and would therefore have the lowest likelihood of any substantial impacts to fish and aquatic habitats in the planning area.

Effects from Alternative C

Under Alternative C, management actions, including forestry and woodland products management, mineral management, and travel/transportation, would have the potential to result in development and associated surface disturbance within the 100-year floodplain, which could increase sediment loading in the streams, alter stream processes, and degrade aquatic habitat. This alternative emphasizes adaptive management at the planning level to ensure long-term sustainability of resources while providing for multiple uses. No ACECs would be managed under Alternative C.

While currently there is not a high demand for commercial woodland harvest in the planning area, nor an anticipated increase in demand, timber harvest and associated surface disturbance resulting from forest and woodland harvest decisions have the potential to increase sediment loading in streams, alter stream processes, and degrade fish habitat. Alternative C would allow for the possibility of commercial woodland harvest activities in areas that could affect up to about 32,727 miles of streams and 53,665 acres of other waterbodies. Most stream and waterbody habitats would be susceptible to potential adverse impacts from commercial woodland harvest in these areas. About 1 percent of river miles and less than 1 percent of other waterbody acres would be closed to commercial woodland harvest under Alternative C.

Reindeer are not known to congregate in riparian areas, so impacts to riparian areas from grazing are not anticipated.

Mineral extraction within streams and watersheds could alter stream processes and fish habitat directly by removing pools and overwintering areas, destroying spawning beds, and impacting short- and long-term water quality. While currently there is not a high demand for locatable mineral development in the planning area, nor an anticipated increase in demand, Alternative C would open all medium and high LMP areas on BLM-managed land in the planning area to the possibility of locatable mineral development increasing the potential for impacts to aquatic habitat where present. Open areas would

encompass about 92 miles of streams (less than 1 percent of streams in the planning area on BLM-managed lands) and 6 acres of other waterbodies (less than 1 percent) in lands with high LMP, and about 1,082 miles of streams (3 percent of streams in the planning area on BLM-managed lands) and 1,033 acres of waterbodies (about 2 percent) in medium LMP areas. Of lands segregated due to selection, there would be 669 miles of streams (about 2 percent of BLM-managed stream habitats in the planning area) and 830 acres (about 2 percent of BLM-managed stream habitats in the planning area) open to development within medium to high LMP, where potential for mineral development and associated impacts would be most likely.

Stream crossings at ROW intersections for roads, trails, and/or utility corridors could increase sedimentation, affect fish passage, and alter fish habitat directly or indirectly by affecting riparian function and/or access to fish habitat. Any concentrated recreational use could increase nutrient inputs to streams and could alter aquatic productivity either beneficially or adversely. Summer stream crossings with ATVs and UTVs could create localized degradation of fish habitat and affect fish passage. Winter stream crossings with UTVs could affect sensitive fish overwintering habitat (including eggs of summer/fall spawning species). Areas open to ROW under Alternative C include about 11,924 river miles (36 percent of streams in the planning area on BLM-managed lands) and 30,814 acres (57 percent) of other waterbodies that could be affected (Table 3.2.5-2).

Alternative C does not include special management or designation of ACECs. Except where undesignated potential ACEC areas overlap the Unalakleet Wild River Corridor, all BLM-managed lands would be open to locatable mineral entry. However, there would be management actions that would protect identified fisheries and cultural R&Is in undesignated potential ACECs. With the exception of 528 acres within the undesignated potential Sheefish Spawning ACEC, LMP is low, and mineral development and associated impacts are unlikely. Impacts to fisheries would be reduced through designation of about 21 percent of BLM-managed lands as VRM Class I or II to limit surface-disturbing activities. Approximately 46 percent of river miles on BLM-managed lands would be managed within HVWs. Disturbance by activities authorized by ROW permits could be avoided or minimized on the 56 percent of BLM-managed lands designated as ROW avoidance areas. Further, BLM-managed wildlife habitat in Innoko Bottoms would be closed to salable mineral development subject to valid existing rights. VRM Class designations, HVWs, and ROW avoidance areas for Alternative C are all less than Alternative B but greater than Alternatives A, D, and E. Therefore, the management actions described above would help offset impacts to fisheries associated with mineral development and surface disturbance, but to a lesser extent than Alternative B.

Alternative C ranks second behind Alternative B in terms avoiding and minimizing impacts on river miles and acres of other waterbodies from management actions associated with water resources and travel and transportation. With respect to mineral management actions and forestry and woodland products, Alternative C would open more of the planning area up to these activities than Alternatives A and B, which would increase the geographic extent of associated impacts. However, the magnitude of associated impacts would likely be less than Alternative A due to BMPs, SOPs, and detailed reclamation requirements outlined in Appendix N and Chapter 2 of this PRMP/FEIS.

Effects from Alternative D

Management actions, including forestry and woodland products management, mineral management, and travel/transportation, have the potential to result in development and associated surface disturbance within

the 100-year floodplain, which could increase sediment loading in the streams, alter stream processes, and degrade aquatic habitat.

While currently there is not a high demand for commercial woodland harvest in the planning area, nor an anticipated future increase in demand, timber harvest and associated surface disturbance resulting from forest and woodland harvest decisions have the potential to increase sediment loading in streams, alter stream processes, and degrade fish habitat. Alternative D would allow for the possibility of commercial woodland harvest activities in areas encompassing 32,932 miles of streams (100 percent) and 53,796 acres (100 percent) of other waterbodies.

Reindeer are not known to congregate in riparian areas, so impacts to riparian areas from grazing are not anticipated.

Mineral extraction within streams and watersheds could alter stream processes and fish habitat directly by removing pools and overwintering areas, impacting spawning beds, and impacting short- and long-term water quality. BMPs would be applied to implementation level decisions to reduce long-term impacts. While currently there is not a high demand for locatable mineral development in the planning area, nor an anticipated future increase in demand, Alternative D would open all medium and high LMP areas on BLM-managed land to the possibility of locatable mineral development. These open areas are the same as Alternative C; therefore, impacts to streams and waterbodies would be the same as described previously for Alternative C.

Stream crossings at ROW intersections for roads, trails, and/or utility corridors could increase sedimentation, affect fish passage, and alter fish habitat directly or indirectly by affecting riparian function and/or access to fish habitat. Concentrated vehicle use could increase nutrient inputs to streams and could alter aquatic productivity either beneficially or adversely. Summer stream crossings with ATVs and UTVs could create localized degradation of fish habitat and affect fish passage. Winter stream crossings with UTVs could affect sensitive fish overwintering habitat (including eggs of summer/fall spawning species). While currently there is not a high demand for development and there is not an anticipated increase in demand, areas open to new ROW that could experience associated impacts include 19,341 miles (59 percent) of streams and 37,117 acres (69 percent) of other waterbodies in the planning area on BLM-managed lands. ROW avoidance could avoid or minimize impacts on 13,590 miles (41 percent) of streams and 16,680 acres (31 percent) of other waterbodies.

No ACECs would be designated under Alternative D. Except where undesignated potential ACEC areas overlap the Unalakleet Wild River Corridor, all BLM-managed lands would be open to locatable mineral entry. However, there would be management actions that would protect identified fisheries R&Is in undesignated potential ACECs, and applicable BMPs and SOPs (Appendix O) would be applied to permitted actions to minimize impacts. With the exception of 528 acres within the undesignated potential Sheefish Spawning ACEC, LMP is low, and mineral development and associated impacts are unlikely. R&Is would be considered and managed during future site-specific implementation. Impacts to fisheries would be reduced through designation of about 5 percent of BLM-managed lands as VRM Class I or II to limit surface-disturbing activities; this is a smaller area than all alternatives except Alternative A. Further, approximately 40 percent of river miles on BLM-managed lands would be managed according to management action applied to HVWs, which would be open to the possibility of locatable and salable mineral development and leasable mineral development under standard stipulations; this is fewer river miles than Alternatives B and C and more river miles than Alternatives A and E. Disturbance by activities authorized by ROW permits would be avoided on the 38 percent of BLM-managed lands managed as

ROW avoidance areas, which is less than Alternatives B and C but more than Alternative E. Similar to Alternative C, Alternative D includes closure of BLM-managed wildlife habitat in Innoko Bottoms to salable mineral development subject to valid existing rights. Management actions described above would help offset impacts to fisheries associated with mineral development; impacts would be offset to a lesser extent under this alternative than Alternatives B and C.

Alternative D provides the greatest opportunity for multiple uses in the planning area and therefore the greatest potential for impacts to streams and fish habitat from forestry and woodland product harvest and mineral development among the alternatives. Areas open to new ROW development in areas with streams and waterbodies is greater than Alternatives B and C, and therefore could result in a greater extent of impacts to aquatic habitat. ROW impacts would be less than Alternatives A and E; however, Alternative A includes no ROW avoidance areas and Alternative E includes substantially fewer acres as ROW avoidance. As shown in Map 3.3.3-4, the majority of known placer deposits are not located on BLM lands, and any that are have generally been dual selected for State and Native ownership. Therefore, impacts to fish habitat on BLM-managed lands from placer mining are unlikely, although there are fewer management prescriptions from ACECs and HVWs under Alternative D, compared with Alternatives B and C. Depending on the level of permitted activities, Alternative D could impact a greater geographic extent of fish habitat (rivers miles and waterbodies) than Alternatives B and C, but a smaller extent than Alternative E primarily due to areas open to ROW. However, Alternative D would include BMPs, SOPs, and detailed reclamation requirements as described in Appendix N and Chapter 2 of this PRMP/FEIS that are not included under Alternative A.

Effects from Alternative E

Under Alternative E, impacts to streams and waterbodies related to forestry and woodland products management, mineral management, and travel/transportation would be the same as those under Alternative C and nearly the same as Alternative D. While currently there is not a high demand for commercial woodland harvest or locatable mineral development within the planning area, nor an anticipated increase in demand, these actions have the potential to result in development and associated surface disturbance within the 100-year floodplain, which could increase sediment loading in the streams, alter stream processes, and degrade aquatic habitat. Therefore, impacts to streams and waterbodies would be the same as described previously for those alternatives.

The main difference with regard to impacts on aquatic habitat is that compared to all other alternatives, Alternative E includes substantially more area open to new ROW development (92 percent of streams and 84 percent of waterbodies). Additionally, protections that would serve to protect Essential Fish Habitat are limited to the 100-year floodplain of HVWs for Alternative E, whereas the entire HVW would be subject to Essential Fish Habitat protections under Alternatives B, C, and D.

No ACECs would be designated under Alternative E. Except where undesignated potential ACEC areas overlap the Unalakleet Wild River Corridor, all BLM-managed lands would be open to locatable mineral entry. However, there would be management actions that would protect identified fisheries R&Is in undesignated potential ACECs, and BMPs and SOPs (Appendix O) would be applied to all permitted actions to minimize impacts. With the exception of 528 acres within the undesignated potential Sheefish Spawning ACEC, LMP is low, and mineral development and associated impacts are unlikely. R&Is would be considered and managed during future site-specific implementation. Impacts to fisheries would be reduced through designation of about 20 percent of BLM-managed lands as VRM Class I or II to limit surface-disturbing activities; limitation would occur in a smaller area than Alternatives B and C but in a

larger area than Alternatives A and D. Further, approximately 37 percent of river miles on BLM-managed lands would be managed according to management action applied to HVWs, which would be open to the possibility of locatable and salable mineral development and leasable mineral development under standard stipulations. This is fewer river miles than all alternatives except Alternative A. Disturbance by activities authorized by ROW permits would be avoided on the 4 percent of BLM-managed lands managed as ROW avoidance areas; this is a smaller area than all alternatives except Alternative A. Similar to Alternative C, Alternative E includes closure of BLM-managed wildlife habitat in Innoko Bottoms to salable mineral development subject to valid existing rights. Therefore, management actions described above would help offset impacts to fisheries associated with mineral development; impacts would be offset to a lesser extent under this alternative than Alternatives B and C given a lower amount of overall land subject to these restrictions.

Depending on the level of permitted activities, Alternative E could impact the largest geographic extent of fish habitat in terms of river miles and acres of waterbodies located in areas open to surface-disturbing activities; however, Alternative E would include BMPs, SOPs, and detailed reclamation requirements as described in Appendix N and Chapter 2 of this PRMP/FEIS that are not included under Alternative A.

Cumulative Effects

Past and Present Actions

Based on past commercial, subsistence, and personal use fisheries harvest data, resident fish production is generally forecast to remain stable in the planning area. The forecasted extent of disturbances to habitat is expected to remain minimal throughout the majority of the watersheds in the planning area. Activities that occur within the planning area that have the highest potential to affect fish production include placer mining, hard rock mining, gravel mining, timber harvests, and stream crossings of roads, trails, and utility corridors in important fish habitats. Impacts from these potential activities are unknown, though not expected to substantially increase in the near future. In terms of past and likely foreseeable activities within the management actions evaluated throughout this document and the total fish habitat available within the planning area and on BLM-managed lands, all alternatives would likely produce similar overall low level of impact to fish resources in the drainages evaluated—the exception being that alternatives that fail to provide adequate protections to whitefish spawning areas could have higher magnitude and longer lasting effects. Climate change would continue to cause permafrost thaw, which results in increasing stream temperatures that could have major implications for salmon management in the future (Jones et al. 2020). In addition, permafrost thaw contributes to increased turbidity in nearby streams, resulting in water quality impacts and reducing stream habitat quality for fish. Trend: Degrading.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative A)

There would be continued resource use and community development. Reasonably foreseeable actions have the potential to indirectly impact fisheries. Reasonably foreseeable actions include potential mineral development such as the Donlin Gold Project, access road development, and potential new energy development that could impact water quality, floodplain health, water quantity, and timing and magnitude of high flow events, which would then affect fish habitat and could adversely impact fisheries. In addition, climate change would continue to cause permafrost thaw, resulting in increasing stream temperatures that could have major implications for salmon management in the future (Jones et al. 2020). In addition, permafrost thaw contributes to increased turbidity in nearby streams, resulting in water quality impacts and reducing stream habitat quality for fish. Trend: Continue to degrade.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative B)

Alternative B would avoid and minimize impacts to fish habitat throughout the planning area to a greater degree than the other alternatives. The inclusion of larger and more numerous HVWs and ACECs would minimize and prevent impacts to aquatic habitat, and fish resources. The inclusion of the Sheefish and Swift River Whitefish Spawning ACECs would provide incrementally more protective measures specific to aquatic habitats important for sheefish and whitefishes that rely on these habitats for spawning.

Climate change would continue to cause permafrost thaw, resulting in increased stream temperatures (Jones et al. 2020) and turbidity. In addition, surface-disturbing activities and surface occupancy could compact soil and accelerate rates of soil erosion and result in stream turbidity, thereby degrading fish habitat in streams. However, management actions would limit soil-disturbing activities in certain areas. These management actions are not expected to counteract stream turbidity caused by climate change but could slow the rate of stream turbidity and subsequent fish habitat impacts resulting from permitted activities compared to Alternative A. Trend: Continue to degrade.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative C)

The effectiveness of Alternative C to minimize impacts to fish and aquatic resources falls between Alternative B and Alternative E with respect to acreage of impacts. The inclusion of a greater number of HVWs would minimize and prevent impacts to fish habitat; Alternative C would allow more surface-disturbing activities that could affect fish habitat than Alternative B. There would be no ACECs considered under this alternative that would manage aquatic species—specifically, important subsistence species such as chum and Chinook salmon, sheefish, or whitefish. BMPs, SOPs, and detailed reclamation requirements included under Alternative C would help to maintain fish habitat and healthy populations.

Climate change would continue to increase stream temperatures and turbidity, and surface disturbance could accelerate rates of soil erosion and stream turbidity, resulting in degraded fish habitat in streams. Management actions would not offset stream turbidity associated with climate change, but would limit soil-disturbing activities in certain areas and could thus slow the rate of fish habitat impacts resulting from permitted activities compared to Alternative A. Trend: Continue to degrade (to a greater degree than Alternative B given increased acreage of resource use).

Past, Present, and Reasonably Foreseeable Future Actions (Alternative D)

Alternative D would allow for more development opportunities with fewer restrictions, decreases areas of protected aquatic habitat, and opens more areas to activities that could potentially degrade fish and aquatic resource habitats than Alternatives B and C. There would be no ACECs considered under this alternative that could minimize impacts to habitat for aquatic species—specifically, important subsistence species such as chum and Chinook salmon, sheefish, or whitefish. The smaller areas managed as HVWs compared to Alternatives B and C could cumulatively add to the potential for future cumulative impacts.

Climate change would continue to increase stream temperatures and turbidity, and surface disturbance could accelerate rates of soil erosion and stream turbidity, resulting in degraded fish habitat in streams. Management actions would not offset stream turbidity associated with climate change but would limit soil-disturbing activities in certain areas and could thus slow the rate of fish habitat impacts resulting from permitted activities compared to Alternative A. Trend: Continue to degrade (at a lesser rate than Alternative A or E but at a greater rate than Alternative B or C).

Past, Present, and Reasonably Foreseeable Future Actions (Alternative E)

Alternative E allows more potential development (including ROW location) with fewer restrictions, decreases the amount of specifically protected aquatic habitat, and opens more areas to activities than Alternatives B, C, and D that could potentially degrade fish and aquatic resource habitats. It also limits management actions that relate to HVWs to only the 100-year floodplain instead of the entire HVW geography and would allow woodland harvest within HVWs consistent with an ongoing assessment of HVW health. There would be no ACECs considered under this alternative that could minimize impacts to habitat for aquatic species—specifically, important subsistence species such as chum and Chinook salmon, sheefish, or whitefish. The smaller areas of HVWs where management actions apply, compared to Alternatives B, C and D create the potential for future cumulative impacts. Climate change would continue to increase stream temperatures and turbidity, and surface disturbance could accelerate rates of soil erosion and stream turbidity, resulting in degraded fish habitat in streams. Management actions would not offset stream turbidity associated with climate change, but would limit soil-disturbing activities in certain areas and could thus slow the rate of fish habitat impacts resulting from permitted activities compared to Alternative A. Trend: Continue to Degrade (at a lesser rate than Alternative A but at a greater rate than Alternative B, C, or D).

3.2.6 Vegetation

Affected Environment

Vegetation Communities

Vegetation community types are shown in Map 3.2.6-1. Based on available vegetation data, approximately a third of the planning area is forested and a third supports shrub communities. Upland and lowland black spruce forests are common in the eastern side of the planning area. White spruce is found on warmer, well-drained sites and often occurs at treeline. White spruce is a late-succession seral stage that is typically preceded by deciduous forest. Pure deciduous forests are relatively uncommon, typically occurring on south-facing slopes or well-drained sites on other aspects.

Non-forested lowland bogs occur where shallow permafrost impedes drainage and the soil remains too wet for tree growth. Shrub types occur in a variety of habitats and may be abundant following wildland fire. Above treeline, low shrub grades into dwarf shrub tundra, and wet areas above treeline often support herbaceous communities. Steep south-facing slopes may support steppe-like communities dominated by drought-tolerant species, which are typically sites of high species diversity and may support Sensitive and Watch species. Vegetation communities of interest regarding divergence from potential natural conditions include: (1) tall shrub, low shrub, and floodplains (generalized moose habitat); (2) lichen habitats (generalized caribou habitat); (3) white spruce on well-drained floodplains; (4) dwarf shrub and sparsely vegetated areas (generalized BLM sensitive plant species habitat); and (5) herbaceous wetlands.

Ecosystems that are considered rare or of special conservation value include pingos that support forests, tamarack-dominated associations, dunes that have been stabilized by forests, limestone geologic substrate areas, and serpentine geologic substrate areas.

Sensitive Plant Species

Seven BLM-Alaska Sensitive plant species are known to occur in the planning area (Map 3.2.6-2): Arctic dwarf primrose (*Douglasia beringensis*), Bering Sea dock (*Rumex beringensis*), Kokrines locoweed

(*Oxytropis kokrinesis*), Pacific buttercup (*Ranunculus pacificus*), *Ranunculus ponojensis* (Siberian buttercup), pearshaped smelowskia (*Smelowskia pyriformis*), and Siberian false-oats (*Trisetum sibiricum* ssp. *litorale*). All have been found on BLM-managed lands. All seven species occur primarily in bare ground, sparsely vegetated mesic herbaceous areas, dwarf shrub, and persistently snow-covered areas. Locations on BLM-managed land are primarily in higher elevation areas, on mountain side slopes of the Lime Hills, Nulato Hills, Terra Cotta Mountains, Kuskokwim Mountains, and Alaska Range.

Vegetation and Wildland Fire

Northern boreal forests are adapted to wildland fires; vegetation recovers by sprouting from roots, seed banks, or seed transported from outside the burned area. Sites with more severe fire and lower soil moisture typically convert from spruce-dominated to deciduous-dominated forests (Johnstone and Hollingsworth 2007). Some later successional species, especially lichens, are scarce in post-fire stands for long periods. Black spruce often replaces itself as the dominant tree in the absence of competition from other tree species. Post-fire recovery of white spruce stands depends on the stage of seed production and the distance to unburned spruce as sources of new seed and/or the presence of dispersal agents.

Direct and Indirect Effects

Table 3.2.6-1 below summarizes the nature and types of beneficial or adverse effects that could occur to vegetation and special status plants, proposed management actions that could influence those effects, and indicators used to measure the potential magnitude and extent of the effects. Table 3.2.6-2 discloses the potential magnitude and extent of the effects by indicator, across alternatives.

Table 3.2.6-1: Summary of Potential Effects to Vegetation by Management Action

Types of Effects	Management Actions	Indicators
Removal of or damage to vegetation could occur with commercial woodland harvest, reindeer grazing, ROW authorization, OHV use, mineral actions, and fire and fuels treatments. If SSS flora occur in these areas, they could also be removed or damaged. Damage to individual plants (i.e., crushing, removal or breaking of leaves or branches, damage to roots, etc.), could occur with surface-disturbing actions such as certain types of mineral actions, personal use/subsistence woodland harvest, fire and fuels treatments, OHV use, or reindeer grazing.	• Wildland Fire Management Decisions • Woodland Harvest Decisions • Reindeer Grazing Management Decisions • Mineral Decisions • Lands and Realty Decisions • Transportation and Travel Management Decisions • Recreation and Visitor Services Decisions	• Acres open to commercial woodland harvest permitting • Acres open to reindeer grazing • Acres open to mineral leasing subject to standard stipulations • Acres open to ROW authorization

Types of Effects	Management Actions	Indicators
Conditions of vegetative communities and SSS flora habitat could be improved through requirements to avoid and minimize impacts, monitor, and mitigate for unavoidable impact, and/or adhere to cited standards associated with management actions for vegetation and other resources.	• Buffers Associated with Soils and Vegetation Decisions • Mineral Decisions • Woodland Harvest Decisions • VRM Class Designations • Lands with Wilderness Characteristics Decisions • Management Actions Assigned to Designated ACECs • Lands and Realty Decisions • Transportation and Travel Management Decisions • Designation of the INHT NTMC	• Minimization of impacts to vegetation associated with soils management • Minimization of impacts to vegetation associated with vegetation management • Total VRM Class I and II acreages • Acres managed with wilderness characteristics as a priority • Acres managed for multiple uses while applying restrictions to reduce impacts on wilderness characteristics • Acres closed to commercial woodland harvest • Acres open to locatable mineral development in areas of medium to high LMP, open to salable minerals, NSO for mineral actions, or open to mineral leasing • Acres affected by ROW restrictions (i.e., avoidance or exclusion areas) • Acres of OHV restrictions • Acres affected by ACEC designations • Designation of the INHT NTMC

Table 3.2.6-2: Portions of Planning Area Analyzed for Potential Impacts to Vegetation by Indicator

Resource Indicator	Alternative A ¹	Alternative B ¹	Alternative C ¹	Alternative D ¹	Alternative E ¹
Acres open to commercial woodland harvest permitting	11,882,094 acres (88%)	8,403,829 acres (62%)	13,418,941 acres (>99%)	13,465,894 acres (100%)	13,418,941 acres (>99%)
Acres open to reindeer grazing	13,304,555 acres (99%)	0 acres (0%)	12,848,472 acres (95%)	13,465,894 acres (100%)	12,848,472 acres (95%)
Acres open to locatable mineral entry	8,661,406 acres (64%)	3,548,061 acres (26%)	13,418,941 acres (>99%)	13,418,941 acres (>99%)	13,418,941 acres (>99%)
Acres segregated due to selection ²	1,620,141 acres (12%)	635,623 acres (5%)	2,752,047 acres (20%)	2,752,047 acres (20%)	2,752,047 acres (20%)
Acres open to locatable mineral development in areas of medium to high LMP	294,325 acres of medium or high LMP (52%) ³	167,018 acres of medium or high LMP (30%) ³	565,489 acres of medium or high LMP (100%) ³	565,489 acres of medium or high LMP (100%) ³	565,489 acres of medium or high LMP (100%) ³
Acres open to locatable mineral development in areas of medium to high LMP segregated due to selection ²	195,632 acres (35%) ³	100,426 acres (18%) ³	317,531 acres (56%) ³	317,531 acres (56%) ³	317,531 acres (56%) ³
Acres open to salable mineral development subject to terms and conditions	0 acres (0%)	0 acres (0%)	6,576,064 acres (49%)	0 acres (0%)	3,774,373 acres (28%)
Acres open to salable mineral development	8,661,406 acres (64%)	3,548,061 acres (26%)	6,606,321 acres (49%)	13,182,385 acres (98%)	9,408,012 acres (70%)
Acres open to mineral leasing subject to standard stipulations	8,246,152 acres (61%)	2,460,649 acres (18%)	6,555,476 acres (49%)	13,182,385 acres (98%)	9,356,398 acres (69%)
NSO for leasable mineral actions	17,521 acres (<1%)	1,564,573 acres (12%)	6,863,464 acres (51%)	236,556 acres (2%)	4,062,543 acres (30%)
Acres open to ROW location	13,465,894 (100%)	3,105,905 acres (23%)	5,785,178 acres (43%)	8,302,241 acres (62%)	12,542,918 acres (93%)
ROW exclusion areas	No acres specified	1,464,069 acres (11%)	0 acres (0%)	0 acres (0%)	0 acres (0%)
ROW avoidance areas	No acres specified	8,895,920 acres (66%)	7,528,863 acres (56%)	5,163,653 acres (38%)	509,798 (4%)

Resource Indicator	Alternative A ¹	Alternative B ¹	Alternative C ¹	Alternative D ¹	Alternative E ¹
Minimization of impacts to vegetation associated with soils management	Limit disturbance in floodplains and springs (protections not specific)	ROW exclusion in permafrost areas and restrictions of surface-disturbing activities within 100-year floodplains and within 100 feet of natural springs	ROW avoidance in permafrost areas	None specified	ROW avoidance in permafrost areas
Minimization of impacts to vegetation associated with vegetation management	None specified	OHV use limitations, trail relocation, trail hardening, or trail closure in: - Dwarf shrub and lichen: 2,711,156 acres (20%) - Sparse vegetation: 139 acres (<1%) 300-foot setback for SSS flora habitat Limestone or serpentine geologic substrate (no acreage available)	OHV use limitations, trail relocation, trail hardening, or trail closure in: - Dwarf shrub and lichen habitats: 2,711,156 acres (20%) - Sparse vegetation types: 139 acres (<1%) 100-foot setback for SSS flora habitat	None specified	OHV use limitations, trail relocation, trail hardening, or trail closure in: - Dwarf shrub and lichen habitats: 2,711,156 acres (20%) - Sparse vegetation types: 139 acres (<1%) 100-foot setback for SSS flora habitat
VRM Class I (natural ecological changes allowed)	46,953 acres (<1%)	1,335,771 acres (10%)	46,953 acres (<1%)	46,953 acres (<1%)	46,953 acres (<1%)
VRM Class II (low-level changes allowed)	0 acres (0%) ⁴	6,490,087 acres (48%)	2,766,229 acres (21%)	679,553 acres (5%)	2,645,370 acres (20%)
Lands with wilderness characteristics TMA	No acres specified	277,489 acres (2%)	0 acres (0%)	0 acres (0%)	0 acres (0%)
Managed for multiple uses while applying restrictions to reduce impacts on wilderness characteristics	No acres specified	12,049,536 acres (89%)	8,125,183 (60%)	0 acres (0%)	0 acres (0%)
Summer casual OHV access prohibited	46,953 acres (<1%)	565,955 acres (4%)	225,925 acres (2%)	225,925 acres (2%)	225,925 acres (2%)
Summer subsistence OHV access prohibited	46,953 acres (<1%)	241,512 acres (2%)	225,925 acres (2%)	0 acres (0%)	225,925 acres (2%)
Summer casual OHV access limited to existing trails	No acres specified	12,899,939 acres (96%)	13,239,969 acres (98%)	46,953 acres (<1%)	13,239,969 acres (98%)
Summer subsistence OHV access limited to existing trails	No acres specified	324,443 acres (2%)	363 acres (<1%)	225,925 acres (2%)	363 acres (<1%)
ACEC designations (as an indicator of management actions applied to these geographic areas)	1,884,376 acres (14%)	3,912,698 acres (29%)	0 acres (0%)	0 acres (0%)	0 acres (0%)
Designation of the INHT NTMC	NTMC not designated	288,466 acres (2%)	273,242 acres (2%)	273,242 acres (2%)	273,242 acres (2%)

Notes:

1) Unless otherwise specified, percentages are based on BLM-managed land in the planning area.

2) State top-filings that become valid selections due to ANCSA corporation selections being relinquished or rejected will be managed like all other State selections. Alternatives that recommend revocation of 17(d)(1) withdrawals where the withdrawal prevents State selections would allow for the State selections to become valid once revocation is complete. These lands would be managed like all other State selections.

3) Percentages based on all areas of medium or high LMP on BLM-managed land in the planning area.

4) Per the SWMFP (BLM 1981), Alternative A also manages seen areas of the Unalakleet River outside the Wild River Corridor as VRM II. These areas are not considered mappable and therefore do not have acreage reported. Vegetation management within the seen area of the Unalakleet Wild River, but outside the corridor, would be required to comply with VRM Class II objectives. VRM Class II directs allowable surface disturbance or development to minimize change in landscape character and therefore could have beneficial impacts to natural and cultural resources by limiting and regulating activities with the potential to result in impact.

Effects from Alternative A

Under Alternative A, management of reindeer grazing, surface-disturbing mineral actions, commercial woodland harvest, ROW authorization, and OHV use could adversely impact vegetation due to actions that could remove or damage individual plants. These actions could be authorized on various acreages in

the planning area (Table 3.2.6-2). In general, areas that could be subject to these actions cannot be identified as precisely as under the action alternatives and rely more on case-by-case authorization, because OHV use could theoretically occur anywhere in the planning area except for the Unalakleet Wild River Corridor, though it would more likely be restricted to commonly used travel, subsistence, and recreation routes.

Conversely, impacts to vegetation would be minimized in specific areas (Table 3.2.6-2), where lands are managed as VRM Class I or Class II; managed as ACECs; closed to locatable, salable, or leasable mineral development; designated as NSO for leasable minerals; or closed to commercial woodland harvest. These management actions would continue to minimize impacts to vegetation and SSS flora in these areas from implementation of transportation or utility projects, surface-disturbing mineral actions, or authorizations of other ROWs. Minimization of impacts would generally occur to lesser extent than under Alternative B, C, or E but, in most cases, to a greater extent than under Alternative D.

Impacts to vegetation and SSS flora under Alternative A would be minimized due to management guidance in existing management plans that limits disturbance in floodplains, springs, wetlands, riparian areas, SSS plant habitat, and caribou habitat (lichen-rich areas) and provides guidance for avoiding impacts to wildlife species and for sustainable yield of forest resources. However, Alternative A does not provide specific actions or specific acreages; thus, minimization of impacts to vegetation is generally less extensive and defined than under the action alternatives.

Under Alternative A, management associated with NNIS, wildland fire, and recreation would continue to impact vegetation in various ways. NNIS, including noxious weeds, would continue to be managed under State and federal laws and policy, which would continue to limit their impact on vegetation communities and SSS flora. Wildland fire and fuels treatments, when they occur, would adversely impact vegetation in the local area over the short term but would also benefit vegetation over a larger area in the long term by reducing the potential spread of wildland fires and supporting maintenance of appropriate vegetation community seral stages. Recreation in the planning area has the potential to impact vegetation where such activities occur via trampling by recreators in any vegetated area.

Effects Common to All Action Alternatives

Under all action alternatives, existing vegetation would be retained as much as possible when implementing proposed actions, and disturbed or burned areas would be restored or reclaimed as closely as possible to previous conditions. These requirements would minimize impacts to vegetation communities from these actions or events. Avoidance of ROW authorization in tundra areas; requirements for preservation of tundra mats, vegetative mats, and topsoil for use in reclamation; and specific reclamation cover requirements would reduce long-term impacts to vegetation in disturbed areas. Using existing roads and trails where feasible would minimize direct loss of vegetation from any construction of new roads and trails. Avoiding the use of heavy equipment and overland travel in snow-free months and minimization of disturbance to riparian communities would minimize the adverse effects of these actions on vegetation. Actions to reduce impacts to permafrost areas under all action alternatives would simultaneously reduce impacts to vegetation. Conservation and maintenance of areas near NWRs and connectivity corridors would minimize impacts to vegetation in these areas. Implementation of a monitoring plan for vegetation, including rare ecosystems, would minimize impacts to vegetation by identifying areas appropriate for rapid reclamation response actions in degraded areas. Prioritization of reclamation and mitigation in riparian zones, lichen-rich habitat, SSS flora habitat (including BLM

sensitive plant species habitat or rare ecosystems), HVWs, and areas with potential for permafrost degradation would reduce impacts from actions in these areas.

As under Alternative A, NNIS, including noxious weeds, would continue to be managed under State and federal laws and policy; therefore, adverse impacts of these species on vegetation and SSS flora would continue to be minimized. Additional NNIS control and eradication measures common to all action alternatives would further minimize the establishment and spread of NNIS infestations. These measures would generally benefit vegetation communities and habitat for SSS flora by providing more stringent NNIS management than measures under Alternative A. Requirements to minimize impacts to vegetation from the effects of commercial woodland harvest action include seasonal restrictions (e.g., requiring timber harvest to occur during the winter), surveys for sensitive species (including SSS flora) for surface-disturbing harvest actions, and reclamation of disturbed areas. This action would minimize impacts to vegetation and SSS flora associated with woodland harvest compared to Alternative A. Impacts of recreation and visitor services management and wildland fire management under all action alternatives would be the same as under Alternative A.

Effects from Alternative B

This alternative would have the fewest areas open to potential surface-disturbing activities including OHV use, woodland harvest, mineral development, and reindeer grazing under all the alternatives and would therefore result in the least potential for impacts to vegetation and SSS flora (Table 3.2.6-2). ROW exclusion in permafrost areas and restrictions of surface-disturbing activities within 100-year floodplains and within 100 feet of natural springs would eliminate potential removal or damage of vegetation due to surface-disturbing activities in these areas. The 300-foot avoidance buffers for SSS flora habitat would minimize impacts to SSS flora and other vegetation in these areas from the effects of long-term surface-disturbing actions. VRM designations (Class I or Class II) and managing wilderness characteristics as a priority under Alternative B would minimize impacts to vegetation associated with surface-disturbing actions. Management for woodland harvesting would include more limitations under this alternative, which would limit associated removal of and damage to vegetation. Reindeer grazing would not be authorized in the planning area, which would eliminate all grazing-related impacts to vegetation and/or SSS flora. Leasing subject to standard stipulations would be permitted on fewer acres than Alternative A, C, D, or E, which would reduce potential removal of vegetation associated with this type of action compared to other alternatives. Alternative B would also allow new ROW authorization over the smallest acreage and therefore minimize impacts to the greatest extent of vegetation and SSS flora. The greatest extents of OHV use limitations would be implemented under this alternative, thereby allowing some minimization of impacts to vegetation from removal or crushing due to OHV use. The greatest extent of ACECs would be designated under Alternative B; as such, vegetation would benefit the most under this alternative from management actions applied to ACECs. Designation of the INHT NTMC would provide the greatest extent and degree of benefit to vegetation in the trail corridor by closing this area to commercial woodland harvest, minerals exploration, and ROW actions.

Management of surface-disturbing mineral actions (extraction of salable minerals or locatable minerals in high or medium potential areas), commercial woodland harvest, ROW authorization, and OHV use could adversely impact vegetation due to authorization of actions that could remove or damage plants. These actions could be authorized on various acreages in the planning area under Alternative B (Table 3.2.6-2). The amount of land that could be subject to these actions is smaller than under the other action alternatives and generally smaller than under Alternative A.

Coordinating with USFWS to sustain and strengthen landscape-level ecosystem resiliency through managing connectivity of neighboring NWRs would also benefit vegetation in these areas. Requirements for use of native and ecologically adapted species (i.e., species that are well-suited to the ecological conditions of an area) for reclamation are likely to reduce impacts to vegetation (in terms of changes to community composition and function) from surface-disturbing activities or fire in reclaimed or restored areas. Minimization of impacts to wildlife habitat (discussed in Section 3.2.7) would simultaneously minimize impacts to vegetation that composes wildlife habitat.

Effects from Alternative C

Management of surface-disturbing activities including commercial woodland harvest, ROW authorization, mineral development, and OHV use could adversely impact vegetation due to authorization of actions that could remove or damage individual plants. These actions could be authorized on various lands in the planning area under Alternative C (Table 3.2.6-2). Overall, areas open to these types of surface-disturbing activities would be greater under Alternative C than Alternative B and less than under Alternatives A, D, and E. Reindeer grazing would be permitted in areas determined to have ecological conditions that support grazing (outside of caribou habitat protection areas), which would result in some impacts to vegetation due to forage utilization, trampling, transportation of plant propagules, and soil disturbance. Ecological conditions that support grazing include areas with at least 20 percent lichen cover based on vegetation classes from the REAs. Forage utilization would be managed at a maximum threshold of Grazing Class 4 (50–75 percent of lichen utilized), which could result in visible reductions in lichen cover, although not enough to inhibit regeneration (Swanson and Barker 1992). Impacts to vegetation due to grazing under this alternative would be greater than under Alternative A or B, less than under Alternative D, and the same as under Alternative E. Comprehensive Grazing Management Plans or Range Conservation Plans required to be developed and submitted with permit applications would specify practices and mitigations to minimize impacts to vegetation.

There would be fewer restrictions to surface-disturbing mineral actions, OHV use, and woodland harvest that would minimize impacts to vegetation and SSS flora than under Alternative B (Table 3.2.6-2). Restrictions for surface-disturbing actions under Alternative C would be greater than under Alternatives D and E. Additionally, minimization of impacts to vegetation and SSS flora as a result of reducing or eliminating disturbance in permafrost areas, floodplains and natural springs, SSS flora habitat, visual resources, wilderness characteristics, and the INHT NTMC would be less extensive and/or less stringent than under Alternative B, greater than under Alternative D, and the same as under Alternative E. No ACECs would be designated under this alternative; therefore, impacts to vegetation would not be minimized due to management actions applied to designated ACECs, as they would be under Alternative B. As such, potential impacts to vegetation and SSS flora could be greater under Alternative C than under Alternative B and less than under Alternatives A, D, and E. Although Alternatives C and E have the same or similar managements in most cases, Alternative C would have substantially more areas identified as ROW avoidance than Alternative E and therefore fewer potential effects to vegetation associated with potential ROW authorization.

As described under Alternative B, coordinating with the USFWS to sustain and strengthen landscape-level ecosystem resiliency would generally benefit vegetation, although measures to minimize impacts to wildlife habitat would be less extensive and therefore would minimize impacts to vegetation to a lesser degree than under Alternative B. The allowed use of nonnative seed and propagules where native species are not available or unable to establish could result in changes to vegetation community composition and function as compared to pre-disturbance or pre-fire conditions. These changes could occur to a greater

degree than under Alternative B, a similar degree than under Alternative E, and a lesser degree than under Alternative D.

Effects from Alternative D

Management of surface-disturbing actions including commercial woodland harvest, ROW authorization, mineral development, and OHV use could adversely impact vegetation due to authorization of actions that could remove or damage individual plants. These actions could be authorized on various lands in the planning area under Alternative D (Table 3.2.6-2). Overall, management under Alternative D would minimize impacts to vegetation to a lesser degree than under Alternative B, C, or E but would still minimize impacts slightly more than under Alternative A.

Grazing effects would be similar to those described for Alternative C, though they could potentially occur over a larger area, as grazing could be permitted at the implementation level over the entire planning area. Forage utilization would be managed at a maximum threshold of Grazing Class 5 (75–100 percent of lichen utilized), which could result in visible trampling, craters, and reductions in lichen cover where grazing occurs, though not enough to inhibit regeneration (Swanson and Barker 1992). Overall, potential impacts to vegetation under this alternative from grazing could be greater than under other action alternatives.

Restrictions to surface-disturbing mineral actions, OHV use, woodland harvest, and reindeer grazing that would benefit vegetation and SSS flora would occur to a smaller extent than under Alternative B or C (Table 3.2.6-2). Minimization of impacts to vegetation and SSS flora as a result of reducing or eliminating disturbance in permafrost areas, floodplains and natural springs, SSS flora habitat, visual resources, wilderness characteristics, and the INHT NTMC would occur to a lesser extent and/or be less stringent than under Alternative B, C, or E. As under Alternatives C and E, no ACECs would be designated and lands would be managed to prioritize other resource values and multiple uses over wilderness characteristics; therefore, vegetation would not benefit from management actions applied to designated ACECs or wilderness resources under Alternative D, though it would benefit from BMPs and SOPs applied by BLM at the implementation level for permitting decisions. Additionally, no measures to address OHV-related degradation of SSS flora or lichen areas would be required under this alternative. Potential impacts to vegetation and SSS flora would be greater under Alternative D than under Alternative B, C, or E, but still less than under Alternative A in some cases.

As described for Alternative B, coordinating with the USFWS to sustain and strengthen landscape-level ecosystem resiliency would generally benefit vegetation, although measures to minimize impacts to wildlife habitat would be less extensive and less beneficial to vegetation than under all other action alternatives, but still slightly more beneficial than under Alternative A. Requirements that propagules used in reclamation be suited to existing climatic condition and ecosystem function would benefit disturbed areas, though allowance of nonnative species under all circumstances during reclamation could result in changes to vegetation community composition and function as compared to pre-disturbance or pre-fire conditions, potentially to a greater degree than under Alternatives B, C, and E.

Effects from Alternative E

Management of surface-disturbing actions including commercial woodland harvest, ROW authorization, mineral development, and OHV use could adversely impact vegetation due to authorization of actions that could remove or damage individual plants. These actions could be authorized on various lands in the planning area under Alternative E (Table 3.2.6-2). Overall, areas open to these types of surface-disturbing

activities would be similar to those under Alternative C, with some exceptions. Acres open to surface-disturbing activities that could affect vegetation would be the same as those under Alternative C for commercial woodland harvest, reindeer grazing, locatable mineral entry and development, and OHV use. Acres open to salable mineral development and mineral leasing subject to standard stipulations would be greater than under Alternatives A, B, and C but less than under Alternative D, and acres open to ROW location would be greater than under Alternatives B, C, and D, and less than under Alternative A. Overall, potential impacts to vegetation and SSS flora from resource uses would be greater under Alternative E than under Alternatives B and C, and less than under Alternatives A and D.

Generally, management actions would minimize impacts to vegetation to a lesser degree than under Alternative B, to a similar degree as Alternative C, and to a greater degree than Alternatives A and D, with the exception of ROW avoidance, which would be less than under all other action alternatives (Table 3.2.6-2). Management pertaining to OHV use, surface-disturbing activities in habitat for SSS species, and grazing would be the same as under Alternative C. The acreage within VRM Class II (low-level changes allowed) would be slightly less under Alternative E than under Alternative C. No ACECs would be designated (the same as Alternatives C and D), and all lands would be managed to prioritize other resource values and multiple uses over wilderness characteristics (the same as Alternative D); therefore, vegetation would not benefit from management actions applied to ACECs or wilderness resources, though it would benefit from BMPs and SOPs applied by BLM at the implementation level for permitting decisions. Requirements pertaining to propagules used in reclamation would be the same as those under Alternative C except that under Alternative E, nonnative seed and propagules would be allowed if determined appropriate for the trending climatic condition and ecosystem function and if native plants are either unavailable or unable to establish with current climatic conditions. As such, reseeding during reclamation could result in changes to vegetation community composition and function to a greater degree than under Alternatives B and C but a lesser degree than Alternatives A and D.

Considering potential impacts to vegetation from actions that could remove or damage vegetation, as well as management to minimize impacts to vegetation, potential impacts to vegetation and SSS flora under Alternative E in most areas would be greater than under Alternative B, similar to Alternative C, and less than under Alternatives A and D. Under Alternative E, a vegetation and SSS plant survey would only be required if the BLM determines that a surface-disturbing permit action has the potential to impact special status flora or occurs in a unique vegetation community, while Alternatives B and C would require surveys in known habitat for SSS flora or rare ecosystems. Under Alternative D, in habitat known for SSS flora or in rare ecosystems, applicants would be required to provide to BLM a geolocated photo inventory of the site along with soil samples.

Depending on where ROWs are located, impacts to vegetation and SSS from ROW development could be greater under Alternative E than under other action alternatives. Specific impacts would be addressed as part of project-specific NEPA analysis.

Cumulative Effects

Past and Present Actions

Vegetation communities in the planning area are maintaining proper functioning condition. Trends for special status plant species are unknown. Trend: No Change (vegetation communities)/Unknown (SSS plants).

Past, Present, and Reasonably Foreseeable Future Actions (Alternative A)

Due to continued adherence to State and federal regulations, such as requirements for project-specific NEPA analysis, impacts to SSS flora and vegetation communities are likely to be limited, though impacts are still likely to occur due to increasing resource use in the planning area. Construction and operation of the Donlin Gold Project would be expected to increase impacts to vegetation and SSS flora in the planning area, within the footprint of the Donlin Gold Project transportation corridor and mine site. The Donlin Gold Project construction and operation would result in removal of vegetation for access and operations infrastructure and could impact habitat that supports SSS. Trend: Counter the existing trend by resulting in increased impacts to vegetation and SSS flora over time.

Past, Present, and Reasonably Foreseeable Future Actions (Alternatives B, C, D, and E)

Continued adherence to State and federal regulations, as well as restrictions to the extents of surface-disturbing actions, would reduce impacts to vegetation and SSS flora species and habitats, though minimal impacts to vegetation and SSS flora are still likely to occur. Trend: Counter the existing trend by resulting in increased impacts to vegetation and SSS flora over time, though increases in impact would be lowest under Alternative B, highest under Alternative D, and intermediate under Alternatives C and E.

3.2.7 Wildlife and Special Status Species**Affected Environment**

Wildlife and SSS resources are depicted on Maps 3.2.7-1 through 3.2.7-7. Species that are the focus of monitoring and management include game and subsistence species and SSS. Habitats of high value to wildlife are also an important management concern.

Game Management and Subsistence Species

Important game management and subsistence species include caribou (*Rangifer tarandus*), moose (*Alces alces*), wood bison (*Bison athabasca*), muskox (*Ovibos moschatus*), brown bear (*Ursus arctos*), black bear (*Ursus americanus*), plains bison (*Bison bison*), furbearers, marine mammals, and waterfowl. The planning area includes winter and summer ranges and migratory habitat for two major caribou herds (Map 3.2.7-4). Moose occur predominantly in lower elevations, along major rivers and recently burned areas where they forage on early successional trees and shrubs (Map 3.2.7-5). Wood bison and plains bison occur as two closely related subspecies that have been introduced into the planning area (Map 3.2.7-6). Muskox occur in the southern Nulato Hills, between Shaktoolik and Unalakleet. Brown bear and black bear are found throughout the planning area. Furbearers include a variety of species that occupy various habitats. Marine mammals occur adjacent to coastal portions of the planning area. Numerous species of waterfowl occur in association with lowlands, rivers and floodplains, coastal areas, and other aquatic habitats.

Special Status Species

One BLM sensitive mammal species occur in the planning area: the wood bison. The wood bison is also listed as threatened under the ESA; however, the reintroduced population in the planning area is an ESA Section 10(j) nonessential experimental population.

Migratory birds occupy every habitat type within the planning area, including riparian areas, wetland, forest, shrub, and alpine tundra. Some of these species have small populations or ranges, or declining

populations, depend on habitats susceptible to human disturbance or development, or are considered worthy of more intensive monitoring. Appendix M includes the list of BLM Alaska sensitive species.

High-Value Wildlife Habitats

The planning area provides important wildlife habitats for a variety of breeding and nesting birds and game/subsistence species. The Western Alaska and Northwest Interior Forest Bird Conservation regions (USGS 2016) overlap the boundaries of the planning area, as do three Audubon Important Bird Areas (Audubon 2016; see Maps 3.2.7-1 and 3.2.7-2). The Innoko Bottoms area in the floodplains of the Yukon and Innoko Rivers is an important waterfowl production area of statewide importance and supports known winter concentrations of moose and year-round habitat for wood bison (Map 3.2.7-3).

Direct and Indirect Effects

Table 3.2.7-1 below summarizes the nature and types of beneficial or adverse effects that could occur to wildlife and SSS, the proposed management actions that could influence those effects, and the indicators used to measure the potential magnitude and extent of the effects. The table focuses on resource uses with the greatest potential to impact wildlife and SSS. Table 3.2.7-2 discloses the potential magnitude and extent of the effects by indicator, across alternatives. The effects analysis focuses on important wildlife and SSS habitats for which information is available (moose and caribou calving and wintering areas, wood bison and muskox range, riparian areas, the Innoko Bottoms area, and Audubon Important Bird Areas) and on areas where land uses with the greatest potential to impact wildlife (mineral development, ROW, commercial woodland harvest) have the least restrictions and are likely to occur.

Table 3.2.7-1: Summary of Potential Effects to Wildlife and SSS by Management Action

Types of Effects	Management Actions	Indicators
OHV use, surface disturbance, commercial woodland harvest, and other human actions associated with various resource uses could impact wildlife and SSS through disturbance, loss, degradation, and fragmentation of wildlife habitat. Management actions that prohibit or limit these human actions would reduce the potential for adverse effects by removing the human actions or reducing their magnitude and extent.	• Mineral Decisions • Commercial Woodland Harvest • ROW Decisions • Travel and Transportation Management Decisions	• Acres of the planning area in which there are no restrictions on mineral development, commercial woodland harvest, ROW, and OHV use. • Acres of the planning area in which there are no restrictions on mineral development, commercial woodland harvest, ROW, and OHV use, that overlap riparian areas; caribou, moose, wood bison, and muskox ranges; Audubon Important Bird Areas; and Innoko Bottoms.
Changes in the effectiveness of wildlife habitat management could result in a reduction or improvement of wildlife habitat quality on BLM lands by removing or adding management actions that target key wildlife habitats.	• Wildlife Management Decisions	• Acres of the planning area covered by management that targets key wildlife habitat: Innoko Bottoms, riparian areas, caribou and moose calving and wintering areas, moose and caribou crucial winter habitat
Management actions that retain landscape permeability between conservation units by limiting or prohibiting surface-disturbing activity would enhance the conservation value of the entire region by retaining resilience and adaptability at a landscape level by allowing species to respond as environmental conditions change.	• Wildlife Management Decisions	• Acres of the planning area covered by connectivity corridors

Table 3.2.7-2: Portions of Planning Area Analyzed for Potential Impacts to Wildlife and SSS by Indicator

Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Acres of the planning area in which there are no restrictions on mineral development that overlap important wildlife habitat. ¹	• Open to locatable mineral development (high and medium potential): 294,325 acres (2%) • Open to locatable mineral development (high and medium potential) segregated due to selection²: 195,632 acres (1%) • Riparian areas: 609 RMs (2%) • Caribou calving habitat: 0 acres (0%) • Caribou wintering habitat: 14,001 acres (<1%) • Moose calving habitat: 0 acres (0%) • Moose wintering habitat: 294,325 acres (33%) • Innoko Bottoms: 0 acres (0%) • Important bird areas: 0 acres (0%) • Muskox range: 0 acres (0%) • Wood bison range: 8,402 acres (<1%)	• Open to locatable mineral development (high and medium potential): 167,018 acres (1%) • Open to locatable mineral development (high and medium potential) segregated due to selection²: 100,426 acres (<1%) • Riparian areas: 332 RMs (1%) • Caribou calving habitat: 0 acres (0%) • Caribou wintering habitat: 111,417 acres (1%) • Moose calving habitat: 1,203 acres (<1%) • Moose wintering habitat: 1,259 acres (<1%) • Innoko Bottoms: 0 acres (0%) • Important bird areas: 0 acres (0%) • Muskox range: 0 acres (0%) • Wood bison range: 4,692 acres (<1%)	• Open to locatable mineral development (high and medium potential): 565,489 acres (4%) • Open to locatable mineral development (high and medium potential) segregated due to selection²: 317,531 acres (2%) • Riparian areas: 1,173 RMs (4%) • Caribou calving habitat: 0 acres (0%) • Caribou wintering habitat: 403,146 acres (4%) • Moose calving habitat: 5,529 acres (1%) • Moose wintering habitat: 16,404 acres (2%) • Innoko Bottoms: 0 acres (0%) • Important bird areas: 0 acres (0%) • Muskox range: 0 acres (0%) • Wood bison range: 9,672 acres (<1%)	• Open to locatable mineral development (high and medium potential): 565,489 acres (4%) • Open to locatable mineral development (high and medium potential) segregated due to selection²: 317,531 acres (2%) • Riparian areas: 1,173 RMs (4%) • Caribou calving habitat: 0 acres (0%) • Caribou wintering habitat: 403,146 acres (4%) • Moose calving habitat: 5,529 acres (1%) • Moose wintering habitat: 16,404 acres (2%) • Innoko Bottoms: 0 acres (0%) • Important bird areas: 0 acres (0%) • Muskox range: 0 acres (0%) • Wood bison range: 9,672 acres (<1%)	• Open to locatable mineral development (high and medium potential): 565,489 acres (4%) • Open to locatable mineral development (high and medium potential) segregated due to selection²: 317,531 acres (2%) • Riparian areas: 1,173 RMs (4%) • Caribou calving habitat: 0 acres (0%) • Caribou wintering habitat: 403,146 acres (4%) • Moose calving habitat: 5,529 acres (1%) • Moose wintering habitat: 16,404 acres (2%) • Innoko Bottoms: 0 acres (0%) • Important bird areas: 0 acres (0%) • Muskox range: 0 acres (0%) • Wood bison range: 9,672 acres (<1%)

Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Areas open to commercial woodland harvest permitting that overlap important wildlife habitat. ¹	• Total area open: 11,882,094 acres (88%) • Riparian areas: 29,962 RMs (91%) • Caribou calving habitat: 160,096 acres (100%) • Caribou wintering habitat: 8,210,866 (83%) • Moose calving habitat: 380,799 acres (100%) • Moose wintering habitat: 846,924 acres (95%) • Innoko Bottoms: 236,566 acres (100%) • Important bird areas: 314,373 acres (100%) • Muskox range: 1,862,459 acres (56%) • Wood bison range: 3,693,673 acres (100%)	• Total area open: 8,403,756 acres (62%) • Riparian areas: 8,613 RMs (26%) • Caribou calving habitat: 152,078 acres (95%) • Caribou wintering habitat: 5,393,039 acres (55%) • Moose calving habitat: 265,059 acres (70%) • Moose wintering habitat: 419,475 (47%) • Innoko Bottoms: 182,369 acres (77%) • Important bird areas: 272,579 acres (87%) • Muskox range: 1,065,321 acres (32%) • Wood bison range: 2,857,286 acres (77%)	• Total area open: 13,418,941 acres (>99%) • Riparian areas: 32,727 RMs (99%) • Caribou calving habitat: 160,096 (100%) • Caribou wintering habitat: 9,747,697 acres (95%) • Moose calving habitat: 380,799 acres (100%) • Moose wintering habitat: 864,786 acres (97%) • Innoko Bottoms: 236,566 acres (100%) • Important bird areas: 314,373 acres (100%) • Muskox range: 3,295,572 acres (99%) • Wood bison range: 3,693,673 acres (100%)	• Total area open: 13,465,894 acres (100%) • Riparian areas: 32,931 RMs (100%) • Caribou calving habitat: 160,096 acres (100%) • Caribou wintering habitat: 9,794,651 acres (99%) • Moose calving habitat: 380,799 acres (100%) • Moose wintering habitat: 894,808 acres (100%) • Innoko Bottoms: 236,566 acres (100%) • Important bird areas: 314,373 acres (100%) • Muskox range: 3,295,572 acres (100%) • Wood bison range: 3,693,673 acres (100%)	• Total area open: 13,418,941 acres (>99%) • Riparian areas: 32,727 RMs (99%) • Caribou calving habitat: 160,096 acres (100%) • Caribou wintering habitat: 9,747,697 acres (99%) • Moose calving habitat: 380,799 acres (100%) • Moose wintering habitat: 864,786 acres (97%) • Innoko Bottoms: 236,566 acres (100%) • Important bird areas: 314,373 acres (100%) • Muskox range: 3,295,573 acres (100%) • Wood bison range: 3,693,673 acres (100%)
Areas open to ROW that overlap important wildlife habitat. ¹	• Total Area Open to ROW Location: 13,465,787 acres (100%) • Riparian areas: 32,932 RMs (100%) • Caribou calving habitat: 160,096 acres (1%) • Caribou wintering habitat: 9,794,651 acres (100%) • Moose calving habitat: 380,799 acres (100%) • Moose wintering habitat: 894,808 acres (100%) • Innoko Bottoms: 236,566 acres (100%) • Important bird areas: 314,373 acres (2%) • Muskox range: 3,295,576 acres (100%) • Wood bison range: 3,693,673 acres (27%)	• Total Area Open to ROW Location: 3,105,905 acres (23%) • Riparian areas: 6,278 RMs (19%) • Caribou calving habitat: 84,657 acres (53%) • Caribou wintering habitat: 2,117,999 acres (22%) • Moose calving habitat: 46,680 acres (12%) • Moose wintering habitat: 88,078 acres (10%) • Innoko Bottoms: 0 acres (0%) • Important bird areas: 44,074 acres (14%) • Muskox range: 840,515 acres (26%) • Wood bison range: 736,927 acres (20%)	• Total Area Open to ROW Location: 5,785,178 acres (43%) • Riparian areas: 11,924 RMs (36%) • Caribou calving habitat: 112,609 acres (70%) • Caribou wintering habitat: 4,161,055 acres (42%) • Moose calving habitat: 105,600 acres (28%) • Moose wintering habitat: 211,461 acres (24%) • Innoko Bottoms: 0 acres (0%) • Important bird areas: 87,447 acres (28%) • Muskox range: 1,361,246 acres (41%) • Wood bison range: 1,231,395 acres (33%)	• Total Area Open to ROW Location: 8,302,241 acres (62%) • Riparian areas: 19,341 RMs (59%) • Caribou calving habitat: 150,381 acres (94%) • Caribou wintering habitat: 6,002,767 acres (61%) • Moose calving habitat: 130,896 acres (34%) • Moose wintering habitat: 310,485 acres (35%) • Innoko Bottoms: 0 acres (0%) • Important bird areas: 97,014 acres (31%) • Muskox range: 1,989,235 acres (60%) • Wood bison range: 2,011,666 acres (54%)	• Total Area Open to ROW Location: 12,542,918 acres (93%) • Riparian areas: 30,351 RMs (92%) • Caribou calving habitat: 160,096 acres (100%) • Caribou wintering habitat: 9,544,650 acres (92%) • Moose calving habitat: 148,453 acres (39%) • Moose wintering habitat: 512,594 acres (57%) • Innoko Bottoms: 0 acres (0%) • Important bird areas: 302,323 acres (96%) • Muskox range: 3,287,481 acres (99%) • Wood bison range: 3,093,403 acres (84%)

Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Areas open to OHV use that overlap important wildlife habitat. ¹	OHV use: 13,465,894 acres (100%)	OHV use: 0 acres (0%), with TMAs over 565,955 acres (4%) and additional prohibitions and restrictions	OHV use: 0 acres (0%), with TMAs over 273,242 acres (2%) and fewer land use restrictions than Alternative B	OHV use: 0 acres (0%), with TMAs over 273,242 acres (2%) and fewer land use restrictions than Alternatives B and C	OHV use: 0 acres (0%), with TMAs over 273,242 acres (2%) and fewer land use restrictions than Alternative B
Acres of the planning area covered by management actions that target key wildlife habitat (type of management varies by alternative). ³	None specified	- Riparian areas: 32,932 RMs (100%) - Caribou and moose calving and wintering habitat: 7,841,497 acres (79%) - Innoko Bottoms: 236,556 acres (100%)	- Riparian areas: 32,932 RMs (100%) - Caribou and moose calving habitat: 266,419 acres (3%) - Innoko Bottoms: 236,556 acres (100%)	- Riparian areas: 32,932 RMs (100%) - Caribou and moose calving habitat: 266,419 acres (3%) - Innoko Bottoms: 236,556 acres (100%)	- Riparian areas: 32,932 RMs (100%) - Caribou and moose calving habitat: 266,419 acres (3%) - Innoko Bottoms: 236,556 acres (100%)
Acres of the planning area covered by management actions that aim to retain ecological resilience.	None specified	Connectivity corridors: two corridors: 845,670 acres (6%)	Connectivity corridors: one corridor: 576,038 acres (4%)	None	Connectivity corridors: one corridor: 576,038 acres (4%)

Notes:

1) Percentages listed for the total area with no restrictions are the percent of BLM-managed lands in the planning area. Percentages listed for important habitat types are the percent of the total amount of that habitat type on BLM-managed lands in the planning area.

2) State top-filings that become valid selections due to ANCSA corporation selections being relinquished or rejected will be managed like all other State selections. Alternatives that recommend revocation of 17(d)(1) withdrawals where the withdrawal prevents State selections would allow for the State selections to become valid once revocation is complete. These lands would be managed like all other State selections.

3) Total overlap of caribou and moose calving and wintering habitat with all areas closed to salable, locatable, ROW, and commercial woodland harvest for each action alternative. The percentages are based on the total caribou and moose calving and wintering habitat within BLM-managed lands within the planning area, which is 10,251,780 acres.

The types of potential impacts to wildlife and SSS that could result from permitted activities include disturbance, displacement, mortality, or injury of individuals; alteration, elimination, or fragmentation of habitat; reduction in availability of food and water; interference with breeding; reduction in reproductive success; and increased susceptibility to predation, among other possible impact mechanisms. Activities that involve surface disturbance could alter the structure, composition, and productivity of vegetation communities in certain areas, which provide the foundation of wildlife habitats. Development actions could conceivably lead to new roads or other linear infrastructure which may, depending on type, carry the potential to fragment wildlife habitat and impede migration and other types of movement. Removal of forest and woodland products could locally modify habitats of forest-dwelling species by reducing the components of wildlife physical habitat and food sources. OHV use could degrade wildlife habitats through surface disturbance, crush nests and small terrestrial species, and lead to the creation of new trails that could cause an increase in human use. ROW development could lead to habitat loss, degradation, and/or fragmentation through vegetation removal when it occurs over long linear areas. Reindeer grazing could result in removal of lichen and biomass of other plants, trampling, transportation of plant propagules, and soil disturbance. Management actions for wildlife and other resources and resource uses could affect wildlife by allowing resource uses with the potential to cause impacts, or by implementing restrictions on those resource uses that prevent or reduce impacts.

The alternatives would vary in terms of the indicators shown in Table 3.2.7-2: the number of connectivity corridors that the BLM could manage to promote ecological resilience; the timing, extent, and magnitude of allowable mineral activities, ROW, commercial woodland harvest, reindeer grazing, and other resource uses in important wildlife habitats; and the extent and magnitude of additional management for wildlife and SSS. Additional differences among the alternatives are discussed in Chapter 2 of this PRMP/FEIS.

Effects from Alternative A

Under Alternative A (and all alternatives), the BLM would continue to follow all laws, regulations, and policies, which predominantly pertain to listed species, sensitive species, rare habitats, subsistence resources, and migratory birds. Actions to prevent or mitigate for adverse effects would generally be applied at the site-specific level and tied to specific projects or permits; adaptive management would not be employed to respond to climate change effects on wildlife habitats, nor would there be overarching management to increase or retain ecological resilience through the establishment of connectivity corridors or minimize impacts to HVW habitat in the Innoko Bottoms area from land uses. Therefore, this alternative could have a long-term impact on migration and other species movement across the landscape if future development occurs without offsetting mitigation measures in areas where it could fragment species ranges and reduce habitat connectivity. Ecological resilience and adaptability could be compromised, and wildlife species could be affected as environmental conditions change. This alternative would not restrict where ROW could be developed or where OHV use could occur, and nearly all of the planning area (99 percent) would be open to the possibility of reindeer grazing, which could lead to habitat degradation and fragmentation and interfere with wildlife movement where it occurs throughout the planning area. This alternative would have the second smallest portion of the planning area open to locatable mineral development and commercial woodland harvest permitting with respect to areas open to commercial harvest by permit, although it does allow commercial woodland harvest permitting on 88 percent of the planning area (Table 2-1b). Alternative A could result in less short- or long-term habitat loss and degradation for forest-dwelling wildlife and SSS than the other alternatives.

Overall, Alternative A, as compared to the action alternatives, would lead to a greater extent and magnitude of potential impacts to wildlife and SSS for all indicators except areas open to locatable mineral development in areas of high and medium potential and areas open to commercial woodland harvest that overlap important wildlife habitat. For those indicators, the number of acres affected would be greater under Alternatives C, D, and E.

Effects Common to All Action Alternatives

All action alternatives would include management considerations that focus on ESA-listed species, BLM sensitive species, caribou, moose, muskox, Dall sheep, mountain goats, migratory birds, raptors, bats, wood bison, and pollinators. Additionally, the BLM would use adaptive management that considers climate change and shifts in habitat or timing of crucial portions of species' life cycles. Consistent with its multiple use mandate, the BLM would also implement BMPs/SOPs (Appendix O) as needed to avoid and minimize impacts to sensitive species and habitats.

Effects from Alternative B

Compared to other action alternatives, management actions under Alternative B would result in the least impacts to wildlife and SSS and would target important species and habitats in the planning area. Management for other resources, as described throughout this chapter, could also minimize the potential for impacts to wildlife from resource uses in the planning area, as compared to the other alternatives. Management actions pertaining to locatable mineral entry, surface-disturbing BLM-permitted activities, OHV use, ROW development (ROW exclusion areas), and others would apply to wildlife and SSS in the Innoko Bottoms Priority Wildlife Habitat Area and two proposed connectivity corridors (North Connectivity Corridor and South Connectivity Corridor—see Map 3.2.7-3), which would reduce potential disturbance to wildlife and SSS and reduce the potential for habitat loss, degradation, and fragmentation and help retain ecological resilience. Additionally, no BLM-managed lands in the planning area would be

open to reindeer grazing. Creating two connectivity corridors between the Innoko and Yukon Delta NWRs would allow for landscape connectivity at multiple locations, providing the largest increase in conservation value in the region compared with the other alternatives because connectivity is provided for all topographic features. Limiting leasable mineral activity in caribou and moose calving and wintering habitats to NSO stipulations and imposing seasonal use restrictions on construction in moose and caribou calving habitat (April 15 to May 31) and known winter concentrations from October 31 to April 1 would also serve to avoid and minimize impacts to caribou and moose to a greater extent than Alternative A, C, D, or E. As shown in Table 3.2.7-2, management actions under Alternative B would result in reduced impacts over a greater or similar extent of all important wildlife habitats analyzed, compared to the other alternatives. This alternative would generally have the least extent of overlap between areas in the planning area in which there are no restrictions on locatable mineral development (in areas of medium and high mineral potential) and ROW and important wildlife habitat and would limit OHV use to the greatest extent. Overall, the extent and magnitude of potential impacts to wildlife and SSS, including impacts to important wildlife habitats, from resource uses would be lower than under Alternatives A, C, D, and E.

Effects from Alternative C

Under Alternative C, depending on the level of permitted activities potential impacts on wildlife and SSS from management actions would be of higher magnitude and greater extent than those under Alternative B, but lesser than those under the other alternatives, as reflected by the indicators in Table 3.2.7-2. There would be fewer management prescriptions to minimize impacts in the Innoko Bottoms Priority Wildlife Habitat Area than under Alternative B, which could result in greater impacts to wildlife and SSS from disturbance, habitat loss, and fragmentation from resource uses. Management actions for connectivity corridors under Alternative C would be similar to those under Alternative B, with the exception of ROW (ROW avoidance for linear realty actions rather than exclusion), locatable mineral development (which would be allowed under Alternative C), and salable mineral development (which would be allowed subject to terms and conditions under Alternative C). Controlled surface use stipulations would prohibit leasable or salable operations in caribou calving habitat from April 15 to May 31, and seasonal use restrictions on construction would apply in moose and caribou calving habitat, which would minimize impacts to moose and caribou to a greater extent than Alternatives A, D and E, but to a lesser extent than Alternative B. Reindeer grazing would result in some impacts to vegetation due to forage utilization, trampling, transportation of nonnative invasive plant propagules, and soil disturbance. Additionally, the BLM would manage one connectivity corridor, the South Connectivity Corridor, rather than the two proposed under Alternative B. This alternative would maintain similar long-term benefits to ecological resilience in the Innoko Bottoms area as Alternative B, although the magnitude of improvement to the conservation value of the region and resulting adaptability of wildlife species to environmental changes would be less than Alternative B. Alternative C would not include the North Connectivity Corridor, which provides connectivity for higher elevation topographic features that are warmer and steeper and intersects the range of the Western Arctic caribou herd; therefore, that herd could be more affected by changes to environmental conditions than under Alternative B. As shown in Table 3.2.7-2, management actions under Alternative C could have a greater extent of impacts on important wildlife habitats analyzed than Alternative B, but generally a smaller extent than Alternatives A, D, and E. Important wildlife habitats would have more overlap with areas where there are no restrictions on locatable mineral development (in medium and high potential areas) and ROW than Alternatives A and B, indicating a higher likelihood for associated impacts to wildlife in these areas, but a smaller amount of overlap than Alternatives D and E. Potential impacts from OHV use would occur on a smaller number of acres than

under Alternative A, on the same number of acres as under Alternatives D and E, and a greater number of acres than under Alternative B. Land use restrictions under Alternative C would result in less potential impact due to OHV use than under Alternatives A and D, the same potential impacts due to OHV use than under Alternative E, and greater potential impacts than under Alternative B. Overall, the extent and magnitude of impacts to wildlife and SSS, including important wildlife habitats, from resource uses would be greater than under Alternative B but less than under Alternatives A, D, and E.

Effects from Alternative D

The geographic extent of potential impacts on wildlife for most resource uses would be greater under Alternative D than under Alternatives B, C and E, and less than under Alternative A (in most cases), as reflected in Table 3.2.7-2. Similar to Alternative A, the BLM would not manage connectivity corridors which, depending on the level of permitted activity, could potentially result in long-term effects to ecological resilience and adaptability in the area. Grazing management would allow greater utilization over a larger geographic area than under Alternative C, potentially resulting in greater impacts to wildlife and SSS habitats. Management actions under Alternative D would result in potential impacts over a greater extent of important wildlife habitats analyzed, compared to Alternatives B, C, and E, but over a lesser extent than Alternative A, which could lead to higher likelihood of impacts to certain species and groups, such as migratory birds and wintering caribou and moose. The amount of overlap of important wildlife habitats with areas where there are no restrictions on locatable mineral development (in medium and high potential areas) would be the same as Alternatives C and E, but there would be more overlap with areas open to ROW development than Alternatives B and C, indicating a higher potential for associated impacts to wildlife in these areas. Potential impacts from OHV use would occur on the same number of acres as under Alternatives C and E and a greater number of acres than under Alternative B, though there would be fewer OHV-associated land use restrictions under Alternative D than under Alternative B, C, or E. Overall, the extent and magnitude of potential impacts to wildlife and SSS, including impacts to important wildlife habitats, from resource uses would be greater than under Alternatives B, C and E but less than under Alternative A (in most cases). However, in some locations and for some species (e.g., forest and woodland species), the extent and magnitude of impacts would be similar to those under Alternatives C and E and similar to or greater than those for Alternative A.

Effects from Alternative E

Under Alternative E, potential impacts on wildlife and SSS from management actions would be of higher magnitude and greater extent than those under Alternatives B and C and lower magnitude and extent than Alternative D, as reflected by the indicators in Table 3.2.7-2. The exception to this is that under Alternative E there would be more acreage open to ROW compared to the other alternatives because ROW avoidance would not be applied to HVWs under Alternative E. This would increase the potential for impacts on wetland-associated wildlife, including caribou and moose (wintering), and muskox and wood bison range.

As shown in Table 3.2.7-2, management actions under Alternative E could have a greater extent of impacts on important wildlife habitats analyzed than under Alternatives B and C, and in some cases Alternative A, though impacts would generally occur to a lesser extent than under Alternatives A and D. Important wildlife habitats would have more overlap with areas where there are no restrictions on locatable mineral development (in areas of medium and high LMP) and ROW development than Alternatives A, B, and C, indicating a higher likelihood for associated impacts to wildlife in these areas, but less than Alternative D with the exception of ROW. Important wildlife habitats would have more

overlap with areas open to woodland harvest than Alternatives A and B but a similar amount of overlap as Alternatives C and D. Important wildlife habitats would have more overlap with areas open to ROW than Alternative B and less overlap than Alternatives A, C, and D. Overall, the extent and magnitude of impacts to wildlife and SSS, including important wildlife habitats, from resource uses would be greater than under Alternatives B and C but less than under Alternatives A and D.

Cumulative Effects

Past and Present Actions

Wildlife populations appear to be fluctuating within what is likely a natural range but are variable by species. Both the Western Arctic and the Mulchatna caribou herds are currently in decline. The other small non-migratory herds near the Kuskokwim River are stable or declining. Some species populations appear stable, such as many furbearers. Some populations could be increasing, such as plains bison, brown bear, black bear, and peregrine falcon. Other populations could be decreasing, such as muskox, Dall sheep, olive-sided flycatcher, and other migratory birds. For some species, such as lynx, red fox, little brown bat, and pollinators, current trends are not known. Migratory bird species appear to be experiencing declines associated with impacts on winter ranges or migration routes outside of Alaska. Trend: No change overall for habitat but degrading for some species and improving for others.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative A)

Reasonably foreseeable future actions with the greatest potential to affect wildlife and SSS, based on likelihood of occurrence or predicted increases from current levels, include the Donlin Gold Project, other mineral exploration and mining activity, and development of transportation corridors. While reasonably foreseeable future actions generally would have localized impacts on wildlife and SSS habitats, climate change would continue to alter habitats throughout the planning area, and cumulative impacts to certain populations or species could occur if key habitats are degraded or fragmented. Alternative A would allow less unmanaged commercial woodland harvest and mineral development that would have the potential to impact forest and woodland-dwelling wildlife and wildlife occurring in areas of medium to high mineral potential than all but Alternative B. Under this alternative, adherence to existing regulations and internal BLM guidance would continue to help prevent impacts to sensitive species and habitats. Trend: Existing trends would continue, with no trend overall, but degrading for some species and improving for others. With increased development in the planning area, species with affected habitat could experience a trend of increased degradation or lessened improvement.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative B)

Management under Alternative B would include BMPs/SOPs and additional prescriptions that would minimize impacts to wildlife and SSS and habitats as well as the overall ecological resilience of the landscape. Management specifically designed to prevent cumulative impacts to wildlife and SSS, including cumulative management decisions, adaptive management, and establishment of two connectivity corridors, would help offset any potential landscape-level impacts to wildlife habitats. Trend: Improving. It is expected that implementing Alternative B would result in an improved trend for most wildlife and SSS. For species with habitat or populations that are degrading, this alternative would lessen the rate of degradation or stabilize or counter the existing trend. For species with habitat or populations that are improving, this alternative would allow the improvement to continue at a similar or greater rate.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative C)

Management under Alternative C would include BMPs/SOPs and additional prescriptions to minimize impacts to wildlife and SSS and habitats, but to a lesser degree than under Alternative B. Management specifically designed to prevent cumulative impacts to wildlife and SSS, including cumulative management decisions, adaptive management, and establishment of one connectivity corridor, would help offset any potential landscape-level impacts to wildlife habitats. Trend: Varies between species. It is expected that implementing Alternative C would result in an improved trend for most wildlife and SSS. For species with habitat or populations that are degrading, the degradation could continue but at a lesser rate and could be stabilized. For forest and woodland species and species in areas of medium to high mineral development potential, there could be a trend of increased degradation or lessened improvement. For species with habitat or populations that are improving, this alternative would allow the improvement to continue at a similar or greater rate.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative D)

Management under Alternative D would include BMPs/SOPs and additional prescriptions to minimize impacts to wildlife and SSS and habitats, but to a lesser degree than under Alternative B and for most resources to a lesser degree than Alternative C. Alternative D would include cumulative management decisions and adaptive management, but no connectivity corridors. In most cases, management would be more restrictive than under Alternative A. However, Alternative D would allow for the possibility of more unmanaged commercial woodland harvest and mineral development that would have the potential to impact forest and woodland-dwelling wildlife, and wildlife occurring in areas of medium to high mineral potential and ROW development, to a greater degree than Alternative A. Trend: Varies between species, stable or declining. For forest and woodland species and species in areas of medium to high mineral development potential, trends could degrade as a result of the cumulative effects of future development, climate change, and fragmentation of habitats. These species would experience a trend of increased degradation or lessened improvement.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative E)

Management under Alternative E would include BMPs/SOPs and additional prescriptions to minimize impacts to wildlife and SSS and habitats, but to a lesser degree than under Alternatives B and C. Management specifically designed to prevent cumulative impacts to wildlife and SSS, including cumulative management decisions, adaptive management, and establishment of one connectivity corridor, would help offset potential landscape-level impacts to wildlife habitats. Trend: Varies between species. It is expected that implementing Alternative E would result in an improved trend for most wildlife and SSS. For species with habitat or populations that are degrading, the degradation could continue but at a lesser rate and could be stabilized. For forest and woodland species, species in areas of medium to high mineral development potential or ROW development, and muskox and bison, there could be a trend of increased degradation or lessened improvement. For species with habitat or populations that are improving, this alternative would allow the improvement to continue at a similar or greater rate.

3.2.8 Nonnative Invasive Species (Wildlife and Plant)

Affected Environment

Nonnative Invasive Terrestrial Plant Species

There are 50 nonnative invasive terrestrial plant species representing 15 families with 758 total occurrences within the planning area, with risk rankings from 32 to 81. Map 3.2.8-1 illustrates locations and numbers of known nonnative invasive terrestrial plant species in the region based on 2016 Alaska Exotic Plants Information Clearinghouse data. At all known locations, between one and 16 species were recorded. Areas with greater concentrations of species could be sources of potential invasion into neighboring areas and could be target areas for focused control or eradication efforts. Highest concentrations of species are found in developed areas including communities, roadways, boat landings, airstrips, and trails.

Nonnative Invasive Aquatic Species

Fourteen nonnative invasive fish species have been identified as occurring in Alaska, including Atlantic salmon (*Salmo salar*) and yellow perch (*Perca flavescens*) (McClory and Gotthardt 2008). None of the listed fish species is known to have established breeding populations in Alaska. Only one nonnative invasive freshwater plant genus, elodea or waterweed (*Elodea canadensis*, *E. nuttallii*, and hybrids), is known within the State of Alaska. These species could survive in habitats within the planning area, although elodea is not currently known to occur within the planning area.

Nonnative Invasive Mammal Species

Alaska currently has few nonnative invasive mammal species that have spread to the point of causing major ecological effects, except on the Aleutian Islands (ADF&G 2015). Norway rats (*Rattus norvegicus*) are a nonnative invasive terrestrial mammal species that has colonized numerous cities and islands in Alaska, including Dutch Harbor, Nome, and Fairbanks (ADF&G 2015). Rats have not persisted or established known colonies in any coastal communities or the Port of Bethel within the planning area.

Under Alaska law (5 AAC 92.141), it is illegal for any property owner or vessel operator to knowingly transport *Muridae* rodents (including Norway rats) into Alaska, and it is the responsibility of the property or vessel owner to develop and implement ongoing rodent control and eradication plans if any such rodents are discovered.

Other Nonnative Invasive Species

Nonnative invasive bird and invertebrate species have been detected in Alaska but are not known within the planning area (ADF&G 2015). Nonnative invasive insect species are forest pests tracked by the Alaska Forest Health Protection Program of ADF&G, in cooperation with the U.S. Forest Service, including the introduced birch leaf miner (*Fenusa pusilla*). Birch defoliation has been detected within the planning area in aerial insect and disease detection surveys (USDA Forest Service 2015), which could indicate presence of the nonnative invasive birch leaf miner but could also be attributed to native insects such as aphids (superfamily *Aphidoidea*). Currently, no serious nonnative invasive pathogens are known to occur in Alaska.

Direct and Indirect Effects

Table 3.2.8-1 below summarizes the nature and types of beneficial or adverse effects that could occur to NNIS, the proposed management actions that could influence those effects, and the indicators used to measure the potential magnitude and extent of the effects. Table 3.2.8-2 discloses the potential magnitude and extent of the effects by indicator, across alternatives.

Table 3.2.8-1: Summary of Potential Effects to NNIS Resource by Management Action

Types of Effects	Management Actions	Indicators
Management actions that would result in vegetation removal or soil disturbance have the potential to increase colonization and spread of nonnative invasive plants where propagules of these species are present. Removal of native vegetation reduces competition for sunlight, water, and soil resources (Hobbs and Huennekke 1992). Soil disturbance could also increase nutrient availability due to complex effects of disturbance on soil microbial activity (van der Heijden et al. 2008). Increased resource availability leads to increased susceptibility to invasion of an ecosystem by nonnative invasive plants (Davis et al. 2000; Hobbs and Huennekke 1992), including cold environments such as those in the planning area (Lembrechts et al. 2016).	• Forestry and Woodland Product Decisions • Wildland Fire Decisions • Reindeer Grazing Decisions • Mineral Decisions • Lands and Realty Decisions • Recreation and Visitor Services Decisions • Travel and Transportation Decisions	• Acres open to commercial woodland harvest permitting • Acres open to personal/subsistence use harvest • Potential for increased nonnative invasive terrestrial plant species with fire and fuels treatments and firefighting actions (qualitative) • Acres open to reindeer grazing • Acres open to locatable, salable, and leasable minerals • Acres open to ROW authorization • Acres without OHV use restrictions
Management actions that would increase human movement could increase the transportation of nonnative invasive plants and animals, facilitating colonization and spread of these species. Nonnative invasive plant propagules (predominantly seeds, but also other plant organs or parts such as spores, buds, or stem fragments that can propagate a new plant) could be transported to new areas by being attached to clothing, pets, or vehicles (including aircraft). Nonnative invasive aquatic plant and animal species are frequently inadvertently transported in the ballast water of boats and ships (National Research Council 1996) and intentionally as live fish bait, horticultural and water-garden plants, biological supplies, pets, and as live food (Keller and Lodge 2007).	• Forestry and Woodland Product Decisions • Reindeer Grazing Decisions • Mineral Decisions • Recreation and Visitor Services Decisions • Travel and Transportation Decisions	• Acres open to commercial woodland harvest permitting • Acres open to personal/subsistence woodland harvest • Acres open to reindeer grazing • Acres open to locatable, salable, and leasable minerals • Acres open to OHV use • Potential increased invasive terrestrial plant species with other travel, transportation, and recreation uses (qualitative)

Table 3.2.8-2: Portions of Planning Area Analyzed for Potential Impacts to NNIS by Indicator

Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Open to commercial woodland harvest permitting ¹	11,882,094 acres (88%)	8,403,829 acres (62%)	13,418,941 acres (99.6%)	13,465,894 acres (100%)	13,418,941 acres (>99%)
Personal/subsistence woodland harvest ¹	Open: 13,465,894 acres (100%)	• Open: 4,069,281 acres (30%) – permit required • Non-subsistence house log harvest prohibited: 9,396,613 acres (70%) • House log harvest prohibited in riparian areas of streams	• Open: 13,418,941 acres (>99%) • Non-subsistence house log harvest prohibited: 46,953 acres (<1%) • Personal use and subsistence house log harvest prohibited within riparian areas of streams	• Open: 13,418,941 acres (>99%) • Non-subsistence house log harvest prohibited: 46,953 acres (<1%)	• Open: 13,418,941 acres (>99%) • Non-subsistence house log harvest prohibited: 46,953 acres (<1%)
Open to reindeer grazing at the implementation level ¹	13,304,555 acres (99%)	0 acres (0%)	12,848,472 acres (95%)	13,465,894 acres (100%)	12,848,472 acres (95%)
Acres open to locatable mineral development in areas of medium to high LMP ²	• 258,015 acres of medium LMP (49%) • 36,310 acres of high LMP (85%)	• 150,453 acres of medium LMP (29%) • 16,565 acres of high LMP (39%)	• 522,825 acres of medium LMP (100%) • 42,663 acres of high LMP (100%)	• 522,825 acres of medium LMP (100%) • 42,663 acres of high LMP (100%)	• 522,825 acres of medium LMP (100%) • 42,663 acres of high LMP (100%)

Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Acres open to locatable mineral development in areas of medium to high LMP segregated due to selection ³	195,632 acres (35%) ²	100,426 acres (18%) ²	317,531 acres (56%) ²	317,531 acres (56%) ²	317,531 acres (56%) ²
Open to salable minerals ¹	8,661,406 acres (64%)	3,548,061 acres (26%)	6,606,321 acres (49%)	13,182,385 acres (98%)	9,408,012 acres (70%)
Open to salable minerals subject to terms and conditions ¹	0 acres (0%)	0 acres (0%)	6,576,064 acres (49%)	0 acres (0%)	3,774,373 acres (28%)
Open to mineral leasing subject to standard stipulations ¹	8,246,152 acres (61%)	2,460,649 acres (18%)	6,555,476 acres (49%)	13,182,385 acres (98%)	9,356,398 acres (69%)
Open to ROW location ¹	13,465,894 acres (100%)	3,105,905 acres (23%)	5,785,178 acres (43%)	8,302,241 acres (62%)	12,542,918 acres (93%)
Summer casual OHV access prohibited ¹	46,953 acres (<1%)	565,955 acres (4%)	225,925 acres (2%)	225,925 acres (2%)	225,925 acres (2%)
Summer subsistence OHV access prohibited ¹	46,953 acres (<1%)	241,512 acres (2%)	225,925 acres (2%)	0 acres (0%)	225,925 acres (2%)
Summer casual OHV access limited to existing trails ¹	0 acres (0%)	12,899,939 acres (96%)	13,239,969 acres (98%)	46,953 acres (<1%)	13,239,969 acres (98%)
Summer subsistence OHV access limited to existing trails ¹	0 acres (0%)	324,443 acres (2%)	363 acres (<1%)	225,925 acres (2%)	363 acres (<1%)
Seeding and planting requirements for reclamation/restoration related to potential for NNIS plant spread	No current management direction identified.	Permittees must use native seed and propagules appropriate to existing climatic conditions and desired ecosystem function as demonstrated by undisturbed areas or applicable outplanting trials.	Same as Alternative B. Nonnative seed and propagules would be allowed if determined appropriate for the climatic condition and ecosystem function and if native plants are either unavailable or unable to establish with current climatic conditions.	Permittees must use seed and propagules appropriate to existing climatic conditions and ecosystem function.	Permittees must use native seed and propagules appropriate for existing climatic conditions and desired ecosystem function. Nonnative seed and propagules would be allowed if determined appropriate for the trending climatic condition and ecosystem function and if native plants are either unavailable or unable to establish with current climatic conditions. This would be determined on a case-by-case basis and approved by the BLM AO.

Notes:

1) Percentage based on all BLM-managed land in the planning area.

2) Percentage based on all medium to high LMP areas on BLM-managed land in the planning area.

3) State top-filings that become valid selections due to ANCSA corporation selections being relinquished or rejected will be managed like all other State selections. Alternatives that recommend revocation of 17(d)(1) withdrawals where the withdrawal prevents State selections would allow for the State selections to become valid once revocation is complete. These lands would be managed like all other State selections.

Effects from Alternative A

Management of commercial woodland harvest, reindeer grazing, locatable and salable mineral development, leasable mineral actions, ROW authorization, and OHV use by their nature provide the opportunity for colonization and spread of NNIS due to actions that would increase surface disturbance and transportation of these species. These actions could be authorized on various lands in the planning area (Table 3.2.8-2). In general, extents of land that could be subject to these actions are identified less precisely than under the action alternatives. OHV use could theoretically occur anywhere in the planning area, though it would more likely be restricted to commonly used travel, subsistence, and recreation routes.

Control of NNIS would continue to be required under applicable federal, State, borough, and municipal regulations. BLM-issued permits for certain types of activities would require some degree of control of nonnative plant species, though these requirements are not specifically described under current plans.

No specific limitations on development in floodplains would be implemented; therefore, any such actions would have a greater potential to result in NNIS transportation or invasion than under the action alternatives. Measures intended to minimize the impacts of woodland harvest on vegetation under current land use plans would minimize the potential for increased nonnative plant establishment and spread in currently designated ACECs and RNAs. Wildland fire and fuels treatments (including prescribed fire), when they occur, could increase the potential for nonnative invasive plant invasion in the local area over the short term, though these impacts would be minimized through implementation of avoidance and mitigation measures.

Reindeer grazing would adhere to the State of Alaska requirement that a Grazing Management Plan be submitted prior to grazing on State lands, which would include an assessment of invasive plants as an indicator of loss of biotic integrity, potentially minimizing NNIS spread as a result of reindeer grazing. Reclamation of areas disturbed by minerals would be required under this alternative, including no additional NNIS on site. As there would be no specific management actions pertaining to recreation applicable to the effects of recreation on spread of NNIS, potential transport of NNIS could occur throughout the planning area wherever recreation occurs.

Effects Common to All Action Alternatives

Potential establishment and spread of nonnative invasive plants would be minimized under the action alternatives as compared to Alternative A. All actions implemented or authorized by the BLM in the planning area would include measures to prevent the introduction and spread of NNIS, such as requiring projects to develop NNIS management plans based on the type of work to be performed and to adhere to NNIS BMPs from the BLM Alaska NNIS Management Policy. SOPs and BMPs listed in Appendix O would be followed that would minimize the transportation of nonnative invasive plant propagules via machinery and other materials (i.e., seed, mulch, and erosion control). SOPs and BMPs would also require planning, inventory, treatment, and monitoring to prevent the introduction of highly invasive species for all permitted actions.

Requirements that commercial woodland harvest occur during the winter and requiring reclamation of disturbed areas would minimize potential establishment and spread of nonnative plants. For reindeer grazing, requirements for use of weed-free feed would help to minimize establishment and spread of nonnative invasive plants due to grazing. Areas where surface disturbance could occur, such as those open to locatable or salable mineral exploration, location, development, and extraction; mineral leasing; or ROW development are likely to be subject to nonnative invasive plant establishment and spread.

Reclamation of vegetation in areas subject to soil disturbance would minimize some of the potential establishment and spread of nonnative invasive plants in these areas. Requirements for reclamation in surface disturbance areas, including preservation of tundra mats, vegetative mats, and topsoil for use in reclamation and specific reclamation cover requirements would generally minimize potential for establishment and spread of nonnative invasive plants. While there could be increased use of recreation areas under the action alternatives, the proposed restrictions to OHV use would allow the BLM to reduce the impacts that recreation could have on NNIS establishment and spread. Aircraft and watercraft use for

subsistence purposes would be unrestricted under the action alternatives; therefore, the potential for transport of NNIS via these mechanisms is the same under all action alternatives.

Effects from Alternative B

Alternative B would authorize the smallest acreage of land as open for surface-disturbing actions or removal or damage of vegetation (commercial woodland harvest, reindeer grazing, and locatable and salable mineral development) under the action alternatives. The acreage of these authorizations would be smaller than under Alternative A. Compared to all other alternatives, Alternative B would open the least amount of land to the possibility of commercial woodland harvest, ROW authorization, OHV overland travel and locatable mineral development in areas of high and medium LMP (Table 3.2.8-2). The overall potential for NNIS colonization and spread associated with surface-disturbing actions or removal or damage of vegetation would be lower under Alternative B than under the other alternatives.

Under Alternative B, requirements for use of native and ecologically adapted species for reclamation are likely to increase the long-term ecological stability of reclamation actions, thereby minimizing the potential spread of nonnative invasive plants to a greater degree than under Alternative A.

Effects from Alternative C

Under Alternative C, a larger acreage of lands would be available for the possibility of surface-disturbing actions or removal or damage of vegetation (i.e., commercial woodland harvest, reindeer grazing, locatable and salable mineral development, leasable mineral actions, ROW authorization, OHV overland travel) compared to Alternative B (Table 3.2.8-2). For reindeer grazing, requirements for use of weed-free feed would help to minimize establishment and spread of nonnative invasive plants due to grazing.

Acreage available for potential surface-disturbing actions or removal or damage of vegetation would be higher than Alternative A for commercial woodland harvest, locatable mineral development, and salable mineral development but lower for ROW development and OHV overland travel (Table 3.2.8-2).

Under Alternative C, the overall potential for NNIS colonization and spread associated with surface-disturbing actions or removal or damage of vegetation would be higher than under Alternative B and lower than under Alternatives D and E. Although Alternative C would have more areas open to certain activities that could increase the spread of NNIS than Alternative A, it would also include additional prevention measures that would not be required under Alternative A. Requirements to use native and ecologically adapted species for reclamation would be similar to that under Alternative B, though some nonnative seed and propagules would be allowed if necessary. Allowing nonnative species to be used in reclamation of disturbed areas could have implications for the potential for spread of nonnative invasive plants in these areas, though the outcomes are uncertain.

Effects from Alternative D

Under Alternative D, a larger acreage of land would be designated as being available for the possibility of surface-disturbing actions or removal or damage of vegetation (commercial woodland harvest, reindeer grazing, locatable and salable mineral development, and leasable mineral actions) than under all other alternatives (Table 3.2.8-2). Restrictions for OHV use would be less extensive than under Alternatives B and C, though OHV use restrictions would be more extensive than under Alternative A. Alternative D would have more areas open for ROW development than Alternative B and C, but fewer than Alternatives A and E. All areas of medium to high LMP would be open to locatable mineral development, the same as

Alternatives C and E (though over half of this acreage would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected). Under Alternative D, the overall potential for NNIS colonization and spread associated with surface-disturbing actions or removal or damage of vegetation would be higher than under Alternatives B and C, lower than under Alternative A due to more extensive OHV restrictions and reclamation requirements, and lower than under Alternative E due to a smaller number of acres open to ROW location. Requirements for reclamation would be similar to those under Alternatives C and E, though native species would not be given preference in reclamation areas, thereby increasing the potential for spread of nonnative invasive plants.

Effects from Alternative E

Under Alternative E, a larger acreage of land would be available for the possibility of mineral development and removal (salable mineral development and leasable mineral actions) than under Alternative C but less than under Alternative D (Table 3.2.8-2). Acres open to potential woodland harvest and reindeer grazing acreages are the same as Alternative C but fewer than under Alternative D. Alternative E would have more area open for potential ROW development than Alternative B, C or D. Restrictions on OHV use are the same as Alternative C, which are more limiting than Alternative A and less than Alternative B.

Under Alternative E, the overall potential for NNIS colonization and spread associated with surface-disturbing actions or removal or damage of vegetation would be higher than under other action alternatives due to larger acreages open to ROW location; relevant mitigation measures from Appendix O would be applied to minimize this potential. Though Alternative E would allow activities that could increase the spread of NNIS on more acreage than in Alternative A, it would also include additional prevention measures not required under Alternative A. Allowing nonnative species to be used in seed mixes if determined appropriate for the trending climatic condition and ecosystem function and if native plants are either unavailable or unable to establish could increase the rate of vegetation reestablishment on disturbed areas, thereby reducing the potential for NNIS colonization and spread in disturbed areas as compared to Alternative C.

Cumulative Effects

Cumulative adverse effects from potential increase of NNIS invasion and spread under the action alternatives would generally be less and beneficial effects greater under Alternative A than under Alternatives B, C, D and E because of restrictions on surface-disturbing actions and OHV use. The degree of adverse impact or beneficial effect from controlling NNIS is related to the relative levels of measures intended to minimize impacts under the various action alternatives.

Past and Present Actions

NNIS infestations are low in the planning area but are anticipated to potentially increase over time due to human activity and the effects of climate change. Trend: Stabilized.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative A)

Construction and operation of the Donlin Gold Project could increase impacts from introduction and spread of NNIS within the planning area, within the footprint of the Donlin Gold mine transportation corridor and mine site, if BMPs and mitigation measures are not followed. The Donlin Gold Project

construction and operation would result in an increase of equipment, vehicles, materials, travel, and access routes that could contribute to a trend of increasing the presence of NNIS within the planning area. NNIS infestations are likely to increase in the planning area over time, even with continued implementation of State and federal regulations. Trend: Degrading.

Past, Present, and Reasonably Foreseeable Future Actions (Alternatives B, C, and D)

Continued adherence to State and federal regulations as well as restrictions to the extents of surface-disturbing actions and requirements for revegetation of disturbed areas and control of NNIS would minimize establishment and spread of these species. Trend: Counter the existing trend (slightly improving), though Alternative B would minimize NNIS establishment and spread to the greatest degree, Alternative D would minimize NNIS establishment and spread to the lowest degree, and Alternative C would minimize NNIS establishment and spread to an intermediate degree.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative E)

Alternative E would result in a greater potential for NNIS spread compared to the other action alternatives due to the larger extent of land open to the possibility of ROW location. Restrictions to mineral development are somewhat lessened, and acres open to ROW location would be higher than under Alternative C and would therefore provide less protection against NNIS establishment and spread specifically resulting from such surface-disturbing operations. Alternative E would still require adherence to State and federal regulations and requirements for revegetation of disturbed areas. Trend: Degrading.

3.2.9 Wildland Fire

Affected Environment

Wildland fires are ignited predominantly by lightning. Human-caused wildland fires are ignited by campfires, burning debris, vehicles, and other ignition sources. Wildland fires are rare within 100 miles of the coast and increase toward the interior (BLM 2015d). Fire data on large wildland fires reported by BLM show that a total of 8,875,141 acres burned from 1977 to 2016 within the planning area (Map 3.2.9-1). The number of burned acres has continued to exceed 2 million acres for each 10-year period from 1990 through 2010 (BLM 2016c). Approximately 61 percent of the planning area is in Fire Regime Groups III, IV, and V (NIFIT 2010; see Map 3.2.9-2). The rest of the planning area is classified as unburnable surface material (14 percent) and areas where the fire regime has not been determined (25 percent) (Barrett et al. 2010).

Fuels include vegetation ranging from boreal hardwood and conifer forests to shrub and sedge dominated tundra. Of 40 fuel models, 20 are represented in the planning area (Scott and Burgan 2005). The 20 models include grasses, shrubs, timber, and unburnable vegetation (Map 3.2.9-3). Black spruce forests, which are adapted to fire, are the most common forest type and form mosaics with quaking aspen-birch, white spruce, and mixed wood (spruce-hardwood) stands. The major shrub fuel component is birch, willow, or ericaceous (acid soil) shrub communities. The major grass fuel models are grass-sedge tundra communities.

Spruce beetle (*Dendroctonus rufipennis*) infestations were documented in the late 1990s and early 2000s, and impacted forest cover primarily in the Kenai Peninsula (ADNR 2018b; USDA Forest Service 2018); a more recent outbreak has occurred in the Matanuska-Susitna Borough, to the east of the planning area. Current and prior outbreaks have been attributed to warming winters that allow the species to overwinter,

increasing population size. Infestations can change fuel types and contribute to increased large woody debris accumulation. However, there is little evidence that dead or diseased trees have greatly increased the intensity, size, or duration of wildland fires in the planning area. Minimal restrictions on hazardous fuels treatments and prescribed fires are currently in place in the planning area, although there have been few hazardous fuels treatments and no prescribed fires other than pile burning. BLM uses an integrated vegetation management approach to meeting hazardous fuels management objectives and improving vegetative health. Management actions could include hazardous fuels removal, prescribed fire, mechanical manipulation (e.g., mowing), applying herbicides, seeding, and biological treatments to reduce fuels or create fuel breaks. Vegetative health is improved by enhancing species diversity and sustainability. Treatments are strategically placed to support suppression operations and minimize impacts to human communities and important resource values (BLM 2014b).

Post-wildland fire, ES&R management includes planned actions to minimize threats to life and property and stabilize and prevent unacceptable degradation of natural and cultural resources (BLM 2007b). Treatments could include installing erosion control structures, removing hazardous trees, replacing burned or damaged values, and implementing soil stabilization treatments such as seeding, planting, mulching, trail stabilization, invasive plant and weed control, and use closures.

Smoke is managed in consultation with the ADEC. Wildland fire smoke is not regulated but considered in control tactics. Prescribed fire smoke is addressed in burn plans, which are developed in consultation with the ADEC and the Alaska Enhanced Smoke Management Plan, which was written and adopted by the Alaska Wildland Fire Coordinating Group (2015). Prescribed burns are planned to be implemented when atmospheric conditions are favorable to smoke dispersion.

Fire prevention involves agencies, partners with the BLM, affected groups, and individuals working together to prevent unauthorized ignition of wildland fires. The primary goal is to reduce human-caused fires through education. Prevention education efforts are challenged by the remoteness of communities. Prevention education is provided in conjunction with local fire crew training, Community Wildland Fire Protection Plans, and FireWise planning, and by organized workshops and conferences in larger communities.

Direct and Indirect Effects

Table 3.2.9-1 below summarizes the nature and types of beneficial or adverse effects on wildland fire, the proposed management actions that could influence those effects, and the indicators used to measure the potential magnitude and extent of the effects. Table 3.2.9-2 discloses the potential magnitude and extent of the effects by indicator, across alternatives.

Table 3.2.9-1: Summary of Potential Effects to Wildland Fire by Management Action

Types of Effects	Management Actions	Indicators
Fuels treatments would be used to alter vegetation to facilitate fire management to help meet desired conditions for land cover or in areas prioritized for wildland fire management (i.e., generalized moose habitat, generalized caribou habitat, white spruce on well-drained floodplains, generalized BLM-sensitive plant species habitat, herbaceous wetlands, and areas with known or high probability of cultural and/or paleontological resources). In the long term, fuels treatments could reduce the potential risk and intensity of wildland fires within treated vegetation communities. Vegetation treatments could impact fuel model acres and related fire behavior, although the levels of impacts would depend on the condition of the larger landscape and the total area treated.	• Wildland Fire Management Decisions • Vegetation Management Decisions • Cultural Resources Management Decisions • Paleontological Management Decisions	Areas where treatments are prioritized
Potential restrictions on fire and fuels treatments associated with VRM Class I and II designations, streambank and riparian areas and habitat buffers, SSS flora buffers, restrictions for migratory birds and raptors, use of Minimum Impact Suppression Techniques (MISTs), and BMPs/SOPs that stipulate the use of aerial fire retardant near lakes, wetlands, streams, rivers, sources of human water consumption, and areas adjacent to water sources could limit size, timing, and location of fuels treatments on a site-specific basis. Depending on treatment location, these restrictions could diminish the effectiveness of fire as a management tool. For all actions restricting the fuels treatments described above, potential exists for long-term changes to fuel models and fire behavior and related changes to burned acres. Impacts would depend on the level of restrictions and the current fuel models impacted.	• Visual Resource Management Decisions • Wildland Fire Management Decisions • Water Resources and Fisheries Decisions • Wildlife Management Decisions • Woodland Harvest Management Decisions	• Areas/acres of treatment restrictions • Potential changes to extent and severity of wildland fires • Potential for changes to fuel model acres and fire behavior, including burn severity
Areas open to public land use including, but not limited to, ROW corridors, areas open to forest product harvest, mineral development, and recreation areas could be at greater risk for human-caused fires due to increased human presence, transport of chemicals or fuel, and use of vehicles and equipment. Proposed SRMAs would increase the potential for human-caused fires by encouraging visitation. Increases in motorized use could increase potential for human-caused fires. Requiring compliance with terms and conditions of BLM permits could reduce impacts from public use by imposing regulations of exhaust systems or other BMPs to reduce ignition potential.	• Woodland Harvest Management Decisions • Lands and Realty Management Decisions • Recreation and Visitor Services Management Decisions • Transportation and Travel Management Decisions • Mineral Decisions	Potential for human-caused fire

Table 3.2.9-2: Portions of Planning Area Analyzed for Potential Impacts to Wildland Fire Resource by Indicator

Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Fire and fuels treatment areas would be prioritized to avoid and minimize impacts to resources or prevent divergence from natural variability in land cover composition.	None specified	• Areas with known or high probability of cultural resources or paleontological resources • BSWI Communities • Black spruce areas where wildfire has been excluded • Historical eligible roadhouses and public shelter cabins within the INHT NTMC	• Areas with known or high probability of cultural resources or paleontological resources • BSWI Communities • Black spruce areas where wildfire has been excluded • Historical eligible roadhouses and public shelter cabins within the INHT NTMC	• Areas with known or high probability of cultural resources or paleontological resources • BSWI Communities • Black spruce areas where wildfire has been excluded • Historical eligible roadhouses and public shelter cabins within the INHT NTMC	• Areas with known or high probability of cultural resources or paleontological resources • BSWI Communities • Black spruce areas where wildfire has been excluded • Historical eligible roadhouses and public shelter cabins within the INHT NTMC

Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Areas/acreages of treatment restrictions	• Cultural resources • Paleontological resources • SSS flora • VRM Class I areas (along Unalakleet River): 46,953 acres (<1%)¹	• Cultural resources • Paleontological resources • SSS flora (300-foot buffer) • VRM Class I areas: 1,335,771 acres (10%) • VRM Class II areas: 6,490,087 acres (48%) • Lands managed for wilderness characteristics as a priority: 277,489 acres (2%) • Within 100 feet of natural springs • Migratory bird and raptor habitat	• Cultural resources • Paleontological resources • SSS flora (100-foot buffer) • VRM Class I areas: 46,953 acres (<1%) • VRM Class II areas: 2,766,229 acres (21%) • Migratory bird and raptor habitat	• Cultural resources • Paleontological resources • SSS flora (flexible implementation) • VRM Class I areas: 46,953 acres (<1%) • VRM Class II areas: 679,553 acres (5%) • Migratory birds and raptors (flexible implementation)	• Cultural resources • Paleontological resources • SSS flora (100-foot buffer) • VRM Class I areas: 46,953 acres (<1%) • VRM Class II areas: 2,645,370 acres (20%) • Migratory bird and raptor habitat
Requiring various measures to avoid and minimize impacts to other resources could increase suppression time and result in increased fire size and/or severity.	Requirements: • BMPs for NNIS control	Requirements: • BMPs for NNIS control • MISTs • BMPs/SOPs for water quality	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.
Closing areas to commercial timber harvest could decrease associated potential for fine fuel loading and subsequent changes to fire behavior, including severity.	Commercial timber harvest would be closed on 1,583,751 acres (12%)	Commercial timber harvest would be closed on 8,418,904 acres (63%)	Commercial timber harvest would be closed on 46,953 acres (<1%)	No areas would be closed to commercial woodland harvest.	Commercial timber harvest would be closed on 46,953 acres (<1%)

Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Project actions and human use in areas would increase risk of human-caused wildland fire ignition.	Limited management would occur in recreation areas, travel management, ROW development, and WSRs. Human activity in the planning area would occur in association with: - Locatable mineral development open on 294,325 acres of medium or high LMP (52%)² - Locatable mineral development open on medium or high LMP segregated due to selection³ 195,632 acres (35%)² - Salable mineral development open on 8,661,406 acres (64%)⁴ - OHV use areas: - Summer casual and subsistence OHV cross-country access allowed: 13,418,941 acres (>99%)⁴	Human activity in the planning area would occur in association with: - Recreation areas - Open to ROW: 3,105,905 acres (23%)⁴ - Locatable mineral development open on 167,018 acres of medium or high LMP (30%)² - Locatable mineral development open on medium or high LMP segregated due to selection³ 100,426 acres (18%)² - Salable mineral development open on 3,548,061 acres (26%)⁴ - OHV use areas: - Summer casual OHV access cross-country access allowed: 0 acres (0%)⁴ - Summer subsistence OHV cross-country access allowed: 12,899,939 acres (96%)⁴ - Summer casual OHV access limited to existing trails: 12,899,939 acres (96%)⁴ - Summer subsistence OHV access limited to existing trails: 324,443 acres (3%)⁴	Human activity in the planning area would occur in association with: - Open to ROW: 5,785,178 acres (43%)⁴ - Locatable mineral development open on 565,489 acres in medium or high LMP (100%)² - Locatable mineral development open on medium or high LMP segregated due to selection³ 317,531 acres (56%)² - Salable mineral development open on 6,606,321 acres (49%)⁴ - Salable mineral development open subject to terms and conditions on 6,576,064 acres (49%)⁴ - OHV use areas: - Summer casual cross-country OHV access allowed: 0 acres (0%)⁴ - Summer subsistence cross-country OHV access allowed: 0 acres (0%)⁴ - Summer casual OHV access limited to existing trails: 13,239,606 acres (98%)⁴ - Summer casual OHV access limited to existing trails: 13,239,969 acres (98%)⁴ - Summer subsistence OHV access limited to existing trails: 363 acres (<1%)⁴	Human activity in the planning area would occur in association with: - Open to ROW: 8,302,241 acres (62%)⁴ - Locatable mineral development open on 565,489 acres in medium or high LMP (100%)² - Locatable mineral development open on medium or high LMP segregated due to selection³ 317,531 acres (56%)² - Salable mineral development open on 13,182,385 acres (98%)⁴ - OHV use areas: - Summer casual cross-country OHV access allowed: 13,193,016 acres (98%)⁴ - Summer subsistence cross-country OHV access allowed: 13,239,969 acres (98%)⁴ - Summer casual OHV access limited to existing trails: 46,953 acres (<1%)⁴ - Summer subsistence OHV access limited to existing trails: 225,925 acres (2%)⁴	Human activity in the planning area would occur in association with: - Open to ROW: 12,542,918 (93%)⁴ - Locatable mineral development open on 565,489 acres in medium or high LMP (100%)² - Locatable mineral development open on medium or high LMP segregated due to selection³ 317,531 acres (56%)² - Salable mineral development open on 9,408,012 acres (70%)⁴ - Salable mineral development open subject to terms and conditions on 3,774,373 acres (28%)⁴ - OHV use areas: - Summer casual cross-country OHV access allowed: 0 acres (0%)³ - Summer subsistence cross-country OHV access allowed: 13,239,606 acres (98%)⁴ - Summer casual OHV access limited to existing trails: 13,239,969 acres (98%)⁴ - Summer subsistence OHV access limited to existing trails: 363 acres (<1%)⁴

Notes:

1) Per the SWMFP (BLM 1981), Alternative A also manages seen areas of the Unalakleet River outside the Wild River Corridor as VRM II. These areas are not considered mappable and therefore do not have acreage reported. Fuels treatments determined to be within the seen area of the Unalakleet Wild River, but outside the corridor, would be required to comply with VRM Class II objectives. VRM Class II directs allowable surface disturbance or development to minimize change in landscape character and therefore could limit the extent to which fuels treatments are implemented.

2) Percentage is based on all medium and high LMP areas on BLM-managed land in the planning area.

3) State top-filings that become valid selections due to ANCSA corporation selections being relinquished or rejected will be managed like all other State selections. Alternatives that recommend revocation of 17(d)(1) withdrawals where the withdrawal prevents State selections would allow for the State selections to become valid once revocation is complete. These lands would be managed like all other State selections.

4) Percentage is based on all BLM-managed lands in the planning area (13,465,894 acres).

Effects from Alternative A

Under Alternative A, minimal restrictions would be in place for hazardous fuels treatments, although some site-specific limitations could apply for cultural and paleontological resources and SSS. As a result,

treatments could occur across much of the planning area with the potential to alter acres burned, fuel model, and fire behavior. Hazardous fuels treatments have been used in the planning area on a limited basis, and if this trend continues, impacts could be limited at the planning area scale.

Management actions that would require BMPs for NNIS control could increase suppression time and result in increased fire severity.

Minimal management of resource uses and development would result in the potential for human-caused ignition to occur throughout much of the planning area. Because there are no ROW exclusion or avoidance areas under Alternative A, human-caused ignitions that could result from activities along a ROW could theoretically occur across the planning area. While the development of locatable and salable minerals would be withdrawn in some areas (Table 3.2.9-2), the remaining areas would be open to potential development and therefore could be susceptible to human-caused ignitions associated with development activities. Minimal travel management restrictions would support higher potential for human-caused ignition across the planning area. Management actions that influence the existing vegetation community through removal or by changing composition could influence fuel model and fire behavior. Restricting commercial timber harvest (Table 3.2.9-2) could increase fine fuel loads, changing fire behavior and burn severity.

Effects Common to All Action Alternatives

Use of MISTs and inclusion of BMPs/SOPs to minimize impacts to water from aerial fire retardant could limit suppression effectiveness and result in increased acres burned and/or higher severity fires.

Hazardous fuels treatments have been used in the planning area on a limited basis, and restrictions on treatments could therefore result in limited changes to acres burned, fuel model, and fire behavior at the planning area scale. Prioritizing fuels and vegetation management projects in areas with known or high probability of cultural resources or paleontological resources, areas with known or high probability of vertebrate fossils or significant non-vertebrate fossils that are at risk of damage from wildland fire, areas near communities, black spruce areas where wildland fire has been excluded, and near historical eligible roadhouses and public shelter cabins within the INHT NTMC would impact suppression priorities and location of fuels treatments. In compliance with Secretarial Order 3372, principles of active fire management would be used to facilitate wildfire prevention, suppression, and recover planning measures, which would protect people, communities, landscapes and water quality.

Effects from Alternative B

Compared with the other action alternatives, fewer acres would be available for fuels treatments under Alternative B. Limitations on fuel treatments could occur from VRM actions on designated VRM Class I or II areas (Table 3.2.9-2). Limitations on fuel treatments could also occur on lands managed for wilderness characteristics as a priority (Table 3.2.9-2). Limitations could also apply for site-specific cultural and paleontological resources and to minimize impacts to water resources. Areas open to fuels treatments could also be subject to limitations for special status flora (300-foot buffers around populations). Timing limitations on management in migratory bird and raptor habitat would also reduce the areas available for fuels treatments as compared to Alternative A. In addition to BMPs included in Appendix O for NNIS control, MISTs and BMPS/SOPs for water quality could limit suppression options and result in increased fire size and/or severity.

Under Alternative B, management actions for Lands and Realty, Recreation and Visitor Services, Travel and Transportation, and Locatable and Salable Minerals (Table 3.2.9-2) that decrease human activity in

certain areas could decrease the potential for human-caused ignitions. Restricting commercial woodland harvest (Table 3.2.9-2) would decrease timber harvest and associated potential for fine fuel loading and changes to fire behavior.

Effects from Alternative C

Under Alternative C, limitations on fuel treatments could occur in association with VRM Class I and II designation, management of cultural and paleontological resources, and avoidance and minimization of impacts to water resources and special status flora (Table 3.2.9-2). As under Alternative B, timing limitations in migratory bird and raptor habitat would also limit areas available for fuels treatments compared to Alternative A. Limitations on fuels treatments would be less restrictive than under Alternative B, more restrictive than under Alternative D, and about the same as under Alternative E. The potential for human-caused ignitions would be greater than under Alternative B, as more areas would be open to the possibility of locatable mineral development and salable mineral extraction, ROW development and OHV use (Table 3.2.9-2), though these impacts would be less than under Alternative A, with the exception of impacts associated with locatable mineral development. The area potentially affected by human-caused ignitions associated with these resource uses would be the same as under Alternative E, with the exception of potential ROW development and salable mineral extraction, which would be allowable over a larger area under Alternative E.

Management impacting the extent and severity of potential wildland fires would be the same as under Alternative B. Restricting commercial woodland harvest would decrease timber harvest and associated potential for fine fuel loading and changes to fire behavior. These restrictions would be less extensive than under Alternatives A and B, the same as under Alternative E, and greater than under Alternative D (Table 3.2.9-2).

Effects from Alternative D

Under Alternative D, limitations on fuel treatments could occur in association with VRM Class I and II designation, which would occur over a smaller area than under the other action alternatives but over a greater area than under Alternative A, as well as site-specific restrictions for the management of cultural and paleontological resources and water resources (Table 3.2.9-2). Areas open to fuels treatments could also be subject to limitations to protect SSS flora populations, migratory birds, and raptors, although management would have more flexible implementation than other action alternatives. Overall, restrictions on areas available for fuel treatments would be less than under Alternatives B, C, and E but still slightly greater than under Alternative A.

Compared to other action alternatives, more areas would be open for the possibility of mineral development, cross-country OHV use, and commercial woodland harvest (Table 3.2.9-2), and potential for human-caused ignition from these resource uses would therefore be the highest among the alternatives. Human-caused ignition from ROW development could potentially occur over a larger area than under Alternatives B and C but over a smaller area than under Alternatives A and E. Management impacting the extent and severity of potential wildland fires would be the same as under Alternative B. No restrictions on commercial woodland harvest would occur, thereby increasing the potential for fine fuel loading and associated changes to fire behavior.

Effects from Alternative E

Under Alternative E, limitations on fuel treatments in association with VRM Class I designation, management of cultural and paleontological resources, and avoidance and minimization of impacts to water resources, SSS flora, and migratory bird and raptor habitat would be of the same magnitude and extent as under Alternative C (Table 3.2.9-2). Limitations on fuel treatments in association with VRM Class II designation would occur over a slightly smaller area than under Alternative C but over a greater area than under Alternative D. Limitations on fuels treatments would be less restrictive than under Alternative B, more restrictive than under Alternatives A and D, and about the same as under Alternative C. The area potentially affected by human-caused ignitions associated with locatable mineral development would be the same as under Alternatives C and D and less than under Alternatives A and B. The area potentially affected by human-caused ignitions associated with salable mineral extraction would be greater than under Alternatives A, B, and C and less than under Alternative D. The area potentially affected by human-caused ignitions associated with ROW development would be greater than under Alternatives B, C, and D and less than under Alternative A (Table 3.2.9-2). The area potentially affected by human-caused ignitions associated with cross-country OHV use would be the same as under Alternative C, less than under Alternatives A and D, and greater than under Alternative B.

Management impacting the extent and severity of potential wildland fires would be the same as under Alternative B. Restricting commercial woodland harvest would decrease timber harvest and associated potential for fine fuel loading and changes to fire behavior. These restrictions would be less extensive than under Alternatives A and B, the same as under Alternative C, and greater than, although similar to, Alternative D (Table 3.2.9-2).

Cumulative Effects

Past and Present Actions

Vegetation conditions are expected to continue to be impacted by human-caused changes on a limited, site-specific basis with a trend of increasing fire risk. Few BLM hazardous fuels treatment projects, and no prescribed fires, have been implemented in the planning area. Future treatments are expected to continue to be limited and site specific. Predicted vegetation and fire regime responses to projected future climate change include a general increase in fire activity in response to projected warming temperatures and less available moisture. Wildland fire management decisions cross agency and administrative boundaries. Fuel could accumulate in areas adjacent to BLM lands that are in the full and critical fire management options (i.e., areas where fires are actively suppressed), resulting in the potential for large, high-severity fire associated with fire exclusion. Trend: Fire risk continues to increase.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative A)

Resource uses and community development would be expected to continue at roughly their present rates. Reasonably foreseeable future actions would represent increased suppression priorities and potential for human-caused fires at the planning area level, as well as implementation of fire management measures for projects such as the Donlin Gold Project. Trend: Fire risk continues to increase.

Past, Present, and Reasonably Foreseeable Future Actions (Alternatives B, C, D, and E)

Resource uses and community development would continue. Though fuels management would continue to be pursued in the planning area under all alternatives, reasonably foreseeable future actions would

continue to represent increased suppression priorities and potential for human-caused fires at the planning area level. Under all action alternatives, site-specific reductions in cumulative contributions to fire risk could occur from reduction in human uses. However, in consideration of the projected changes to fire activity due to climate change, these site-specific reductions would not counter the projected changes. Trend: Fire risk continues to increase.

3.2.10 Cultural Resources

Affected Environment

Many types of cultural resources, including prehistoric and historic resources, ethnographic sites, and traditional use areas, are found throughout the planning area. Each of the major prehistoric archaeological traditions is represented, though Paleoindian sites are rare. More prehistoric sites date to the Northern Archaic era and earlier, as evidenced by surface or shallowly buried lithic scatters, campsites, resource procurement areas (e.g., hunting grounds), and larger pithouse communities. Prehistoric, protohistoric, and ethnographic sites attributed to activity by the three major tribes in the region (Yup'ik, Inupiat, and Athabaskan) are represented in the archaeological record. Sites dating to the historic era are widespread and associated with themes related to Russian exploration and expansion, the Gold Rush, World War II and Cold War eras, government exploration, and commercial fishing. While none are currently surveyed, TCPs, cultural landscapes, and sites of religious or sacred significance are likely to occur across the planning area.

While there are nearly 2,000 archaeological sites identified within the planning area boundaries, over 90 percent of the area remains unsurveyed. Known site distribution is primarily influenced by areas where archaeological research has actually been conducted. Sites to date have typically been identified in more accessible areas, such as coastal and riverine environments. Prehistoric sites are often located on or near streams, rivers, lakes, or coastal shorelines where permanent villages were located. Village inhabitants would typically leave their permanent settlements throughout the summer to hunt and gather in upland areas and then return to the permanent villages to winter (VanStone 1979). Historic sites are also typically in similar locales, though mining sites occur where minerals were identified.

There are 81 known cultural resources sites on BLM-managed lands in the planning area. However, over 900 sites within the planning area have no landowner listed on their site card in the Alaska Heritage Resource Survey, and additional sites list "U.S. Government" as the owner; some of these sites could also be located on BLM-managed public lands. Known sites on BLM lands are primarily from the historic era and related to the Gold Rush period of the late nineteenth and early twentieth centuries or the history of the INHT.

For the purposes of this analysis, it is assumed that there is potential for cultural resources to exist across the entire planning area. The analysis does not consider impacts on specific cultural resources and does not attempt to quantify these resources in particular geographic areas.

Direct and Indirect Effects

Table 3.2.10-1 below summarizes the nature and types of beneficial or adverse effects that could occur to cultural resources, the proposed management actions that could influence those effects, and the indicators used to measure the potential magnitude and extent of the effects. Table 3.2.10-2 discloses the potential magnitude and extent of the effects by indicator, across alternatives.

Table 3.2.10-1: Summary of Potential Effects to Cultural Resources by Management Action

Types of Effects	Management Actions	Indicators
Cultural resource sites could be destroyed or permanently damaged by actions that involve surface-disturbing activity.	• Locatable, Salable, and Leasable Mineral Decisions • Lands and Realty Decisions • Recreation and Visitor Services Management Decisions • Hazardous Material Cleanup Decisions	• Acres of high or medium potential open to mineral extraction • Acres of ROW exclusion and avoidance • Areas subject to recreation decisions regarding access, number of people, and facility development (qualitative) • Summer OHV access limited to existing trails • Areas subject to hazardous material cleanup
Actions that limit or restrict surface-disturbing activity that could destroy cultural resource sites or actions that limit the potential for new audible, atmospheric, or visual elements to be introduced into the landscape that would indirectly affect cultural resource sites would have positive and beneficial impacts on cultural resource. An increase in acreage considered for cultural resource survey and cultural landscape analysis would lead to increased number of sites identified and would allow for the consideration of impacts on newly discovered sites.	• Wildfire Management Decisions • Cultural Resource Management Decisions • Visual Resource Management Decisions • Travel and Transportation Management Decisions • Protected Land Status Designations and Associated Management Actions (Lands with Wilderness Characteristics Managed as a Priority, ACECs, National Trails, WSRs) • Lands and Realty Decisions • Support for BSWI Communities	• Areas subject to cultural resource evaluation prior to fuels reduction actions and acres near known cultural resources targeted for fire prevention actions (qualitative) • Areas identified for cultural resource survey; number of sites designated for scientific use (qualitative) • Acres established with VRM Class I and II designations • Lands managed for wilderness characteristics as a priority • Acres of ACECs (see Appendix M for full list of management actions) • Acres of WSR • Increase in areas subject to cultural landscapes analysis (qualitative) • Acres of INHT NTMC

Table 3.2.10-2: Portions of Planning Area Analyzed for Potential Impacts to Cultural Resources by Indicator

Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Acres open to locatable mineral development in areas of medium to high LMP	294,325 acres (52%) ²	167,018 acres (30%) ²	565,489 acres (100%) ²	565,489 acres (100%) ²	565,489 acres (100%) ²
Acres open to locatable mineral development in areas of medium to high LMP segregated due to selection ¹	195,632 (35%) ²	100,426 (18%) ²	317,531 (56%) ²	317,531 (56%) ²	317,531 (56%) ²
Areas open to ROW location	No acres specified	3,105,905 acres (23%) ³	5,785,178 acres (43%) ³	8,302,241 acres (62%) ³	12,542,918 acres (93%) ³
Areas subject to recreation decisions that increase access, number of people, and development of support facilities (qualitative)	Impacts remain low due to lack of recreation facilities or plans to develop such facilities in this alternative.	Recreation use in the INHT SRMA (355,799 acres) would be managed to achieve identified outcome and experience, thereby maintaining setting characteristics and minimizing potential for damage to cultural resources associated with the INHT. Managing the CFZs to promote subsistence use within a 15-mile radius of communities would limit use and potential for inadvertent harm of cultural sites near communities.	Same as Alternative B, but the SRMA would be reduced to 340,574 acres, and the CFZ would be reduced to a 5-mile radius surrounding BSWI communities.	Beneficial impacts within the SRMA would be the same as Alternative C. There would be no CFZ applied around BSWI communities.	Same as Alternative C.

Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Areas subject to pre-disturbance cultural survey for wildland fire fuels reduction (qualitative)	Management actions prioritize areas with known cultural resources for fire suppression and conducting cultural resource surveys prior to these actions. This equates to additional acres surveyed for cultural resources and more sites identified for protection, which minimizes the destruction and damage of cultural resources.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Areas identified for additional cultural resource survey (qualitative)	Requires compliance with Section 106 and other BMPs to avoid and minimize impacts on cultural resources.	High-priority areas for cultural sites would be identified, more sites would be identified and designated for scientific use, and impacts from wildland fire actions would be avoided or minimized. More sites and acres would be surveyed proactively than under Alternative A.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.
Lands managed as VRM Class I	46,953 acres (<1%) ³	1,335,771 acres (10%) ³	46,953 acres (<1%) ³	46,953 acres (<1%) ³	46,953 acres (<1%) ³
Other VRM Classes (inclusive of Flat buffer)	Seen areas of the Unalakleet River outside the Wild River Corridor as VRM II, and no direction for the 15-mile buffer around Flat, and no VRM classifications in ACECs	6,490,087 acres (48%) ³ as VRM Class II, including 15-mile buffer around Flat; increase in VRM Class II designations in ACECs	2,766,229 acres (21%) ³ of VRM Class II overall, Class III designations for 15-mile buffer around Flat	679,553 acres (5%) ³ overall VRM Class II, with VRM Class IV designation for 15-mile buffer around Flat. Overall, 49% ¹ VRM Class IV designation	2,645,370 acres (20%) ³ of VRM Class II overall, Class III designations for 15-mile buffer around Flat
Lands managed for wilderness characteristics as a priority	No acres specified	277,489 acres (2%) ³	0 acres (0%) ³	0 acres (0%) ³	0 acres (0%) ³
Lands managed as ACECs	1,884,376 acres (14%) ³	3,912,698 acres (29%) ³	0 acres (0%) ³	0 acres (0%) ³	0 acres (0%) ³
WSR acres eligible, suitable, or designated	- Designated: 46,953 acres (<1%)³ - Eligible: 332,176 acres (2%)	- Designated: 46,953 acres (<1%)³ - Recommended Suitable: 332,176 acres (2%)	Designated: 46,953 acres (<1%) ³	Designated: 46,953 acres (<1%) ³	Designated: 46,953 acres (<1%) ³
INHT NTMC acres designated	NTMC not designated	288,466 acres (2%) ³	273,242 acres (2%) ³	273,242 acres (2%) ³	273,242 acres (2%) ³
ROW exclusion areas	No acres specified	1,464,069 acres (11%) ³	0 acres (0%) ³	0 acres (0%) ³	0 acres (0%) ³
ROW avoidance areas	No acres specified	8,895,920 acres (66%) ³	7,528,863 acres (56%) ³	5,163,653 acres (38%) ³	509,798 acres (4%) ³
ROW avoidance areas for linear realty actions	No acres specified	0 acres (0%) ³	151,853 acres (1%) ³	0 acres (0%) ³	413,179 acres (3%) ³
Summer casual OHV access prohibited	46,953 acres (<1%) ³	565,955 acres (4%) ³	225,925 acres (2%) ³	225,925 acres (2%) ³	225,925 acres (2%) ³
Summer subsistence OHV access prohibited	46,953 acres (<1%) ³	241,512 acres (2%) ³	225,925 acres (2%) ³	0 acres (0%) ³	225,925 acres (2%) ³
Summer casual OHV access limited to existing trails	No acres specified	12,899,939 acres (96%) ³	13,239,969 acres (98%) ³	46,953 acres (<1%) ³	13,239,969 acres (98%) ³

Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Summer subsistence OHV access limited to existing trails	No acres specified	324,443 acres (2%) ³	363 acres (0%) ³	225,925 acres (2%) ³	363 acres (<1%) ³
Areas subject to cultural landscape analysis (qualitative)	No management action for assisting with cultural tourism. Cultural landscape reports include an objective to protect and preserve cultural resources from damage or destruction, but number of reports and areas subject to analysis not defined.	Two or three communities would be targeted for the completion of cultural landscape reports. This would increase number of acres surveyed and sites identified, promote heritage values, and result in a broader understanding of site types and significance within these communities than Alternative A. BLM would support cultural tourism.	Four to six communities would be targeted for landscape reports, which have greater benefits to cultural resources in terms of acreages surveyed and sites identified than Alternative A or B. Cultural tourism assistance is the same as Alternative B.	The entire planning area would be reviewed for potential cultural landscape analysis, which is a greater geographic extent than the other alternatives and has the potential for planning area-wide impacts. Cultural tourism would still be supported under this alternative, but to a slightly lesser extent than Alternatives B and C, as BSWI communities would initiate requests, which is less proactive than the community support in Alternatives B and C.	Four to six communities would be targeted for landscape reports, which have greater benefits to cultural resources in terms of acreages surveyed and sites identified than Alternative A or B. Cultural tourism assistance is the same as Alternative B.

Notes:

1) State top-filings that become valid selections due to ANCSA corporation selections being relinquished or rejected will be managed like all other State selections. Alternatives that recommend revocation of 17(d)(1) withdrawals where the withdrawal prevents State selections would allow for the State selections to become valid once revocation is complete. These lands would be managed like all other State selections.

2) Percentages refer to total areas of medium and high LMP on BLM-managed land in the planning area.

3) Percentages refer to BLM-managed lands in the planning area.

Effects from Alternative A

Under Alternative A, land status classifications that limit surface-disturbing activity would avoid and minimize impacts to cultural resources in certain areas. Cultural resources in areas of VRM Class I and II designations, ACECs, and WSRs would benefit from the land use limitations imposed by the management actions applied to these classifications. Under Alternative A, approximately 14 percent of BLM-managed land within the planning area is managed with these classifications (see Table 3.2.10-2 for specific acreages), as the majority of the planning area manages impacts to cultural resources on a project-level basis, which has the potential to result in long-term effects to cultural resources.

Surface-disturbing actions would be avoided or minimized in these areas, reducing the potential for sites to be damaged or destroyed. Indirect effects, particularly in VRM Class I and II areas, would be limited as well, as actions could only introduce up to a low level of change to the characteristic landscape that could alter the historic or culturally significant setting or feeling of cultural resource sites. Management prescriptions in Alternative A are generally less extensive (fewer acres) than those proposed in Alternative B or C but are, in most cases, greater than under Alternative D or E.

Actions that open more land to the possibility of surface-disturbing activity, such as locatable mineral extraction, ROW location, and recreational use, could have adverse effects on cultural resources (Table 3.2.10-2). Areas open to the possibility of locatable mineral development on high and medium potential lands represent a small percentage of BLM-managed lands (2 percent); however, these areas are also high potential areas for cultural resources, including historic mining sites, and the potential for long-term permanent impacts remains. Alternative A would have more acres open to potential locatable mineral development in areas of medium to high LMP than Alternative B and therefore a higher likelihood for

associated adverse impacts on cultural resources. However, Alternative A would have fewer potential impacts from locatable mineral development than Alternative C, D, or E, because it would open fewer areas to the possibility of locatable mineral development in areas of medium to high LMP. Under all alternatives, over half of the acreage open to the possibility of locatable mineral development in areas of medium to high LMP would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected. Other specific restrictions, such as lands subject to OHV limitations, are not specified under Alternative A. Cultural resources could be impacted by the development of new trails and travel corridors or by the ongoing use by OHVs of existing trails and off-trail areas that have not yet been subject to cultural resources surveys.

Less quantifiable impacts could occur to cultural resources from management actions under Alternative A. For example, Alternatives B, C, D, and E each establish the INHT NTMC, a designation which serves to avoid and minimize impacts on cultural resources by controlling the type of uses and volume of people and development in the corridor. The NTMC is not designated in Alternative A, which could lead to impacts on cultural resources in the trail corridor due to the lack of restrictions that would otherwise be imposed with this designation. There is also no defined support for BSWI communities in Alternative A regarding cultural landscape analyses and cultural tourism assistance. BLM actions on these topics are more clearly defined in Alternatives B, C, D, and E. The lack of specificity on certain management actions under Alternative A results in an increased potential for adverse impacts on cultural resources when compared with the other alternatives.

Effects Common to All Action Alternatives

Applicable regulations and BMPs listed in Appendix O would be applied to all surface-disturbing activities as appropriate. These processes serve to avoid and minimize direct or indirect impacts on cultural resources by requiring surveys, as deemed appropriate, in advance of action.

Wildland fire management activities would be common across all action alternatives. Fire suppression activities that occur would be prioritized to avoid and minimize impacts on cultural resources. Each action alternative also involves completing cultural resource surveys, as deemed appropriate, in advance of suppression and rehabilitation actions, which could lead to an increased number of sites identified and protected.

Effects from Alternative B

Alternative B would generally have fewer potential adverse impacts to cultural resources when compared with the other alternatives. There would be fewer acres available for the possibility of surface-disturbing activities, such as mineral development or ROW location. Recreation along the INHT would be managed within the INHT SRMA to achieve desired outcomes, benefits, and setting, thereby reducing the potential for direct and indirect effects. Managing CFZs to promote subsistence use would limit use within these areas, thereby limiting potential for destruction, looting, or inadvertent damage to cultural resources in those areas. There are more acres proposed as special designations, such as lands managed for wilderness characteristics as a priority, WSRs, and ACECs, than in the other alternatives (Table 3.2.10-2), which allows for fewer potential surface-disturbing actions and more controlled uses that avoid and minimize impacts to cultural resources. Alternative B would manage more area as VRM Class II, including a 15-mile buffer around Flat, which would minimize any visual intrusions of new projects near the historic community. The ACECs in Alternative B that meet the relevance and importance criteria for cultural resources would have cultural resource management decisions prescribed to avoid and minimize impacts

on cultural values (see Appendix N). ACECs are managed as NSO for structures such as cell towers and cabins, which would minimize impacts to cultural resources by minimizing surface disturbance.

Cultural resource management decisions under Alternative B would identify high probability areas for cultural resource surveys and actions that could increase the number of known cultural sites in the planning area that would benefit from protective measures. Alternative B offers support for BSWI communities to develop cultural landscape reports and promotes collaboration on cultural tourism development. Collectively, the geographic extent of adverse effects on cultural resources is less under Alternative B than under Alternative A, C, D, or E.

Effects from Alternative C

Effects on cultural resources in Alternative C are (in some instances) comparable to those under Alternative B. For example, Alternative C maintains the same cultural resource management decisions that involve defining areas of high cultural resource potential and prioritizing those areas for cultural resources surveys. Alternative C also offers more support to BSWI communities by identifying additional communities where cultural landscape analyses would occur.

A key difference between Alternatives B and C is that under Alternative C more acres would be available for the possibility of surface-disturbing activity that could impact cultural resource sites. There are more than twice the high and medium mineral potential acres open for locatable mineral development under Alternative C when compared with Alternative B (though over half of this acreage would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected). These areas often have high potential for historic-era cultural resources, and management actions under Alternative C could increase the potential for damage or destruction of cultural resources in those areas. Lands open for ROW location also nearly double under Alternative C, and the land designations that serve to minimize and avoid impacts on cultural resources would be less than in Alternative A. Alternative C would include CFZs to promote subsistence use that would limit use within these areas, thereby limiting potential for destruction, looting, or inadvertent damage to cultural resources. These areas would be smaller than Alternative B and therefore minimize impacts in a smaller geographic area. There would be no ACECs under Alternative C; Alternative C would maintain some management actions to minimize impacts to identified R&Is. Such management includes NSO for externally proposed structures and leasable mineral development and VRM Class II designation for areas with cultural R&Is. Alternative C would have fewer total acres managed as VRM Class II compared to Alternative B and would manage the 15-mile buffer around the historic community of Flat as VRM Class III. This would allow a moderate level of change to the characteristic landscape, which could result in adverse impacts to the historic community at Flat, depending on the nature and type of any proposed development. There are fewer restrictions on OHV use when compared with Alternative B. This translates into more acres in Alternative C, but less than in Alternative D.

Effects from Alternative D

Alternative D generally allows uses that have the potential to adversely impact cultural resources on more acres than Alternative A, B, or C, but less than E. More acres are open to the possibility of actions that involve surface-disturbing activities that could indirectly and adversely affect cultural resources. All areas of high and medium LMP on BLM-managed land in the planning area would be open to the possibility of locatable mineral development under Alternative D, which is more than Alternatives A and B and the same as Alternatives C and E. Under all alternatives, over half of the acreage open to locatable mineral

development in areas of medium to high LMP would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected. More acres would be open for the possibility of ROW location when compared to Alternatives B and C, although less than Alternative A or E. Alternative D would have no ROW exclusions and fewer acres of ROW avoidance areas than Alternatives B and C; it would have more acreage of ROW avoidance areas than Alternative E. Depending on the types of permitted activities, these actions have the potential to result in adverse and permanent effects on cultural resources compared to Alternatives B and C. The effects could be direct through the destruction and damage to cultural sites from mining or ROW development activities that involve surface-disturbing activity. Effects could also be indirect by introducing more people and more access into areas that could result in inadvertent trampling of sites or increase potential for site looting.

The VRM Class I and II acreage is lower than Alternatives B and C, and the 15-mile buffer around Flat is VRM Class IV instead of Class II (Table 3.2.10-2). The VRM Class IV designation would contribute to an increased chance of indirect effects by allowing a high level of change to the characteristic landscape, which could adversely affect the setting and feeling of historic and culturally sensitive sites. Alternative D includes fewer limits on activities that could result in surface disturbance. As with Alternative C, there are no areas proposed to be managed for lands with wilderness characteristics as a priority and no ACECs, and the single WSR would be the existing designation of the Unalakleet River. The proposed management prescriptions on lands in the planning area increases the potential for direct and indirect effects, as it allows for more surface-disturbing activities to occur.

Less quantifiable actions such as recreation also increase the potential for adverse direct and indirect effects on cultural resources or lower the potential for beneficial outcomes related to increasing the number of sites identified and expanding the awareness of cultural resources. When compared with the more quantifiable aspects noted above, there is less difference between the action alternatives. Alternative D allows for more potential recreation uses with less permitting oversight (particularly as no CFZs would be applied), an action that provides less opportunity to influence number of users and modes of transportation and limits recreation development, which could affect cultural resources. This could result in more site damage or destruction and other effects based on the potential for increased users in areas where cultural resources could exist. Unlike Alternative A (which has no special recreation management area designations), this alternative proposes the INHT NTMC at a similar extent to Alternatives B and C and has the same recommendations as Alternatives B and C with respect to the identification of high potential areas to target for cultural resources surveys.

Cultural resource actions associated with assisting BSWI communities allow for the consideration of areas throughout the planning area for cultural landscape analysis, which is more expansive than the select communities in Alternatives B and C. The assistance for developing cultural tourism efforts for communities is less in Alternative D, but more than Alternative A. These actions would lead to more identified sites and could result in more sites designated for scientific use.

Alternative D has greater potential for adverse impacts to cultural resources when compared to Alternatives B and C; it provides more clarity than Alternative A in terms of acres open or closed for certain uses, and is generally more protective of cultural resources than Alternative E. In some respects, Alternative D could lead to better and more proactive cultural resource management when compared to Alternative A, as the areas where surface-disturbing activities could occur would be more defined and could then be targeted for cultural resource actions such as sensitivity modeling and cultural resources surveys in advance of authorizing further potential uses.

Effects from Alternative E

Alternative E generally allows for the possibility of surface-disturbing uses that have the potential to adversely impact cultural resources on more acres than the other alternatives. More acres would be open for the possibility of ROW location (93 percent of BLM-managed land in the planning area) when compared to Alternative B, C, or D. Alternative E would not include ROW exclusion zones, and would have substantially less acreage of ROW avoidance areas than Alternative B, C, or D. More than 99 percent of BLM-managed land in the planning area would be open to the possibility of locatable mineral development, which is more than Alternatives A and B and the same as Alternatives C and D. This greater openness carries correspondingly greater potential to result in adverse and permanent effects on cultural resources compared to Alternatives B, C, and D. The effects could be direct through the destruction and damage to cultural sites from surface-disturbing activity. Effects could also be indirect by introducing more people and more access into areas that could result in inadvertent trampling of sites or increase potential for site looting.

Acreages and effects relating to VRM Class I and II, commercial woodland harvest, and management actions applied to special designations such as ACECs and WSRs would be similar to Alternative C. Recreation management effects pertaining to the INHT and CFZs would be the same as under Alternative C.

Under Alternative E acres identified as HVW would be the same as under Alternative D; management actions that apply to HVWs would only apply to the 100-year floodplain. These areas would not include ROW avoidance, which would incrementally increase the potential for ROWs to be located in these areas, which would increase the potential for adverse impacts to cultural resources under Alternative E.

Alternative E also identifies additional communities where cultural landscape analyses would occur, the same as Alternative B.

Due to acres open for the possibility of development activities, Alternative E has the highest potential for adverse impacts to cultural resources when compared to Alternative B, C, and D; it provides more clarity than Alternative A in terms of acres open or closed for certain uses.

Cumulative Effects

Past and Present Actions

Past and present actions in the planning area are primarily related to historic mining in the Iditarod Mining District and other areas. Increased population resulting from mining also resulted in the accelerated use of natural resources to support the growing communities, particularly forest resources used for construction and heating. The increase in exploration and development of mines (and other resources) led to further infrastructure development, such as roads connecting population centers to mining areas and local roads and trails serving hunting and resource allocation for local communities. These actions created many of the cultural resources that are now being analyzed for impacts, such as historic mine remains and historic trails, like the INHT. These activities also likely resulted in adverse effects on cultural resources, but the degree of these effects is not quantifiable.

Recreation and subsistence activities are the most prevalent current land use in the planning area. Use of the INHT has increased over time and has contributed both to an increased knowledge of the trail's

historic significance and to more direct and adverse effects on the trail and associated historic resources, such as shelter cabins and roadhouses. Trend: Degrading.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative A)

Reasonably foreseeable future actions that could affect cultural resources are primarily related to the ongoing development of the Donlin Gold Project and the potential for additional exploration and development of locatable minerals in the planning area. Many of the locatable minerals are co-located with mining districts that contain sites, artifacts, objects, and features related to historic mining in the region. This type of development has the potential for direct and indirect impacts on cultural resources due to the inherent surface-disturbing nature of these activities.

Infrastructure developments to communities also present a relatively higher potential for impacts on cultural resources, since they would be occurring in the vicinity of the historical development described above. Development of roads and other transportation routes would be allowable under the alternatives of this plan, and such development, where it occurs, could result in direct impacts on cultural resources from additional surface disturbance, as well as indirect impacts, such as visual impacts of a new road corridor in an area that previously had no visible development. Given the dispersed and minimal existing infrastructure across much of the planning area, any proposed ROW corridors are likely to be long and pass through areas known to contain cultural resources. Trend: Degrade at a greater rate.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative B)

Cumulative impacts to cultural resources can occur through incremental degradation of the overall resource base throughout the planning area from any of the management actions and decisions that have the potential to impact cultural resources as described in this section. While loss of one or two sites could have a negligible impact on the entire resource base, ongoing activity across the resource area would, on balance, be expected to cumulatively and adversely affect the resource base. This is because cultural resources are non-renewable; once damaged, the information value of the sites could be damaged or lost. In this way, resource use that has been evaluated as having the potential to cause direct or indirect impacts on cultural resources would contribute to the cumulative degradation of these resources over time.

Impacts that are minor after one individual occurrence can cumulatively lead to larger direct effects over time. For example, one individual visiting a historic cabin or walking through a prehistoric surface lithic scatter may have no effect on that resource, whereas repeated visits over time would likely result in damage to or loss of that resource. Site looting is another example of cumulative site-specific impacts. One visitor may only take one artifact, but over time, if each visitor takes away a part of the site, long-term and irreversible impacts could occur to that site. Resource uses, such as recreation planning, that could result in increased use of an area could inadvertently cause long-term effects on cultural resources. Trend: Resource condition would degrade but at a lesser rate than Alternative A.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative C)

Cumulative impacts and resource trends on a planning area scale would be similar to Alternative B, although considered as a whole the resource condition would, depending on the types of activities occurring, be expected to degrade at a slightly greater rate due to a higher level of potential development. Trend: Resource condition would degrade but at a lesser rate than Alternative A and greater than Alternative B.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative D)

Cumulative impacts and resource trends on a planning area scale would be the same as Alternative B, although considered as a whole the resource conditions would, depending on the types of activities occurring, degrade at a slightly greater rate than Alternative B or C due to a higher level of potential development. Trend: Resource condition would degrade but at a lesser rate than Alternative A and greater rate than Alternatives B and C.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative E)

Cumulative impacts and resource trends on a planning area scale would be the same as Alternative B, although considered as a whole the resource conditions would, depending on the types of activities occurring, degrade at a greater rate than Alternative B, C, or D due to a higher level of potential ROW development. Trend: Resource condition would degrade but at a lesser rate than Alternative A and greater rate than Alternative B, C, or D.

3.2.11 Paleontological Resources**Affected Environment**

Paleontological resources are any fossilized remains, traces, or imprints of organisms, preserved in or on the earth's crust, that are of paleontological interest and that provide information about the history of life on earth. The occurrence of paleontological resources is closely tied to the geologic units (e.g., beds, formations, or members) that contain them.

Potential paleontological resource impacts are determined at the geologic unit level. The BLM's Potential Fossil Yield Classification (PFYC) system (BLM 2016d) ranks geologic units by their potential to contain significant paleontological resources. Significant paleontological resources are generally vertebrate fossils but may in rare instances consist of rare or particularly significant invertebrate and plant fossils. The PFYC system is the primary means for assessing potential impacts to paleontological resources and is one of the initial criteria used to help determine whether field surveys are required for land management decisions. The PFYC Classes are listed in Table 3.2.11-1. Geologic units with potential fossil occurrences within the planning area are shown on Map 3.2.3-4.

Table 3.2.11-1: Potential Fossil Yield Classification Description

PFYC	Characteristics
Class 1 – Very Low	Igneous or metamorphic units; units that are Precambrian or older.
Class 2 – Low	Sedimentary units where significant fossils are unlikely; generally younger than 10,000 years before present; recent aeolian.
Class 3 – Moderate	Sedimentary geologic units where fossil content varies in significance, abundance, and predictable occurrence.
Class 4 – High	Geologic units that are known to contain a high occurrence of significant fossils.
Class 5 – Very High	Highly fossiliferous geologic units that consistently and predictably produce significant paleontological resources.
Class U – Unknown	Geologic units that cannot receive an informed PFYC assignment; fossils could be present, but there is insufficient knowledge about the unit.

Planning area PFYC assignments are depicted in Map 3.2.11-1. The majority of the planning area falls under Class U “unknown” or Class 3 “moderate” potential for significant fossils (BLM 2016d). Little work has been done to inventory fossil occurrences on BLM-managed public lands in the planning area. The documented fossil record within the planning area is largely a byproduct of mining activity. Known

locations are clustered around mining districts. Fossils recovered range from early Paleozoic to late Pleistocene in age. The absence of known fossil localities in any given region of the planning area could be the result of a lack of investigation, survey, and inventory, rather than a true absence of paleontological sites.

The current management trend for paleontological resources in the planning area is toward continued scientific research and increased opportunities for environmental education and interpretive use.

Resources farther from populated areas are not, in large measure, adversely affected by human activity. However, all areas of fossil-bearing sedimentary rocks are trending toward increased recreational use, and protection of paleontological resources is subject to the limits of the availability of resource staff and law enforcement monitoring. There is the potential for paleontological resources to be illegally removed or damaged in the future.

Direct and Indirect Effects

Direct effects are typically adverse and permanent, since discovery typically occurs during activities that disturb the subsurface; once the resource is disturbed, it is either destroyed or the geological context is diminished. Conversely, it is by virtue of such impacting activities that discoveries are often made, and scientific knowledge increased. Indirect effects could be created by increasing access to areas with fossil remains, which could result in looting or vandalism activities of significant fossils. Overall, actions associated with other resources that restrict sub-surface activities would result in beneficial effects (less chance of disturbance) to any paleontological resources that could be present. Conversely, actions that result in the potential for increased acreages to be subject to surface- and subsurface-disturbing activities would increase the probability of adverse impacts on paleontological resources. Table 3.2.11-2 below summarizes the types of effects that could occur to paleontological resources, the management actions that could cause those effects, and the indicators used to measure those effects. Table 3.2.11-3 discloses the potential magnitude and extent of the effects across alternatives.

Table 3.2.11-2: Summary of Potential Effects to Paleontological Resources by Management Action

Types of Effects	Management Actions	Indicators
Paleontological resources could be destroyed or permanently damaged by actions that involve surface-disturbing activity.	• Locatable, Salable, and Leasable Mineral Decisions • Lands and Realty Decisions • Recreation and Visitor Services Management Decisions • Hazardous Material Cleanup Decisions	• Acres of high or medium potential open to mineral development • Acres of potential ROW authorization • Areas subject to recreation decisions regarding access, number of people, and facility development (qualitative) • Acres open to OHV use without limitations • Areas subject to hazardous material cleanup
Actions that limit or restrict surface-disturbing activity that could destroy paleontological resources or indirectly effect paleontological resources would have positive and beneficial impacts on these resources. Paleontological resource surveys, if required, would lead to increased number of sites identified and would allow for the consideration of impacts on newly discovered sites that are currently not known.	• Wildfire Management Decisions • Travel and Transportation Management Decisions • Management Actions Applied to Lands with Wilderness Characteristics Managed as a Priority, ACECs, National Trails, WSRs • Lands and Realty Decisions • Support for BSWI Communities	• Areas subject to paleontological resource evaluation prior to fuels reduction actions and areas near known paleontological resources targeted for fire prevention actions (qualitative) • Areas identified for paleontological resource survey, number of sites designated for scientific use (qualitative) • Acres of ACECs (see Appendix N for full list of management actions) • Acres of suitable and designated WSRs • Acres of lands managed for wilderness characteristics as a priority

Table 3.2.11-3: Portions of Planning Area Analyzed for Potential Impacts to Paleontological Resources by Indicator

Resource Indicator	Alternative A ¹	Alternative B ¹	Alternative C ¹	Alternative D ¹	Alternative E ¹
Acres open to locatable mineral development in areas of medium to high LMP	294,325 acres (52%) ³	167,018 acres (30%) ³	565,489 acres (100%) ³	565,489 acres (100%) ³	565,489 acres (100%) ³
Acres open to locatable mineral development in areas of medium to high LMP segregated due to selection ²	195,632 acres (35%) ³	100,426 acres (18%) ³	317,531 acres (56%) ³	317,531 acres (56%) ³	317,531 acres (56%) ³
Open to mineral leasing subject to standard stipulations	8,246,152 acres (61%)	2,460,649 acres (18%)	6,555,476 acres (49%)	13,182,385 acres (98%)	9,356,398 acres (69%)
Open to ROW location	13,465,894 (100%)	3,105,905 acres (23%)	5,785,178 acres (43%)	8,302,241 acres (62%)	12,542,918 acres (93%)
Areas subject to recreation decisions that increase access, number of people, and development of support facilities (qualitative)	Impacts remain low due to lack of recreation facilities or plans to develop such facilities in this alternative.	Recreation use within the INHT SRMA (355,799 acres) would be managed to maintain recreation setting characteristics and minimize potential for damage to paleontological resources located within the INHT. Managing CFZs to promote subsistence use within a 15-mile radius of communities would limit use and potential for inadvertent harm of paleontological resources near communities.	Same as Alternative B, but the SRMA would be reduced to 340,574 acres and the CFZ would be reduced to a 5-mile radius surrounding BSWI communities.	Beneficial impacts within the SRMA would be the same as Alternative C. There would be no CFZ applied around BSWI communities.	Same as Alternative C.
Areas identified for additional paleontological resource survey (qualitative)	Requires compliance with FLPMA, NEPA, and the Paleontological Resources Preservation Act.	High priority areas for paleontological sites would be identified and more sites would be identified and designated for scientific use. More acres would be surveyed proactively than under Alternative A.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.
Areas managed to protect lands with wilderness characteristics as a priority	No acres specified	277,489 acres (2%)	0 acres (0%)	0 acres (0%)	0 acres (0%)
Lands designated ACEC	1,884,376 acres (14%)	3,912,698 acres (29%)	0 acres (0%)	0 acres (0%)	0 acres (0%)
WSR acres eligible, suitable, or designated	- Designated: 46,953 acres (<1%) - Eligible: 332,176 acres (2%)	- Designated: 46,953 acres (<1%) - Recommended Suitable: 332,176 acres (2%)	Designated: 46,953 acres (<1%)	Designated: 46,953 acres (<1%)	Designated: 46,953 acres (<1%)
ROW exclusion areas:	No acres specified	1,464,069 acres (11%)	0 acres (0%)	0 acres (0%)	0 acres (0%)
ROW avoidance areas:	No acres specified	8,895,920 acres (66%)	7,528,863 acres (56%)	5,163,653 acres (38%)	509,798 acres (4%)
ROW avoidance areas for linear realty actions	No acres specified	0 acres (0%)	151,853 acres (1%) ¹	0 acres (0%)	413,179 acres (3%)

Note:

1) Acreages and percentages are approximate and, except where noted otherwise, refer to BLM-managed lands in the planning area.

- 2) State top-filings that become valid selections due to ANCSA corporation selections being relinquished or rejected will be managed like all other State selections. Alternatives that recommend revocation of 17(d)(1) withdrawals where the withdrawal prevents State selections would allow for the State selections to become valid once revocation is complete. These lands would be managed like all other State selections.
- 3) Percentage is based on total acres of medium and high LMP on BLM-managed land in the planning area.

Effects from Alternative A

Under Alternative A, impacts to paleontological resources would be avoided or minimized in certain areas due to land status classifications that limit the possibility of surface- and subsurface-disturbing activity. Paleontological resources in ACECs and WSR corridors would benefit from the land use limitations imposed by these classifications (see Table 3.2.11-3 for specific acreages). Surface- and subsurface-disturbing actions would be avoided or minimized in these areas, and there would be less potential for resources to be damaged or destroyed. Management actions to avoid and minimize impacts to paleontological resources in Alternative A are generally less prevalent and extensive (fewer acres limited) than those proposed in Alternative B or C but are, in most cases, greater than under Alternative D or E.

Actions that involve opening more land to surface- and subsurface-disturbing activity would increase the potential for detrimental effects on paleontological resources. Similarly, other specific acreages of lands with management prescriptions, such as those subject to OHV limitations, are not specified under Alternative A. Paleontological resources in these scenarios could be impacted by the development of new trails and travel corridors or ongoing use by OHVs of existing trails that have not yet been subject to paleontological resources surveys

Effects from Alternative B

Effects from Alternative B on paleontological resources are generally less than the other alternatives. There are fewer acres available for the possibility of surface-disturbing activities such as mineral development or ROW location. Recreation along the INHT would be managed within the INHT SRMA to achieve desired outcomes, benefits, and setting, thereby reducing the potential for direct and indirect effects.

Managing CFZs to promote subsistence use would limit use within these areas, thereby limiting potential for destruction, looting, or inadvertent damage to paleontological resources in those areas. There are more acres with special designations, such as lands managed to protect wilderness characteristics as a priority, WSRs, and ACECs, than in any of the other alternatives, which allows for fewer surface-disturbing actions that could impact paleontological resources due to the management actions applied to these designations.

Less-quantifiable beneficial effects are also more prevalent in Alternative B. Paleontological resource management decisions under this alternative include the identification of high probability areas for paleontological resource survey and actions that could lead to an increase in the number of known paleontological resource locations in the planning area that would benefit from protective measures. Collectively, the geographic extent of beneficial actions for paleontological resources is greater in Alternative B than in Alternative A, C, D, or E.

Effects from Alternative C

Effects on paleontological resources in Alternative C would in some instances be comparable to those under Alternative B. Alternative C would include the same paleontological resource management decisions that involve defining areas of high paleontological resource potential as Alternative B.

Key differences between Alternatives B and C include more acres available for the possibility of surface- and subsurface-disturbing activity when compared with Alternative B (Table 3.2.11-3). There would be nearly twice the high- and medium-potential acres available for potential locatable mineral development under Alternative C compared with Alternative B (though over half of this acreage would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected). Alternative C would represent an increased potential for damage or destruction of paleontological resources in those areas. Lands open for the possibility of ROW location would nearly double under Alternative C, and there would be fewer special designations that serve to avoid and minimize impacts to paleontological resources than in Alternative B. There would be no ROW exclusion areas, fewer acres of ROW avoidance, no ACECs, and no areas managing wilderness characteristics as a priority. Alternative C would maintain management actions to minimize impacts to the R&I values of undesignated potential ACEC areas proposed for designation under Alternative B. Such management includes NSO for externally proposed structures and leasable mineral development and VRM Class II or III designation, which would limit surface-disturbing activities through limits to allowable change in the landscape. There would also be fewer restrictions on OHV use when compared with Alternative B. Overall, under Alternative C, there would be more acres available for potentially surface disturbing activities such as ROW development, OHV use, and locatable mineral extraction, therefore it allows for the possibility of a greater degree of damage to or destruction of paleontological resources compared to Alternative B, but less than in Alternative D or E.

Effects from Alternative D

Alternative D generally prioritizes uses that, when they occur, have a higher potential to adversely impact paleontological resources. More acres would be open to the possibility of surface- and subsurface-disturbing activities that could damage, destroy, or indirectly and adversely affect paleontological resources. All areas of high and medium LMP would be open to the possibility of locatable mineral entry under Alternative D (though over half of this acreage would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected). The acreage open to locatable mineral entry under Alternative D is more than Alternatives A and B and the same as Alternatives C and E. Alternative D would have no ROW exclusions, fewer acres for ROW avoidance areas, and more acres open to new ROW than Alternatives B and C. Depending on the type and extent of development activity that is permitted, these actions have the potential to result in long-term, adverse effects on paleontological resources. The effects could be direct, through the destruction and damage to paleontological sites from surface-disturbing activity. Effects could also be indirect; each of these actions could introduce more people and more access into areas, potentially leading to looting or vandalism.

Under Alternative D, there would be fewer acres with special designations that serve to avoid and minimize impacts to paleontological resources, compared to Alternative B, although it would be similar to Alternative C. Lands with wilderness characteristics would not be managed with that as a priority, nor would ACECs be designated. The single WSR would be the existing designation of the Unalakleet Wild River Corridor. Therefore, Alternative D increases the potential for direct and indirect effects because it allows for surface- and subsurface-disturbing activities to occur over a larger area.

Alternative D would allow more recreation uses with less permitting oversight (particularly as no CFZs would be applied), which would increase the potential for direct and indirect effects by having less opportunity to influence number of users and modes of transportation and restrict areas from recreation development. This could, depending on the extent of activities that occur, result in more resource damage or destruction and other effects based on increased users in sensitive areas.

Alternative D has greater potential for adverse impacts to paleontological resources when compared to Alternatives B and C and less potential than Alternative E. It provides more clarity than Alternative A in terms of acres open or closed for certain uses. Alternative D could lead to better and more proactive paleontological resource management when compared to Alternative A, as the areas where surface- and subsurface-disturbing activities could occur would be more defined and could be targeted for resource actions such as sensitivity modeling and paleontological resources surveys in advance of authorizing further uses.

Effects from Alternative E

Effects from Alternative E would be similar to those from Alternative D, although the acreage open to the possibility of ROW location would increase from 8,302,241 acres under Alternative D to 12,542,918 acres under Alternative E, which is also greater than the other action alternatives. Areas open to ROW development carry a higher risk for damage or destruction to paleontological resources than areas where this use is limited.

Alternative E would have the same CFZ acreage as Alternative C, as well as the same VRM decisions and OHV restrictions. Acres open to the possibility of locatable mineral development is the same as Alternatives C and D. Alternative E would have more acres open to leasable mineral development subject to standard stipulations than Alternatives A, B, and C, but fewer than Alternative D.

There would be no areas proposed to be managed as lands with wilderness characteristics as a priority and no potential ACECs. The single WSR would be the existing designation of the Unalakleet Wild River Corridor. Therefore Alternative E increases the potential for direct and indirect effects because it allows for surface- and subsurface-disturbing activities to occur over a larger area.

Cumulative Effects

Past and Present Actions

Past and present actions in the planning are primarily related to historic mining throughout the planning area in the Iditarod Mining District and other areas. Increased population based on mining also results in the accelerated use of natural resources to support the growing communities, particularly forest resources used for construction and heating. The increase in exploration and development of mines (and other resources) leads to further infrastructure development, such as roads connecting population centers to mining areas and local roads and trails serving hunting and resource allocation for local communities. These activities likely result in adverse impacts on paleontological resources, but the degree of these effects is not quantifiable.

Subsistence and recreational activities are the most prevalent current land use on BLM-managed land in the planning area. Past and present subsistence use also has likely increased the incremental damage to sites from actions such as multiple visitations and site looting or continued use of trails and subsequent erosional issues. Trend: Degrading.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative A)

Reasonably foreseeable future actions that could affect paleontological resources are primarily related to the ongoing development of the Donlin Gold Project and the potential for additional exploration and development of locatable minerals in the planning area. Many of the locatable minerals are co-located

with mining districts that contain paleontological resources. This type of development has the potential for direct and indirect impacts on paleontological resources due to the inherent surface- and subsurface-disturbing nature of these activities.

Infrastructure developments in communities also present a high potential for impacts on paleontological resources. Any development of roads and other transportation routes would result in additional surface disturbance, including direct impacts on paleontological resources and indirect impacts, such as erosion or site looting, based on increased visitation. The proposed ROW corridors are long and pass through areas known to contain paleontological resources. Trend: Degrading.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative B)

Cumulative impacts to paleontological resources could occur through incremental degradation of the overall resource base throughout the planning area from any of the management actions and decisions that have the potential to impact paleontological resources. While loss of one or two sites could have a negligible impact on the entire resource base, ongoing activity across the resource area would, on balance, be expected to cumulatively and adversely affect the resource base. This is because paleontological resources are non-renewable; once damaged, the information value of the sites could be severely damaged or lost. In this way, resource use that has been evaluated as having the potential to cause direct or indirect impacts on paleontological resources would contribute to the cumulative degradation of these resources over time.

Impacts that are minor after one individual occurrence can cumulatively lead to larger direct effects over time. Site looting is an example of a cumulative site-specific impact. A visitor may only take a single fossil, but over time, if each visitor takes away a part of the site, long-term and irreversible impacts could occur to that site. Resource uses, such as recreation planning, that could result in increased use of an area could inadvertently cause long-term effects on paleontological resources. Trend: Resource condition would degrade but at a lesser rate than Alternative A.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative C)

Cumulative impacts and resource trends on a planning area scale would be similar to Alternative B, although considered as a whole the resource conditions would, depending on the types of activities occurring, degrade at a slightly greater rate due to allowing for the possibility of a higher level of development. Trend: Resource condition would degrade but at a lesser rate than Alternative A and greater than Alternative B.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative D)

Cumulative impacts and resource trends on a planning area scale would be similar to Alternative C, although considered as a whole the resource conditions would, depending on the types of activities occurring, degrade at a slightly greater rate due to allowing for the possibility of a higher level of development. Trend: Resource condition would degrade but at a greater rate than Alternative A, B, or C.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative E)

Cumulative impacts and resource trends on a planning area scale would be similar to Alternative C, although considered as a whole the resource conditions would, depending on the types of activities occurring, degrade at a greater rate due to allowing for the possibility of a higher level of development,

particularly ROW development. Trend: Resource condition would degrade but at a greater rate than Alternative A, B, C or D.

3.2.12 Visual Resources Management

Affected Environment

A VRI of the planning area was completed in March 2018 (BLM 2018e). The scenic quality, sensitivity, distance zone, and resulting VRI distribution for the planning area is summarized in Maps 3.2.12-1 through 3.2.12-4. More information is also available in the Visual Resource Inventory for the Bering-Sea–Western Interior Planning Area (BLM 2018e). VRI Class is assigned based on the outcome of inventory of scenic quality, visual sensitivity, and visual distance zone, with Class I being the most valued.

Direct and Indirect Effects

Table 3.2.12-1 below summarizes the nature and types of beneficial or adverse effects that could occur to visual resources, the proposed management actions that could influence those effects, and the indicators used to measure the potential magnitude and extent of the effects. Table 3.2 discloses the potential magnitude and extent of the effects by indicator, across alternatives.

The nature and type of potential effects to visual resources as described in Table 3.2.12-2 could have the potential to impact ORVs within a WSR corridor, affect wilderness characteristics of naturalness, affect R&Is of ACECs, and alter the integrity and setting of the INHT. Visual sensitivity could also be impacted if activities that would alter the landscape character occur in areas identified to have high visual sensitivity. Activities that would alter landscape character within the foreground/middleground distance zone would be the most visible because visibility would be highest in those areas. Regardless of what type of activity is allowed or restricted by a management action, all activities in the planning area would still have to be consistent with the underlying VRM class, which would provide the allowable level of change to existing landscape character. Therefore, the primary indicator for all types of impacts to visual resources is the VRM class.

Table 3.2.12-1: Summary of Potential Effects to Visual Resources by Management Action

Types of Potential Effects	Management Actions	Indicators
Removal of vegetation through commercial, casual, or subsistence woodland product harvesting could impact visual values by modifying form, line, color, and texture of the landscape by reducing the amount and type of vegetation in the landscape	- Forestry and Woodland Product Decisions - VRM Class Designations	VRM Class (acres) overlaid with scenic quality rating, sensitivity rating, visual distance zone, and VRI class
Allowance or restriction of new ROW could impact visual values by introducing new form, line, color, and texture to the landscape through vegetation removal and resulting linear forms and lines that contrast the existing landscape that was previously characterized by curvilinear and amorphous shapes.	- ROW Decisions - VRM Class Designations	VRM Class (acres) overlaid with scenic quality rating, sensitivity rating, visual distance zone, and VRI class
Mineral development could result in large areas of vegetation removal and soil exposure and new infrastructure such as roads, pipelines, lighting, employee housing, and support structures.	- Mineral Decisions - VRM Class Designations	VRM Class (acres) overlaid with scenic quality rating, sensitivity rating, visual distance zone, and VRI class
Continuation and addition of new OHV travel throughout the planning area could result in visual impacts by creating ruts, disturbing vegetation, and exposing soils.	- Travel and Transportation Management Decisions - VRM Class Designations	VRM Class (acres) overlaid with scenic quality rating, sensitivity rating, visual distance zone, and VRI class

Types of Potential Effects	Management Actions	Indicators
Designating areas for special management, such as ACECs, WSRs, and the NTMC, could all have the potential to minimize or avoid impacts to visual resources by limiting or prohibiting activities that could modify form, line, color, and texture such as mining activity, overland OHV use, new ROW, and other surface-disturbing activity.	• Management Actions Applied to Designated ACECs • Areas Identified as Suitable WSR Corridors • Areas of Designated WSR Corridor • Areas Designated as the NTMC • VRM Class Designations	• VRM Class (acres) overlaid with scenic quality rating, sensitivity rating, visual distance zone, and VRI class

Table 3.2.12-2: Visual Resources Inventory and Management Classes by Alternative

VRM RMP Alternative	Total Planning Area (acres)												
	Scenic Quality Rating			Sensitivity Rating			Distance Zones			VRI Class			
Alternative A	A	B	C	High	Med	Low	F/M	B	SS	I	II	III	IV
VRM Class I	0	0	46,953	46,953	0	0	45,294	0	1,660	46,953	0	0	0
Undesignated ¹	418	5,913,646	7,504,774	3,856,820	4,382,332	5,179,687	1,793,433	852,509	10,772,896	0	486,358	1,760,036	11,172,445
Total 13,465,894	418	5,913,646	7,551,728	3,903,774	4,382,332	5,179,687	1,838,726	852,509	10,774,556	46,953	486,358	1,760,036	11,172,445
Alternative B	A	B	C	High	Med	Low	F/M	B	SS	I	II	III	IV
VRM Class I	363	470,509	864,896	1,146,630	124,153	64,984	640,733	115,043	579,992	46,953	272,042	394,893	621,879
VRM Class II	55	2,251,911	4,238,051	2,748,993	1,623,268	2,117,757	724,298	560,174	5,205,546	0	214,086	950,817	5,325,115
VRM Class III	0	1,871,796	1,644,257	6,488	1,930,550	1,579,014	473,681	110,848	2,931,524	0	230	413,864	3,101,959
VRM Class IV	0	1,319,430	804,524	1,662	704,360	1,417,931	15	66,444	2,057,495	0	0	462	2,123,492
Total 13,465,894	418	5,913,646	7,551,728	3,903,773	4,382,331	5,179,686	1,838,727	852,509	10,774,557	46,953	486,358	1,760,036	11,172,445
Alternative C	A	B	C	High	Med	Low	F/M	B	SS	I	II	III	IV
VRM Class I	0	0	46,953	46,953	0	0	45,924	0	1,660	46,953	0	0	0
VRM Class II	418	1,016,720	1,749,081	2,206,916	119,938	439,366	665,753	289,312	1,811,154	0	390,660	746,310	1,629,249
VRM Class III	0	2,723,951	3,371,810	1,351,115	3,188,432	1,556,215	1,127,654	282,530	4,685,578	0	95,695	960,036	5,040,031
VRM Class IV	0	2,172,975	2,383,883	298,790	1,073,962	3,184,106	26	280,667	4,276,165	0	2	53,690	4,503,166
Total 13,465,894	418	5,913,646	7,551,728	3,903,773	4,382,331	5,179,686	1,838,727	852,509	10,774,557	46,953	486,358	1,760,036	11,172,445
Alternative D	A	B	C	High	Med	Low	F/M	B	SS	I	II	III	IV
VRM Class I	0	0	46,953	46,953	0	0	45,294	0	1,660	46,953	0	0	0
VRM Class II	373	279,249	399,930	679,541	10	0	402,772	49,665	227,114	0	219,170	244,066	216,315
VRM Class III	0	3,115,628	3,024,595	2,311,388	3,155,837	672,998	1,390,628	460,369	4,289,226	0	267,139	1,364,569	4,508,516
VRM Class IV	45	2,518,769	4,080,250	865,891	1,226,484	4,506,688	33	342,475	6,256,556	0	49	151,400	6,447,614
Total 13,465,894	418	5,913,646	7,551,728	3,903,773	4,382,331	5,179,686	1,838,727	852,509	10,774,557	46,953	486,358	1,760,036	11,172,445
Alternative E	A	B	C	High	Med	Low	F/M	B	SS	I	II	III	IV
VRM Class I	0	0	46,953	46,953	0	0	45,294	0	1,660	46,953	0	0	0
VRM Class II	418	983,357	1,661,587	2,086,058	119,938	439,366	657,977	279,953	1,707,432	0	382,884	720,724	1,541,754
VRM Class III	0	2,659,885	3,149,593	1,068,660	3,188,434	1,552,384	1,135,428	245,151	4,428,899	0	103,470	889,992	4,816,016
VRM Class IV	0	2,270,409	2,693,601	702,106	1,073,963	3,187,941	29	327,406	4,636,575	0	4	149,321	4,814,685
Total 13,465,894	418	5,913,652	7,551,734	3,903,777	4,382,335	5,179,691	1,838,728	852,510	10,774,566	46,953	486,358	1,760,037	11,172,455

Notes:

1) Totals of VRM and VRI are slightly different. This is due to the misalignment of the BSWI boundary (7/31/2017) and the BLM-managed lands information (BLM_Managed_BSWI_Diss_20160831) used for the analyses. VRI was built using the BSWI boundary as the constraint, then it was clipped to BLM-managed lands. VRM was built using BLM-managed lands as the constraint; VRM = 13,465,894 acres; VRI = 13,465,804 acres; Intersect between VRM and VRI = 13,465,792 acres

2) Per the SWMFP (BLM 1981), Alternative A also manages seen areas of the Unalakleet River outside the Wild River Corridor as VRM II. These areas are not considered mappable and therefore do not have acreage reported. Analysis presented in Chapter 3 accounts for this management direction.

Effects from Alternative A

Under Alternative A, the Unalakleet Wild River Corridor (46,953 acres) would continue to be managed as VRM Class I, which would continue to avoid and minimize impacts to visual values of the river corridor, consistent with existing management direction. The remaining 13,418,941 acres of BLM-managed land in the planning area would continue to have no VRM class designation; however, seen areas of the Unalakleet River outside the Wild River Corridor would be managed as VRM II. Project proposals determined to be located within the seen area would be required to comply with VRM Class II objectives, thereby minimizing viewshed related impacts to the Unalakleet Wild River. Outside of areas managed per VRM objectives, any proposed development would be evaluated on a project-specific basis. Absence of a VRM class designation could allow major modifications to the existing character of the landscape in the up to 13,418,941 undesignated acres.

Approximately 98 percent of the areas inventoried to have high sensitivity and 100 percent of the 418 acres inventoried to have a Scenic Quality Rating A (high) would remain without VRM class designation under Alternative A. About 98 percent of areas within the foreground/middleground distance zone would remain without VRM class designation. Therefore, Alternative A could, depending on the types of activities that may be permitted, result in high magnitude impacts in recreation and tourism areas (e.g., INHT, Flat), locations with cultural identity (Pike Lake, INHT), viewsheds of adjacent national and State parks characterized by high sensitivity, and areas surrounding communities where landscape character could factor strongly into sense of place. High magnitude impacts could also result in areas, such as the Rohn area (including the INHT), identified as having Class A scenic quality. Lack of VRM class designations in the foreground/middleground distance zone from common travel routes such as primary rivers (Anvik, Yukon, Kuskokwim, and Unalakleet), INHT and Race Route (including public shelter cabins), summer/winter routes, safety cabins, the coastline, and Old Woman Mountain could result in higher visibility of impacts from these locations if projects were developed. Alternative A would designate 100 percent of lands inventoried as VRI Class I as VRM Class I.

Effects Common to All Action Alternatives

All the action alternatives would have the same VRM class designations for the following:

- 5-mile offset from centerline of summer and winter travel routes (VRM Class III)
- 3 miles inland from coastlines (VRM Class III)
- 5-mile offset from centerline of main river travel routes, including the Yukon, Anvik, Unalakleet, and Kuskokwim Rivers (VRM Class III)
- Subsistence Use Areas inventoried as Scenic Quality A (VRM Class II)
- Subsistence Use Areas inventoried as Scenic Quality B or C (VRM Class III)

These VRM class designations could be superseded by more stringent VRM class designations for other overlapping resources in the management actions specific to each management alternative, shown in Table 2-9a. The values in Table 3.2.12-3 take all management actions for VRM class designations into consideration. The following sections quantify impacts to sensitivity, scenic quality, distance zones, and VRI class, which include the above management actions common to all action alternatives.

All action alternatives would also incorporate BMPs and SOPs to reduce visual contrast on individual projects and actions by emphasizing design elements that mimic existing form, line, color, and texture of the existing surrounding landscape.

Effects from Alternative B

Under Alternative B, of the 3,903,774 acres of BLM-managed land inventoried to have high sensitivity in the planning area, 29 percent would be managed as VRM Class I (e.g., INHT, Unalakleet Wild River Corridor, Old Woman Mountain) and 70 percent would be managed as VRM Class II (Communities, INHT, Unalakleet [below the WSR corridor to the mouth], Pike Lake, viewsheds of adjacent national and State parks, and the Community of Flat). Less than 1 percent of high sensitivity areas would be managed as VRM Class III and IV and would coincide with primary rivers (travel routes). Of the 418 acres inventoried to have Scenic Quality Rating A (high), 363 acres would be managed as VRM Class I. Although this acreage represents less than 0.01 percent of the planning area, it also coincides with the Rohn segment of the INHT that was identified to have high visual sensitivity. Therefore, Alternative B would avoid and minimize impacts to this scarce resource within the planning area by managing it as VRM Class I, which allows only very low changes to the characteristic landscape that do not attract attention. The remaining 55 acres inventoried to have Scenic Quality Rating A would be managed as VRM Class II. Therefore, Alternative B would result in negligible impacts to sensitivity and scenic quality because areas inventoried with high sensitivity and high scenic quality would be managed to allow up to low changes to the characteristic landscape. For lands within the foreground/middleground distance zone, 35 percent would be managed as VRM Class I, 39 percent would be managed as VRM Class II, and 26 percent would be managed as VRM Class III or IV. Therefore, the majority of lands within the foreground/middleground distance zone where visibility would be highest would only be allowed to have up to low changes to the characteristic landscape. Alternative B would designate nearly all VRI Class I lands as VRM Class I. Therefore, Alternative B would result in low magnitude impacts to visual resources, particularly with respect to scenic quality and visual sensitivity, as compared to Alternatives C, D, and E.

Effects from Alternative C

Under Alternative C, the Unalakleet Wild River corridor (46,953 acres) would be managed as VRM Class I. Approximately 1 percent of BLM-managed land inventoried to have high sensitivity in the planning area would be managed as VRM Class I, and 57 percent managed as VRM Class II. These areas correspond to the INHT, the Unalakleet Wild River Corridor to the mouth, Pike Lake, and viewsheds of adjacent national and State parks. All lands inventoried as Scenic Quality Rating A (high) would be managed as VRM Class II. Alternative C would manage 39 percent of lands within the foreground/middleground distance zone as VRM Class I or II. Therefore, the majority of lands within the foreground/middleground distance zone where visibility would be highest would be allowed to have moderate-to-high levels of change to the characteristic landscape. Alternative C would manage all VRI Class I lands as VRM Class I and 80 percent of VRI Class II lands as VRM Class II. Therefore, Alternative C would minimize impacts on visual resources through proposed VRM designations. Alternative C would provide the same visual resources protections as Alternative E and greater protections to visual resources compared to Alternative D, but lesser visual resources protections compared to Alternative B.

Effects from Alternative D

Under Alternative D, the Unalakleet Wild River corridor (46,953 acres) would be managed as VRM Class I. Approximately 19 percent of BLM-managed land inventoried to have high sensitivity in the planning area would be managed as VRM Class I or II, corresponding to the INHT and the Unalakleet Wild River Corridor. Approximately 89 percent of lands inventoried as Scenic Quality Rating A (high) (Rohn area) would be managed as VRM Class II. Alternative D would manage 24 percent of lands within the foreground/middleground distance zone as VRM Class I or II. Therefore, the majority of lands within the foreground/middleground distance zone where visibility would be highest would, depending on the types of activities permitted, allow for the possibility of moderate-to-high levels of change to the characteristic landscape. Alternative D would manage all VRI Class I lands as VRM Class I and 45 percent of VRI Class II lands as VRM Class II. Therefore, Alternative D would minimize impacts to scenic quality and overall visual values but would not provide substantial protections for areas with high sensitivity or high visibility (foreground/middleground distance zone). Alternative D would provide fewer protections to visual resources than Alternative B, C, or E but more than Alternative A.

Effects from Alternative E

Alternative E would have the same percent of managed VRM Class I lands and similar geographic extent of visual resources protections as Alternative C. Under Alternative E, the Unalakleet Wild River Corridor (46,953 acres) would be managed as VRM Class I, the same as Alternative C. Approximately 1 percent of BLM-managed land inventoried to have high sensitivity in the planning area would be managed as VRM Class I, and 53 percent would be managed as VRM Class II. These areas correspond to the INHT, the Unalakleet Wild River Corridor to the mouth, Pike Lake, and viewsheds of adjacent national and State parks. Alternative E would manage 38 percent of lands within the foreground/middleground distance zone as VRM Class I or II. Therefore, similar to Alternative C, the majority of lands within the foreground/middleground distance zone where visibility would be highest would, depending on the type of activities permitted, allow for the possibility of moderate-to-high levels of change to the characteristic landscape. Alternative E would manage all VRI Class I lands as VRM Class I and 79 percent of VRI Class II lands as VRM Class II, slightly less than Alternative C. Therefore, as with Alternative C, Alternative E would minimize impacts on visual resources through proposed VRM designations. Alternative E would provide similar visual resources protections as Alternative C, greater protections to visual resources compared to Alternative D, but lesser visual resources protections compared to Alternative B.

Cumulative Effects

Past and Present Actions

Because of the remoteness of the planning area and relatively minimal level of development, there is a low potential for change in visual resource values, and landscape character remains stable. Trend: Stabilized.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative A)

Reasonably foreseeable future actions that could affect visual values primarily include mining activity and potential transportation corridors. The Donlin Gold Project would result in localized impacts to visual values, but the geographic extent of the impacts would be limited due to the large scale of the landscape and topography. The majority of the planning area would not have a VRM designation, so the allowable

change to the landscape would be high. However, due to the remoteness of the planning area and the limited reasonably foreseeable future actions under consideration, major landscape changes are not anticipated throughout the planning area. Trend: Counter the existing trend by slightly degrading visual values in the planning area.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative B)

Alternative B would manage over half of the planning area as VRM Class I or II. This would avoid and minimize impacts to visual values over a much larger geographic extent than Alternative A, which is primarily undesignated. Due to localized impacts associated with reasonably foreseeable future actions and increased protections for visual values through VRM designations, changes to the landscape on a planning level are not anticipated. Since almost half of the planning area could be subject to moderate or major change to the characteristic landscape, the overall visual resource condition could, depending on the location and extent of permitted activities proposed, degrade, although to a lesser potential extent than under Alternative A. Trend: Slightly degrade, although less than Alternative A.

Past, Present, and Reasonably Foreseeable Future Actions (Alternatives C and E)

Alternatives C and E would designate the majority of VRI Class I and II lands as VRM Classes I and II. Alternatives C and E would designate 28 percent and 27 percent, respectively, of the planning area as VRM Class I or II, compared to 58 percent under Alternative B. Since over half of the planning area could be subject, depending on the location and extent of permitted activities which were proposed, to the possibility of moderate or major change to the characteristic landscape, the resource condition could degrade, although to a lesser potential extent than Alternative A. Trend: Slightly degrade, although less than Alternative A.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative D)

The majority of the planning area would be managed as VRM Class III or IV. This would provide greater management of visual values than Alternative A but less than Alternative B, C, or E. However, due to the remoteness of the planning area and limited reasonably foreseeable future actions under consideration, visual impacts on the planning level-scale are not anticipated throughout the planning area. Trend: Counter the existing trend by slightly degrading visual values in the planning area (similar to Alternative A).

3.2.13 Lands with Wilderness Characteristics

Affected Environment

Previous planning documents did not provide special management for areas with wilderness characteristics. During this RMP planning process, as required by BLM policy, the BLM completed a comprehensive review of BLM-managed public lands within the planning area to determine if they possess wilderness characteristics (see Map 3.2.13-1). Results are documented in the BSWI RMP Wilderness Characteristics Inventory Report (BLM 2018e). This document is a comprehensive evaluation of wilderness characteristics on BLM-managed public lands in the planning area, as directed by Section 603 of FLPMA.

ANILCA Section 1320 exempts BLM lands in Alaska from FLPMA Section 603 but authorizes BLM to conduct wilderness studies periodically. Under both ANILCA and current policy, the BLM would not

complete formal wilderness studies as outlined in Section 603 of FLPMA, designate any new or additional wilderness study areas, or make recommendations to Congress regarding wilderness suitability. However, it would maintain an inventory of lands with wilderness characteristics.

The evaluation of wilderness characteristics was performed on 13,466,118 acres, which was the size of the BLM-managed land in the planning area at the time the survey was completed. A total of 13,373,454 acres met the size criteria of at least 5,000 continuous acres. All lands that met the size criteria were also found to contain naturalness, because – as is the case for most BLM-managed lands across Alaska – the human-made features throughout the area are largely unnoticeable. The inventory also showed that all areas that met the size criteria had outstanding opportunities for solitude or a primitive and unconfined type of recreation, again a characteristic that is found across almost all BLM-managed lands in Alaska. The total percentage of lands that contain wilderness characteristics within the planning area is 99.3 percent.

According to BLM RMP guidance found in 43 CFR 1610, BLM RMPs and amendments must be consistent, to the extent practical, with officially approved or adopted resource-related plans of state and local governments, other federal agencies, and tribal governments so long as the guidance and RMPs are also consistent. Because there is no current management direction for wilderness characteristics on BLM-managed public lands within the planning area, there is no basis to determine consistency of BLM wilderness characteristics with neighboring landowners. Therefore, consistency would be accomplished in the RMP by incorporating the wilderness characteristics policies, programs, and provisions of public land laws and regulations as directed by the BLM RMP guidance found in 43 CFR 1610.3-2(b).

In general, almost all BLM-managed lands in Alaska demonstrate wilderness characteristics, but managing for those characteristics – due to their prevalence in Alaska – is far less typical than for similar lands in other BLM states.

Direct and Indirect Effects

Table 3.2.13-1 below summarizes the nature and types of beneficial or adverse effects that could occur to lands with wilderness characteristics, the proposed management actions that could influence those effects, and the indicators used to measure the potential magnitude and extent of the effects. Table 3.2.13-2 discloses the potential magnitude and extent of the effects by indicator, across alternatives.

Table 3.2.13-1: Summary of Effects to Lands with Wilderness Characteristics by Management Action

Types of Effects	Management Actions	Indicators
Management actions allowing uses inconsistent with maintaining wilderness characteristics, including, but not limited to, vehicle and/or motorized equipment use, visible surface disturbance or loud, repetitive noise, would result in the loss of naturalness and solitude near the activity, thereby decreasing acres of lands with wilderness characteristic equal to the acreage of the authorization.	• Lands with Wilderness Characteristics Decisions • Commercial Woodland Harvest Decisions • Locatable and Salable Mineral Decisions	• Acres of lands with wilderness characteristics that would be open to mineral location and entry within areas of medium or high mineral potential • Acres of lands with wilderness characteristics that would be open to ROW authorizations • Acres of lands with wilderness characteristics that would be available for exchange or disposal
Management actions consistent with VRM Class III and IV could result in a loss of naturalness, thereby decreasing acres of lands with wilderness characteristics.	• Lands with Wilderness Characteristics Decisions • VRM Class Designations	• Acres of lands with wilderness characteristics land managed as VRM Class III and IV

Types of Effects	Management Actions	Indicators
Mineral location and entry activities would introduce increased human presence and activity, noise, and changes to the visual landscape through grading, mining, and additional infrastructure, which could reduce wilderness characteristics, including naturalness and/or outstanding opportunities for solitude or primitive and unconfined types of recreation.	- Lands with Wilderness Characteristics Decisions - Leasable Mineral Decisions	- Acres of lands with wilderness characteristics not managed to protect wilderness character as a priority - Acres of lands with wilderness characteristics that would be open to mineral location and entry within areas of medium or high mineral potential
ROW authorizations could lead to visual changes to the landscape and allow additional access that could result in a loss of naturalness and/or outstanding opportunities for solitude or primitive and unconfined types of recreation.	- ROW Decisions - Wind Energy Development - Permits and Leases	- Acres of lands with wilderness characteristics not managed to protect wilderness character as a priority - Acres of lands with wilderness characteristics that would be open to ROW authorizations
Disposal of lands with wilderness characteristics could decrease naturalness and reduce outstanding opportunities for solitude or primitive and unconfined types of recreation.	- Lands with Wilderness Characteristics Decisions - Disposals	- Acres of lands with wilderness characteristics managed to protect wilderness character as a priority - Acres of lands with wilderness characteristics that would be available for exchange or disposal

Table 3.2.13-2: Portions of Planning Area Analyzed for Potential Impacts to Lands with Wilderness Characteristics by Indicator

Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Acres of lands with wilderness characteristics managed to protect wilderness character as a priority	0 acres	277,489 acres (2%) ¹	0 acres	0 acres	0 acres
Acres of lands with wilderness characteristics open to locatable mineral development in areas of medium to high LMP	293,741 acres (2%)	163,147 acres (1%) ¹	557,018 acres (4%) ¹	557,018 acres (4%) ¹	557,018 acres (4%) ¹
Acres of lands with wilderness characteristics open to locatable mineral development in areas of medium to high LMP segregated due to selection ²	195,632 acres (1%) ¹	97,139 acres (<1%) ¹	309,643 acres (2%) ¹	309,643 acres (2%) ¹	309,643 acres (2%) ¹
Acres of lands with wilderness characteristics that would be open to ROW authorizations	No current ROW management	3,081,794 acres (23%) ¹	5,745,033 acres (43%) ¹	8,233,520 acres (62%) ¹	12,469,021 acres (93%) ¹
Acres of lands with wilderness characteristics that would be available for exchange or disposal	None identified	274,461 acres (exchange) (2%) ¹	289,043 acres (exchange) (2%) ¹	375,932 acres (disposal or exchange) (3%) ¹⁻²	289,043 acres (exchange) (2%) ¹
Acres of lands with wilderness characteristics land managed as VRM Class III and IV	0 acres	5,631,380 acres (42%) ¹	10,597,079 acres (79%) ¹	12,652,077 acres (94%) ¹	10,707,106 acres (80%) ¹
Acres of lands with wilderness characteristics open for wind energy development in areas with "Good" resource potential or higher	No current management	463,184 acres (3%) ¹	463,184 acres (3%) ¹	463,184 acres (3%) ¹	463,184 acres (3%) ¹

Notes:

1) Percentage based on all lands inventoried as lands with wilderness characteristics in the planning area.

2) State top-filings that become valid selections due to ANCSA corporation selections being relinquished or rejected will be managed like all other State selections. Alternatives that recommend revocation of 17(d)(1) withdrawals where the withdrawal prevents State selections would allow for the State selections to become valid once revocation is complete. These lands would be managed like all other State selections.

Effects from Alternative A

Under Alternative A, the BLM would not specifically manage lands to protect wilderness characteristics. Potential development on or adjacent to lands with wilderness characteristics would generally decrease naturalness and opportunities for solitude and primitive recreation due to increased surface disturbance, increased human presence and infrastructure, noise, and introduction of additional access routes to natural

resources. Potential OHV and other surface-disturbing vehicle use on lands with wilderness characteristics, including from wildland fire management activities, recreation, or other overland travel, could impact naturalness and opportunities for solitude and primitive recreation due to potential increase in human and vehicle presence, noise, soil compaction, and vegetation trampling. Vehicle impacts, if they are repetitive, severe, and unmanaged, could last 20 to 50 years after the activity ceases, and impacts from development projects could persist for decades after the activity ceases, depending on the level of reclamation that is performed. However, such impacts would be mitigated and minimized by BLM using the BMPs/SOPs in Appendix O.

Effects Common to All Action Alternatives

Under all the action alternatives, the planning area would be designated “Limited.” The specific management prescriptions within the “Limited” designation (e.g., vehicle weight, vehicle width) would be developed as part of a travel and transportation plan that would be completed by the BLM subsequent to this RMP. Impacts to naturalness on lands with wilderness characteristics from the action alternatives could be reduced compared to Alternative A by limiting vehicle use to smaller, lighter, and quieter vehicles than are currently used, which would reduce the possibility of the occurrence of soil compaction, vegetation trampling, and noise compared to existing conditions.

Any potential linear projects would be co-located within existing ROW to the maximum extent possible under all the action alternatives. Co-location is a best practice that would reduce impacts to the naturalness of lands with wilderness characteristics by reducing unnecessary surface disturbance. Under all the action alternatives, no permits or leases would be granted for private recreational cabins unless allowable under future regulation or policy, and existing trespass cabins would be removed, permitted, or turned into government administrative sites. Removing existing trespass cabins could enhance opportunities for solitude and primitive recreation on lands with wilderness characteristics. Under all action alternatives, range improvements would be allowed, except in areas managed as NSO for permanent structures associated with surface-disturbing activities.

Effects from climate change on lands with wilderness characteristic would generally be the same for all alternatives, including Alternative A. The warming trend experienced over the last 50 years has not been shown to be a cause in altering the quality of wilderness character in any regions of the planning area.

Effects from Alternative B

Under Alternative B, 277,489 acres (about 2 percent) of the planning area would be managed to protect wilderness characteristics as a priority over other resource values and multiple uses. Wildland fire management would be implemented without OHVs, heavy equipment, or other surface-disturbing vehicles and would be managed consistent with BLM Manual 6340 (BLM 2012b) or subsequent guidance to avoid and minimize impacts to wilderness characteristics. Wildland fire management would result in impacts similar to Alternative A, but to a lesser extent due to the prohibition of use of certain types of equipment that would result in greater noise and vegetation impacts.

Under Alternative B, 163,147 acres of lands with wilderness characteristics would be open to mineral development in areas with medium or high LMP and could incur impacts to naturalness, solitude, and opportunities for primitive recreation from mineral development (Table 3.2.13-2).

Development within any new ROW on or adjacent to lands with wilderness characteristics could result in impacts to naturalness and opportunities for solitude and primitive recreation due to additional surface

disturbance, noise, and human development and activity. Lands managed for wilderness characteristics as a priority would be ROW avoidance areas under Alternative B, and there would be additional ROW avoidance areas as well as ROW exclusion areas for reducing impacts to other resources. Taking these areas into account, there would be a total of 3,081,794 acres (about 23 percent of BLM land in the planning area) of lands with wilderness characteristics under Alternative B open to new ROW, less than for Alternatives C and D. There would be 463,184 acres of lands with wilderness characteristics (about 3 percent of BLM land in the planning area) open for wind energy development in areas with “Good” (level 4) resource potential or higher. Wind energy development would affect naturalness by introducing industrial energy facilities into an otherwise natural landscape.

Under Alternative B, lands managed to protect wilderness characteristics as a priority would not be considered for disposal; however, 274,461 acres of lands with wilderness characteristics would be available for exchange under Alternative B (lands where wilderness characteristics were not managed as a priority), which could decrease naturalness and reduce outstanding opportunities for solitude or primitive and unconfined types of recreation in those areas.

Under Alternative B, there would be 5,631,381 acres (42 percent of the planning area) of lands with wilderness characteristics managed as VRM Class III and IV. Facility construction would be limited to facilities that are consistent with the long-term management and preservation of wilderness characteristics. Therefore, under Alternative B, most of the planning area would have at least some management that would minimize impacts on wilderness characteristics.

Effects from Alternative C

Under Alternative C, the BLM would emphasize other resource values and multiple uses while applying management restrictions to reduce impacts on wilderness characteristics (8,125,183 acres) and emphasize other resource values and multiple uses as a priority (5,340,820 acres). Alternative C would provide some management that would avoid or minimize impacts on wilderness characteristics compared to Alternatives A and D, such as ROW avoidance and more acres designated as VRM Class II and III. Alternative C would have greater potential impacts to naturalness and opportunities for solitude and primitive recreation than Alternative B.

Under Alternative C, all ANCSA 17(d)(1) withdrawals would be revoked, removing existing management for lands with wilderness characteristics covered under these withdrawals from locatable mineral entry location and other uses. Under Alternative C, 557,018 acres of lands with wilderness characteristics would be open to mineral development in areas of medium or high LMP (though over half of this acreage would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected). Potential development of locatable and salable minerals on or adjacent to lands with wilderness characteristics would tend to decrease naturalness and opportunities for solitude and primitive recreation due to increased surface disturbance, increased human presence and development, noise, and development of additional access to mineral development sites.

Under Alternative C, 5,745,033 acres of lands with wilderness characteristics (about 43 percent of BLM land in the planning area) would be open to ROW, and the majority of lands with wilderness characteristics would be open to the possibility of structure construction. New ROW, leases, permits, or energy development, if it occurred on or adjacent to lands with wilderness characteristics, could result in the degradation of wilderness characteristics depending on the resulting development.

Under Alternative C, 289,043 acres of lands with wilderness characteristics (about 2 percent of BLM land in the planning area) would be available for exchange. Impacts to lands with wilderness characteristics from exchange would be the same for Alternative C as for Alternatives B and E. Under Alternative C, the same acreage of lands with wilderness characteristics would be open to wind energy development as Alternatives B, D, and E and would result in the same impacts described under Alternative B.

Potential land development has the greatest potential to increase landscape disturbance and therefore impact naturalness. Under Alternative C, there would be no VRM management prescriptions for lands with wilderness characteristics. Although 2,776,363 acres of lands with wilderness characteristics would be managed as VRM Class II under Alternative C, the majority of the lands with wilderness characteristics under Alternative C (10,597,079 acres; 79 percent) would be managed as VRM Class III and IV, which allows for moderate to high changes to the characteristic landscape. Under Alternative C, naturalness would have the same potential to be impacted as Alternative E but considerably more potential when compared to Alternative B.

Effects from Alternative D

Under Alternative D, the BLM would emphasize other resource values and multiple uses as a priority over wilderness characteristics. All ANCSA 17(d)(1) withdrawals would be revoked, removing existing protection for all lands with wilderness characteristics covered under these withdrawals from locatable mineral entry and salable mineral location and other uses. Under Alternative D, 557,018 acres of lands with wilderness characteristics would be open to the possibility of locatable mineral entry in areas with medium or high LMP; none would be withdrawn (though over half of the acreage open to locatable mineral entry in medium or high LMP would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected). The type of impacts to lands with wilderness characteristics from potential locatable and salable mineral development would be the same as those described for Alternative C and to the same geographic extent.

Under Alternative D, 8,233,520 acres of lands with wilderness characteristics would be open to the possibility of new ROW, 375,932 acres (about 3 percent of BLM land in the planning area) would be available for disposal or exchange, and most of the lands with wilderness characteristics would be open to the possibility of structure construction.⁷ The potential for new development within the planning area under Alternative D would result in the same types of impacts to lands with wilderness characteristics as for Alternative A. There would be no restrictions on wind development. As with Alternatives B, C, and E, 463,184 acres of lands with wilderness characteristics (about 3 percent of BLM land in the planning area) under Alternative D would be open for wind energy development in areas with “Good” (level 4) resource potential or higher. Therefore, Alternative D would have the same potential for impacts to wilderness characteristics from wind development as Alternatives B, C, and E.

Under Alternative D, there would be no VRM management prescriptions for lands with wilderness characteristics. The majority (95 percent) of lands with wilderness characteristics under Alternative D would be managed as VRM Class III and Class IV (12,652,077 acres), with only 721,365 acres of lands with wilderness characteristics managed as VRM Class II. Depending on the type and extent of any permitted activities, naturalness would have the potential to be impacted considerably more under Alternative D when compared to Alternatives B, C, and E because more acreage of lands with wilderness

⁷ Disposal would occur consistent with Secretarial Order 3373.

characteristics would be managed as VRM Class IV, under which development has the potential to result in a high level of change to the characteristic landscape.

Impacts to naturalness and opportunities for solitude and primitive recreation from potential noise, human presence, soil compaction, and vegetation trampling would likely be greater under Alternative D, compared to Alternatives B, C, and E.

Effects from Alternative E

Similar to Alternatives C and D, the BLM would emphasize other resource values and multiple uses as a priority over wilderness characteristics under Alternative E. Management that would avoid or minimize impacts on wilderness characteristics under Alternative E, such as more acres designated as VRM Class II and III, would be greater than for Alternatives A, C, and D. Effects on naturalness, solitude, and primitive recreation from ANCSA 17(d)(1) withdrawals and possible mineral development would be the same as described under Alternative C. In addition, acreage and impacts due to potential land exchanges and VRM management prescriptions would be the same for Alternative E as described under Alternative C.

Under Alternative E, the same acreage of lands with wilderness characteristics would be open to the possibility of wind energy development as identified for Alternatives B, C, and D and would result in the same potential impacts described under Alternative B. Alternative E would have the most acreage of lands with wilderness characteristics open to the possibility of ROW development compared to Alternatives B, C, and D. Under Alternative E, 12,469,021 acres of lands with wilderness characteristics (about 93 percent of BLM land in the planning area) would be open to ROW development, and the majority of lands with wilderness characteristics would be open to the possibility of structure construction. Therefore, Alternative E could, depending on the nature and extent of any potential development proposed, result in substantially more degradation of wilderness characteristics compared to Alternatives B, C, and D due to potential increased surface development.

Cumulative Effects

Past and Present Actions

The lack of development and access to the planning area has limited impacts to wilderness characteristics on BLM-managed lands in the planning area, resulting in almost the entire planning acreage possessing wilderness characteristics. Trend: Stabilized.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative A)

Trends of increased development (if/where it occurs), including mining and timber harvest, on or adjacent to lands with wilderness characteristics could affect naturalness and opportunities for solitude and primitive recreation. Reasonably foreseeable future actions include the Donlin Gold Project, other potential mineral development, access road development, and potential for new energy development, which would reduce acreage of lands with wilderness characteristics. Trend: Resource condition would degrade.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative B)

Trends of increased development (if/where it occurs) could affect naturalness and opportunities for solitude and primitive recreation. Reasonably foreseeable future actions include the Donlin Gold Project, other potential mineral development, access road development, and potential for new energy

development, which would reduce acreage of lands with wilderness characteristics. Under this alternative, a portion of the planning area would be managed for wilderness characteristics, and the acreage of lands with wilderness characteristics open to the possibility of various forms of development would be less than other alternatives. Trend: Resource condition would degrade but at a lesser rate than Alternative A.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative C)

Trends of increased development (if/where it occurs) could affect naturalness and opportunities for solitude and primitive recreation. Reasonably foreseeable future actions include the Donlin Gold Project, other potential mineral development, access road development, and potential for new energy development, which would reduce acreage of lands with wilderness characteristics due to an increase in lands open to the possibility of various forms of development; however, management prescriptions would minimize impacts to lands with wilderness characteristics over most of the planning area. Trend: Resource condition would degrade but at a lesser rate than Alternatives A, D, and E and greater rate than Alternative B.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative D)

Trends of increased development (if/where it occurs) could affect naturalness and opportunities for solitude and primitive recreation. Reasonably foreseeable future actions include the Donlin Gold Project, other potential mineral development, access road development, and potential for new energy development, which would reduce acreage of lands with wilderness characteristics due to the increase in lands open to the possibility of various forms of development. Trend: Resource condition would degrade but at a lesser rate than Alternative A and greater rate than Alternatives B, C, and E.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative E)

Trends of increased development (if/where it occurs) could affect naturalness and opportunities for solitude and primitive recreation. Reasonably foreseeable future actions include the Donlin Gold Project, other potential mineral development, access road development, and potential for new energy development, which would reduce acreage of lands with wilderness characteristics due to an increase in lands open to the possibility of various forms of development; however, management prescriptions would minimize impacts to lands with wilderness characteristics over most of the planning area. Trend: Resource condition would degrade but at a lesser rate than Alternatives A and D and greater rate than Alternatives B and C.

3.3 Resource Uses

3.3.1 Forestry and Woodland Products

Affected Environment

Of the approximately one quarter of Interior Alaska covered by forest, 7 percent could be considered commercial forest (forests capable of producing a minimum of 20 cubic feet of industrial wood per acre annually per Hutchison 1967). Commercial stands are typically a mix of white spruce (*Picea glauca*), paper birch (*Betula neoalaskana*), aspen (*Populus tremuloides*), and balsam poplar (*Populus balsamifera*). Productivity ranges from 3 to 18 cubic feet per acre (BLM 2015d). Limited historical forest inventory data are available to quantify the extent of commercial timber, although recently completed inventories have started to include more detailed forestry data suitable for quantifying commercial use.

Spruce beetle (*Dendroctonus rufipennis*) infestations were documented in the late 1990s and early 2000s, and impacted forest cover primarily in the Kenai Peninsula (ADNR 2018b; USDA Forest Service 2018); a more recent outbreak has occurred in the Matanuska-Susitna Borough, to the east of the planning area. Current and prior outbreaks have been attributed to warming winters that allow the species to overwinter increasing population size. Prior outbreaks resulted in an increase in the firewood industry from the increase in product resources from diseased trees. Current and future outbreaks would be expected to have similar effects on forest resources.

Subsistence

Indigenous peoples have used forest resources to meet subsistence needs, including food, heat, and shelter. Products include roots, seeds, cones, mosses, mushrooms, edibles, medicinals, feed, forage, floral, boughs, transplants, ornamentals, burls, saplings, branches, logs, and timbers. Subsistence use has been mainly wood harvest for fuel and shelter construction, as well as building materials for fish-drying racks, fish wheels, smoke houses, sweat houses and dog sleds. Firewood (driftwood) has been collected along the coast and inland rivers. Berries continue to provide a major subsistence dietary staple.

Location and level of subsistence use are impacted by accessibility. Most woodland products subsistence use, such as firewood and house logs, is within accessible State- and Native-selected lands near communities along major waterways. After land conveyance, less subsistence gathering occurred on BLM-managed public lands. All forest lands are currently open to subsistence harvest except crucial⁸ wildlife habitat and the eight RNAs within the 1986 CYRMP decision area. Free-use permits are not currently issued for subsistence use. Use is expected to continue in lands near communities under conveyance to ANCSA village corporations. Unregulated harvest quantity is not known but likely equivalent to or greater than the amount harvested under permit (BLM 2015d).

Commercial

Location and use level are impacted by accessibility and commercial vegetation type availability. Several portable sawmills are located in local communities, intermittently producing rough lumber for limited local demand. Between 1965 and 1968, 19 sales containing 897 thousand board-feet of timber (MBF) occurred in the Kuskokwim drainage (BLM 2015d). Additionally, 14 free-use permits containing 83 MBF were issued. BLM also made a sale of 311 MBF of white spruce located about 18 miles above Stony River with a local sawmill operator (Hegg and Sieverding 1979).

BLM has received limited commercial timber requests over the past 10 years. Nelson Brothers Enterprises, located in Chuathbaluk on the Kuskokwim River, operated a small commercial sawmill serving the local and downriver markets for rough-milled lumber from the 1970s until around 2007. In 2017, Napaimute Logging purchased the mill and moved it to near Lower Kalskag. Future operations could include wood from BLM-managed lands. In 2013, the village of Napaimute requested a timber sale from BLM but postponed the purchase until more accessible wood was harvested. The village has a 1,000-cord-per-year contract to deliver firewood to Bethel to pay for its wood harvesting machinery. With the purchase and restart of the sawmill, Napaimute Logging intends to begin delivering house packages as well as firewood further west in the basin.

⁸ “Crucial wildlife habitat” is an undefined term contained in the CYRMP (BLM 1986a).

Direct and Indirect Effects

Table 3.3.1-1 below summarizes the nature and types of beneficial or adverse effects that could occur to forestry and woodland products, the proposed management actions that could influence those effects, and the indicators used to measure the potential magnitude and extent of the effects. Table 3.3.1-2 discloses the potential magnitude and extent of the effects by indicator, across alternatives.

Table 3.3.1-1: Summary of Potential Effects to Forestry and Woodland Products by Management Action

Types of Effects	Management Actions	Indicators
Limiting or prohibiting OHV use could limit access to forest and woodland products.	Travel and Transportation Management Decisions	- Acres that are available and accessible for commercial woodland harvest - Acres that are available and accessible for subsistence and casual use gathering
Limiting or prohibiting commercial woodland or personal and subsistence use harvest in specific areas for management of other resources or special designation areas (e.g., HVWs, riparian areas, VRM Class I and II, WSR corridors, ACECs, lands managed for wilderness characteristics as a priority, and INHT NTMC) could limit the area available for harvest and/or result in restrictions on the method, timing, or location of harvest.	- Areas Open to Commercial Woodland Harvest Permitting - Areas Open to Personal Use and Subsistence Woodland Harvest Permitting - Woodland Harvest Permitting in HVWs - Woodland Harvest Permitting in the INHT NTMC - Woodland Harvest Permitting in ACECs	- Acres that are available and accessible for commercial woodland harvest permitting - Acres that are available and accessible for subsistence and casual use gathering
Vegetation management to maintain natural variation could result in enhanced or maintained conditions in forest and woodland habitat but could restrict future timber harvest.	Vegetation Management Decisions	Changes to vegetation cover types for species with commercial or subsistence use value
Fish and wildlife management decisions would include seasonal limitations on disturbance and vegetation clearing, which would result in seasonal, site-specific limits on forest product harvest.	Wildlife Management Decisions	- Acres that are available and accessible for commercial woodland harvest - Acres that are available and accessible for subsistence and casual use gathering
Commercial woodland harvest management decisions and management decisions on subsistence and casual use gathering would limit the area in which the harvest would occur.	- Areas Open to Commercial Woodland Harvest Permitting - Areas Open to Personal Use and Subsistence Woodland Harvest Permitting	- Acres that are available and accessible for commercial woodland harvest permitting - Acres that are available and accessible for subsistence and casual use gathering

Table 3.3.1-2: Portions of Planning Area Analyzed for Potential Impacts to Forestry and Woodland Products by Indicator

Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Acres that are available and accessible for commercial woodland harvest	• 11,882,094 acres¹ (88%)² open • No limitations in HVWs • No setback from SSS flora populations • Limitation around ACEC nesting sites • Limitations around VRM Class I, Unalakleet River areas³ • No limitations in lands with wilderness characteristics • Limitations in 1,583,751 acres (12%)² of RNAs and crucial wildlife habitat • 1,596,496 acres (12%)² unavailable due to overlap with ACECs • Site-specific limitations on INHT NTMC • No limitation specific to WSRs • 1,897,966 acres (14%)² in ACECs restricted for community management • No travel management restrictions, access to resources would be maintained	• 8,403,829 acres (62%)² open • 100-year floodplains of 21,682 RMs within HVWs unavailable • 300-foot setback from SSS flora populations • Timing and surface use limitations in and around migratory bird habitat and nests • 4,533,374 acres (34%)² open to commercial harvest limited by VRM Class I or II • 277,489 acres (2%)² unavailable due to lands with wilderness characteristics as a priority • 3,912,693 acres (29%)² unavailable due to ACEC designation • INHT NTMC unavailable to commercial woodland harvest • 46,953 acres (<1%)² of WSR unavailable	• 13,418,941 acres (>99%)² open • Health of 100-year floodplain of HVWs would be monitored to determine if the BLM would issue commercial woodland harvest or timber harvest permits in these areas • 100-foot setback from SSS flora populations • Timing and surface use limitations in and around migratory bird habitat and nests • 2,766,229 acres (21%)² open to commercial harvest limited by VRM Class I or II • 8,125,183 acres (60%)² of managed for multiple uses but to reduce impacts on lands with wilderness characteristics • INHT NTMC commercial woodland harvest permitted, but permits managed to maintain the nature and purpose of the INHT, and avoid substantial interference to the INHT nature and purpose • 46,953 acres (<1%)² of WSR unavailable	• 13,465,894 acres (100%)² open • Health of 100-year floodplain of HVWs would be monitored to determine if the BLM would issue commercial woodland harvest or timber harvest permits in these areas • Avoidance, minimization, or avoidance measures to minimize impacts on SSS species would be determined at the implementation level • Limitations in and around nesting sites determined at the implementation level • 726,507 acres (5%)² open to commercial harvest limited by VRM Class I or II • 0 acres (0%)² managed for multiple uses but to reduce impacts on lands with wilderness characteristics • INHT NTMC available for commercial woodland harvest, but permits managed to maintain the nature and purpose of the INHT, and avoid substantial interference to the INHT nature and purpose • No acres unavailable in WSR or WSR corridor	• 13,418,941 acres (>99%)² open • The BLM would issue permits for commercial woodland harvest following the normal permitting process, consistent with ongoing assessments of HVW health • 100-foot setback from SSS flora populations • Timing and surface use limitations in and around migratory bird habitat and nests • 2,645,370 acres (20%)² open to commercial harvest limited by VRM Class I or II • 0 acres (0%)² of managed for multiple uses but to reduce impacts on lands with wilderness characteristics • INHT NTMC available for commercial woodland harvest, but permits managed to maintain the nature and purpose of the INHT, and avoid substantial interference to the INHT nature and purpose • 46,953 acres (<1%)² of WSR unavailable

Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Acres that are available and accessible for subsistence and casual use gathering. Changes to vegetation cover types for species with commercial or subsistence use value	- No HVW restriction on harvest - All 13,465,894 acres would be available for subsistence and casual uses, allowing for continued access for house log and fuel wood harvesting - OHV use prohibited on 46,953 acres (1%)² 1,897,966 acres (14%)² of ACECs open for subsistence and casual uses with a permit - Provide for sustainable yields	- Casual use and subsistence woodland harvest would be allowed in HVWs through a permit, but house log harvesting would not be allowed in the riparian areas of streams 9,396,613 acres (70%)² unavailable for non-subsistence house log harvest 12,899,939 acres (96%)² available for OHV travel with casual use limits, 324,443 acres (2%)² available with subsistence use limits; casual OHV use prohibited on 565,955 acres (4%)² and subsistence OHV use prohibited on 241,512 acres (2%)² 46,953 acres (<1%)² of WSR and 332,176 acres (2%)² of WSR suitable corridor unavailable for harvest house logs for non-subsistence use - Prioritize removal of vegetation communities to maintain successional states	- Subsistence use gathering of forest firewood and forestry products in HVW would not require a permit, but house log harvesting would not be allowed in the riparian areas of streams 46,953 acres (<1%)² of WSR unavailable for non-subsistence house log harvesting 13,239,969 acres (98%)² available for OHV travel with casual use limits, 363 acres (<1%)² available with subsistence use limits, and casual OHV use prohibited on 225,925 acres (2%)² and subsistence OHV use prohibited on 225,925 acres (2%)² - Prioritize removal of vegetation communities to maintain successional states	- Subsistence use gathering of forest firewood and forestry products in HVW would not require a permit and house log harvesting would be allowed in riparian areas of streams - No permit required for personal and subsistence use - OHV travel limited to existing routes within 46,953 acres (<1%)² for casual use and within 225,925 acres (2%)² for subsistence use; no closures for subsistence OHV use 46,953 acres (<1%)² of WSR unavailable for non-subsistence house log harvesting - Prioritize removal of vegetation communities to maintain successional states	- Subsistence use gathering of forest firewood and forestry products in HVW would not require a permit, but house log harvesting would not be allowed in riparian areas of streams 46,953 acres (<1%)² of WSR unavailable for non-subsistence house logs harvesting 13,239,969 acres (98%)² available for OHV travel with casual use limits, 363 acres (<1%)² available with subsistence use limits, and casual OHV use prohibited on 225,925 acres (2%)² and subsistence OHV use prohibited on 225,925 acres (2%)² - Prioritize removal of vegetation communities to maintain successional states

Notes:

1) Acres for this category in Alternative A include areas identified as open and open on a case-by-case basis in previous management plans.

2) Percentage is based on all BLM-managed lands in the planning area.

3) Per the SWMFP (BLM 1981), Alternative A also manages seen areas of the Unalakleet River outside the Wild River Corridor as VRM II. These areas are not considered mappable and therefore do not have acreage reported. Commercial woodland harvest determined to be within the seen area of the Unalakleet Wild River, but outside the corridor, would be required to comply with VRM Class II objectives. VRM Class II directs allowable surface disturbance or development to minimize change in landscape character and therefore could have beneficial impacts to natural and cultural resources by limiting and regulating activities with the potential to result in impact.

Effects from Alternative A

Under Alternative A, permits for commercial harvesting of forestry and woodland products would continue to be considered in 11,882,094 acres (88 percent of the planning area). Commercial woodland harvest would be limited in specific areas (Table 3.3.1-2), such as ACECs, RNAs, and crucial wildlife habitat. Management prescriptions that would limit the availability of forestry and woodland products are generally less extensive than under Alternative B but are, in general, greater than under Alternatives C, D, and E. Limitations are lacking for HVWs, lands with wilderness characteristics, and WSRs (as seen in Alternative B), and there would be no travel and transportation management actions specified to limit access to resources.

All BLM-managed lands within the planning area would be available for subsistence and casual uses, allowing for continued access for house log and fuel wood harvesting. In addition, there would be no specific limits on OHV use, permitting access to resources.

Under Alternative A, management objectives would be to provide for sustainable yields of resources for use as firewood, house logs, poles, and other forest products and to maximize the opportunities for the harvest of forest products to support continued access to forest product harvest for commercial, subsistence, and casual uses.

Effects Common to All Action Alternatives

Under all action alternatives, removal of vegetation would be prioritized in such a way to help ensure a desired mix of successional states and to assist with maximizing revegetation success. This prioritization could result in site-specific limitations on commercial, subsistence, or casual use forest harvest or the need for long-term maintenance of forested vegetation types.

Effects from Alternative B

While currently there is not a high demand for commercial forestry or woodland products and there is not an anticipated increase in demand, Alternative B would open 8,403,829 acres (62 percent of the planning area) for possible permitted commercial use.

Commercial woodland harvest would be limited in specific areas (Table 3.3.1-2), such as 100-year floodplains within HVWs, lands where wilderness characteristics are managed as a priority, ACECs, the INHT NTMC, and WSRs (Unalakleet Wild River Corridor), and by managing acres available and accessible for subsistence and casual use gathering. Restrictions would result in greatest acreage of limitations to commercial forest and woodland products of any alternatives.

For subsistence and casual use, increased restrictions on harvest, including permit requirements, would apply beyond those required under Alternative A for the riparian areas of streams, ACECs, the entire geographies of HVWs, and areas managed for lands with wilderness characteristics as a priority. Additional acres (Table 3.3.1-2) would be specifically unavailable for non-subsistence house log harvest to protect sensitive resources but limiting access for this use. OHV restrictions would impact access, with acres varying for specific use (Table 3.3.1-2).

These management actions would limit the availability and accessibility of forestry and woodland products and are generally more extensive than under Alternatives A, C, D, and E.

Effects from Alternative C

While currently there is not a high demand for commercial forestry or woodland products and there is not an anticipated increase in demand, Alternative C would open 13,418,941 acres (over 99 percent of the planning area) for possible permitted commercial use.

Commercial woodland harvest would not be allowed in the Unalakleet Wild River Corridor. Managing areas available and accessible for subsistence and casual use gathering could potentially conflict with commercial woodland harvest activity. Acres with commercial woodland harvest limitations would be substantially reduced as compared to Alternative B, with 5,015,112 fewer acres closed to commercial woodland harvest.

For subsistence and casual use, increased restrictions on harvest would apply for the riparian areas of streams to protect sensitive resources, although to a lesser degree than under Alternative B. Personal use gathering of firewood would require a permit for more than 10 cords. OHV restrictions would be less than for Alternative B but would result in some limits to access to resources as noted for commercial harvest activities.

These management actions would limit the availability of forestry and woodland products and are generally more extensive under Alternative C than under Alternative D and similar to those under Alternative E.

Effects from Alternative D

While currently there is not a high demand for commercial forestry or woodland products and there is not an anticipated increase in demand, Alternative D would open 13,465,894 acres (100 percent of the planning area) for possible permitted commercial use.

There would be no areas closed to commercial woodland harvest. There would be no limitations in the riparian areas of streams, lands with wilderness characteristics, WSRs, or the INHT NTMC, and restrictions around SSS would include flexibility of implementation. Alternative D would have the most acreage available and accessible to the possibility of harvest of all the action alternatives. Most of the planning area would also be available and accessible for subsistence and casual use gathering (Table 3.3.1-2). No permits would be required for subsistence use, and limited OHV restrictions would apply.

These management actions could result in site-specific limits on the availability of forestry and woodland products, but impacts to those limits would be reduced in scale as compared with Alternatives A, B, C, and E.

Effects from Alternative E

While currently there is not a high demand for commercial forestry or woodland products and there is not an anticipated increase in demand, Alternative E would open 13,418,941 acres (over 99 percent of the planning area) for possible permitted commercial use.

Impacts under Alternative E would be similar to those under Alternative C. As under Alternative C, acres with commercial woodland harvest limitations would be substantially reduced as compared to Alternative B, with 5,015,112 fewer acres closed to commercial woodland harvest. Commercial woodland harvest would not be allowed in the Unalakleet Wild River Corridor.

As under Alternative C, increased restrictions on subsistence and casual use harvest would apply for riparian areas of streams to protect sensitive resources, and personal use gathering of firewood would require a permit for more than 10 cords. These restrictions would occur to a lesser degree than under Alternative B. OHV restrictions that could limit access to resources under Alternative E would be the same as under Alternative C, implemented to a greater degree than under Alternative D, and to a lesser degree than under Alternative B. As under Alternative C, managing areas available and accessible for subsistence and casual use gathering could conflict with potential commercial woodland harvest activity.

Cumulative Effects

Under Alternative A, the rate of replacement of spruce trees with hardwoods would increase due to climate change. Under Alternatives B, C, D, and E the rate of replacement of spruce trees with hardwoods due to climate change would be monitored and reduced.

Past and Present Actions

It is estimated that 25 percent of Interior Alaska is covered by low-to-moderate productivity non-commercial forest, which includes 7 percent commercial forest. Most of the subsistence activity in the planning area has been the harvesting of wood for fuel and shelter construction. There have been limited commercial timber requests since approximately 2008 that have intermittently produced lumber to satisfy small, local demand. Demand for small commercial sales for firewood, biomass, or local building use could increase slightly due to the recent availability of a mechanical harvester/processor in the Kuskokwim Basin. The greatest potential for wood use and forest management on BLM-managed land in the planning area in remote Alaska is biomass, though demand remains minimal. When fuel costs rise, demand for biomass fuel could increase. Trend: Demand increasing at slow rate.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative A)

Under Alternative A, the BLM would continue to permit the harvest of forest products under sustained yields, contributing to resource trends for continued or locally increased use. Future demand for woodland products would likely remain low. Trend: Continued increase use at a similar rate.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative B)

Under Alternative B, increased restrictions on commercial and subsistence harvest could provide minor cumulative contributions that would counter existing trends for continued or locally increased demand for certain forest products for biomass or firewood use. However, based on anticipated demand, levels of use are likely to remain low and cumulative contributions limited to a local basis. Trend: Existing trend would be countered, and demand would decrease.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative C)

Under Alternative C, increased restrictions on commercial and subsistence harvest could provide minor cumulative contributions that would counter existing trends for continued or locally increased demand for certain forest products for biomass or firewood use. However, based on anticipated demand, levels of use are likely to remain low and cumulative contributions limited to a local basis. Trend: Existing trend would be countered, and demand would decrease.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative D)

Under Alternative D, BLM management would result in the lowest level of restrictions on woodland harvest, which would provide minor cumulative contributions to resource trends by allowing continued or increased levels of harvest. However, based on anticipated demand, levels of use are likely to remain low and cumulative contributions limited to a local basis. Trend: Existing trend would continue to increase at a similar or slightly higher rate.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative E)

Under Alternative E, increased restrictions on commercial and subsistence harvest could provide minor cumulative contributions that would counter existing trends for continued or locally increased demand for certain forest products for biomass or firewood use. However, based on anticipated demand, levels of use are likely to remain low and cumulative contributions limited to a local basis. Trend: Existing trend would continue, and demand would be similar or show a slight increase.

3.3.2 Reindeer Grazing

Affected Environment

Alaska reindeer (also known as Chukotkan reindeer), are a subspecies of domesticated caribou introduced to the Seward Peninsula from Russia in 1891 to provide Alaska Natives economic development through an animal production system with a predictable red meat supply (Stern et al. 1980). Through domestication and selective breeding, reindeer and caribou have unique physical and behavioral differences. Both exhibit seasonal grazing patterns, but reindeer remain mostly within an established home range (University of Alaska, Fairbanks RRP 2016).

The location and extent of historical reindeer operations are not well known. Several herds (one over 6,000 head) are located outside of BLM-managed land in the St. Michaels and Stebbins vicinity, grazing primarily on ANCSA Native corporation land. Grazing also occurs on the Seward Peninsula and on St. Lawrence and Nunivak Islands, including on some BLM-managed lands. Reindeer are normally free roaming with fencing only needed for corralling structures. Herds are moved by herders on foot or with aircraft and OHVs.

There is currently one valid permitted grazing range in the planning area, located in the Sagoonick area (see Map 3.3.2-1). The herd left the area with caribou migrations in the 1990s, leaving the range empty. Unauthorized reindeer grazing operations or presence are not known.

From Seward Peninsula data, reindeer spring diet (April-May) is primarily lichens, followed by mosses, sedges, and shrubs. Summer (June-July) diet includes more willows and sedges, plus lichens. Fall and winter diet shifts back towards primarily lichen (Finstad 2008). Winter lichen ranges usually have lichen cover greater than 20 percent (NRCS 2001). Lichen species consumed by reindeer include various *Cladina*, *Cladonia*, and *Cetraria* species, which grow slowly, even under favorable conditions, approximately 5 millimeters per year (Pegau 1970).

Ongoing rangeland health is measured by Alaska-specific range utilization checks (i.e., ACGM) developed by NRCS and BLM (NRCS 2001) to evaluate forage utilization on reindeer ranges in Alaska. The AGCM is applied to measure lichen cover and utilization to: (1) develop grazing management plans, and (2) to maintain sustained forage production systems. Past studies identified prime reindeer grazing habitat in the Nulato Hills and surrounding area, with rich lichen resources and suitable seasonal habitat. These data, assessed in conjunction with recent vegetation mapping, could help determine suitable grazing habitat (see Maps 3.3.2-2 and 3.3.2-3).

BLM is currently involved with a collaborative effort for monitoring grazing exclosures on BLM-managed public lands within active reindeer ranges of the Seward Peninsula. These monitoring programs determine percent lichen cover and estimate vegetative recovery and changes in community composition (Moore 2011). No such monitoring currently exists in the planning area.

The impacts of climate change could have indirect or direct impacts on resources tied to grazing use, such as impacts of changes in wildland fire frequency, location, timing, or severity; acres of permafrost or snow and ice cover change; or changes in vegetation community composition or increases in NNIS. Future monitoring could include more comprehensive coverage of various land use types or land cover types that may be identified as vulnerable to change.

Direct and Indirect Effects

Table 3.3.2-1 below summarizes the nature and types of beneficial or adverse effects that could occur to grazing, the proposed management actions that could result in those effects, and the indicators used to measure the potential magnitude and extent of the effects. Table 3.3.2-2 discloses the potential magnitude and extent of the effects described in Table 3.3.2-1, across alternatives.

Table 3.3.2-1: Summary of Potential Effects to Grazing by Management Action

Types of Effects	Management Actions	Indicators
Reduction in suitable grazing habitat due to unauthorized use.	Areas open to permitted grazing or closed to grazing	Acres open to permitted grazing; acres open to permitted grazing that are considered suitable habitat.
Reduction in quality of forage for grazing if conditions are not monitored in areas of permitted use.	Areas open to permitted grazing or closed to grazing	Acres open to permitted grazing that are considered suitable habitat; acres currently permitted; acres currently permitted that are considered suitable habitat.
Loss of grazing herds through interaction and competition with native caribou.	Areas open to permitted grazing or closed to grazing	Acres open to permitted grazing; caribou avoidance acres.

Table 3.3.2-2: Portions of Planning Area Analyzed for Potential Impacts to Grazing by Indicator

Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Acres open to grazing at the implementation level	13,304,555 acres (99%) ¹	0 acres (0%) ¹	12,848,472 acres (95%) ¹	13,465,894 acres (100%) ¹	12,848,472 acres (95%) ¹
Acres open to grazing at the implementation level that are considered suitable habitat	2,619,960 acres (19%) ¹	Not applicable—planning area closed to grazing	1,884,432 acres (14%) ¹	2,635,231 acres (20%) ¹	1,884,432 acres (14%) ¹
Acres currently permitted for grazing	10,807 acres (<1%) ¹	Not applicable	Not applicable	Not applicable	Not applicable
Acres currently permitted that are considered suitable habitat	4,281 acres (<1%) ¹ ; 40% of currently permitted area)	Not applicable	Not applicable	Not applicable	Not applicable

Notes:

1) Percentage based on all BLM-managed lands in the planning area.

Effects from Alternative A

Alternative A would maintain existing policy to provide grazing leases, including reindeer and muskoxen where feasible, in areas where range is available, and a need exists for seasonal grazing. The entire planning area is open for consideration of grazing permits. Demand for permits appears to be low and would be expected to remain so. The magnitude of impacts is low given that only one permit is currently valid, and the permit is not thought to be actively in use. The geographic extent of impacts is currently restricted to locations within areas currently permitted (10,807 acres, or less than 1 percent of the planning area). Extent of impacts could include the entire planning area, which remains open to the possibility of permitted grazing.

Under Alternative A, adverse impacts could include a reduction in suitable grazing habitat if there is unauthorized use. Adverse impacts could also include a reduction in forage quality if conditions are not monitored; monitoring has occurred via BLM and NRCS but does not follow specific guidance tailored to

effectively monitor and assess beneficial or adverse change. No avoidance measures are required for reindeer grazing, which could lead to adverse impacts to grazing herds that interact and compete with existing native caribou herds, causing competition between native and domestic and even (if reindeer grazing were to grow more than anticipated) loss of grazing herds. Magnitude and geographic extent of impacts would be greater in this alternative than Alternative B, C, D, or E, as more areas are open to the possibility of grazing at the implementation level with fewer limitations based on special designations or potential ecological impacts to forage.

Effects Common to All Action Alternatives

There would be no effects common to all action alternatives.

Effects from Alternative B

Alternative B would close all BLM-managed lands in the planning area to permitted grazing. This closure would remove the possibility of potential adverse impacts. Therefore, by definition the magnitude and extent of adverse impacts would be less in this alternative than Alternative A, C, D, or E.

Effects from Alternative C

Currently there is not a high demand for reindeer grazing and there is not an anticipated increase in demand. Alternative C would open 12,848,472 acres (95 percent of the planning area) to the possibility of reindeer grazing, of which it is estimated that 1,884,432 acres (14 percent of the planning area) contain ecological conditions can support that grazing (at least 20 percent lichen cover). Alternative C would close grazing in certain areas (special designation areas). In this alternative, 1,884,432 acres (14 percent of the planning area) would be both open and considered suitable for grazing.

For Alternative C, grazing permits issued would consider ecological condition, including ecological suitability for grazing, to reduce the potential for adverse changes in vegetation composition, structure, or function. This alternative could have adverse impacts (reduction in suitable grazing habitat, reduction in forage quality) that would be of greater magnitude and geographic extent than Alternative B, lesser than Alternative A or D, and the same as under Alternative E. There would also be fewer potential adverse impacts to native caribou herds in this alternative compared to Alternative A or D because grazing permit application reviews in known caribou habitat would take local conditions into account.

Effects from Alternative D

Currently there is not a high demand for reindeer grazing and there is not an anticipated increase in demand. Alternative D would open 13,465,894 acres (100 percent of the planning area) to the possibility of reindeer grazing, of which it is estimated that 2,635,231 acres (20 percent of the planning area) contain ecological conditions can support that grazing (at least 20 percent lichen cover). In this alternative, 2,635,231 acres (20 percent of the planning area) would be both open and considered suitable for grazing.

Alternative D would be similar to Alternative C but with fewer closed areas. As with Alternative C, grazing permits issued under Alternative D would consider ecological condition, including ecological suitability for grazing, to reduce the potential for adverse changes in vegetation composition, structure, or function. Alternative D could have adverse impacts (reduction in suitable grazing habitat, reduction in forage quality, impacts to native caribou herds) that would be of lesser magnitude and geographic extent than Alternative A but greater than Alternative B, C, or E.

Effects from Alternative E

Currently there is not a high demand for reindeer grazing and there is not an anticipated increase in demand. Alternative E would open 12,848,472 acres (95 percent of the planning area) to the possibility of reindeer grazing, of which it is estimated that 1,884,432 acres (14 percent of the planning area) contain ecological conditions that can support that grazing (at least 20 percent lichen cover). Alternative E would close grazing in certain areas (special designation areas). In this alternative, 1,884,432 acres (14 percent of the planning area) would be both open and considered suitable for grazing.

Alternative E would allow permitting of grazing where ecological conditions can support that grazing (at least 20 percent lichen cover) and would close grazing in certain areas (special designation areas), as under Alternative C. New grazing permit applications would be considered in the planning area and would be processed according to the normal permitting process. Alternative E could have adverse impacts (reduction in suitable grazing habitat, reduction in forage quality) that would be of greater magnitude and geographic extent than Alternatives B and C and lesser than Alternative A or D. As under Alternative C, there would also be fewer adverse impacts to native caribou herds in this alternative compared to Alternative A or D because review of grazing permit applications in known caribou habitat would take local conditions into account.

Cumulative Effects

Past and Present Actions

Interest in reindeer permits within the planning area is increasing somewhat as rural communities seek long-term and sustainable industry to support economic welfare and to preserve rural Alaska lifestyle, culture, and tradition. However, lack of infrastructure (roads and utilities) in the planning area continues to limit the feasibility of commercial grazing operations. Trend: No change.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative A)

Many past, present, and reasonably foreseeable future actions work together to result in the land status, vegetation community composition, and community motivation to apply for grazing permits in the planning area. The rate of change would be constant with typical and anticipated ecological, climate, and socioeconomic factors. Other factors that influence grazing would continue at the current rate, insofar as needs arise.

Potential transportation corridors under review could provide more opportunity for access to lands open to the possibility of permitted grazing. As climate change increases, it is likely that more vegetation community type changes would occur in the planning area that could cause direct impacts to lichen, shrub, grass, or plant composition. Changes in vegetation composition could raise or lower forage quality for grazing.

Because management would result in the majority of the planning area being open to the possibility of permitted grazing, it is expected that the demand for grazing permits, considering combined past, present, and reasonably foreseeable actions, would remain the same. Trend: No contribution to the trend.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative B)

Management under Alternative B would close the entire planning area to grazing. Trend: Decreasing applications for grazing permits.

Past, Present, and Reasonably Foreseeable Future Actions (Alternatives C, D, and E)

Demand for grazing permits, considering combined past, present, and reasonably foreseeable actions, would be expected to remain the same. Trend: No contribution to the trend.

3.3.3 Locatable and Salable Minerals**Affected Environment**

Locatable minerals are mineral resources for which the right to explore, develop, and extract is established by the staking of mining claims, as authorized under the General Mining Law of 1872 as amended. Locatable minerals include metallic minerals (e.g., gold, silver, platinum, copper, lead, and zinc) and non-metallic minerals, which include precious stones (e.g., jade, diamonds) and sometimes industrial minerals (e.g., garnet, quartz sands). Salable minerals are those that may be sold under the Material Sale Act of 1947 as amended and include sand and gravel.

Distribution of locatable mineral occurrences within the planning area is illustrated in Map 3.3.3-1 and is generally concentrated in the upland areas in the eastern portion of the planning area and the lowlands in the immediate vicinity of these uplands where placer⁹ deposits occur. The planning area contains 453 documented mineral occurrences and 2,480 mining claims, with only 207 of those under federal management (Kurtak et al. 2017; see Map 3.3.3-2). These include placer gold, gold-bearing quartz veins, copper-gold skarns, and silica-carbonate mercury deposits. As of December 2016, there are four active placer mines, one active lode¹⁰ mine, and two temporary placer mine closures on BLM-managed public lands in the planning area. The number of active and temporarily closed mines changes annually.

Areas of high and medium LMP have been identified within the planning area (Map 3.3.3-3). Of the 101 areas designated as high LMP, several are located within BLM-managed lands and are covered by federal mining claims (Kurtak et al. 2017): the Nixon Fork Mine area, Flat-Chicken Mountain area, the Ophir Creek drainage (Kilbuck Mountains), and the Nyac (Shamrock Creek) area. Overall there are 565,488 acres of high and medium LMP on BLM-managed lands in the planning area.

The over 2.7 million acres of lands selected by the State or ANCSA Native corporations are temporary in nature and subject to 43 CFR 2627.4(b), ANILCA section 906(k), and 43 CFR 2650.1. These selected lands have a segregative effect in regard to locatable minerals; however, if these selections are relinquished, the BLM would manage the lands per the management decision indicated in the alternative. If those selections are conveyed, the BLM would no longer manage minerals on those lands

Salable mineral use within the planning area includes crushed rock, sand, and gravel. In 2008, a total of 13 salable mineral sites were reported to be active in Southwest Alaska, which includes the planning area (BLM 2008b; USGS 2008). Sand and gravel are used in construction and road maintenance, and local demand for salable materials is generally being met by sand and gravel producers located on private or State-owned lands.

⁹ Placer deposits are accumulations of valuable minerals concentrated in overburden, instream sediments, or in beach materials by natural processes.

¹⁰ Lode is a deposit of metalliferous ore that fills or is embedded in a fissure (or crack) in a rock formation or a vein of ore that is deposited or embedded between layers of rock.

Direct and Indirect Effects

Table 3.3.3-1 below summarizes the nature and types of beneficial or adverse effects that could occur to locatable and salable minerals, the proposed management actions that could influence those effects, and the indicators used to measure the potential magnitude and extent of the effects. Table 3.3.3-2 discloses the potential magnitude and extent of the effects by indicator, across alternatives.

Table 3.3.3-1: Summary of Potential Effects to Locatable and Salable Minerals by Management Action

Types of Effects	Management Actions	Indicators
Reduction of land available for mineral resource activities would result in a reduction of the quantity of minerals available for extraction.	Locatable and Salable Mineral Decisions	- Acres of identified medium to high LMP in the planning area - Acres available for locatable and salable mineral development in the planning area

Table 3.3.3-2: Portions of Planning Area Analyzed for Potential Impacts to Locatable and Salable Minerals by Indicator

Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Acres open to locatable mineral entry in the planning area	8,661,406 acres (64%) ²	3,548,061 acres (26%) ²	13,418,941 acres (>99%) ²	13,418,941 acres (>99%) ²	13,418,941 acres (>99%) ²
Acres open to locatable mineral entry segregated due to selection ¹	1,620,141 acres (12%) ²	635,623 acres (5%) ²	2,752,047 acres (20%) ²	2,752,047 acres (20%) ²	2,752,047 acres (20%) ²
Acres of land withdrawn from locatable mineral entry in the planning area	4,804,488 acres (36%) ²	9,917,834 acres (74%) ²	46,953 acres (<1%) ²	46,953 acres (<1%) ²	46,953 acres (<1%) ²
Areas open to locatable mineral development in areas identified to have medium to high LMP	258,015 acres of medium LMP (49%)³ 36,310 acres of high LMP (85%)⁴ 195,632 (35%)⁵ acres of medium and high LMP segregated due to selection¹	150,453 acres of medium LMP (29%)³ 16,565 acres of high LMP (39%)⁴ 100,426 (18%)⁵ acres of medium and high LMP segregated due to selection¹	522,825 acres of medium LMP (100%)³ 42,663 acres of high LMP (100%)⁴ 317,531 (56%)⁵ acres of medium and high LMP segregated due to selection¹	522,825 acres of medium LMP (100%)³ 42,663 acres of high LMP (100%)⁴ 317,531 (56%)⁵ acres of medium and high LMP segregated due to selection¹	522,825 acres of medium LMP (100%)³ 42,663 acres of high LMP (100%)⁴ 317,531 (56%)⁵ acres of medium and high LMP segregated due to selection¹
Acres of recommended or retained locatable mineral withdrawals in areas identified to have medium to high LMP in the planning area.	264,810 acres of medium LMP (51%)³ 6,354 acres of high LMP (49%)⁴	372,373 acres of medium LMP (71%)³ 26,098 acres of high LMP (61%)⁴	0 acres with either medium or high LMP (0%)	0 acres with either medium or high LMP (0%)	0 acres with either medium or high LMP (0%)
Acres of land open to salable mineral development in the planning area	8,661,406 acres (64%) ²	3,548,061 acres (26%) ²	6,606,321 acres (49%) ²	13,182,385 acres (98%) ¹	9,408,012 acres (70%) ²
Acres of land open to salable mineral development in the planning area subject to terms and conditions	0 acres	0 acres	6,576,064 acres (49%) ²	0 acres	3,774,373 acres (28%) ²
Acres of land of salable minerals in the planning area closed to development.	4,804,488 acres (36%) ²	9,917,833 acres (74%) ²	283,509 acres (2%) ²	283,509 acres (2%) ²	283,509 acres (2%) ²

Notes:

1) State top-filings that become valid selections due to ANCSA corporation selections being relinquished or rejected will be managed like all other State selections. Alternatives that recommend revocation of 17(d)(1) withdrawals where the withdrawal prevents State selections would allow for the State selections to become valid once revocation is complete. These lands would be managed like all other State selections.

2) Percentage based on all BLM-managed land in the planning area.

3) Percentage based on all medium LMP areas on BLM-managed land in the planning area.

4) Percentage based on all high LMP areas on BLM-managed land in the planning area.

5) Percentage based on all medium and high LMP areas on BLM-managed land in the planning area.

Effects from Alternative A

Under Alternative A, 4,804,488 acres of BLM-managed land in the planning area would remain withdrawn from locatable mineral entry and closed to salable mineral development. There are 271,164 acres with medium to high LMP currently withdrawn from mineral entry (2 percent of the BLM-managed planning area and 48 percent of the medium and high LMP on BLM-managed land in the planning area), of which 6,354 acres are considered to have high LMP. Of the 294,325 acres of medium or high LMP that would be open to the possibility of locatable mineral development, 195,632 acres would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected. Less than 1 percent of the planning area acreage is taken up by mining claims and prospecting sites.

No management direction related to the Alaska Statewide Bond Pool is currently identified.

Effects Common to All Action Alternatives

The Unalakleet Wild River Corridor would remain designated under all action alternatives, and there would continue to be no locatable or salable mineral activity allowed within the 46,953-acre corridor.

The forecast for development of mineral resources in the planning area is low due to the lack of known economical deposits. Because the potential for locatable and salable mineral development on BLM-managed land in the planning area is considered low, the impact of management actions would be small. In areas such as the Nulato Hills, where there is little information about mineral potential, any management limitations would impact the potential for future exploration.

Reclamation in moose calving and wintering areas and caribou calving grounds and caribou wintering range following locatable and salable mineral development, as well as any other surface-disturbing activities, would adhere to the soil and vegetation reclamation and riparian and stream disturbance/reclamation and fisheries rehabilitation requirements described in Section 2.6.14 under Actions Common to All Action Alternatives, including the Proposed RMP, for Locatable and Salable Minerals.

There are currently no pending requests to develop sand and gravel on BLM-managed land in the planning area. Local demands are being met by sand and gravel producers on private or State-owned lands, causing low impacts that are unlikely to change soon due to lack of appropriate BLM-managed land in the planning area near population centers that require sand and gravel. With the recent signing of the Donlin Gold EIS ROD, increased demand for gravel adjacent to the proposed natural gas pipeline route is likely, which could result in a potential increase in resource-related impacts. Additionally, salable mineral development on BLM-managed lands could occur in association with other projects that require these resources.

Effects from Alternative B

Under Alternative B, management actions associated with other resources discussed in this section would result in the recommended withdrawal of 9,917,834 acres from locatable mineral entry and closure to salable mineral development (existing withdrawals that would be retained, as well as new recommended withdrawals). These recommended withdrawals would include the entire geographies of HVWs (8,401,262 acres), the Innoko Bottoms Priority Wildlife Management Area (236,556 acres), North

Connectivity Corridor (269,632 acres), South Connectivity Corridor (576,038 acres), potential ACECs (3,912,698 acres), and the INHT NTMC (288,466 acres). The existing withdrawal for the Unalakleet Wild River Corridor would be retained (46,953 acres). Some of these areas overlap, so their sum does not equal the total area of proposed withdrawals under Alternative B. Mining would also be prohibited in riparian areas to minimize impacts to migratory birds.

Recommended locatable mineral withdrawals would include 26,098 acres in areas with high LMP and 372,373 acres within medium LMP areas. This acreage equates to 8 percent of the medium or high LMP areas in the planning area but 63 percent of the medium or high LMP areas on the BLM-managed land in the planning area. Of the 167,018 acres of medium or high LMP that would be open to locatable mineral development under Alternative B, 100,426 acres would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected.

Alternative B has the largest areas recommended for withdrawal for locatable mineral development and closed to salable mineral development, thereby leaving the fewest acres open to mineral development compared to all other alternatives. This would result in the greatest extent of reduction to mineral development opportunity compared to all other alternatives. However, because the potential for locatable and salable mineral development on BLM-managed land in the planning area is generally considered low, the impact of these management actions would be small, although they would reduce incentives to investigate lands for mineral potential and would cover some high LMP lands.

Effects from Alternative C

Under Alternative C, management actions associated with other resources discussed in this section would result in the retained withdrawal of 46,953 acres from locatable mineral entry, of which no acres with medium or high LMP would be withdrawn. All areas with medium or high LMP would be open to locatable mineral development, though over half of this acreage would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected.

The retained locatable mineral withdrawal under Alternative C is for the Unalakleet Wild River Corridor (46,953 acres), which is common to all alternatives. HVWs (5,614,504 acres), the Innoko Bottoms Priority Wildlife Management Area (236,556 acres), the South Connectivity Corridor (576,038 acres), and the INHT NTMC (273,242 acres) would be open to locatable mineral development. Some of these areas overlap, so their sum does not equal the total area open to locatable mineral development under Alternative C. Alternative C would open 6,606,321 acres for the possibility of salable mineral development, and another 6,576,064 acres would be open to salable mineral development subject to terms and conditions. Alternative C would also retain closure of 283,509 acres to salable mineral development in the BLM-managed land in the planning area.

Because Alternative C would close fewer acres to locatable and salable mineral development and all areas of medium or high LMP would be open to the possibility of development, Alternative C would have fewer impacts to locatable and salable mineral development opportunity in the area than Alternatives A and B. Some additional geological investigation to better assess mineral potential could be expected because the limited amount of mineral resource information contributes to the low mineral potential assessment. This additional geologic and mineral potential information would align with the DOI's goal of ensuring access to mineral resources (DOI 2018).

Effects from Alternative D

Under Alternative D, management actions would result in the retained withdrawal of 46,953 acres from locatable mineral entry, which is the same as Alternative C, and the closure of 283,509 acres to salable mineral development in the BLM-managed land in the planning area. All areas with medium or high LMP would be open to locatable mineral development, though over half of this acreage would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected. The retained locatable mineral withdrawal under Alternative D would be limited to the Unalakleet Wild River Corridor.

Alternative D would have less impact to locatable and salable minerals compared to Alternative B and similar impacts to Alternative C although Alternative D would open 13,182,385 acres for the possibility of salable mineral development. The same number of acres open to salable development either outright or subject to terms and conditions under Alternative C would be open for salable mineral development under Alternative D outright. Like Alternative C, some additional locatable mineral exploration could be expected. Therefore, Alternative D would have similar impacts to locatable and salable mineral development in the planning area as Alternative C.

Effects from Alternative E

Under Alternative E, and similar to Alternatives C and D, management actions would result in the retained withdrawal of 46,953 acres from locatable mineral entry and the closure of 283,509 acres to salable mineral development in the BLM-managed land in the planning area. All areas with medium or high LMP would be open to locatable mineral development, though over half of this acreage would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected. The retained locatable mineral withdrawal under Alternative E would be limited to the Unalakleet Wild River Corridor.

Alternative E would have less impact to locatable and salable minerals compared to Alternative B and similar impacts to Alternative C although Alternative E would open 2,801,691 more acres for the possibility of salable mineral development than Alternative C. Under Alternative E (as in Alternative C), there would be the same number of acres open to salable development either outright or subject to terms and conditions as would be open for salable mineral development outright under Alternative D. Like Alternatives C and D, some additional locatable mineral exploration could be expected. Alternative E would have fewer impacts to locatable and salable mineral development opportunity in the area than Alternatives A and B. Impacts to locatable and salable mineral development opportunity would be similar to Alternatives C and D.

Cumulative Effects

Past and Present Actions

Although some attempts at mining started as early as the 1830s, there was no widespread mining for many decades. Most of it is concentrated in upland areas and lowlands in the immediate vicinity of the uplands. The planning area contains 2,480 mining claims, of which 207 are under federal management. There are four active placer mines, one active lode mine, and two temporary placer mine closures on BLM-managed land in the planning area. Trend for management: Continues at a similar rate.

Most mining and mineral exploration in Alaska is taking place on lands owned by the State of Alaska, ANCSA Native corporations, or other private lands. A total of 13 salable minerals production sites were reported to be active in 2008 in Southwest Alaska, which includes the planning area. There are currently no pending requests to develop sand and gravel on BLM-managed land in the planning area. Trend for mineral development: Continues at a similar rate.

Past, Present, and Reasonably Foreseeable Future Actions (Alternatives A and B)

Less than 1 percent of the planning area acreage is taken up by mining claims and prospecting sites, and less than 1 percent of the total acreage taken up by mining claims and prospecting sites in the planning area is under federal management. Exploration and mining on non-BLM-managed land adjacent to BLM land could necessitate management decisions to prevent unnecessary disturbance to BLM-managed land in the planning area by ROW corridors, roads, and development on these adjacent lands. Trend for management: Degrade (requires active management by federal agencies).

Because most of the mining and mineral exploration is not taking place on federal lands and because of the lack of areas with high LMP on unencumbered BLM-managed land in the planning area, there is likely to be a low level of interest in staking claims or in developing mining operations on unencumbered BLM-managed land in the planning area for the reasonably foreseeable future. Local demands are being met by sand and gravel producers on private or State-owned lands, which is unlikely to change in the near future due to lack of appropriate BLM-managed land in the planning area near population centers that require sand and gravel. However, there is some potential for salable mineral development if needed to support projects outside population centers. Trend for mineral development: No contribution to existing trend.

Past, Present, and Reasonably Foreseeable Future Actions (Alternatives C and D)

Mineral development would be very similar to Alternative A, although there could be a slight increase in staking claims or in developing mining operations with the small (approximately 6,000-acre) increase of high LMP lands as compared to Alternative A.

If more lands in the planning area were open to mineral entry, there could be expanded exploration and mapping of the mineral potential of unencumbered BLM land. Current understanding of the mineral potential of the BLM unencumbered land is low, but the potential for new mining claims and development is moderate due to the potential for new unexplored lands being available. Trend for mineral development: Potential to increase.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative E)

As with Alternatives B and C, mineral development would be very similar to Alternative A, although there could be a slight increase in staking claims or in developing mining operations with the small increase of high LMP lands as compared to Alternative A.

If more lands in the planning area were open to mineral entry, there could be expanded exploration and mapping of the mineral potential of unencumbered BLM land. Current understanding of the mineral potential of the BLM unencumbered land is low, but the potential for new mining claims and development is moderate due to the potential for new unexplored lands being available. Trend for mineral development: Potential to increase.

3.3.4 Leasable Minerals

Affected Environment

Minerals and materials designated leasable under federal law include coal, natural gas, oil, phosphate, sodium, and geothermal resources. Coal and coalbed natural gas resources in the planning area are concentrated in the Lower Koyukuk and Minchumina Basins. The development potential for these resources is considered low due to the low grade of the coal, the high initial cost of production, and a lack of local infrastructure for storage and distribution (Map 3.3.4-1). Potential oil and gas bearing basins in the planning area include the Bethel Basin, Galena Basin, Holitna Basin, Innoko Basin, Minchumina Basin and the Yukon Delta (Map 3.3.4-2). There has been little interest or activity in oil and gas exploration in the planning area since the early 1960s. The presence of sufficiently large commercially valuable accumulations of oil and gas is presently unknown, and no recent federal oil and gas leasing has taken place in the planning area. There are only two confirmed geothermal springs within the planning area (Ophir Hot Springs and Chuilnuk Hot Springs), and both are located on private inholdings (Map 3.3.4-3). No major geothermal reservoirs exist elsewhere in the planning area. No information currently exists for oil shale, phosphate, potassium, sulfur, or sodium resources within the planning area.

Direct and Indirect Effects

All of the action alternatives would be subject to management actions to minimize impacts to HVWs from actions associated with the development of leasable minerals. Management actions vary among the action alternatives in minimizing impacts to caribou and moose calving and wintering areas, the Innoko Bottoms Priority Wildlife Habitat Area, connectivity corridors, and migratory birds from development activities associated with the development of leasable minerals.

Table 3.3.4-1 below summarizes the nature and types of effects that could occur to leasable materials, the proposed management actions that could influence those effects, and the indicators used to measure the potential magnitude and extent of the effects. Table 3.3.4-2 summarizes the impacts to leasable minerals by indicator.

Table 3.3.4-1: Types of Effects to Leasable Minerals by Management Action

Types of Effects	Management Actions	Indicators
Preventing impacts to certain resources by closing lands to leasable mineral development could reduce the area available for leasable minerals exploration and development.	- Leasable Mineral Decisions - Wildlife Management Decisions	Acres of land or RMs in the planning area closed to leasable minerals exploration and development
By following regulatory requirements and BLM policy, could change or reduce the area available for leasable minerals exploration and development.	- Leasable Mineral Decisions - Lands and Realty Decisions	Acres of State- or ANCSA corporation-selected lands

Table 3.3.4-2: Portions of Planning Area Analyzed for Potential Impacts to Leasable Minerals by Indicator

Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Acres of land and percent within BLM-managed land in the planning area closed to leasable minerals exploration and development, open subject to standard stipulations, or NSO leasable.	• Closed: 5,202,221 acres (39%)¹ • Open (standard stipulations): 8,246,152 acres (61%)¹ • NSO: 17,521 acres (<1%)¹	• Closed: 9,440,672 acres (70%)¹ • Open (standard stipulations): 2,460,649 acres (18%)¹ • NSO: 1,564,573 acres (12%)¹	• Closed: 46,953 acres (<1%)¹ • Open (standard stipulations): 6,555,476 acres (49%)¹ • NSO: 6,863,464 (51%)¹	• Closed: 46,953 acres (<1%)¹ • Open (standard stipulations): 13,182,385 acres (98%)¹ • NSO: 236,556 acres (2%)¹	• Closed: 46,953 acres (<1%)¹ • Open (standard stipulations): 9,356,398 acres (69%)¹ • NSO: 4,062,543 acres (30%)¹
Acres of State- or ANCSA corporation-selected lands of BLM-managed land in the planning area	• ANCSA Native corporation-selected: 143,220 acres² • State-selected: lands: 2.6 million acres²	Decisions to open areas for mineral exploration or development by revoking withdrawals would not go into effect unless lands are retained long term in federal ownership and the selections have been terminated because the State of Alaska and ANCSA Native corporations have received their full entitlement.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.

Notes:

1) Percentage based on all BLM-managed land in the planning area.

2) Data based on 2020 lands status data.

Effects from Alternative A

Under Alternative A, continued management of BLM-managed land in the planning area would result in no additional closures to leasable mineral development in HVWs, but 17,521 acres in the planning area would continue to be managed as NSO leasable. SWMFP management actions to minimize impacts to caribou and moose from mineral leasing activities would continue to be mitigated through stipulations for seasonal use or NSO in crucial habitat areas.

Effects Common to All Action Alternatives

Because leasable mineral potential in the planning area has been defined as low, the potential for development of the resources is low due to the remoteness of the area and lack of infrastructure:

- Adverse impacts on leasable minerals from water resources and fisheries habitat management actions under the action alternatives would be small for the duration of the planning period for all action alternatives.
- Adverse impacts from wildlife management actions on leasable minerals would be small due to the low demand for mineral resources in the planning area for all action alternatives.
- Adverse impacts to leasable minerals from lands and realty management actions under all action alternatives would be small and would not impact the DOI goal of ensuring access to mineral resources.

Under all action alternatives, the INHT NTMC would be designated to minimize damage and disturbance from other mineral resource use to the federally managed portion of the INHT and associated historic sites. Portions of the INHT cross areas with potential oil and gas resources in the Minchumina and Innoko Basins. Development plans for leasable minerals would be authorized if direct and cumulative impacts associated with the action would not conflict with the nature and purpose of the INHT. Because leasable

mineral potential in the NTMC is likely to be low, impacts to leasable minerals from national trails management actions under all action alternatives would be small.

Effects from Alternative B

Under Alternative B, a total of 9,440,672 acres (70 percent) of the 13.5 million acres of BLM-managed land in the planning area would be closed to leasable mineral development. Approximately 1,564,573 acres (12 percent) would be open to leasable mineral development but subject to NSO stipulations. Caribou and moose calving habitat would be open to oil and gas leasing subject to NSO. Seasonal restrictions on construction in moose and caribou calving habitat and in crucial winter habitat areas would apply.

Impacts to migratory birds on BLM-managed land in the planning area would be minimized by prohibiting mineral leasing in riparian areas. Alternative B would close the greatest number of acres (9,440,672 acres) to leasable mineral exploration. However, because mineral leasing potential is low throughout the planning area, impacts to leasable mineral development under Alternative B would still be small.

Effects from Alternative C

Under Alternative C, a total of 46,953 acres (less than 1 percent) of BLM-managed land in the planning area would be closed to leasable mineral development. Approximately 6,863,464 acres (51 percent) would be open to leasable mineral development but subject to NSO stipulations, which would include the entire geographies of HVWs. The remaining 6,555,476 acres (49 percent) of BLM-managed land in the planning area would be open to leasing subject to standard stipulations. Alternative C would close 9,393,719 fewer acres to leasable development than Alternative B and the same number of acres as Alternatives D and E. Because mineral leasing potential is low throughout the planning area, impacts to leasable mineral development under Alternative C would be small.

Effects from Alternative D

Under Alternative D, a total of 46,953 acres (less than 1 percent) of BLM-managed land in the planning area would be closed to leasable mineral development, the same as Alternatives C and E. Approximately 236,556 acres (2 percent) would be open to leasable mineral development but subject to NSO, and the remaining 13,182,385 acres (98 percent) would be open to leasing subject to standard stipulations, which would include the entire geographies of HVWs. Alternative D would close 9,393,719 fewer acres than Alternative B and the same number of acres as Alternatives C and E. Because mineral leasing potential is low throughout the planning area, impacts to leasable mineral development under Alternative D would be small.

Effects from Alternative E

Under Alternative E, a total of 46,953 acres (less than 1 percent) of BLM-managed land in the planning area would be closed to leasable mineral development, the same as Alternatives C and D. Approximately 4,062,543 acres (30 percent) would be open to leasable mineral development but subject to NSO, and the remaining 9,356,398 acres (69 percent) would be open to leasing subject to standard stipulations, which would include the 100-year floodplains of HVWs. Alternative E would close 9,393,719 fewer acres than Alternative B and the same number of acres as Alternatives C and D. Because mineral leasing potential is low throughout the planning area, impacts to leasable mineral development under Alternative E would be small.

Cumulative Effects

Past and Present Actions

Oil and gas basins in the region of the planning area include Bethel, Galena, Holitna, Innoko, Minchumina, and Yukon Delta Basins. Several geophysical surveys in the region have been conducted, and one exploratory well has been drilled. There are 59 oil and gas pending Federal Onshore Oil and Gas Leasing Reform Act of 1987 lease offers in the planning area that were filed in the late 1960s, all within the Yukon Delta NWR. No additional exploratory wells have been drilled in the area, and no recent federal oil and gas leasing has taken place. Trend: Continue at a similar rate.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative A)

Management needs for leasable resources in the planning area are predicted to be low in the reasonably foreseeable future based on the remoteness of the area, lack of infrastructure, and low development potential of the resources. Over time, climate change could affect the accessibility or demand for leasable resources in the planning area; however, the nature and extent of these impacts cannot be confidently predicted with currently available data. Therefore, the cumulative impact of the management decisions related to leasable minerals from combined past, present, and reasonably foreseeable actions would be small. Trend: No contribution to resource trend.

Past, Present, and Reasonably Foreseeable Future Actions (Alternatives B, C, and D)

Due to the low potential for leasable mineral development in the planning area, Alternatives B, C, and D would have the same contribution to cumulative effects as Alternative A. Trend: No contribution to resource trend.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative E)

Due to the low potential for leasable mineral development in the planning area, Alternative E would have the same contribution to cumulative effects as Alternatives A, B, C, and D. Trend: No contribution to resource trend.

3.3.5 Lands and Realty

Affected Environment

Withdrawals/Land Tenure/Land Ownership

A withdrawal is a formal action that sets aside, withholds, or reserves federal lands by administrative order or statute for public purposes. There are administrative, recreation, power site, military, and other withdrawals within the planning area.

There are approximately 13,461,531 acres of existing ANCSA 17(d)(1) withdrawals within the planning area (see Map 3.3.5-1 for more information) which prevent fulfillment of State and ANCSA land entitlements and prevent making lands available for selection under the Dingell Act (Public Law 116-9). In the event of revocation of an ANCSA 17(d)(1) withdrawal where there is a State of Alaska top-filing on otherwise unencumbered BLM lands, the State top-filing will automatically become a valid selection under the Alaska Statehood Act as per ANILCA Section 906(e). These lands would therefore be managed by BLM in accordance with ANILCA Section 906(k) until the lands are transferred to the State or the

selection is relinquished by the State of Alaska or rejected by BLM. Lands top-filed that become State selected due to a revocation of the withdrawal do not qualify as federal public lands under ANILCA and are therefore not subject to the subsistence hunting and fishing protections afforded rural residents. Revocation of ANCSA 17(d)(1) withdrawals would also allow those lands to become available for selection by qualified veterans under the Dingell Act.

The definition of land tenure as well as a description of land ownership within the planning area is discussed in Section 1.3.3. Discretionary disposal actions are usually initiated in response to public requests or application and result in transfer of title and lands from the public domain. Examples in the planning area, include conveyances for airports, R&PP, and FLPMA sales. FLPMA authorizes the acquisition of real property from a willing seller where it is consistent with the mission of the department and departmental land use plans. Section 17(b) of ANCSA allows for the reservation of a public easement (17(b) easement) consistent with the regulations, and this easement is not acquired but rather retained in federal interest as defined by law. No pending acquisitions are being actively pursued by BLM within the planning area. A non-inclusive list of parcels that BLM could consider for disposal via land exchange(s) along with legal descriptions is provided in Appendix I.

Land Use Authorizations

In accordance with FLPMA and the Mineral Leasing Act and their implementing regulations, BLM could authorize various uses through land use permits, leases, and ROWs on the approximately 13.5 million acres managed by the BLM within the planning area, including lands that are selected but not yet conveyed under the Alaska Statehood Act and ANCSA, as amended. These include ROWs, airport leases, R&PP leases, FLPMA leases and permits, and easements. As of February 2018, BLM land records showed the following land use authorizations, which are not likely to have changed substantially in the intervening period:

- There are several ROWs in the planning area.
- There are no pending airport lease applications and only one authorized lease within the planning area.
- There is one R&PP sale pending, one lease issued, and five sales that have been authorized in the planning area.
- Three FLPMA permits are pending and six have been authorized in the planning area.
- There are no FLPMA easements authorized or pending in the planning area.

Direct and Indirect Effects

Table 3.3.5-1 below summarizes the nature and types of beneficial or adverse effects that could occur to lands and realty, the proposed management actions that could influence those effects, and the indicators used to measure the potential magnitude and extent of the effects. Table 3.3.5-2 discloses the potential magnitude and extent of the effects by indicator, across alternatives.

Table 3.3.5-1: Summary of Potential Effects to Lands and Realty by Management Action

Types of Effects	Management Actions	Indicators
Land status changes could impact landownership by changing the number of acres managed by the BLM.	• Land Disposal or Exchange • Land Acquisition • Lands Made Available for Lease or Sale under the R&PP Act	• Acres of BLM-managed lands identified for acquisition, retention, exchange, or disposal • Acres affected by land withdrawals

Types of Effects	Management Actions	Indicators
Lands that are disposed of would no longer be subject to BLM management, limiting BLM's ability to protect resources and accommodate future activities.	- Land Tenure Decisions for the INHT NTMC - Exchanges or Disposals	- Acres of BLM-managed lands identified for acquisition, retention, exchange, or disposal - Acres affected by land withdrawals
Creation of new withdrawals, maintenance of existing withdrawals, or revocation of existing withdrawals would have implications on land use and resource protections, such as changing land status and limiting BLM's ability to accommodate future resource extraction.	- Mineral Decisions - Withdrawal Decisions - Transportation and Travel Management Decisions - Lands Managed for Wilderness Characteristics TMA - Proposed WSRs	- Acres or RMs affected by land withdrawals - Total VRM Class acreages
FLPMA ROW exclusion and avoidance areas could limit economic opportunities and preclude the BLM from accommodating future ROW (linear, communication, Mineral Leasing Act, FLPMA permit, and lease demands.	- Wildlife Management Decisions - FLPMA ROW Exclusion and Avoidance Areas - Transportation and Travel Management Decisions - Lands Managed for Wilderness Characteristics TMA - Support for BSWI Communities Decisions	- Acres of BLM-managed surface ownership affected by ROW lease or permit restrictions (i.e., avoidance or exclusion areas, NSO) - Total VRM Class acreages - Acres of FLPMA ROW exclusion or avoidance areas

Table 3.3.5-2: Portions of Planning Area Analyzed for Potential Impacts to Land and Realty by Indicator

Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Withdrawn from locatable minerals	4,804,488 acres (36%) ¹	9,917,834 acres (74%) ¹	46,953 acres (<1%) ¹	46,953 acres (<1%) ¹	46,953 acres (<1%) ¹
Lands managed as VRM Class I or II	46,953 acres (Class I) (<1%)	7,825,858 acres (Class I or II) (58%) ¹	2,813,182 acres (Class I or II) (21%) ¹	726,506 acres (Class I or II) (5%) ¹	2,692,323 acres (Class I or II) (20%) ¹
Areas managed for wilderness characteristics as a priority	0 acres	277,489 acres (2%) ¹	0 acres	0 acres	0 acres
BLM-managed lands available for disposal or exchange	0 acres	341,761 acres (3%)¹ (exchange only) 0 acres for disposal	356,343 acres (3%)¹ (exchange only) 0 acres for disposal	450,575 acres (3%)¹ (disposal or exchange)	356,343 acres (3%)¹ (exchange only) 0 acres for disposal
Areas affected by recommended or retained land withdrawals	0 acres	9,795,543 acres (73%)¹ (recommended FLPMA withdrawals) 8,637,275 acres (64%)¹ (retained ANCSA 17(d)(1) withdrawals) 4,824,256 acres (36%)¹ (revoked ANCSA 17(d)(1) withdrawals)	4,991 acres (<1%)¹ (recommended FLPMA withdrawals) 0 acres (retained ANCSA 17(d)(1) withdrawals) 13,461,531 acres (>99%)¹ (revoked ANCSA 17(d)(1) withdrawals)	0 acres (recommended FLPMA withdrawals) 0 acres (retained ANCSA 17(d)(1) withdrawals) 13,461,531 acres (>99%)¹ (revoked ANCSA 17(d)(1) withdrawals)	4,991 acres (<1%)¹ (recommended FLPMA withdrawals) 0 acres (retained ANCSA 17(d)(1) withdrawals) 13,461,531 acres (>99%)¹ (revoked ANCSA 17(d)(1) withdrawals)
Areas affected by ROW	0 acres	1,464,069 acres (11%)¹ (exclusion) 8,895,920 acres (66%)¹ (avoidance) 3,105,905 acres (23%)¹ (open)	7,528,863 acres (56%) (avoidance) 151,853 acres (1%)¹ (avoidance for linear ROW actions) 5,785,178 acres (43%)¹ (open)	5,163,653 acres (38%)¹ (avoidance) 8,302,241 acres (62%)¹ (open)	509,798 acres (4%)¹ (avoidance) 413,179 acres (3%)¹ 12,542,918 acres (93%)¹ (open)
Land managed as INHT SRMA	Unspecified	355,799 acres (3%) ¹	340,574 acres (3%) ¹	340,574 acres (3%) ¹	340,574 acres (3%) ¹
Land managed as ACECs	1,884,376 acres (14%) ¹ (existing)	3,912,698 acres (29%) ¹	0 acres	0 acres	0 acres

Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Land managed as INHT NTMC	None	288,466 acres (2%) ¹	273,242 acres (2%) ¹	273,242 acres (2%) ¹	273,242 acres (2%) ¹
WSR lands	• 46,953 acres (<1%)¹ (existing) • 332,176 acres (2%)¹ (eligible)	• 46,953 acres (<1%)¹ (existing) • 332,176 acres (2%)¹ (suitable)	46,953 acres (<1%) ¹ (existing)	46,953 acres (<1%) ¹ (existing)	46,953 acres (<1%) ¹ (existing)

Note:

1) Percentage based on all BLM-managed land in the planning area.

Effects from Alternative A

Alternative A would not identify any specific lands for disposal, acquisition, or exchange but would continue adjustment of land ownership boundaries and jurisdiction to make each agency's lands as manageable as possible. This action could directly impact land status in the planning area by changing the number of acres managed by the BLM.

Alternative A would retain all ANCSA 17(d)(1) withdrawals, which would mean that top-filed lands from the State of Alaska would not become effective State selections nor would these lands become available for selection by qualified veterans under the Dingell Act. Upon revocation of the ANCSA 17(d)(1) withdrawals, any State of Alaska top-filings on unencumbered BLM would become State selections. The State of Alaska would be prevented from benefitting from selection rights, and qualified veterans would have to find other available lands under the Dingell Act. The ANILCA subsistence protections would remain on top-filed lands for qualified rural residents.

The current ACEC designations on BLM lands would continue; there would be no changes to current ACECs or addition of new ACECs. There would be no connectivity corridors, and no lands in the planning area managed as designated TMAs. Therefore, there would be no changes to land status.

The BLM would continue to manage the Unalakleet Wild River Corridor as VRM Class I. Land use proposals determined to be within the seen area (viewshed) of the Unalakleet Wild River, but outside the corridor, would be required to comply with VRM Class II objectives. The INHT would be managed to maintain the integrity of the INHT and associated historic and cultural sites. These actions would have direct impacts on lands and realty by limiting the BLM's ability to accommodate future ROW demand in these areas.

Alternative A would continue the current management of the Unalakleet Wild River Corridor, and an additional 18 river segments have been identified as eligible. The eligible river segments would continue to be managed for free-flowing condition, water quality, tentative classification, and ORV use. There are no guidelines for withdrawals that would be applicable to the eligible river segments. Therefore, there would be no effects to lands and realty from WSR management under Alternative A.

Effects Common to All Action Alternatives

Lands would be made available to benefit local communities through the use of ROW grants, permitting, exchanges, R&PP lease or sale, leases, or other appropriate permitting actions. These actions could have long-term, direct impacts on land status in the planning area. All land tenure decisions would be consistent with Secretarial Order 3373, Evaluating Public Access in Bureau of Land Management (BLM) Public Land Disposals and Exchanges and BLM Informational Bulletin) No. 2020-010, which requires documentation of impacts to recreational access as well as a comparison of acres disposed of and

exchanged since 2017. Public access was considered in determining parcels for exchange or disposal, as shown in the table in Appendix I.

All action alternatives include provisions for developing new ROWs or making changes to existing ROWs, impacting the land use of the planning area. Outside of ROW avoidance areas specified in the action alternatives, linear project ROWs would address caribou passage through the NEPA disclosure process for ROW applications. This requirement would affect the location of potential ROWs in the planning area and could add to the economic costs of ROWs. Definitions of ROW avoidance area, ROW exclusion area, and ROW avoidance area for linear realty actions can be found in Appendix B.

BLM-managed lands in the planning area would be designated as “Limited” to motorized travel. Realty actions for travel over the limited designations could be necessary, which would require an authorization from the BLM and have a direct impact on the land and realty program.

Under all the action alternatives, the INHT would be an SRMA. If the INHT is located within any lands where a withdrawal is revoked and if the parcel is conveyed, a reservation would be made for the INHT. This would be a long-term, direct impact to the land status of the planning area.

The BLM would maintain the withdrawal from mineral entry within the WSR corridors, subject to valid existing rights. This action could indirectly impact the BLM’s ability to accommodate mineral development in the planning area. BLM-held withdrawals could be revoked as determined at the implementation level. If the BLM were to revoke withdrawals on lands that are top-filed by the State of Alaska, those lands could be transferred to the State of Alaska through the Statehood Act once the withdrawals are lifted. If a BLM withdrawal is within an ANCSA corporation selection, the lands could be conveyed via ANCSA. Any conveyance containing the INHT NTMC would contain a reservation for the national trail. A new FLPMA withdrawal for an administrative site would be recommended to protect the government’s investment in the infrastructure put in place.

Unless already closed under other legal or regulatory requirements, the entire planning area would be open to the possibility of oil and gas leasing, but any locations recommended for withdrawal from locatable mineral entry would also be NSO for oil and gas. BLM-managed public lands within the planning area subject to leasing would be open to the possibility of coal exploration. Oil shale and non-energy leasable minerals would be leased at the AO’s discretion. Closing areas to mineral leasing could indirectly impact the BLM’s ability to accommodate leasable development in the planning area.

Effects from Alternative B

For Alternative B, no lands are available for disposal, and 341,761 acres are available for land exchange. Land acquisition and exchange by the BLM ensures the effective administration of BLM lands and serves the public interest by consolidating land patterns, improving resource management, maintaining access to BLM-managed lands, and supporting community development on adjacent non-BLM-managed lands. Any lands exchanged or acquired would directly impact the land status of the planning area.

The BLM would develop two travel management plans to identify travel routes and corridors between communities. As a result, there could be access provided via ROWs or easements for travel corridors. Future travel management plans would affect lands and realty actions through the limitations of ROW areas or granting of easements. There could also be areas of ROW restriction, limiting the BLM’s ability to accommodate future ROW demands and adding to the economic costs of proposed actions as well as other land use authorizations. These would be indirect impacts.

The BLM would manage resources consistent with applicable VRM class objectives. Objectives for VRM Class I and II would have a greater likelihood of limiting the location and/or applying mitigation measures to ROWs and other land use authorizations.

The BLM would retain all areas managed for wilderness characteristics as a priority that are in BLM ownership (277,489 acres), which could affect lands that are available for exchange. Management actions associated with lands with wilderness characteristics under Alternative B would impact land status more than under Alternatives C, D, and E.

In general, Alternative B would have more management actions that would limit land uses than Alternatives C, D, and E. These restrictions limit the BLM's ability to accommodate future land and realty authorizations in areas that are limited to ROW, permits, or leases or have restrictions for these activities, which is a long-term direct impact to land use but would not impact land status.

The entire geographies of HVWs would be closed to salable mineral development, closed to leasable mineral development, and withdrawn from locatable mineral entry. These restrictions would limit the BLM's ability to accommodate future resource extraction in these areas, a long-term indirect impact, although impacts would be minimal because there is little to no known leasable mineral potential during the expected life of the plan.

Under Alternative B, the entire geography of HVWs, ACECs, and WSRs could have FLPMA ROW exclusion or avoidance area buffers, and all proposed ACECs would be managed as FLPMA ROW avoidance areas. These restrictions would limit the BLM's ability to accommodate future ROW, FLPMA permits, and leases demands or other development in these areas, a long-term indirect impact.

Withdrawals under Alternative B would be recommended to be revoked for those lands withdrawn under ANCSA 17(d)(1), except for specified areas where future FLPMA withdrawals for salable, locatable, and leasable mineral development are recommended to minimize impacts to resource values at risk and the Unalakleet Administrative Site. Existing ANCSA 17(d)(1) prevent fulfilling State and ANCSA land entitlements and prevent making lands available for selection under the Dingell Act. Upon revocation of the ANCSA 17(d)(1) withdrawals, any State of Alaska top-filings on unencumbered BLM would become State selections. Alternative B would allow for increased State of Alaska selections compared to Alternative A. Also, more lands would become available for qualified veterans under the Dingell Act. The State of Alaska would be prevented from benefitting from selection right, and qualified veterans would have to find other available lands under the Dingell Act where the 17(d)(1) withdrawals would be retained. The ANILCA subsistence protections would remain on top-filed lands for qualified rural residents but would not apply to lands where a 17(d)(1) is revoked that are top-filed, as those lands would be State selected.

Effects from Alternative C

Available exchanges and acquisitions under Alternative C would be similar to Alternative B in that no lands would be available for disposal. Under Alternative C, 356,343 acres would be available for land exchange only. There would also be only one travel management plan instead of two, and there would be fewer acres managed as VRM Class I and II. The nature and type of effects would be the same as Alternative B.

Under Alternative C, there would be fewer restrictions on land use than Alternative B. Potential avoidance buffers would be the same as under Alternative B. Under Alternative C, the entire geography

of HVWs would be open to salable mineral development (subject to terms and conditions), NSO for leasable minerals, and open to locatable mineral entry unless segregated due to selection. There would be no ACECs proposed in Alternative C. Lands within the South Connectivity Corridor would be ROW avoidance areas for linear realty actions. Restrictions would limit the BLM's ability to accommodate future land and realty authorizations in areas that are limited to ROW, permits or leases, or have restrictions for these activities, a long-term indirect impact.

Alternative C would recommend 4,991 acres of new FLPMA withdrawals, including the Unalakleet Administrative Site. All existing ANCSA 17(d)(1) withdrawals under Alternative C would be recommended to be revoked. Existing ANCSA 17(d)(1) withdrawals prevent fulfilling State and ANCSA land entitlements and prevent making lands available for selection under the Dingell Act. Upon revocation of the ANCSA 17(d)(1) withdrawals, any State of Alaska top-filings on unencumbered BLM would become State selections. The revoked lands would become available for qualified veterans under the Dingell Act. The State of Alaska would benefit from selection rights, and qualified veterans would have increased lands available under the Dingell Act. The ANILCA subsistence protections would be decreased on lands that would become State selected.

Acquisitions would be the same as Alternative B, and the BLM would retain all lands within the INHT SRMA that are in BLM ownership. Any acquisitions or exchanges would have direct impacts on the land status of the planning area.

Effects from Alternative D

Unlike Alternatives B, C, and E, Alternative D would identify lands for exchange or disposal (450,575 acres) instead of exchange only. There would be fewer acres managed as VRM Class I and II than Alternatives B, C, and E (Table 3.3.5-2). In general, Alternative D would have fewer restrictions on land use than Alternatives B and C. Land use authorizations in HVWs would be limited to ROW, permits, or leases, or have restrictions for these activities. There would be no impact to the lands and realty program.

There would be no new FLPMA withdrawals recommended, except for the Unalakleet Administrative Site. All existing ANCSA 17(d)(1) withdrawals would be recommended to be revoked. Existing ANCSA 17(d)(1) withdrawals prevent fulfilling State and ANCSA land entitlements and prevent making lands available for selection under the Dingell Act. Upon revocation of the ANCSA 17(d)(1) withdrawals, any State of Alaska top-filings on unencumbered BLM would become State selections. The impacts of these withdrawals being revoked on State of Alaska selections and lands available for veterans under the Dingell Act would be the same as Alternative C. Acquisitions would be the same as Alternative B. Any acquisitions or disposals would have direct impacts on the land status of the planning area. The BLM would not pursue opportunities to acquire lands for public use easements under Alternative D, and there would be no impact to lands and realty.

Under Alternative D, as with Alternative C, there would be no ACECs. The proposed restrictions on the lands considered for ACECs (see Section 3.4.1) on land and realty authorizations would not be enacted, thereby increasing BLM's ability to address land and realty demands from the public and reduce the economic burden of these proposals.

Effects from Alternative E

Available exchanges and acquisitions under Alternative E would be similar to Alternative C in that no lands would be available for disposal. Under Alternative E, 356,343 acres would be available for land

exchange only. There would be fewer acres managed as VRM Class I and II than Alternatives B and C but more than Alternatives A and D (Table 3.3.5-2). In general, Alternative E would have similar restrictions on land use as Alternative C. Land use authorizations in HVWs would be limited to ROW, permits, or leases, or have restrictions for these activities, although any limitations in land uses applied to HVWs would apply only to the 100-year floodplains within the HVWs as opposed to the entire watershed. There would be no impact to the lands and realty program.

There would be new FLPMA withdrawals recommended, as with Alternative C, and all existing ANCSA 17(d)(1) withdrawals would be recommended to be revoked. Existing ANCSA 17(d)(1) withdrawals prevent fulfilling State and ANCSA land entitlements and prevent making lands available for selection under the Dingell Act. Upon revocation of the ANCSA 17(d)(1) withdrawals, any State of Alaska top-filings on unencumbered BLM would become State selections. The impacts of the ANCSA 19(d)(1) withdrawals being revoked on State of Alaska selections and lands available for veterans under the Dingell Act would be the same as Alternatives C and D. Acquisitions would be the same as Alternative B. Any acquisitions or exchanges would have direct impacts on the land status of the planning area. The BLM would not pursue opportunities to acquire lands for public use easements under Alternative E, and there would be no impact to lands and realty.

Under Alternative E, as with Alternatives C and D, there would be no ACECs. The proposed restrictions on the lands considered for ACECs (see Section 3.4.1) on land and realty authorizations would not be enacted, thereby increasing BLM's ability to address land and realty demands from the public and reduce the economic burden of these proposals.

Cumulative Effects

Past and Present Actions

Land status changes slowly as lands that are selected by the State or ANCSA corporations are conveyed out of BLM management and to the ownership of the selector.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative A)

Conveyance of lands to the State and ANCSA Native corporations is ongoing and will continue until the process is complete. On a statewide basis, about 98 percent of Native conveyances and 95 percent of State conveyances have been completed. Under Alternative A, this process would likely continue at the current rate. State of Alaska top-filed lands would not become State selections, and there would be less lands available under the Dingell Act for qualified veterans, so these lands would not be available for conveyance. Additionally, the BLM and other landowners have, since conveyance began, exchanged, withdrew, disposed of, and acquired land outside of the conveyance process. Reasonably foreseeable future actions are not anticipated to influence the rate of land status changes within and next to the planning area.

Past and present land uses, such as resource exploration and extraction, management of the INHT, community infrastructure, military activities, research and monitoring, recreation, and subsistence activities could impact lands and realty if such actions include ROW establishment, lease sales, and transportation corridors. Land use for all lands, including lands not managed by BLM, within the planning area can influence the current condition of the resources in the planning area. Impacts from such actions include ROW establishment, lease sales, and surface occupancy. Such impacts indirectly affect lands and realty in the planning area.

Potential transportation corridors under review by the State include two road and ROW corridors, both of which would cross BLM-managed land in the planning area. These activities would directly impact lands and realty in the planning area. Reasonably foreseeable future actions are not anticipated to influence the rate of land use changes within the planning area. Trend: Continue the existing trend of land use.

Past, Present, and Reasonably Foreseeable Future Actions (Alternatives B, C, and D)

Alternatives B, C, and D would differ from Alternative A, as State of Alaska top-filings would become State selections, and there would be lands available under the Dingell Act for qualified veterans.

Alternatives B, C and D would be the same as Alternative A regarding other land status changes and overall land use; past, present, and reasonably foreseeable future actions would not influence the rate of land status changes within and next to the planning area. Trend: Continue the existing trend of land use.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative E)

Alternative E would be the same as Alternatives B, C, and D regarding the status of land conveyance, other land status changes, and overall land use; past, present, and reasonably foreseeable future actions would not influence the rate of land status changes within and next to the planning area. Trend: Continue the existing trend of land use.

3.3.6 Recreation and Visitor Services

Affected Environment

Recreation setting characteristics (RSCs) influence desired experiences and benefits provided by recreation opportunities. Physical, social, and operational RSCs in the planning area are largely primitive and a result of low levels of infrastructure and development, recreational use, and operational programs.

Primary recreation uses consist of big game hunting; fishing; wildlife viewing; berry picking; dogsledding and snowmobiling of the INHT; river touring; and sightseeing via airplane or helicopter. Given the remoteness and lack of facilities, recreation typically takes place as part of a specially permitted event or guided tour (ADCCED 2009). Visitors include Alaska residents and travelers from outside the state or country. High gas prices and air travel costs limit rural recreation opportunities for residents (ADNR 2016). Tourism is a major component of the Alaskan economy. In 2008, more than 1.7 million people visited Alaska and spent nearly \$1.6 billion. Wildland tourism is an essential part of Alaska's tourism economy. Guided hunting occurs in 19 Guide Use Areas identified by the State of Alaska. Guided recreational fishing occurs along the Unalakleet, Yukon, and Kuskokwim Rivers, where wildlife viewing of moose, bears, bald eagles, ospreys, wolves, fox, beaver, and other wildlife is possible.

Competitive dogsledding, fat-tire bicycling, and snowmobiling events are popular along the INHT and connecting trails. The INHT is the only national historic trail to commemorate winter use. Approximately 1,500 miles of the historic trail are open for public use; of these, 700 miles are in the planning area, and the BLM manages approximately 200 miles, including State- and Native-selected lands. Most trail use takes place from February to April and includes several competitive events, such as the annual Iditarod Sled Dog Race (Iditarod 2017), the Iron Dog snowmobile race (Iron Dog Snowmachine Race 2017), and human-powered endurance races (foot, bicycle, and ski) such as the Iditarod Trail Invitational. Climate change is shortening the winter season for competitive events (ACRC 2018). The BLM issues SRPs to

outfitters and event coordinators (BLM 2017). As of February 2017, there were 24 active SRP operations. Summer use of the INHT is less frequent than winter use and primarily occurs outside the planning area.

The BLM manages five public shelter cabins in the planning area (BLM 2015d). Non-BLM-managed hunting and fishing lodges are popular summer destinations accessible by air or boat. Year-round access is primarily by air and waterways. The Unalakleet River is 90 miles long; 83 miles are managed by the BLM as a WSR (BLM 1983). There are no established campsites or public facilities. Summer activities include boating, fishing, and primitive camping. Winter activities include snowmobiling, dog mushing, ice fishing, hunting, and trapping. The INHT parallels or passes over portions of the WSR segment.

Winter access includes air, snowmobile, and snowshoeing. Snowstorms, frigid temperatures, and little to no sunlight limit recreation from November through January. From February to April, non-residents arrive to participate in winter recreation opportunities. A lack of roads and wet ground conditions in the late spring, summer, and early fall often preclude most recreation.

Direct and Indirect Effects

Impacts to recreation and visitor services can result from changes in recreation setting, visitor use (type and amount), and administrative or operational controls. Under all action alternatives, these attributes would be managed in the proposed INHT SRMA through physical, social, and operational RSCs designed to achieve a desired outcome. Impacts to recreation and visitor services within the BSWI ERMA would be measured in terms of the impacts to primary recreation activities (e.g., fishing, hunting) and the quality and conditions that support these activities.

Table 3.3.6-1 below summarizes the nature and types of beneficial or adverse effects that could occur to recreation and visitor services, the proposed management actions that could influence those effects, and the indicators used to measure the potential magnitude and extent of the effects. Table 3.3.6-2 discloses the potential magnitude and extent of the effects by indicator, across alternatives. In addition to the indicators described below measures to reduce impacts to fisheries and wildlife would support consumptive recreation opportunities and are discussed in Sections 3.2.5 and 3.2.7, respectively.

Table 3.3.6-1: Summary of Potential Effects to Recreation and Visitor Services by Management Action

Types of Effects	Management Actions	Indicators
Surface use, occupancy, and surface-disturbing activities could alter RSCs and/or quality and condition of recreation activities, thereby resulting in indirect impacts to desired experiences and benefits.	- Mineral Decisions - ROW Decisions - Commercial Woodland Harvest Decisions - Travel and Transportation Decisions - VRM Decisions - Lands with Wilderness Characteristics Decisions - Management Actions Applied to Designated ACECs	- Changes in desired outcome, as measured by <u>physical</u> recreation setting (SRMA) and/or quality and conditions that support desired recreation activity (ERMA): - Acres open to mineral development in areas of medium to high LMP - Acres ROW - Acres open to commercial woodland harvest permitting - Acres open to cross-country casual use (summer) - Acres managed with VRM Class I, II, or III or IV objectives - Acres managed for wilderness characteristics as a priority - Acres managed as ACEC

Table 3.3.6-2: Portions of Planning Area Analyzed for Potential Impacts to Recreation and Visitor Services by Indicator

Indicator	INHT SRMA					BSWI ERMA				
	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E
Total Acres	0	355,799	340,574	340,574	340,574	0	13,110,096	13,125,320	13,125,320	95,307

Indicator	INHT SRMA					BSWI ERMA				
	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E
Acres open to locatable mineral development in areas of medium to high LMP	0	0	0	0	0	0	167,018 (1%) ²	565,489 (4%) ²	565,489 (4%) ²	17,702 (19%) ²
Acres open to locatable mineral development in areas of medium to high LMP segregated due to selection ¹	0	0	0	0	0	0	100,426 (1%) ²	317,531 (2%) ²	317,531 (2%) ²	17,674 (19%) ²
Acres managed as open to ROW	0	11,041 (3%) ³	11,041 (3%) ³	129,625 (38%) ³	18,998 (6%) ³	0	3,094,864 (24%) ²	5,774,137 (44%) ²	8,172,616 (62%) ²	85,874 (90%) ²
Acres managed as ROW exclusion	0	336,800 (95%) ³	0	0	0	0	1,127,267 (9%) ²	0	0	0
Acres managed as VRM Class I	46,953	355,799 (100%) ³	46,953 (14%) ³	46,953 (14%) ³	46,953 (14%) ³	0	979,972 (7%) ²	0	0	0
Acres managed as VRM Class II	0	0	293,620 (86%) ³	226,287 (66%) ³	293,620 (86%) ³	0	6,490,081 (50%) ²	2,472,606 (19%) ²	453,265 (3%) ²	17,257 (18%) ²
Acres managed as VRM Class III	0	0	0	67,333 (20%) ³	0	0	3,516,063 (26%) ²	6,095,772 (45%) ²	6,072,896 (45%) ²	76,327 (80%) ²
Acres managed as VRM Class IV	0	0	0	0	0	0	2,123,969 (16%) ²	4,556,930 (34%) ²	6,599,147 (49%) ²	1,722 (2%) ²
Acres closed to commercial woodland harvest permitting	0	316,236 (89%) ³	46,953 (14%) ³	0	46,953 (14%) ³	0	4,745,829 (36%) ²	40 (<1%) ²	0	0
Acres designated as ACEC	0	256,778 (72%) ³	0	0	0	0	3,656,915 (28%) ²	0	0	0
Acres with summer casual OHV access prohibited	0	241,512 (68%) ³	225,925 (66%) ³	225,925 (66%) ³	225,925 (66%) ³	0	277,489 (2%) ²	0	0	0
Acres with summer casual OHV access limited to existing trails	0	67,333 (19%) ³	115,012 (34%) ³	46,953 (14%) ³	115,012 (34%) ³	0	12,832,595 (98%) ²	13,125,308 (>99%) ²	0	95,307 (100%) ²
Acres eligible/recommended suitable WSR	77,055	77,055 (22%) ³	0	0	0	302,075	302,075 (2%) ²	0	0	0
Acres of lands with wilderness characteristics managed as a priority over other resources values and multiple uses	0	0	0	0	0	0	277,489 (2%) ²	0	0	0
Acres managed as CFZs	0	0	0	0	0	0	818,395 (6%) ²	95,307 (1%) ²	0	95,307 (100%) ²

Notes:

1) State top-filings that become valid selections due to ANCSA corporation selections being relinquished or rejected will be managed like all other State selections. Alternatives that recommend revocation of 17(d)(1) withdrawals where the withdrawal prevents State selections would allow for the State selections to become valid once revocation is complete. These lands would be managed like all other State selections.

2) Percentage based on total acres of ERMA.

3) Percentage based on total acres of SRMA.

Effects from Alternative A

Under Alternative A, the BLM would not designate recreation management areas and would not manage for specific desired setting experiences and benefits. Dispersed and unstructured recreation activity would continue in the planning area. Impacts to the remote, natural characteristic landscape in the planning area

could result from allowable land use and development pertaining to minerals (with 52 percent identified as having medium to high LMP), ROW, and to a lesser extent, commercial woodland harvest.

Apart from the Unalakleet Wild River Corridor, VRM standards would not be applied to the planning area; therefore, scenic quality impacts that alter recreation setting could occur where land uses described above occur. Within the WSR, VRM Class I standards would maintain recreation setting consistent with the wild river classification. Land use proposals determined to be within the seen area of the Unalakleet Wild River, but outside the corridor, would be required to comply with VRM Class II objectives, which direct allowable surface disturbance or development to minimize change in landscape character. Existing ACECs would continue to be managed to avoid and minimize impacts to fish and wildlife by maintaining and/or improving fish and game populations and maintaining important habitat in 14 percent of the planning area.

Potential for use conflict would continue, especially in the INHT and Unalakleet Wild River Corridor, where recreation, subsistence, and casual use occur. Issuing SRPs on a case-by-case basis would allow hunting guide/outfitters to accommodate increasing demand for guided hunting and fishing, and special events on the INHT; however, increased use in the absence of travel management could result in user conflicts (including by mode) and damage to natural resources that contribute to the recreation setting. These impacts would be greatest in areas of high recreation use, such as the INHT.

Effects Common to All Action Alternatives

INHT SRMA. The INHT SRMA would be established and managed for RSCs to achieve outcomes focused on remote adventure, physical activity, solitude, awareness of the natural world, and self-reliance in a natural characteristic landscape. While currently there is not a high demand and there is not an anticipated increase in demand, the primary actions with the potential to affect physical RSCs include mineral and ROW development and commercial timber harvest. SRMA specific outcomes-focused objectives, proposed RSCs, and the management framework for each can be found in Appendix P, Recreation Management Areas.

Mineral development could alter physical RSCs through surface disturbance that alters landform and infrastructure that diminishes the natural character of the landscape. Vegetation clearing in new ROWs could establish straight lines in the natural landscape where changes in form, color, and texture contrast the existing landscape. Vegetation clearing in new ROWs could also increase access to areas otherwise considered remote and inaccessible. Commercial woodland harvesting could directly and indirectly affect physical RSCs in the short and long term by creating contiguous areas of vegetation clearing that appear incongruent with the surrounding intact landscape. Collectively or individually, these actions could impact the recreation setting necessary to support desired experiences and benefits for which the SRMA is managed.

The primary actions that affect social RSCs include noise impacts and changes in visitor use, encounters, and potential for conflict. Land uses described above could affect social RSCs by altering the natural quiet soundscape of the SRMA. Travel management actions that control season- and mode-specific travel would affect type of use. Implementation-level decisions on commercial recreation allocation and SRPs within the SRMA would affect level and type of use, and potential for conflicting uses.

The SRMA would not intersect medium to high mineral potential areas on BLM-managed lands; consequently, there would be a low likelihood for direct impacts to the physical recreation setting within

the SRMA from mineral development in these areas as described in Alternative A. The NTMC would be established (with varying sizes) within the SRMA and would provide management of surface-disturbing activities to maintain the recreation experience provided by the trail's natural setting, feeling, and association. The Unalakleet Wild River Corridor would continue to be managed as a wild river under the National System, with use and development restrictions that support continued preservation of river values. Management actions that limit land uses in these areas would support desired experiences and benefits of the SRMA (Appendix P).

BSWI ERMA. The BSWI ERMA would be established and managed to maintain quality and condition of recreation activities, such as remote fishing and hunting and casual OHV use. Quality and condition of the recreation setting in the ERMA would be affected by land uses as described for the SRMA, above. Short-term noise and visual impacts from these land uses could reduce the quality of a recreation experience and result in changes in consumptive recreation uses, as wildlife could disperse from areas where activity, noise, and/or lighting exist. Likewise, land uses that affect water quality or fisheries habitat through development in floodplains could impact the health and sustainability of sport fishing. Beneficial effects to the ERMA could result from management actions that maintain the recreation setting (VRM Class I or II) and reduce impacts to fisheries, wildlife, and important fisheries values identified for ACEC and WSR. Collectively or individually, these actions could impact the recreation setting necessary to support desired experiences and benefits for which the ERMA is managed (Appendix P).

Effects from Alternative B

INHT SRMA. Under Alternative B, approximately 3 percent of BLM lands within the planning area (355,799 acres) that coincide with the INHT, connecting trails, and the Unalakleet Wild River Corridor would be designated an SRMA. While currently there is not a high demand and there is not an anticipated increase in demand, closure to commercial woodland harvest and ROW exclusion (89 percent and 95 percent of SRMA, respectively) would result in beneficial impacts to the desired RSCs, as changes in natural characteristic landscape, access, and potential impacts to fisheries and wildlife from these land uses would not occur. Potential impacts to the trail and other portions of the SRMA from rutting or braiding would be minimized by prohibiting casual summer use on the trail in 81 percent of the SRMA.

All of the SRMA would be managed per VRM Class I, ensuring maintenance of the visual characteristic landscape. Approximately 15 percent more of the SRMA would overlap areas designated as ACECs under Alternative B than Alternative A (Anvik Traditional Trapping Area ACEC [6 percent], Sheefish Spawning ACEC [53 percent], and the Unalakleet River Watershed ACEC [53 percent]), thereby reducing potential impacts to fisheries, which could benefit recreational fishing activity and minimize use conflicts. Approximately 22 percent of the SRMA would coincide with the Unalakleet Wild River Corridor, where management to avoid and minimize impacts to ORVs for fish would also contribute to long-term sustainability of the fisheries resource.

Alternative B would maintain the recreation setting necessary to support desired experiences and benefits for which the SRMA is managed (Appendix P). Through implementation-level visitor use decisions, the SRMA could be managed to promote public use of recreation facilities through SRPs that limit visitor numbers, stay lengths, and commercial use, thereby resulting in beneficial direct effects to social RSCs by minimizing conflict between commercial, casual, and subsistence use of the INHT.

BSWI ERMA. Under Alternative B, 97 percent of the planning area would be designated an ERMA, with 818,395 acres (about 6 percent of BLM-managed land in the planning area) managed as CFZs. The CFZs

would be managed to reduce conflicts between subsistence use and commercial outfitter guide hunting by not permitting SRPs for this use on BLM lands in the CFZs. However, shuttle service operations would be allowed throughout the entire ERMA, including CFZs. Therefore, conflicts could continue to occur between non-local hunters and local hunters engaging in subsistence activity. BLM would have the ability to control the number of shuttle service operators, and resulting conflict, by the number of SRPs issued.

While currently there is not a high demand for development and there is not an anticipated increase in demand, approximately 30 percent of the ERMA that intersects areas of medium or high mineral potential would be open to locatable mineral development and over half of this acreage (100,426 acres) would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected. Approximately 36 percent of the ERMA would be closed to commercial woodland harvest, 9 percent would be managed as an ROW exclusion area, and 67 percent would be managed as an ROW avoidance area, which would avoid and minimize impacts to the quality and condition of recreation activities in the ERMA; effects would be similar to those described for the SRMA, though applied to a larger geographic extent. The quality and condition of guided recreational fishing could be impacted by noise and visual impacts if commercial woodland harvest occurred in areas open to commercial woodland harvest permitting near the Unalakleet, Yukon, and Kuskokwim Rivers. In the remaining 24 percent of the ERMA open to ROW location, vegetation clearing in the ROW could create new access to the existing undisturbed landscape and trails primarily defined by subsistence use, adversely affecting the desired recreation setting for the ERMA.

Approximately 7 percent of the ERMA would be managed per VRM Class I, coinciding with certain rivers identified as eligible for inclusion in the National System. The VRM Class I designation would result in similar beneficial impacts as described for the SRMA. Approximately 50 percent of the ERMA would be managed per VRM Class II, including foreground-middleground viewsheds of national parks, wilderness, and State park lands within the planning area and background viewsheds of the Community of Flat. Maintaining viewsheds would have beneficial direct impacts to the quality and condition of recreation activities, including the historic setting of Flat where recreation and tourism opportunities exist.

Approximately 42 percent of BLM-managed lands would be managed per VRM Class III and IV, allowing moderate to high changes to the characteristic landscape. However, only a low level of changes to the characteristic landscape would be permitted in approximately 74 percent of lands within the foreground-middleground (where visibility from recreation uses would be highest) due to VRM Class I and II designation. Collectively, a total of 11 ACECs under Alternative B would overlap 28 percent of the ERMA, more than Alternative A. Management actions for these ACECs would be similar to those described for the SRMA, resulting in similar beneficial impacts to recreation.

Under Alternative B, 277,489 acres (2 percent of the ERMA) with wilderness characteristics would be managed as a priority over other resource values and multiple uses. Opportunities for wilderness-based activities and quality of wilderness experiences would be retained in this portion of the ERMA by limiting surface disturbance and development, ROW avoidance, and recommended locatable mineral withdrawals.

Compared to Alternative A and other action alternatives, Alternative B would result in the greatest compatibility between recreation uses and community interests due to exclusion of commercial hunting outfitter SRPs from the CFZs and allowing shuttle service operators by SRP. The CFZs would reduce conflicts between subsistence and recreation uses; however, future demand for guided hunting in the planning area could not be accommodated in these areas. Alternative B would maintain the recreation

setting necessary to support the desired experiences and benefits for which the ERMA is managed (Appendix P).

Effects from Alternative C

INHT SRMA. Alternative C would designate a smaller area as the SRMA (340,574 acres) than Alternative B, and land uses that could impact RSCs would be less restricted. While currently there is not a high demand for development and there is not an anticipated increase in demand, direct impacts to physical RSCs could result from ROW development in 97 percent of the SRMA managed as avoidance areas. The magnitude and geographic extent of impacts to recreation would depend on the stipulations applied to permitted ROWs and their effectiveness in reducing impacts to physical and social (access-related) RSCs. ROW development that crosses or is located near the INHT could change the characteristic landscape and create new access, which could conflict with the desired physical RSCs. Potential impacts from commercial woodland harvest from Alternative C would be similar in nature and effect to those described for Alternative A; however, the geographic extent of impacts could be smaller because more acres would be closed to commercial woodland harvest (46,953 acres, or 14 percent of the SRMA). Alternative C would apply VRM Class I (14 percent or 46,953 acres) and II (86 percent or 293,621 acres) designations to the SRMA, thereby retaining the existing character of the landscape where development does occur and limiting direct impacts to the physical recreation setting. All VRM Class I designations would occur in portions of the SRMA that intersect the Unalakleet Wild River Corridor. Alternative C would differ from Alternative B in that summer casual and subsistence OHV use would be permitted on existing routes at the Rohn Site. Winter OHV access and travel management on the INHT would be the same as Alternative B and therefore would result in the same impacts described for Alternative B. As in Alternative B, potential impacts to the trail from rutting or braiding would be minimized by prohibiting casual summer use on the trail in 81 percent of the SRMA (note that the SRMA is smaller under Alternative C, but the relative percentage is the same).

BSWI ERMA. Alternative C would designate 13,125,320 acres (97 percent) of the planning area as an ERMA, with 95,307 acres (about 1 percent of BLM-managed land in the planning area) managed as CFZs. While currently there is not a high demand for development and there is not an anticipated increase in demand, all areas of medium to high LMP in the ERMA would be open to locatable mineral exploration and development, though 56 percent of this acreage (317,531 acres) would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected. The nature and types of effects on recreation from locatable mineral development would be similar to impacts described for Alternative A, although to a greater geographic extent. The entire ERMA would be open to commercial woodland harvest permitting and therefore would incur potential visual and noise-related impacts similar to those described for Alternative B.

The quality and condition of approximately 19 percent of the ERMA would be maintained through management as VRM Class II. The nature and types of effects would be the same as described for Alternative B; however, the beneficial impacts would occur over a smaller geographic extent (19 percent). Management as VRM Class II would remain for boundaries of national parks, wilderness, and State park lands. The remaining 79 percent of the ERMA would be managed per VRM Class III and IV. This management standard could result in direct adverse impacts to recreation setting quality within the ERMA, as described for Alternative B, but for a larger geographic extent. VRM Class III would be applied to a 15-mile buffer around the Community of Flat; modifications to the historic setting from development in this area could result in indirect effects to the potential for recreation and tourism.

Management actions to reduce impacts to fisheries and habitat would result in beneficial impacts to recreation as described for Alternative B.

Under Alternative C, there could be an increased potential for user conflict given the smaller CFZs. Alternative C would allow shuttle service operations without an SRP throughout the ERMA unless there is an increase in use conflict with the BSWI ERMA objectives, at which point the BLM would engage in additional planning to maintain ERMA objectives. So, although Alternative C would not require SRPs for shuttle service operators, conflicts with non-local hunters and local hunters engaging in subsistence activity would be managed if issues arose. Additionally, the 5-mile radius CFZ would still be more restrictive than under Alternative A and thus would minimize conflict between recreation and subsistence use. Overall, the SRP-related management actions would support the RSCs, experiences, and benefits desired for the ERMA but to a lesser extent than Alternative B.

Effects from Alternative D

INHT SRMA. While currently there is not a high demand for development and there is not an anticipated increase in demand, Alternative D would allow for an increased area open to ROW location within the SRMA (38 percent of the SRMA) and therefore an increased potential for impacts to recreation from ROW development as compared to other action alternatives. All areas within the SRMA would be open to commercial woodland harvesting, and impacts would be the same as under Alternative A. Under Alternative D, VRM Class I would be applied to portions of the SRMA intersecting the Unalakleet Wild River Corridor (14 percent or 46,953 acres). VRM Class II management would be applied to other areas within 7.5 miles of the INHT, which could impact the natural primitive recreation setting of the INHT by allowing changes within the landscape beyond this buffer. Alternative D would not support the desired physical RSCs for the SRMA and could result in impacts to the physical and social recreation setting that would not support the desired experience and benefits for which the SRMA is managed (Appendix P).

BSWI ERMA. Under Alternative D, the ERMA would be the same size as Alternative C. While currently there is not a high demand for development and there is not an anticipated increase in demand, the ERMA area overlapping areas of medium to high LMP would be managed as open to locatable mineral development and impacts to recreation would be similar to those described for Alternative C. Compared to Alternative C, more area would be open to ROW location (approximately 62 percent of the ERMA), and less area would be managed as ROW avoidance (38 percent of the ERMA), resulting in greater impacts from vegetation clearing and potential new access than for Alternative C. The ERMA would be managed per VRM Class III and IV, except for approximately 3 percent of the ERMA, which would be managed as VRM Class II. In the 49 percent of the ERMA managed per VRM Class IV, major modifications to the existing character of the landscape would be allowed, and the level of change to the characteristic landscape could be high. Such impacts would conflict with the desired experiences and benefits in the ERMA, including enjoying the sights or heightened awareness of the natural world. VRM Class IV designation (as compared to VRM Class III under Alternative C) would be applied to the 15-mile buffer surrounding the Community of Flat and the 5-mile buffers surrounding national parks, wilderness, State parks, and NWRs, which could result in direct adverse impacts to viewsheds from development in adjacent BLM-managed lands that dominate the landscape.

There would be no CFZs, and shuttle service operations would be allowed throughout the ERMA without an SRP. However, if the ERMA objectives are not being met, BLM would increase monitoring, outreach, education, and/or enforcement, at the implementation level. Consequently, an increase in conflict with subsistence use could occur compared to Alternative B or C. However, Alternative D does provide BLM

the ability to manage conflicts with non-local hunters and local hunters engaging in subsistence activity if issues arose, which is an improvement over Alternative A. Alternative D could result in impacts to the physical and social recreation setting that would not support the desired experiences and benefits for which the ERMA is managed (Appendix P).

Effects from Alternative E

INHT SRMA. Alternative E would designate the same area as the INHT SRMA (340,574 acres) as Alternatives C and D, which is a smaller area than Alternative B. While currently there is not a high demand for development and there is not an anticipated increase in demand, impacts to physical RSCs, characteristic landscape, and access from ROW development would be the same as described under Alternative C, though more acreage would be open to ROW development in the SRMA under Alternative E. Impacts related to the SRMA from commercial woodland harvest, VRM, and travel management would be the same as those described for Alternative C.

BSWI ERMA. Alternative E would designate 95,307 acres as an ERMA (about 1 percent of BLM-managed land in the planning area), which would be smaller (by over 13 million acres) than the other action alternatives. Under Alternative E, the ERMA would consist of only the CFZs described in Alternative C. The CFZs under Alternative E would be managed the same as described under Alternative C. As stated under Alternative C, the 5-mile radius CFZs would still be more restrictive than under Alternative A or D and thus would minimize conflict between recreation and subsistence use, though there could be an increased potential for user conflict given the smaller CFZs compared to Alternative B. Shuttle service operations within the ERMA under Alternative E would be the same as under Alternative C and would result in beneficial impacts described under Alternative C; however beneficial impacts of management actions would only be applied in geographic area of CFZs. Overall, the SRP-related management actions (commercial hunting guide/outfitter SRPs prohibited in CFZs and permitting non-commercial SRPs determined to be consistent with objectives for CFZs) would support the RSCs, experiences, and benefits desired for the ERMA but to a lesser geographic extent than Alternatives B and C. Under Alternative E, almost all the of the acreage within the ERMA identified as having medium to high mineral potential (17,674 acres) would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected.

Undesignated Recreation Lands. Alternative E would be the only action alternative that would have lands not designated as a SRMA or ERMA; these lands would be referred to as the undesignated recreation lands. Rather than designating the lands outside of the INHT SRMA as an ERMA, as would be done under Alternatives C and D, the area outside of the CFZs and INHT SRMA would be the undesignated recreation lands under Alternative E. Over 13 million acres of the planning area would be undesignated as an SRMA or ERMA under Alternative E. However, as noted in Section 2.6.17, management actions applicable to the ERMA under Alternatives B, C, and D would also apply to the undesignated recreation lands under Alternative E. These actions include developing new restrictions or facilities for the purposes of site protection, visitor safety or enhancement of targeted outcomes and setting character, unrestricted aircraft use, minimal clearing of landing areas, inclusion of appropriate stipulations to protect and manage resources as part of SRP issuance, authorization of some uses and activities in conjunction with a SRP or land use permit according to the normal permitting process at the implementation level, and using an adaptive management approach.

While currently there is not a high demand for development and there is not an anticipated increase in demand, the entire undesignated recreation lands area would be open to locatable mineral exploration and

development, though over half of this acreage would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected. The nature and types of effects on recreation from locatable mineral development would be similar to the impacts described for Alternative A, although to a greater geographic extent, similar to impacts from mineral development in the ERMA under Alternatives C and D. Like the ERMA under Alternative C, the entire undesignated recreation lands would be open to commercial woodland harvest permitting and therefore impacts similar to those described for Alternative B could occur within the undesignated recreation lands. Compared to the ERMA in Alternatives C and D, the majority of the undesignated recreation lands (95 percent) would be open to ROW location under Alternative E, resulting in the greatest impacts on recreation of the action alternatives from vegetation clearing and potential new access.

Approximately 18 percent of the undesignated recreation lands would be managed as VRM Class II. Impacts from VRM Class II management would be the same as described for Alternative B, though beneficial impacts would occur over a smaller geographic extent, similar to the ERMA for Alternative C. The majority of the undesignated recreation lands would be managed per VRM Class III (44 percent) and IV (38 percent), similar to the ERMA under Alternative C. Impacts to recreation setting quality in the undesignated recreation lands may result from VRM management as Class III and IV, as described for Alternative B, but for a larger geographic extent. VRM Class III would be applied as described for the ERMA in Alternative C and result in the same impacts. As described for Alternative B, management actions to reduce impacts to fisheries and habitat would result in beneficial impacts to recreation.

Cumulative Effects

Past and Present Actions

Demand is increasing for recreation opportunities in the planning area, including those that rely on a primitive or semi-primitive setting, and for sustainable consumptive recreation opportunities. This demand could increase potential for subsistence and recreation use conflict. The current trend could degrade recreation setting, opportunity, and experience within the planning area. There is potential for climate-related impacts to recreation setting, opportunity, and experience due to shorter winters. Trend: Continues to degrade.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative A)

Recreation and visitor services management in the planning area would continue under the current framework. No measures would be taken to address increased recreation pressure and potential for user conflicts in the planning area. Trend: Continues to degrade.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative B)

Management actions that control visitor use, manage setting (through allowable uses and VRM), and improve consumptive recreation resource bases would reverse current trends by maintaining setting, managing the recreation resource, and minimizing use conflicts.

Past, Present, and Reasonably Foreseeable Future Actions (Alternatives C and E)

Management actions that control visitor use would be applied. Actions that limit impacts to landscape character and setting would be applied; however, management would result in more impacts of higher magnitude than under Alternative B, particularly potential ROW development under Alternative E. Likewise, measures to reduce impacts to fisheries and wildlife habitat to support consumptive recreation

use would be applied to a smaller geographic area or in a manner that does not reduce impacts to the same degree as Alternative B.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative D)

Under Alternative D, visitor use would be managed at the implementation level through evaluation of SRP permits. There would be more management actions to reduce resource impacts and limits on surface disturbance than Alternative A; however, they would not address current trends with specific planning measures to balance demand with desired RSCs.

3.3.7 Travel and Transportation Management

Affected Environment

The planning area encompasses one of the most remote areas in the United States due to the predominance of wetlands and waterways throughout the region, and a lack of roads connecting to Alaska's contiguous road system (Map 3.3.7-1). A few short roads serve the local communities, but the only extended road systems are historical remnants of mining and military infrastructure, such as those found near the towns of Takotna, McGrath, and Unalakleet, or the ghost towns of Flat and Ophir. Almost all existing roads in the planning area are on lands managed by entities other than BLM. Community road systems typically consist of a grid of homesites and roads to local airstrip, riverside boat landing site, landfill, telecommunication sites, and community water intake or gravel pits. For in-town transportation, many residents rely on "four-wheelers" (quad-type OHVs with a straddle-type seat; also called ATVs) and multi-person UTVs with side-by-side seating in summer and snowmobiles in winter. Most bulk freight (fuel, dry goods, building materials, vehicles) is shipped by ocean and river-going barges from Anchorage or Seattle, Washington, in the summer. Automobiles are uncommon because of the high cost of shipping, maintenance, and fuel. Only a small percentage of bulk freight is hauled by air due to the cost. Year-round transportation for travel, postal service, and freight relies on commercial air service. Most communities have a State-maintained airfield.

OHV use is currently undesignated in the planning area per 43 CFR 8342.1, which allows ATV and snowmobile use in the planning area. Non-motorized travel is also allowed everywhere in the planning area. Current use of congressionally designated areas (INHT, Unalakleet Wild River Corridor) is low due to remoteness and limited demand. Access by motorboat, airboat, fixed-wing aircraft, helicopters, and hovercraft is unrestricted. Minimal hand clearing of airstrips is allowed to move small obstacles and brush. Surface-disturbing improvements such as vegetation removal or site leveling require a permit. Management of weight restrictions on OHV routes is not coordinated between federal and State lands. The BLM-managed lands within the planning area have no weight restrictions, while neighboring State lands generally allow a recreational-type vehicle with a curb weight of up to 1,500 pounds or a highway vehicle of up to 10,000 pounds (if such use does not cause or contribute to water quality degradation, alteration of drainage systems, substantial rutting, surface disturbance, or thermal erosion). Larger vehicles on State land require a permit. Approximately 70 ANCSA Section 17(b) easements exist, providing public access across private Native corporation lands. OHV use on easements is subject to limitations dating from easement establishment (allowable use, season of use, vehicle weight restrictions, easement type). Commercial lodges or commercial venture structure establishment is possible via a prescribed BLM permitting process. Temporary commercial land use for commercial ventures is administered through the BLM's SRP and realty processes.

The seasonality of surface uses, routes, and areas are determined by whether freezing water conditions are present and area categorized for management purposes as the summer season or winter season. Summer is defined as the period during which lands and waterways are not frozen. Most summer surface uses follow waterways via motorboats, with a small proportion traveling overland via OHVs and an even smaller proportion traveling by non-motorized means. Summer overland travel is for subsistence resource harvest (wildlife, fish, berries, and firewood) and some guided hunting or casual individual use. No designated summer trails, travel routes, or designated primitive roads exist. Existing routes are from past OHV use for subsistence, recreation and development projects. Existing routes typically show impacts such as soil compaction, vegetation damage, hydrological changes, fish and wildlife impacts, visual impacts, and route braiding.

Winter is defined as the period during which lands and waterways are frozen. Winter overland travel is undertaken for inter-village travel, subsistence, sport hunting, trapping, ice fishing, firewood collection, casual recreation, guided tours, and medium- and long-distance trail-based competitive events, such as the Iditarod Trail Sled Dog Race and Iron Dog (snowmobile) Race; the INHT is considered a winter trail. Virtually all winter trail use is shared by motorized and non-motorized users. Non-motorized travel includes cross-country skiing, fat-tire biking, dogsledding, snowshoeing, and foot travel. Most snowmobile use is on inter-village travel routes (along frozen waterways and sections of forest or tundra), near communities, and to and from remote areas for wildland resource harvest.

Direct and Indirect Effects

Table 3.3.7-1 below summarizes the nature and types of beneficial or adverse effects that could occur to travel and transportation management, the proposed management actions that could influence those effects, and the indicators used to measure the potential magnitude and extent of the effects. Table 3.3.7-2 discloses the potential magnitude and extent of the effects by indicator, across alternatives.

Table 3.3.7-1: Summary of Potential Effects to Travel and Transportation Management by Management Action

Types of Effects	Management Actions	Indicators
Changes to access due to: • Temporary closure of routes • Restriction or elimination of access to areas by certain types of vehicles or during certain times of the year • Limits on aerial access	• Air Quality Decisions • Wildlife Management Decisions • Hazardous Materials and Health and Human Safety Decisions • Travel and Transportation Management Decisions • Vegetation Management Decisions • Wildland Fire Management Decisions • Soils Management Decisions • Recreation and Visitor Services Decisions • WSR Decisions • Wildlife Decisions	• Change in ability to access existing routes, areas, or BLM lands in general • Change in ability of users with various types of vehicles to access areas • Change in aircraft landing accessibility • Change in airspace that aircraft are allowed to access over BLM lands • Acres of OHV cross-country access • Acres of OHV access limited to existing trails • Acres of restrictions on vehicle type

Types of Effects	Management Actions	Indicators
Impacts to the transportation network resulting from: • Expansion • Limiting the potential for expansion • Reducing creation of new social trails • Consolidation of routes • Route proliferation • Affects to unauthorized use • Limitations on future route locations • Physical degradation of routes	• Vegetation Decisions • Support for BSWI Communities Decisions • Travel and Transportation Management Decisions • Forestry and Woodland Product actions • Soils Decisions • Visual Resource Decisions • Lands and Realty Decisions	• Acres of land within ROW exclusion and avoidance areas • Acres that would be excluded from wind energy development • Change in the size of the transportation network • Increase or decrease in opportunities for unauthorized use of routes • Increase or decrease in the potential locations where routes could be placed • Physical degradation or expansion of route

Table 3.3.7-2: Portions of Planning Area Analyzed for Potential Impacts to Travel and Transportation Management by Indicator

Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Acres of summer OHV overland access ¹	None designated	Casual: 0 acres Subsistence: 12,899,939 acres (96%) • 8,986,567 acres ATV only (67%) • 3,912,698 acres ATV and UTV only (29%)	Casual: 0 acres Subsistence: 13,239,606 acres (98%) • 46,953 acres ATV only (<1%) • 10,368,769 acres ATV and UTV only (77%)	Casual: 13,193,016 acres (98%) Subsistence: 13,239,969 acres (98%) • 46,953 acres ATV and UTV only (<1%)	Casual: 0 acres Subsistence: 13,239,606 acres (98%) • 46,953 acres ATV only (<1%) • 10,368,769 acres ATV and UTV only (77%)
Acres of summer OHV access limited to existing trails ¹	None designated	Casual: 12,899,939 acres (96%) • 3,912,698 acres ATV only (29%) Subsistence: 324,443 acres (all ATV only) (2%)	Casual: 13,239,969 acres (98%) • 3,044,073 acres ATV and UTV only (23%) • 46,953 acres ATV only (<1%) Subsistence: 363 acres (<1%)	Casual: 46,953 acres (all ATV and UTV only) (<1%) Subsistence: 225,925 acres (all ATV only) (2%)	Casual: 13,239,969 acres (98%) • 3,044,073 acres ATV and UTV only (23%) • 46,953 acres ATV only (<1%) Subsistence: 363 acres (<1%)
Acres limited to snowmobiles only for winter travel ¹	None designated	Casual: 13,465,894 acres (100%) Subsistence: 4,243,914 acres (32%)	Casual: 3,097,798 acres (23%) Subsistence: 3,097,798 acres (23%)	Casual: 225,925 acres (2%) Subsistence: 225,925 acres (2%)	Casual: 3,097,798 acres (23%) Subsistence: 3,097,798 acres (23%)
Ability of users with various types of vehicles to access areas (does not include land surface features, which effectively limit use on majority of the planning area).	No impact; routes continue to be undesignated	Most restrictions on vehicular access. Vehicular access would also be the most restricted by TMAs, resulting in the greatest change to existing vehicular access.	More vehicular access restrictions than Alternative D but fewer than Alternative B.	Few limitations on vehicular access; least change to existing vehicular access.	More vehicular access restrictions than Alternative D but fewer than Alternative B.
Aircraft landing accessibility	No impact	Landing access in certain areas could become more difficult over time.	Same as Alternative B	Same as Alternative B	Same as Alternative B
Airspace that aircraft are allowed to access over BLM lands ²	No impact	Change in altitude and distance in some areas	Same as Alternative B	Same as Alternative B	Same as Alternative B

Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Acres of land within ROW exclusion and avoidance areas ¹	0	10,359,989 acres (77%)	7,528,863 acres (56%) (all acres pertain to ROW avoidance; there is no ROW exclusion in Alternative C).	5,163,653 acres (38%) (all acres pertain to ROW avoidance; there is no ROW exclusion in Alternative D).	509,798 acres (4%) (all acres pertain to ROW avoidance; there is no ROW exclusion in Alternative E).
Acres that would be excluded from wind energy development ¹	0	288,466 acres (2%)	273,242 acres (2%)	0	273,242 acres (2%)
Size of the transportation network	Network would continue to expand due to the location of new routes/trails, and development outside existing ANCSA 17(d)(1) withdrawn areas.	Would limit OHV use to existing routes in many areas and have the most acreage where impacts from new development would be avoided and therefore lowest potential for expansion of the network.	Would limit OHV use to existing routes in many areas and have more acreage potentially impacted by new development than Alternative B.	Fewest limitations on OHV use to existing routes and more acreage potentially impacted by new development compared to Alternatives B and C; therefore, would have more opportunities for network expansion compared to Alternatives B and C.	Would limit OHV use to existing routes in many areas and have the most acreage potentially impacted by new development; therefore, would have the most opportunities for network expansion.
Opportunities for unauthorized use of routes	No routes would be designated; there could therefore be no unauthorized use.	Most acreage where impacts from new development would be avoided and thus would have decreased opportunities for unauthorized use.	More acreage potentially impacted by new development than Alternative B and less than Alternative D. Increased opportunities for unauthorized use on roads needed for new development than Alternative B but less than Alternative D.	More acreage potentially impacted by new development and increased opportunities for unauthorized use of any new access routes needed for development compared to Alternatives B and C.	Most acreage potentially impacted by new development and increased opportunities for unauthorized use of any new access routes needed for development compared to Alternatives B, C, and D.
Potential locations where routes could be placed	No impact and no limits on locations of routes	Decrease in potential route locations due to more acreage managed as VRM Class I or II and limits on locations in floodplains.	Increase in potential route locations compared to Alternative B due to more acreage managed as VRM Class III or IV and limits on locations in floodplains.	Increase in potential route locations compared to Alternatives B and C due to more acreage managed as VRM Class III or IV.	Increase in potential route locations compared to Alternative B due to more acreage managed as VRM Class III or IV and limits on locations in floodplains.

Notes:

1) Percentages based on BLM-managed land in the planning area.

2) Applies to permitted aircraft and not to casual or subsistence use.

Effects from Alternative A

Under Alternative A, routes would continue to be undesignated apart from the Unalakleet Wild River Corridor, which would not allow casual OHV use per 43 CFR 36.11. Access and transportation mode would not be altered on any route. Due to the public's current use of OHVs and the location of existing trails, it is anticipated that route networks could expand, although summer use is limited by the predominance of wetlands and waterways blocking physical access. New development (e.g., ROW, minerals – outside of those ANCSA 17(d)(1) withdrawn areas closed to mining) could require new temporary routes/trails to access the development, which could expand the transportation network if the public began using these routes after permitted uses were completed. Timber harvesting could result in access impacts from closed or obstructed trail/route access during or after harvesting and expansion of the route network from skid trails and timber roads. Compared to the action alternatives, Alternative A would

not result in impacts to travel and transportation management because it lacks measures that could limit access.

Effects Common to All Action Alternatives

Temporary impacts to access could result from route hardening, dust abatement, and trail re-routing under all action alternatives. Several management actions could affect the ability of users with various types of vehicles to access areas. Motorized use could be restricted due to low snow cover or if soil monitoring results indicate damage to trails. Several boat types would be prohibited on BLM lands and waters within the WSR corridor. These management actions would restrict or eliminate access to areas by certain types of vehicles and/or during certain times of the year. Additional restrictions on travel could be developed in the future for the ERMA and undesignated recreation lands and during TMP implementation-level planning that could result in reduced access or reduced ability to access an area via certain vehicle types.

Under all action alternatives, no construction or formal improvement of aircraft landing areas would be allowed; minimal clearing of rocks, down logs, and brush would be allowed in landing areas within WSR corridors.

Under all action alternatives, management actions would change the airspace where aircraft are allowed access over BLM lands by limiting how close (in altitude or distance) authorized or permitted airplanes could get to some areas (temporarily for occupied raptor nest areas) above WSR corridors but would not eliminate aerial access to any areas or affect casual use.

Several management actions under all action alternatives would result in changes to the size of the areas open to and accessible to OHVs. The acreage could be reduced by consolidating or closing stream crossings related to the requirement for a State permit for any motorized vehicle crossing of an anadromous stream. Co-locating linear projects and requiring the use of existing roads and trails under surface-disturbing permits would reduce potential expansion by reducing the need for new routes/trails. The issuance of SRPs that include OHV activities in the ERMA and undesignated recreation lands could require temporary or permanent new routes/trails and surface-disturbing permit route requirements to minimize soil compaction and vegetation disturbance could require permittees to travel farther, create longer trails/routes, or use slightly more expensive transportation methods such as air or boat travel to avoid resource damage in some areas.

Opportunities for unauthorized use would be reduced under all action alternatives through closure or restoration of unauthorized OHV trails, recontouring/restoring skid trails and roads constructed for timber sales, and maintaining existing trail systems on BLM land to be compatible with those on adjacent private lands.

The BLM would support the community-led development and maintenance of public shelter cabins in areas used for subsistence under all action alternatives. This management action would also provide additional safety for subsistence users though the development could increase the size of the route network to provide access to these cabins.

Effects from Alternative B

Alternative B would have the most restrictions on vehicular access due to management actions to minimize impacts to vegetation and wildlife; in practice, however, this alternative would not result in any major decrease in acreages used, as the predominance of wetlands currently blocks physical access to

these areas. OHV use in the planning area is primarily for subsistence purposes; only a tiny proportion is for casual uses. All subsistence OHV use would either be limited to ATVs only or ATV and UTV only. In Alternative B, 96 percent of BLM lands in the planning area would be open to ATV use, with the remaining 4 percent limited to existing trails or prohibited. Casual OHV use, which is a very small proportion of all OHV use, would be limited to ATVs only on existing trails throughout the planning area. About 29 percent of the planning area would be limited to ATVs only on existing trails for casual use. Subsistence OHV use would be restricted to a lesser extent, with only 4 percent of the planning area prohibited or limited to existing trails.

Vehicular access would also be the most restricted by TMA under Alternative B, resulting in the greatest change to potential vehicular access under the action alternatives. Alternative B would also have the most acreage where impacts from new development would be avoided and the least acreage managed as VRM Class III and IV. Therefore, Alternative B would provide the fewest opportunities for new development that could require new temporary routes/trails to access the development (with the most limitations on new route locations). Alternative B would also include the limitation of OHV use to existing routes in many areas, which would limit subsistence, casual, and sport use and growth of the transportation network.

Effects from Alternative C

Alternative C would have more restrictions on vehicular access due to management actions to minimize impacts on vegetation and wildlife compared to Alternative D but fewer restrictions compared to Alternative B. Fewer acres would be prohibited for casual use under Alternative C than Alternative B; however, the entire planning area would still be closed to OHV use or limited to existing trails for casual use. About 23 percent of the planning area would be limited to ATVs only on existing trails for casual use, which is less than Alternative B. Subsistence OHV summer overland travel would be permitted throughout 98 percent of the planning area, although 77 percent of the planning area would be limited to ATV and/or UTVs. Alternative C would provide fewer restrictions on OHV travel for subsistence use than Alternative B, with approximately 2 percent of the planning area prohibited from OHV subsistence use (the Rohn site would be limited to existing trails).

Alternative C would include more acreage potentially impacted by new development compared to Alternative B and less acreage potentially impacted by new development than Alternatives D and E. Therefore, Alternative C would provide a larger potential for network expansion if new temporary routes/trails to access the development became designated routes after permitted uses were completed than Alternative B but fewer opportunities (over a smaller geographic area) than Alternatives D and E. Alternative C would provide fewer limitations on the location of future routes because more acreage would be managed as VRM Class III and IV compared to Alternative B. Similar to Alternative B, Alternative C would limit OHV use to existing routes in many areas, which would limit subsistence, casual, and sport use and growth of the transportation network.

Effects from Alternative D

Under Alternative D, there would be the fewest restrictions on vehicular access. Restrictions on vehicle use would be limited to the Unalakleet Wild River Corridor and INHT NTMC TMA. Alternative D would prohibit casual OHV use on approximately 2 percent of the BLM lands within the planning area and restrict less than 1 percent to existing trails. Subsistence OHV use would not be prohibited outright anywhere in the planning area but would be restricted to existing trails with ATV only in approximately 2

percent of the BLM lands within the planning area. Therefore, Alternative D would have the least impact on existing access for both casual and subsistence use and would only limit OHV use to existing routes in one area (INHT NTMC TMA), thus providing opportunities for network expansion. Alternative D would also have the fewest acres where type of vehicle would be restricted: about 1 percent for casual use and 2 percent for subsistence use. Alternative D would also have more acreage potentially impacted by new development compared to Alternatives B and C but less acreage than Alternative E. In addition, Alternative D would have the most acreage managed as VRM Class III and IV compared to Alternatives B, C, and E. Therefore, compared to Alternatives B and C, Alternative D would provide more opportunities for new development that could require new temporary routes/trails to access the development (with the fewest limitations on new route locations), which could expand the transportation network if these routes became designated routes after permitted uses were completed.

Effects from Alternative E

Alternative E would have the same restrictions on vehicular access due to management actions to minimize impacts on vegetation and wildlife as Alternative C, which would be more restrictive compared to Alternative D, but less than Alternative B. Casual and subsistence summer and winter travel restrictions would be the same as Alternative C, which generally include more vehicular access restrictions than Alternative D but fewer than Alternative B.

Alternative E would include the most acreage open to potential new development compared to Alternatives B, C and D because Alternative E would have the most acreage open to ROW development. Therefore, Alternative E would have the most opportunity for potential network expansion if new temporary routes/trails to access the development became designated routes after permitted uses were completed, or development resulted in the proliferation of new routes and trails. However, Alternative E would provide more limitations on the location of future routes that could result in visual impacts compared to Alternative D because less acreage would be managed as VRM Class III and IV. Alternative E would have fewer limitations on future route locations that could result in visual impacts than Alternative B because more acreage would be managed as VRM Class III and IV under Alternative E compared to Alternative B. Similar to Alternatives B and C, Alternative E would limit OHV use to existing routes in many areas, which would limit casual and sport use and growth of the transportation network.

Cumulative Effects

Past and Present Actions

Travel in the planning area is by many modes including boats, helicopters, airplanes, ATVs, UTVs, snowmobiles, and over-the-snow vehicles. Travel and transportation in the planning area are restricted seasonally by weather, and there are very few developed access facilities. Trend: Continues at a similar rate.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative A)

Trends of increased OHV use and travel via larger or heavier vehicles could expand the route network and result in access to new areas or additional users on existing routes/trails. Reasonably foreseeable actions include potential mineral and energy development, including the Donlin Gold Project and associated natural gas pipeline, and the development of new highways, which could alter access into and on BLM lands, potentially increasing the access and number of visitors to BLM lands. Routes would

continue to be undesignated with no guidance on the location of new routes and reduced ability to curb route proliferation. Trend: Degrading.

Past, Present, and Reasonably Foreseeable Future Actions (Alternatives B, C, and E)

OHV and travel trends, as well as reasonably foreseeable actions, described above for Alternative A would also apply to Alternatives B, C, and E. However, under Alternatives B, C and E, there would be requirements for new route development and restrictions on the use of existing routes in many areas. The designation of routes would provide the BLM with the ability to enforce route access limitations. Trend: Improving.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative D)

OHV and travel trends, as well as reasonably foreseeable actions, described above for Alternative A would also apply to Alternative D. Under Alternative D, the route network could increase due to fewer limitations on new routes and fewer restrictions on access modes. Designation of routes would provide the BLM with the ability to enforce route access limitations where relevant. Trend: Degrading but at a lesser rate than Alternative A.

3.3.8 Renewable Energy

Affected Environment

Renewable energy resources in the planning area consist of wind, biomass, peat, and hydropower. The following discussion summarizes the current conditions of renewable energy resources and forecasts related to potential future renewable energy opportunities.

Wind Resources

Several communities in or near the planning area, including Unalakleet, Toksook Bay, and Kwigillingok, use wind energy to supplement diesel-powered generating stations. However, large-scale wind projects are unlikely to be built on BLM-managed public land in the foreseeable future. Within the planning area, wind potential is generally poor to fair (see Map 3.3.8-1), and no lands with high potential for utility-scale wind development have been identified. The population in the planning area is low (with correspondingly low energy demand), particularly in areas near BLM-managed public lands, and infrastructure to transport electricity to regional population centers is extremely limited. Transmission infrastructure is costly to build, and typically, a large demand is necessary to warrant long distance transmission lines.

Biomass

Map 3.3.8-2 shows the distribution of biomass forest in the planning area. The majority of forest biomass is concentrated in the northern, central, and western portions of the planning area and consists of deciduous forest, or white or black spruce. There are currently no existing biomass projects using woody biomass from BLM-managed public lands in the planning area. Most BLM lands in the planning areas are far from population centers, making the commercial large-scale use of biomass economically unlikely in the near future.

Peat

As illustrated on Map 3.3.8-3, concentrations of peat are distributed throughout the eastern, southeastern, and central portions of the planning area. Currently, there are no requests to develop peat on BLM-

managed public land, and only one feasibility study on large-scale use of peat has been completed in the planning area to date. The study concluded that the use of peat to fuel peat-fired power plants was not feasible because all of the peat drilled and sampled existed in permafrost, and excavation of the peat resource was likely to be costly and damaging to the permafrost conditions.

Hydropower

There are relatively limited hydropower resources located on BLM lands. Three FERC hydropower withdrawals have been made within the planning area, but none has resulted in project initiation. The Aniak and McGrath permits are still in place. The permit for the Chikuminuk Lake Hydroelectric Project was surrendered by the applicant in September 2014. Any future hydropower projects are likely to be small and located close to existing communities.

Direct and Indirect Effects

The planning area is thought to have limited renewable energy resource potential because of its remote location, low population, and lack of infrastructure. While there is some potential for the use of wind, hydroelectric, and peat/biomass, the use of these resources is likely to be small scale and in the immediate vicinity of communities. Because the land in the vicinity of the local communities is typically not managed by the BLM, it is unlikely that BLM land would be used for renewable energy development. As a result, the magnitude of impacts due to proposed management action items on renewable energy resources on BLM-managed land is relatively low for all alternatives.

Table 3.3.8-1 below summarizes the nature and types of adverse effects that could occur to renewable energy resources, the proposed management actions that could influence those effects, and the indicators used to measure the potential magnitude and extent of the effects. Table 3.3.8-2 discloses the potential magnitude and extent of the effects by indicator across alternatives.

Table 3.3.8-1: Summary of Potential Effects to Renewable Energy Resources by Management Action

Types of Effects	Management Actions	Indicators
Impacts to renewable energy resources are largely those that change or limit the acreage available for renewable energy development, the location of possible high-value renewable resources, and access to these locations, such as restrictions in 100-year floodplains and in the vicinity of springs; establishment of ROW exclusion and avoidance areas; restrictions on commercial woodland harvest; exclusion of areas for wind energy development; and implementation of wildlife management actions, such as prohibiting surface-disturbing activities during migratory bird nesting season. Additionally, using areas with renewable energy potential for another use, such as mineral development, would preclude that area from being used for renewable energy.	• Watershed Decisions • Lands and Realty Decisions • Mineral Decisions • Lands Managed for Wilderness Characteristics as a Priority • Forestry and Woodland Products Decisions • Wind Energy Development • Management Actions Applied to ACEC Designations • Travel Management Decisions	• Acreage not available for development of renewable resources and access to that acreage • Acreage not available for transmission of energy from sources to the users
Increased costs for development of renewable energy could result from costs incurred from conducting soil surveys, conducting surveys for sensitive resources, conducting cultural and paleontological surveys, and implementing project-specific management actions to avoid and minimize impacts to cultural and paleontological resources, burying utility lines in raptor nesting areas, compliance with APLIC guidelines, preparing RCE, and providing individual financial guarantees.	• Soils Decisions • Wildlife and SSS Decisions • Cultural Resource Decisions • Paleontological Resources Decisions • Requirements for a Detailed RCE and Individual Financial Guarantee • Requirements for Burying Utility Lines in Raptor Nesting Areas and Compliance with APLIC Guidelines	• Increased costs for development of renewable energy projects

Table 3.3.8-2: Portions of Planning Area Analyzed for Potential Impacts to Renewable Energy Resources by Indicator

Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Acreage available for development of renewable resources and access to that acreage.	0 acres managed for wilderness characteristics as a priority 1,583,800 acres (12%)¹ closed to commercial woodland harvest 294,325 acres open to locatable mineral development in medium to high LMP (52%)² 195,632 acres open to locatable mineral development in medium to high LMP segregated due to selection³ (35%)² 8,661,406 acres open to salable mineral development (64%)^{1,4} 0 acres (0%)¹ excluded from wind energy development 1,884,376 acres (14%)¹ restricted due to ACEC designations	277,489 acres (2%)¹ managed for wilderness characteristics as a priority 5,062,065 acres (38%)¹ closed to commercial woodland harvest 167,018 acres open to locatable mineral development in medium to high LMP (30%)² 100,426 acres open to locatable mineral development in medium to high LMP segregated due to selection³ (18%)² 3,548,061 acres open to salable mineral development (26%)^{1,4} 288,466 acres (2%)¹ excluded from wind energy development 3,912,698 acres (29%)¹ restricted due to ACEC designations	0 acres managed for wilderness characteristics as a priority 46,953 acres (<1%)¹ closed to commercial woodland harvest 565,489 acres open to locatable mineral development in medium to high LMP (100%)² 317,531 acres open to locatable mineral development in medium to high LMP segregated due to selection³ (56%)² 13,182,385 acres open to salable mineral development (98%)^{1,4} 273,242 acres (2%)¹ excluded from wind energy development 0 acres (0%)¹ restricted due to ACEC designations	0 acres (0%)¹ managed for wilderness characteristics as a priority 0 acres (0%) closed to commercial woodland harvest 565,489 acres open to locatable mineral development in medium to high LMP (100%)² 317,531 acres open to locatable mineral development in medium to high LMP segregated due to selection³ (56%)² 13,182,385 acres open to salable mineral development (98%)^{1,4} 0 acres (0%)¹ excluded from wind energy development 0 acres (0%)¹ restricted due to ACEC designations	0 acres (0%)¹ managed for wilderness characteristics as a priority 46,953 acres (<1%)¹ closed to commercial woodland harvest 565,489 acres open to locatable mineral development in medium to high LMP (100%)² 317,531 acres open to locatable mineral development in medium to high LMP segregated due to selection³ (56%)² 13,182,385 acres open to salable mineral development (98%)^{1,4} 273,242 acres (2%)¹ excluded from wind energy development 0 acres (0%)¹ restricted due to ACEC designations
Acreage available for transmission of energy from sources to the users.	0 acres (0%)¹ would be ROW exclusion areas 0 acres (0%)¹ would be ROW avoidance areas 0 acres (0%) would be ROW avoidance for linear realty action 13,465,894 acres (100%)¹ would be open areas to ROW development	1,464,069 acres (11%)¹ would be ROW exclusion areas 8,895,920 acres (66%)¹ would be ROW avoidance areas 0 acres (0%) would be ROW avoidance for linear realty action 3,105,905 acres (23%)¹ would be open areas	0 acres (0%)¹ would be ROW exclusion areas 7,528,863 acres (56%)¹ would be ROW avoidance areas 151,853 acres (1%) would be ROW avoidance for linear realty action 5,785,178 acres (43%)¹ would be open areas	0 acres (0%)¹ would be ROW exclusion areas 5,163,653 acres (38%)¹ would be ROW avoidance areas 0 acres (0%) would be row avoidance for linear realty action. 8,302,241 acres (62%)¹ would be open areas	0 acres (0%)¹ would be ROW exclusion areas 509,798 acres (4%)¹ would be ROW avoidance areas 413,719 acres (3%) would be avoidance areas for linear realty action. 12,542,918 (93%)¹ would be open areas

Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Increased costs for development of renewable energy projects.	Undetermined. No requirements for surveys, monitoring of paleontological resources, detailed reclamation plans, and individual financial guarantees could increase costs. Requirements for the management of cultural resources from disturbance under federal and State laws would continue.	Undetermined. Requirements for surveys, monitoring, burying utility lines, detailed reclamation plans, and individual financial guarantees could increase costs.	Undetermined. Requirements for surveys, monitoring, burying utility lines, detailed reclamation plans, and individual financial guarantees could increase costs.	Undetermined. Requirements for surveys, monitoring, burying utility lines, detailed reclamation plans, and individual financial guarantees could increase costs.	Undetermined. Requirements for surveys, monitoring, burying utility lines, detailed reclamation plans, and individual financial guarantees could increase costs.

Notes:

- 1) Percentage is based on all BLM-managed lands in the planning area (13,465,894 acres).
- 2) Percentage is based on all medium or high LMP areas on BLM-managed land in the planning area.
- 3) State top-filings that become valid selections due to ANCSA corporation selections being relinquished or rejected will be managed like all other State selections. Alternatives that recommend revocation of 17(d)(1) withdrawals where the withdrawal prevents State selections would allow for the State selections to become valid once revocation is complete. These lands would be managed like all other State selections.
- 4) Includes acres identified as open and open subject to terms and conditions.

Effects from Alternative A

Alternative A maintains current management of the planning area and would be the less restrictive to renewable energy development than Alternative B. Under Alternative A, there are no specific management prescriptions for renewable energy development within floodplains, ACECs, or WSRs, or in the vicinity of natural springs.

Management actions related to lands with wilderness characteristics, commercial harvesting, wind energy development, mineral development, and classification of ACECs would continue to limit the acreage available for renewable energy development through management actions applied to these geographies. As shown in Table 3.3.8-2, Alternative A would provide more available acreage for renewable energy development than Alternative B and less than Alternatives C, D, and E.

For Alternative A, no ROW avoidance or ROW exclusion areas would be designated, and there would be no associated limits on development of infrastructure for renewable energy projects. The travel and transportation networks under Alternative A would operate the same as existing conditions and would not hinder accessibility to develop or transport renewable energy resources.

Costs associated with development of renewable energy projects under Alternative A would be less than all the action alternatives because Alternative A would not necessarily require soil surveys, conducting surveys for sensitive resources, implementing project-specific management actions for paleontological resources, preparing a detailed Reclamation Cost Estimate, or providing individual financial guarantees, though certain of these measures could be implemented at the site-specific permitting level. Requirements to avoid and minimize impacts on cultural resources from disturbance under federal and State laws would continue under Alternative A, which would continue to contribute to increased costs of the development of renewable energy resources due to actions required to meet Section 106 requirements. This impact on renewable energy development is expected to be minimal.

Effects Common to All Action Alternatives

Under all action alternatives, travel and transportation networks throughout the planning area would be subject to seasonal limitations or closures. All action alternatives would focus summer motorized use on existing routes, which would limit future growth of the transportation network. Under all action alternatives, travel and transportation network limitations and seasonal closures could hinder accessibility or transportation of renewable energy resources and result in fewer opportunities for renewable energy development projects as compared to Alternative A. Disturbance greater than 5 acres would be avoided in floodplains and streams for all action alternatives, which could limit development of renewable resources in those areas compared to Alternative A.

Costs associated with renewable energy development projects under all action alternatives could increase compared to Alternative A due to requirements for conducting soil surveys, conducting surveys for sensitive resources, implementing project-specific avoidance and minimization measures for cultural and paleontological resources, burying utility lines in raptor nesting areas, and complying with APLIC guidelines. Under all the action alternatives, the requirement for a detailed RCE and individual financial guarantee for some projects could increase the development cost of renewable energy projects.

Effects from Alternative B

Alternative B would be the most restrictive to renewable energy development as compared to Alternatives A, C, D, and E. Alternative B would exclude 5,062,065 acres (about 38 percent of BLM-managed lands in the planning area) from commercial woodland harvest and exclude 288,466 acres (the INHT NTMC, about 2 percent of BLM-managed lands in the planning area) from wind energy development. Under Alternative B, 3,912,698 acres (about 29 percent of BLM-managed lands in the planning area), the most acreage of all the action alternatives, would be classified as ACECs, which apply management actions that restrict surface disturbance and new ROW and therefore could limit the availability for renewable energy projects (Table 3.3.8-2). Surface-disturbing activities would not be permitted in the vicinity of natural springs.

Alternative B would open the least amount of acreage to the possibility of locatable mineral development in areas of medium or high LMP in the planning area (167,018 acres, though 60 percent of this acreage would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected) and would also open the least amount of acreage to salable mineral development (3,548,061 acres; about 26 percent of BLM-managed lands in the planning area).

Alternative B would have the most acreage designated as ROW exclusion areas, most acreage designated as ROW avoidance areas, and the least amount of acreage open to the possibility of ROW locations (Table 3.3.8-2). Therefore, Alternative B would have the most management prescriptions limiting development of infrastructure for renewable energy development requiring transmission, which would restrict transmission of energy from sources to users.

Effects from Alternative C

In general, Alternative C would have fewer restrictions on renewable energy development than Alternative B and more restrictions than Alternative A (Table 3.3.8-2). Under Alternative C, all areas of medium or high LMP in the planning area would be open to locatable mineral development (though over half of this acreage would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected), and most (98 percent) BLM-managed lands in

the planning area would also be open to salable mineral development, which is the same as Alternatives D and E and greater than Alternatives A and B. Areas where mineral development would occur would not be available for renewable energy development. Alternative C would have less impact related to the potential transmission of energy from sources to users as compared to Alternative B and more impact as compared to Alternatives A, D, and E (Table 3.3.8-2) due to areas available for the possibility of new ROW development. Alternative C would have no ROW exclusions; 7,528,863 acres (about 56 percent of BLM-managed lands in the planning area) of ROW avoidance areas; 151,853 acres (about 1 percent of BLM-managed land in the planning area) of ROW avoidance for linear realty actions; and 5,785,178 acres (about 43 percent of BLM-managed lands in the planning area) open to ROW. Alternatives A, D, and E would have more area open to potential new ROW than Alternative C, facilitating transmission of energy and transportation of goods.

Alternative C would exclude 46,953 acres (less than 1 percent of BLM-managed lands in the planning area) from commercial woodland harvest and exclude 273,242 acres (the INHT NTMC, about 2 percent of BLM-managed lands in the planning area) from wind energy development. Alternative C would open more areas to the possibility of commercial woodland harvest activities, including biomass, than Alternatives A and B but would open slightly fewer areas than Alternative D.

Like Alternatives D and E, Alternative C would not have any acreage managed as ACECs, and these areas would therefore be available for renewable energy development projects. Although there are 1,888,376 acres of ACECs under Alternative A, there are few management prescriptions for those areas. Therefore, the difference between Alternative A and Alternatives C, D, and E with respect to ACEC management would be small.

Effects from Alternative D

Alternative D would be the least restrictive to renewable energy development as compared to Alternative B and similar to Alternatives C and E. Surface-disturbing activities within floodplains and in the vicinity of natural springs could be authorized at the implementation level if it is demonstrated that activities would not substantially impact floodplain function. Alternative D is more restrictive than Alternative A because Alternative A has no such specific restrictions for surface-disturbing activities in these areas.

Alternative D would allow for the possibility of commercial woodland harvest activities on all BLM-managed lands in the planning area. Alternative D has no exclusions for wind energy development, and no acreage would be managed as ACECs. Under Alternative D, all areas of medium or high LMP in the planning area would be open to locatable mineral development (though over half of this acreage would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected), which is the same as Alternatives C and E but greater than Alternatives A and B. Therefore, renewable energy development would not be restricted due to these management activities under Alternative D would provide the most available acreage for the possibility of renewable energy development as compared to Alternatives A, B, C, and E (Table 3.3.8-2).

Alternative D would have fewer restrictions related to the transmission of energy from sources to users, which could be less restrictive to the development of infrastructure for renewable energy development, as compared to Alternatives B and C. Alternative D would have no ROW exclusions and fewer acres of ROW avoidance areas (5,163,653 acres; about 38 percent of BLM-managed lands in the planning area) compared to Alternatives B and C. Compared to Alternatives A and E, Alternative D would have fewer

acres open to ROW (8,302,241 acres; about 62 percent of BLM-managed lands in the planning area) (Table 3.3.8-2).

Effects from Alternative E

In general, Alternative E would have fewer restrictions on any potential renewable energy development than Alternatives A and B (Table 3.3.8-2). Under Alternative E, all areas of medium or high LMP in the planning area would be open to the possibility of locatable mineral development (though over half of this acreage would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected), and most (98 percent) of BLM-managed lands in the planning area would be open to the possibility of salable mineral development, which is the same as Alternatives C and D and greater than Alternatives A and B. Areas where mineral development would be expected to occur would not be available for renewable energy development. Alternative E would have less potential impact related to the transmission of energy from sources to users as compared to Alternatives B, C, and D and more impact as compared to Alternative A (Table 3.3.8-2) due to areas available for new ROW development. Alternative E would have no ROW exclusions; 509,798 acres (about 4 percent of BLM-managed lands in the planning area) of ROW avoidance areas; 413,719 acres (about 3 percent of BLM-managed land in the planning area) of ROW avoidance for linear realty actions; and 12,542,918 acres (about 93 percent of BLM-managed lands in the planning area) open to ROW. Only Alternative A would have more area open to the possibility of new ROW, facilitating transmission of energy and transportation of goods.

Alternative E would exclude 46,953 acres (less than 1 percent of BLM-managed lands in the planning area) from commercial woodland harvest and exclude 273,242 acres (the INHT NTMC, about 2 percent of BLM-managed lands in the planning area) from wind energy development. Alternative E would open more areas to the possibility of commercial woodland harvest permitting, including biomass, than Alternatives A and B but would open slightly fewer areas than Alternative D.

Like Alternatives C and D, Alternative E would not have any acreage managed as ACECs, and these areas would therefore be available for renewable energy development projects. Although there are 1,888,376 acres of ACECs under Alternative A, there are few management prescriptions for those areas. Therefore, the difference between Alternative A and Alternatives C, D, and E with respect to ACEC management would be small.

Cumulative Effects

Past and Present Actions

Due to the remote nature, low population, and lack of infrastructure, the planning area is thought to have relatively low potential for renewable energy resources. While there is some potential for the utilization of wind, hydroelectric, and peat/biomass, the use of these resources is likely to be small scale and in the immediate vicinity of communities. Because the land in the vicinity of the local communities is typically not owned by the BLM, it is unlikely that BLM land would be used for renewable energy development.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative A)

Under Alternative A, there would be no new impacts to renewable energy resources in the planning area. This alternative maintains current management of the planning area and is therefore not likely to increase or decrease development of renewable resources. Trend: No cumulative contribution to existing trend.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative B)

Of the alternatives, Alternative B would have the greatest adverse impact to the opportunity for future development of renewable energy resource development in the planning area. Although Alternative B would restrict the greatest acreage of land available for renewable energy development and woodland harvest, including peat/biomass, there are no reasonably foreseeable renewable energy projects on BLM-managed land. Because of this, although Alternative B has the potential to impact future renewable energy development more than any other alternative, it is not likely to noticeably increase or decrease development of renewable resources due to the limited availability of these resources in the planning area. Trend: No cumulative contribution to existing trend.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative C)

Alternative C would result in an adverse impact of lesser magnitude to the opportunity for future development of renewable energy resource in the planning area compared with Alternative B. While Alternative C would restrict less acreage for renewable resource development and harvest, it would provide more flexibility. Despite this, there are no reasonably foreseeable renewable energy projects on BLM-managed lands. As such, Alternative C is not likely to increase or decrease development of renewable resources due to the limited availability of these resources in the planning area. Trend: No cumulative contribution to existing trend.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative D)

Alternative D would allow the greatest available acreage for the opportunity of renewable energy development and leave the greatest amount of room for future development of resources of all the action alternatives. However, there are no reasonably foreseeable renewable energy projects in the planning area. While there is some potential for peat to be harvested as a source of heat and for small-scale energy generation projects, these projects would be unlikely on BLM-managed lands. Because of this, Alternative D is not likely to increase or decrease development of renewable resources due to the limited availability of these resources in the planning area. Trend: No cumulative contribution to existing trend.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative E)

Alternative E would result in lesser magnitude of adverse impact to the opportunity for future development of renewable energy resource in the planning area compared with Alternatives B and C. While Alternative E would restrict less acreage for renewable resource development and harvest, it would provide more flexibility. Despite this, there are no reasonably foreseeable renewable energy projects on BLM-managed lands. As such, Alternative E is not likely to increase or decrease development of renewable resources due to the limited availability of these resources in the planning area. Trend: No cumulative contribution to existing trend.

3.4 Special Designations**3.4.1 Areas of Critical Environmental Concern****Affected Environment**

BLM evaluated existing and nominated ACECs (Map 3.4.1-1) to determine presence of R&Is (BLM 2018b). Those ACECs for which nominated values were determined to be both relevant and important are

referred to as “potential” ACECs and are considered for designation (Map 3.4.1-2). In some cases, potential (nominated) ACECs encompass existing ACECs, as described in Table 3.4.1-1.

Table 3.4.1-1: Potential Existing and Nominated ACECs

ACEC Name	Potential ACECs – Existing	Potential ACECs – Nominated
Anvik Traditional Trapping Area ACEC	–	21,366 acres Relevance and Importance criteria: Cultural Resources
Anvik River ACEC	114,386 acres Relevance and Importance criteria: Fisheries	100,948 acres within the existing Anvik River ACEC would be managed as the Anvik River Watershed ACEC. 13,438 acres within the existing Anvik River ACEC boundary would no longer be managed as an ACEC.
Anvik River Watershed ACEC	–	248,872 acres Relevance and Importance criteria: Fisheries Anvik River Watershed ACEC would encompass 100,948 acres of land within the existing Anvik River Watershed.
Gisasa River ACEC	278,055 acres Relevance and Importance criteria: Fisheries	–
Inglutalik ACEC	71,713 acres Relevance and Importance criteria: Fisheries	–
Kateel River ACEC	568,083 acres Relevant and importance criteria: Fisheries	–
Nulato River ACEC	–	344,183 acres Relevance and Importance criteria: Fisheries Nulato River ACEC would encompass 649 acres of land within the existing North River ACEC boundary and 868 acres within the existing drainages of the Unalakleet ACEC boundary.
Shaktoolik River ACEC	192,591 acres Relevance and Importance criteria: Fisheries	Shaktoolik River ACEC would encompass 1,621 acres of land within the existing North River ACEC boundary.
Sheefish Spawning ACEC	–	696,901 acres Relevance and Importance criteria: Cultural Resources, Fisheries
Swift River Whitefish Spawning ACEC	–	220,032 acres Relevance and Importance criteria: Fisheries
Tagagawik River ACEC	–	301,044 acres Relevance and Importance criteria: Cultural Resources
Ungalik River ACEC	112,719 acres Relevance and Importance criteria: Fisheries	–
North River ACEC	132,200 acres Relevance and Importance criteria: Fisheries	67,315 acres within the existing North River ACEC would be managed as part of the Nulato River ACEC, Shaktoolik ACEC, and Unalakleet River Watershed ACECs. 64,885 acres within the existing North River ACEC boundary would no longer be managed as an ACEC.
Drainages of the Unalakleet ACEC	403,378 acres Relevance and Importance criteria: Cultural Resources, Fisheries.	300,836 acres within the existing drainages of the Unalakleet ACEC would be managed as part of the Nulato River ACEC and Unalakleet River Watershed ACECs. 102,542 acres within the existing drainages of the Unalakleet ACEC boundary would no longer be managed as an ACEC.
Unalakleet River Watershed ACEC	–	733,995 acres Relevance and Importance criteria: Cultural Resources, Fisheries. Unalakleet River Watershed ACEC would encompass 299,968 acres of land within the existing drainages of the Unalakleet ACEC boundary and 65,046 acres within the existing North River ACEC boundary.
Box River Treeline RNA	13,592 acres Relevance and Importance criteria: Not found to meet criteria	–

ACEC Name	Potential ACECs – Existing	Potential ACECs – Nominated
Peregrine Falcon Nesting Habitat ACEC	6,354 acres Relevance and Importance criteria: Not found to meet criteria	–
Kuskokwim River Raptor Nesting Habitat ACEC	4,896 acres Relevance and Importance criteria: Not found to meet criteria	–

Section 202(c) of FLPMA provides nine principles guiding the development and revision of land use plans, including one (Section 202(c)(3)) that provides for ACEC designation and establishes national policy for the protection of public land areas of critical environmental concern. Section 202(c)(3) of the FLPMA mandates the agency to give priority to the designation and protection of ACECs in the development and revision of land use plans. The BLM’s planning regulations (43 CFR 1610.7-2) establish the process and procedural requirements for identifying and considering areas having potential for the designation of ACECs in resource management plans and plan amendments.

The identification and consideration of areas having the potential for ACEC designation formed a key part of this planning process, and the issue of whether to designate ACECs was a key consideration in developing the final range of alternatives. A range of ACEC designation options is considered in the range of alternatives, where ACECs are designated in Alternatives A and B, while Alternatives C, D, and E would not include the designation of ACECs.

Chapter 2 of this EIS outlines the R&Is and rationale leading to designation of ACECs under Alternatives A and B. Pursuant to BLM Manual Chapter 1613, Areas of Critical Environmental Concern, Section 3.33.E, the following rationale is provided for not designating ACECs in Alternatives C, D, or E: BLM determined that no special management was required to protect the R&Is because standard or routine management prescriptions provide sufficient R&I protection. For Alternative C, a suite of plan-level management prescriptions was developed that are geographically-specific to undesignated potential ACECs. For Alternatives D and E, in order to emphasize flexibility in future site-specific implementation and reduce plan-level prescription and rigidity, BLM has instead crafted management actions that would apply across the entire planning area, wherever certain resources or uses occur, including where the identified R&I values occur within undesignated potential ACECs. Alternatives C, D, and, to the greatest extent, E reflect an effort by BLM to balance between the provision of FLPMA that give priority to the designation and protection of ACECs, the recognition of low existing development and potential for future development, and the goals of allowing for the possibility of widespread multiple use across this planning area.

Direct and Indirect Effects

Table 3.4.1-2 below summarizes the nature and types of beneficial or adverse effects that could occur in existing and potential ACECs, the proposed management actions that could influence those effects, and the indicators used to measure the potential magnitude and extent of the effects. Table 3.4.1-3 summarizes the potential magnitude and extent of the effects by indicator, across action alternatives. The “total potential ACEC acreage” reported in Table 3.4.1-3 is equal to the ACEC acreage that would be designated under Alternative B (i.e., areas that were determined to have R&Is). To analyze how R&Is could be impacted by the various alternatives, certain management actions were reviewed for each action alternative for the “total potential ACEC acreage.” This provides an understanding of how the R&Is would be protected or impacted in the absence of an actual ACEC designation (hereafter referred to as “undesignated potential ACECs”).

Potential impacts are summarized by nature and type of effect on R&Is for fish or cultural resources as listed in Table 3.4.1-1. The types of potential beneficial and/or adverse impacts that could result to R&Is from non-ACEC management actions in undesignated portions of potential ACECs are described for Alternatives C, D, and E, and as necessary for Alternative B. For this planning area they generally fall into two categories:

- Cultural resources:** Actions that could result in impacts to R&Is for cultural resources include surface disturbance from ROW development, commercial timber harvest, mineral development, or overland travel that could alter historic setting or damage or destroy cultural resources. Management prescriptions, such as VRM Class I and II, and to a lesser degree the suite of implementation-level BMPs/SOPs in Appendix O, can manage allowable surface disturbance or development to minimize change in landscape character and beneficially impact cultural resources by limiting and regulating activities with the potential to damage or destroy artifacts or cultural sites. VRM can be used as a tool to manage the cultural setting upon which the cultural R&I depends.
- Fisheries resources:** Actions that could result in impacts to fish include surface disturbances near streams or waterbodies or that occur within areas of influence for these streams or waterbodies. Activities with the highest potential to affect fish production include ROW development, commercial timber harvest, mineral development, or overland travel in or near important fish habitats. Management actions that restrict or regulate in-water and surface disturbance, such as management of an identified HVW, as well as the suite of implementation-level BMPs/SOPs in Appendix O, provide beneficial impacts to fishery resources by limiting or regulating impactful activities that could degrade spawning habitat and water quality.

Table 3.4.1-2: Summary of Potential Effects to ACECs by Management Action

Types of Effects	Management Actions	Indicators
Designation of VRM Class I and II would provide beneficial effects to cultural and historical resources by prioritizing preservation of the visual historic landscape.	- National Trail Decisions - VRM Decisions - ACEC Decisions - WSR Decisions	Acres of VRM Class I or II
Ground disturbance from development could adversely affect cultural resource values by altering historic setting or damaging/destroying artifacts.	- Mineral Decisions - ROW Decisions - Commercial Woodland Harvest Decisions - Transportation and Travel Management Decisions	- Acres open to mineral development in medium or high LMP areas - Acres open to ROW development - Acres open to commercial woodland harvest permitting and demand for this use
Creation of Cultural Landscape Reports would beneficially impact cultural resources by improving the understanding and documentation of cultural resources in the planning area.	- Cultural Resources Decisions - BSWI Communities Decisions	Increased understanding and documentation of cultural resources
Increased levels of surface disturbance near waterways would adversely impact fisheries resources by increasing the likelihood of sedimentation and subsequent reductions in water quality.	- Water Resource and Fisheries Decisions - Mineral Decisions - Transportation and Travel Management Decisions - ROW Decisions - Woodland and Forest Products Decisions	- Acres that intersect HVW - Acres open to mineral development in medium or high LMP areas - Acres open to commercial woodland harvest permitting and demand for this use - Size and route restrictions for summer travel - Acres open to ROW development

Table 3.4.1-3: Portions of Planning Area Analyzed for Potential Impacts to Potential Relevant and Important Values by Action Alternative, ACEC, and Indicator

	Total Designated ACEC (acres)	Total Potential ACEC (acres)	ROW Exclusion	ROW Avoidance ¹	VRM Class I	VRM Class II	VRM Class III	VRM Class IV	HVW ³
Alternative B									
Anvik River Watershed ACEC	248,867	248,867	118,674 (48%) ²	130,193 (52%) ²	58,077 (23%) ²	190,790 (77%) ²	0	0	248,867 (100%) ²
Anvik Traditional Trapping Area ACEC	21,366	21,366	21,366 (100%) ²	0	21,366 (100%) ²	0	0	0	5,168 (24%) ²
Gisasa River ACEC	278,241	278,241	0	278,241 (100%) ²	0	62,189 (22%) ²	216,052 (78%) ²	0	276,671 (99%) ²
Inglutalik River ACEC	70,888	70,888	0	70,888 (100%) ²	0	0	70,888 (100%) ²	0	68,824 (97%) ²
Kateel River ACEC	692,659	692,659	0	692,659 (100%) ²	0	55,820 (8%) ²	636,839 (92%) ²	0	393,855 (57%) ²
Nulato River ACEC	344,182	344,182	68 (0%) ²	344,114 (100%) ²	259 (<1%) ²	245,758 (71%) ²	98,165 (29%) ²	0	327,976 (95%) ²
Shaktolik River ACEC	191,067	191,067	0	191,067 (100%) ²	0	69,724 (36%) ²	121,343 (64%) ²	0	150,586 (79%) ²
Sheefish Spawning ACEC	696,901	696,901	151,102 (22%) ²	545,799 (78%) ²	242,184 (35%) ²	454,717 (65%) ²	0	0	495,207 (71%) ²
Swift River Whitefish Spawning ACEC	220,032	220,032	0	220,032 (100%) ²	0	13,504 (6%) ²	206,528 (94%) ²	0	159,657 (73%) ²
Tagagawik River ACEC	301,044	301,044	0	301,044 (100%) ²	0	301,044 (100%) ²	0	0	0
Unalakleet Watershed ACEC	733,995	733,995	218,796 (30%) ²	515,198 (70%) ²	352,094 (48%) ²	381,901 (52%) ²	0	0	695,872 (95%) ²
Ungalik River ACEC	113,454	113,454	0	113,454 (100%) ²	0	0	113,454 (100%) ²	0	64,363 (57%) ²
Alternative C									
Anvik River Watershed ACEC	----	248,867	0	248,867 (100%) ²	0	4,198 (2%) ²	244,669 (98%) ²	0	241,480 (97%) ²
Anvik Traditional Trapping Area ACEC	----	21,366	0	21,366 (100%) ²	0	21,366 (100%) ²	0	0	0
Gisasa River ACEC	----	278,241	0	278,241 (100%) ²	0	0	278,241 (100%) ²	0	234,750 (84%) ²
Inglutalik River ACEC	----	70,888	0	70,888 (100%) ²	0	0	70,888 (100%) ²	0	17,992 (25%) ²
Kateel River ACEC	----	692,659	0	358,130 (52%) ²	0	0	358,130 (52%) ²	334,529 (48%) ²	299,451 (43%) ²
Nulato River ACEC	----	344,182	0	344,182 (100%) ²	1	98,452 (29%) ²	245,729 (71%) ²	0	297,923 (87%) ²
Shaktolik River ACEC	----	191,067	0	191,067 (100%) ²	0	0	191,067 (100%)	0	123,808 (65%) ²
Sheefish Spawning ACEC	----	696,901	0	390,935 (56%)	0	421,036 (60%) ²	157,025 (23%) ²	118,840 (17%) ²	383,086 (55%) ²
Swift River Whitefish Spawning ACEC	----	220,032	0	220,032 (100%)	0	0	220,032 (100%) ²	0	102,478 (47%) ²
Tagagawik River ACEC	----	301,044	0	301,044 (100%)	0	301,044 (100%) ²	0	0	0
Unalakleet Watershed ACEC	----	733,995	0	701,952 (96%)	45,632 (6%)	688,363 (94%) ²	0	0	544,205 (74%) ²
Ungalik River ACEC	----	113,454	0	113,454 (100%)	0	0	113,454 (100%) ²	0	64,363 (57%) ²
Alternative D									
Anvik River Watershed ACEC	----	248,867	0	241,480 (97%) ²	0	0	242,507 (97%) ²	6,360 (3%) ²	241,480 (97%) ²
Anvik Traditional Trapping Area ACEC	----	21,366	0	21,366 (100%) ²	0	0	21,366 (100%) ²	0	0
Gisasa River ACEC	----	278,241	0	222,526 (80%) ²	0	0	18,857 (7%) ²	259,384 (93%) ²	222,526 (80%) ²
Inglutalik River ACEC	----	70,888	0	17,992 (25%) ²	0	0	27,005 (38%) ²	43,883 (62%) ²	17,992 (25%) ²
Kateel River ACEC	----	692,659	0	299,451 (43%) ²	0	0	0	692,659 (100%) ²	299,451 (43%) ²

	Total Designated ACEC (acres)	Total Potential ACEC (acres)	ROW Exclusion	ROW Avoidance ¹	VRM Class I	VRM Class II	VRM Class III	VRM Class IV	HVW ³
Nulato River ACEC	----	344,182	0	297,923 (87%) ²	1	191 (<1%) ²	196,484 (57%) ²	147,506 (43%) ²	297,923 (87%) ²
Shaktoolik River ACEC	----	191,067	0	123,808 (65%) ²	0	0	55,506 (29%) ²	135,562 (71%) ²	123,808 (65%) ²
Sheefish Spawning ACEC	----	696,901	0	372,385 (53%) ²	0	177,428 (25%) ²	315,845 (45%) ²	203,628 (29%) ²	372,385 (53%) ²
Swift River Whitefish Spawning ACEC	----	220,032	0	102,478 (47%) ²	0	0	78,427 (36%) ²	141,604 (64%) ²	102,478 (47%) ²
Tagagawik River ACEC	----	301,044	0	0	0	0	0	301,044 (100%) ²	0
Unalakleet Watershed ACEC	----	733,995	0	558,707 (76%) ²	45,632 (6%) ²	229,297 (31%)	354,179 (48%) ²	104,886 (14%) ²	544,205 (74%) ²
Ungalik River ACEC	----	113,454	0	64,363 (57%) ²	0	0	77,289 (68%) ²	36,166 (32%) ²	64,363 (57%) ²
Alternative E									
Anvik River Watershed ACEC	----	248,867	0	58,644 (24%) ²	0	4,198 (2%) ²	244,669 (98%) ²	0	52,105 (21%) ²
Anvik Traditional Trapping Area ACEC	----	21,366	0	21,366 (100%) ²	0	21,366 (100%) ²	0	0	0
Gisasa River ACEC	----	278,241	0	0	0	0	278,241 (100%) ²	0	23,434 (8%) ²
Inglutalik River ACEC	----	70,888	0	0	0	0	70,888 (100%) ²	0	2,372 (3%) ²
Kateel River ACEC	----	692,659	0	0	0	0	358,130 (52%) ²	334,529 (48%) ²	36,760 (5%) ²
Nulato River ACEC	----	344,182	0	1	1	38,859 (11%) ²	305,322 (89%) ²	0	23,064 (7%) ²
Shaktoolik River ACEC	----	191,067	0	0	0	0	191,067 (99%) ²	0	12,163 (6%) ²
Sheefish Spawning ACEC	----	696,901	0	31,367 (5%) ²	0	421,036 (60%) ²	157,025 (23%) ²	118,840 (17%) ²	103,624 (15%) ²
Swift River Whitefish Spawning ACEC	----	220,032	0	0	0	0	220,032 (100%) ²	0	24,502 (11%) ²
Tagagawik River ACEC	----	301,044	0	0	0	301,044 (100%) ²	0	0	0
Unalakleet Watershed ACEC	----	733,995	0	188,821 (26%) ²	45,632 (6%) ²	687,920 (94%) ²	442 (<1%)	0	87,924 (12%) ²
Ungalik River ACEC	----	113,454	0	0	0	0	113,454 (100%) ²	0	3,629 (3%) ²

Notes:

1) ROW Avoidance acreages reported in this table include areas that are ROW Avoidance and areas that are ROW Avoidance for Linear Realty Actions.

2) Percentages are based on total acreages of total potential ACECs.

3) Acreages of HVWs for Alternative E are calculated based on 100-year floodplains within HVWs identified in Alternative E. This is because management actions applicable to HVWs under Alternative E apply only to the 100-year floodplains within the HVWs.

- Impacts resulting from locatable minerals activities would be subject to 43 CFR 3809, intended to (1) prevent unnecessary or undue degradation of the land and reclaimed disturbed areas; and (2) provide for maximum possible coordination with State agencies to avoid duplication and to ensure that operators prevent unnecessary or undue degradation of public lands.
- Leasable mineral potential is low throughout the planning area.
- Under all alternatives, the BLM would continue to require NHPA Section 106 consultation for any project that could potentially impact cultural and historical sites, including those associated with the Anvik Traditional Trapping Area, Sheefish Spawning, Tagagawik River, and Unalakleet Watershed potential ACECs.
- Under all alternatives, BLM and permitted projects would follow applicable State and federal laws and regulations to manage R&Is for fisheries and would continue Alaskan Native and public consultations to implement or revise management actions. These include federal protections, such as the Clean Water Act, the ESA, Magnuson-Stevens Fishery Conservation and Management Act and EFH; State Title 16 statutes such as the Anadromous Fish Act (AS 16.05.871-.901) and the Fishway or Fish Passage Act (AS 16.05.841).
- The impact analysis below considers the SOPs and BMPs that could be implemented by the BLM. BMPs and SOPs for fisheries and cultural resources would protect R&Is. A comprehensive list of SOPs/BMPs is provided in Appendix O.

Effects from Alternative A

Alternative A includes the 11 existing ACECs in the planning area (44 percent of potential ACECs). In a 2016 evaluation, three of these (Peregrine Falcon and Kuskokwim River Raptor Nesting Habitat ACECs and the Box River Treeline RNA ACEC) were found to no longer support the “Importance” criteria of their nominating values; however, these areas would remain designated under Alternative A.

Management actions differ among the existing ACECs and are currently enacted via regional land management plans and ANCSA 17(d)(1) withdrawals. There is no consistent special management applied to ACECs to minimize impacts to R&Is. No existing ACECs are in areas of high LMP; consequently, risk of potential impacts to R&Is from mineral development is considered low. Existing ACECs are open to the possibility of new ROW development on a case-by-case basis, and no direction exists for commercial woodland harvest; therefore, impacts to R&Is could result from surface disturbance should these actions occur in ACECs. Although there is currently little commercial timber harvest occurring in the planning area and future use is considered unlikely without added equipment and infrastructure, this analysis considers potential for localized impacts in the future.

VRM Class I designation is applied to the Unalakleet Wild River Corridor, thereby minimizing impacts to fisheries and cultural values where the WSR corridor overlaps the drainages of the Unalakleet River Watershed ACEC. Consequently, R&Is for fisheries and cultural resources would receive some special management in a localized portion of that ACEC as described above.

Effects Common to All Action Alternatives

Under all action alternatives, designated or undesignated portions of Tagagawik River ACEC would not intersect any areas identified as HVW. Therefore, fisheries R&Is would not receive additional management associated with HVW.

Effects from Alternative B

Alternative B would designate 3,912,698 acres (91 percent) of the potential ACECs, and by that method would minimize impacts to R&Is for fish and cultural resources to a greater degree than Alternatives A, C, D, and E.

Although there is currently little development occurring in the planning area and future use is considered unlikely, ROW avoidance and prohibition of possible commercial woodland harvest would minimize impacts to fish and cultural R&Is as described above. Impact to fisheries resources from mineral development would be minimized by closing 528 acres of the Sheefish Spawning ACEC that overlaps areas of high mineral potential to the possibility of locatable mineral development. All designated ACEC acreage under Alternative B would be recommended for withdrawal from locatable mineral development, either through maintaining existing withdrawals or recommending new withdrawals. Given the acreages, any new withdrawal recommendations would require Congressional action to fully implement.

Additional management of R&Is would be achieved through layered management applied through VRM designation, overlap with the INHT NTMC, and areas identified as HVW. One hundred percent of the Anvik Traditional Trapping Area ACEC, 48 percent of the Unalakleet Watershed ACEC, 35 percent of the Sheefish Spawning ACEC, and 23 percent of the Anvik River Watershed ACEC would be managed as VRM Class I. These areas would coincide with the INHT NTMC where it crosses the Unalakleet Watershed and Sheefish Spawning ACECs. This level of management would result in beneficial impacts to cultural R&Is of these ACECs by preserving the historic setting of the ACEC and INHT. With the exception of Anvik Traditional Trapping Area ACEC (cultural) and Tagagawik River ACEC, all potential designated ACECs intersect HVWs for over 55 percent of their area, with over 95 percent of the Gisasa River, Inglutalik River, Nulato River, and Unalakleet Watershed potential ACECs overlapping HVWs. Overlap with HVWs would result in beneficial effects as described under “Effects Common to All Action Alternatives” above.

Although Alternative B would provide the greatest management of R&Is, it would also result in lower prioritization of multiple use and of the creation of Cultural Landscape Reports compared to Alternative C, D, or E.

Effects from Alternative C

Alternative C does not include special management nor the designation of ACECs. However, there would be management actions that would protect identified cultural and fisheries R&Is in undesignated potential ACECs. The management actions that would minimize impacts to R&Is include HVW, VRM Class I and II, ROW avoidance or ROW avoidance for linear actions, withdrawal from mineral entry, closed to salable, open to salable mineral development subject to terms and conditions, and NSO leasable.

Except where undesignated potential ACEC areas overlap the designated Unalakleet Wild River Corridor, all land would be open to the possibility of locatable mineral entry. However, except for 528 acres within the undesignated potential Sheefish Spawning area, LMP is low, and mineral development and associated impacts are unlikely.

One or a combination of these management actions would be applied to the entire geographic area of the following ACECs described in Alternative B: Anvik River Watershed, Anvik Traditional Trapping Area, Gisasa River, Inglutalik River ACEC, Nulato River, Shaktoolik River, Swift River Whitefish Spawning, Tagagawik River, and the Ungalik River ACEC.

The contribution of management actions entailed in Alternative C that would protect those resources identified under the R&I criteria, displacing the need for ACEC designation and associated special management for each undesignated potential ACEC, is provided below.

- **Anvik River Watershed:** Approximately 97 percent of the undesignated potential ACEC would be identified as HVW. The HVW areas cover the Anvik River and the Headwaters of the Anvik River. Approximately 76 percent would be managed as ROW avoidance, with the remaining 24 percent managed as ROW avoidance for linear actions. The entire geography would be managed as NSO leasable and open to salable mineral development subject to terms and conditions. Collectively, these management actions and their associated impacts would minimize impacts to fisheries R&Is from permitted actions and maintain species diversity for subsistence resources and for spawning and rearing habitat for all species of salmon, and specifically summer chum salmon.
- **Anvik Traditional Trapping Area:** One hundred percent of the undesignated potential ACEC would be managed as VRM Class II. Of this area, 96 percent would be managed as ROW avoidance, with the remaining 4 percent managed as ROW avoidance for linear actions. The entire geography would be managed as NSO leasable and closed to salable mineral development. Collectively, these management actions and their associated impacts would minimize impacts to cultural R&Is from permitted actions, including the INHT.
- **Gisasa River:** The area of the undesignated potential ACEC would be managed as ROW avoidance, with approximately 84 percent identified as HVW. The HVW would include the Gisasa River and Headwaters of the Gisasa River. The entire geography would be managed as NSO leasable and open to the possibility of salable mineral development subject to terms and conditions. Collectively, these management actions and their associated impacts would minimize impacts to fisheries R&Is from permitted actions and maintain spawning and rearing habitat that is important to a variety of salmon and other species of fish.
- **Inglutalik River:** The area of the undesignated potential ACEC would be managed as ROW avoidance, with approximately 25 percent identified as HVW. The HVW would include the Inglutalik River and Headwaters of the Inglutalik River. The entire geography would be managed as NSO leasable and 99 percent would be open to the possibility of salable mineral development subject to terms and conditions. Collectively, these management actions and their associated impacts would minimize impacts to fisheries R&Is from permitted actions and maintain spawning and rearing habitat that is important to a variety of salmon and other species of fish.
- **Kateel River:** Approximately 52 percent of the undesignated potential ACEC would be managed by one or more of the management actions described above. Approximately 52 percent of the geography would be managed as ROW avoidance, and approximately 63 percent would be NSO leasable and open to the possibility of salable mineral development subject to terms and conditions. Approximately 43 percent of the geography would be identified as HVW (overlapping other management actions listed above), including the Kateel River and Kateel Creek. Collectively, these management actions and their associated impacts would minimize impacts to fisheries R&Is from permitted actions through protection of spawning and rearing habitat for Chinook and chum salmon.
- **Nulato River:** The undesignated potential ACEC would be managed as ROW avoidance, with approximately 87 percent identified as HVW. The HVW would include the Nulato River, the Headwaters of the Nulato River, the South Fork Nulato River, and the Headwaters of the South Fork Nulato River, the Outlet Kalasik Creek, and the Headwaters of Kalasik Creek. The majority of geography would be managed as NSO leasable and open to the possibility of salable mineral development subject to terms and conditions, with approximately 1 acre associated with the Kaltag Portage segment of the NTMC closed to leasable and salable mineral development and

managed as VRM Class I. Approximately 29 percent would be managed as VRM Class II. Collectively, these management actions and their associated impacts would minimize impacts to fisheries R&Is from permitted actions and maintain spawning and rearing habitat that is important to a variety of salmon and other species of fish.

- **Shaktoolik River:** The undesignated potential ACEC would be managed as ROW avoidance, with approximately 65 percent identified as HVW. The HVW would include the Shaktoolik River, the Headwaters of the Shaktoolik River, and Brass Pan Creek. Approximately 99 percent of the geography would be managed as NSO leasable and open to the possibility of salable mineral development subject to terms and conditions. Collectively, these management actions and their associated impacts would minimize impacts to fisheries R&Is from permitted actions and contribute to the availability and abundance of subsistence fish resources and maintain the overall genetic health of salmon stocks that spawn in tributaries to Norton Sound.
- **Sheefish Spawning:** Approximately 60 percent would be managed as VRM Class II, 56 percent would be managed as ROW avoidance and NSO leasable, and 35 percent would be open to the possibility of salable mineral development subject to terms and conditions. Approximately 55 percent of the geography would be identified as HVW, including the Big River, Bear Creek, Khuchaynik Creek, Lower Windy Fork Middle Fork Kuskokwim River, Middle and Upper Middle Fork Kuskokwim River, Middle and Upper Pitka Fork Middle Fork Kuskokwim River, Salmon River, and Sullivan Creek. Approximately 4 percent of this geography overlaps the Farewell Bend portion of the NTMC. The remaining areas (30 percent of the undesignated potential ACEC) that are not managed per management actions considered protective of R&Is are located in upland areas and do not include the waterbodies listed above. Collectively, these management actions and their associated impacts would minimize impacts to fisheries R&Is from permitted actions through protection of spawning locations on the Middle Fork Kuskokwim and Big River, located in the upper Kuskokwim River area.
- **Swift River Whitefish Spawning:** The area of the undesignated potential ACEC would be managed as ROW avoidance, with approximately 47 percent identified as HVW. The HVW would include the Swift River, Lower Gagaryah River, Middle Gagaryah River, and the Outlet Cheeneetuk River. The entire geography would be managed as NSO leasable and open to salable mineral development subject to terms and conditions. Collectively, these management actions and their associated impacts would minimize impacts to fisheries R&Is from permitted actions by providing habitat protection for whitefish spawning in the Swift River and small associated tributaries.
- **Tagagawik River:** The area of the undesignated potential ACEC would be managed as ROW avoidance, VRM Class II, NSO leasable, and open to the possibility of salable mineral development subject to terms and conditions. Collectively, these management actions and their associated impacts would minimize impacts to cultural R&Is from permitted actions in a manner commensurate with the importance of the region for trade between the Athabaskan (Koyukuk) and Inupiat (Selawik).
- **Unalakleet River Watershed:** Approximately 6 percent of undesignated potential ACEC overlaps the Unalakleet Wild River Corridor and as such would be closed to leasable and salable mineral development, withdrawn from locatable mineral development, and managed as VRM Class I. Approximately 26 percent overlaps the Kaltag Portage segment of the NTMC. Approximately 96 percent of the geography would be managed as ROW avoidance, with 74 percent identified as HVW. The HVW areas would cover the Unalakleet River; North River and Headwaters of the North River; Headwaters of Old Woman River and Upper, Middle, and Lower Old Woman River; Lower, Middle and Upper Chirokey River; and Upper, Middle, and Lower North Fork Unalakleet River. Approximately 89 percent of the geography would be managed as NSO leasable and open to the possibility of salable mineral development subject to terms and

conditions. Collectively, these management actions and their associated impacts would minimize impacts to cultural resources and fisheries R&Is from permitted actions through both colocation with the INHT and Unalakleet Wild River Corridor.

- **Ungalik River ACEC:** The area of the undesignated potential ACEC would be managed as ROW avoidance, with approximately 57 percent identified as HVW. The HVW would include the Ungalik and Headwaters of the Ungalik River. The entire geography would be managed as NSO leasable and open to the possibility of salable mineral development subject to terms and conditions. Collectively, these management actions and their associated impacts would minimize impacts to fisheries R&Is from permitted actions and maintain spawning and rearing habitat that is important to a variety of salmon and other species of fish.

Effects from Alternative D

No ACECs would be designated under Alternative D. This alternative would have less management to minimize adverse effects to those resources that the R&I criteria address from surface disturbance or visual impacts than Alternative A or B, but more at the plan level than Alternative E. Some areas within the boundaries of undesignated potential ACEC areas would still be managed as ROW avoidance, minimizing impacts to R&Is through permit stipulations. Portions of the Sheefish Spawning and Unalakleet Watershed undesignated potential ACEC areas would be open to ROW. Except where undesignated potential ACEC areas overlap the designated Unalakleet Wild River Corridor, all land would be open to locatable mineral entry. However, except for 528 acres within the undesignated potential Sheefish Spawning area, LMP is low, and mineral development and associated impacts are unlikely.

The majority of the undesignated potential ACECs would be managed as VRM Class III, with the majority of the Gisasa River, Inglutalik River, Kateel River, Shaktoolik River, Swift River Whitefish Spawning, and Tagagawik River undesignated potential ACEC areas managed as VRM Class IV. Although areas managed for VRM Class III could result in moderate change in landscape character if development actions are proposed/approved, any proposed/approved development in areas managed as VRM Class IV could result in major modification to the landscape. At the site-specific level, that could adversely affect cultural and fisheries R&Is. Impacts to fisheries R&Is of undesignated potential ACECs would continue to be managed where undesignated potential ACEC areas overlap HVW.

The creation of Cultural Landscape Reports would be prioritized most in this alternative, which would provide a qualitative beneficial impact to ACEC values by increasing understanding and documentation of cultural, fisheries, and wildlife resources throughout the planning area.

The contribution of management actions entailed in Alternative D that would protect those resources identified under the R&I criteria, displacing the need for ACEC designation and associated special management for each undesignated potential ACEC, is provided below.

- **Anvik River Watershed:** Approximately 97 percent of the undesignated potential ACEC would be within HVWs and managed as ROW avoidance. This area would cover the Anvik River and unnamed rivers and streams. Approximately 97 percent of the undesignated potential ACEC would be managed as ROW avoidance for linear projects. The entire geography would be managed as NSO leasable with standard stipulations and open to salable mineral development. Collectively, these management actions and their associated impacts, combined with BMPs and SOPs (Appendix O) and management actions common to all action alternatives, would minimize impacts to fisheries R&Is from permitted actions and maintain species diversity for subsistence

resources and for spawning and rearing habitat for all species of salmon, and specifically summer chum salmon.

- **Anvik Traditional Trapping Area:** Because it overlaps with the INHT, 100 percent of this undesignated potential ACEC would be managed as a ROW avoidance area and as VRM Class II. The entire geography would be managed as NSO leasable (subject to valid and existing rights) but closed to salable mineral development. No portion of the undesignated potential ACEC would overlap with 100-year floodplains in HVWs. Collectively, these management actions for ROW avoidance and VRM and their associated impacts, combined with BMPs and SOPs (Appendix O) and management actions common to all action alternatives, would minimize impacts to cultural R&Is from permitted actions.
- **Gisasa River:** Approximately 80 percent of the undesignated potential ACEC would be within HVWs and managed as ROW avoidance. That area would include the Gisasa River and unnamed rivers and streams. The undesignated potential ACEC would be managed as open to the possibility of leasable with standard stipulations and open to salable mineral development. Collectively, these management actions and their associated impacts, combined with BMPs and SOPs (Appendix O) and management actions common to all action alternatives, would minimize impacts to fisheries R&Is from permitted actions and maintain species diversity for subsistence resources and for spawning and rearing habitat for all species of salmon, and specifically summer chum salmon.
- **Inglutalik River:** Approximately 25 percent of the undesignated potential ACEC would be within HVWs and managed as ROW avoidance. The entire geography would be managed as open to leasable with standard stipulations and open to the possibility of salable mineral development. Collectively, these management actions and their associated impacts combined with BMPs and SOPs (Appendix O) and management actions common to all action alternatives, would minimize impacts to fisheries R&Is from permitted actions and maintain spawning and rearing habitat that is important to a variety of salmon and other species of fish.
- **Kateel River:** Approximately 43 percent of the undesignated potential ACEC would be within HVWs and managed as ROW avoidance. That area would include the Kateel River and unnamed rivers and creeks. The area of the undesignated potential ACEC would be managed as open to the possibility of leasable with standard stipulations and open to the possibility of salable mineral development. Collectively, these management actions and their associated impacts, combined with BMPs and SOPs (Appendix O) and management actions common to all action alternatives, would minimize impacts to fisheries R&Is from permitted actions and maintain spawning and rearing habitat that is important to a variety of salmon and other species of fish.
- **Nulato River:** Approximately 87 percent of the undesignated potential ACEC would be within HVWs and managed as ROW avoidance. That area would include the Nulato River, the South Fork Nulato River, Kalasik Creek, and unnamed rivers and creeks. The majority of the geography (99.9 percent) would be managed as open to the possibility of leasable with standard stipulations and open to the possibility of salable mineral development, with approximately 1 acre associated with the Kaltag Portage segment of the NTMC closed to leasable and salable mineral development and managed as VRM Class I. Less than 1 percent of this undesignated potential ACEC would be managed as VRM Class II. Collectively, these management actions and their associated impacts, combined with BMPs and SOPs (Appendix O) and management actions common to all action alternatives, would minimize impacts to fisheries R&Is from permitted actions and maintain spawning and rearing habitat that is important to a variety of salmon and other species of fish.
- **Shaktoolik River:** Approximately 65 percent of the undesignated potential ACEC would be within HVWs and managed as ROW avoidance. That area would include the Shaktoolik River,

Brass Pan Creek, and unnamed rivers and creeks. The area of the undesignated potential ACEC would be managed as open to the possibility of leasable with standard stipulations and open to salable mineral development. Collectively, these management actions and their associated impacts, combined with BMPs and SOPs (Appendix O) and management actions common to all action alternatives, would minimize impacts to fisheries R&Is from permitted actions and maintain spawning and rearing habitat that is important to a variety of salmon and other species of fish.

- **Sheefish Spawning:** Approximately 53 percent of the undesignated potential ACEC would be within HVWs and managed as ROW avoidance. That area would include Big River, Bear Creek, Khuchaynik Creek, Windy Fork Middle Fork Kuskokwim River, Middle Fork Kuskokwim River, Pitka Fork Middle Fork Kuskokwim River, Salmon River, and Sullivan Creek, along with unnamed creeks and rivers. Twenty-five percent of the area would be managed as VRM Class II. The area of the undesignated potential ACEC would be managed as open to the possibility of leasable with standard stipulations and open to the possibility of salable mineral development, with the remainder open to leasable mineral development under standard stipulations and open to salable mineral development. Approximately 528 acres (less than 0.1 percent) of this potential ACEC geography is located in medium to high locatable potential and open to the possibility of mineral development. Collectively, these management actions and their associated impacts, combined with BMPs and SOPs (Appendix O) and management actions common to all action alternatives, would minimize impacts to fisheries R&Is from permitted actions and maintain spawning and rearing habitat that is important to a variety of salmon and other species of fish.
- **Swift River Whitefish Spawning:** Approximately 47 percent of the undesignated potential ACEC would be within HVWs and managed as ROW avoidance. That area would include the Swift River, Gagaryah River, and unnamed rivers and creeks. The area of the undesignated potential ACEC would be managed as open to the possibility of leasable with standard stipulations and open to salable mineral development. Collectively, these management actions and their associated impacts, combined with BMPs and SOPs (Appendix O) and management actions common to all action alternatives, would minimize impacts to fisheries R&Is from permitted actions and maintain spawning and rearing habitat that is important to a variety of salmon and other species of fish.
- **Tagagawik River:** The area of the undesignated potential ACEC would be managed as VRM Class IV, open to leasable with standard stipulations, and open to the possibility of salable mineral development. Permitted actions would employ BMPs and SOPs (Appendix O) combined with management actions common to all action alternatives to minimize surface disturbance and protect cultural resources.
- **Unalakleet River Watershed:** Approximately 6 percent of this undesignated potential ACEC overlaps the Unalakleet Wild River Corridor and as such would be closed to leasable and salable mineral development, withdrawn from locatable mineral development, and managed as VRM Class I. Approximately 76 percent of the undesignated potential ACEC would be managed as ROW avoidance, with 74 percent within HVWs. This area would cover the Unalakleet River, North River, Old Woman River, Chirokey River, North Fork Unalakleet River and unnamed rivers and creeks. Approximately 94 percent of the undesignated potential ACEC would be managed as open to the possibility of leasable with standard stipulations and salable mineral development. Approximately 6 percent would be closed to leasable and salable mineral development. Collectively, these management actions and their associated impacts, combined with BMPs and SOPs (Appendix O) and management actions common to all action alternatives, would minimize impacts to cultural resources and fisheries R&Is from permitted actions and maintain spawning and rearing habitat that is important to a variety of salmon and other species of fish.

- **Ungalik River ACEC:** Approximately 57 percent of the undesignated potential ACEC would be within HVWs and managed as ROW avoidance. That area would include the Ungalik River and unnamed rivers and creeks. The entire undesignated potential ACEC would be managed as open to leasable with standard stipulations. Collectively, these management actions and their associated impacts, combined with BMPs and SOPs (Appendix O) and management actions common to all action alternatives, would minimize impacts to fisheries R&Is from permitted actions and maintain spawning and rearing habitat that is important to a variety of salmon and other species of fish.

Effects from Alternative E

No ACECs would be designated under Alternative E. This alternative would have the least management prescriptions at the plan level, and would rely more on site-specific management to minimize adverse effects to those resources that the R&I criteria address from surface disturbance compared to Alternative B, C or D. Management actions related to HVWs would be applied to the 100-year floodplains within the HVWs instead of the entire HVW geography. ROW avoidance area acreage under Alternative E would be substantially less than the other action alternatives. Except where undesignated potential ACEC areas overlap the designated Unalakleet Wild River Corridor, all land would be open to locatable mineral entry. However, except for 528 acres within the undesignated potential Sheefish Spawning area, LMP is low, and mineral development and associated impacts are unlikely.

Approximately 5 to 26 percent of three undesignated potential ACECs (Anvik River Watershed, Sheefish Spawning, and Unalakleet Watershed ACECs) and one undesignated potential ACEC (Anvik Traditional Trapping Area ACEC) would be managed as either ROW avoidance or ROW avoidance for linear realty actions under Alternative E, minimizing impacts to R&Is through permit stipulations.

The majority of the undesignated potential ACECs would be managed as VRM Class II or III, with portions of two undesignated potential ACECs managed as VRM Class IV. Areas managed for VRM Class III could result in moderate change in landscape character if development actions are proposed and approved. Proposed/approved development in areas managed as VRM Class IV could result in major modification to the landscape. At the site-specific level, that could impact cultural and fisheries R&Is. Impacts to fisheries R&Is of undesignated potential ACECs would continue to be managed where undesignated potential ACEC areas overlap 100-year floodplains within HVWs. Under Alternative E, certain areas of the undesignated potential ACEC areas would overlap 100-year floodplains within HVWs, with 3 to 21 percent of 10 undesignated potential ACECs overlapping 100-year floodplains in HVWs under Alternative E.

The contribution of management actions entailed in Alternative E that would protect those resources identified under the R&I criteria, displacing the need for ACEC designation and associated special management for each undesignated potential ACEC, is provided below.

- **Anvik River Watershed:** Approximately 21 percent of the undesignated potential ACEC would be within 100-year floodplains of HVWs. This area would cover the Anvik River and unnamed rivers and streams. Approximately 24 percent of the undesignated potential ACEC would be managed as ROW avoidance for linear projects. The entire geography would be managed as NSO leasable and open to salable mineral development subject to terms and conditions. Collectively, these management actions and their associated impacts, combined with BMPs and SOPs (Appendix O) and management actions common to all action alternatives, would minimize impacts to fisheries R&Is from permitted actions and maintain species diversity for subsistence

resources and for spawning and rearing habitat that is important to a variety of salmon and other species of fish.

- **Anvik Traditional Trapping Area:** Because it overlaps with the INHT, the area of this undesignated potential ACEC would be managed as a ROW avoidance area and as VRM Class II. The entire geography would be managed as NSO leasable but closed to salable mineral development. Collectively, these management actions for ROW avoidance and VRM and their associated impacts, combined with BMPs and SOPs (Appendix O) and management actions common to all action alternatives, would minimize impacts to cultural R&Is from permitted actions.
- **Gisasa River:** Approximately 8 percent of the undesignated potential ACEC would be within 100-year floodplains in HVWs. That area would include the Gisasa River and unnamed rivers and streams. The area of the undesignated potential ACEC would be managed as NSO leasable and open to the possibility of salable mineral development subject to terms and conditions. Collectively, these management actions and their associated impacts, combined with BMPs and SOPs (Appendix O) and management actions common to all action alternatives, would minimize impacts to fisheries R&Is from permitted actions and maintain species diversity for subsistence resources and for spawning and rearing habitat that is important to a variety of salmon and other species of fish.
- **Inglutalik River:** Approximately 3 percent of the undesignated potential ACEC would be within 100-year floodplains of HVWs around the Inglutalik River. Nearly the entire geography would be managed as NSO leasable and open to the possibility of salable mineral development subject to terms and conditions. Collectively, these management actions and their associated impacts, combined with BMPs and SOPs (Appendix O) and management actions common to all action alternatives, would minimize impacts to fisheries R&Is from permitted actions and maintain spawning and rearing habitat that is important to a variety of salmon and other species of fish.
- **Kateel River:** Approximately 5 percent of the undesignated potential ACEC would be within 100-year floodplains of HVWs, which would cover the Kateel River and unnamed rivers and creeks. Approximately 52 percent of the undesignated potential ACEC would be managed as NSO leasable and open to the possibility of salable mineral development subject to terms and conditions, with the remainder open to the possibility of leasable mineral development under standard stipulations and open to salable mineral development. Collectively, these management actions and their associated impacts, combined with BMPs and SOPs (Appendix O) and management actions common to all action alternatives, would minimize impacts to fisheries R&Is from permitted actions and maintain spawning and rearing habitat that is important to a variety of salmon and other species of fish.
- **Nulato River:** Approximately 1 acre of the undesignated potential ACEC would be managed as ROW avoidance, with approximately 7 percent within 100-year floodplains of HVWs. The HVW would include the Nulato River, the South Fork Nulato River, Kalasik Creek, and unnamed rivers and creeks. The entire geography would be managed as NSO leasable and open to the possibility of salable mineral development subject to terms and conditions, with approximately 1 acre associated with the Kaltag Portage segment of the NTMC closed to leasable and salable mineral development and managed as VRM Class I. Approximately 11 percent of this undesignated potential ACEC would be managed as VRM Class II. Collectively, these management actions and their associated impacts, combined with BMPs and SOPs (Appendix O) and management actions common to all action alternatives, would minimize impacts to fisheries R&Is from permitted actions and maintain spawning and rearing habitat that is important to a variety of salmon and other species of fish.

- **Shaktoolik River:** Approximately 6 percent of the undesignated potential ACEC would be in 100-year floodplains within HVWs. This area would include the Shaktoolik River, Brass Pan Creek, and unnamed rivers and creeks. The area of the undesignated potential ACEC would be managed as NSO leasable and open to the possibility of salable mineral development subject to terms and conditions. Collectively, these management actions and their associated impacts, combined with BMPs and SOPs (Appendix O) and management actions common to all action alternatives, would minimize impacts to fisheries R&Is from permitted actions and maintain spawning and rearing habitat that is important to a variety of salmon and other species of fish.
- **Sheefish Spawning:** Approximately 5 percent of the undesignated potential ACEC would be managed as ROW avoidance. Sixty percent of the area would be managed as VRM Class II. Thirty-five percent of the undesignated potential ACEC would be managed as NSO leasable and open to the possibility of salable mineral development subject to terms and conditions, with the remainder open to the possibility of leasable mineral development under standard stipulations and open to salable mineral development. Approximately 15 percent of the undesignated potential ACEC would be within 100-year floodplains of HVWs, including Big River, Bear Creek, Khuchaynik Creek, Windy Fork Middle Fork Kuskokwim River, Middle Fork Kuskokwim River, Pitka Fork Middle Fork Kuskokwim River, Salmon River, and Sullivan Creek, along with unnamed creeks and rivers. Collectively, these management actions and their associated impacts, combined with BMPs and SOPs (Appendix O) and management actions common to all action alternatives, would minimize impacts to fisheries R&Is from permitted actions and maintain spawning and rearing habitat that is important to a variety of salmon and other species of fish.
- **Swift River Whitefish Spawning:** Approximately 11 percent of the undesignated potential ACEC would be within 100-year floodplains of HVWs. This area would include the Swift River, Gagaryah River, and unnamed rivers and creeks. The area of the undesignated potential ACEC would be managed as NSO leasable and open to the possibility of salable mineral development subject to terms and conditions. Collectively, these management actions and their associated impacts, combined with BMPs and SOPs (Appendix O) and management actions common to all action alternatives, would minimize impacts to fisheries R&Is from permitted actions and maintain spawning and rearing habitat that is important to a variety of salmon and other species of fish.
- **Tagagawik River:** The entire undesignated potential ACEC would be managed as VRM Class II, NSO leasable, and open to the possibility of salable mineral development subject to terms and conditions. Collectively, these management actions and their associated impacts, combined with BMPs and SOP (Appendix O) and management actions common to all action alternatives, would minimize impacts to cultural R&Is from permitted actions.
- **Unalakleet River Watershed:** Approximately 6 percent of this undesignated potential ACEC overlaps the Unalakleet Wild River Corridor and as such would be closed to leasable and salable mineral development, withdrawn from locatable mineral development, and managed as VRM Class I. Approximately 26 percent of the undesignated potential ACEC would be managed as ROW avoidance, with 12 percent within 100-year floodplains of HVWs. This area would cover the Unalakleet River, North River, Old Woman River, Chiroskey River, North Fork Unalakleet River, and unnamed rivers and creeks. Approximately 89 percent of the undesignated potential ACEC would be managed as NSO leasable and open to salable mineral development subject to terms and conditions. The remaining 4 percent of the undesignated potential ACEC would be open to salable mineral development and open to leasable mineral development under standard stipulations. Collectively, these management actions and their associated impacts, combined with BMPs and SOPs (Appendix O) and management actions common to all action alternatives, would minimize impacts to cultural resources and fisheries R&Is from permitted actions and maintain spawning and rearing habitat that is important to a variety of salmon and other species of fish.

- **Ungalik River ACEC:** Approximately 3 percent of this undesignated potential ACEC would be within 100-year floodplains of HVWs. This area would include the Ungalik River and unnamed rivers and creeks. The area of the undesignated potential ACEC would be managed as NSO leasable, classified as VRM Class III, and open to salable mineral development subject to terms and conditions. Collectively, these management actions and their associated impacts, combined with BMPs and SOPs (Appendix O) and management actions common to all action alternatives, would minimize impacts to fisheries R&Is from permitted actions and maintain spawning and rearing habitat that is important to a variety of salmon and other species of fish.

Cumulative Effects

Past and Present Actions

Cultural R&Is: Reasonably foreseeable future actions that could affect cultural resources are primarily related to development of the Donlin Gold Project and the potential for other exploration and development of locatable minerals in the planning area. Infrastructure development to communities also presents a high potential for impacts on cultural resources, since historical development has often occurred in the vicinity of these communities. Development of roads and other transportation routes would result in additional surface disturbance, which carries a potential to impact cultural resources.

Fish R&Is: Based on past commercial, subsistence, and personal use fisheries harvest data, resident fish production is generally forecast to remain stable in the planning area. The forecasted extent of disturbances to habitat is expected to remain minimal throughout the majority of the watersheds in the planning area. Activities that occur within the planning area that have the highest potential to affect fish production include placer mining, hard rock mining, and gravel mining; timber harvests; and stream crossings of roads, trails, and utility corridors in important fish habitats. Outside the planning area, commercial fishing is one of the biggest impacts on the R&I fisheries values. The undesignated potential ACEC areas contain habitat for spawning and rearing young, which links to the fish populations in the ocean, where they are harvested commercially, an indirect link to the fisheries value. Subsistence fishing and sport fishing directly affect the fisheries value but are not high enough uses to affect the R&I fisheries value in any undesignated potential ACECs.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative A)

Alternative A continues managing 11 ACECs totaling 1,884,376 acres. It does not designate new ACECs. However, layered management for other special designations (VRM Class I lands) minimizes impacts from surface-disturbing activities in undesignated potential ACECs. Considering only the designation of ACECs and associated management actions at the plan level, apart from future management actions occurring at the site-specific level, Alternative A would continue to stabilize the existing trend of R&Is for fish through continued management of existing ACECs, and cultural resources would continue to degrade despite ongoing management of existing ACECs.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative B)

Alternative B designates 12 ACECs totaling 3,912,698 acres. Layered management through VRM, NTMC, and areas identified as HVW would minimize impacts from potential surface-disturbing activities to undesignated potential ACECs to the greatest extent and magnitude of all alternatives. Considering only the designation of ACECs and associated management actions at the plan level, apart from future management actions occurring at the site-specific level, Alternative B would continue to stabilize the

existing trend of R&Is for fish through management of potential ACECs, and cultural resources would stabilize.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative C)

Alternative C does not designate ACECs. Management actions applied to potential ACEC geographies at the plan level (apart from future management actions occurring at the site-specific level) would minimize impacts from potential surface-disturbing activities to undesignated potential ACECs to a greater degree than Alternative A but less than Alternative B. Alternative C would continue to stabilize the existing trend of R&Is for fish and cultural resources through management of potential ACECs; however, this would occur in a smaller geographic extent than Alternative B.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative D)

Alternative D does not designate ACECs. Management actions applied to potential ACEC geographies at the plan level (apart from future management actions occurring at the site-specific level) would minimize impacts from potential surface-disturbing activities to undesignated potential ACECs; however, the geographic extent of areas receiving this management would be less than Alternative C. Cumulative impacts to fish and cultural resources would continue to degrade.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative E)

Alternative E does not designate ACECs. Management actions applied specifically to potential ACEC geographies at the plan level (apart from future management actions occurring at the site-specific level, that are applicable plan-area wide) would minimize impacts from potential surface-disturbing activities to undesignated potential ACECs; the geographic extent of areas receiving this targeted management would be substantially less than in the other action alternatives. Cumulative impacts to fish and cultural resources would continue to degrade, at a higher rate than Alternative D.

3.4.2 National Trails

Affected Environment

The INHT is the only national trail within the planning area and is the only National Historic Trail in Alaska (Map 3.4.2-1). The INHT System is composed of 2,400 miles of trail segments and sites associated with a Gold Rush-era trail network that connected Seward to Nome via the Iditarod gold mining district. Historically, INHT travel occurred during winter and relied on roadhouses and cabins for shelter. Trail segments are still used as primary winter overland routes between communities. Approximately 1,600 miles of the INHT are on public lands and ROWs identified for modern-day use. Over 700 miles of actively used trail segments are in the planning area, approximately 77 miles of which are on BLM-managed lands. The INHT's diverse climate, terrain, scenery, wildlife, and resources are largely unchanged since the Gold Rush, providing an opportunity to experience the natural primitive settings and challenges historically encountered. Contemporary use includes snowmobile travel between communities, trapping, firewood gathering, subsistence, and race events. Very little summer overland use occurs, although large waterways that freeze in winter see a substantial amount of summer motorboat traffic (i.e., Kuskokwim River, Innoko River, Yukon River).

Three INHT Primary Route segments, one Connecting Trail segment, and two historic sites are on BLM-managed public land within the planning area (Table 3.4.2-1).

Table 3.4.2-1: INHT Segments and Associated Historic Sites on BLM-Managed Land in the Planning Area

Site	Description
Farewell Bend	The NRHP-eligible, 20-mile Farewell Bend area is a contributing area of the Rainy Pass to Big River Roadhouse Primary Trail. It contains one historic roadhouse site and one BLM public shelter cabin associated with the INHT but is otherwise uninhabited. Use is associated with race events, trapping, subsistence, and bison hunts, with all occurring in winter.
Kaltag Portage	The NRHP-eligible 77-mile Kaltag Portage area includes 35 miles of BLM-managed trail between the Yukon River and Norton Sound. The eastern portion overlaps a portion of the Unalakleet Wild River Corridor. The uninhabited trail area contains prehistoric and historic sites and landforms, and contemporary BLM-managed public shelter cabins. Use is associated with transportation, subsistence, trapping, casual recreation, and race events. Recreational boat travelers on the Unalakleet occasionally use short portions during the summer.
Bonanza Creek	The 7-mile Bonanza Creek area of the NRHP-eligible Takotna-Flat Primary Trail is in the northeast-southwest upper Bonanza Creek area and includes the confluence of Ruby Creek. The remote area contains the remains of four historic roadhouse and cabin sites. The area is rarely used and only accessible overland in the winter or by helicopter in the summer and sees little human use of any kind.
Anvik-Shageluk-Iditarod	The Anvik-Shageluk-Iditarod segment includes 13 miles of BLM-managed trail on the 65-mile INHT Connecting Trail between Anvik and Shageluk and the abandoned Iditarod townsite. NRHP eligibility is unevaluated. Occasional use is associated with winter race events and a State of Alaska Iditarod Trail Public Safety Cabin.
Rohn Site	The 363-acre NRHP-eligible site at the confluence of the South Fork Kuskokwim River and Tatina River contains the historic Rohn Public Shelter Cabin, a gravel airstrip, and portions of the INHT Primary Route and Connecting Trail. Rohn is the most heavily used site on the INHT managed by BLM and is the only BLM shelter cabin accessible year-round.
Flat (Abandoned Townsite)	The NRHP-eligible abandoned Flat mining town and area was the primary source of gold transported on the INHT. The approximately 180-acre townsite contains buildings, structures, dredges, and road segments, some of which are co-located with the INHT. The BLM manages nearly 5 miles of the INHT within the Flat area and only a portion of the land in the Flat area.

Direct and Indirect Effects

Table 3.4.2-2 below summarizes the nature and types of beneficial or adverse effects that could occur to the INHT, the proposed management actions that could influence those effects, and the indicators used to measure the potential magnitude and extent of the effects. Table 3.4.2-3 discloses the potential magnitude and extent of the effects by indicator, across alternatives. For both tables, the term “INHT” includes the acreages of proposed NTMCs.

Table 3.4.2-2: Summary of Potential Effects to the INHT by Management Action

Types of Effects	Management Actions	Indicators
Surface-disturbing activities, including summer OHV travel, activities within ROWs and project development could directly impact the INHT surface through waterway interception, erosion, and rut creation or trail braiding. Activities could contribute to an overall decrease in trail quality by changing the visual and/or historic character of the INHT, or by possibly adversely impacting scientific information related to the trail.	• INHT NTMC Designation • Forestry and Woodland Harvest Decisions • Grazing Decisions • Mineral Decisions • Travel and Transportation Decisions • ROW Development Decisions	• Acres of the NTMC directly or indirectly affected by loss of integrity or destruction of physical remnants of the INHT • Acres of the NTMC where nature and purpose of the INHT is directly or indirectly affected.
Damage from wildland fire, erosion, downed trees, or changes in vegetation community from nonnative plant species could impact the setting of the surrounding environment by altering the visual character or vegetation composition on lands adjacent to and surrounding the trail.	• Air Quality Decisions • NNIS Decisions • Forestry and Woodland Harvest Decisions • Travel and Transportation Decisions • Wildland Fire Management Decisions	• Acres of the NTMC directly or indirectly affected by change in cultural landscape that diminishes integrity of the trail's historic character.

Types of Effects	Management Actions	Indicators
Audible, pollution, and visual effects could diminish the integrity of the INHT's historic character by changing the resources, qualities, values, associated settings, and primary uses that support the nature and purpose of the INHT.	• INHT NTMC Designation • Air Quality Decisions • NNIS Decisions • Forestry and Woodland Harvest Decisions • Travel and Transportation Decisions • Wildland Fire Management Decisions • Grazing Decisions • Mineral Decisions • Visual Resource Management • Air Safety and Night Lighting	• Acres of the INHT directly or indirectly affected by change in the cultural landscape that diminish the integrity of the INHT. • Adverse effects on the INHT per the NHPA.

Table 3.4.2-3: Portions of Planning Area Analyzed for Potential Impacts to the INHT by Indicator

Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
INHT NTMC within the planning area	No NTMC	288,466 acres	273,242 acres	273,242 acres	273,242 acres
Lighting in the INHT NTMC viewshed	No current management	Prohibits air safety lighting Requires hooded surface lighting	Same as Alternative B	Restrictions determined with a site-specific analysis	Same as Alternative B.
VRM class (of the INHT)	Class I: 46,953 acres	Class I: 288,466 acres	Class I: 46,953 acres Class II: 226,288 acres	Class I: 46,953 acres Class II: 226,288 acres	Class I: 46,953 acres Class II: 226,288 acres
Closed to non-subsistence house log harvest	See Note 1	275,547 acres	46,953 acres	46,953 acres	46,953 acres
Closed to commercial woodland harvest		288,466 acres	46,953 acres	0 acres	46,953 acres
Closed to grazing	46,953 acres	288,466 acres	273,242 acres	0 acres	273,242 acres
Open to locatable mineral development in areas of medium or high mineral LMP	See Notes 2 and 3	0 acres	0 acres	0 acres	0 acres
Open to salable mineral development (including areas subject to terms and conditions)		0 acres	226,289 acres	226,289 acres	226,289 acres
NSO leasable	0 acres	0 acres	226,288 acres	0 acres	226,288 acres
Open to leasing subject to standard stipulations	0 acres	0 acres	0 acres	226,288 acres	0 acres
ROW exclusion areas	No current management	288,466 acres	0 acres	0 acres	0 acres
ROW avoidance areas		0 acres	273,242 acres	172,598 acres	273,242 acres
INHT SRMA area	No current management	288,466 acres	273,242 acres	273,242 acres	273,242 acres
Summer casual OHV access prohibited	All lands are undesignated	288,466 acres	225,925 acres	225,925 acres	225,925 acres
Summer subsistence OHV access prohibited		241,512 acres	225,925 acres	0 acres	225,925 acres
Summer casual OHV access limited to existing trails		0 acres	47,316 acres	46,953 acres	47,316 acres
Summer casual cross-country summer OHV access		0 acres	0 acres	363 acres	0 acres
Summer subsistence OHV access limited to existing trails		46,953 acres	363 acres	225,925 acres	363 acres
Summer subsistence cross-country OHV access		0 acres	46,953 acres	47,316 acres	46,953 acres
Winter casual and subsistence use – snowmobiles only		288,466 acres	273,242 acres	273,242 acres	273,242 acres

Notes:

1) All forest lands open to casual, subsistence, and commercial timber harvest permitting, except for 46,953 acres of the Unalakleet Wild River Corridor that are closed to commercial woodland harvest.

2) The INHT NTMC does not cross any areas of medium or high LMP.

3) Unalakleet Wild River Corridor withdrawn from locatable and closed to salable minerals, including 115,622 acres of the Kaltag Portage area. Farewell Burn area closed to mining, except for metalliferous minerals.

Effects from Alternative A

The BLM has not designated an NTMC for the INHT within the planning area. The INHT is only managed where the proposed Kaltag Portage corridor is co-located with the Unalakleet Wild River Corridor. The lack of a trail protection management framework leaves the INHT and associated resource values and qualities vulnerable to activities and land uses that could interfere with the trail's integrity and purpose.

All lands along the INHT except for the overlapping 46,953 acres of the Unalakleet Wild River Corridor are open to the possibility of casual, subsistence, and commercial woodland harvest, and grazing leases for reindeer where feasible. Due to the lack of mineral potential along the INHT, mineral development is unlikely and therefore associated impacts to the integrity of the trail are also unlikely.

All lands within the planning area are managed as undesignated for transportation use, which allows unrestricted OHV travel within the proposed NTMC in summer and winter months. A substantial shortening of the winter travel season on the trail has occurred in the last 15 years. Due to the predominance of wetlands in the area, the INHT is highly susceptible to damage from OHV traffic in the summer months due to rutting and erosion. Current regulations do not limit the size and weight of OHVs allowed on the trail. Larger, heavier vehicles have the potential to create deeper and wider ruts in the trail that increase erosion. An increase in summer OHV use would have the potential to create parallel ruts.

The BLM has not prescribed VRM classes to the majority of the INHT NTMC; therefore, no indirect beneficial or adverse impacts from VRM management would occur under Alternative A. The BLM manages the Unalakleet Wild River Corridor as VRM Class I, which includes 46,953 acres of the proposed Kaltag Portage NTMC area.

Effects Common to All Action Alternatives

All action alternatives would designate lands for the INHT NTMC. The purpose of the NTMC is to conserve the resources, qualities, values, associated settings, and the primary uses that support the nature and purpose of the INHT. The BLM would pursue opportunities to acquire lands or public use easements within the INHT NTMC to support the goals and objectives of the NTMC, which would enhance the user experience by providing consistent management to large portions of the INHT where possible. For all action alternatives, INHT SRMA management controls would include, but not be limited to, limits to group size, limits to duration of stay, waste management (human and litter), and permitted activities and commercial filming. Dispersed recreation uses would be lightly managed, with little to no cost to the public.

The BLM would prioritize preservation of historic structures along the INHT during wildland fires and include fuels reduction and treatment to further protect the structures. Prohibiting surface-disturbing vehicles and fire management activities in the NTMC would limit effects to the INHT and preserve the visual integrity of the trail corridor, but these limits to suppression could put the INHT and the surrounding landscape at a greater risk of impact from wildland fire. After a wildland fire, the BLM would implement emergency stabilization and burned area rehabilitation projects; this would support the restoration of the scenic and historic conditions within the NTMC. Only projects that resulted in short-term, minimal adverse impacts on air quality would be authorized in the NTMC, thereby maintaining the

nature and purpose of the INHT. Leasable mineral actions would be managed with noise and atmospheric guidelines to maintain the current remote and isolated trail experience and maintain the integrity, nature, and purpose of the INHT.

Effects from Alternative B

Alternative B designates 288,466 acres in three NTMC areas: Farewell Burn (46,591 acres), Kaltag Portage (241,512 acres), and Rohn (363 acres). This action provides designated protection of 288,466 more acres of the INHT than Alternative A. The BLM would retain the Rohn parcel as an NTMC area, preserving the integrity of the heavily used site.

Alternative B prohibits surface-disturbing activities in the NTMC (unless allowed under ANILCA Title XI). This action would only authorize realty actions that are consistent with the integrity, nature, and purpose of the INHT and preserve the user experience. This action would prevent direct impacts on 288,466 acres, compared with Alternative A, thereby preventing visible surface disturbance in the NTMC and maintaining the nature, purpose, and integrity of the INHT.

While currently there is not a high demand for commercial woodland harvest and there is not an anticipated increase in demand, permits would be required for casual and non-commercial woodland harvesting within the NTMC, imposing controls on 288,466 acres of the NTMC. Non-subsistence house log harvesting would be prohibited on 275,547 acres. Commercial harvesting would be prohibited, removing an additional 241,513 acres from commercial harvest over Alternative A. Controls on casual, subsistence, and commercial harvesting would prevent potential direct and indirect impacts on the proposed NTMC. Management actions intended to prevent woodland harvest activities near the trail would preserve the viewshed, physical characteristics, and integrity of the trail. Grazing would be prohibited in the NTMC, compared to Alternative A, avoiding long-term impacts to the INHT from aesthetic changes and diminished integrity from overgrazing.

The NTMC would be withdrawn from locatable mineral exploration and development by retaining existing withdrawals and new recommended withdrawals, closed to salable mineral development, and closed to mineral leasing. These closures would prevent surface disturbance along the INHT within the NTMC and preserve the integrity, nature, and purpose of the trail.

Alternative B would prohibit summer casual OHV use on 241,512 more acres of the NTMC compared to Alternative A and maintain the integrity of winter trail surfaces from summer damage to the INHT during the vulnerable summer months. The 46,953 acres within the overlapping Unalakleet Wild River Corridor would be limited to existing trails and to ATVs only. Unlimited subsistence OHV use on this section would pose a risk to the INHT, but current travel is almost non-existent in the summer months due to extensive wetlands and waterways.

The NTMC would be managed as a ROW exclusion area, which would minimize changes to the unique visual and historic qualities of the INHT and potential for noise impacts. Alternative B would not allow structures that require air safety lighting as required by FAA and would require hooded lighting for night lighting in the NTMC. These management actions would maintain the user experience during the dark winter months and preserve the integrity, nature, and purpose of the INHT; however, precluding lighting would mean that BLM would not be able to respond to ROW action requests within the NTMC.

Alternative B would designate the NTMC as VRM Class I, providing the strictest visual management of the NTMC to preserve the existing landscape character and maintain the isolated and primitive nature of the trail.

Effects from Alternative C

Alternative C designates 273,242 acres of three NTMC segments: Farewell Burn (31,367 acres), Kaltag Portage (241,512 acres), and Rohn (363 acres). This action provides designated protection of 273,242 more acres than Alternative A, and 15,224 fewer than Alternative B.

While currently there is not a high demand for development and there is not an anticipated increase in demand, Alternative C allows for the possibility of surface-disturbing activities and other realty decisions within the NTMC if it is determined by the AO that they meet the VRM Class allocations for the disturbance area and impacts would prevent visible surface disturbance from within the NTMC.

Alternative C would require individuals to obtain permits for casual woodland harvesting greater than 10 cords or more within the NTMC (and elsewhere) but would allow subsistence harvesting without a permit in the NTMC. This action would impose controls on casual harvesting on 273,242 acres (the entire NTMC) and would prohibit non-subsistence house log harvesting on 46,953 acres of the Kaltag Portage NTMC, compared with Alternative A. Alternative C would prohibit commercial harvesting on 46,953 acres of the Kaltag Portage within the INHT NTMC and would allow for the possibility of commercial woodland harvest activities in the remainder of the NTMC. Allowing for the possibility of commercial harvesting on the majority of the NTMC would increase the potential for direct and indirect impacts on the NTMC from heavy equipment, clear cutting, or overharvesting near the INHT. Subsistence harvesting would continue in the Kaltag Portage NTMC area. Management under Alternative C would preserve the integrity, nature, and purpose of the INHT.

Grazing would be prohibited in the NTMC, compared to Alternative A. Effects from reindeer grazing management on the INHT would be the same as those described under Alternative B.

Effects from recommended withdrawals to locatable mineral exploration would be same as Alternative B due to lack of potential in the NTMC. Effects from salable mineral development would have the potential to occur over a larger geographic extent than under Alternative B and would be the same as Alternatives D and E. Alternative C would apply NSO restrictions to leasable mineral development on 226,288 acres, including 20,693 acres of the Kaltag Portage NTMC that was not protected under current leasing restrictions for the Unalakleet Wild River Corridor. Alternative C would prohibit surface disturbance within the NTMC from leasable mineral development but would allow disturbance adjacent to the NTMC.

Alternative C would prohibit summer casual OHV use and summer subsistence OHV use in 225,925 acres of the NTMC with similar impacts as those for Alternative B. Within the Unalakleet Wild River Corridor, casual use would be allowed on existing routes and trails, and overland subsistence OHV use would be allowed. Casual and subsistence OHV use would be allowed on existing roads and trails within the Rohn site.

The NTMC would be managed as a ROW avoidance area. Avoiding new ROW development would minimize changes to the unique visual and historic qualities of the INHT and potential for project-level noise impacts. Lighting restrictions and associated impacts are the same as those for Alternative B.

Alternative C would designate 226,289 acres of the NTMC as VRM Class II, which would provide visual management of 226,289 acres that are currently undesignated. Under Alternative C, the 46,953 acres of the Unalakleet Wild River Corridor would continue to be managed as VRM Class I, the same as Alternative A. Visual management under VRM Class II would retain the existing landscape character and maintain the isolated and primitive nature of the trail, but would not include the same management actions as the Class I designation under Alternative B, which allow only very low changes to the characteristic landscape.

Effects from Alternative D

Alternative D designates the same NTMC areas as Alternatives C and E.

While currently there is not a high demand for development and there is not an anticipated increase in demand, surface-disturbing activities and other realty decisions would be allowable if the AO determines that the activities would not substantively conflict or interfere with the integrity, nature, and purpose of the INHT.

Effects from potential casual harvesting and subsistence harvesting would be the same as Alternatives C and E. Alternative D would have fewer restrictions on potential commercial woodland harvest in the NTMC compared to Alternatives A, B, C, and E. This action would increase the potential for direct and indirect impacts on the NTMC from heavy equipment, clear cutting, or overharvesting near the INHT.

All lands in the NTMC would be open to the possibility of permitted grazing at the implementation level, including the 46,953 acres in the overlapping Unalakleet Wild River Corridor closed to grazing under Alternative A. Grazing would be permitted in the NTMC only if it is determined to not adversely affect the historical and cultural setting of the INHT.

Alternative D would open 226,289 more acres of the NTMC to the possibility of salable mineral development than Alternative B and would open 226,288 acres to the possibility of mineral leasing subject to standard stipulations. This would increase potential for visual and audible effects from mining activity over Alternatives B, C, and E that could affect the historic integrity, nature, and purpose of the INHT.

Restrictions on summer casual OHV use in the NTMC would be similar to Alternatives C and E. Effects from winter snowmobile-only casual and subsistence use would be the same as Alternatives C and E. Alternative D would limit summer subsistence OHV access to existing trails on 225,925 acres in the NTMC, but 46,953 acres would be open to unrestricted summer subsistence OHV use. This action could, depending on the level of use, cause multiple deep ruts on the INHT that could damage the surface of the winter trail treadway and create hazards for trail users.

Structure lighting restrictions would be determined with site-specific analysis that considers the darkness and winter-time use of the trail and the effect of lighting colors on trail experiences, impacting the user experience during darkness or winter months. Effects from VRM actions are the same as Alternatives C and E.

Effects from Alternative E

Alternative E designates the same NTMC areas as Alternatives C and D. Surface-disturbing activities and other realty decisions, and corresponding potential impacts from these decisions, would be the same as

described for Alternative C. Casual, subsistence, and commercial woodland harvesting acreages, requirements, and impacts under Alternative E would also be the same as described for Alternative C. Similarly, travel restrictions and visual management classifications and corresponding impacts would be the same for Alternative E as described for Alternative C.

Grazing would be prohibited in the NTMC under Alternative E, the same as Alternative C. Effects from reindeer grazing management on the INHT would be the same as those described under Alternative B.

Effects from recommended withdrawals to locatable mineral exploration would be same as Alternative B due to lack of potential in the NTMC. Effects from salable and leasable mineral development would occur to a larger geographic extent than under Alternative B and would be the same as Alternative C. As with Alternative C, Alternative E would prohibit surface disturbance within the NTMC from leasable mineral development (NSO leasable development only) but would allow disturbance adjacent to the NTMC.

The NTMC would be managed as a ROW avoidance area under Alternative E, the same as Alternative C. Avoiding new ROW development would minimize changes to the unique visual and historic qualities of the INHT and potential for project-level noise impacts. Lighting restrictions and associated impacts under Alternative E would be the same as those for Alternative B.

Cumulative Effects

Past and Present Actions

The primary natural phenomena directly affecting trail resources are erosion, wildland fire, and changes to the length and intensity of winter weather. A number of historic roadhouses and shelter cabins originally located near waterways are either vulnerable to, or have been eroded or flooded by, shifting river and creek beds. Historic structures, historic trail landforms, and contemporary public facilities are also vulnerable to loss from wildland fire. Trend: Degrading; these tend toward not achieving the congressionally identified nature and purpose of the INHT.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative A)

Alternative A continues the current management for the INHT. It does not designate NTMCs for the INHT and does not include additional management actions that would limit potentially impactful activities such as OHV travel, grazing, mineral development, and woodland harvest. Increased use could occur as a result of increased number of permit requests, and the INHT could experience additional impacts from use of larger and heavier OHVs from new technologies. Proliferation of new user trails could result from the pipeline ROW for the Donlin Gold Project, once constructed. Trend: Continue to degrade the resource at a similar rate to current conditions as it extends the current management practice and tend toward not achieving the congressionally identified nature and purpose of the INHT.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative B)

Alternative B designates three NTMC areas associated with the INHT and includes the most management actions that would limit potentially impactful activities such as OHV travel, grazing, mineral development, and woodland harvest to the INHT. Trend: Counter the existing degradation trend and moving toward maintaining and conserving the condition of the INHT and associated NTMCs and achieving the congressionally identified nature and purpose of the INHT.

Past, Present, and Reasonably Foreseeable Future Actions (Alternatives C and E)

Alternatives C and E designate three NTMCs associated with the INHT and include additional management actions that would limit potentially impactful activities compared with Alternative A but to a lesser extent than Alternative B. Trend: Counter the existing degradation trend and conserving the condition of the INHT and associated NTMCs in some cases. Moves toward achieving the congressionally identified nature and purpose of the INHT.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative D)

Alternative D designates three NTMCs. Alternative D would offer fewer management actions that would limit potential for impacts to the INHT and adjacent NTMCs compared with Alternatives A, B, C, and E. Trend: Continue to degrade the INHT and associated NTMCs at a similar or relatively greater rate than current conditions and not achieve congressionally identified nature and purpose of the INHT.

3.4.3 Wild and Scenic Rivers

Affected Environment

One designated WSR currently exists in the planning area (Map 3.4.3-1). The upper 83 miles of the Unalakleet River are a designated Wild River, which was designated in 1983. The Unalakleet Wild River Corridor is managed by BLM under its WSR Management Plan (BLM 1983). In 2018, the BLM looked at 255 waterways in the planning area and determined that 18 were eligible for WSR designation (BLM 2018f). Table 3.4.3-1 summarizes the waterways and their eligibility criteria. All of the 18 eligible waterways would be recommended as suitable for WSR designation under Alternative B.

Table 3.4.3-1: Rivers Eligible for Wild and Scenic Designation

Watercourse	Approximate Total Length (miles)	Approximate Length on BLM Land (miles)	Approximate Acres in Corridor	Outstandingly Remarkable Values(s)	Region of Comparison
Anvik River	150	119	61,100	Fish, Cultural	Yukon River
Bear Creek (Nikolai)	51	41	17,224	Fish, Historic	Kuskokwim River
Big River	137	35	21,859	Fish	Kuskokwim River
Blackwater Creek	67	12	7,617	Fish	Kuskokwim River
Canyon Creek	16	16	8,233	Fish	Yukon River
Middle Fork Kuskokwim River	131	52	23,212	Fish	Yukon River
North Fork Unalakleet River	48	48	28,987	Fish	Unalakleet River
Otter Creek (Anvik)	35	35	20,130	Fish	Yukon River
Otter Creek (Tuluksak)	27	5	3,247	Fish	Yukon River
Pitka Fork Middle Fork Kuskokwim River	92	62	24,921	Fish, Historic	Kuskokwim River
Salmon River (Nikolai)	35	21	10,536	Fish, Historic	Kuskokwim River; Regional INHT
Sheep Creek	61	36	15,861	Fish	Kuskokwim River
Sullivan Creek	22	22	9,192	Fish, Historic	Kuskokwim River; Regional INHT
Swift River (Anvik)	32	31	16,381	Fish	Kuskokwim River
Tattlawiksuk River	81	17	8,975	Fish	Kuskokwim River
Theodore Creek	15	15	7,384	Fish	Yukon River
Yellow River	72	70	28,409	Fish	Yukon River

Watercourse	Approximate Total Length (miles)	Approximate Length on BLM Land (miles)	Approximate Acres in Corridor	Outstandingly Remarkable Values(s)	Region of Comparison
Yukon River	1291	13	18,908	Cultural	Yukon River

Under all alternatives, the designated Unalakleet Wild River Corridor would continue to be managed as a component of the National System consistent with the WSR Act, as amended. Resource pressures on the Unalakleet are low and are not forecast to substantially increase. As such, the beneficial or adverse effects of management actions on the designated Unalakleet Wild River are likely to be small because of the remoteness of the area, its low mineral potential, and low demand for overland travel or resource use.

In 2018, BLM determined that 18 additional waterways in the planning area meet WSR eligible criteria (BLM 2018f). Under Alternatives C, D, and E, future development that lessens WSR values could occur near those waterways. However, because most of the waterways are located within remote, low mineral potential areas and overland travel and resource pressure is very low, such development is not currently foreseen. The types of effects to WSRs (designated, eligible, or recommended suitable) that could result from management actions and other resources and resource uses considered in the PRMP/FEIS are summarized in the tables below.

Direct and Indirect Effects

Table 3.4.3-2 below summarizes the nature and types of beneficial or adverse effects that could occur to WSRs, the proposed management actions that could influence those effects, and the indicators used to measure the potential magnitude and extent of the effects. Table 3.4.3-3 summarizes the potential magnitude and extent of the effects by indicator, across alternatives.

Table 3.4.3-2: Summary of Potential Effects to Wild and Scenic Rivers by Management Action

Types of Effects	Management Actions	Indicators
Managing the 18 eligible rivers as eligible or suitable would maintain or increase current management of the ORVs in these WSR corridors. Designation as not suitable would increase potential for impact to these ORVs.	WSR Decisions (Managed as Eligible, Suitable, or Designated)	Rivers (and acres of study/WSR corridor) managed per WSR Act or in BLM Manual 6400 (BLM 2012c)
Impacts to water quality, free-flowing condition, ORVs, or tentative/designated classification (wild, scenic, or recreational)	- Travel and Transportation Management Decisions - Land and Realty ROW Decisions - Forest and Woodland Products Decisions	Acres of eligible, suitable, or designated WSRs that overlap: - VRM Class I, II, III, or IV - ROW exclusion or avoidance areas - Areas closed to grazing - Areas closed to commercial woodland harvest - Areas closed to salable minerals - Areas closed to leasable minerals
Surface disturbance in riparian areas or floodplains could cause sedimentation and adverse impacts to water quality and ORVs. Special designations, soils management requirements, and ROW exclusion or avoidance areas in the floodplain would minimize impacts to WSR ORVs and water quality.	- Soils Decisions - Land and Realty ROW Decisions - Water and Fisheries Habitat Management Decisions	Acres of eligible, suitable, or designated WSRs that overlap: - ROW exclusion or avoidance areas - HVWs
Additional ("layered") management aimed at minimizing impacts to free-flowing condition, water quality, and ORVs would limit impacts to these attributes of a designated, eligible, or suitable WSR.	- Management Actions Applied to Special Designations, such as ACECs - Water and Fisheries Habitat Management Decisions - Identification of HVWs - VRM Class Designations - INHT NTMC Designation	Acres of eligible, suitable, or designated WSRs that overlap: - ACECs - HVWs - INHT NTMC

Table 3.4.3-3: Summary of Beneficial or Adverse Impacts to WSRs by Indicator

	Alternative A	Alternative B	Alternative C ¹	Alternative D ¹	Alternative E
Quantitative Indicators (acres)					
WSR: Designated	46,953	46,953	46,953	46,953	46,953
WSR: Eligible	332,176	0	0	0	0
WSR: Suitable	0	332,176	0	0	0
HVW protections (protections vary by alternative)	0	336,732 (89%) ²	311,594 (82%) ²	301,918 (80%) ²	165,048 (44%) ³
VRM Class I	46,953 (12%) ²	378,072 (100%) ²	46,953 (12%) ²	46,953 (12%) ²	46,953 (12%) ²
VRM Class II	0 ⁴	0	147,941 (39%) ²	72,896 (19%) ²	147,801 (39%) ²
VRM Class III	0	0	118,937 (31%) ²	164,805 (43%) ²	112,119 (30%) ²
VRM Class IV	0	0	64,241 (17%) ²	93,378 (25%) ²	71,202 (19%) ²
ROW exclusion	0	378,072 (100%) ²	0	0	0
ROW avoidance	0	0	331,126 (88%) ²	325,094 (86%) ²	77,093 (20%)
ROW linear projects avoidance	0	0	10,422 (3%) ²	0	24,611 (6%)
Closed to grazing	110,455 (29%) ²	378,072 (100%) ²	69,359 (18%) ²	0	69,359 (18%) ²
Closed to commercial woodland harvest	52,342 (14%) ²	307,677 (82%) ²	46,953 (12%) ²	0	46,953 (12%) ²
Closed to leasable minerals	174,231 (46%) ²	367,265 (97%) ²	46,953 (12%) ²	46,953 (12%) ²	46,953 (12%) ²
Closed to salable minerals	83,679 (22%) ²	371,192 (98%) ²	54,755 (14%) ²	54,755 (14%) ²	54,755 (14%) ²
Withdrawn from locatable minerals	83,679 (22%) ²	371,173 (98%) ²	46,953 (12%) ²	46,953 (12%) ²	46,953 (12%) ²
Qualitative Indicators					
Fisheries ORV impacts	- Fish ORVs are prioritized for all WSR rivers except the Yukon River. - ANCSA 17(d)(1) withdrawals limit surface disturbance for some of the eligible WSR rivers.	Minimizes damage or destruction to fisheries from surface disturbance to the greatest extent; includes WSR management prescriptions limiting impacts to designated and suitable rivers.	- Minimizes damage or destruction to fisheries from surface disturbance in the Unalakleet Wild River Corridor. - Fisheries ORV management in other areas does not stem from WSR management actions and includes a smaller area.	- Minimizes against damage or destruction to fisheries from surface disturbance in the Unalakleet Wild River Corridor. - Fisheries ORV management in other areas does not stem from WSR management actions and includes the smallest area.	- Minimizes damage or destruction to fisheries from surface disturbance in the Unalakleet Wild River Corridor. - Fisheries ORV management in other areas does not stem from WSR management actions and includes a smaller area.

	Alternative A	Alternative B	Alternative C ¹	Alternative D ¹	Alternative E
Cultural ORV impacts	Cultural ORVs prioritized for six eligible rivers.	- Minimizes damage or destruction of cultural sites from surface disturbance to the greatest extent. - Cultural ORVs prioritized for six suitable rivers. - VRM strongly protects historic landscape within and around designated and eligible corridors.	- Cultural ORV management does not stem from WSR management actions. - Cultural landscape reports prepared for four to six high-priority communities – may not intersect with WSR locations.	- Cultural ORV management does not stem from WSR actions. - Cultural landscape reports prepared for whole planning area.	- Cultural ORV management does not stem from WSR management actions. - Cultural landscape reports prepared for two to three high-priority communities – may not intersect with WSR locations.
Historic ORV impacts	Cultural ORVs prioritized for six eligible rivers, primarily those coinciding with the INHT.	VRM strongly preserves historic landscape within and around designated and eligible corridors.	Historical ORV management does not stem from WSR management actions.	Historical ORV management does not stem from WSR management actions.	Historical ORV management does not stem from WSR management actions.
Wild attributes impacts	Protection of wild character prioritized for designated and eligible rivers.	- Protection of wild character prioritized for designated and suitable rivers. - VRM strongly preserves wild character of landscape within and around designated and eligible corridors.	- Protection of wild character prioritized for designated river. - VRM strongly preserves wild character of landscape within and around designated river.	- Protection of wild character prioritized for designated river. - VRM strongly preserves wild character of landscape within and around designated river.	- Protection of wild character prioritized for designated river. - VRM strongly preserves wild character of landscape within and around designated river.

Notes:

1) These values indicate acres of overlap with vacated study corridors to demonstrate management of WSR values that would still apply despite not being considered as suitable for inclusion in the National System.

2) Percentages are based on acres within designated or eligible WSR corridors (BLM 2018f).

3) This represents the acres of eligible, suitable, or designated WSR corridors that overlap with 100-year floodplains of HVWs since management actions geared toward protection in HVWs only apply to the 100-year floodplains within HVWs under Alternative E.

4) Alternative A also manages seen areas of the Unalakleet River outside the Wild River Corridor as VRM II. These areas are not considered mappable and therefore do not have acreage reported. Analysis presented in Chapter 3 accounts for this management direction.

Note that the acreages given in Table 3.4.3-3 include the effects of non-WSR actions proposed under each alternative, such as those associated with VRM, where those actions intersect with the currently designated or eligible WSRs. All acreages are approximate and not surveyed. The discussion of each alternative in the tables below includes the management actions specific to each waterway that could contribute to the generalized impacts from the table above. Impacts in this context could be beneficial or adverse regarding WSR designation, ORVs, water quality, and free-flowing condition of the waterways.

Effects from Alternative A

Because no changes to management actions would occur under Alternative A, no beneficial or adverse impacts to WSR values are expected. The Unalakleet Wild River Corridor would be managed under the 1983 Unalakleet National Wild River Management Plan (BLM 1983). The 46,953 acres would continue to be managed to maintain and enhance free-flowing condition, water quality, wild river classification, and ORVs. Eligible rivers (332,176 acres) would continue to be managed per the SWMFP and CYRMP, as applicable. Land use proposals determined to be within the seen area of the Unalakleet Wild River, but outside the corridor, are required to comply with VRM Class II objectives. VRM Class II directs allowable surface disturbance or development to minimize change in landscape character and therefore

could have beneficial impacts to natural and cultural resources by limiting and regulating activities with the potential to result in impact. Free-flowing condition, water quality, wild river classification, and ORVs would be managed per guidelines provided in BLM Manual 6400 (BLM 2012c) until a decision on their suitability is made. Grazing is currently allowed except along the Anvik and Unalakleet Rivers, although demand for this use is low. All of the eligible rivers are located in areas of low mineral potential, where entry, disposal, or leasing is unlikely.

Effects Common to All Action Alternatives

Under all alternatives, the designated Unalakleet Wild River Corridor would continue to be managed as a component of the National Wild and Scenic Rivers System consistent with the WSR Act, as amended.

Resource pressures on the Unalakleet are low and are not forecast to substantially increase. As such, the beneficial or adverse effects of management actions on the designated Unalakleet Wild River are likely to be small because of the remoteness of the area, its low mineral potential, and low demand for overland travel or resource use.

Effects from Alternative B

Alternative B evaluates impacts to ORVs with management actions commensurate with a recommendation as suitable for inclusion in the National System. Of the alternatives, Alternative B would limit surface-disturbing activities to the greatest extent and magnitude near designated and suitable WSRs, resulting in fewer impacts to ORVs, water quality, and free-flowing wild attributes of these waterways. Table 3.4.3-4 summarizes the approximate acreage of management actions by waterway under Alternative B.

Table 3.4.3-4: Alternative B, Approximate Acreage of Management Actions by Waterway

Watercourse	HVW Acres ¹	VRM Class I Acres ¹	ROW Exclusion Acres ¹
Anvik River	61,100 (100%)	61,100 (100%)	61,100 (100%)
Bear Creek (Nikolai)	16,947 (98%)	17,224 (100%)	17,224 (100%)
Big River	21,837 (100%)	21,859 (100%)	21,859 (100%)
Blackwater Creek	227 (3%)	7,617 (100%)	7,617 (100%)
Canyon Creek	8,233 (100%)	8,233 (100%)	8,233 (100%)
Middle Fork Kuskokwim River	20,751 (89%)	23,212(100%)	23,212 (100%)
North Fork Unalakleet River ²	27,647 (99%)	27,930 (100%)	27,930(100%)
Otter Creek (Anvik)	19,968 (99%)	20,130(100%)	20,130 (100%)
Otter Creek (Tuluksak)	3,247 (100%)	3,247 (100%)	3,247 (100%)
Pitka Fork Middle Fork Kuskokwim River	22,921 (92%)	24,921 (100%)	24,921 (100%)
Salmon River (Nikolai)	10,269 (97%)	10,536 (100%)	10,536 (100%)
Sheep Creek	9,241 (58%)	15,861 (100%)	15,861 (100%)
Sullivan Creek	9,192 (100%)	9,192 (100%)	9,192 (100%)
Swift River (Anvik)	16,381 (100%)	16,381 (100%)	16,381 (100%)
Tatlawiksuk River	8,975 (100%)	8,975 (100%)	8,975 (100%)
Theodore Creek	7,384 (100%)	7,384 (100%)	7,384 (100%)
Unalakleet River	34,808 (74%)	46,953 (100%)	46,953 (100%)
Yellow River	28,168 (99%)	28,409 (100%)	28,409 (100%)
Yukon River	9,435 (50%)	18,908 (100%)	18,908 (100%)

Watercourse	HVW Acres ¹	VRM Class I Acres ¹	ROW Exclusion Acres ¹
Total	336,732 (89%)	378,072 (100%)	378,072 (100%)

Notes:

1) Percentages are based on the WSR study corridor for the respective river (BLM 2018f).

2) Acreages and percentages are based on the study corridor minus the overlap with the designated Unalakleet Wild River.

The 378,072 acres (3 percent of planning area) of river corridors managed as WSRs would continue to be managed to minimize impacts to WSR values per BLM Manual 6400 (BLM 2012c). All of the WSR corridors would become ROW exclusion areas. Casual summer OHV use would be prohibited in the Unalakleet; subsistence use of ATVs would be allowed on existing routes. These limitations on surface disturbance near WSR waterways would avoid and minimize impacts to fish and cultural ORVs as well as wild character.

The 18 suitable river segments would be managed as VRM Class I, which limits impacts to wild attributes and cultural ORVs to the greatest extent. An additional 15-mile buffer outside of the WSR corridors would be managed as VRM Class II (4,396,984 acres, 33 percent of planning area). Within the corridors, 336,732 acres (89 percent of WSR acreage) would be classified as HVW and would be closed to salable minerals, withdrawn from locatable minerals, and be closed to leasable mineral development. Commercial woodland harvest would be prohibited on 82 percent of designated and suitable corridors, and transportation and travel management decisions would minimize surface disturbance that could have adverse impacts on water quality and fisheries. The entire planning area would be closed to grazing.

Effects from Alternative C

Alternative C evaluates impacts to ORVs in the absence of a recommendation as suitable for inclusion in the National System. Alternative C would have greater beneficial impacts to water quality and ORVs than Alternatives A, D, and E, but fewer than Alternative B. The acreage covered by management prescriptions would be smaller than Alternative B, and the management directives would put less priority on the water quality, ORVs, and wild attributes. Table 3.4.3-5 summarizes the approximate acreage of management actions by waterway under Alternative C.

Table 3.4.3-5: Alternative C, Approximate Acreage of Management Actions by Waterway

Watercourse	HVW Acres ¹	VRM Class II Acres ¹	VRM Class III Acres ¹	ROW Avoidance Acres ^{1,2}
Anvik River	59,589 (98%)	177 (<1%)	60,922 (100%)	60,057 (98%)
Bear Creek (Nikolai)	15,922 (92%)	17,224 (100%)	0 (0%)	16,453 (96%)
Big River	21,315 (98%)	21,044 (96%)	710 (3%)	21,315 (98%)
Blackwater Creek	198 (3%)	198 (3%)	7,419 (97%)	198 (3%)
Canyon Creek	8,233 (100%)	0 (0%)	3,502 (43%)	8,233 (100%)
Middle Fork Kuskokwim River	19,858 (86%)	19,988 (86%)	874 (4%)	19,858 (86%)
North Fork Unalakleet River ³	27,339 (98%)	27,930 (100%)	0 (0%)	27,511 (98%)
Otter Creek (Anvik)	19,968 (99%)	0 (0%)	6,420 (32%)	19,968 (99%)
Otter Creek (Tuluksak)	3,218 (99%)	0 (0%)	1,733 (53%)	3,218 (99%)
Pitka Fork Middle Fork Kuskokwim River	22,069 (89%)	23,885 (96%)	1,036 (4%)	22,833 (92%)
Salmon River (Nikolai)	10,269 (97%)	10,536 (100%)	0 (0%)	10,536 (100%)
Sheep Creek	121 (1%)	15,861 (100%)	0 (0%)	1,708 (11%)
Sullivan Creek	9,123 (99%)	9,192 (100%)	0 (0%)	9,192 (100%)
Swift River (Anvik)	16,381 (100%)	0 (0%)	9,668 (59%)	16,381 (100%)

Watercourse	HVW Acres ¹	VRM Class II Acres ¹	VRM Class III Acres ¹	ROW Avoidance Acres ^{1,2}
Tatlawiksuk River	8,792 (98%)	0 (0%)	858 (10%)	8,792 (98%)
Theodore Creek	514 (7%)	0 (0%)	3,860 (52%)	7,308 (99%)
Unalakleet River	31,578 (97%)	0 (0%)	0 (0%)	46,953 (100%)
Yellow River	27,680 (97%)	0 (0%)	4,933 (17%)	27,680 (97%)
Yukon River	9,427 (50%)	1,906 (10%)	17,002 (90%)	13,354 (71%)
Total	311,594 (82%)	147,941 (39%)	118,937 (31%)	341,548 (90%)

Notes:

1) Percentages are based on the WSR study corridor for the respective river (BLM 2018f).

2) Includes ROW avoidance and ROW avoidance for linear realty actions.

3) Acreages and percentages are based on the study corridor minus the overlap with the designated Unalakleet Wild River.

The designated Unalakleet River (46,953 acres) would remain a WSR corridor under Alternative C and would have its wild attributes managed as VRM Class I. A 15-mile buffer outside the designated corridor (976,185 acres) would be managed as VRM Class II. The corridor would be a ROW avoidance area. Casual OHV use would be limited to existing trails, and subsistence ATV use would be allowed cross-country. No grazing or commercial woodland harvest would be allowed.

Although the 18 currently eligible rivers would not be recommended as suitable under Alternative C and would no longer be considered for inclusion in the National System, 311,594 acres (82 percent of the WSR study corridors) would be managed as HVW. As such, surface disturbance would not be permitted within the 100-year floodplain of these waterways, and they would become ROW avoidance areas. They would be open to the possibility of locatable mineral entry, salable mineral development, and NSO mineral leasing. Approximately 7,801 acres of those eligible river segments would be closed to salable minerals where they cross the Innoko Bottoms Priority Wildlife Habitat Area. All of this acreage is located in areas with low LMP, so mineral development is unlikely.

Effects from Alternative D

Alternative D evaluates impacts to ORVs in the absence of a recommendation as suitable for inclusion in the National System. Management actions considered protective of ORVs are similar to those described in Alternative C, although management actions provide lesser protections compared with Alternatives B and C, so Alternative D would have greater potential for adverse impact on WSR ORVs and wild attributes but less potential impact than Alternative E. Table 3.4.3-6 summarizes the approximate acreage of management actions by waterway under Alternative D.

Table 3.4.3-6: Alternative D, Approximate Acreage of Management Actions by Waterway

Watercourse	HVW Acres ¹	VRM Class II Acres ¹	VRM Class III Acres ¹	ROW Avoidance Acres ¹
Anvik River	59,589 (98%)	0 (0%)	61,100 (100%)	59,589 (98%)
Bear Creek (Nikolai)	15,922 (92%)	17,224 (100%)	0 (0%)	15,922 (92%)
Big River	21,315 (98%)	0 (0%)	8,223 (38%)	21,315 (98%)
Blackwater Creek	198 (3%)	0 (0%)	7,617 (100%)	198 (3%)
Canyon Creek	8,186 (99%)	0 (0%)	3,502 (43%)	8,186 (99%)
Middle Fork Kuskokwim River	19,858 (86%)	0 (0%)	12,174 (52%)	19,858 (86%)
North Fork Unalakleet River ²	27,3398 (98%)	8,032 (29%)	19,899 (71%)	27,339 (98%)
Otter Creek (Anvik)	19,968 (99%)	0 (0%)	3,622 (18%)	19,968 (99%)
Otter Creek (Tuluksak)	3,218 (99%)	0 (0%)	1 (<1%)	3,218 (99%)

Watercourse	HVW Acres ¹	VRM Class II Acres ¹	VRM Class III Acres ¹	ROW Avoidance Acres ¹
Pitka Fork Middle Fork Kuskokwim River	22,069 (89%)	13,307 (53%)	11,614 (47%)	22,069 (89%)
Salmon River (Nikolai)	10,269 (97%)	10,536 (100%)	0 (0%)	10,269 (97%)
Sheep Creek	121 (1%)	14,605 (92%)	1,256 (8%)	121 (1%)
Sullivan Creek	9,123 (100%)	9,192 (100%)	0 (0%)	9,123 (99%)
Swift River (Anvik)	16,381 (100%)	0 (0%)	7,238 (44%)	16,381 (100%)
Tatlawiksuk River	8,792 (98%)	0 (0%)	858 (10%)	8,792 (98%)
Theodore Creek	514 (7%)	0 (0%)	3,860 (52%)	514 (7%)
Unalakleet	31,578 (67%)	0 (0%)	0 (0%)	46,953 (100%)
Yellow River	27,478 (97%)	0 (0%)	4,933 (17%)	27,478 (97%)
Yukon River	0 (0%)	0 (0%)	18,908 (100%)	7,801 (41%)
Total	301,918 (80%)	72,896 (19%)	164,805 (44%)	325,094 (86%)

Notes:

1) Percentages are based on the WSR study corridor for the respective river (BLM 2018f).

2) Acreages and percentages are based on the study corridor minus the overlap with the designated Unalakleet Wild River.

The designated Unalakleet River (46,953 acres) would remain a WSR corridor under Alternative D and would have its wild attributes managed as VRM Class I. Additionally, a 15-mile buffer outside the WSR (976,185 acres) would be managed as VRM Class III. The corridor would be a ROW avoidance area. Casual OHV use would be allowed on existing trails with ATV and UTV, and subsistence ATV and UTV use would be allowed cross-country. Grazing would be allowed if it is determined to be consistent with maintenance of ORVs for which the Unalakleet Wild River Corridor was designated. Alternative D would allow for the possibility of commercial woodland harvest activities in the Unalakleet Wild River Corridor.

Although the 18 currently eligible rivers would not be recommended as suitable under Alternative D and would no longer be considered for inclusion in the National System, 301,918 acres (80 percent of the WSR study corridors) would be managed as HVW. Under Alternative D, this means that these acres would become ROW avoidance areas but would be open to most other uses. Surface disturbance within the floodplain would require analysis of sedimentation effects. Commercial woodland harvest and grazing would be allowable, although these locations are typically very remote, and demand for these uses is currently low. Mineral entry, disposal, or leasing would be permitted under standard conditions in management plans. Approximately 7,801 acres of those eligible river segments would be closed to salable minerals where they cross the Innoko Bottoms Priority Wildlife Habitat Area. All of this acreage is located in areas with low mineral potential, so mineral development is unlikely.

VRM management actions for other resources under Alternative D would affect portions of the 18 currently eligible rivers. North Fork Unalakleet would be managed as VRM Class I within 1,057 acres (due to its overlap with the designated Unalakleet River), and 72,896 acres (19 percent of currently eligible acreage) along Bear Creek (Nikolai), the North Fork Unalakleet, Pitka Fork Middle Fork Kuskokwim, Salmon River (Nikolai), Sheep Creek, and Sullivan Creek would be managed as VRM Class II.

Because of the management actions for other resources that would affect these areas and the increase in VRM management for the designated Unalakleet, Alternative D would minimize impacts to ORVs and water quality to a greater extent than Alternative A but less than Alternatives B and C. Maintenance of free-flowing conditions would not be addressed for the currently eligible rivers under Alternative D.

Effects from Alternative E

Similar to Alternatives C and D, Alternative E evaluates impacts to ORVs in the absence of a recommendation as suitable for inclusion in the National System. Management actions considered protective of ORVs are similar to those described in Alternative C, although management actions cover substantially fewer acres than under Alternatives C and D. Therefore, Alternative E would have the largest relative potential for adverse impact on WSR ORVs and wild attributes. Table 3.4.3-7 summarizes the approximate acreage of management actions by waterway under Alternative E.

Table 3.4.3-7: Alternative E, Approximate Acreage of Management Actions by Waterway

Watercourse	HVW Acres ¹	VRM Class II Acres ¹	VRM Class III Acres ¹	ROW Avoidance Acres ^{1,2}
Anvik River	35,624 (58%)	177 (<1%)	60,923 (100%)	12,945 (21%)
Bear Creek (Nikolai)	6,230 (36%)	17,224 (100%)	0 (0%)	8,881 (52%)
Big River	16,575 (76%)	21,044 (96%)	710 (3%)	0 (0%)
Blackwater Creek	0 (0%)	198 (3%)	7,419 (97%)	0 (0%)
Canyon Creek	3,388 (41%)	0 (0%)	3,502 (43%)	0 (0%)
Middle Fork Kuskokwim River	11,359 (49%)	19,988 (86%)	874 (4%)	0 (0%)
North Fork Unalakleet River ³	27,339 (98%)	27,790 (99%)	141 (1%)	3,955 (14%)
Otter Creek (Anvik)	8,282 (41%)	0 (0%)	3,622 (18%)	0 (0%)
Otter Creek (Tuluksak)	552 (17%)	0 (0%)	1 (<1%)	0 (0%)
Pitka Fork Middle Fork Kuskokwim River	12,396 (50%)	23,885 (96%)	1,036 (4%)	1,181 (5%)
Salmon River (Nikolai)	2,640 (25%)	10,536 (100%)	0 (0%)	1,410 (13%)
Sheep Creek	2 (0%)	15,861 (100%)	0 (0%)	180 (1%)
Sullivan Creek	2,345 (26%)	9,192 (100%)	0 (0%)	6,732 (73%)
Swift River (Anvik)	6,600 (40%)	0 (0%)	7,238 (44%)	0 (0%)
Tatlawiksuk River	2,143 (24%)	0 (0%)	858 (10%)	0 (0%)
Theodore Creek	89 (1%)	0 (0%)	3,860 (52%)	7,174 (97%)
Unalakleet River	16,447 (35%)	0 (0%)	0 (0%)	46,953 (100%)
Yellow River	13,037 (46%)	0 (0%)	4,933 (17%)	0 (0%)
Yukon River	0 (0%)	1,906 (10%)	17,002 (90%)	12,293 (65%)
Total	165,048 (44%)	147,801 (39%)	112,119 (30%)	101,704 (27%)

Note:

1) Percentages are based on the WSR study corridor for the respective river (BLM 2018f).

2) Includes ROW avoidance and ROW avoidance for linear realty actions.

3) Acreages and percentages are based on the study corridor minus the overlap with the designated Unalakleet Wild River.

Similar to Alternatives C and D, the designated Unalakleet River (46,953 acres) would remain a WSR corridor under Alternative E and would have its wild attributes managed as VRM Class I. Additionally, a 5-mile offset from the centerline of the river (331,545 acres) would be managed as VRM Class II, while a 15-mile buffer outside the WSR (976,185 acres) would be managed as VRM Class III, a ROW avoidance area under Alternative E. Casual OHV use restrictions and grazing and commercial woodland harvest closures would be the same as described under Alternative C.

Although the 18 currently eligible rivers would not be recommended as suitable under Alternative E and would no longer be considered for inclusion in the National System, 165,048 acres (44 percent of the WSR study corridors) would be managed as HVWs. Under Alternative E, subject to valid existing rights, no surface-disturbing activities or permanent structures would be allowed within the 100-year floodplain

of these HVWs. The 100-year floodplain of the HVWs would be open to the possibility of locatable mineral entry, salable mineral development, and NSO mineral leasing. Approximately 7,801 acres of eligible river segments would be closed to salable minerals where they cross the Innoko Bottoms Priority Wildlife Habitat Area. All of this acreage is located in areas with low LMP, so mineral development is unlikely. Alternative E would have the smallest acreage (27 percent of the WSR study corridors) of ROW avoidance area within the eligible river segments, compared to 86 percent under Alternative D and 90 percent under Alternative C.

VRM actions for other resources under Alternative E would affect portions of the 18 currently eligible rivers. As shown in the table above, 39 percent of currently eligible WSR acreage (the same as Alternative C) would be managed as VRM Class II, which would be 20 percent more acreage than under Alternative D.

Because of the management actions for other resources that would affect eligible WSR acreage and the increase in VRM management for the designated Unalakleet, Alternative E would minimize impacts to ORVs and water quality to a greater extent than Alternative A but to a lesser extent than Alternative B, C, or D due to the substantially smaller acreages within HVWs and ROW avoidance areas. Maintenance of free-flowing conditions would not be addressed for the currently eligible rivers under Alternative E.

Cumulative Effects

The levels of activity and demand for access within the designated Unalakleet Wild River Corridor are expected to remain stable. No existing plans or pressure that could affect its classification as a wild river have been identified. The corridor continues to be used for primitive recreation opportunities. Historic and archaeological values, wildlife/wildlands use, and water quality remain stable largely due to the remoteness of the WSR corridor.

Past and Present Actions

Designated and eligible rivers experience low use, with little pressure on water quality, free-flowing condition, wild river character, and ORVs. These qualities are expected to remain stable due to the remoteness of the rivers. All WSR rivers except for the Yukon have fish as an ORV. Ocean-based commercial fishing of anadromous fish that spawn in the planning area could adversely affect rates of return needed to stabilize or increase spawning runs of anadromous fish in WSRs.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative A)

The Unalakleet would be the only river managed as a WSR. Free-flowing condition, wild classification, ORVs, and water quality would be managed to maintain and enhance these attributes. Measures to minimize impacts to eligible rivers would be implemented under BLM Manual 6400 (BLM 2012c) until a decision on their suitability is made. Trend: Continues to improve.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative B)

WSR values of all rivers would be enhanced by inclusion in the National System, however with the exception of the Big River, no development projects that are likely to affect these values have been identified. The currently permitted Donlin Gold Project pipeline ROW intersects the Big River, which could result in adverse effects to the Big River's ORVs. Management actions proposed for the WSR segments as well as other management actions (HVW identification, ACEC designation, VRM

classifications, establishment of the INHT NTMC) would minimize the potential for impacts to WSR values compared to Alternative A. Trend: Continues to improve, at a greater rate than Alternative A.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative C)

The Unalakleet would be the single river managed as a WSR. Rivers eliminated from consideration in the National System would retain no special status, but applicable WSR values would receive protections from HVW, ACEC, VRM designation, or the INHT, where the WSR study area intersects with those designated areas. Trend: Stabilizes.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative D)

Effects of WSR management actions would be the same as Alternative C; however, protections of formerly eligible rivers from other management actions would be less because there would be no designation of ACECs, acreage of HVW would be smaller, restrictions within HVWs would be less, and VRM intersections would be half the acreage as under Alternative C. Trend: Stabilizes.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative E)

Effects of WSR management actions would be the same as Alternative C; however, protections of formerly eligible rivers from other management actions would be less because there would be no designation of ACECs, acreage of HVW and ROW avoidance areas would be substantially less, and restrictions within HVWs would be less. However, VRM protections would cover a larger area than under Alternative D, VRM management would increase for the Unalakleet, and management actions for other resources would provide benefits to formerly eligible rivers. Trend: Stabilizes.

3.5 Social and Economic Features

3.5.1 Socioeconomic & Environmental Justice

Affected Environment

Socioeconomic Conditions

The planning area contains portions of five Census Areas: Bethel, Nome, Kusilvak (formerly Wade Hampton), Yukon-Koyukuk, and Dillingham. Of the approximately 60 rural communities within the planning area, Lingle and others et al. (2011) identified 25 communities and census-designated places in the vicinity of BLM-managed public land within or near the planning area. Bethel is added because it is a major hub within the planning area, and Lime Village is added because it is adjacent to BLM-managed lands in the southwestern part of the planning area. These communities range in size from 23 (Red Devil) to 6,080 (Bethel), with 8 having a 2010 population under 100, 12 between 100 and 500, and 7 over 500. Between 1990 and 2010, 11 of the communities increased in population, 11 decreased, and 5 stayed roughly the same size. Nearly all the communities are predominantly Alaska Native, with 15 having a population in 2010 that was over 90 percent Alaska Native and another 7 over 80 percent. Map 3.5.1-1 depicts socioeconomic regions and communities in the planning area.

The planning area is largely roadless and the communities within it are isolated. The planning area's residents participate in a mixed subsistence-cash economy (Kurtak et al. 2010). With little cash available for store-bought items (Walker and Wolfe 1987). Often governed by both State and federal institutions and informed by traditional knowledge, subsistence hunting, fishing, and gathering is a major

part of defining feature of the economic and social life in rural Alaska. Subsistence activities are supplemented by income derived from wage employment that is invested into technologies and resources needed to harvest wild foods. The Unalakleet River drainage and nearshore marine waters of the Unalakleet Subdistrict support the largest subsistence, commercial, and sport fisheries in the Norton Sound region. Unalakleet has the only fish-buying operation in southern Norton Sound. In addition, there are two private sport fishing lodges on the Unalakleet River, upstream of the North River, which provide guided fishing trips for salmon, Dolly Varden, and Arctic grayling.

The planning area supports just over 15,000 jobs, with about 7,200 jobs in the private sector and about 7,800 jobs in the government sector (Headwaters Economics 2013). Most of the communities rely on local government as a major source of jobs; the percent of workers employed by local government ranged from 20 percent in Bethel to 73 percent in Pitkas Point, with an average of 55 percent across all communities. Within the 7,566 private sector jobs, most (6,170) were services-related jobs, which include a wide range of sectors such as trade; transportation and utilities; information; financial activities; professional and business services; education and health services; and leisure and hospitality. Average annual wages across service sectors varied widely, from about \$15,000 in leisure and hospitality jobs to about \$51,000 in education and health services and information, with an overall annual average of about \$40,000.

Unemployment rates in the four Census Areas have been consistently high, increasing from 10 percent in 2000 to 15.3 percent in 2012, and these reported rates could be low because they do not include “discouraged” workers (Association of Village Council Presidents 2014). The proportion of households receiving public assistance in the 27 communities ranged from 0 to 100 percent, with an average of 63 percent. The percent of persons living in poverty in the communities ranged from 8 percent in Bethel and 10 percent in Red Devil up to 80 percent in Stony River and 81 percent in Nikolai, with an average of 27 percent across all 27 communities.

Shareholders of ANCSA corporations receive annual dividends, and all residents of Alaska receive dividends from the Permanent Fund Dividend program. Such funds contribute significantly to the economic situation among rural communities and households. The lack of funds received from these sources can also create significant inequalities in income among communities. The BLM’s management actions under this PRMP do not directly contribute to either fund source.

Cost of living in the planning area (including fuel costs) is higher than averages for other places in Alaska and much higher than for the United States as a whole. High fuel cost is a key factor that has socioeconomic effects throughout the planning area. Higher fuel prices ripple through village lifestyles in many ways, including increasing the cost of store-bought foods through transportation costs and storage costs. Subsistence activity gets more expensive because of higher fuel costs for snowmobiles, four wheelers, and motorboats, while high food prices have increased the need for subsistence as a food source. The increased reliance on subsistence as a source of food, coupled with increased costs of getting to the fish, moose, or caribou, and a poor commercial fishing season, are problems in many communities.

The planning area communities have limited opportunities for commercial development, although larger communities such as Bethel serve as regional hubs and provide more opportunities for jobs. The role of commercial fishing as an industry and employer varies across the communities but is an essential component in many, as reflected by the number of people having a commercial fishing license or crew permit. Due to the remote location of the planning area to global markets, costs of transportation and infrastructure development are high. Outside of the Donlin Gold Project, mineral development potential is

also weak in the planning area due to the low grade of minerals in the planning area. Mineral production contributes to economic activity throughout the state, though the majority of mineral material sales in the planning area occur on State and Native lands. The Donlin Gold Project is expected to employ an estimated 1,600 to 1,900 regional residents during construction and 500 to 600 during operation.

BLM-managed lands play a limited role in supporting jobs and income in the planning area given the geographic context of the planning area and the unfavorable economic conditions to support commodities markets. Recreation and visitation provide limited opportunities for rural communities to benefit from jobs and income; however, many of the direct economic benefits related to guided big-game hunts and fly-in fishing lodges and excursions, as well as competitive events, benefit the urban communities outside the planning area, such as Anchorage. However, the non-market values provided by the BLM-managed lands, NWR lands, National Park lands, State lands, and Native lands play a substantial role in the subsistence economy of planning area communities.

Environmental Justice

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires that federal agencies identify and address any disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations.

Low-income populations are identified using the statistical poverty thresholds from the Bureau of the Census data, per CEQ guidelines (CEQ 1997). In the United States as a whole, a total of 14.3 percent of the population lives below the poverty level; the comparable estimate for the State of Alaska was lower, at 9.5 percent (U.S. Census 2014). For the BSWI RMP, any community in which the number of individuals below the poverty rate is greater than the national average of 14.3 percent was considered a low-income community. As a result, 21 of the 27 communities within the planning area are considered low-income.

Minority populations are present when either: (1) a minority population exceeds 50 percent of the population of the affected area; or (2) a minority population represents a meaningfully greater increment of the affected population than of the population of some other appropriate geographic unit as a whole (CEQ 1997). Nearly every one of the 27 communities in the planning area has a population that is more than 50 percent Alaska Native, for the people who, in the 2010 Census, reported that they were one race. Only Red Devil, McGrath, and Takotna do not reach the 50 percent level. However, when adding in the number of people who reported they were two or more races, one of which was Alaska Native, then Red Devil reaches 58 percent Native, adding it to the list of communities where environmental justice is a concern. Takotna has a poverty level (58 percent) that far exceeds the national average, so it is already a community where environmental justice is a concern. McGrath reaches 46 percent Native when adding in the number of people who reported they were two or more races, one of which was Alaska Native. McGrath's poverty level (13 percent) is just a percentage point below the national average, so in combination with its substantial Native population, it does not make sense to exclude it from environmental justice considerations. In summary, all of the 27 identified communities in the planning area are environmental justice populations.

Reference Theme from Chapter 2: Support for Planning Area Communities

BLM land management activities have the inherent potential to support communities in the planning area through the actions and directions contained in the RMP, particularly those that manage subsistence

resources and access to these resources. This can occur through allowing infrastructure development, or inversely, through regulation of development or competing land uses that would conflict with subsistence activities. The BLM manages nonmarket resources essential to planning area communities (i.e., fish habitat, cultural resources, and wildlife habitat). The BLM's activities in the area also contribute to community economies via operational expenditures and BLM employee personal expenditures, as well as through employment (e.g., wildland firefighting positions).

Direct and Indirect Effects

Table 3.5.1-1 below summarizes the nature and types of beneficial or adverse effects that could occur to social and economic conditions, the proposed management actions that could influence those effects, and the indicators used to measure the potential magnitude and extent of the effects.

Table 3.5.1-1: Summary of Effects to Social and Economic Conditions by Management Action

Type of Effects	Management Action	Indicators
Resources and habitats support subsistence lifestyles and the rural mixed economy. They could be affected by development, climate change, and other actions or conditions.	Actions designed to address impacts and risks to subsistence resources: • Wildlife Management • Designation of HVWs • Designation of Management Actions Applied to Designated ACECs • Lands with Wilderness Characteristics Management Decisions • Locatable Mineral Decisions	Level of management beneficial to subsistence resources and habitats.
Access to subsistence resources and species could be adversely affected by competition with other resource users, conditions, or BLM management actions that make access more costly or cumbersome.	• Recreation and Visitor Services Decisions (SRP management) • Travel and Transportation Management Decisions • Forestry and Woodland Harvest Management Decisions	Level of access to and competition for subsistence resources.
Opportunities for jobs and income are scarce in rural communities so there is community desire for BLM management to facilitate or at least not impede economic development opportunities.	Actions that have the potential to preclude economic development: • Mineral Withdrawal Decisions Actions that tend to facilitate economic development: • See Reference Section 2.6.23: Support for BSWI Communities	Level of effect on opportunities for jobs and income.
Communities have expressed a desire to work more closely with the BLM and have more of a say in management of BLM lands of value to community residents.	See Reference Section 2.6.23: Support for BSWI Communities	Level of coordination and collaboration with communities.
All of the communities in the planning area are considered environmental justice communities due to their low-income or Alaska Native status, or both. Communities should not be disproportionately, adversely affected by BLM management actions.	The net effects of all of the above actions on communities in the planning area.	Level of effects on environmental justice populations.

Table 3.5.1-2 estimates the potential magnitude and extent of the effects by indicator, across alternatives. The table uses a rating system that describes the expected change from existing conditions resulting from implementation of an alternative. A rating of “–” indicates that the resource or socioeconomic condition would be expected to become worse under that alternative; a rating of “=” indicates that the resource or socioeconomic condition would remain about the same (although some aspects or components of that condition could increase/improve and some decrease/become worse); and a rating of “+” indicates that the resource or socioeconomic condition would be expected to improve under that alternative. In some cases, an extra “+” is added to indicate a larger difference relative to other alternatives. These ratings

attempt to convey effects at a very general summary level; the actual impacts are much more complex and varied. Readers are encouraged to study the other resource impact sections for greater detail, particularly the ANILCA 810 analysis in Appendix R for more detail on expected effects on subsistence access and resources.

Table 3.5.1-2: Portions of Planning Area Analyzed for Potential Impacts to Social and Economic Conditions by Indicator

Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Level of management beneficial to subsistence species and habitats	-	++	+	=	-
Level of access to subsistence resources	=	=	+	+	-
Level of support for economic development	=	=	+	++	++
Level of coordination and collaboration with communities	-	+	++	++	+
Effects on environmental justice populations	-	+	+	+	-

Effects from Alternative A

This alternative represents existing management mandated by current land use plans for the planning area. Alternative A does not propose to designate any HVWs. The BLM has designated 11 ACECs covering 1,884,376 acres within the planning area, fewer than proposed under Alternative B, but retaining these existing areas, unlike Alternatives C, D, and E. Alternative A would not provide additional management of lands with wilderness characteristics or create connectivity corridors. The other alternatives all presume that some additional level of management is necessary to address challenges and opportunities for/to resources over the next 20 years, while this alternative is does not pursue a plan-level approach to sustainable management of subsistence resources. Alternative A would have 11,882,094 acres open to the possibility of permitting for commercial woodland harvest, which is more than Alternative B, but fewer than Alternatives C, D, and E (Proposed RMP). This alternative also has the second-fewest acres open to the possibility of locatable mineral development that overlap with medium or high potential areas for locatable minerals (about 271,000 acres). While this would help minimize impacts to resources and habitats, it also poses restrictions to possible future mining activities that could bring jobs and additional income to some community residents. There is support for more jobs in the planning area, as was demonstrated through the public comment in support of the Donlin Gold Project, but communities are concerned about the potential for subsistence resources and access to be impacted by the mine and associated development, including the natural gas pipeline corridor that will bring energy to the Donlin operation.

Alternative A manages travel in the planning area as undesignated, with no limitations on summer or winter cross-country travel for subsistence (or casual use), with the exception of the Unalakleet Wild River Corridor where OHV travel would continue to be prohibited. Alternative A does not require a permit for subsistence collection of firewood and non-timber forest products (e.g., berries). Subsistence and casual use would continue under the management to which people are accustomed but would not address any issues or problems where they exist now or would be likely to develop under this alternative.

There would be no new attempts to restrict guides in areas near communities or to require any additional training on sport-subsistence conflicts. Currently, many residents voice concerns that sport hunting can conflict with subsistence use and that communities do not necessarily reap the benefits of sport hunting occurring near communities. Alternative A would not be responsive to this concern.

Existing levels and types of coordination would continue. No additional ACECs would be designated, including those proposed by communities and tribes, which could discourage future collaboration. The BLM would not seek out opportunities to assist with cultural tourism activities to communities or to work collaboratively to develop Cultural Landscape Reports or similar analyses that describe how communities use BLM-managed and other lands. Community leaders and residents have expressed the desire for the BLM to be a good neighbor, part of which is how effectively the BLM coordinates and collaborates with communities and whether communities feel that their input and views are being considered and applied by the BLM. Alternative A would not meet these community comments.

Alternative A could lead to adverse effects on low-income and minority populations because no new actions would be taken to minimize impacts to subsistence resources, reduce conflicts with other uses, facilitate economic development, collect additional information about community use areas and values, or increase coordination and collaboration with communities. The other four alternatives address these issues to varying degrees. No other populations of users or stakeholders would be similarly affected, so this level of impact is considered a disproportionate, adverse effect on environmental justice populations.

Effects Common to All Action Alternatives

The four action alternatives contain a variety of measures to minimize impacts to subsistence uses of BLM-managed lands and address community requests for protection of and increased participation in management of resources and opportunities. These and other actions would reduce the potential impacts to subsistence resources.

The action alternatives generally pose fewer restrictions on OHV use and routes for subsistence use than for casual use, maintaining access while reducing potential conflict. The travel management goal for all alternatives is to “Maintain the BSWI planning area in such a manner that local communities retain unfettered access to the land.” When the BLM develops travel management plans, it would consider travel routes and corridors among the communities and how to meet connectivity and destination goals for the communities. These travel management actions would help to meet community needs for travel, including access to subsistence resources.

The action alternatives also contain measures designed to reduce conflicts with hunting guides and outfitters and other users. In addition to allocation decisions, these measures include encouraging permitted hunting guide/outfitters to coordinate activities with local communities. Such actions could decrease conflicts and improve community-guide relations.

Active wildfire management would be designed to protect people, communities, landscapes, and water quality, and to mitigate the severe flooding and erosion caused by wildfire, which would help to protect communities and community resources from the impacts of wildfires. Creating fuel breaks around communities would be a priority of the wildfire management.

All the alternatives allow for ROW permitting for essential community infrastructure, including communication sites. Actions common to all action alternatives include making lands available for the possibility of lease or sale to benefit local communities per the criteria for R&PP Act and considering land exchange and other mechanisms at the implementation level to benefit public interests including community expansion or relocation. This would assure communities that management of BLM lands

would not hinder development of needed infrastructure and allows the BLM to address impacts from climate change.

Effects from Alternative B

Alternative B emphasizes reducing the potential for competition between recreational and subsistence resources by designating key areas to manage long-term resource values within the planning area. This alternative includes more miles of streams in HVWs and generally provides management preventing and minimizing surface-disturbing activity in HVWs than do the other three action alternatives. Seven new ACECs would be established, three existing ACECs would no longer be managed as ACECs although some of their acreage would be managed as part of seven new ACECs established, and three existing ACECs would no longer be managed as ACECs and none of their acreage would be managed as an ACEC. Total acres of ACECs would cover just under 4 million acres. Alternative B would also manage more land for wilderness characteristics, either as a priority or to reduce impacts while emphasizing multiple uses, than all other alternatives and manage two connectivity corridors. As a result, this alternative is the one most likely to minimize and avoid impacts to species and habitats valuable for subsistence. This alternative also has the fewest acres open to the possibility of locatable mineral development that overlap with medium or high potential areas for locatable minerals. Alternative B would revoke about a third as many acres of 17(d)(1) withdrawals on locatable minerals than Alternatives C and D, providing a lower level of support for economic development opportunity from locatable minerals. While this would minimize and avoid impacts to resources and habitats important for subsistence, it also poses the greatest restrictions to possible future mining activities that could bring jobs and additional income to some community residents.

Alternative B has a small amount of acreage (slightly larger than Alternative C) where summer subsistence OHV access would be prohibited and no limitations on winter cross-country travel for subsistence. This alternative generally is the most restrictive of casual OHV use, thereby reducing the probability of potential conflict with subsistence use. Alternative B is the only alternative under which the BLM would require a permit for subsistence collection of firewood for more than that required for incidental use for camping and forestry products (e.g., berries), which would be a concern for many residents who are accustomed to collecting without a permit.

Many commenters noted how difficult it was to accept having to obtain a permit from an agency to do something they have always done. The associated conflict could be reduced somewhat because the system would be administered by hiring a local community member in a targeted area to issue permits and collect use information, but enforcement could be difficult. Access to affected subsistence resources could be more difficult due to this permit and other restrictive resource measures, which could make access more costly or difficult in some situations. This alternative also closes more acres to commercial woodland harvest than any other alternative.

Application of the largest CFZ among the alternatives would mean that SRPs for hunting guide/outfitters would not be authorized within a 10-mile radius of any established community in the planning area (818,395 acres of BLM-managed public lands). Requiring shuttle service operations that are also hunting guide/outfitters to obtain SRPs in the ERMA would reduce the risk of conflict with subsistence uses but could increase the burden on shuttle service operations that are also hunting guide/outfitters. Therefore, Alternative B would be the most likely alternative to address conflicts to the satisfaction of community

residents, although some residents requested that the zones not be drawn around communities but from the outside boundary of State and private lands surrounding communities.

For nominated ACECs not found to be relevant and important for cultural resources, the BLM would work with tribes to gather more information on the particular areas and resources. The BLM would assist with cultural tourism activities to communities requesting assistance. The BLM would support rural BSWI communities by working collaboratively with them and other partners to develop Cultural Landscape Reports for a small number of communities. The BLM would have a greater presence in the communities, allowing for better relationships and trust to develop, which would improve the BLM's ability to manage its resources and make it more likely that management would be consistent with community needs.

Alternative B would lead to positive effects on low-income and minority populations—essentially all of the residents of planning area communities. New management actions would be implemented to minimize impacts to subsistence resources, reduce conflicts with other uses, collect additional information about community use areas and values, and increase coordination and collaboration with communities. However, this alternative would not be as favorable to market opportunities as the other action alternatives.

Effects from Alternative C

Alternative C emphasizes adaptive management at the planning level to protect the long-term sustainability of resources while providing for multiple resource uses. This alternative would manage approximately 2,000 more river miles in HVWs than Alternatives D and E but fewer than Alternative B. Alternative C would manage lands with wilderness characteristics, though not as a priority or to the extent of Alternative B, and would establish one connectivity corridor. This alternative would open all areas of medium or high LMP to the possibility of locatable mineral development, though over half of this acreage would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected. Alternative C would revoke all 17(d)(1) withdrawals on locatable minerals, providing a greater level of support for locatable mineral development than Alternative A. Alternative C, like Alternative D, reduces the amount of land closed to salable mineral development, from 4,804,488 acres in Alternative A to 283,509 acres. While not providing additional management for resources and habitats, it provides opportunities for future mining activities that could bring jobs and additional income to some community residents.

Alternative C has only a small amount of acreage (slightly less than Alternative B) where summer subsistence OHV access would be prohibited and no limitations on winter cross-country travel for subsistence. This alternative is generally intermediate (between Alternatives B and D) regarding restrictions of casual OHV use. Alternative C would require a permit for personal use collection of firewood over 10 cords per household and non-timber forest products (e.g., berries) but would not require a permit for subsistence users. The requirement that non-subsistence users obtain a permit could reduce conflict and competition for resources among subsistence and non-subsistence users in some areas, providing the most benefit to subsistence users as compared to the other alternatives. As a result, Alternative C would improve community access to subsistence resources. This alternative opens a large proportion of acres to the possibility of commercial woodland harvest by permit, the same as Alternative E and slightly less than Alternative D.

Alternative C would add measures designed to reduce conflicts with guided sport SRPs for hunting guide/outfitters, which would not be authorized within a 5-mile radius of any established community in the planning area (the 5-mile radius of all communities includes 95,307 acres of BLM-managed public lands). This acreage is considerably less than that proposed under Alternative B, so would be less compatible with community concerns, but would pose fewer restrictions on guided hunting. Shuttle service operations would not be initially required to obtain SRPs, as would be required under Alternative B, but if any increases in use, conflict, and public interest resulted in the objectives in the ERMA being exceeded, the BLM would engage in additional planning to maintain the objectives of the ERMA. Possible remedies could include, but are not limited to, requiring SRPs, limiting SRPs, and restricting seasonal visitation. This would focus attention on areas where conflicts developed, rather than making all shuttle service operations apply for SRPs. While this would pose less of a burden to shuttle service operations, it would require additional monitoring and not immediately address existing conflicts through the SRP process.

No ACECs would be designated, including those proposed by communities and tribes, which is not consistent with community requests. However, this alternative would provide more opportunity for BLM to work with the specific affected communities when faced with a decision and to tailor resource management to specific conditions on the ground. The BLM would support rural BSWI communities by working collaboratively with them and other partners to develop Cultural Landscape Reports for a number of communities. Alternative C is responsive to community demands for greater involvement and participation in land management activities and would improve relations between the agency and communities.

Alternative C would lead to beneficial effects on low-income and minority populations—essentially all of the residents of planning area communities. New management actions would be implemented to minimize impacts to subsistence resources, reduce conflicts with other uses, collect additional information about community use areas and values, and increase coordination and collaboration with communities. However, some adverse impacts to subsistence resources could occur from allowable surface-disturbing uses.

Effects from Alternative D

Alternative D provides additional flexibility at the site-specific implementation level and fewer overarching management restrictions at the planning level. Alternative D would not provide any additional management of lands with wilderness characteristics or establish connectivity corridors. Instead, decisions about resources and uses would be made at the project level, providing the BLM the opportunity to more closely tailor management to individual community needs and situations, rather than relying on broad restrictions and allocations that may not be needed in a given situation. One of the tensions in the planning area, and in other parts of the state, is balancing scarce economic development opportunities with protection of subsistence resources and access. Alternative D provides an opportunity for the BLM to work with specific affected communities and to utilize community use data and traditional knowledge to inform its decision-making process. There is greater uncertainty regarding the outcomes of these project-level decisions compared to predetermined allocations or designations, because the decisions could change over time depending on current policies and their interpretation.

This alternative would open all medium or high LMP areas to the possibility of locatable mineral development, the same as Alternative C, though over half of this acreage would be closed to locatable

mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected. While not providing additional management for resources and habitats, it provides the most opportunities for future mining activities that could bring jobs and additional income to some community residents., similar to Alternative C. Alternative D would revoke all 17(d)(1) withdrawals on locatable minerals, providing a greater level of support for locatable mineral development than Alternative A. Alternative D, like Alternative C, has fewer acres of land closed to salable mineral development than Alternatives A and B.

Alternative D opens all acreage to the possibility of summer subsistence OHV access and has the fewest restrictions on winter cross-country travel for subsistence. This alternative generally is also the least restrictive of casual OHV use among the action alternatives. Like Alternative C, Alternative D would require a permit for personal use collection of firewood and non-timber forest products (e.g., berries) but would not require a permit for subsistence users; the effects would be similar to those described under Alternative C and would likely be acceptable to subsistence users. Nearly all BLM-managed land in the planning area would be open to the possibility of commercial woodland harvest by permit.

There would be no CFZs where permits for guided hunting would not be issued. Measures to limit guided sport hunting to address conflict and/or resource impacts would be determined on an individual basis, rather than by predetermining limits. This could end up being effective at reducing conflicts and would avoid establishing limits in places or instances where they might not be needed. However, the methods and effectiveness of measures eventually taken to reduce conflict would be more uncertain, and this approach is not responsive, at least at the plan-level, to community concerns about conflict and competition. Shuttle service operations would not be initially required to obtain SRPs, as would be required under Alternative B. If increases in use, conflict, and public interest resulted in ERMA objectives being exceeded, the BLM would increase monitoring, outreach, education, and/or enforcement to those affected, focusing attention on areas where conflicts developed. While this approach would pose less of a burden to shuttle service operations, it would require additional monitoring and not immediately address existing conflicts through the SRP process. Communities could also view this approach to conflict as less responsive than the actions taken under Alternative C, which includes restrictions and requirements to obtain SRPs as possible solutions.

No ACECs would be designated, including those proposed by communities and tribes, which is not consistent with community requests. However, this alternative allows for more flexibility in project-specific affected communities when faced with decisions such that resource management decisions can be tailored to specific conditions on the ground. The BLM would support rural BSWI communities by working collaboratively with them and other partners to develop Cultural Landscape Reports for all communities, which is desirable when decisions are being made on an individual basis.

Alternative D would likely maintain or slightly improve conditions for low-income and minority populations—essentially all of the residents of planning area communities. This alternative would provide some additional management of subsistence resources, although not to the extent of the other action alternatives. Reducing conflicts between subsistence and other resource uses would continue to be a goal, but with actions taken on a project-level basis rather than with predetermined allocations or regulations. While Alternative D's flexible approach would necessitate additional coordination and collaboration with communities on a project-level basis, it also provides additional opportunities outside of project-specific coordination that promote active BLM–community engagement. For example, this is the only alternative

that calls for a collaborative effort to develop Cultural Landscape Reports or similar analyses for all environmental justice communities.

Effects from Alternative E

Alternative E emphasizes adaptive management at the planning level to protect the long-term sustainability of resources while providing for multiple resource uses. After receiving public comment from the State of Alaska and others who believed that the DEIS preferred alternative (Alternative C) unnecessarily hindered economic development, the BLM developed Alternative E by combining elements of Alternatives B, C, and D. For example, Alternative E addresses HVWs differently than the other action alternatives. Although Alternative E has the same number of affected river miles as Alternative D, it has less than 20 percent of the acreage where HVW-management actions are applied, as compared to Alternative D. HVW-management actions under Alternative E only apply to the 100-year floodplain, not the rest of the HVW, resulting in a number of changes in management actions and associated impacts. While the reduction in lands where development is restricted may increase potential for economic development, these same activities could, depending on the nature and extent of any activities permitted, result in a substantial reduction in the opportunity to continue subsistence uses of renewable resources in areas affected by development.

Alternative E, like Alternative D, would manage 100 percent of the lands having wilderness characteristics to emphasize other resource values and multiple uses as a priority over protecting wilderness character. Like Alternative C, Alternative E would establish one wildlife connectivity corridor (the South Connectivity Corridor). The BLM would work with adjacent landowners to manage the corridor to retain connectivity between USFWS refuges in the planning area. Corridor management would be less restrictive on locatable and salable mineral development than it would under Alternative B.

Alternative E, like Alternatives C and D, would open all areas of medium or high LMP to the possibility of locatable mineral development and would revoke all 17(d)(1) withdrawals on locatable minerals, providing a greater level of support for locatable mineral development than Alternative A. Also consistent with Alternatives C and D, Alternative E reduces the amount of land closed to salable mineral development, from 4,804,488 acres in Alternative A to 283,509 acres. Alternative E provides the most opportunities for future mining activities that could bring jobs and additional income to regional community residents. Communities in the planning area rely heavily on fish and wildlife resources; mining activities may impact the abundance and availability of subsistence resources for local communities due to potential habitat degradation..

Like Alternatives C and D, Alternative E contains no ROW exclusion areas. Alternative E contains the least acreage of ROW avoidance areas of the action alternatives. One of the avoidance areas would be the wildlife connectivity corridor. As a result, 93 percent of the BLM-managed lands in the planning area would be open to the possibility of location of ROW for linear projects, communication, and Mineral Leasing Act, FLPMA permit, and lease demands. Alternative E would be the most conducive alternative to support infrastructure development and associated economic development, jobs, and labor income.

Alternative E would open 99 percent of the BLM-managed lands to the possibility of commercial woodland harvest with a permit, the same acreage as Alternative C and slightly less than Alternative D. Commercial woodland harvest is not currently nor anticipated to be developed on an industrial scale, therefore economic impacts may provide positive economic benefit on a household or community level

and would continue to provide for harvest of subsistence and personal use of woodland harvest. As would also be the case under Alternative C, all BLM-managed lands outside of the riparian areas of streams would be open to subsistence and most personal use woodland harvest. Non-subsistence house log harvesting would be prohibited in the designated Unalakleet Wild River Corridor, and personal use gathering of forest firewood of more than 10 cords of firewood per household per year and gathering forestry products would require a permit. The requirement that non-subsistence users obtain a permit could reduce conflict and competition for resources among subsistence and non-subsistence users in some areas, providing benefit to subsistence users.

Travel and transportation management is the same as under Alternative C. Both contain few acres where summer subsistence OHV is limited to existing trails and much higher limits on casual use and are between Alternatives B and D regarding limits on winter use for both casual and subsistence use.

Alternative E, similar to Alternative C, would add CFZs to reduce conflicts with guided sport SRPs for hunting guide/outfitters, which would not be authorized within a 5-mile radius of any established community in the planning area (the 5-mile radius of all communities includes 95,307 acres of BLM-managed public lands). This acreage is considerably less than that proposed under Alternative B, so would be less compatible with community concerns, but would pose fewer restrictions on guided hunting. Alternative D does not designate these zones. Alternative E also contains far less acreage in ERMA, which are managed to maintain the quality and condition of recreation activities, such as remote fishing and hunting and casual OHV use. Under Alternative E, the ERMA shares the same geography as the CFZs. Except for 3 percent of lands designated as the INHT SRMA, all BSWI lands outside of the ERMA are managed as undesignated recreation lands. It is difficult to determine the socioeconomic implications of the undesignated recreation lands, but having fewer acres of ERMA could reduce potential conflict between recreational and subsistence uses, while also increasing the likelihood of non-recreational development.

Several management actions apply to both the ERMA and undesignated recreation lands. These actions include developing new restrictions or facilities for the purposes of site protection, visitor safety or enhancement of targeted outcomes and setting character, unrestricted aircraft use, minimal clearing of landing areas, inclusion of appropriate stipulations to protect and manage resources as part of SRP issuance, authorization of some uses and activities in conjunction with a SRP or land use permit at the implementation level, permitting semi-permanent or permanent developments, using an adaptive management program, and working with other agencies if user conflicts occur from hunting or fishing activities. However, the undesignated recreation lands would lack the ERMA objectives that could limit conflict (i.e., management of public shelter cabins in a manner to minimize conflict, stay-limits for non-permitted dispersed camping).

Shuttle service operations would not be initially required to obtain SRPs in the ERMA, as would be required under Alternative B, but if increases in use, conflict, and public interest resulted in the objectives in the ERMA being exceeded, the BLM would engage in additional planning to maintain the objectives of the ERMA. Possible remedies could include, but are not limited to, requiring SRPs, limiting SRPs, and restricting seasonal visitation. This would focus attention on areas where conflicts developed, rather than making all shuttle service operations apply for SRPs. While this would pose less of a burden to shuttle service operations, it would require additional monitoring and not immediately address existing conflicts through the SRP process.

ACECs were proposed by some communities and tribes but none would be designated to address community concerns. This is consistent with input received from Alaska Native Corporations representing the interests of the Native shareholders living in the planning area and other comments received suggesting that ACECs are not necessary because most of the relevant resources were already protected through other means and designations. ROW avoidance areas, VRM protections, and management actions applied to HVWs are used as a means to protect R&I values in lieu of ACEC designation. With the smaller acreage of ROW avoidance in Alternative E and the application of HVW management actions to the 100-year floodplain of HVWs, the acreage of these protections would be much lower than the other alternatives.

Alternative E would provide opportunity for the BLM to work with the specific affected communities when faced with a decision and to tailor resource management, as appropriate, to specific conditions on the ground. The BLM would support rural BSWI communities by working collaboratively with them and other partners to develop Cultural Landscape Reports for two to three communities as needed, the same as under Alternative B but fewer than under Alternative C and far fewer than under Alternative D.

Alternative E would have a mixed effect on low-income and minority populations—essentially all of the residents of planning area communities. Reducing conflicts between subsistence and other resource uses would continue to be a goal. This alternative would provide some additional management of subsistence resources, although not to the extent of the other action alternatives, and far more acres would be open to the possibility of various types of commercial development. While this alternative would be the most likely to support economic development opportunities, the possibility exists that certain types of development could also have potential adverse impacts on subsistence resources.

Cumulative Effects

Because the BLM's mission is to manage resources and opportunities on lands it manages, it cannot directly address or attempt to resolve many social issues and trends facing rural communities in the planning area. These issues include fuel costs, opportunities for jobs and income, crime and mental health issues, education, or changes in population. However, BLM land management activities have the inherent potential to address some of these issues either incrementally or indirectly. Opportunities such as the Donlin Gold Project would be expected to have a greater effect on jobs than any of the actions contained in the alternatives. The BLM could provide the greatest assistance to communities by managing subsistence resources and access to them, supporting job and income opportunities where possible, and taking actions consistent with being a good neighbor.

Limited opportunities to increase jobs and income in the planning area, in the face of volatile global market conditions related to the cost of crude oil, belay the importance of maintaining a strong subsistence economy to support household livelihoods and community vitality. In times of rising oil prices, households rely increasingly on subsistence resources that can be gathered and produced with a low overhead cost for petroleum-based fuel products. Management under Alternative B is the most restrictive (and Alternative E is the least restrictive) to activities that could adversely affect subsistence resources.

While Alternative A provides the least amount of restriction regarding where travel is allowed and thereby affords the greatest opportunity for people to minimize travel distances, it also includes few measures to guard against potential risks to subsistence resources caused by the potential development of

projects. Alternative B would provide the greatest measure of protection for the maintenance and perpetuation of subsistence resources indirectly affected by the development of the Donlin Gold Project and the associated natural gas pipeline, but provides the greatest level of restriction on potential development of projects.

The development of ancillary facilities, temporary access roads, and airstrips developed in association with the above referenced pipeline could result in unintended development along this corridor, which affects subsistence gathering regions. Designations that provide measures to avoid and minimize impacts to aquatic and terrestrial habitats, such as HVW, WSR, and areas managed to preserve wilderness characteristics, would reduce risk to sensitive areas important for the reproduction of subsistence values.

Changes in snowfall patterns and frequency, forest type, and overall shifting cliomes would likely drive changes in subsistence resource distribution related to plants, fish, wildlife, and timber. Such changes would be expected to increase economic insecurity of communities in the planning area reliant upon subsistence incomes due to increased time and fuel costs to locate resources or to cultivate new methods to secure subsistence livelihoods closer to their communities. When the effects of Alternative B are considered in context with the cumulative effects of climate change, measures to reduce direct and indirect stressors on ecological systems that support important subsistence species could result in a higher level of ecological resilience in responding to changing climate, which could result in decreased risk to households and communities reliant upon subsistence resources. On the other hand, Alternative D could be viewed as allowing BLM management to be more adaptable to changing conditions on a site-specific basis.

Under Alternative E (Proposed RMP), the reduced area managed pursuant to HVW identification, the decision to not designate ACECs, and the substantial amount of acreage open to the possibility of ROW location would increase the potential for economic and community development. Donlin Gold's proposed mine also would create economic opportunities for some residents and communities. Although projects like the Ambler Mining District Industrial Access Project and increasing development in the National Petroleum Reserve-Alaska are not in the planning area, they suggest that increased development in rural Alaska would continue to occur. With the trends of continued natural resource development and increased casual and recreational use in the planning area, some subsistence resources could continue to be degraded and some subsistence users could face increased competition for resources. The reduced area affected by HVWs, the decision not to designate ACECs, and the substantial amount of acreage open to the possibility of ROW location could allow for potential development and the need to mitigate any associated impacts on subsistence resources and uses, which would be additive to the potential subsistence restrictions posed by Donlin Gold's proposed mine. These factors could result in restrictions to subsistence uses for communities along the Kuskokwim River and communities along the gas pipeline ROW.

3.5.2 Subsistence

Affected Environment

Resources Harvested and Subsistence Harvest Levels

Subsistence in Alaska is the traditional way of life for many residents of the state and is central to the customs and traditions of many Alaska Native people. Major subsistence activities throughout the

planning area include the hunting of birds, caribou, and moose; fishing for salmon, whitefish, and other fish; trapping; harvesting of plants and berries; and logging for firewood, housing, artwork and other customary uses. The specific resources harvested vary by community. Appendix R, the Alaska National Interest Lands Conservation Act (ANILCA) Section 810 analysis, includes the per capita weight of harvested resources by category (large land mammals, small land mammals, birds, fish, and berries and other gathered resources).

Subsistence Use Patterns

Subsistence communities evaluated in this analysis are organized by Communities Search and Harvest Areas (Figure 3.5.2-1):¹¹

- Yukon River Drainage Area Communities: Anvik, Grayling, Holy Cross, Kaltag, Marshall, Nulato, Russian Mission, Shageluk
- Kuskokwim River Drainage Communities: Aniak, Bethel, Crooked Creek, Chuathbaluk, Kalskag/Lower Kalskag, Lime Village, McGrath, Nikolai, Sleetmute, Stony River
- Norton Sound/Unalakleet River Area: Unalakleet

These communities are included in the ANILCA Section 810 Evaluation presented in Appendix R.

Communities use large portions of the planning area and subunits to harvest resources for subsistence, with overlapping use areas between communities (Map 3.5.2-1). Hunting and gathering follow a seasonal round that varies from year to year and between communities, based on local traditional knowledge and observations of resources, river and weather conditions, and migratory patterns. Subsistence harvesting follows a pattern of recurring use during specific seasons. Rural residents harvest fish, wildlife, and vegetation resources as a major part of their diet (BLM 2016e). River communities tend to harvest larger numbers of fish (primarily salmon), whereas other communities harvest more moose, caribou, and non-salmon fish. Extensive sharing networks exist between the Kuskokwim and Yukon River communities (Ikuta et al. 2014). Sharing of resources between the two river drainages connects and interconnects the communities, and the use areas overlap.

Subsistence Use Areas

Subsistence use areas vary by community, resource, and season. Limited data are available for specific places or areas essential to and for subsistence. Available data are mainly from technical reports by ADF&G Division of Subsistence and a land use study for the BSWI area conducted by the University of Alaska-Fairbanks (Lingle et al. 2011). Recent studies conducted by regional tribal consortium Kawerak Inc. document tribal subsistence activities in the Bering Strait/Norton Sound region (Raymond-Yakoubian 2013; Raymond-Yakoubian and Raymond-Yakoubian 2015); however, only a small fraction of the traditional knowledge regarding subsistence activities in this area has been formally documented and is currently available. Though it is difficult to truly capture the subsistence use areas and activities of a community, the best available data were used to determine whether an impact may occur to a community due to the implementation of the BSWI PRMP. The lack of data for a community is not an

¹¹The communities of Stebbins and St. Michael were not considered this analysis because of their location outside of the Norton Sound/Unalakleet Search and Harvest Areas and because of their distance from BLM-managed lands. The Community of Koyukuk was not considered because of its distance from the planning area. The communities of Mountain Village, Pitkas Point, St. Mary's, and Pilot Station, though included in the planning area, were not considered in the analysis because of their location within the Yukon Delta NWR and distance from BLM-managed lands.

indication that subsistence harvests lack importance in the area. Subsistence use areas, which are grouped by the major rivers and their Communities Search and Harvest Areas, are shown on Map 3.5.2-1.

Non-Market Values of Subsistence Resources and Activities

For the communities within the planning area, hunting and gathering of fish, wildlife, and vegetative resources have values that extend beyond economic or nutritional measurement, and change in response to technology, resource availability and regulations. Traditional knowledge of subsistence hunting and gathering is passed from generation to generation, shaping the culture, customs, and tradition of the people. Recent studies by Kawerak Inc. have documented local knowledge regarding traditional subsistence lifestyle in the Bering Strait/Norton Sound region, including information about cultural values and community concerns related to subsistence harvest (Raymond-Yakoubian 2013; Raymond-Yakoubian and Raymond-Yakoubian 2015). Customary trade and sharing within and between families is important to the ongoing relationships with neighboring communities inside and outside of the planning areas. Movements and timing of activities occur on seasonal rounds, dictated by availability of resources, and more recently by hunting, fishing, and trapping regulations, and employment and school schedules (Case 1986 in BLM 2016b). Subsistence activities are a crucial element of traditional practices and cultural events within the BSWI communities. Potlatches and memorial parties, which are important culture-building activities for the Kuskokwim and Lower Yukon communities, feature resources harvested through subsistence practices (Ayunerak et al. 2014). Traditional food is also an important source of nutrients for remote Native Alaskan community members (Bersamin et al. 2007).

Direct and Indirect Effects

Table 3.5.2-1 below summarizes the nature and types of beneficial or adverse effects that could occur to subsistence, the proposed management actions that could influence those effects, and the indicators used to measure the potential magnitude and extent of the effects. Table 3.5.2-2 discloses the potential magnitude and extent of the effects by indicator, across alternatives. Management actions with the greatest potential to affect abundance of, availability of, and access to subsistence resources include ROW development, locatable mineral decisions, and OHV access. These actions are the primary focus of the ANILCA Preliminary Section 810 Evaluation, provided in Appendix R of this PRMP/FEIS.

Table 3.5.2-1: Summary of Potential Effects to Subsistence by Management Action

Types of Effects	Management Actions	Indicators
- Impacts to subsistence resources would alter the traditional lifestyles of rural residents. - Mineral development could result in impacts to abundance and availability of subsistence resources and access to resources. - New ROW development could result in impacts to availability of subsistence resources.	- Minerals Decisions in HVWs - Vegetation Management Decisions - Wildlife Management Decisions - Establishment of Innoko Bottoms Priority Wildlife Habitat Area - Establishment of Connectivity Corridors - BLM-permitted Surface Disturbance - Travel Management Decisions - FLPMA ROW Exclusion and Avoidance Areas - Permits and Leases - Lands and Realty Decisions - Recreation and Visitor Services Decisions (CFZs)	- Distribution and abundance of subsistence resources within the planning area - Current and past use of resources within the planning area - Availability and access

Types of Effects	Management Actions	Indicators
- Casual and subsistence OHV use could result in resource impacts within CSUs. - Summer subsistence OHV restrictions could limit access to subsistence resources. - Summer cross-country OHV use could result in resource degradation.	- Travel Management Decisions - Establishment of Innoko Bottoms Priority Wildlife Habitat Area - Unalakleet Wild River Corridor - Designation of the INHT NTMC TMA - Recreation and Visitor Services Decisions	- Distribution and abundance of subsistence resources within the planning area - Current and past use of resources within the planning area - Availability and access
Management actions that retain landscape permeability between conservation units by limiting or prohibiting surface-disturbing activity would enhance the conservation value of the entire region by retaining resilience and adaptability at a landscape level by allowing species important for subsistence to respond as environmental conditions change.	Wildlife Management Decisions	Acres of the planning area covered by connectivity corridors

Table 3.5.2-2: Portions of Planning Area Analyzed for Potential Impacts to Subsistence by Indicator

Management Actions and Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Minimization of impacts to vegetation associated with vegetation management	Unspecified	OHV use limitations, trail relocation, trail hardening, or trail closure in: - Dwarf shrub and lichen: 2,711,156 acres (20%) - Sparse vegetation: 139 acres (<1%)	OHV use limitations, trail relocation, trail hardening, or trail closure in: - Dwarf shrub and lichen habitats: 2,711,156 acres (20%) - Sparse vegetation: 139 acres (<1%)	Unspecified	OHV use limitations, trail relocation, trail hardening, or trail closure in: - Dwarf shrub and lichen habitats: 2,711,156 acres (20%) - Sparse vegetation types: 139 acres (<1%) 100-foot setback for SSS flora habitat
Acres open to commercial woodland harvest permitting	11,882,094 acres (88%)	8,403,829 acres (62%)	13,418,941 acres (>99%)	13,465,894 acres (100%)	13,418,941 acres (>99%)
Closed to commercial woodland harvest	1,583,800 acres (12%)	5,062,065 acres (38%)	46,953 acres (<1%)	0 acres (0%)	46,953 acres (<1%)
Acres covered by management actions that target key wildlife habitat important for subsistence (type of management varies by alternative). ¹	Unspecified	Caribou and moose calving/wintering habitat: 7,841,497 acres (79%)	Caribou and moose calving/wintering habitat: 266,419 acres (3%)	Caribou and moose calving/wintering habitat: 266,419 acres (3%)	Caribou and moose calving/wintering habitat: 266,419 acres (3%)
	Unspecified	Innoko Bottoms: 236,556 acres (100%)	Innoko Bottoms: 236,556 acres (100%)	Innoko Bottoms: 236,556 acres (100%)	Innoko Bottoms: 236,556 acres (100%)
Acres of the planning area covered by management actions that aim to retain ecological resilience	None	Connectivity Corridors: two corridors: 845,670 acres (6%)	Connectivity corridors: one corridor: 576,038 acres (4%)	None	Connectivity corridors: one corridor: 576,038 acres (4%)

Management Actions and Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Acres open to mineral development	• 294,325 acres open to locatable mineral development in medium to high LMP • 195,632 acres open to locatable mineral development in areas of medium to high LMP segregated due to selection² • 8,661,406 acres (64%) would continue to be open to salable mineral development	• 167,018 acres open to locatable mineral development in medium to high LMP • 100,426 acres open to locatable mineral development in areas of medium to high LMP segregated due to selection² • 3,548,061 acres (26%) open to salable mineral development	• 565,489 acres open to locatable mineral development in medium to high LMP • 317,531 acres open to locatable mineral development in areas of medium to high LMP segregated due to selection² • 6,606,321 acres (49%) open to salable mineral development • 6,576,064 (49%) acres open to salable mineral development subject to terms and conditions	• 565,489 acres open to locatable mineral development in medium to high LMP • 317,531 acres open to locatable mineral development in areas of medium to high LMP segregated due to selection² • 13,182,385 acres (98%) open to salable mineral development	• 565,489 acres open to locatable mineral development in medium to high LMP • 317,531 acres open to locatable mineral development in areas of medium to high LMP segregated due to selection² • 9,408,012 acres (70%) open to salable mineral development • 3,774,373 (28%) acres open to salable mineral development subject to terms and conditions
Acres of FLPMA ROW exclusion or avoidance areas	Unspecified	• 1,464,069 acres (exclusion) • 8,895,920 acres (avoidance) • 3,105,905 acres (open) • 341,761 acres (available for exchange)	• 0 acres (exclusion) • 7,528,863 acres (avoidance) • 151,853 acres (avoidance for linear realty actions) • 5,785,178 acres (open) • 356,343 acres (available for exchange)	• 0 acres (exclusion) • 5,163,653 acres (avoidance) • 8,302,241 acres (open) • 450,575 acres (available for exchange or disposal)	• 0 acres (exclusion) • 509,798 acres (avoidance) • 413,179 acres (avoidance for linear realty actions) • 12,542,918 acres (open) • 356,343 acres (available for exchange)

Management Actions and Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Acres of the planning area in which there are no restrictions on mineral development that overlap important wildlife habitat and important for subsistence. ³	- Open to locatable mineral development (high and medium potential): 294,325 acres (2%) - Open to locatable mineral development (high and medium potential) segregated due to selection:² 195,632 acres (1%) - Riparian areas: 609 RM (2%) - Caribou calving: 0 acres - Caribou wintering: 14,001 acres (<1%) - Moose calving: 0 acres - Moose wintering: 294,325 acres (33%) - Innoko Bottoms: 0 acres - Important Bird Area: 0 acres - Muskox range: 0 acres - Wood bison range: 8,402 acres (<1%)	- Open to locatable mineral development (high and medium potential): 167,018 acres (1%) - Open to locatable mineral development (high and medium potential) segregated due to selection:² 100,426 acres (<1%) - Riparian areas: 332 RM (1%) - Caribou calving: 0 acres - Caribou wintering: 111,417 acres (1%) - Moose calving: 1,203 acres (<1%) - Moose wintering: 1,259 acres (<1%) - Innoko Bottoms: 0 acres - Important Bird Area: 0 acres - Muskox range: 0 acres - Wood bison range: 4,692 acres (<1%)	- Open to locatable mineral development (high and medium potential): 565,489 acres (4%) - Open to locatable mineral development (high and medium potential) segregated due to selection:² 317,531 acres (2%) - Riparian areas: 11 RM (<1%) - Caribou calving: 0 acres - Caribou wintering: 403,146 acres (4%) - Moose calving: 529 acres (1%) - Moose wintering: 16,404 acres (2%) - Innoko Bottoms: 0 acres - Important Bird Area: 0 acres - Muskox range: 0 acres - Wood bison range: 39,672 acres (<1%)	- Open to locatable mineral development (high and medium potential): 565,489 acres (4%) - Open to locatable mineral development (high and medium potential) segregated due to selection:² 317,531 acres (2%) - Riparian areas: 1,173 RM (4%) - Caribou calving: 0 acres - Caribou wintering: 403,146 acres (4%) - Moose calving: 217 acres (1%) - Moose wintering: 16,405 acres (2%) - Innoko Bottoms: 0 acres - Important Bird Area: 0 acres - Muskox range: 0 acres - Wood bison range: 9,672 acres (<1%)	- Open to locatable mineral development (high and medium potential): 565,489 acres (4%) - Open to locatable mineral development (high and medium potential) segregated due to selection:² 317,531 acres (2%) - Riparian areas: 1,173 RMs (4%) - Caribou calving habitat: 0 acres (0%) - Caribou wintering habitat: 403,146 acres (4%) - Moose calving habitat: 217 acres (1%) - Moose wintering habitat: 16,405 acres (2%) - Innoko Bottoms: 0 acres (0%) - Important Bird Areas: 0 acres (0%) - Muskox range: 0 acres (0%) - Wood bison range: 9,672 acres (<1%)
Acres of mineral leasing actions	- Closed: 5,202,221 acres - NSO: 17,521 acres - Open with Standard Stipulations: 8,246,152 acres	- Closed: 9,440,672 acres - NSO: 1,564,573 acres - Open with Standard Stipulations: 2,460,649 acres	- Closed: 46,953 acres - NSO: 6,863,464 acres - Open with Standard Stipulations: 6,555,476 acres	- Closed: 46,953 acres - NSO: 236,556 acres - Open with Standard Stipulations: 13,182,385 acres	- Closed: 46,953 acres - NSO: 4,062,543 acres - Open with Standard Stipulations: 9,356,398 acres
- Acres of the INHT SRMA - Acres managed as ERMA - Acres Managed as CFZ	- Unspecified - Unspecified - Unspecified	355,799 acres (SRMA) 13,110,096 acres (ERMA) 818,395 acres (CFZ)	340,574 acres (SRMA) 13,125,320 acres (ERMA) 95,307 acres (CFZ)	340,574 acres (SRMA) 13,125,320 acres (ERMA) 0 acres (CFZ)	340,574 acres (SRMA) 95,307 acres (ERMA) 95,307 acres (CFZ)
Acres of summer OHV use prohibited	46,953 acres	Subsistence: 241,512 acres Casual: 565,955 acres	Subsistence: 225,925 acres Casual: 225,925 acres	Subsistence: 0 acres Casual: 225,925 acres	Subsistence: 225,925 acres Casual: 225,925 acres
Acres of summer OHV use limited to existing trails	Unspecified	Subsistence: 324,443 acres Casual: 12,899,939 acres	Subsistence: 363 acres Casual: 13,239,969 acres	Subsistence: 225,925 acres Casual: 46,953 acres	Subsistence: 363 acres Casual: 13,239,969 acres

Management Actions and Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Acres of winter OHV use: snowmobiles only	Unspecified	Subsistence: 4,423,914 acres Casual: 13,465,984 acres	Subsistence 3,097,798 acres Casual: 3,097,798 acres	Subsistence 225,925 acres Casual: 225,925 acres	Subsistence 3,097,798 acres Casual: 3,097,798 acres

Notes:

- 1) Percentages listed are the percent of BLM-managed lands in the planning area.
- 2) State top-filings that become valid selections due to ANCSA corporation selections being relinquished or rejected will be managed like all other State selections. Alternatives that recommend revocation of 17(d)(1) withdrawals where the withdrawal prevents State selections would allow for the State selections to become valid once revocation is complete. These lands would be managed like all other State selections.
- 3) Percentages for the area with no restrictions are the percent of BLM-managed lands in the planning area. Percentages for important habitat types are the percent of the total amount of that habitat on BLM-managed lands in the planning area.

Effects from Alternative A

Existing conditions would continue under Alternative A. BLM would consider impacts to wildlife, such as caribou and moose, used as subsistence resources when evaluating actions in the planning area that could affect subsistence resources and would implement mitigation on a case-by-case basis. Alternative A could have a long-term impact on migration and species movement if future large-scale development were to occur in areas where it would fragment ranges and reduce habitat connectivity.

Under Alternative A, mineral leasing would remain closed in essential riverine habitat to minimize impacts to anadromous spawning areas (see Section 3.3.4). Additionally, 8,661,406 acres (64 percent) of the planning area would continue to be open to the possibility of salable mineral development (see Section 3.3.3). While currently there is not a high demand for locatable mineral development in the planning area, nor an anticipated future increase in demand, Alternative A would continue to allow locatable mineral development in 294,325 acres on medium and high LMP areas, though 66 percent of this acreage would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected see Section 3.3.3). Areas open to locatable mineral development with medium to high mineral LMP include important wildlife habitat areas. Approximately 8,246,152 acres (61 percent) would remain open to mineral leasing with standard stipulations and 17,521 acres (less than 1 percent) would be designated as NSO leasable.

Under Alternative A, new ROWs could potentially be permitted throughout the entire planning area, which could affect availability of subsistence resources through habitat loss, degradation, or fragmentation. Linear ROWs that facilitate travel (e.g. roads) could also provide new forms of subsistence access. The communities most likely to experience impacts to availability and access to subsistence resources. Habitat loss, degradation, and Upper Kalskag. These impacts could occur in habitats for species that are important for subsistence to communities within the planning area, including moose, caribou, and fish species. Alternative A would continue to include management stipulations that would minimize impacts to fish, wildlife, and SSS in the planning area.

Alternative A could impact subsistence resources to a greater geographic extent than Alternatives B and C.

Alternative A does not require a permit for subsistence collection of firewood or non-timber forest products (e.g., berries). Subsistence and casual use would continue under the management to which people are accustomed but would not address any issues or problems where they exist now or would be likely to develop under this alternative. Under this alternative, personal use and subsistence woodland harvest area permits for the harvest of house logs, poles, and firewood are issued on a case-by-case basis. While currently there is not a high demand for commercial woodland harvest in the planning area, nor an

anticipated future increase in demand, existing conditions would be maintained with 11,882,094 acres (88 percent) open to the possibility of commercial and woodland harvesting, while the remaining 12 percent would be closed to commercial woodland harvest. The current demand for commercial woodland harvest in the planning area is low due to lack of transport infrastructure and minimal access to areas outside of waterways, and as such, impacts of commercial woodland harvest on subsistence collection of firewood use is minimal.

Due to improvements in vehicle technology, there could be more frequent and/or intense conflicts between motorized and nonmotorized users. The BLM would not designate Recreation Management Areas, and in general, would support dispersed and unstructured recreation opportunities throughout the entire decision area. Continuing to issue SRPs on a case-by-case basis would allow outfitters to accommodate demand for guided hunting and fishing, and could accommodate the potential for special events on the INHT or other specially permitted activities, which carries the potential for conflict and/or competition with subsistence activities and resources). Over time, it is expected that the number and size of SRP activities would increase, thereby increasing the potential for conflicts with subsistence users. These impacts to subsistence would be expected to be greatest in areas of high recreation use, such as along the INHT.

Under Alternative A, all lands in the planning area would continue to be managed as undesignated for travel and transportation management, which allows full access to the planning area for subsistence uses. In the designated Unalakleet Wild River Corridor, traditional means of access such as outboard motorboats, airplanes, dogsleds, and snowmobiles are allowed for all river users. Other means of access, such as inboard jet boats, airboats, hovercraft, and ATVs are not allowed in the Unalakleet Wild River Corridor.

OHV vehicle use can result in loss or degradation of subsistence resource habitat from physical disturbance and could fragment habitat if new trails were created. OHV use could also create additional access for activities that compete for subsistence resources, such as sport hunting and fishing. Due to the lack of management direction on OHV use, the route network could continue to expand which would be expected to adversely affect subsistence resources. Additionally, restricting summer subsistence OHV use in the Unalakleet Wild River Corridor could obstruct access to fishing and harvesting subsistence use areas.

Alternative A may result in a significant restriction to subsistence uses for the communities of Aniak, Anvik, Bethel, Crooked Creek, Chuathbaluk, Grayling, Holy Cross, Kaltag, Lime Village, Lower Kalskag, Upper Kalskag, Marshall, McGrath, Nikolai, Nulato, Russian Mission, Shageluk, Sleetmute, Stony River, and Unalakleet. For the communities of Lower Kalskag and Upper Kalskag, locatable mineral development could impact the abundance of fish resources or redistribute fish. For all the communities in the planning area, unmanaged OHV use could affect the abundance of moose and caribou, and widespread OHV use – were it to occur – and ROW decisions, depending on location and extent, could cause redistribution of these resources. Appendix R-1 provides a detailed analysis by community that supports these findings.

Effects Common to All Action Alternatives

Under each of the action alternatives, subsistence users would benefit from efforts to minimize impacts to water resources and fisheries and wildlife habitats. Maintenance of healthy watersheds, riparian areas, and associated fish and wildlife habitats would support continued harvests of subsistence resources including

fish, vegetation and woodland products, land mammals, waterfowl, and small furbearers. Under all action alternatives, subsistence resources would be managed to sustain wild resource population levels to provide for continued rural economic opportunity and support subsistence lifestyles.

Section 811 of ANILCA ensures that rural residents engaged in subsistence uses have reasonable access to subsistence resources on public lands. The BLM would implement actions to consolidate land management that could affect the amount of habitat that is important for subsistence use and resources. The BLM would consider objectives to manage subsistence resource habitat and reduce habitat fragmentation when making decisions about land exchange and acquisition. Additionally, the BLM would attempt to co-locate linear projects within existing ROWs and would require ROWs to address caribou passage in all known caribou migration routes or where essential winter habitat exists and demonstrate that the ROW development would not significantly impede caribou migration.

Recreation and travel management would have the potential to affect subsistence by influencing the amount of associated human presence and habitat disturbance. Proposed management would allow the BLM to reduce the impacts on important subsistence resource areas and limit the potential for conflicts between user groups. The BLM would seek to reduce conflicts between recreation and subsistence users by taking community interests and impact into account in hunting guide SRP decisions and by encouraging hunting guide/outfitters to coordinate with local communities. Resource competition from recreational users would be mitigated through more lenient restrictions on subsistence-use motorized watercraft, snowmobiles, and OHVs. The BLM would support overland travel needed to access subsistence resources and travel between communities to share subsistence resources by working with communities to maintain existing trail systems and by managing winter and summer travel routes. The BLM would also support community-led development and maintenance of public shelter cabins that could improve safety for subsistence harvesters.

BMPs/SOPs (Appendix O) would include measures to minimize degradation of habitats and expedite reclamation of disturbed areas. These measures would help reduce the level of impact to wildlife habitats and subsistence in areas that remain open to locatable and salable mineral development.

Effects from Alternative B

Under Alternative B, there would be more river miles in HVWs than under Alternatives C, D, and E, which would result in fewer adverse impacts on water quality and fisheries than the other alternatives. Any proposals to develop land, water, or resources in the 100-year floodplain associated with HVWs (21,682 river miles; 66 percent of river miles on BLM-managed lands) would be required to demonstrate that the development would not diminish the quality or diversity of habitats needed for fish and wildlife populations, including those used for subsistence. While currently there is not a high demand for locatable mineral development in the planning area, nor an anticipated future increase in demand, the entire geographies of HVWs would be withdrawn from locatable mineral development and closed to salable and leasable mineral development. These restrictions from potential mineral development would help maintain the quality and diversity of areas of high fish and wildlife habitat value and river-based subsistence use, at the expense of allowing for other possible permitted uses. Alternative B would allow for long-term improvement to distribution and abundance of subsistence resources in HVWs and would minimize impacts on streams and waterbodies, more than the other alternatives.

OHV use limitations, trail relocation, trail hardening, or trail closures implemented to reduce or eliminate degradation to SSS flora habitats would minimize impacts to vegetation in these areas. Only native seeds

and propagules would be used for reclamation and restoration and could include species that are used for subsistence, which would help maintain distribution and abundance of subsistence resources.

Construction and mineral development under Alternative B would result in fewer impacts than Alternative C, D, or E on wildlife (and thereby subsistence resources) due to construction and mineral development, and on migratory bird habitat, the Innoko Bottoms Priority Wildlife Habitat Area, and on moose and caribou calving and wintering habitat. Wildlife and SSS are important to subsistence in the Innoko Bottoms. Fall hunting for moose and waterfowl is largely by Yukon and Innoko River village residents using river boats. A winter subsistence moose hunt occurs in February and March using snowmobiles.¹² Moose are an important subsistence resource for village residents of the area. Moose populations in the Innoko Bottoms Priority Wildlife Habitat Area are recognized as having some of the highest population densities in the State of Alaska by both Alaska resident and non-resident sport and subsistence hunters. The two proposed connectivity corridors would be withdrawn from locatable mineral entry, designated as NSO for leasable development, closed to salable development, and designated as NSO for surface-disturbing BLM activities. Wildlife management actions under Alternative B would result in a greater magnitude and extent of beneficial impacts compared to the other alternatives.

The connectivity corridors would be ROW exclusion areas. This action would minimize potential disturbance to wildlife and subsistence activities and minimize impacts to these key habitats by reducing the potential for habitat loss, degradation, and fragmentation. The area managed as connectivity corridors under Alternative B would be 845,670 acres (6 percent of the planning area). These management actions would maintain the existing distribution and abundance of bird and terrestrial wildlife subsistence resources in the planning area.

Under Alternative B, 3,548,061 acres (26 percent) of the planning area would be open to the possibility of salable mineral development, which is less than half of that open under Alternative A. While currently there is not a high demand for locatable mineral development in the planning area, nor an anticipated increase in future demand, there would be 167,018 acres open to locatable mineral development within areas of medium to high LMP (or 30 percent of that available on BLM-managed land in the planning area), where development and associated impacts to availability of subsistence resources is likely. Areas that would be open to locatable mineral development in areas of medium to high LMP include the wildlife habitat areas described in Section 3.2.7 that are also important to subsistence (though 60 percent of the acreage open to locatable mineral development in medium to high LMP would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected). Since Alternative B would open a smaller area to the possibility of locatable mineral development, particularly in areas with medium or high LMP, than all other alternatives, it would reduce the potential for impacts to wildlife and SSS habitat over a larger geographic extent than current management as well as Alternatives C, D and E.

¹² There are limited data available for places or areas significant to and for subsistence use in the planning area. Studies investigating patterns of use, such as seasonal cycles, use areas, and resources harvested, have been conducted by ADF&G Division of Subsistence and other agencies and organizations. Available data are mainly provided in technical reports by ADF&G Division of Subsistence but are limited and may be reflective only of use areas during a specific time or may represent historic use areas. Because resource distribution and subsistence use areas change over time, information on subsistence use areas presented in this PRMP/FEIS was supplemented by input gathered during the scoping period, alternatives outreach, and ACEC nominations.

Alternative B would include the most restrictions on leasable and salable mineral development, although potential for impacts would be low due to low salable and leasable mineral potential and demand in the planning area. As with all other alternatives, BMPs/SOPs would include measures to minimize habitat degradation, expedite reclamation of disturbed areas, and minimize conflicts with subsistence activities and access (see Appendix O). These measures would help reduce the level of impact to wildlife habitats important to subsistence and on subsistence activities in areas that would be open to mineral development.

Alternative B would have the fewest acres open to the possibility of new ROW development due to areas proposed for ROW exclusion and avoidance, which would further minimize habitat fragmentation and degradation in these areas and impacts on availability of subsistence resources. It would also minimize the unintentional creation of new access routes to uses competing with subsistence activities. ROW exclusion areas would occur on 1,464,069 acres (11 percent) of the planning area and include high-value wildlife habitat, such as Innoko Bottoms and the Unalakleet Wild River Corridor. ROW avoidance areas would occur on an additional 8,895,920 acres (66 percent) of the planning area and would minimize impacts on fish and wildlife habitats in additional areas. Restrictions on where trapping/subsistence cabins could occur could reduce impacts to fish and wildlife and subsistence locations. Areas with the greatest potential for habitat loss, degradation, and fragmentation from development of potential ROWs that could reduce availability of subsistence resources would be in the 3,105,905 acres (about 23 percent of BLM-managed land in the planning area) outside of ROW exclusion and avoidance areas.

Available exchanges could reduce the total amount of wildlife habitat under BLM management depending on the areas that were added to BLM-management under the exchange. Available exchanges and acquisitions under Alternative B that would affect important wildlife habitat and subsistence in the planning area include reductions in riparian area, moose calving and wintering areas, caribou crucial winter habitat, and Innoko Bottoms Priority Wildlife Habitat Area. These reductions could be offset to some degree by available acquisitions, which would include a smaller geographic extent of riparian areas and moose calving and wintering areas, and no caribou crucial winter habitat, but a greater extent of Innoko Bottoms Priority Wildlife Habitat Area. If BLM no longer manages the land, it would no longer be subject to Federal Subsistence Regulations and related subsistence priority.

While currently there is not a high demand for commercial woodland harvest, nor an anticipated future increase in demand, under Alternative B, 8,403,829 acres (62 percent of the planning area) would be open to the possibility of commercial woodland harvest while 5,062,065 acres (38 percent) would be closed to commercial woodland harvest. Under this alternative, house log harvesting would not be allowed within the riparian areas of streams for either personal or subsistence use. Non-subsistence house log harvest would be prohibited within the entire geography of HVWs, ACECs, and designated and suitable WSR corridors. Personal-use wood cutting in areas managed for lands with wilderness characteristics as a priority would be prohibited. Subsistence use and personal use gathering of forest firewood more than that required for incidental use for camping and forestry products would require a permit (e., by instituting a pilot project to hire a local in a targeted area to issues permits and collect use information and/or include maps or questions in local subsistence surveys). Subsistence and personal use woodland harvest would be open on all BLM-managed public lands unless they are described as prohibited or restricted. Permits would be granted dependent on resource concerns. These permits would include required stipulations to minimize harvesting impacts. This could avoid conflicts between subsistence trapping and woodland harvest activities.

Under Alternative B, recreation on BLM-managed lands in the planning area would be managed as SRMA (355,799 acres), ERMA (13,110,096 acres), or CFZs (818,395 acres) within the ERMA and would have an OHV designation of “Limited.” Compared with Alternative A, there would be a reduction in the potential for user conflicts. The 355,799-acre INHT SRMA would provide outcome-focused management objectives and setting characteristics intended to reduce conflicts while supporting trail-based recreation activities and positive user experiences. Alternative B applies a CFZ within a 10-mile buffer surrounding BSWI communities. SRPs for hunting guide/outfitter businesses would not be authorized within a 10-mile radius of any established community in the planning area. This would reduce conflicts with subsistence users in comparison to Alternative A, although shuttle service operations would be allowed throughout the ERMA with a required SRP.

OHV designation in the Unalakleet Wild River Corridor would be limited. Casual summer access would be prohibited, and subsistence summer access would be limited to existing trails, primitive roads, and roads. This would remove potential for use conflicts between recreational and subsistence users. Winter casual use would be allowed by snowmobile only, providing for recreation opportunities that do not cause resource damage. Because winter recreation use is low, it is not expected to conflict with subsistence or other casual uses of the area.

Casual use of airboats and hovercraft would not be allowed in Innoko Bottoms Priority Wildlife Habitat Area. Restrictions on airboats and hovercraft would reduce disturbance impacts to subsistence resources and avoid conflicts with recreational users.

Alternative B would be more restrictive on summer overland travel for casual use (565,955 acres, 4 percent of the planning area) than for subsistence uses. Alternative B is more restrictive on overland travel than Alternatives C, D, and E. OHV restrictions would impede subsistence activities but would also minimize impacts to subsistence resources and reduce the potential for competition between casual and subsistence users by providing more access to more of the planning area for subsistence uses. However, the 241,512 acres (about 2 percent of BLM-managed land in the planning area) that would be closed to summer subsistence OHV use would impact access to hunting, fishing, and harvesting subsistence use areas. Closures for summer OHV use could affect access to subsistence resources for a longer duration throughout the year as a result of later freeze-up and earlier thawing of rivers that has been observed in the BSWI area used for winter travel. Section 811 of ANILCA ensures that rural residents engaged in subsistence uses have reasonable access to subsistence resources on public lands.

Designation of the two connectivity corridors and Innoko Bottoms Priority Wildlife Habitat Area and associated management actions under Alternative B would minimize impacts to subsistence resources, reduce subsistence conflict with recreation use in those areas, allow species important for subsistence to respond as environmental conditions change, and potentially provide connectivity of subsistence users to resources on NWRs.

Alternative B may result in a significant restriction to subsistence uses for the communities of Aniak, Anvik, Crooked Creek, Chuathbaluk, Grayling, Holy Cross, Kaltag, Lime Village, Lower Kalskag, Upper Kalskag, Marshall, McGrath, Nikolai, Shageluk, Sleetmute, Stony River, and Unalakleet. For the communities of Aniak, Crooked Creek, Chuathbaluk, Lower Kalskag, McGrath, Sleetmute, and Upper Kalskag, locatable mineral decisions may cause a large reduction in the abundance of fish, moose, and caribou harvesting and a major redistribution of fish, caribou and moose. In the communities of Anvik, Grayling, Kaltag, Lime Village, McGrath, Nikolai, Shageluk, Sleetmute, Stony River, and Unalakleet, OHV restrictions and prohibitions for subsistence users would decrease access to moose, caribou, and

fishing locations. For the communities of Aniak, Crooked Creek, Holy Cross, Kaltag, Lime Village, Marshall, McGrath, Nikolai, Sleetmute, Unalakleet, and Upper Kalskag, ROW decisions may cause a major redistribution of moose, caribou, and fish resources. Appendix R-1 provides a detailed analysis by community that supports these findings.

Effects from Alternative C

There would be 15,035 river miles (46 percent of streams in the planning area) within HVWs under Alternative C. Surface disturbing activities would be prohibited within the 100-year floodplain of HVWs under Alternative C. This is less area with surface disturbing prohibitions than under Alternative B, which prohibits surface-disturbing activities within the 100-year floodplain of all streams in the planning area and not just streams within HVWs. Therefore, the incidental beneficial impacts to subsistence fish resources would be less than under Alternative B. Compared to Alternative B, this alternative has a greater potential to impact fish and aquatic resources due to fewer exclusions to surface-disturbing activities in or around streams or waterbodies. Within HVWs (with the exception of locatable and salable mineral development and permitted activities by other agencies [ADF&G] and subsistence users for permitted camps), most surface-disturbing activities would be restricted. As discussed in Appendix R, HVWs and associated management actions described above would serve to avoid and minimize impacts to distribution and abundance of subsistence resources by maintaining the quality and diversity of areas of high fish and wildlife habitat value and river-based subsistence to a greater extent than Alternatives D and E but to a lesser magnitude and geographic extent than Alternative B.

There would be fewer restrictions to the possibility of surface-disturbing mineral actions, OHV use, and woodland harvest that would minimize impacts to vegetation and SSS flora than under Alternative B. Alternative C recommends the use of native species for revegetation of disturbed areas but would allow nonnative seed and propagules to be considered if applicable for the climatic condition and ecosystem function and if native plant species were not available or feasible. The use of nonnative plant species for restoration could lead to an adverse effect to subsistence users if reduction of the availability of plants traditionally used for subsistence purposes occurred and therefore affected harvest rates of traditionally used resources.

Alternative C would restrict development on BLM-managed land in one connectivity corridor with the South Connectivity Corridor (576,038 acres; 4 percent). Management actions for the connectivity corridor under Alternative C would be less restrictive for locatable and salable mineral development (which would be allowed) than those under Alternative B. This alternative would maintain similar long-term benefits to ecological resilience in the Innoko Bottoms Priority Wildlife Habitat Area as Alternative B, although the magnitude of improvement to the conservation value of the region and resulting adaptability of wildlife species to environmental changes would be less than Alternative B. Alternative C would not include the North Connectivity Corridor, which intersects the outer range of the Western Arctic Caribou Herd; therefore, that herd could be more affected by changes to environmental conditions than under Alternative B. The range of the Western Arctic Caribou Herd is within the Norton Sound/Unalakleet River Search and Harvest Area (see Maps 3.2.7-4 and 3.5.2-1).

Alternative C includes more restrictions than Alternative D and fewer than Alternative B on construction and mineral development activities, which could interfere with or displace subsistence activities in migratory bird habitat, Innoko Bottoms Priority Wildlife Habitat Area, and in moose and caribou calving and wintering habitat. Restrictions on casual use airboats and hovercraft would be the same as Alternative B. Alternative C would have slightly more impacts than Alternative B and have a greater risk

for disturbance to subsistence resources during certain activities unless impacts are addressed through specific SOPs and BMPs (see Appendix O).

For caribou and moose, the leasable minerals and construction management actions would apply only to calving habitat. While impacts to caribou and moose would be avoided during the breeding period, they could be disturbed in their crucial winter habitat areas. Leasable and salable mineral development would be allowable in known caribou calving areas, but those activities would be required to avoid or minimize impacts to calving caribou and moose from April 15 to May 31. Disturbances during calving periods could cause increased energy expenditures and stresses on wintering populations, which could result in decreased survivorship (Bradshaw et al. 1997). This in turn could affect levels of subsistence hunting success and rates of harvest and sharing. However, due to low potential for leasable development in the planning area, the potential for these impacts is low. Also, although the Innoko Bottoms Priority Wildlife Habitat Area and the South Connectivity Corridor would be open to locatable mineral development under Alternative C, there is no medium or high LMP in that area, so potential impacts would be low based on low likelihood for mineral development.

While currently there is not a high demand for locatable mineral development in the planning area, nor an anticipated future increase in demand, under Alternative C, 13,418,941 acres (over 99 percent) of BLM-managed land in the planning area would be open to the possibility of locatable mineral development, and 6,606,321 acres (about 49 percent) would be open to the possibility of salable mineral development, with another 6,576,064 acres (about 49 percent) open subject to terms and conditions. All areas of medium or high LMP on BLM-managed land would be open to the possibility of locatable mineral development, though over half of this acreage would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected. These areas include important wildlife habitat areas that are important to subsistence. Alternative C would open more areas to the possibility of locatable and salable mineral development than Alternative B, including in areas of medium or high LMP where likelihood for development and associated impacts is highest. While Alternative C would open fewer areas to the possibility of salable mineral development than Alternative A, Alternative C has more land that is open to salable mineral development subject to terms and conditions. This means that Alternative C has the potential to open more areas than Alternative A when both types of lands are considered. Potential for salable mineral development is generally low in the planning area. Alternative C would open more areas of medium or high LMP (where development is more likely) to the possibility of locatable mineral development than Alternative A. There would be a greater potential for a higher magnitude of potential impacts to subsistence resources over a greater geographic extent than Alternative A. The communities most likely to experience impacts to availability of subsistence resources from potential locatable mineral development under Alternative C include Aniak, Crooked Creek, Chuathbaluk, Lower Kalskag, McGrath, Sleetmute, and Upper Kalskag.

The area designated as NSO leasable (6,863,464 acres; 51 percent) and closed to leasing (46,953 acres; less than 1 percent) would be less than under Alternative B, and 6,555,476 acres (49 percent) would be open to the possibility of leasing with standard stipulations. Therefore, assuming such leasing were to occur, this alternative would be more likely to impact wildlife and subsistence resources from mineral leasing than Alternative B.

Alternative C would have a greater risk for habitat fragmentation and degradation affecting availability of subsistence resources than Alternative B, because there would be more acres open to the possibility of ROW development, no designated ROW exclusion areas, and fewer ROW avoidance areas. Additionally,

a smaller portion of the planning area (7,680,716 acres; 57 percent of the planning area) would be identified as ROW avoidance area (including areas of ROW avoidance for linear realty actions only). Areas outside of ROW avoidance areas, with the greatest potential for habitat loss, degradation, and fragmentation from development of ROWs would include habitats important to subsistence harvest of resources.

The potential increase in wildlife habitat managed by BLM that could affect subsistence in the planning area would be slightly less than Alternative B, with greater reductions in riparian areas and moose calving and wintering areas but the same amount of caribou crucial winter habitat and Innoko Bottoms Priority Wildlife Habitat Area. Available acquisitions would be the same as under Alternative B.

While currently there is not a high demand for commercial woodland harvest within the planning area, nor an anticipated future increase in demand, under Alternative C, there would be 13,418,941 acres (over 99 percent) open to the possibility of commercial and woodland harvesting while 46,953 acres (less than 1 percent) would be closed to commercial woodland harvest. In personal use and subsistence woodland harvest areas, house log harvesting would not be allowed within riparian areas of streams. Personal use gathering of forest firewood of more than 10 cords of firewood per household per year and gathering forestry products would require a permit. All BLM-managed lands outside of the riparian area of streams would be open to subsistence and personal use woodland harvest. This could avoid conflicts between subsistence trapping and woodland harvest activities.

Under Alternative C, 13,125,320 acres would be managed as ERMA, and 340,574 acres would be managed as a SRMA. Within the ERMA, 95,307 acres would be managed as CFZs. Impacts under Alternative C for areas managed as SRMA and ERMA would be similar to Alternative B, with the exception of a slightly smaller SRMA. Casual use would be allowed on existing routes at the Rohn Site. Winter casual and subsistence access would be allowed for snowmobiles only, similar to Alternative B, and impacts from winter travel would be the same as Alternative B. Management actions would provide for increased recreation opportunity during summer months and could also result in increased conflicts between recreational, casual, and subsistence users. Increased use could result in damage to the trail resource, thereby altering recreation setting, opportunity, and experience over time. Summer OHV casual use would be limited to existing routes. Subsistence cross-country summer OHV access on all lands not designated as CSUs would be allowed by ATV and UTV. The area within the ERMA managed as CFZs would be smaller than under Alternative B and therefore there would be a smaller associated beneficial effect. Alternative C applies a CFZ within a 5-mile buffer surrounding BSWI communities. SRPs for hunting guide/outfitter businesses would not be authorized within a 5-mile radius of any established community in the planning area (5-mile radius of all communities includes 95,307 acres of BLM-managed public lands). Shuttle service operations would be allowed without an SRP throughout the ERMA unless increase in use conflicts with the BSWI ERMA objectives, at which point the BLM would engage in additional planning to maintain the objectives. This would reduce potential conflicts with subsistence users compared to Alternatives A and D, to a lesser extent than under Alternative B, and would be the same as Alternative E.

In the Unalakleet Wild River Corridor OHV casual summer access would be limited to existing trails, primitive roads, and roads and would include ATVs only. Subsistence cross-country summer OHV access on lands in the Unalakleet Wild River Corridor would be allowed by ATV. Recreation access in the summer would provide for increased opportunity for conflict. However, due to the wet and boggy condition of the area, summer travel is expected to be minimal such that while damage to the lands

(rutting, braiding) could occur and there could be an increased potential for use conflicts between recreationists and subsistence users, it would be low in terms of magnitude. However, restrictions on summer OHV use could affect access to subsistence resources for a longer duration throughout the year as a result of later freeze-up and earlier thawing of rivers that has been observed in the BSWI area used for winter travel.

Alternative C would be less restrictive on overland subsistence travel than Alternative B and more restrictive than Alternative D.

Designation of one connectivity corridor and Innoko Bottoms Priority Wildlife Habitat Area and associated management actions under Alternative C would minimize impacts to subsistence resources and reduce subsistence conflict with recreation use in those areas, allow species important for subsistence to respond as environmental conditions change, and potentially provide connectivity of subsistence users to resources on NWRs.

Alternative C may result in a significant restriction to subsistence uses for the communities of Aniak, Anvik, Crooked Creek, Chuathbaluk, Grayling, Holy Cross, Kaltag, Lime Village, Lower Kalskag, Upper Kalskag, Marshall, McGrath, Nikolai, Russian Mission, Shageluk, Sleetmute, Stony River, and Unalakleet. For the communities of Aniak, Crooked Creek, Chuathbaluk, Lower Kalskag, McGrath, Sleetmute, and Upper Kalskag, locatable mineral decisions may cause a large reduction in the abundance of fishing resources, and moose and caribou harvesting, and cause a major redistribution of fish, moose, and caribou. In the communities of Anvik, Grayling, Kaltag, Lime Village, Nikolai, Shageluk, Sleetmute, Stony River, and Unalakleet, OHV restrictions and prohibitions for subsistence users would decrease the access to moose, caribou, and fishing locations. For the communities of Aniak, Crooked Creek, Grayling, Holy Cross, Kaltag, Lime Village, Lower Kalskag, Marshall, McGrath, Nikolai, Russian Mission, Shageluk, Sleetmute, Stony River, Unalakleet, and Upper Kalskag, ROW decisions may cause a major redistribution of moose, caribou, and fish resources. Appendix R-1 provides a detailed analysis by community that supports these findings.

Effects from Alternative D

Alternative D proposes management of 13,070 river miles of streams within HVWs (40 percent of river miles on BLM-managed lands). Any proposals to develop land, water, or resources within the 100-year floodplain of HVWs would be required to effectively mitigate or minimize impacts to ensure that aquatic and streambank riparian habitat conditions remain within Potential Natural Condition (PNC, defined in App. B), and that floodplain riparian habitat recovery is accelerated to the maximum extent practicable, including the habitat used for subsistence. Alternative D would provide some management to minimize impacts from surface-disturbing activity in HVWs, but to a lesser extent than Alternatives B or C and would rely on the operator to characterize the potential of streams for reclamation. Because watersheds with medium-high and medium resource values would not be managed as HVWs as proposed in Alternatives B and C, resources in these areas could, depending on the nature and extent of any proposed development, experience some level of degradation due to development activities. They would still be subject the same SOPs and BMPs as Alternatives B and C that could be implemented by the BLM (see Appendix O).

No specific plan level management for SSS flora habitats and lichen areas would be implemented if these areas become degraded by OHV use, and therefore these areas could be subject to degradation. Revegetation of disturbed areas would focus on using plant species that are appropriate for the climatic

condition and ecological function, including nonnative plant species. Potential impacts to vegetation and SSS flora would be higher under Alternative D than under Alternative B, C, or E but still lower than under Alternative A in some cases. There could be a localized adverse effect to subsistence users if native plants important for subsistence uses were not considered in revegetating areas, limiting the abundance and availability of these plants for subsistence harvest and use compared to Alternatives B, C and E. However, subsistence users could respond to a decrease in the availability of an edible plant by harvesting more of another edible resource or harvesting in a different area. This would be limited to a small portion of the planning area and would not necessarily coincide with vegetation subsistence harvest areas.

Alternative D offers fewer restrictions than Alternative B, C, or E on possible construction and mineral development, which if they occur could interfere with or displace subsistence activities in migratory bird habitat, Innoko Bottoms Priority Wildlife Habitat Area, and in moose and caribou calving and wintering habitat. Similar to Alternative A, the BLM would not manage connectivity corridors under Alternative D, which depending on the nature and extent of any proposed development could potentially result in long-term effects to ecological resilience and adaptability in the area. Fewer management actions would exist for caribou and moose, particularly during the winter use period, during which there would be no additional management beyond those described for all action alternatives and the BMPs/SOPs listed in Appendix O. For Innoko Bottoms Priority Wildlife Habitat Area, management actions and effects pertaining to mineral decisions and ROWs would be the same as those under Alternatives C and E. There would be no restrictions on casual use airboats and hovercraft, and therefore no reduction in the potential for impacts to waterbirds and other species from associated disturbance. Because restrictions and mitigations for migratory birds would be determined at the implementation level, it is difficult to assess potential effect levels.

While currently there is not a high demand for locatable mineral development in the planning area, nor an anticipated future increase in demand, Alternative D would open the same amount of acreage to the possibility of locatable mineral development as Alternative C. Alternative D would close the same acreage to salable mineral development as Alternative C (283,509 acres). Unlike Alternative C, where about half the lands open to salable mineral development were subject to terms and conditions, 13,182,385 acres (about 98 percent of the planning area) would be open under Alternative D. Potential impacts to subsistence resources from locatable mineral development would be the same as Alternative C and nearly the same for impacts associated with salable mineral development due to low salable mineral potential and demand in the planning area. Areas that would be open to the possibility of locatable and salable mineral development, in areas of medium to high mineral potential, include important wildlife habitat areas as described in Section 3.2.7. The communities most likely to experience impacts to availability of subsistence resources from locatable mineral development under Alternative D include Aniak, Crooked Creek, Chuathbaluk, Lower Kalskag, McGrath, Sleetmute, and Upper Kalskag.

Alternative D would have the greatest proportion of land designated as open to the possibility of leasing subject to standard stipulations (see Table 2-1b). Therefore if such leasing were to occur, Alternative D could impact fish, wildlife, and SSS important for subsistence from leasable mineral development over a greater geographic extent and higher magnitude than Alternatives B, C, and E. It could have subsistence impacts over a greater geographic extent than Alternative A although the magnitude of impacts would be less due to BMPs, SOPs, and reclamation procedures that would be implemented under Alternative D. Surface-disturbing activities or permanent structures would be allowed within the 100-year floodplain of streams, if permittees demonstrate these activities would not substantively impact floodplain function. If adverse effects resulted from these actions in displacement and disturbance to the resource, then

subsistence activities in these areas and harvest could be affected. BMPs and reclamation procedures under this alternative would be the same as Alternatives B, C and E.

Alternative D would have a higher relative likelihood of wildlife habitat fragmentation and degradation affecting availability of subsistence resources than Alternatives B, C, and E, because there would be no designated ROW exclusion areas, and the acreage of ROW avoidance areas would be less than Alternative C (5,163,653 acres; 38 percent of the planning area). Areas outside of ROW avoidance areas with the greatest potential for habitat loss, degradation, and fragmentation from development of ROWs include habitats that are important for subsistence resources.

BLM would not pursue opportunities to acquire public land under Alternative D, so there would be no potential increase in BLM-managed wildlife habitat. This alternative would result in the similar but potentially slightly greater impacts to reduction in the amount of wildlife habitat under BLM management from exchange and/or disposal as Alternatives B, C, and E, but there would be no available acquisitions of these habitats to help offset the losses. Overall, Alternative D could have a greater adverse impact on fish and wildlife habitat and related subsistence resources than Alternatives A, B, C, and E, in terms of the geographic extent of key wildlife habitats important for subsistence on lands available for exchange or disposal.

While currently there is not a high demand for commercial woodland harvest in the planning area, nor an anticipated increase in future demand, under Alternative D, there would be 13,465,894 acres (100 percent) open to the possibility of commercial and woodland harvesting. Under this alternative, subsistence gathering of forest firewood and forestry products and personal use gathering of forest firewood would not require a permit. Personal use gathering of other forestry products would require a permit. Unless otherwise restricted by other resource management actions in this RMP, all of the planning area would be available for the possibility of subsistence woodland harvest and all areas except for house log harvest in the Unalakleet Wild River Corridor would be available for non-subsistence woodland harvest. Under Alternative D, cutting or otherwise disturbing trees being actively used for trapping would be prohibited. This could avoid conflicts between subsistence trapping and woodland harvest activities.

Under Alternative D, 13,125,320 acres would be managed as ERMA and 340,574 acres as SRMA, same as Alternative C. BLM would designate the INHT SRMA; however, there would be limited additional management beyond that specified in Alternative A to limit SRPs or mitigate user conflicts. Under Alternative D, the BLM's recreation program would accommodate the possibility of increased recreational activities, and these could conflict with each other and with other subsistence or individual users.

OHV designation in the Unalakleet Wild River Corridor would be limited. Casual and subsistence summer access would be the same as Alternative C; however, travel could be by ATV or UTV. Winter access would be the same as under Alternative B. The expanded mode of summer travel would provide increased recreation opportunities. However, due to the wet and boggy condition of the area, summer travel is expected to be minimal such that while damage to the lands (rutting, braiding) could occur, and there could be an increase potential for use conflicts between recreationists and subsistence users it would be low in terms of magnitude, similar to Alternative C. Impacts from winter travel would be identical to Alternative C.

There would be no CFZs applied under this alternative. Alternative D does not propose SRPs for hunting guide/outfitter business authorizations operating within a radius of any established community in the

planning area. Additionally, Alternative D allows shuttle service operations throughout ERMA without an SRP. However, if the ERMA objectives are not being met, BLM would increase monitoring, outreach, education, and/or enforcement at the implementation level. Therefore, Alternative D would result in more potential impacts to subsistence resources than Alternatives B, C, and E.

Alternative D would be somewhat more restrictive on summer overland travel for casual use than for subsistence use in comparison to Alternative A, which has no restrictions. Alternative D would be less restrictive on overland subsistence travel than Alternatives B, C, and E. Alternative D would prohibit casual OHV use on about 2 percent of the planning area and restrict less than 1 percent to existing trails but would have no prohibitions on summer subsistence OHV travel. Since Alternative D would not prohibit summer OHV subsistence access, it would not impact access to subsistence resources for any communities.

Alternative D would not prohibit casual use airboats or hovercraft on non-navigable waterways on BLM-managed land and does not include travel management actions in Innoko Bottoms Priority Wildlife Habitat Area or caribou habitat, so this use could increase potential for conflicts between recreationists and subsistence users. Alternative D would have the least impact on existing access for both casual and subsistence use and would only limit OHV use to existing routes in one area (INHT NTMC TMA), providing opportunities for route network expansion.

Alternative D may result in a significant restriction to subsistence uses for the communities of Aniak, Anvik, Bethel, Crooked Creek, Chuathbaluk, Grayling, Holy Cross, Kaltag, Lime Village, Lower Kalskag, and Upper Kalskag, Marshall, McGrath, Nikolai, Nulato, Russian Mission, Shageluk, Sleetmute, Stony River, and Unalakleet. For the communities of Aniak, Crooked Creek, Chuathbaluk, Lower Kalskag, McGrath, Sleetmute, and Upper Kalskag, locatable mineral decisions may cause a large reduction in the abundance of fishing resources, and moose and caribou harvesting. For all communities in the planning area, OHV use may cause a large reduction in the abundance of moose and caribou and fish resources, and ROW decisions may cause a major redistribution of these resources for all of the communities in the planning area, except Nulato. Appendix R-1 provides a detailed analysis by community that supports these findings.

Effects from Alternative E

There would be 13,070 river miles (about 40 percent of stream river miles in the planning area) and 4,924,662 acres (37 percent of the planning area) within HVWs under Alternative E. The types of management actions applied to HVWs would generally be the same as Alternative C; however, those management actions that were applied to HVW at the watershed-level in Alternative C (5,614,504 acres) would only be applied to the 100-year floodplain under Alternative E (800,995 acres; 6 percent of the planning area). Alternative E would not include HVWs as ROW avoidance areas, unlike Alternatives C and D. Under Alternative E, management actions, such as avoidance of permanent structures and restrictions on surface-disturbing activities or permanent structures are also limited to the 100-year floodplain of streams. Collectively, the incidental beneficial impacts to subsistence fish resources would be less than under Alternatives B, C, and D. The potential impacts to subsistence resources based on HVW decisions would be the greatest under Alternative E compared to the other action alternatives due to the smaller geographic extent upon which restrictive management actions apply.

Compared to Alternative B, Alternative E has a greater relative potential to impact fish and aquatic resources due to fewer exclusions to surface-disturbing activities in or around streams or waterbodies.

Within 100-year floodplains in HVWs (with the exception of locatable and salable mineral development and permitted activities by other agencies [ADF&G] and subsistence users for permitted camps), most surface-disturbing activities would be restricted.

Generally, management actions would minimize impacts to vegetation to a lesser degree than under Alternative B, to a similar degree as Alternative C, and to a greater degree than Alternatives A and D. Requirements pertaining to propagules used in reclamation would be the same as those under Alternative C, and reseeding during reclamation could result in changes to vegetation community composition and function to a greater degree than under Alternative B, but a lesser degree than Alternatives A and D. Overall, minimization of impacts to vegetation and SSS flora would be similar to under Alternative C, less than under Alternative B, and generally greater than under Alternatives A and D. The use of nonnative plant species for restoration could lead to an adverse effect to subsistence users if reduction of the availability of plants traditionally used for subsistence purposes occurred and therefore affected harvest rates of traditionally used resources.

Under Alternative E, potential impacts on wildlife that are subsistence resources from management actions would be of higher magnitude and greater extent than those under Alternative B and similar to Alternatives C and D (Table 3.2.7 2). Under Alternative E, there would be substantially more acreage open to ROW compared to the other alternatives because ROW avoidance would not be applied to HVWs under Alternative E. This would increase the potential for impacts on caribou and moose (wintering), and muskox and wood bison range.

For migratory birds, management actions would be the same as Alternative D, which is less protective of riparian areas and nesting habitat during nesting season than Alternatives B and C.

The BLM would manage one connectivity corridor, the South Connectivity Corridor, the same as under Alternative C, which is more than under Alternatives A and D, which would manage no connectivity corridors, but less than the two corridors proposed under Alternative B. Alternatives C and E would not include the North Connectivity Corridor, and the Western Arctic Caribou Herd could be more affected by changes to environmental conditions than under Alternative B, which may impact subsistence resources. The range of the Western Arctic Caribou Herd is within the Norton Sound/Unalakleet River Search and Harvest Area (see Maps 3.2.7-4 and 3.5.2-1).

For wildlife and subsistence resources in the Innoko Bottoms Priority Wildlife Habitat Area, management actions would be the same as Alternative C, which is the same as Alternative B for Travel Management Decisions. This alternative would maintain similar long-term benefits to ecological resilience in the Innoko Bottoms area as Alternative B, although the magnitude of improvement to the conservation value of the region and resulting adaptability of wildlife species important to subsistence to environmental changes would be less than Alternative B because there would be fewer management prescriptions to minimize impacts in the Innoko Bottoms Priority Wildlife Habitat Area than under Alternative B, which could result in relatively greater impacts to wildlife and SSS from disturbance, habitat loss, and fragmentation from resource uses.

Depending on the nature and extent of permitted activities, management actions under Alternative E could have a greater extent of impacts on important wildlife habitats than Alternative B and in some cases Alternative C, though impacts would generally occur to a lesser extent than under Alternatives A and D. Important wildlife habitats would have more overlap with areas where there are no restrictions on locatable mineral development (in areas of medium and high LMP) than Alternatives A and B, indicating

a higher likelihood for associated impacts to wildlife in these areas, but a similar amount of overlap as Alternatives C and D. Important wildlife habitats would have more overlap with areas open to woodland harvest than Alternatives A and B, but a similar amount of overlap as Alternatives C and D. Important wildlife habitats would have more overlap with areas open to ROW than Alternative B, less overlap than Alternative A, and a similar amount of overlap as Alternatives C and D, except for caribou and moose wintering range, and muskox and bison ranges which would have more overlap than Alternative C or D.

Wildlife management actions pertaining to caribou and moose would be the same as under Alternative C. Overall, the extent and magnitude of impacts to wildlife that are important and subsistence resources would be greater than under Alternatives B and C but lower than under Alternative D.

While currently there is not a high demand for locatable mineral development in the planning area, nor an anticipated future increase in demand, under Alternative E, 13,418,941 acres (over 99 percent) of BLM-managed land in the planning area would be open to locatable mineral development, 9,408,012 acres (70 percent) would be open to salable mineral development, and 3,774,373 acres would be open to salable under terms and conditions. All areas of medium or high LMP on BLM-managed land (565,489 acres) would be open to locatable mineral development, though over half of this acreage would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected. Areas of medium to high mineral potential include important wildlife habitat areas that are important to subsistence. Alternative E would open more areas to the possibility of locatable mineral development than Alternative B and the same number of acres as Alternatives C and D, including in areas of medium or high LMP where likelihood for development and associated impacts is highest. Like Alternatives C and D, some additional locatable mineral exploration could be expected.

There is a greater potential for a relatively higher magnitude of impacts to subsistence resources from locatable mineral development over a greater geographic extent than Alternatives A and B, and the same impacts as Alternatives C and D.

The area designated as NSO leasable (4,062,543 acres; 30 percent) would be less than under Alternatives B and C, and 9,356,398 acres (69 percent) would be open to the possibility of leasing with standard stipulations. Therefore, this alternative would be relatively more likely to impact wildlife and subsistence resources from mineral leasing than Alternatives B and C, although less than Alternative D.

Alternative E would have a relative greater risk for habitat fragmentation and degradation affecting availability of subsistence resources than the other alternatives because there would be 12,542,918 acres open to ROW development and no designated ROW exclusion areas. Additionally, a smaller portion of the planning area (509,798 acres; 4 percent of the planning area) would be identified as ROW avoidance area or ROW avoidance for linear realty actions only (413,179 acres). Areas outside of ROW avoidance areas with the greatest potential for habitat loss, degradation, and fragmentation from development of ROWs would include habitats important to subsistence harvest of resources.

There would be 356,343 acres available for exchange only. Available exchanges and acquisitions under Alternative E would be the same as Alternative C in that no lands would be available for disposal.

While currently there is not a high demand for commercial woodland harvest in the planning area, nor an anticipated future increase in demand, under Alternative E, there would be 13,418,941 acres (over 99 percent) open to the possibility of commercial and woodland harvesting while 46,953 acres (less than 1 percent) would be closed to commercial woodland harvest. Alternative E would be the same as

Alternative C as in personal use and subsistence woodland harvest areas, as house log harvesting would not be allowed within the riparian area of streams. Non-subsistence house log harvesting would be prohibited within designated WSR corridors (46,953 acres). Subsistence gathering of forest firewood and forestry products would not require a permit. Personal use gathering of more than 10 cords of firewood per household per year and gathering forestry products would require a permit. All BLM-managed lands outside of areas identified as prohibited or closed would be open to all subsistence and personal use woodland harvest. As with all other alternatives, cutting or otherwise disturbing trees actively used for trapping would be prohibited. This could avoid conflicts between subsistence trapping and woodland harvest activities.

Under Alternative E, 95,307 acres (less than 1 percent of the planning area) would be managed as ERMA and 340,574 acres (3 percent of the planning area) as SRMA. The remainder of the planning area would be undesignated recreation lands. Under Alternative E, 95,307 acres would be managed as CFZs.

Alternative E applies a CFZ within a 5-mile buffer surrounding BSWI communities. SRPs for hunting guide/outfitter businesses would not be authorized within a 5-mile radius of any established community in the planning area (5-mile radius of all communities includes 95,307 acres of BLM-managed public lands). Shuttle service operations would be allowed without an SRP throughout the ERMA unless increase in use conflicts with the BSWI ERMA objectives, at which point the BLM would engage in additional planning to maintain the objectives. This would reduce conflicts with subsistence users compared to Alternatives A and D, although to a lesser extent than under Alternative B. Impacts to subsistence resources from the establishment of CFZs would be similar to Alternative C.

Casual OHV use would be allowed on existing routes at the Rohn Site. Winter casual and subsistence access would be allowed for snowmobiles only, similar to Alternative C, and impacts from winter travel would be the same as Alternative C. Management actions would provide for increased recreation opportunity during summer months and could also result in increased conflicts between recreational, casual, and subsistence users. Increased use could result in damage to the trail resource, thereby altering recreation setting, opportunity, and experience over time. Summer OHV casual use would be limited to existing routes. Subsistence cross-country summer OHV access on all lands not designated as CSUs would be allowed by ATV and UTV.

In the Unalakleet Wild River Corridor OHV casual summer access would be limited to existing trails, primitive roads, and roads and would include ATVs only. Subsistence cross-country summer OHV access on lands in the Unalakleet Wild River Corridor would be allowed by ATV. Recreation access in the summer would provide for increased opportunity for conflict. However, due to the wet and boggy condition of the area, summer travel is expected to be minimal such that while damage to the lands (rutting, braiding) could occur and there could be an increased potential for use conflicts between recreationists and subsistence users, it would be low in terms of magnitude. However, restrictions on summer OHV use could affect access to subsistence resources for a longer duration throughout the year as a result of later freeze-up and earlier thawing of rivers that has been observed in the BSWI area used for winter travel. Regarding travel and transportation management actions, Alternative E would be the same as Alternative C and is less restrictive on overland subsistence travel than Alternative B and more restrictive than Alternative D.

Designation of one connectivity corridor and Innoko Bottoms Priority Wildlife Habitat Area and associated management actions under Alternative E, similar to Alternative C, would minimize impacts to subsistence resources and reduce subsistence conflict with recreation use in those areas, allow species

important for subsistence to respond as environmental conditions change, and potentially provide connectivity of subsistence users to resources on NWRs.

Alternative E may result in a significant restriction to subsistence uses for the communities of Aniak, Anvik, Crooked Creek, Chuathbaluk, Grayling, Holy Cross, Kaltag, Lime Village, Lower Kalskag, Upper Kalskag, Marshall, McGrath, Nikolai, Nulato, Russian Mission, Shageluk, Sleetmute, Stony River, and Unalakleet. For the communities of Aniak, Crooked Creek, Chuathbaluk, Lower Kalskag, McGrath, Sleetmute, and Upper Kalskag, locatable mineral decisions may cause a large reduction in the abundance of fish, moose, and caribou harvesting and a major redistribution of fish, caribou, and moose. In the communities of Anvik, Grayling, Kaltag, Lime Village, Nikolai, Shageluk, Sleetmute, Stony River, and Unalakleet, OHV restrictions and prohibitions for subsistence users would decrease the access to moose, caribou, and fishing locations. For the communities of Aniak, Anvik, Chuathbaluk, Crooked Creek, Grayling, Holy Cross, Kaltag, Lime Village, Lower Kalskag, Marshall, McGrath, Nikolai, Nulato, Russian Mission, Shageluk, Sleetmute, Stony River, Unalakleet, and Upper Kalskag, ROW decisions may cause a major redistribution of moose, caribou, and fish resources. Appendix R-1 provides a detailed analysis by community that supports these findings.

Cumulative Effects

Past and Present Actions

Residents harvest a wide variety of wild fish, wildlife, and vegetation for myriad purposes including for food, fuel, arts and crafts, tools, and clothing. Past and present activities have disturbed and displaced some subsistence resources and activities, but harvest levels and practices are anticipated to continue. Donlin Gold's proposed mine could result in restrictions to subsistence uses for communities along the Kuskokwim River (Bethel, Tuntutuliak, Napakiak, Napaskiak, Oscarville, Kwethluk, Akiachak, Akiak, Tuluksak, Upper and Lower Kalskag, Aniak, Chuathbaluk, Napaimute, and Crooked Creek) and communities along the gas pipeline ROW (McGrath, Takotna, and Nikolai). Trend: No change overall for wildlife habitat important for subsistence resources but degrading for some species and improving for others.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative A)

With the trends of continued natural resource development and increased casual and recreational use in the planning area, some subsistence resources could continue to be degraded and some subsistence users could face increased competition for resources. Donlin Gold's proposed mine could result in a restriction to subsistence uses for communities along the Kuskokwim River (Bethel, Tuntutuliak, Napakiak, Napaskiak, Oscarville, Kwethluk, Akiachak, Akiak, Tuluksak, Upper and Lower Kalskag, Aniak, Chuathbaluk, Napaimute, and Crooked Creek) and communities along the gas pipeline ROW (McGrath, Takotna, and Nikolai). The development of ancillary facilities, temporary access roads, and airstrips in association with the pipeline could result in unintended development along this corridor, which affects subsistence gathering regions. Existing designations that manage aquatic and terrestrial habitats, such as ACECs and WSRs, would minimize impacts to sensitive areas important for the management of subsistence values. Trend: Existing trends would continue, with no trend overall, but degrading for some species important to subsistence and improving for others. With increased development in the planning area, species with affected habitat could experience a trend of increased degradation or lessened improvement at a similar rate.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative B)

With the trends of continued natural resource development and increased casual and recreational use in the planning area, some subsistence resources could continue to be degraded and some subsistence users could face increased competition for resources. Alternative B would provide more management prescriptions than the other alternatives for the maintenance and perpetuation of subsistence resources indirectly affected by the development of the Donlin Gold Project and the associated natural gas pipeline. Trend: Improving. It is expected that implementing Alternative B would result in an improved trend for most fish and wildlife that are subsistence resources. For species with habitat or populations that are degrading, this alternative would lessen the rate of degradation or stabilize or counter the existing trend. For species with habitat or populations that are improving, this alternative would allow the improvement to continue at a similar or greater rate.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative C)

With the trends of continued natural resource development and increased casual and recreational use in the planning area, some subsistence resources could continue to be degraded and some subsistence users could face increased competition for resources. Alternative C would minimize impacts to subsistence use to a greater extent than Alternatives A, D, and E but to a lesser extent than Alternative B for the maintenance and perpetuation of subsistence resources indirectly affected by the development of the Donlin Gold Project and the associated natural gas pipeline. Trend: Varies between species important to subsistence. It is expected that implementing Alternative C would result in a degrading trend for most fish and wildlife that are subsistence resources, though this trend would be less than Alternative A. With the trends of continued natural resource development and increased casual and recreational use in the planning area, subsistence resources would continue to be degraded, and subsistence users could face increased competition for available resources by non-local users. For species with habitat or populations that are degrading, the degradation could continue but at a lesser rate and could be stabilized.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative D)

With the trends of continued natural resource development and increased casual and recreational use in the planning area, some subsistence resources could continue to be degraded and some subsistence users could face increased competition for resources. Donlin Gold's proposed mine could result in restrictions to subsistence uses for communities along the Kuskokwim River (Bethel, Tuntutuliak, Napakiak, Napaskiak, Oscarville, Kwethluk, Akiachak, Akiak, Tuluksak, Upper and Lower Kalskag, Aniak, Chuathbaluk, Napaimute, and Crooked Creek) and communities along the gas pipeline ROW (McGrath, Takotna and Nikolai). Trend: Varies between species important to subsistence, stable or declining. With the trends of continued natural resource development and increased casual and recreational use in the planning area, subsistence resources would continue to be degraded, and subsistence users could face increased competition for available resources by non-local users. For forest and woodland-dwelling species and species in areas of medium to high LMP that are important as subsistence resources potential, trends could degrade as a result of the cumulative effects of future development, climate change, and fragmentation of habitats. These species would experience a trend of increased degradation or lessened improvement.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative E)

With the trends of continued natural resource development and increased casual and recreational use in the planning area, some subsistence resources could continue to be degraded and some subsistence users

could face increased competition for resources. Alternative E would minimize impacts to subsistence use to a greater extent than Alternative A but to a lesser extent than Alternatives B, C, and to a similar extent as Alternative D for the maintenance and perpetuation of subsistence resources indirectly affected by the development of the Donlin Gold Project and the associated natural gas pipeline. Trend: Varies between species important to subsistence. It is expected that implementing Alternative E would result in a degrading trend for most fish and wildlife that are subsistence resources, though this trend would be less than Alternative A. With the trends of continued natural resource development and increased casual and recreational use in the planning area, subsistence resources would continue to be degraded, and subsistence users could face increased competition for available resources by non-local users. For species with habitat or populations that are degrading, the degradation could continue but at a lesser rate and could be stabilized.

3.5.3 Hazardous Materials and Health and Human Safety

Affected Environment

Abandoned Mines on BLM-Managed Public Lands

A search of the ADEC Contaminated Sites Database (ADEC 2016) indicates there are two active contaminated sites on BLM-managed lands in the planning area: Red Devil Mine and Kolmakof Mine.

The Red Devil Mine is located on the south bank of the Kuskokwim River, 1.5 miles upstream from the village of Red Devil and 8 miles downstream from Sleetmute. The site was mined from 1933 to 1971, yielding approximately 35,000 2.5-quart flasks of mercury. Extensive underground and surface mining occurred, and mine tailings and processing wastes were disposed of on site. The BLM began addressing hazardous materials and physical safety hazards at the site in 1987. Initial efforts focused on removing the remaining processing chemicals and polychlorinated biphenyls in transformers and backfilling open mine shafts and adits. In 2002, the derelict mine buildings and mercury production facilities were demolished and buried in on-site landfills. Since 2003, BLM has been addressing multiple fuel spills discovered around the site. Since 2009, BLM has been conducting a CERCLA Remedial Investigation/Feasibility Study to address heavy metals issues related to the past mining operation.

The Kolmakof Mine site is an abandoned cinnabar mine on the north bank of the Kuskokwim River, located approximately 19.5 miles east of Aniak and approximately 10 miles west of Napaimute. The site was mined from 1838 to 1970. BLM conducted a CERCLA Environmental Engineering and Cost Analysis for the site from 2008 through 2012, with a Removal Action Memorandum signed in May 2013. Since then, BLM has achieved all cleanup/removal objectives except at the former mercury retorting area.

Public Safety

The BLM-managed lands in the planning area are generally far from communities and are reached by the public mainly by snowmobile, dogsled, or boat. One ranger is currently employed to oversee the entirety of the BLM-managed lands included in the Anchorage Field Office, which includes the BSWI, Bay, Kobuk-Seward, and Ring of Fire planning areas. To access most of the BLM-managed lands, the ranger pilots a small Cessna 206 aircraft. The degree to which the ranger flies this airplane is made on a flight-by-flight basis considering management, budget, and law enforcement parameters. Alaska State Troopers have primary law enforcement responsibility within the planning area; one State Trooper could be responsible for as many as 10 communities.

Direct and Indirect Effects

Table 3.5.3-1 below summarizes the nature and types of beneficial or adverse effects that could occur to hazardous materials and health and human safety, the proposed management actions that could influence those effects, and the indicators used to measure the potential magnitude and extent of the effects. Table 3.5.3-2 discloses the potential magnitude and extent of the effects by indicator across alternatives (acres given are approximate).

Table 3.5.3-1: Summary of Potential Effects to Hazardous Materials and Health and Human Safety by Management Action

Types of Effects	Management Actions	Indicators
Management of BLM lands could result in the uncontrolled release of hazardous materials to sensitive receptors.	- Water Resources Decisions - Mineral Decisions - BMPs and Mitigation Measures for Restoration and Reclamation of Surface-Disturbing Activities	- Permit application, monitoring, and closeout - Amount of land that is publicly accessible from transportation channels and methods such as trails and OHV and snowmobile routes - Areas, including location and size, that have been identified and managed as being subject to surface-disturbing activities - Number of ROW authorizations, grants, and leases that have been issued
Management actions could result in hazardous site conditions that could impact health and human safety.	- Water Resources Decisions - Mineral Decisions - BMPs and Mitigation Measures for Restoration and Reclamation of Surface-Disturbing Activities	- Permit application, monitoring, and closeout - Amount of land that is publicly accessible from transportation channels and methods such as trails and OHV and snowmobile routes - Areas, including location and size, that have been identified and managed as being subject to surface-disturbing activities - Number of ROW authorizations, grants, and leases that have been issued
Actions resulting from the management of BLM lands could impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	- Mineral Decisions - Wildland Fire Management Decisions - BMPs and Mitigation Measures for Restoration and Reclamation of Surface-Disturbing Activities	- Permit application, monitoring, and closeout - Amount of land that is publicly accessible from transportation channels and methods such as trails and OHV and snowmobile routes - Areas, including location and size, that have been identified and managed as being subject to surface-disturbing activities - Number of ROW authorizations, grants, and leases that have been issued
Management decisions could expose people or structures to a higher likelihood of loss, injury, or death involving wildland fires.	Wildland Fire Management Decisions	- Areas, including location and size, that have been identified and managed as being subject to surface-disturbing activities - Number of ROW authorizations, grants, and leases that have been issued - Acres managed as ACECs

Table 3.5.3-2: Portions of Planning Area Analyzed for Potential Impacts to Hazardous Materials and Health and Human Safety by Indicator

Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Permit application, monitoring, and closeout	No cumulative management decisions for floodplains	Minimum distances from perennial bodies of water for human waste disposal. BLM would require a spill prevention control and countermeasures plan for activities that meet certain thresholds. No hazardous materials would be allowed to be stored within the 100-year floodplain or within 100 feet of surface waters.	Minimum distances from perennial bodies of water for human waste disposal. BLM would require a spill prevention control and countermeasures plan for activities that meet certain thresholds. No hazardous materials would be allowed to be stored within the 100-year floodplain or within 100 feet of surface waters.	Minimum distances from perennial bodies of water for human waste disposal. BLM would require a spill prevention control and countermeasures plan for activities that meet certain thresholds. No hazardous materials would be allowed to be stored within the 100-year floodplain or within 100 feet of surface waters.	Minimum distances from perennial bodies of water for human waste disposal. BLM would require a spill prevention control and countermeasures plan for activities that meet certain thresholds. No hazardous materials would be allowed to be stored within the 100-year floodplain or within 100 feet of surface waters.

Resource Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Amount of land that is publicly accessible from transportation channels and methods such as trails and OHV and snowmobile routes	46,953 acres (<1%)¹ would have summer casual OHV access prohibited 46,953 acres (<1%)¹ would have summer subsistence OHV access prohibited - Rest of planning area is undesignated and therefore open	565,955 acres (4%)¹ would have summer casual OHV access prohibited 241,512 acres (2%)¹ would have summer subsistence OHV access prohibited 12,899,939 acres (96%)¹ would have summer casual OHV access limited to existing trails 324,443 acres (2%)¹ would have summer subsistence OHV access limited to existing trails	225,925 acres (2%)¹ would have summer casual OHV access prohibited 225,925 acres (2%)¹ would have summer subsistence OHV access prohibited 13,239,969 acres (98%)¹ would have summer casual OHV access limited to existing trails 363 acres (<1%)¹ would have summer subsistence OHV access limited to existing trails	225,925 acres (2%)¹ would have summer casual OHV access prohibited 0 acres (0%)¹ would have summer subsistence OHV access prohibited 46,953 acres (<1%)¹ would have summer casual OHV access limited to existing trails 225,925 acres (2%)¹ would have summer subsistence OHV access limited to existing trails	225,925 acres (2%)¹ would have summer casual OHV access prohibited 225,925 acres (2%)¹ would have summer subsistence OHV access prohibited 13,239,969 acres (98%)¹ would have summer casual OHV access limited to existing trails 363 acres (<1%)¹ would have summer subsistence OHV access limited to existing trails
Areas, including location and size, potentially subject to surface-disturbing activity from locatable mineral development	294,325 acres open to locatable mineral development in medium to high LMP (52%) ³	167,018 acres open to locatable mineral development in medium to high LMP (30%) ³	565,489 acres open to locatable mineral development in medium to high LMP (100%) ³	565,489 acres open to locatable mineral development in medium to high LMP (100%) ³	565,489 acres open to locatable mineral development in medium to high LMP (100%) ³
Acres segregated due to selection in areas of medium or high LMP ²	195,632 (35%) ³	100,426 (18%) ³	317,531 (56%) ³	317,531 (56%) ³	317,531 (56%) ³
Number of ROW authorizations, grants, and leases issued	Open to ROW location: 13,465,894 acres (100%)^{1,4}	- ROW exclusion: 1,464,069 acres (11%)¹ - ROW avoidance: 8,895,920 acres (66%)¹ - ROW avoidance for linear realty actions: 0 acres (0%) - Open to ROW location: 3,105,905 acres (23%)^{1,3} - ROW available for exchange only: 341,761 acres (2%)¹	- ROW exclusion: 0 acres (0%)¹ - ROW avoidance: 7,528,8638 acres (56%)¹ - ROW avoidance for linear realty actions: 151,853 acres (1%) - Open to ROW location: 5,785,178 acres (43%)^{1,3} - ROW available for exchange only: 356,343 acres (3%)¹	- ROW exclusion: 0 acres (0%)¹ - ROW avoidance: 5,163,653 acres (38%)¹ - ROW avoidance for linear realty actions: 0 acres (0%) - Open to ROW location: 8,302,241 acres (62%)^{1,3} - ROW available for exchange only: 0 acres (0%)¹	- ROW exclusion: 0 acres (0%)¹ - ROW avoidance: 509,798 acres (4%)¹ - ROW avoidance for linear realty actions: 413,179 acres (3%) - Open to ROW location: 12,542,918 acres (93%)^{1,3} - ROW available for exchange only: 356,343 acres (3%)¹
Acres managed as ACECs	1,884,376 acres (14%) ¹	3,912,698 acres (29%) ¹	0 acres (0%) ¹	0 acres (0%) ¹	0 acres (0%) ¹

Notes:

1) Percentage is based on all BLM-managed lands in the planning area.

2) State top-filings that become valid selections due to ANCSA corporation selections being relinquished or rejected will be managed like all other State selections. Alternatives that recommend revocation of 17(d)(1) withdrawals where the withdrawal prevents State selections would allow for the State selections to become valid once revocation is complete. These lands would be managed like all other State selections.

3) Percentage is based on all medium and high LMP areas on BLM-managed land in the planning area.

4) Includes acres identified as open and open on a case-by-case basis.

Effects from Alternative A

Alternative A would be a continuation of current policies, which would generally minimize impacts on health and human safety to a lesser extent than the action alternatives. Most management actions under Alternative A would not have a quantifiable impact on hazardous materials and health and human safety but could have a qualitative impact due to increased or decreased risk and exposure to hazardous

environmental conditions. There are no specific restrictions for development in floodplains under Alternative A, which could expose more people to risks if hazardous materials are stored in the floodplains and could lead to safety concerns in the event of a flood. Alternative A would manage vegetation adjacent to populated areas to reduce risk of wildland fires but lacks the specifics of wildland fire management that Alternatives B, C, D, and E would provide.

Management of surface-disturbing mineral actions, ROW authorization, and OHV use could expose the public or BLM employees to hazardous materials or unsafe conditions. Table 3.5.3-2 lists the acreages of land that could be impacted under Alternative A. In general, extents of land that could be subject to these actions are identified less precisely than under the action alternatives. OHV use could occur anywhere in the planning area, though it would more likely be restricted to commonly used travel, subsistence, and recreation routes. While currently there is not a high demand for locatable mineral development in the planning area, nor an anticipated future increase in demand, Alternative A would have 294,325 acres of high or medium mineral potential land that would be open to locatable and closed to salable mineral developments. This acreage is greater than Alternative B and less than Alternatives C, D, and E.

Effects Common to All Action Alternatives

Risks to health and human safety could result where vegetation and soil conditions degrade to the extent that the ground becomes unstable. Minimization of surface-disturbing activities would lead to fewer impacts to hazardous materials and health and human safety. Using existing roads and trails where feasible would minimize the potential safety impacts from construction of new roads and trails. Avoiding the use of heavy equipment and overland travel in snow-free months, avoiding the creation of new roads and trails in wetlands and floodplains, and minimizing disturbance to riparian communities would minimize the vegetation and soil degradation in these areas.

All of the action alternatives would include national trails management actions to ensure that visitors are not exposed to unhealthy or unsafe human-created conditions. These management actions would seek to manage conflicts between recreation participants and other resource and/or resource uses and also between users and property owners to decrease illegal trespassing, all to decrease the potential for harmful interactions between conflicting uses.

Effects from Alternative B

Alternative B would include the greatest restrictions to surface-disturbing activities and potential use conflicts under all the alternatives, including limitations on mining, casual summer OHV use, and ROW authorizations. This alternative would have the smallest extent of potential impacts to hazardous materials and health and human safety (see Table 3.5.3-2). While currently there is not a high demand for locatable mineral development in the planning area, nor an anticipated future increase in demand, Alternative B has the lowest number of acres of high or medium mineral potential land that would be open to locatable and closed to salable mineral developments.

Under Alternative B, acres of ROW exclusion and avoidance, vegetation buffers, floodplain management, OHV restrictions, land closures, and management actions applied to designated ACECs are higher than all other alternatives. Limiting use of or the degree of surface-disturbing activities helps to minimize the possibility of release or exposure to hazardous materials and limits the safety risks inherent in the various uses of the land.

ACECs afford numerous restrictions such as closure to commercial woodland harvest, ROW avoidance, recommended withdrawal from locatable mineral entry, NSO for leasable mineral development, closure to salable mineral development, and limitation on casual summer OHV use to existing trails. These restrictions would minimize impacts by limiting access to ACEC areas and helping to maintain natural conditions in the area.

Effects from Alternative C

ROW avoidance areas, vegetation buffers, floodplain management, limitations on casual summer OHV use, and land closures under Alternative C are not as extensive as Alternative B but would minimize impacts to ROW areas to a greater degree than under Alternatives A, D, and E, and impacts to casual summer OHV use to a greater degree than under Alternatives A and D. Acreages of these restrictions are presented in Table 3.5.3-2. Limiting use of or the degree of surface-disturbing activities helps to minimize the possibility of release or exposure to hazardous materials and limits the safety risks inherent in the various uses of the land. Overall, management under Alternative C would have greater impacts to hazardous materials and health and human safety than under Alternative B but less impact than under Alternatives A, D, and E with the exception of impacts to hazardous materials and risks to health and human safety from mineral development activities and ACEC management actions, which are the same as Alternatives D and E.

While currently there is not a high demand for locatable mineral development in the planning area, nor an anticipated future increase in demand, Alternative C would withdraw more lands from locatable development and close more acres to salable development than Alternative A, it would open 565,489 acres to the possibility of locatable mineral development in areas of medium or high potential where development is most likely to occur (though over half of this acreage would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected). Alternative C would have more acres open to locatable development in medium or high potential areas than Alternatives A and B and the same acres open to locatable development in medium to high potential areas as Alternatives D and E.

Alternative C would have no ACECs; however, because Alternative A does not include specific restrictions associated with ACECs, impacts to hazardous materials and health and human safety due to ACEC management actions would be similar for both alternatives. Limiting use of or the degree of surface-disturbing activities helps to minimize the possibility of release or exposure to hazardous materials and limits the safety risks inherent in the various uses of the land.

Effects from Alternative D

Alternative D would have fewer restrictions to surface-disturbing activities and potential use conflicts for casual OHV use than Alternatives C and E, fewer limitations on mining than Alternatives A and B, and more acres open to ROW locations than Alternatives B and C but fewer acres open compared to Alternatives A and E. Except for Alternative E, this alternative generally would have the most potential impacts to hazardous materials and health and human safety of all the action alternatives. Acreages of these restrictions are presented in Table 3.5.3-2. While currently there is not a high demand for locatable mineral development in the planning area, nor an anticipated future increase in demand, Alternative D has more acres of high or medium LMP that would be open to locatable and closed to salable mineral developments as compared to Alternatives A and B but the same as Alternatives C and E.

ROW avoidance areas are not as extensive as Alternatives B and C. Casual summer OHV access under Alternative D is more extensive than under Alternatives B, C, and E but would minimize impacts to a greater extent than under Alternative A. Similar to Alternatives C and E, Alternative D would have no ACECs, and for the reasons described under Alternative C, impacts to hazardous materials and health and human safety due to ACEC management actions would be similar for Alternatives A, C, and E. Overall, management under Alternative D would have greater impacts to hazardous materials and health and human safety than under Alternative B and C but less impacts than under Alternatives A and E.

Effects from Alternative E

Vegetation buffers, floodplain management, OHV management, and land closures under Alternative E would be similar to Alternative C. However, there would be substantially fewer acres of ROW avoidance under Alternative E than all other action alternatives. Acreages of these restrictions are presented in Table 3.5.3-2. Limiting use of or the degree of surface-disturbing activities helps to minimize the possibility of release or exposure to hazardous materials (the assumption being that the materials are not as present due to fewer development activities) and limits the safety risks inherent in the various uses of the land. Overall, management under Alternative E would have relatively greater impacts to hazardous materials and health and human safety than under Alternative B and slightly greater impacts than under Alternatives C and D, with the exception of impacts from mineral development activities and ACEC management actions, which are the same as Alternatives C and D.

While currently there is not a high demand for locatable mineral development in the planning area, nor an anticipated future increase in demand, Alternative E would withdraw more lands from locatable development and close more acres to salable development than Alternative A, it would open 565,489 acres to the possibility of locatable mineral development in areas of medium or high potential where development is most likely to occur, the same as Alternatives C and D (though over half of this acreage would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected). Alternative E would have more acres open to locatable development in medium to high potential areas than Alternatives A and B and the same acres open as Alternatives C and D.

As with Alternatives C and D, Alternative E would have no ACECs; however, because Alternative A does not include specific restrictions associated with ACECs, impacts to hazardous materials and health and human safety due to ACEC management actions would be similar for both alternatives. Limiting use of or the degree of surface-disturbing activities helps to minimize the possibility of release or exposure to hazardous materials and limits the safety risks inherent in the various uses of the land.

Cumulative Effects

Past and Present Actions

The lack of development and access to the planning area has limited the risks from hazardous materials and threats to health and human safety. Trend: Stabilized.

Past, Present, and Reasonably Foreseeable Future Actions (Alternative A)

Continued resource uses and community development would occur. Past, present, and reasonably foreseeable future actions would represent increased opportunities for exposure to hazardous materials and safety risks due to the anticipated uses of the land, which include inherently dangerous activities such

as mining and OHV and snowmobile use. Other reasonably foreseeable actions include access road development and potential for new energy development, which could increase the opportunities for exposure or release of hazardous materials and present new health and human safety concerns throughout the planning area. Trend: Degrading, with a potential for impacts due to hazardous materials and health and human safety risks.

Past, Present, and Reasonably Foreseeable Future Actions (Alternatives B, C, D, and E)

Under the action alternatives, site-specific reductions in cumulative contributions to hazardous materials and health and human safety risks could occur from a reduction in human uses. Resource uses and community development would continue. Reasonably foreseeable future actions would represent increased opportunities for exposure to hazardous materials and safety risks due to the anticipated uses of the land, which include inherently dangerous activities such as mining and OHV and snowmobile use. Other reasonably foreseeable actions include access road development and potential for new energy development, which could increase the opportunities for exposure or release of hazardous materials and present new health and human safety concerns throughout the planning area. There is a potential for impacts due to hazardous materials and health and human safety risks to increase, but generally to a lesser degree than Alternative A. Impacts would be lowest under Alternative B, highest under Alternative E, and intermediate under Alternatives C and D. Trend: Degrading for all alternatives.

3.6 Unavoidable Adverse Impacts

Unavoidable adverse impacts are those that cannot be fully mitigated. These vary between alternatives and are generally least under Alternative B and highest under Alternative D.

- Surface disturbance is the main indicator of unavoidable adverse impacts for the proposed BSWI actions. Surface disturbance can cause soil erosion and dust emission; remove and alter vegetation communities; remove, alter, or fragment wildlife habitat; change water quantity; and/or harm water quality. Restoration requirements help reduce the degree and intensity of impacts.
- Management actions associated with increases in surface disturbance include mineral development, opening land to grazing or commercial harvest, and development of ROW, roads, trails, or water crossings.
- Mining can produce potentially non-negligible air emissions of criteria pollutants and can result in changes to the surrounding landscape that impact visual resources.
- Vegetation or wildlife habitat actions can limit fuels treatments used for wildland fire control.

3.7 Irreversible and Irretrievable Commitment of Resources

Irreversible commitments include effects that are permanent, such as species extinction, loss of cultural or paleontological sites, permanent alteration of a waterway, or exhausting a mineral resource. *Irretrievable* commitments involve short-term loss that could be regained over time. Restrictions, mitigation, or permits could reduce the intensity or duration of effects. Effects are least under Alternative B and highest under Alternative D.

Irreversible effects could result from sizable surface disturbance, such as from commercial woodland harvest or mineral development, due to reduction of water quality or permanent loss of vegetation, habitat, cultural resources, or paleontological resources. Removal of mineral resources during mining operations is an irreversible commitment.

Irretrievable effects to water quantity or quality, vegetation, fisheries, or wildlife could result from surface disturbance from facility, ROW, or mineral development or fuels management.

3.8 Relationship of the Short-Term Uses of the Environment to Long-Term Productivity

Short-term impacts are those that revert to pre-project conditions within a few years. Long-term impacts take longer to revert or are permanent. Because the alternatives are management actions, most effects are long term and could have beneficial or adverse effects on productivity compared to current conditions.

Long-term beneficial impacts to fish, wildlife, water quality, and visual and historic resources are likely for Alternative B. Long-term adverse impacts to these resources could occur under Alternatives C, D, and E. Increased access to mineral development in medium and high LMP areas, and therefore increased mineral productivity, could occur under Alternatives C, D, and E. Short-term disturbances from actions such as vegetation treatments or visitor facility construction would be offset by the long-term benefits to the habitat and/or visitor enjoyment/economic opportunity.

This page intentionally left blank

Appendix A: Acronyms

Appendix A. Acronyms

AAC	Alaska Administrative Code
ACEC	Area of Critical Environmental Concern
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
AGCM	Alaska Grazed Class Method
AGL	above ground level
AIANTA	American Indian Alaska Native Tourism Association
AIM	Assessment, Inventory, and Monitoring
ANCSA	Alaska Native Claims Settlement Act
ANILCA	Alaska National Interest Lands Conservation Act
AO	Authorized Officer
APDES	Alaska Pollution Discharge Elimination System
APLIC	Avian Power Line Interaction Committee
AQRV	air quality–related value
ARV	Aquatic Resource Value
ATV	all-terrain vehicle
BLM	Bureau of Land Management
BMP	best management practice
BSWI	Bering Sea-Western Interior
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR	Code of Federal Regulations
CFZ	Community Focus Zone
CO ₂	carbon dioxide
COA	Conditions of Approval
CSU	conservation system unit
CWMA	Cooperative Weed Management Area
CYRMP	Central Yukon Resource Management Plan
DOI	[U.S.] Department of the Interior
EIS	Environmental Impact Statement
ERMA	Extensive Recreation Management Area
ES&R	emergency stabilization and rehabilitation
ESA	Endangered Species Act
EUCA	Excluded Unconveyed Claim Area

FAA	Federal Aviation Administration
FEIS	Final Environmental Impact Statement
FERC	Federal Energy Regulatory Commission
FLPMA	Federal Land Policy and Management Act
FR	<i>Federal Register</i>
GHG	greenhouse gas
GIS	geographic information system
GMU	Game Management Unit
GPS	global positioning system
GVWR	gross vehicle weight rating
HACCP	Hazard Analysis Critical Control Points
HUC	Hydrologic Unit Code
HVW	high-value watershed
ID	Interdisciplinary
IM	Instruction Memorandum
INHT	Iditarod National Historic Trail
LMP	locatable mineral potential
LNG	liquefied natural gas
LPG	liquefied petroleum gas
MBF	thousand board feet
MIST	Minimum Impact Suppression Technique
MMT	million metric tons
NAAQS	National Ambient Air Quality Standards
NAMF	National Aquatic Monitoring Framework
NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act
NNIS	nonnative invasive species
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSO	no surface occupancy
NTMC	National Trail Management Corridor
NTSA	National Trails System Act
NWR	National Wildlife Refuge
OHV	off-highway vehicle
OHWM	ordinary high water mark
OPM	Operational Procedures Memorandum

ORV	outstandingly remarkable value
OSV	over-snow vehicle
PFYC	Potential Fossil Yield Classification
PLO	Public Land Order
PM10	particulate matter less than or equal to 10 micrometers in diameter
PM2.5	particulate matter less than or equal to 2.5 micrometers in diameter
PRMP	Proposed Resource Management Plan
R&Is	relevant and important values
R&PP	Recreation and Public Purposes
RCE	Reclamation Cost Estimate
REA	Rapid Ecoregional Assessment
RM	river mile
RMP	Resource Management Plan
RNA	Research Natural Area
ROD	Record of Decision
ROW	right-of-way
RSC	recreation setting characteristics
SHPO	State Historic Preservation Office
SOP	standard operating procedure
SRMA	Special Recreation Management Area
SRP	special recreation permit
SSS	special status species
SWMFP	Southwest Management Framework Plan
TMA	Travel Management Area
U.S.	United States
U.S.C.	U.S. Code
UAS	unmanned aerial system
USFWS	U.S. Fish and Wildlife Service
UTV	utility terrain vehicle
VRI	visual resource inventory
VRM	Visual Resource Management
WSR	Wild and Scenic River

This page intentionally left blank

Appendix B: Glossary

Appendix B. Glossary

Term	Definition
17(d)(1) withdrawal	A withdrawal made under the authority of section 17(d)(1) of the Alaska Native Claims Settlement Act (ANCSA) for study to determine the proper classification of the lands and to determine the public values of the lands which need protection.
100-year floodplain	The area inundated by the 100-year flood or the 1 percent annual exceedance probability flood (the flood event that has a 1 percent chance of being equaled or exceeded in any single year).¹ Department of the Interior policy requires the use of the 100-year floodplain when evaluating the potential effects of proposed actions.² The 100-year floodplain is difficult to accurately map without field surveys. On-the-ground surveys conducted within the planning area typically employ the Freeboard Approach, which is based on the current 1-percent-annual-chance flood elevation, with the addition of freeboard to account for uncertainties in future conditions (see: Guidelines of Implementing Executive Order 11988, Floodplain Management; October 2015) to determine the horizontal floodplain. The Bureau of Land Management (BLM) uses this Freeboard Approach to make on-the-ground, site-specific approximations of the 100-year floodplain as the area inundated when the water, at a riffle cross section, is at a depth of three times maximum bankfull depth.³ Given the difficulty of remotely mapping the 100-year floodplain and the desire to convey the intent of the various management alternatives to the reader, riparian buffer distances are used as a proxy, or rule of thumb, in this resource management plan for the 100-year floodplain. Buffer distances are given as a distance from bankfull elevation and are dependent on stream order. Buffer distances apply to each side of the stream, and are as follows: • 1st and 2nd Order Streams – 100-foot buffer • 3rd Order Streams – 500-foot buffer • 4th and 5th Order Streams – 1,000-foot buffer • 6th, 7th, 8th, and 9th Order Streams – 1,500-foot buffer These buffer distances, based on professional judgement and field surveys, are likely to approximate the 100-year floodplain extent. Nonetheless, these estimates are for planning purposes only and

¹ McCuen, R.H. 2005. Hydrologic Analysis and Design. 3rd Edition. Prentice Hall: Upper Saddle River, New Jersey.

² U.S. Department of the Interior. 2020. Departmental Memo, Part 520, Chapter 2: Floodplain Management and Wetlands Protection Program Requirements. Office of Environmental Policy and Compliance. April 28.

³ Rosgen, D.L. 1996. Applied River Morphology. Wildland Hydrology Books: Pagosa Springs, Colorado.

Term	Definition
	should be verified in the field at the project level using the three times maximum bankfull depth method described above.
Actions	Measures or criteria to achieve desired outcomes (i.e., objectives), including actions to maintain, restore, or improve land health.
Adaptive management	A system of management practices based on clearly identified outcomes, monitoring to determine if management actions are meeting outcomes, and, if not, facilitating management changes that will best ensure that outcomes are met or to re-evaluate the outcomes.
Adequate snow cover	Snow or frost of sufficient depth, generally 6-12 inches or more, or a combination of snow and frost depth, sufficient to protect the underlying vegetation and soil.
Aircraft	A machine capable of flight. Aircraft includes fixed-wing (e.g., airplane) and rotary-wing (e.g., helicopter) aircraft.
Alaska National Interest Lands Conservation Act (ANILCA)	A law passed in 1980 designating 104 million acres for conservation by establishing or expanding national parks, wildlife refuges, wild and scenic rivers, wilderness areas, forest monuments, conservation areas, recreation areas, and wilderness study areas to preserve them for future generations.
Alaska Native Claims Settlement Act (ANCSA)	A law passed by Congress in 1971 to settle aboriginal land claims in Alaska. Under the settlement, the Alaska Natives received title to a total of over 44 million acres, to be divided among some 220 Native villages and 12 regional corporations established by the act. The corporations shared in a payment of \$962,500,000.
Allowable uses	Uses, or allocations, that are allowable on specific BLM-managed lands and mineral estate. Different locations may have different uses that are allowed, restricted, or prohibited in order to comply with BLM's multi-use mandate.
All-terrain vehicle (ATV)	A wheeled vehicle other than a snowmobile that is defined as having a curb weight of 1,000 pounds or less (1,500 pounds gross vehicle weight [GVW]) and a maximum width of 50 inches, steered using handlebars, travels on three or more tires (no tracks), and has a seat designed to be straddled by the operator. An example includes production "four wheelers."
Anadromous	Fish that live most of their lives in the sea but return to fresh water to spawn. Anadromous streams are those that support fish species that migrate between freshwater and marine waters, such as salmon.
Anthropogenic	Effects, processes, objects, or materials that are derived from human activities, as opposed to those occurring in natural environments without human influences.

Term	Definition
Area of Critical Environmental Concern	An area within the public lands where special management attention is required to protect important historic, cultural, or scenic values; fish and wildlife or other natural systems or processes; or to protect life and safety from natural hazards.
Artifact	An object that was made, used, and/or transported by humans that provides information about human behavior in the past. Examples include pottery, stone tools, and bones with cut marks.
Assessment, Inventory, and Monitoring (AIM)	The AIM strategy has been adopted by BLM Alaska to address BLM's need for a systematic approach for integrating key components (attributes) into planning decisions, monitoring programs, and research needs. To answer this need, the foundation of the AIM strategy includes the principles of collecting nationally prescribed indicator metrics using consistent methods based on a statistically valid sample design to allow analytical tools to enable monitoring data to inform management decisions. AIM data collection encompasses both terrestrial and aquatic (referred to as lotic) resources. AIM monitoring data collected across the planning area describe the range of natural conditions for terrestrial and aquatic resources.
Bankfull stage	The depth of water in a stream at which incipient flooding occurs as the result of a streamflow that recurs on average every 1 to 2 years.
Best management practice	A suite of techniques that guide, or may be applied to, management actions to aid in the achieving of desired outcomes.
Case-by-case	A decision process by which authorization of allowable land use(s) is determined on a project-specific basis after considering potential impacts to human health and the environment.
Casual use	Noncommercial or nonorganized group or individual activities on public land. Casual use includes the following: complies with land use decisions and designations, does not award cash prizes, is not publicly advertised, poses minimal risk for damage to public land or related water resources, and generally requires no monitoring.
Casual use (vehicle)	Includes any use of motorized vehicle, non-motorized method of travel, or other use that is not for subsistence, military, or emergency purpose and is not related to a permitted, authorized, or administrative activity authorized by the BLM or otherwise officially approved. Casual motorized vehicle use is synonymous with off-road/off-highway vehicle (OHV) use as defined by 43 Code of Federal Regulations (CFR) 8340.0-5(a).

Term	Definition
Code of Federal Regulations (CFR)	A codification of the general and permanent rules published in the Federal Register by the Executive Departments and agencies of the federal government. The CFR is divided into 50 titles, which represent broad areas subject to federal regulation. Each volume of the CFR is revised at least once each year and issued on a quarterly basis.
Connectivity corridor	Connectivity corridors were developed using an analysis of landform features to design a climate resilient connection between the Yukon Delta National Wildlife Refuge and the Innoko National Wildlife Refuge. The analysis takes a geodiversity approach by using topography, soil, and hydrologic features because those characteristics are less dynamic and more enduring than species composition or land cover. This approach assumes that similar ecosystem types and functions will occur in similar topographic conditions and that similar topographic niches (steep, high elevation, sunny slopes) can host similar ecological assemblages.
Conservation System Unit	Any Alaska unit of the National Park System, National Wildlife Refuge System, National Wild and Scenic Rivers Systems, National Trails System, National Wilderness Preservation System, or a National Forest Monument.
Conveyed	When the title to land was transferred from one party to another. The U.S. conveys title to land to Native corporations by patent and interim conveyance and to the State of Alaska by patent and tentative approval.
Cultural resources	Evidence of past human activity, occupation, or usage that includes landscapes, districts, sites, buildings, structures, and objects that were used, built, or modified by people. Cultural resources can include historic and archaeological sites, districts, traditional cultural places, and locations of sacred or ceremonial value.
Decision area	The lands within a planning area for which the BLM has authority to make land use and management decisions. In general, the BLM has jurisdiction over all BLM-administered lands (surface and subsurface) and over the subsurface minerals only in areas of split estate (areas where the BLM administers federal subsurface minerals, but the surface is owned by a non-federal entity, such as State Trust Land or private land).
Endangered species	An animal or plant species designated by the U.S. Fish and Wildlife Service (USFWS) or National Oceanic and Atmospheric Administration–Fisheries (also known as National Marine Fisheries Service [NMFS]) to receive federal protection status because the species is in danger of extinction throughout all or a significant portion of its natural range.

Term	Definition
Environmental Impact Statement (EIS)	A detailed statement of a given project's environmental consequences, including unavoidable adverse environmental effects, alternatives to the proposed action, the relationship between local short-term uses and long-term productivity, and any irreversible or irretrievable commitment of resources.
Environmental justice	The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.
Essential Fish Habitat	Those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. Essential Fish Habitat is defined by the Magnuson-Stevens Fishery Conservation and Management Act (Public Law 94-265).
Ethnographic site	A site, structure, object, landscape, or natural resource feature assigned traditionally legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it. ⁴
Excluded Unconveyed Claim Areas	The planning area has federal mining claim inholding areas surrounded by non-BLM managed lands. There are two types. The first is referred to as Active Excluded Unconveyed Claims (AEU) and they are active unpatented federal mining claims that were properly located prior to State or ANCSA selections and remain active under the federal mining laws and therefore were excluded from the lands conveyed to the State of Alaska or ANCSA corporations. These remain under BLM management until they are converted to State Mining Claims, transferred to an ANCSA corporation, or determined abandon or void by operation of federal mining law. Second are Former Claims-Closed Excluded Unconveyed (CEU), where parcels were once AEU claims but have been closed under operation of law. CEUs are still BLM land until conveyed out of federal ownership. Due to State or ANCSA selections or Public Land Orders, the lands are not open to mineral entry under the federal mining laws. When an AEU claim is determined abandon or void under operation of federal mining laws, the lands become available for State or ANCSA selection rights. A CEU does not automatically convey/convert to State land or ANCSA land.
Executive Order	A rule or order issued by the president and having the force of the law.
Federal Land Policy and Management Act (FLPMA)	A law passed in 1976 to establish public land policy, guidelines for its administration, and provide for the management, protection, development, and enhancement of the public lands.

⁴ National Park Service. 1998. NPS-28: Cultural Resource Management Guideline. Effective Date: June 11, 1998.

Term	Definition
Federal Register	A daily publication that reports presidential and federal agency documents.
Fire regime	A description of the patterns of wildland fire occurrences, frequency, size, severity, and, sometimes, vegetation and fire effects, in a given area or ecosystem. A fire regime is a generalization based on wildland fire histories at individual sites. There are five standard fire regimes: • Fire Regime I, with a fire frequency of 0-35 years, surface fire to mixed fire type. • Fire Regime II, with a fire frequency of 0-35 years frequency, stand replacement fire type. • Fire Regime III, with a fire frequency of 35-100+ years, with a mixed fire type. • Fire Regime IV, with a fire frequency of 35-100+ years, with a stand replacement fire type. • Fire Regime V, with a fire frequency of 100+ years, with a stand replacement fire type.
Fire severity	The degree to which a site has been altered or disrupted by wildland fire; loosely, a product of fire intensity and residence time. In Alaska, fire severity refers to the amount of organic layer removed by a wildland fire event.
Fossil	Any preserved remains, impressions, or traces of an organism that lived in the geologic past.
Free Use	BLM may issue Free Use Permits in special circumstances for materials that are for personal use and may not be bartered or sold. Timber is not available via Free Use. Forest products that are available via Free Use Permits include house logs, saw logs, firewood, biomass, berries, Christmas trees, wood for furniture making, boughs, and birch bark.
Geomorphically stable	A stream channel that is in balance with the surrounding landscape; also known as being at dynamic equilibrium. This means that the stream bed maintains dimension, pattern, and profile without aggrading or degrading over time, and lateral adjustments do not change the cross-sectional area of the stream, even after flood events. Geomorphically stable streams typically have a mix of pools and riffles, effectively transport and store wood and sediment, and have adequate vegetation to reduce erosion and dissipate stream energy.
Goals	Broad statements of desired outcomes and management direction that are usually not quantifiable.

Term	Definition
Gross vehicle weight (GVW)	The total weight of the vehicle plus the maximum loaded carrying capacity of the vehicle as specified by the manufacturer (i.e., GVW = weight of vehicle + fuel + passengers + cargo, per manufacturers' limitations). Pull-behind trailers are not included in the GVW calculation for the vehicle.
Groundwater	Water stored underground in crevices and the pores of the geologic materials of rock, sand, and soil that make up the Earth's crust.
Hazardous materials	Includes fuel and oil, Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Hazardous Substances, Resource Conservation and Recovery Act Hazardous Waste, and Hazardous Materials as identified by 49 CFR 171-177, Transportation.
High-value watershed (HVW)	Watersheds that contain the highest fisheries and riparian resource values within the planning area. In these watersheds, riparian-dependent resources receive primary emphasis and management activities are subject to specific Required Operating Procedures. HVWs were classified using BLM's Aquatic Resource Value (ARV) data, which was updated by BLM in early 2018 (see Appendix L of the BSWI Proposed Resource Management Plan (RMP)/Final EIS for details on the ARV model).
Invasive species	Organisms that have been introduced into an environment where they did not evolve. Executive Order 13112 focuses on organisms whose presence is likely to cause economic harm, environmental harm, or harms to human health. See also noxious weeds.
Land conveyance	In Alaska, "conveyance" generally means the conveyance of lands under ANCSA and/or the Alaska Statehood Act or the Native Allotment Act, including the Dingell Act.
Land disposal	A disposal is where the BLM sells land that is not encumbered by a selection application filed by an ANCSA corporation or the State of Alaska. As long as the lands remain selected by the State of Alaska or ANCSA, these lands can only be conveyed to the State or Native corporation that selected the lands—they cannot be disposed of by sale; see also land conveyance.
Land status	The legal standing of land within BLM boundaries. Land status includes private, military, State, State-selected, Native, Native-selected, and unencumbered public lands.
Land tenure	The legal system through which property rights are allocated. Land tenure defines how access, use, control, and transfer is granted.

Term	Definition
Land use plan	A plan that regulates the land use of an area(s) to assure its efficient and reasonable use, guide future land use decisions, and prevent land use conflicts. BLM planning regulations require that RMPs be consistent with approved or adopted land use plans (and similar plans of other federal, State, local, and tribal governments) to the extent that such plans are consistent with federal laws and regulations applicable to public lands.
Lands with wilderness characteristics	These attributes include the area's size, its apparent naturalness, and outstanding opportunities for solitude or a primitive and unconfined type of recreation. They may also include supplemental values.
Leasable minerals	Minerals subject to exploration and development under leases, permits, and licenses under various mineral leasing acts. Leasable minerals include oil, gas, and coal. See also locatable minerals.
Lease	A means of allowing long-term possession and use of public lands without transferring ownership of that land.
Locatable minerals	Minerals subject to appropriation under the mining laws and 43 CFR 3809. Locatable minerals include base metals (e.g., copper, lead, and zinc), noble metals (e.g., silver and gold), nickel, iron, platinum group elements, bentonite, gem and semiprecious gemstones, and nephrite jade. See also leasable minerals.
Management Framework Plan	A planning decision document prepared before the effective date of the regulations implementing the land use planning provisions of the FLPMA. The Management Framework Plan establishes, for a given area of land, land-use allocations, coordination guidelines for multiple use, and objectives to be achieved for each class of land use or protection.
Mechanized travel	Moving by a mechanical device (e.g., bicycle) not powered by a motor. See also non-motorized travel.
Memorandum of Understanding	A formal, written agreement between organizations or agencies that presents the relationship between the entities for purposes of planning and management.
Metalliferous	Yielding or containing metal. Metalliferous minerals include gold, silver, lead, copper, zinc, and nickel ores.
Mineral materials	Includes stone, sand, gravel, clay, peat, and humates. This term does not include metallic ores, oil, or gas.
Motorcycle	Motorized vehicle with two tires and with a seat designed to be straddled by the operator. This includes motorcycles converted to run on a track(s) and ski(s) specifically over snow. A motorcycle is capable of either on- or off-highway use.

Term	Definition
Motorized vehicles	Vehicles that are propelled by motors or engines, such as cars, trucks, OHV, motorcycles, and snowmobiles.
Multiple use	Includes (1) the management of all the various renewable surface resources so that they are utilized in the combination that will best meet the needs of the American people; (2) making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; (3) the understanding that some land will be used for less than all of the resources; and (4) the harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output (43 U.S. Code [U.S.C.] 1702(c)).
National Environmental Policy Act (NEPA)	A 1969 act mandating an environmental analysis and public disclosure of federal actions.
National Wild and Scenic River System	A system of nationally designated rivers and their immediate environments that have outstanding scenic, recreational, geologic, fish and wildlife, historic, cultural, and other similar values and are preserved in a free-flowing condition. The system consists of three types of streams: (1) recreational—rivers or sections of rivers that are readily accessible by road or railroad and that may have some development along their shorelines and may have undergone some impoundments or diversion in the past; (2) scenic—rivers or sections of rivers free of impoundments with shorelines or watersheds still largely undeveloped but accessible in places by roads; and (3) wild—rivers or sections of rivers free of impoundments and generally inaccessible except by trails, with watersheds or shore-lines essentially primitive and waters unpolluted. See also Wild and Scenic River.
Native selected	BLM lands that have been selected by a Native corporation under the ANCSA, which gave Alaska Natives an entitlement of 44 million acres to be selected from a pool of public lands specifically defined and withdrawn by the act for that purpose.
No action alternative	The most likely condition expected to exist if current management practices continue unchanged. The analysis of this alternative is required for federal actions under NEPA.
Non-motorized travel	Moving by foot, stock or pack animal, boat, or mechanized vehicle, such as a bicycle. See also mechanized travel.

Term	Definition
Noxious weed	A plant species designated by federal or State law as possessing one or more of the following characteristics: aggressive and difficult to manage; parasitic; a carrier or host of serious insects or disease; or nonnative, new, or not common to the U.S. See also invasive species.
Objectives	Specific desired outcomes for resources. Objectives may be quantifiable and measurable and may have established timeframes for achievement, as appropriate.
Off-highway vehicle (OHV)	Any motorized vehicle capable of, or designed for, travel on or immediately over land, water, or other natural terrain, excluding (1) any non-amphibious registered motorboat; (2) any military, fire, emergency, or law enforcement vehicle being used for emergency purposes; (3) any vehicle whose use is expressly authorized by the authorizing officer, or otherwise officially approved; (4) vehicles in official use; and (5) any combat or combat support vehicle when used for national defense (43 CFR 8340.0-5(a)). OHVs generally include dirt motorcycles, dune buggies, jeeps, four-wheel drive vehicles, snowmobiles, ATVs. OHV is synonymous with off-road vehicle, utility type (or terrain) vehicle (UTV), and ATV. Aircraft are not OHVs.
Off-highway vehicle area designations	Used by federal agencies in the management of OHVs on public lands. Refers to the land use planning decisions that permit, establish conditions, or prohibit OHV activities on specific areas of public lands. All public OHV designations (43 CFR 8342.1). The CFR requires all BLM-managed public lands to be designated as “open,” “limited,” or “closed to off-road vehicles” and provides guidelines for designation. The definitions of open, limited, and closed are provided in 43 CFR 8340.0-5 (f), (g), and (h), respectively. • <u>Open</u>: Motorized vehicle travel is permitted year-long anywhere within an area designated as "open" to OHV use. Open designations are used for intensive OHV use areas where there are no special restrictions or where there are no compelling resource protection needs, user conflicts, or public safety issues to warrant limiting cross-country travel. • <u>Limited</u>: Motorized vehicle travel within specified areas and/or on designated routes, roads, vehicle ways, or trails is subject to restrictions. The “limited” designation is used where OHV use must be restricted to meet specific resource management objectives. Examples of limitations include number or type of vehicles; time or season of use; permitted or licensed use only; use limited to designated roads and trails; or other limitations if restrictions are necessary to meet resource management objectives, including certain competitive or intensive use areas that have special limitations.

Term	Definition
Outstandingly remarkable value	• <u>Closed</u>: Motorized vehicle travel is prohibited in the area. Access by means other than motorized vehicle is permitted. Areas are designated closed if closure to all vehicular use is necessary to protect resources, promote visitor safety, or reduce use conflicts. As defined by the Wild and Scenic Rivers Act of 1968, an “outstandingly remarkable value” is the characteristic of a river segment that is judged to be a rare, unique, or exemplary feature that is significant at a regional or natural scale. Values can be recreational, scenic, geological, historical, cultural, biological, botanical, ecological, heritage, hydrological, paleontological, scientific, or research-related.
Over-snow vehicle	A motor vehicle designed or converted for use over snow that is not a snowmobile, runs on a track or tracks, uses a ski or skis or track for turning, and has a vehicle width greater than 50 inches. Examples include vehicles or trucks converted to tracks, snow cats, snow buses, and Nodwells. All over-the-snow vehicles would require a pre-use authorization for use of this vehicle type.
Paleontological	Of or relating to a science dealing with the life of past geological periods as known from fossil remains.
Paleontological resources	Any fossilized remains, traces, or imprints of organisms, preserved in or on the earth's crust, that are of paleontological interest and that provide information about the history of life on earth. A paleontological resource can include prehistoric plants and animals, including both vertebrates and invertebrates, as well as direct evidence of their presence (tracks, worm burrows, etc.).
Paleontological Resources Preservation Act	A 2009 act that directs the Department of Agriculture (U.S. Forest Service) and the Department of the Interior (National Park Service, BLM, Bureau of Reclamation, and USFWS) to manage and protect paleontological resources on federal land using scientific principles and expertise.
Particulates	Fine liquid or solid particles found in the air or emissions, such as dust, smoke, mist, fumes, or smog.

Term	Definition
Permafrost	Soil, sand, gravel, or bedrock that has remained below 32°F for two or more years. Permafrost features include frost boils (accumulation of excess water and mud in subsurface materials during spring thaw that may break through the surface), hummocks (a mound of broken ice projecting upward, formed by ice deformation), ice wedges (a build-up of ice in frozen soil, which is wedge-shaped in cross-section), ice lenses (accumulation of ice in cavities and hollows in the soil), pingos (an arctic mound or conical hill, consisting of an outer layer of soil covering a core of solid ice), polygonal ground (a type of patterned ground in areas of ice wedges), and solifluction lobes (an isolated tongue-shaped feature formed by rapid solifluction [downhill movement of soil] on a slope).
Permanent structure	A structure fixed to the ground by any of the various types of foundations, slabs, piers, poles, or other means allowed by building codes. The term also includes a structure placed on the ground that lacks foundations, slabs, piers, or poles and that can only be moved through disassembly into its component parts or by techniques commonly used in house moving (43 CFR 3715.0-5).
Permit	A means of authorizing use of public lands in an equitable, safe, and enjoyable manner while minimizing adverse impacts and user conflicts. A permit does not transfer ownership of the land, it simply allows the permittee to use the land in a pre-determined fashion for a set amount of time.
Personal use	Allowed use of renewable resources by individuals other than federally qualified rural residents. Such resource use cannot be sold, bartered, traded, or used to obtain a profit.
Petrified wood	Agatized, opalized, petrified, or silicified wood, or any material formed by the replacement of wood by silica or other matter. The Petrified Wood Act of 1962 provides that limited quantities of petrified wood may be removed from federal lands without permit or charge.
Planning area	The geographic area within which the BLM will make decisions during a planning effort. A planning area boundary includes all lands regardless of jurisdiction; however, the BLM will only make decisions on lands that fall under the BLM's jurisdiction (including subsurface minerals). Unless the State Director determines otherwise, the planning area for an RMP is the geographic area associated with a particular field office (43 CFR 1610.1(b)). State Directors may also establish regional planning areas that encompass several field offices and/or states, as necessary.

Term	Definition
Pollutant	Any substance introduced into the environment that adversely affects the usefulness of a resource or the health of humans, animals, or ecosystems.
Potential Fossil Yield Classification (PFYC)	A working model of areas where geological conditions in unsurveyed areas are similar to those in other locations that are known to contain paleontological resources and which therefore have a higher likelihood to contain paleontological resources.
Potential natural condition (PNC)	The range of natural conditions that defines the preferred values for a quantitative attribute. PNC is calculated from data collected in the region at similar sites that experience minimal human disturbance. Statistically, PNC is the portion of a metric's distribution excluding the top and/or bottom percentiles, outliers, of its measured range of variability. These outliers of PNC exhibit impairment from a functioning condition as a result of disturbance. These disturbances could include wildland fire, insects/disease, thermokarst dynamics, etc.
Prescribed fire	A fire purposefully ignited to meet specific objectives. Prior to ignition, a written, approved fire plan must exist and legal requirements must be met. Also known as a prescribed burn.
Primitive road	A linear route managed for use by four-wheel drive or high-clearance vehicles. Primitive roads do not normally meet any BLM road design standards.
Primitive route	Any transportation linear feature located within a wilderness study area or lands with wilderness characteristics prioritized for management by a land use plan and not meeting the wilderness inventory road definition.
Proper functioning condition	Riparian habitats are at proper functioning condition when adequate vegetation, land form, or large woody debris is present to (1) dissipate stream energy associated with high water flows, thereby reducing erosion and improving water quality; (2) filter sediment, capture bedload, and aid floodplain development; (3) improve floodwater retention and groundwater discharge; (4) develop root masses that stabilize streambanks against cutting action; (5) develop diverse bedform characteristics (pond and riffle sequences) to provide the habitat and water depth, duration, and temperature necessary for fish production, and other uses; and (6) support greater biodiversity.

Term	Definition
Public land	FLPMA (43 U.S.C. 1702) defines public land as land or interest in land owned by the U.S. and administered by the Secretary of the Interior through the BLM without regard to how the U.S. acquired ownership, except land located on the Outer Continental Shelf and land held for the benefit of Native Americans, Aleuts, and Eskimos. ANILCA (16 U.S.C. 3102) defines public lands as land situated in Alaska which, after the date of the enactment of this Act, are federal lands, except (1) land selections of the State of Alaska which have been tentatively approved or validly selected under the Alaska Statehood Act; (2) land selections of a Native corporation made under ANCSA that have not been conveyed, unless such selection is determined to be invalid or is relinquished; and (3) lands referred to in section 19(b) of ANCSA.
Public Land Order	Actions implemented by the Secretary of Interior to make, modify, extend, or revoke land withdrawals; see withdrawal.
Public use	This category of cultural resource use may be applied to any cultural property or historical features in the planning area found to be appropriate for use as an interpretive exhibit or for related educational and recreational uses by the public.
Record of Decision	A public document associated with an EIS that identifies all alternatives, provides the final decision, the rationale behind that decision, and commitments to monitoring and mitigation.
Recreation and Public Purposes (R&PP) Act	The R&PP Act provides guidelines and authorization for the transfer (e.g., lease or sale) of certain public lands (e.g., parks or cemeteries) to states or their political subdivisions, and to nonprofit corporations and associations, to serve community and recreational purposes.
Research Natural Area (RNA)	An area that is established and maintained for the primary purpose of research and education because the land has one or more of the following characteristics: (1) a typical representation of a common plant or animal association; (2) an unusual plant or animal association; (3) a threatened or endangered plant or animal species; (4) a typical representation of common geologic, soil, or water features; or (5) outstanding or unusual geologic, soil, or water features. Uses of RNAs are defined in 43 CFR 8223.1.

Term	Definition
Resource Management Plan (RMP)	A plan that guides future land management actions and subsequent site-specific implementation decisions for an area(s). RMPs establish goals and objectives for resource management (desired outcomes) and the identified resource uses (allocations) that are allowable, restricted, or prohibited in order to achieve the goals and objectives. Management actions are also identified where they can help to achieve desired outcomes and include measures or criteria that may guide both day-to-day and long-term management. All decisions are pursuant to the multiple-use and sustained-yield mandate of the FLPMA.
Right-of-way (ROW)	The legal right to pass over another owner's land or the area over which a ROW exists. A ROW grant is an authorization to use a specific piece of public land for a specific project, such as electric transmission lines, communication sites, roads, trails, fiber optic lines, canals, flumes, pipelines, and reservoirs.
Riparian area	A form of transition between terrestrial and aquatic ecosystems. These areas are distinctly different from the surrounding lands because of unique soil and vegetation characteristics that are strongly influenced by free or unbound water in the soil. Riparian areas connect water bodies with their adjacent uplands through surface and subsurface hydrology and are adjacent to perennial, intermittent, and ephemeral streams, lakes, and estuarine-marine shorelines. ^{5,6}
Riparian buffer	Variable-width management zone that can be applied to each side of a river, stream, or other waterbody. Riparian buffers can protect water quality and ensure wildlife habitat suitability is maintained. In this RMP, riparian buffer distances on rivers and streams are used as proxies for the 100-year floodplain. See also 100-year floodplain.
Road	A linear route declared a road by the owner, managed for use by low-clearance vehicles having four or more wheels, and maintained for regular and continuous use.
ROW Avoidance Area	Areas to be avoided for ROW location but may be available for location of ROWs with special stipulations as long as new ROW application documentation demonstrates (1) the other locations researched and reasons each researched location is not feasible and (2) project design features/mitigation measures are incorporated to minimize resource concerns. The decision to grant a ROW within a ROW Avoidance Area would be made by the AO after project-specific NEPA has been completed.

⁵ United States Department of Agriculture, Natural Resource Conservation Service. 2010. Part 411 - Riparian Area Recognition and Management. In Title 190 - Ecological Sciences. General Manual.

⁶ National Research Council. 2002. Riparian Areas: Functions and Strategies for Management. National Academy of Science. Washington D.C.

Term	Definition
ROW Avoidance Area for Linear Realty Actions	Areas where new linear ROWs are to be avoided and placed in other areas if feasible. Areas may be available to location of linear ROWs with special stipulations as long as the new linear ROW application documentation demonstrates (1) the other locations researched and reasons each researched location is not feasible and (2) project design features/mitigation measures are incorporated to minimize resource concerns. Decisions to grant a linear ROW within a linear ROW Avoidance Area would be made by the Authorized Officer (AO) after project-specific NEPA has been completed.
ROW Exclusion Area	Areas that are not available for location of ROWs under any conditions. A plan amendment would be required for a new ROW within a ROW Exclusion Area.
Salable minerals	Minerals subject to the Materials Act of 1947, as amended. Salable minerals include materials such as stone, sand, and gravel.
Salable, Open to (subject to terms and conditions)	Terms and conditions for potential sales are designed to protect resource values while operating under the mineral materials regulations and are developed and published as part of a land use plan. These terms and conditions then become part of permits and sales issued at the implementation level.
Scoping	The process used to determine, through public involvement, the range of issues that the RMP should address.

Term	Definition
Sensitive species	Those wildlife, fish, or plant species designated by the BLM-Alaska State Director, usually in cooperation with the State agency responsible for managing the species, as sensitive. They are (1) species under status review by USFWS and/or NMFS, (2) species whose numbers are declining so rapidly that federal listing may be necessary, (3) species with typically small and widely dispersed populations, or (4) species inhabiting ecological refuges or other specialized or unique habitats. Sensitive species include threatened, endangered, or proposed species as classified by the USFWS or species designated by a State wildlife agency as needing special management. Species designated as BLM sensitive must be native species that occur on BLM lands and for which BLM has significant management capability to affect their conservation status. In addition, one of the following two criteria must also apply: (1) There is information that a species is known or predicted to undergo a downward trend such that viability of the species or a distinct population segment of the species is at risk across all or a significant portion of its range, or (2) The species depends on ecological refugia, specialized habitats, or unique habitats, and there is evidence that such areas are threatened with alteration such that the continued viability of the species in that area would be at risk.
Seral	Relating to ecological communities where all successional stages of biotic development are represented.
Shuttle	A business that provides transportation services to and from public lands. The service may be for an individual or for an individual plus gear. Shuttle operations are typically short in duration (e.g., dropping off hikers, mountain bikes, and bikers to a trailhead). Shuttle drivers, by definition, are not commercial guides. The shuttle driver has no obligation to the individual once the transportation aspect is complete. A shuttle business could be authorized under a commercial or vending permit depending on the circumstances.
Snowmachine, Snowmobile	A motorized vehicle designed for use over snow that runs on a track or tracks and uses a ski or skis for steering, has a curb weight of 1,000 pounds or less and a maximum vehicle width of 50 inches or less that is steered using handlebars and has a seat designed to be straddled by the operator. An example includes production snowmobiles. Snowmobiles do not include machinery used strictly for the grooming of non-motorized trails.
Special Recreation Management Area	Areas where the management emphasis is on recreation, although other resource uses and development are allowed.

Term	Definition
Special Recreation Permit (SRP)	A means of authorizing recreational uses of public lands and waters. SRPs are issued for specific recreational uses as a means to manage visitor use, protect natural and cultural resources, and provide a mechanism to accommodate commercial recreational uses. There are four types of permits: commercial, competitive, organized groups/events, and individuals or groups in special areas.
Special status species	Special status species include the following: endangered species, threatened species, proposed species, candidate species, State-listed species, and BLM-Alaska sensitive species.
Standard Operating Procedure (SOP)	Procedures carried out daily during project implementation that are based on laws, regulations, executive orders, BLM planning manuals, policies, instruction memoranda, and applicable planning documents. SOPs describe the flow of actions and identify roles and responsibilities. Using SOPs maintains operational efficiency and consistency during the implementation process.
State-selected	Formerly unappropriated and unreserved public lands that were selected by the State of Alaska as part of the Alaska Statehood Act of 1958 and ANILCA. Until conveyance, State-selected lands outside of National Park system lands or National Wildlife Refuges will be managed by the BLM. ANILCA allowed for overselection by the State by up to 25 percent of the entitlement. Therefore, some State-selected lands will eventually be retained in long-term federal management.
Stipulations	To provide additional detail or criteria that could be applied to allowable uses or management actions. Examples include no surface occupancy, Controlled Surface Use, and timing limitation. These stipulations apply to fluid mineral leasing and development of federal mineral estate underlying BLM-managed lands, privately owned lands, and State-owned lands. Another example would include stipulations (or conditions) that could be required in ROW avoidance areas in order to consider those areas available for ROW.
Subsistence use	The customary and traditional uses by rural Alaska residents of wild, renewable resources for direct personal or family consumption as food, shelter, fuel, clothing, tools, or transportation; for the making and selling of handicraft articles out of nonedible by-products of fish and wildlife resources taken for personal or family consumption; for barter, or sharing for personal or family consumption; and for customary trade. This includes any use of surface use transportation as a means of access to subsistence resources as provided for under ANILCA Section 811 and/or ANILCA Section 1110.

Term	Definition
Successional stage	The replacement in time of one plant community with another. The prior plant community creates conditions that are favorable for the establishment of the next community.
Summer	Any time there is not adequate snow cover or frost to allow the operation of over-the-snow vehicles or snowmobiles without damaging surface vegetation and soils.
Surface water	Water that is on the Earth's surface, such as in a stream, river, lake, or reservoir that is replenished by precipitation or groundwater.
Sustained yield	The achievement and maintenance in perpetuity of a high-level annual or regular output of the various renewable resources of the national forests without impairment of the productivity of the land (43 U.S.C. 1702(h)).
Temporary route	Short-term overland roads, primitive roads, or trails authorized or acquired for the development, construction, or staging of a project or event that has a finite lifespan.
Temporary structure	Tents, tent frames, and tents with platforms, all of which are disassembled and removed.
Thermokarst	Land-surface configuration that results from the thawing of ground ice in a region underlain by permafrost.
Threatened species	A designation by the USFWS and/or NMFS for when a plant or animal is likely to become endangered throughout all or a specific portion of its range within the foreseeable future.
Top-file	Future selections filed by the State of Alaska under Section 906(e) of ANILCA, for lands that were not available on the date of filing of such applications. Future selections, or top-filings, shall become an effective selection without further action by the State upon the date the lands included in such application become available for State selection. Some of the lands under an ANCSA 17(d)(1) withdrawal are top-filed and will become valid selections upon revocation of that withdrawal.
Traditional Cultural Property	The National Park Service defines a Traditional Cultural Property (TCP) as "a property that is eligible for inclusion in the National Register of Historic Places (NRHP) based on its associations with the cultural practices, traditions, beliefs, lifeways, arts, crafts, or social institutions of a living community. TCPs are rooted in a traditional community's history and are important in maintaining the continuing cultural identity of the community."

Term	Definition
Trail	A linear route managed for human-powered, stock, or OHV forms of transportation or for historical or heritage values. Trails are not generally managed for use by four-wheel drive or high-clearance vehicles.
Transportation linear disturbance	An existing user-made route that is not actively managed by the BLM. The decision regarding whether to retain or close this type of transportation linear feature would be made through implementation-level travel management planning
Transporter	See definition for shuttle.
Travel Management Area (TMA)	Polygons or delineated areas where travel management (either motorized or non-motorized) needs particular focus. These areas may be designated as open, closed, or limited to motorized use and will typically have an identified or designated network of roads, trails, ways, and other routes that provide for public access and travel across the area. All designated travel routes within TMAs should have a clearly identified need and purpose and clearly defined activity types, modes of travel, and seasons or times for allowable access or other limitations.
Travel Management Plan	The document that describes the decisions related to the selection and management of the transportation network. This document can be an appendix to an RMP, incorporated in activity implementation plan (such as a Recreation Implementation Plan), or a stand-alone document after development of the RMP.
Treadway	The actively used surface of a trail. ⁷
Unencumbered	Public lands that have not been selected by the State of Alaska or Native organizations. These lands will be retained in long-term federal management.
Unmanned aircraft system (UAS)	An aircraft without a human pilot onboard; instead, the UAS is controlled from an operator on the ground. Also known as a drone.

⁷ U.S. Department of Transportation Federal Highway Administration. 2007. Trail Construction and Maintenance Handbook. July.

Term	Definition
United States Code (U.S.C.)	The consolidation and codification of general and permanent laws of the United States. The U.S.C. is divided into 53 titles that are separated by subject matter. It is prepared by the Office of the Law Revision Counsel of the United States House of Representatives.
Utility terrain vehicle (UTV)	Any recreational motor vehicle other than an ATV, motorcycle, or snowmobile designed for and capable of travel over unpaved roads, traveling on four or more low-pressure tires, with a curb weight of 1,500 pounds or less, (2,000 pounds GVW) and a maximum width of 66 inches. Examples include production “quad/side-by-sides” and Argos. Utility type vehicles do not include vehicles specially designed to carry a person with disabilities.
Visual resource management	A means of managing visual resources by designating areas as one of four classes: (1) Class I—maintaining a landscape setting that appears unaltered by humans, (2) Class II—designing proposed alterations so as to retain the existing character of the landscape, (3) Class III—designing proposed alterations so as to partially retain the existing character of the landscape, and (4) Class IV—providing for management activities which require major modifications of the existing character of the landscape.
Waterbody	Body of water forming a physiographical feature. Waterbodies include oceans, seas, rivers, streams, lakes, ponds, and wetlands, and can include both naturally occurring and artificial features (e.g., reservoirs).
Watercraft	Includes, but is not limited to, boats or ships (whether powered by engine, wind, or other means), barges, surfboards, personal watercraft, water skis, or any other device or mechanism the primary or an incidental purpose of which is locomotion on, or across, or underneath the surface of the water (50 CFR 17.102).
Wetlands	Freshwater wetlands are defined as “environments characterized by rooted vegetation that is partially submerged either continuously or periodically by surface freshwater with less than 0.5 parts per thousand salt content and not exceeding three meters in depth.” Saltwater wetlands are defined as “coastal areas along sheltered shorelines characterized by halophilic hydrophytes and macro algae extending from extreme low tide to an area above extreme high tide that is influenced by sea spray or tidally induced water table changes.” This definition is comparable to the Clean Water Act Section 404 definition except that it goes beyond the Section 404 definition in regulating vegetated areas to a depth of 3 meters. ⁸

⁸ Association of State Wetland Managers. 2019. Alaska State Wetland Program Summary. Available at: https://www.aswm.org/pdf_lib/state_summaries/alaska_state_wetland_program_summary_083115.pdf. Accessed July 2019.

Term	Definition
Wild and Scenic River	A river that is part of the National Wild and Scenic River System. Also known as a Wild River. In Alaska, most Wild and Scenic Rivers were designated through the ANILCA. See also National Wild and Scenic Rivers System.
Wildfire	An unplanned ignition of a wildland fire (such as a fire caused by lightning, volcanoes, or unauthorized and accidental human-caused fires) and escaped prescribed fires.
Wildland fire	General term describing any non-structure fire that occurs in the wildland. Wildland fires are categorized into two distinct types: (1) Wildfires—unplanned ignitions or prescribed fires that are declared wildfires; or (2) Prescribed fires—planned ignitions.
Winter	Any time where there is adequate snow cover or frost to allow the operation of over-the-snow vehicles or snowmobiles without damaging surface vegetation and soils (43 CFR 36, ANILCA Special Access Provision). Adequate snow cover or frost shall mean snow of sufficient depth, generally 6-12 inches or more, or a combination of snow and frost depth, sufficient to protect the underlying vegetation and soil.
Withdrawal	Withholding an area of federal land from settlement, sale, location, or entry under some or all of the general land laws, for purposes of limiting activities under those laws in order to maintain other public values in the area or reserving the area for a particular public purpose or program; or transferring jurisdiction over an area of federal land from one department, bureau, or agency to another. Usually enacted through a public land order or legislation.
Woodland harvest	The gathering of any woodland products. These include any vegetative products, including firewood, biomass, house logs, saw logs, berries, and mushrooms for personal or commercial use. It does not include incidental use of poles for marking trails or hanging game. Incidental use of this type is not considered woodland harvest and would not be subject to management requirements.

Appendix C: Preparers

Appendix C. Preparers

Name	Area of Responsibility	Participation
Amy Rosenthal	Project Manager (2016-2018)	Project Lead
Louise Kling	Project Manager (2018-present) Assistant Project Manager (2016-2018); Visual Resources, Wild and Scenic Rivers, Areas of Critical Environmental Concern (ACECs), Recreation and Visitor Services	Project Lead, Author, Senior Reviewer, Supervisor
Emily Newell	Assistant Project Manager (2018-present)	Author, Senior Reviewer, Supervisor
Matt Petersen ³	Senior Project Advisor/Facilitator (2016-2018)	Oversight, Facilitation
Chad Ricklefs ¹	Senior Project Advisor (2016-2018)	Oversight, Supervisor
Gary Reimer	Program Manager (2016-2018)	Oversight, Supervisor
Jon Isaacs	Program Manager (2018-present) Subsistence Reviewer	Oversight, Supervisor
Angel Rabon	On-site Administrative Assistant (2018-present)	Administrative
Elizabeth Appleby	On-site Administrative Assistant (2016-2018)	Author, Public Outreach, Administrative
Paul Dworian	Discipline Lead; Water Resources, Minerals	Author, Senior Reviewer
Maria Shepherd	Discipline Lead; Wildlife, Fish and Aquatic Species	Author, Senior Reviewer
Courtney Brozovsky	GIS Lead	GIS, Supervisor
Jessica Evans	Public Involvement Lead; Lands and Realty, Locatable and Salable Minerals, Leasable Minerals	Author, Public Outreach, Supervisor
Susan Garland	Public Involvement, Cultural Resources, Special Designations (ACECs), Wild and Scenic Rivers	Author, Public Outreach, Senior Reviewer
Angie Adams ¹	National Trails, Special Designations (ACECs)	Author
Elizabeth Bella	Vegetation, Nonnative Invasive Species, Grazing	Author, Senior Reviewer
Dan LaPlant	Grazing (2016)	Author
Tara Bellion	Subsistence, ANILCA Section 810	Author, Senior Reviewer
Anne Ferguson	Assistant Project Manager (Acting) (2020); Discipline Lead; Recreation and Visitor Services, Travel and Transportation Management (2018)	Project Management, Author, Senior Reviewer
Kim Anderson	Wildlife, Vegetation, Wildland Fire	Author
Jan Reed	Discipline Lead; Vegetation, Nonnative Invasive Species, Water, Forestry and Woodland Products, Grazing	Author, Senior Reviewer
Linsey DeBell	Air and Air Quality-Related Values, Climate Change	Author
Zoe Ghali ¹	Forestry and Woodland Products, Wildland Fire	Author
Peter Gower ¹	Recreation and Visitor Services	Author
Drew Vankat ¹	Recreation and Visitor Services	Author
Anne Minihan	Assistant Project Manager (Acting) (2019); Discipline Lead; Alaska National Interest Lands Conservation Act (ANILCA) 810 Lead; Water Resources, Hazardous Materials and Health and Human Safety, ANILCA Section 810 Analysis	Project Management, Author, Senior Reviewer
Janet Guinn	Technical Editing (2016-2017)	Editing
Linda Harriss	Word Processing	Formatting
Derek Holmgren ¹	Noise	Noise Advisor
Jeff Johnson ¹	Wildland Fire (2016)	Author
Mike Kelly	Cultural Resources, Paleontological Resources	Author, Senior Reviewer
Ned Gaines	Cultural Resources (2016)	Author
Burr Neely	Cultural Resources, Paleontological Resources	Author

Name	Area of Responsibility	Participation
Larry Neal	Discipline Lead; Air and Air Quality-Related Values, Climate Change, Soils, Renewable Energy, Hazardous Materials and Health and Human Safety	Author
Rebecca Shell	Nonnative Invasive Species	Author, Senior Reviewer
Jenifer King	Visual Resources, Lands with Wilderness Characteristics, National Trails	Author
Tim Kramer	Lands with Wilderness Characteristics, Travel and Transportation Management (2016-2017)	Author
Jan Aarts	Technical Writer	Author
Bill Morris ²	Fish and Aquatic Species	Author
Greg Fulling ²	Fish and Aquatic Species	Author
Paul Myerchin	Leasable Minerals, Locatable and Salable Minerals, Geology and Soils	Author
Ryan Rapuzzi	Hazardous Materials and Public Safety, Renewable Energy (2016-2017)	Author
Christina Schmitt	Air and Air Quality-Related Values, Climate Change (2016-2018)	Author
Thomas Schultz	GIS Technician	GIS
Neal Smith	Grazing (2016-2017)	Author
Kelsey Tranel	Technical Editing and Word Processing (2016)	Editing, Formatting
Danni Kline	Technical Editing (2018-present)	Editing
Diana Burke	Technical Editing (2018-present)	Editing
Terry Chouinard	Formatting and Word Processing (2018-present)	Formatting
Young Cho	Formatting and Word Processing (2018-present)	Formatting
Carol Cook	508-Compliance Specialist	Formatting
Enterprise	Support for BSWI Communities	Author

¹ EMPSi² Owl Ridge³ SWCA

Appendix D: References

Appendix D. References

- ACRC (Alaska Climate Research Center). 2018. University of Alaska, Fairbanks. Available at: <http://akclimate.org/ClimTrends/Change/TempChange.html> (accessed September 2018).
- ADCCED (Alaska Department of Commerce, Community, and Economic Development). 2009. State of Alaska General Land Status with Guide Use Areas, Northern Alaska. Available at: https://www.commerce.alaska.gov/web/portals/5/pub/GUA_02012010_N1mil.pdf (accessed September 2018).
- ADEC (Alaska Department of Environmental Conservation). 2008. Groundwater in Alaska fact sheet. Available at: http://www.dec.state.ak.us/eh/dw/dwp/source_water.html (accessed November 22, 2010).
- ADEC. 2013. Alaska's Final 2012 Integrated Water Quality Monitoring and Assessment Report. December 23, 2013. Available at: https://dec.alaska.gov/water/wqsar/waterbody/docs/2012_Integrated_Report_FINAL_24DEC13.pdf (accessed September 2018).
- ADEC. 2015a. Alaska Enhanced Smoke Management Plan for Planned Fire: Procedures Manual. June 3, 2015.
- ADEC. 2015b. ADEC Regional Haze Progress Report, Volume III, Appendix to Section III.K. Areawide Pollutant Control Program for Regional Haze. Adopted December 17, 2015. Available at: <https://dec.alaska.gov/air/anpms/rh/rhdoc2/Appendix%20III.K.10.pdf> (accessed September 2018).
- ADEC. 2015c. Alaska State Greenhouse Gas Emissions Inventory 1990-2010, March 12. Available at: <https://dec.alaska.gov/air/anpms/Projects&Reports/DOCS/GHG-Inventory-Report-2015.pdf> (accessed September 2018).
- ADEC. 2016. Contaminated Sites Program. Contaminated Sites Map. Available at: <http://dec.alaska.gov/> (accessed September 2018).
- ADEC. 2018. Division of Air Quality. Air Permits, Approvals and Public Notices Database. Available at: <http://dec.alaska.gov/Applications/Air/airtoolsweb/AirPermitsApprovalsAndPublicNotices> (accessed September 2018).
- ADF&G (Alaska Department of Fish and Game). 2015. Alaska's Wildlife Action Plan, Draft for Public and Agency Review, 8-1-2015. Division of Wildlife Conservation, Juneau. 203 p.
- ADNR (Alaska Department of Natural Resources). 2016. Alaska's Statewide Comprehensive Outdoor Recreation Plan (SCORP): 2016–2021.
- ADNR. 2018a. Division of Oil & Gas. Best Interest Findings and Lease Sale. Available at: <http://dog.dnr.alaska.gov/Services/BIFAndLeaseSale> (accessed September 2018).
- ADNR. 2018b. What's Bugging Alaska's Forests? Spruce Bark Beetle Facts and Figures. Available at: <http://forestry.alaska.gov/insects/sprucebarkbeetle> (accessed September 2018).
- Alaska Wildland Fire Coordinating Group. 2015. Alaska Enhanced Smoke Management Plan.
- Alaska Wildland Fire Coordinating Group. 2016. Alaska Interagency Wildland Fire Management Plan 2016. Available at: [https://fire.ak.blm.gov/content/aicc/Alaska%20Statewide%20Master%20Agreement/4.%20Alaska%20Interagency%20Wildland%20Fire%20Managment%20Plan%20\(AIWFMP\)/2016%20AIWFMP.pdf](https://fire.ak.blm.gov/content/aicc/Alaska%20Statewide%20Master%20Agreement/4.%20Alaska%20Interagency%20Wildland%20Fire%20Managment%20Plan%20(AIWFMP)/2016%20AIWFMP.pdf) (accessed August 2018).

- APLIC (Avian Power Line Interaction Committee). 2012. Reducing avian collisions with power lines: the state of the art in 2012. October 2012. Washington, DC: Edison Electric Institute and APLIC.
- Association of Village Council Presidents. 2014. Comprehensive Economic Development Strategy. Available at:
<https://www.commerce.alaska.gov/web/Portals/6/pub/FY%2013%20AVCP%20CEDS.pdf> (accessed August 2018).
- Audubon. 2016. Ecological Atlas of Alaska's Western Arctic, Third Edition. July 2016. Available at:
<http://ak.audubon.org/node4186/special-reports-and-publications> (accessed August 2018).
- Ayunerak, P., D. Alstrom, C. Moses, J. Charlie, Sr., and S. Rasmus. 2014. Yup'ik Culture and Context in Southwest Alaska: Community Member Perspectives of Tradition, Social Change, and Prevention. *American Journal of Community Psychology* 54(0): 91–99.
- Barrett, S., D. Havlina, J. Jones, W. Hann, C. Frame, D. Hamilton, and J. Menakis. 2010. Interagency fire regime condition class guidebook. Version 3.0. (Guidebook). National Interagency Fuels, Fire, and Vegetation Technology Transfer.
- Bersamin, A., S. Zidenberg-Cherr, J.S. Stern, and B.R. Luick. 2007. Nutrient Intakes are Associated with Adherence to a Traditional Diet among Yup'ik Eskimos Living in Remote Alaska Native Communities: The CANHR Study. *International Journal of Circumpolar Health* 66:1 2007.
- BLM (Bureau of Land Management). n.d. Alaska Statewide Land Health Standards. Available at:
https://eplanning.blm.gov/epl-front-office/projects/lup/66967/84130/100730/Statewide_land_health_standards.pdf (accessed September 2018).
- BLM. 1981. Management Framework Plan, Southwest Planning Area. Anchorage: BLM Anchorage District Office. Available at: <https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage&currentPageId=48431> (accessed October 2016).
- BLM. 1983. Unalakleet National Wild River Management Plan. U.S. Department of the Interior, Bureau of Land Management. Anchorage District, Alaska. Available at: <https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage&currentPageId=48431> (accessed October 2016).
- BLM. 1986a. Central Yukon Planning Area Resource Management Plan and Record of Decision, September 1986. Fairbanks District Office, Northwest Resource Area. Available at:
<https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage&currentPageId=48431> (accessed October 2016).
- BLM. 1986b. Iditarod National Historic Trail, Seward to Nome Route: A Comprehensive Management Plan. Washington, DC. Available at:
https://www.arlis.org/docs/vol2/Iditarod/INHT_Comprehensive_Management_Plan/INHT_Comprehensive_Management_Plan.pdf (accessed September 2018).
- BLM. 1988. BLM Manual 1613, Areas of Critical Environmental Concern. Available at:
https://www.blm.gov/sites/blm.gov/files/uploads/mediacenter_blmpolicymanual1613.pdf (accessed December 20, 2018).
- BLM. 1998. BLM General Procedural Guidance for Paleontological Resource Management Handbook H-8270-1.

- BLM. 2005a. Land Use Planning Handbook (H-1601-1). March 11, 2005. Washington, DC. Available at: https://www.ntc.blm.gov/krc/uploads/360/4_BLM%20Planning%20Handbook%20H-1601-1.pdf (accessed July 31, 2018).
- BLM. 2005b. Decision Record for the Land Use Plan Amendment for Wildland Fire and Fuels Management for Alaska Environmental Assessment. AK-313-04-EA-001. Prepared by the Bureau of Land Management Alaska Fire Service, Fairbanks, AK. July 20, 2005. Available at: https://www.blm.gov/style/medialib/blm/ak/aktest/planning/ak_land_use_plan_amendment_2005.Par.22251.File.dat/Decision_record_signed072005.pdf (accessed November 2016).
- BLM. 2007a. Vegetation Treatments using Herbicides in 17 Western States Record of Decision. September 2007.
- BLM. 2007b. Burned Area Emergency Stabilization and Rehabilitation Handbook #1742-1, Washington, D.C.
- BLM. 2008a. Instruction Memorandum No. 2009-011. Assessment and Mitigation of Potential Impacts to Paleontological Resources. October 10, 2008.
- BLM. 2008b. Alaska Minerals Information System (AMIS) database.
- BLM. 2009. BLM Manual 7300: Air Resources Management Program. Available at: https://www.blm.gov/sites/blm.gov/files/uploads/mediacenter_blmpolicymanual7300.pdf (accessed December 20, 2018).
- BLM. 2012a. BLM Handbook H-3809-1, Surface Management. Available at: <https://www.blm.gov/sites/blm.gov/files/H-3809-1.pdf> (accessed December 20, 2018).
- BLM. 2012b. BLM Manual 6340: Management of Designated Wilderness Areas (Public). Available at: https://www.blm.gov/sites/blm.gov/files/uploads/mediacenter_blmpolicymanual6340.pdf (accessed December 20, 2018).
- BLM. 2012c. BLM Manual 6400: Wild and Scenic Rivers: Policy and Program Direction for Identification, Evaluation, Planning, and Management. Available at: https://www.blm.gov/sites/blm.gov/files/uploads/mediacenter_blmpolicymanual6400.pdf (accessed July 21, 2018).
- BLM 2014a. Scoping Summary Report, for Bering Sea–Western Interior Resource Management Plan, Anchorage Field Office, Anchorage. Available at: https://eplanning.blm.gov/epl-front-office/projects/lup/36665/48374/52539/Scoping_Summary_and_Report.pdf (accessed August 1, 2016).
- BLM. 2014b. Protocol for Managing Cultural Resources on Lands Administered by the Bureau of Land Management in Alaska. Signed February 5, 2014. Available at: http://www.blm.gov/style/medialib/blm/ak/aktest/culture_res/culture_pdfs.Par.49109.File.dat/BLM-AK_Protocol_with_State_Historic_Preservation_Office_signed_02052014.pdf (accessed August 2018).
- BLM. 2015a. Mineral Occurrence and Development Potential Report for Leasable Minerals within the Bering Sea–Western Interior Planning Area. Prepared by Zachary Lyons, Geologist, Energy and Minerals Branch, Division of Resources, BLM Alaska State Office. January 2015. Available at: https://eplanning.blm.gov/epl-front-office/projects/lup/36665/43890/58028/2015-01-07_LeasableMineralsReport.pdf (accessed August 2018).
- BLM. 2015b. Preliminary Alternatives Comment Summary Report. August.
- BLM. 2015c. Instruction Memorandum No. 2016-013, Managing for Pollinators on Public Lands. Available at: <https://www.blm.gov/policy/im-2016-013> (accessed December 20, 2018).

- BLM. 2015d. Analysis of the Management Situation, Bering Sea–Western Interior Resource Management Plan. February 17, 2015. Available at: [https://eplanning.blm.gov/epl-front-office/projects/lup/36665/54700/59390/AMS_FinalDraft_v.02.15.2015_\(508_ready\).pdf](https://eplanning.blm.gov/epl-front-office/projects/lup/36665/54700/59390/AMS_FinalDraft_v.02.15.2015_(508_ready).pdf) (accessed August 2018).
- BLM. 2016a. Vegetation Treatments using Aminopyralid, Fluroxypyr, and Rimsulfuron on BLM Land in 17 Western States.
- BLM. 2016b. Travel and Transportation Management. BLM Manual 1626. Available at: <https://www.blm.gov/sites/blm.gov/files/documents/files/Media%20Center%20BLM%20Policy%20Manual%20MS%201626.pdf> (accessed August 2018).
- BLM. 2016c. Geographic Information Systems. BLM, Anchorage Field Office, Anchorage, AK.
- BLM. 2016d. Instruction Memorandum No. 2016-124, Potential Fossil Yield Classification (PFYC) System for Paleontological Resources on Public Lands. Available at: <https://www.blm.gov/policy/im-2016-124> (accessed September 19, 2018).
- BLM. 2016e. Eastern Interior Proposed Resource Management Plan and Final Environmental Impact Statement. Prepared by U.S. Department of the Interior Bureau of Land Management-Alaska Eastern Interior Field Office. June 2016, 1791 pages. Available at: <https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage&currentPageId=10151> (accessed September 2008).
- BLM. 2017. BLM Handbook H-2930-1 Recreation Permit and Fee Administration Handbook. Available at: [https://www.blm.gov/style/medialib/blm/wo/Information_Resources_Management/policy/blm_handbook.Par.16535.File.dat/H_2930_1_FINAL\(1\).pdf](https://www.blm.gov/style/medialib/blm/wo/Information_Resources_Management/policy/blm_handbook.Par.16535.File.dat/H_2930_1_FINAL(1).pdf) (accessed December 2018).
- BLM. 2018a. Instruction Memorandum No. 2019-018: Compensatory Mitigation. December 6.
- BLM. 2018b. Wilderness Characteristics Inventory Report. BLM, Anchorage Field Office, Anchorage, AK.
- BLM. 2018c. Areas of Critical Environmental Concern: Report on the Application of the Relevance and Importance Criteria. Bering Sea–Western Interior Resource Management Plan. Original publication April 2015. Revised version September 2018. BLM, Anchorage Field Office, Anchorage, AK.
- BLM. 2018d. BLM Handbook H-1624-1, Planning for Fluid Mineral Resources. Available at: <https://www.blm.gov/sites/blm.gov/files/H-1624-1%20rel%201-1791.pdf> (accessed August 2018).
- BLM. 2018e. Visual Resource Inventory for the Bering-Sea–Western Interior Planning Area. BLM, Anchorage Field Office, Anchorage, AK.
- BLM. 2018f. Wild and Scenic Study Report. Prepared for the Bering Sea–Western Interior Resource Management Plan. September.
- BLM. 2019. Comment Summary Report. Prepared for the Bering Sea–Western Interior Resource Management Plan. May.
- BLM, State Historic Preservation Office, Advisory Council on Historic Preservation, and National Conference of State Historic Preservation Officers. 2012. Programmatic Agreement Among the Bureau of Land Management, The Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers Regarding the Manner in which the BLM Will Meet its Responsibilities under the National Historic Preservation Act. February 2012. Signed

- February 9, 2012. Available at:
<https://www.blm.gov/sites/blm.gov/files/National%20Programmatic%20Agreement.pdf>
(accessed August 2018).
- Bradshaw, C.J.A., S. Boutin, and D.M. Hebert. 1997. Effects of Petroleum Exploration on Woodland Caribou in Northeastern Alberta. *The Journal of Wildlife Management* 61(4): 1127-1133. Available at: <https://www.jstor.org/stable/3802110?seq=1> (accessed August 2020).
- CEQ (Council on Environmental Quality). 1997. Environmental Justice: Guidance under the National Environmental Policy Act. Available at: https://www.epa.gov/sites/production/files/2015-02/documents/ej_guidance_nepa_ceq1297.pdf (accessed August 2020).
- Davis, M.A., J.P. Grime, and K. Thompson. 2000. Fluctuating Resources in Plant Communities: A General Theory of Invasibility. *Journal of Ecology* 88 (3): 528-534.
- DOI (U.S. Department of the Interior). 2007. Hydraulic Considerations for Pipelines Crossing Stream Channels. Technical Note 423. BLM/ST/ST-07/007+2880. Denver, CO: National Science and Technology Center. Available at: <https://www.blm.gov/download/file/fid/20818> (accessed August 18, 2018).
- DOI. 2016. Safeguarding America's lands and waters from invasive species: A national framework for early detection and rapid response, Washington D.C. Available at: <https://www.doi.gov/sites/doi.gov/files/National%20EDRR%20Framework.pdf> (accessed August 15, 2018).
- DOI. 2018. Strategic Plan for Fiscal Years 2018-2022. Available at: <https://www.doi.gov/sites/doi.gov/files/uploads/fy2018-2022-strategic-plan.pdf> (accessed September 19, 2018).
- FHWA (Federal Highway Administration). 2007. Trail Construction and Maintenance Handbook. July.
- Finstad, G. 2008. Applied Range Ecology of Reindeer (*Rangifer tarandus tarandus*) on the Seward Peninsula, Alaska.
- FR (Federal Register). 2013. Notice of Intent to Prepare a Resource Management Plan for the Bering Sea–Western Interior Planning Area, Alaska and Associated Environmental Impact Statement. *Federal Register* Vol. No. 78, July 18, 2013, pages 42970-42972. Available at: <https://www.federalregister.gov/documents/2013/07/18/2013-17224/notice-of-intent-to-prepare-a-resource-management-plan-for-the-bering-sea-western-interior-planning> (accessed August 2018).
- Harman, W., R. Starr, M. Carter, K. Tweedy, M. Clemmons, S. Suggs, and C. Miller. 2012. A function-based framework for developing stream assessments, restoration goals, performance standards, and standard operating procedures. Washington, DC: U.S. Environmental Protection Agency, Office of Wetlands, Oceans, and Watersheds.
- Headwaters Economics. 2013. Economic Profile System–Human Dimensions Toolkit. Available at: <http://headwaterseconomics.org/tools/eps-hdt> (accessed August 2018).
- Hegg, K.M., and H. Sieverding. 1979. Timber Resources of the Kuskokwim Flood Plain and Adjacent Upland. Resource Bulletin PNW-87. Portland, OR: USDA Forest Service.
- Hobbs, R.J., and L.F. Huenneke. 1992. Disturbance, Diversity, and Invasion: Implications for Conservation. *Conservation Biology* 6 (3): 324-337.
- Hutchison, O.K. 1967. Alaska's Forest Resource. U.S. Forest Service Resource Bulletin PWN 19, 74 p. Iditarod. 2017. Race Center. Available at: <http://iditarod.com/race/> (accessed February 21, 2017).

- Ikuta, H., C.L. Brown, and D.S. Koster. 2014. Subsistence Harvests in 8 Communities in the Kuskokwim River Drainage and Lower Yukon River, 2011. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 396. Fairbanks, AK.
- Iron Dog Snowmachine Race. 2017. Race Tracking, Available at: <http://www.irondog.org/race-tracking/>. (accessed February 21, 2017).
- Johnson, J., and V. Litchfield. 2016a. Catalog of waters important for spawning, rearing, or migration of anadromous fishes—Interior Region, Effective March 1, 2016. Alaska Department of Fish and Game, Special Publication No. 16-02, Anchorage.
- Johnson, J., and V. Litchfield. 2016b. Catalog of waters important for spawning, rearing, or migration of anadromous fishes—Southwestern Region, Effective June 1, 2016. Alaska Department of Fish and Game, Special Publication No. 16-05, Anchorage.
- Johnson, J., and V. Litchfield. 2016c. Catalog of waters important for spawning, rearing, or migration of anadromous fishes—Western Region, Effective June 1, 2016. Alaska Department of Fish and Game, Special Publication No. 16-06, Anchorage.
- Johnstone, J., and T. Hollingsworth. 2007. Managing Fire with Fire in Alaska Black Spruce Forests: Impacts of Fire Severity on Successional Trajectory and Future Forest Flammability. Final Report to the Joint Fire Science Program. Project #05-1-2-06. October 31, 2007.
- Jones, L.A., E.R. Schoen, R. Shaftel, C.J. Cunningham, S. Mauger, D.J. Rinella, and A. St. Saviour. 2020. Watershed-scale Climate Influences Productivity of Chinook Salmon Populations Across Southcentral Alaska. *Global Change Biology* 00:1-18. Available at: <https://onlinelibrary.wiley.com/doi/full/10.1111/gcb.15155> (accessed August 2020).
- Keller, R.P., and D.M. Lodge. 2007. Species Invasions from Commerce in Live Aquatic Organisms: Problems and Possible Solutions. *BioScience* 57(5): 428-436.
- Kent, S.M., and D.J. Bergstrom. 2009. Norton Sound Subdistrict 5 (Shaktoolik) and Subdistrict 6 (Unalakleet) Chinook salmon stock status and action plan, 2010; a report to the Alaska Board of Fisheries. Alaska Department of Fish and Game, Special Publication No. 09-25, Anchorage.
- Kurtak, J., J. Hoppe, and R. Ellefson. 2010. Mineral Occurrence and Development Potential Report Locatable and Salable Minerals Bering Sea—Western Interior Resource Management Plan, U.S. Department of the Interior, Bureau of Land Management BLM Alaska Technical Report 60 BLM/AK/ST-10/009+9218+3130.
- Kurtak, J., J. Hoppe, and R. Ellefson. 2017. Mineral Occurrence and Development Potential Report, Locatable and Salable Minerals. BLM Alaska Technical Report 63, July 2017. Available at: https://eplanning.blm.gov/epl-front-office/projects/lup/36665/145032/178739/2017_Minerals_Occurrence_and_Development_Potential_Report_Rev1.pdf (accessed September 2018).
- Lembrechts, J. J., A. Pauchard, J. Lenoir, M. A. Nunez, C. Geron, A. Ven, P. Bravo-Monasterio, T. Teneb, I. Nijs, and A. Milbau. 2016. Disturbance is the Key to Plant Invasions in Cold Environments. *Proceedings of the National Academy of Sciences* 113(49):14061-14066.
- Lingle, E.G., P.J. Fix, and A.M. Harrington. 2011. Bering Sea and Western Interior Land Use Study. Final Report for USDI Bureau of Land Management. #MP2011-03. Fairbanks, Alaska: Department of Humans and the Environment, School of Natural Resources and Agricultural Sciences, University of Alaska Fairbanks. Available at: https://eplanning.blm.gov/epl-front-office/projects/lup/36665/43912/47263/Lingle_FixBSWI_final_report_12-28-2011.pdf (accessed August 2018).

- Magness, D.R., A.L. Sesser, and T. Hammond. 2018. Using Geodiversity to Connect Conservation Lands in the Central Yukon, Alaska. *Landscape Ecology*. 33(4) pp 547–556. Available at: <https://doi.org/10.1007/s10980-018-0617-0>.
- McClory, J., and T. Gotthardt. 2008. Non-native and Invasive Animals of Alaska—A Comprehensive List and Select Species Status Reports. Final Report. January.
- Moore, K.E. 2011. Collaborative Monitoring of Seward Peninsula, Alaska Reindeer (*Rangifer tarandus tarandus*) Grazing Lands.
- NASA. 2020. Scientific Consensus: Earth’s Climate is Warming. Available at: <https://climate.nasa.gov/scientific-consensus/> (accessed August 2020).
- National Research Council. 1996. Stemming the Tide: Controlling Introductions of Nonindigenous Species by Ships’ Ballast Water. Washington DC: The National Academies Press. Available at: <https://doi.org/10.17226/5294> (accessed September 2018).
- NIFIT (National Interagency Fuels, Fire and Vegetation Technology Transfer). 2010. Interagency Fire Regime Condition Class (FRCC) Guidebook—Version 3.0.
- NRCS (Natural Resource Conservation Service). 2001. A Procedure for Evaluating Lichen Utilization on Reindeer Ranges.
- Pegau, R.E. 1970. Effect of Reindeer Trampling and Grazing on Lichens. *Journal of Range Management* 23:95-97.
- Raymond-Yakoubian, J. 2013. When the Fish Come, We Go Fishing: Local Ecological Knowledge of Non-Salmon Fish Used for Subsistence in the Bering Strait Region. U.S. Fish and Wildlife Service, Office of Subsistence Management, Fisheries Resource Monitoring Program, Final Report (Study No. 10-151). Kawerak, Incorporated, Social Science Program, Natural Resources Division, Nome, Alaska. Available at: <https://kawerak.org/wp-content/uploads/2018/04/Non-Salmon-Report.pdf> (accessed December 2018).
- Raymond-Yakoubian, B., and J. Raymond-Yakoubian. 2015. Always Taught Not To Waste: Traditional Knowledge and Norton Sound/Bering Strait Salmon Populations. 2015 Arctic-Yukon-Kuskokwim Sustainable Salmon Initiative Project 1333 Final Product. Prepared by Kawerak, Incorporated. Nome, Alaska. Available at: <https://kawerak.org/wp-content/uploads/2018/04/TK-of-Salmon-Final-Report.pdf> (accessed December 2018).
- Scott, Joe H., and R.E. Burgan. 2005. Standard fire behavior fuel models: a comprehensive set for use with Rothermel’s surface fire spread model. Gen. Tech. Rep. RMRS-GTR-153.
- Stern, R.O., E.L. Arobio, L.L. Naylor, and W.C. Thomas. 1980. Eskimos, Reindeer and Land. AFES, School of Agriculture and Land Resources Management, Agricultural and Forestry Station, University of Alaska Fairbanks. Bulletin 59. 205 pp.
- Swanson, J.D., and M.H.W. Barker. 1992. Assessment of Alaska reindeer populations and range conditions. *Rangifer*, 12:33-43. Available at: <https://septentrio.uit.no/index.php/rangifer/article/view/1023/977> (accessed August 2018).
- UAF RRP (University of Alaska Fairbanks, Reindeer Research Program). 2016. About Reindeer. Available at: http://reindeer.salrm.uaf.edu/about_reindeer/#Description (accessed October 24, 2016).
- U.S. Census Bureau. 2010a. 2010 Census Fact Finder. Available at: <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>. <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml> (accessed October 2016).

- U.S. Census Bureau. 2010b. 2010 Census Interactive Population Search Bethel City. Available at: <http://www.census.gov/2010census/popmap/ipmtext.php?fl=02:0206520> (accessed October 2016).
- U.S. Census Bureau. 2014. Quickfacts. Alaska; United States. Available at: <http://quickfacts.census.gov/qfd/states/02000.html> (accessed October 2016).
- USDA (U.S. Department of Agriculture) Forest Service. 2015. Forest Health Conditions in Alaska–2015: A Forest Health Protection Report. R10-PR-38. Anchorage, AK. 90 p.
- USDA Forest Service. 2018. Spruce Beetle. Available at: <https://www.fs.usda.gov/detailfull/r10/forest-grasslandhealth/?cid=FSEPRD536861&width=full#Historic%20Activity> (accessed September 2018).
- USFWS (U.S. Fish and Wildlife Service). 2004. Land Conservation Plan for Yukon Delta National Wildlife Refuge. Bethel, Alaska, September 2004.
- USFWS. 2007. National Bald Eagle Management Guidelines.
- USFWS. 2020. Eagle Permits. Available at: <https://www.fws.gov/alaska/pages/migratory-birds/eagles-other-raptors/eagle-permits> (accessed August 2020).
- USGCRP (U.S. Global Change Research Program). 2018. Climate Science Special Report: Fourth National Climate Assessment, Volume I. Weubbles, D.J., D.W. Fahay, K.A. Hibbard, D.J. Dokken, B.C. Stewart, and T.K. Maycock (eds.). Washington DC, 479 pp. doi:10.7930/JOJ964J6.
- USGS (U.S. Geological Survey). 2008. Alaska Resource Data Files (ARDF). Available at: <http://ardf.wr.usgs.gov> (accessed August 2018).
- USGS. 2016. Changing Arctic Ecosystems Initiative, Alaska Science Center. Anchorage, AK.
- van der Heijden, M.G.A., R.D. Bardgett, and N.M. van Straalen. 2008. The Unseen Majority: Soil Microbes as Drivers of Plant Diversity and Productivity in Terrestrial Ecosystems. *Ecology Letters* 11: 296-310.
- VanStone, J.W. 1979. Fieldiana: Anthropology. A Continuation of the Anthropological Series of Field Museum of Natural History. Volume 72. Historic Ingalik Settlements Along the Yukon, Innoko, and Anvik Rivers, Alaska. March 30.
- Walker, R.J., and R.G. Wolfe. 1987. Subsistence Economies in Alaska: Productivity, Geography, and Development Impacts. *Arctic Anthropology* 24(2): 56-81.

Appendix E: Summary of Notable Changes from the Draft RMP/EIS

Appendix E. Summary of Notable Changes from the Draft RMP/EIS

Several notable changes were made from the Bureau of Land Management's (BLM's) Bering Sea–Western Interior (BSWI) Draft Resource Management Plan (RMP)/Environmental Impact Statement (EIS) to the Proposed RMP/Final EIS (PRMP/FEIS), which are described below by chapter and appendix. In addition to the changes listed below, minor editorial changes have been made to the document, including spelling and grammar corrections, revised sentence structuring to improve readability and clarity, and revised appendix lettering.

Executive Summary

- The executive summary and Table ES-1 were revised for consistency with all the changes described in the sections below.

Chapter 1

- The definition of “BLM-unencumbered” was revised to clarify the selection process of “top-filed lands.”
- The definition of “Mineral estate” was revised to clarify BLM's role in administering valid federal mining claims.
- The definition of “State of Alaska lands” was revised to include lands under navigable waters and navigable waters.
- Examples of substantial alterations in resources and circumstances that have occurred in the planning area since 1981 were added to Section 1.2.
- Explanations of “land tenure” and “top-filed lands” and a table of the acreages of top-filed lands and State-selected lands were added to Section 1.3.3.
- Additional information about government-to-government consultation and Alaska Native Claims Settlement Act (ANCSA) corporation outreach was added to Section 1.8.2.
- Information on the public comment period, public outreach, and incorporation of public comment was added to Section 1.8.3.
- Information about the protest period and governor's consistency review of the PRMP/FEIS was added to Section 1.8.3.

Chapter 2

- A new alternative was added, Alternative E, which is also the Proposed RMP. The Proposed RMP (Alternative E) was developed based on input collected during the public comment period for the Draft RMP/EIS. The Proposed RMP (Alternative E) is similar to Alternative C; however, there are some notable differences:
 - The high-value watersheds (HVWs) under Alternative E would be the same as Alternative D.
 - In general, management actions that pertain to HVWs under Alternative E only apply to the 100-year floodplain rather than the entire HVW geography.
 - Lands with wilderness characteristics management is the same as Alternative D.
 - Salable mineral management actions are within the bounds of what was evaluated under Alternatives C and D in the Draft RMP/EIS.

- Mineral leasing management actions are within the bounds of what was evaluated under Alternatives C and D in the Draft RMP/EIS.
- Right-of-way (ROW) Avoidance management actions are within the bounds of what was evaluated under Alternatives A and D in the Draft RMP/EIS.
- The BSWI Extensive Recreation Management Area (ERMA) is smaller than that proposed under Alternative C (and D) and equal to the geographic extent of Community Focus Zones (CFZs) in Alternative C.
- Visual Resource Management (VRM) Classes for National Wildlife Refuge and National Park/Wilderness Boundaries are the same as Alternative D.
- References to 40 Code of Federal Regulations (CFR) 1508.20 and the BLM's Manual Section 1794, *Regional Mitigation*, in Section 2.3 (regarding the mitigation hierarchy) were replaced with BLM Instruction Memorandum (IM) 2019-018, *Compensatory Mitigation*, to reflect how compensatory mitigation must be voluntary, or in compliance with other State or federal requirements, but is not a part of the standard mitigation hierarchy.
- In Section 2.3, Management Common to All Alternatives, the statement regarding management of existing fluid mineral leases through Conditions of Approval outlined in this RMP was removed.
- In Section 2.3, a management action common to all action alternatives was added to clarify that a Title 16 permit is required from the Alaska Department of Fish and Game (ADF&G) Habitat Division for culvert installations in any fish-bearing stream and for work below the ordinary high water mark (OHWM), regardless of the Authorized Officer's (AO's) determination.
- In Section 2.3, language referring to BLM IM 2019-018, *Compensatory Mitigation*, was removed from the last bullet point.
- In Section 2.3.1, Section 1110 of Alaska National Interest Lands Conservation Act (ANILCA), as found in 43 CFR Part 36, was clarified for reference to access in and across conservation system units.
- In Section 2.3.1, Section 811 of ANILCA language referring to closures of lands designated by ANILCA Section 811(a) (and relevant footnote) was removed.
- In Section 2.3.2, Mitigation, language referring to BLM IM 2019-018, *Compensatory Mitigation*, was removed from the first paragraph.
- First bullet under Section 2.3.2, Mitigation, regarding identified low-functioning, previously mined stream systems for mitigation was removed.
- Third bullet under Section 2.3.2, Mitigation, on bonding for locatable minerals was removed.
- Section 2.3.3 was re-named from "Land Disposals" to "Land Disposals and Exchanges," and a bulleted list of requirements for land exchanges was added. These changes were made because the alternatives included proposed land exchanges as well as disposals, so this additional text provides more context on the requirements for land exchanges rather than strictly focusing on land disposals, as well as the government bodies responsible for authorizing said exchanges. Additional text was also added to define the land tenure system and the term "disposal." Reference to the Secretarial Order 3373, Evaluating Public Access of Bureau of Land Management (BLM) Public Land Disposals and Exchanges and BLM Informational Bulletin No. 2020-010 was also added. Language referring to Appendix I was added referring the reader to maps for public tracts at issue. Language was added to clarify that public land exchanges in Alaska must be of equal value unless the Secretary of the Interior determines it is in the public interest to exchange lands for other than equal value.

- In Sections 2.4 and 2.6, text was added to describe Alternative E and identify it as the Proposed RMP for the planning area.
- In Tables 2-1a, b, and c, Alternative E (Proposed RMP) was added.
- In Table 2-1a, acreage for HVWs was added to the comparative summary across alternatives. Acreage for HVWs and decisions predicated on HVW were updated to account for 12 watersheds that were previously not included in the HVW identification due to an error in the methodology. The error has been corrected, and the acreage of these 12 watersheds has been added to the HVWs identified for each alternative.
- In Table 2-1a, an explanation of how VRM II is applied under Alternative A was added.
- In Table 2-1b, the management action “Permits for Commercial Woodland Harvest Granted on a Case-by-Case Basis” was removed and the acreage added to the “Commercial Woodland Harvest Open to Permitting” management action. This change was made because in effect, permits for commercial woodland harvest would be granted by considering the details of each permit application and there would effectively be no difference in how the two categories would be implemented.
- In Table 2-1b, the acres for “Commercial Woodland Harvest Open to Permitting,” and “Closed to Commercial Woodland Harvest,” were updated to correct errors in the acres presented for these two decisions in Alternatives A and B.
- In Table 2-1b, the category “Open to Grazing on a Case-by-case Basis” was changed to “Open to Grazing.” This change was made because, by definition in the management action as described in Section 2.6.13, all grazing permits would be issued at the site-specific implementation level, and the qualifier “Case-by-case” is not needed.
- In Table 2-1b, acreage for areas “Open to Grazing” for Alternative C was changed from 7,742,975 acres to 12,848,472 acres, and the line in the table for areas “closed until standards were developed” was deleted because there are no longer any lands proposed to be managed as such. These changes reflect that HVWs are no longer closed until standards are developed because reindeer are not prone to congregate in riparian areas so standards and guidelines for riparian management for grazing are not needed for reindeer management. As such, no impacts from reindeer grazing in riparian areas are noted in the effects section in Chapter 3.
- In Table 2-1b, the management action “Open to Locatable Mineral Entry” was further clarified to provide information on acres segregated due to selection.
- In Table 2-1b, the management action “Open to Salable on a Case-by-Case Basis” was changed to “Open to Salable (subject to terms and conditions).”
- In Table 2-1b, the management action “ROW Permitted on a Case-by-Case Basis” was removed and combined with “Open to ROW Location.” This change was made because ROWs would be granted by considering the details of each ROW application and there would effectively be no difference in how the two categories would be implemented.
- In Table 2-1b, the acreages for “Available for Exchange Only” under Alternatives B and C were revised to account for a mapping error that inadvertently included a parcel that should have been excluded. This same change was for Alternative D under the category “Available for Disposal or Exchange.”
- In Table 2-1b, the category “Community Focus Zones,” was added to make the summary table more complete.
- In Table 2-1b, the category “Undesignated Recreation Lands,” was added to reflect the areas outside of the SRMA and ERMA for Alternative E (the Proposed RMP).

- Section 2.5.1, Lands with Wilderness Characteristics, was deleted. The discussion of the use of a lands with wilderness characteristics inventory in the development of a range of alternatives was moved to Section 2.6.11, under Description of Lands with Wilderness Characteristics Management Actions by Alternative.
- In Section 2.5, Alternatives Eliminated from Detailed Analysis, a new sub-section was added: “2.5.2 Retain all ANCSA 17(d)(1) Withdrawals.” This section provides an explanation of why that alternative was not analyzed in detail in the Draft RMP/EIS, including reference to the Dingell Act.
- Section 2.6, Considerations in Selecting the Proposed RMP Alternative, was deleted.
- Throughout Section 2.6, the phrase “case-by-case” was generally removed from descriptions of the management actions for the action alternatives.
- Throughout Section 2.6, management direction related to Excluded Unconveyed Claim Area was added to resource sections.
- A statement was added to Section 2.6 to clarify that in cases where different levels of management for the same resource overlap, the strictest management supersedes the less stringent management direction. For example, if an area that is managed as open to commercial woodland harvest overlaps with an area that is closed to commercial woodland harvest, the area of overlap would be managed as closed to commercial woodland harvest because that is the more stringent of the two management directions.
- In Section 2.6.1, Air Quality and Air Quality-Related Values, management action 3 was changed as follows: “Transportation ROWs near communities would ~~be hardened or otherwise stabilized and would~~ require design features or mitigation measures to minimize fugitive dust emissions from travel on unpaved surfaces.”
- In Section 2.6.1, Air Quality and Air Quality-Related Values, management action 8 was changed as follows: “BMPs would be applied to BLM-authorized activities to reduce emissions of GHGs. ~~and BLM would prioritize enhanced energy efficiency, use of lower GHG emitting technologies or renewable energy, planning for carbon capture and sequestration, and the capture or beneficial use of fugitive methane emissions.~~”
- In Section 2.6.1, Air Quality and Air Quality-Related Values, management action 9 was changed as follows: “Monitoring of GHG emissions would occur, ~~as deemed necessary by the AO, at the implementation/permitting level. Based on the results of this monitoring, subsequent adaptive management could be implemented to minimize these emissions to the extent possible.~~ Additionally, monitoring of NAAQS criteria pollutants would be conducted as deemed necessary and pollutant control measures would be adjusted as necessary to continue to meet NAAQS for criteria pollutants, including particulates. An estimate of current and future downstream GHG emissions that are attributed to the project actions will be included in the air analysis.”
- In Section 2.6.2, Soils, under management action 3, the following sentence “Where economically, technically and logistically feasible, mining operations must directly transport topsoil from its original location to the point of reclamation without intermediate stockpiling” was deleted from the fourth bullet point. Language was also altered to clarify that 70 percent of native plant cover must be attained for a minimum of two growing seasons with a self-sustaining trend, as well as an absence of non-native plant species above baseline.
- In Section 2.6.2, Soils, under management action 4, language in the first bullet point was changed from required to “prevent impacts” to “minimize impacts.” The clause “that would violate applicable federal or State laws” was removed. All specific examples were removed from the second bullet point.

- In Section 2.6.2, Soils, under management action 6, a bullet point detailing the use of cumulative impacts analysis was removed and replaced with the following: “BLM would use existing Rapid Ecoregional Assessment (REA) or other comparable data in the cumulative impacts analysis for surface-disturbing activities.” The language “due to climate change or due to authorized activities” was removed from the last bullet point.
- In Section 2.6.3, Water Resources and Fisheries, reference to BLM IM No. 2019-010 was removed.
- In Section 2.6.3, Water Resources and Fisheries, the following sentences were deleted from management actions common to all:
 - “At the completion of reclamation, riparian vegetation complexity measures should be minimally functioning with an upward trend. Reclamation of the channel and floodplain will be accomplished via natural channel design and incorporation of supporting elements or features, such as proper floodplain grading, vegetation mats or transplants, integrated rock and organic debris, seeding, etc. At the completion of reclamation, the channel and floodplain features should be able to withstand moderate flood discharge events (5- to 10-year flood event).”
 - “All reclamation plans must be designed such that the affected stream segment will be geomorphically stable, riparian vegetation complexity measures should be minimally functioning with an upward trend, and floodplain conditions should be able to withstand moderate flood discharge events (5- to 10-year flood event).”
- In Section 2.6.3, Water Resources and Fisheries, the third bullet under management action 1 (Water Resources Actions Common to All Action Alternatives) was revised as follows, consistent with BLM IM No. 2019-010:¹ “Technology and practices must be used such that, at the completion of reclamation, the affected stream segment will be, at minimum, geomorphically stable, with adequate riparian floodplain vegetation to reduce erosion, dissipate stream energy, and promote the recovery of instream habitats per the BLM Handbook H-3809-1, *Surface Management* (BLM 2012a). Stream reclamation will be evaluated using metrics of geomorphic stability based on established science, policy, and/or regional datasets (e.g., AIM National Aquatic Monitoring Framework).”
- In Section 2.6.3, Water Resources and Fisheries, the sixth bullet under management action 1 was revised by deleting the following sentence: “In general, all operations that could disturb more than 1,500 feet of stream would require an RCE.”
- In Section 2.6.3, Water Resources and Fisheries, the ninth bullet under management action 1 was revised as follows: “HVWs would be prioritized for instream flows reservations of water for instream flows and water levels through the State of Alaska. In addition, existing Unalakleet Wild River federal reserve water rights will be secured and protected.”
- In Section 2.6.3, Water Resources and Fisheries, the last bullet under management action 1 was changed to delete sub-bullets 1 and 2:
 - ~~Operator is required to obtain a permit from the State of Alaska for any anadromous stream crossing.~~
 - ~~Plans and Notices provide for ongoing, concurrent reclamation.~~
- In Section 2.6.3, Water Resources and Fisheries, under management action 2, a typo was addressed to correct Executive Order 11998 to 11990.

¹ BLM. 2019. IM No. 2019-010, Stream Reclamation Approval Process. Available at: <https://www.blm.gov/policy/im-ak-2019-010>.

- In Section 2.6.3, Water Resources and Fisheries, under management action 2, “due to climate change or due to authorized activities” was removed from the second-to-last bullet.
- In Section 2.6.3, Water Resources and Fisheries, under management action 2, a new bullet was inserted after the third bullet: “BLM sensitive fish species and their habitat would be managed to promote their conservation and to minimize the likelihood and need for listing under the Endangered Species Act (ESA). Proactive management and monitoring would occur, as appropriate (BLM-Alaska Sensitive Species List current version; Appendix M).”
- In Section 2.6.3, Water Resources and Fisheries, under management action 2, the last bullet was revised to clarify that BLM would coordinate to ensure effective conservation of “priority” species instead of “native” species. It should be noted that priority species include native species.
- In Section 2.6.3, Water Resources and Fisheries, riparian buffers were clarified as follows: riparian buffer distances are used in this RMP as proxies for the 100-year floodplain as follows: 1st and 2nd order streams: 100 feet; 3rd order streams: 500 feet; 4th and 5th order streams: 1,000 feet; and 6th, 7th, 8th, and 9th order streams: 1,500 feet.
- In Section 2.6.3, Water Resources and Fisheries, under management action 2, the following provision was added:
 - “All activities below the ordinary high water mark (OHWM) would be compliant with Alaska Statutes Title 16, Fish and Game.”
- In Section 2.6.3, Water Resources and Fisheries, management action 4, Mineral Decisions in HVWs, the following two clauses were removed: “All reclamation must result in the rehabilitation of fisheries and wildlife habitats. The rehabilitation of fisheries habitat is defined as a geomorphically stable channel (such as functioning conditions for lateral stability, bedform diversity, and floodplain connectivity) and sufficient floodplain roughness and riparian vegetation to dissipate stream energy and minimize erosion;” and “...which will provide maximum possible coordination with the State to avoid duplication and to ensure that operators prevent unnecessary or undue degradation of public lands. As directed by 43 CFR 3809.201(b), the agreement must require that the State notify the BLM within 15 days of application receipt to suction dredge so that the BLM may determine if federally proposed or listed threatened or endangered species or their proposed or designated critical habitat would be affected by the proposed action and to specify any necessary mitigation measures. A notice or plan of operations does not need to be submitted to the BLM if the use of a suction dredge is within the scope and allowances of the agreement, State statute, BLM regulations, and all applicable laws. Any existing or future agreements that apply regionally or statewide, that meet the requirements outlined above will be considered adequate to meet the conditions of the BSWI RMP.”
- In Section 2.6.3, Water Resources and Fisheries, the following management action was added: “For work below the OHWM in fish-bearing streams and all river crossings, a Title 16 permit from ADF&G Habitat Division is required, regardless of the AO’s determination. In addition, the BLM would consult with the ADF&G Fish Passage Improvement Program to ensure fish passage standards are maintained.”
- In Table 2-4a, criteria for HVW were clarified, the number of affected Hydrologic Unit Code (HUC) 12 watersheds were included in the table, timing associated with mining reclamation was removed, and discharge requirements for locatable mining were updated.
- Acreage for HVWs was updated in Tables 2-4a and 2-4b to account for 12 watersheds that were previously not included in the HVW identification due to an error in the methodology. The error has been corrected, and the acreage of these 12 watersheds has been added to the HVWs identified for each alternative.

- In Tables 2-4a and 2-4b, management actions in HVWs was clarified. For Alternatives B, C, and D, unless otherwise stated, management actions in HVWs applied to the entire HVW; this is consistent with how the impact analysis was performed in Chapter 3. The Proposed RMP (Alternative E) generally applies management actions to the 100-year floodplains within HVWs.
- In Table 2-4b, the phrase “for fish-bearing streams” was removed from the table entry for Surface-Disturbing Activities.
- In Table 2-4b, Mineral Decisions within HVWs, “Open to salable mineral development” was changed to “Open to Salable Mineral Development (subject to terms and conditions)” and “casual use” was added to modify suction dredging.
- In Section 2.6.4, Vegetation, new text was inserted as management action 1 as follows: “BLM sensitive plant species and their habitat would be managed to promote their conservation and to minimize the likelihood and need for listing under the ESA. Proactive management and monitoring would occur, as appropriate (BLM-Alaska Sensitive Species List current version; Appendix M).”
- In Section 2.6.4, Vegetation, specifics were removed from management action 5 (Surface-Disturbing Permits).
- In Table 2-5, BLM-Permitted Surface Disturbance for the Proposed RMP, the following text was added: “Site-specific measures may be required to prevent the listing of special status flora under the ESA.”
- In Section 2.6.5, Wildlife, reference to Federal Aviation Administration (FAA) Advisory Circular AC-91-36 was removed and reference to the Bald and Golden Eagle Protection Act and other BLM migratory bird guidance was added.
- In Section 2.6.5, Wildlife, the following change was made to management action 3, Caribou, Moose, Muskox, Dall Sheep, and Mountain Goats:
 - The following sentence was removed from third bullet for consistency with BLM IM No. 2019-013, Alaska Reindeer Program Policy: “Prior to receiving a grazing permit, permit applicants must demonstrate the ability to gather, move, and/or contain their herds as necessary to avoid co-mingling with caribou herds and to address rangeland health standards.”
- In Section 2.6.5, Wildlife, under management action 5 (Raptors), language prescribing that campsites be located at least 1 mile from any known priority raptor nest site now states that campsites authorized by BLM will be evaluated in site-specific National Environmental Policy Act (NEPA) analysis to determine appropriate distances for campsites from any known priority raptor nest site during the nesting season. U.S. Fish and Wildlife Service (USFWS) guidance will be used, and exceptions may be granted with additional disturbance minimization measures by the AO if no feasible alternative exists. A new bullet was added as follows: “When it is not possible to avoid and minimize disturbance to eagles, a USFWS permit may be required.” Text referring to BLM IM No. 2019-013 was also removed.
- In Section 2.6.5, Wildlife, under management action 6 (Bats), the following revision was made: White-nose syndrome decontamination protocol would be applied when working in bat hibernacula or breeding areas, ~~if white-nose syndrome is detected in Alaska.~~
- In Section 2.6.5, Wildlife, under management action 9, statements dealing with conflict resolution were removed.
- In Section 2.6.5, Wildlife, the following was added as an action common to all alternatives and removed from Table 2-6: “To reduce disturbance to nesting priority raptors, campsites authorized

by the BLM, including short- and long-term camps and agency work camps, must be located at least 1 mile from any known priority raptor nest site during the nesting season. Exceptions may be granted with additional minimization measures by the AO if no feasible alternative exists.”

- In Table 2-6, Caribou and Moose, for Alternatives C and E, the following was added as a Controlled surface use stipulation: “Permitted activities in areas identified as occupied caribou and moose calving habitat must avoid or minimize impacts to calving caribou and moose from April 15–May 31” as a replacement for the following “No leasable or salable operations allowed in known caribou calving concentrations from May – June.” Additionally, for Alternatives B, C, and E, the seasonal use restriction on construction in known moose and caribou calving concentrations was changed to April 15–May 31.
- In Table 2-6, Connectivity Corridors, “Open to salable development” was changed to “Open to salable development (subject to terms and conditions)” for Alternative C.
- In Table 2-6, Migratory Birds, the nesting season in Alternative B was changed to July 15 to correct a typo. Dates were also added for non-raptor nesting birds in Alternative D. Text was added under Alternative D regarding coordination with USFWS for exceptions to migratory bird restrictions.
- In Section 2.6.6, Nonnative Invasive Species, the requirement for washing stations used for cleaning wildland fire tools to have a containment system was removed. Language regarding BLM’s posting of nonnative invasive species (NNIS) educational materials was simplified.
- In Section 2.6.7, Wildland Fire, the following was added to clarify active management: “Principles of active management would be used to facilitate wildfire prevention, suppression, and recovery planning measures designed to protect people, communities, landscapes, and water quality, and to mitigate the severe flooding and erosion caused by wildfire.”
- In Section 2.6.7, Wildland Fire, a bullet point was added as follows: “Prioritize hazard fuel management projects in areas with known or high probability of vertebrate fossils or significant non-vertebrate fossils to prevent damage to those resources from the impacts of wildfire, such as increased erosion.”
- In Section 2.6.7, Wildland Fire, bullet points under management action 4 (NNIS) were altered to include details on monitoring priorities, inter-agency coordination, training, organizational responsibility for personal gear and equipment prior to deployment, internally available funding, and restrictions on water delivery aircraft scooping water from invasive species-infested waters.
- In Section 2.6.7, Wildlife Fire, the second bullet point under management action 5 (Smoke and Air Quality) was revised to remove reference to Class II areas.
- In Section 2.6.9, Paleontological Resources, management action 7 was revised to add scientifically significant invertebrate and plant fossils to the list of resources prohibited from collection, removal, excavation, or casting without a permit issued by the BLM Alaska State Office.
- In Section 2.6.9, Paleontological Resources, management action 10 was revised to add that only a BLM paleontologist or someone appointed by the BLM paleontologist would be considered to collect fossils.
- In Table 2-8, text was added to “Protection Measures for Paleontological Resources” to clarify that monitoring is focused on vertebrate fossils.
- A description of VRM was added to the introduction to Section 2.6.10, Visual Resources Management.

- In Section 2.6.10, Actions Common to All Action Alternatives, including the Proposed RMP, for Visual Resources Management (VRM), the Unalakleet was removed from the Primary Rivers category.
- In Table 2.9a, VRM buffers were clarified through reorganization of text.
- In Table 2.10, acreages under Alternatives B and C were updated due to changes in HVWs. Alternative A for the Unalakleet Wild River Corridor was updated to reference guidance from the Southwest Management Planning Framework.
- In Section 2.6.11, text under Description of Lands with Wilderness Characteristics Management Actions by Alternative describing the range of alternatives was replaced with text moved from deleted Section 2.5.1.
- In Section 2.6.12, Forestry and Woodland Products, Actions Common to All Action Alternatives, including the Proposed RMP, for Forestry and Woodland Products, under management action 3, the statement “Unless authorized by AO, harvest would be winter harvest only to minimize disturbance to soils and ground vegetation” was removed. Management action 4 was revised to clarify that cutting or other disturbance to trees **actively** (emphasis added) being used for trapping is prohibited and to clarify that disturbance of trees as necessary to perform trapping activities is not prohibited.
- In Table 2-11, text for “Commercial Woodland Harvest Areas” and “Personal Use and Subsistence Woodland Harvest Areas” has been re-organized for clarity. The table entries for “Woodland Harvest in HVWs,” “Woodland Harvest in the INHT NTMC,” “Woodland Harvest in ACECs,” and “Woodland Harvest in Areas Managed for LWC as Priority” have been deleted because they are now included in the “Commercial Woodland Harvest Areas” and “Personal Use and Subsistence Woodland Harvest Areas” cells of the table.
- In Table 2-11, the management action under Alternatives B, C, and D that prohibited house log harvesting from the riparian zone of perennial streams was edited to “riparian area of stream,” for clarity and consistency with terminology used elsewhere in the document.
- In Table 2-11, the prohibition of non-subsistence house log harvesting in the Wild and Scenic river (WSR) corridors was added to the description of “Personal Use and Subsistence Woodland Harvest,” decisions. This prohibition was included in Section 2.6.21 in the Draft RMP/EIS but was incorrectly left out of Section 2.6.12.
- In Section 2.6.13, Reindeer Grazing, the following management action was added: “Herders are responsible for developing grazing plans and are encouraged to seek assistance from the NRCS and/or the University of Alaska, Fairbanks (UAF).” Reference to BLM IM No. 2019-013 was deleted.
- In Section 2.6.13, Reindeer Grazing, the following management action was removed “The BLM would cooperate with the NRCS and the permittee in conducting rangeland health assessments to determine compliance with Alaska Land Health Standards.”
- In Section 2.6.13, Reindeer Grazing, clarification about alternatives to weed seed-free feed was added, and restrictions on range improvements were deleted.
- Changes to Table 2-12 were made to reflect changes to grazing management in HVWs as described above. Table 2-12 was also updated to clarify the management decisions for reindeer grazing.
- In Table 2-12, “Fees and Permits” was changed to “Grazing Permits.”
- In Section 2.6.14, Locatable and Salable Minerals, additional information added to the introduction on selection. Management action 6 was revised to remove the requirement for

lode/hard rock tailings ponds to be double-lined and incorporate sensors and the requirement that mining operations transport topsoil from its original location to the point of reclamation directly.

- In Section 2.6.14, Locatable and Salable Minerals, management action 3 was revised as follows: These photos will be taken ~~in the spring and fall of each mining season~~ at the start and finish of mining operations each mining season until such time as the reclamation has been released from bonding requirements.
- In Section 2.6.14, Locatable and Salable Minerals, the second bullet under management action 6 was replaced with the following text: “Mine reclamation shall comply with the Actions Common to All Action Alternatives, including the Proposed RMP, for Vegetation (see Section 2.6.4) regarding plant cover and other applicable solid mineral actions Successful revegetation may lead to the wildlife habitat rehabilitation, but other site and species-specific considerations may be included.”
- In Section 2.6.14, Locatable and Salable Minerals, the third bullet under management action 6 was revised as follows: “Mine operators should avoid conducting mining activities in wetlands or riparian areas where possible and minimize impacts on wetlands and riparian areas that operations cannot avoid. Mine operators should reclaim disturbed stream channels and wetlands to a properly functioning condition. Technology and practices must be used such that, at the completion of reclamation, the affected stream segment will be, at minimum, geomorphically stable, with adequate vegetation to reduce erosion, dissipate stream energy, and promote the recovery of instream habitats per the BLM Handbook H-3809-1, *Surface Management* (BLM 2012a). Stream reclamation will be evaluated using metrics of geomorphic stability based on established science, policy, and/or regional datasets (e.g., AIM-National Aquatic Monitoring Framework). ~~Technology and practices must be used such that, at the completion of reclamation, the affected stream segment will be, at a minimum, geomorphically stable with adequate riparian floodplain vegetation to dissipate flood energy (BLM 1969). This stability would be as evidenced by metrics such as lateral stability, bedform diversity, and floodplain connectivity within the functioning range. At the completion of reclamation riparian vegetation complexity measures should be minimally functioning with an upward trend.~~ At the completion of reclamation, floodplain conditions should be able to withstand moderate flood discharge events (5- to 10-year flood event) through implementation of features such as, natural channel design, proper floodplain grading, vegetation mats or transplants, integrated rock and organic debris, and seeding (if appropriate).”
- In Section 2.6.14, Locatable and Salable Minerals, the third bullet under management action 8 was revised to delete the following sub-bullet: “For mining activities that occur for less than 3 months for a total mine life duration, approved occupancy facilities are temporary and removable tents (no tent platform). Tents must be dismantled and removed from the site at the end of the use season.” Another sub-bullet was revised as follows: “For mining activities that occur ~~between 3 and~~ up to 8 months annually for a total mine life duration, a temporary tent with platform may be allowed. Tents and platforms must be dismantled and removed from the site at the end of the use season.”
- In Section 2.6.14, Locatable and Salable Minerals, management action 11 was added to clarify that mineral withdrawals are recommended in the plan pursuant to Section 204(a) of the Federal Land Policy and Management Act of 1976 (FLPMA) and that any recommended mineral withdrawal of 5,000 acres or more would be subject to the congressional notice provisions of Section 204(c) of FLPMA and Section 1326(a) of ANILCA.
- Information regarding existing mineral withdrawals was added to Table 2-13 for locatable and salable minerals and Table 2-14 for leasable minerals. In Table 2-13, “open to salable mineral

development” was changed to “open to salable mineral development (subject to terms and conditions).” Acreage of HVWs was updated for Alternative B in Table 2-13.

- In Table 2-14, Alternative C, the caribou calving period was changed to April 15–May 31.
- In Section 2.6.15, Leasable Minerals, the following was removed from under management action 3 (Coal): “Should coal operations be developed on federal lands, an agreement would likely be developed between the State of Alaska and the Office of Surface Mining defining the regulatory role the State of Alaska in these mining operations (30 CFR 745).”
- In Section 2.6.16, Lands and Realty, under management action 1, the second bullet was revised as follows: “R&PP Act patents in which the United States has reserved a reversionary interest would be ~~Disposal of reversionary interest on R&PP Act parcels that revert to BLM would be~~ evaluated and addressed at the implementation level, based on BLM management needs. Reserved federal interests in split estate lands anywhere in the planning area may be considered for conveyance out of federal ownership.”
- In Section 2.6.16, Lands and Realty, management action 2 was re-named as follows: “Land ~~Disposal and~~ Exchange Criteria.” The second and fourth bullet in this management action were removed.
- In Section 2.6.16, Lands and Realty, under management action 3, the statement that the BLM would not actively attempt to exchange or dispose of the Unalakleet Wild River Corridor or the INHT NTMC was removed.
- In Section 2.6.16, Lands and Realty, the fourth and fifth bullet under management action 4 (Land Acquisition Criteria) were moved under management action 2 (Land Exchange Criteria).
- In Section 2.6.16, Lands and Realty, two new bullet points were added under management action 5 (ROWS) to describe how ROW authorizations would be treated on selected lands and to recommend cultural resource training for people unfamiliar with rural Alaska life.
- In Section 2.6.16, Lands and Realty, definitions for ROW Exclusion Areas, ROW Avoidance Areas, and ROW Avoidance of Linear Realty Actions were added. The ROW permitting process was also described.
- In Section 2.6.16, Lands and Realty, the requirement for linear ROWs to not impede caribou passage was revised to allow for only minimal disruption.
- In Section 2.6.16, Lands and Realty, the third bullet under management action 7 (ANCSA 17(b) easements) was revised to clarify when authorization to use a 17(b) easement is required.
- In Table 2-15, the following statement was added to FLPMA Withdrawals for Alternatives B, C, and D: “A new FLPMA withdrawal would be established at the Unalakleet Administrative Site.”
- In Table 2-15, acres available for exchange under Alternatives B and C and available for exchange or disposal under Alternative D were reduced by approximately 599 acres because parcel PD303 is no longer identified as available for exchange or disposal due to its location along the Iditarod National Historic Trail (INHT).
- In Table 2-15, acreages for ROW Avoidance areas were updated due to changes in HVWs, and ROW avoidance for linear realty actions was updated for Alternative B to remove acreage that overlapped with ROW avoidance (this acreage was added into ROW avoidance area).
- “Management Action for Communications Sites ROW” was removed from Tables 2-15 and 2-22. A new action common to all alternatives was added to Section 2.6.16, Lands and Realty, and Section 2.6.23, Support for BSWI Communities, that reads: “The BLM would consider the safety and navigation benefits to inter-village travelers when processing communication site ROW applications.”

- In Section 2.6.17, Recreation and Visitor Services, a new bullet was added to management action 1 as follows: “For BLM-permitted activities, recommend types of cultural sensitivity training for people unfamiliar with rural Alaska life and culture.”
- In Section 2.6.17, Recreation and Visitor Services, a new bullet was added to management action 2 as follows: “SRPs determined to be consistent with objectives for CFZs would be permitted.”
- In Section 2.6.17, Recreation and Visitor Services, management action 5 was revised to clarify that federal reserve water rights associated with ORVs are included among river characteristics that may be protected with administrative actions.
- In Section 2.6.18, Travel and Transportation Management, clarification was added to the last bullet under management action 1 and where relevant in Table 2-17 that the “limited” designation for off-highway vehicle (OHV) use would be implemented based on 43 CFR 8342.1 and limitations to motorized access employed by rural residents engaged in subsistence uses would be implemented based on ANILCA Sections 811(a) and (b) and would not go into effect until the restriction or closure process is followed (36 CFR 13.460(b); 50 CFR 36.12(b)). Closures and restrictions to traditional activities and for travel to and from villages and homesites authorized in ANILCA Section 1110(a) would not go into effect until the closure process is followed and only upon a finding by the BLM that such use would be detrimental to the resource values of the unit or area in accordance with 43 CFR 36.11(h). This also applies to interim guidance (43 CFR Part 36).
- In Section 2.6.18, Travel and Transportation Management, the disturbance buffer for a raptor nest was changed to 1 mile for minimized activity and 0.5 mile for prohibited activity during nesting season for Alternatives B, C, and E.
- In Section 2.6.19, Areas of Critical Environmental Concern, the language has been altered as follows: “The term “ACEC” identifies areas within BLM-managed public lands where ~~inventory data are analyzed to determine whether there are areas containing resources, values, systems, or processes or hazards eligible for further consideration for designation as an ACEC (43 CFR 1610.7-2). To be designated,~~ special management is required to protect and prevent irreparable damage to important historic, cultural, or scenic values; fish and wildlife resource, or other natural systems or processes; or to protect life and provide safety from natural hazards (BLM 2018c).”
- In Table 2-19, the term “locatable” was removed from Mineral Decisions in the INHT NTMC for Alternatives C and D.
- In Section 2.6.21, Wild and Scenic Rivers, under management action 1, the second bullet was revised to state that lands within one-half mile of the bank of an Alaskan “wild river” have been withdrawn, subject to valid existing rights, from appropriation under mining and mineral leasing laws was added. Existing ANILCA withdrawals are maintained.
- In Section 2.6.21, Wild and Scenic Rivers, under management action 2, the second bullet was revised to change “motorized personal watercraft” to “outboard motorboat” and to indicate that limitations on motorized river transportation were limited to BLM-managed public lands and waters in the designated WSR corridor. The third bullet was revised to change “motorized personal watercraft: to “inboard jet boats.”
- In Table 2-20, Alternative A for the Unalakleet Wild River Corridor was updated to reference guidance from the Southwest Management Planning Framework.
- In Section 2.6.22, Hazardous Materials and Health and Human Safety, under management action 1, the prohibition of hazardous material storage within 500 feet of an active floodplain of fish-bearing or frozen waterbodies and the definitions of hazardous materials, were removed. Further, the text prohibiting the storage of hazardous materials within riparian areas was changed.

- In Section 2.6.22, Hazardous Materials and Health and Human Safety, under management action 2, the statement for collaboration regarding upgrading exhaust systems was removed.
- In Section 2.6.23, Support for BSWI Communities, management action 4 was revised to change “motorized personal watercraft” to “outboard motorboat” and to indicate that limitations on motorized river transportation were limited to BLM-managed public lands and waters in the designated WSR corridor. “Motorized personal watercraft” in the second sentence was changed to “inboard jet boats.”
- Changes to Table 2-22, Support for BSWI Communities, and “Actions Common to All Action Alternatives, including the Proposed RMP, for Support for BSWI Communities” were made to be consistent with the changes made to management actions of other resources in Chapter 2.
- Text in Chapter 2 was revised in several places to match best management practices (BMPs)/standard operating procedures (SOPs) listed in Appendix O.

Chapter 3

- Information has been added from the Fourth National Climate Assessment.
- The Proposed RMP (Alternative E) has been added to the impact analysis, and the impact analyses from the other alternatives have been compared to the Proposed RMP (Alternative E)
- Acres and impact analysis related to the following management actions were revised, according to changes made to Chapter 2 as described above:
 - Reindeer grazing
 - Areas open to commercial woodland harvest
 - Personal/subsistence woodland harvest
 - Areas open to ROW location (merged with previous category open case-by-case)
 - Acres segregated due to selection for locatable minerals
- References to Class II airshed areas were removed from Section 3.2.1.
- Definition of surface waters has been updated to clarify it does not include wetlands.
- BLM sensitive plant and animal species in the planning area have been updated based on the 2019 BLM Sensitive Species List.
- Effects associated with the connectivity corridors were re-worked to emphasize that the purpose of the connectivity corridors is to enhance the conservation value of the region by retaining ecological resilience and adaptability at the landscape levels.
- In Section 3.2.4, Water Resources, additional text was added to Table 3.2.4-2 to show the acres of mineral decisions in HVWs for Alternatives C and D. In Table 3.2.4-2, acreage for salable, locatable, and leasable minerals decisions were corrected to account for a minor error of 7 acres.
- Discussion of climate change effects was added to the Cumulative Effects section of Section 3.2.4, Water Resources; as a result, the cumulative effects trends and forecasts for all alternatives were revised.
- Discussion of climate change effects was added to the Cumulative Effects section of Section 3.2.5, Fisheries; as a result, the cumulative effects trends and forecasts for all alternatives were revised.
- Additional text was added to the wildlife effects analysis (Section 3.2.7) to disclose how the different levels of leasable mineral development would affect wildlife to different degrees.

- A typo was corrected in Table 3.2.6-2 to show 363 acres of Summer Subsistence OHV access limited to existing trails, instead of 0 acres.
- In Section 3.2.8, the statement that seasquirt (*Didemnum vexillum*) is the only known nonnative invasive marine species to occur within the state of Alaska was deleted as outdated information.
- In Table 3.2.9-2, acres open to salable mineral development was added for consistency with Table 3.2.9-1.
- Text was removed from the locatable and salable minerals effects analysis (Section 3.3.3) regarding restrictions to use of the bond pool for Alternatives B and C, as those restrictions are no longer included as management actions in Chapter 2.
- Text was added to Section 3.3.5, Lands and Realty, regarding a new FLPMA withdrawal at the Unalakleet Administrative Site for Alternatives B, C, and D.
- Additional discussion was added to Section 3.4.1, Areas of Critical Environmental Concern, regarding management actions that provide protection of relevant and important values. In Table 3.5.2-2, acres in CFZs was added as an indicator.
- Text was added to the socioeconomic conditions subsection of Section 3.5.1, Support for BSWI Communities, Affected Environment, to include information about subsistence, commercial, and sport fisheries in the Unalakleet River drainage and the fish-buying operation.
- In Section 3.5.2, Subsistence, the subsistence communities evaluated in the analysis were listed under Affected Environment, and a list of potentially impacted communities was listed for each alternative. “Subsistence closures” was removed from the list of indicators in Table 3.5.2-1. The Cumulative Effects section was revised to add potential effects from development of the Donlin Gold Project.
- In Section 3.5.3, an error that switched acres open and withdrawn for locatable mineral development in areas of medium or high locatable mineral potential was fixed for Alternatives A and C.
- Table 3.4.2-3 and text in Section 3.4.2, National Trails, were revised to show that no areas of the INHT National Trail Management Corridor (NTMC) would be managed as VRM Class II under Alternative B (the Draft RMP/EIS included 0.5 acre) and no areas of the INHT NTMC would be managed as VRM Class III under Alternative D (the Draft RMP/EIS included 0.5 acre). These changes are the result of clean-up of some slivers in the geographic information system (GIS) data since the Draft RMP/EIS.
- In Section 3.4.3, Wild and Scenic Rivers, the cumulative effects analysis was revised to state that the currently permitted Donlin Gold Project pipeline ROW could conflict with the WSR designation under Alternative B, not all alternatives.

Appendices

- Appendix A, Acronyms – EUCA (Excluded Unconveyed Claim Areas) was added to the acronym list.
- Appendix B, Glossary – New definitions were added for case-by-case, casual use, Excluded Unconveyed Claim Areas, free use, hazardous material, groundwater, land tenure, open to salable (subject to terms and conditions), riparian area, riparian buffer, ROW avoidance area for linear realty actions, standard operating procedure, surface water, top-file, waterbody, wetlands, adaptive management, and ethnographic site. Travel-related definitions were revised to match those included in the Eastern Interior RMP, and definitions for 100-year floodplain, land disposal, mineral materials, paleontological, paleontological resources, petrified wood, Potential Fossil

Yield Classification (PFYC), Public Land Order, ROW, ROW avoidance area, ROW exclusion area, sensitive species, thermokarst, Traditional Cultural Property, watercraft, and withdrawal were updated.

- Appendix C, Preparers – Additional preparers were added to the list of preparers for the PRMP/FEIS.
- Appendix D, References – Additional references were added (Ayunerak et al. 2014; Bersamin et al. 2007; BLM 2019; Bradshaw et al. 1997; CEQ 1997; Jones et al. 2020; NASA 2020; Raymond-Yakoubian 2013; Raymond-Yakoubian and Raymond-Yakoubian 2015; USFWS 2007, 2020; USGCRP 2018; and Walker and Wolfe 1987). Several references were deleted (BLM 2010, 2019a, 2019b, 2019c, and 2019d).
- Appendix E, Summary of Notable Changes, was added. This change resulted in a change of all subsequent appendix labels as documented below.
- Appendix F, Management Regulations, Policy, and Program Guidance – Secretarial Order 3373 regarding land disposals and exchanges was added to list of BLM policy and program guidance for implementation-level planning and projects. The appendix was reorganized to provide a list of federal guidance separate from federal laws and state laws. Management regulations, guidance, and policies were also reorganized to be alphabetical and numerical (e.g., BLM handbooks, manuals, IMs, and Executive Orders).
- Appendix G, Goals and Objectives – Removed a redundant objective related to perennial streams and added an introduction to the appendix. In Section 2.3, Water Resources and Fisheries, revised wording in last bullet of Goal 1 and added two BLM guidance manuals to first bullet of Objective 1.
- Appendix H, Responses to Comments on the Draft RMP/EIS – A new appendix was added that provides issue statements that summarize the public comments received on the Draft RMP/EIS during the public comment period and BLM's responses to those comments.
- Appendix I, Parcels Available for Exchange or Disposal – Removed Parcel PD303, which is located just west of the South Fork Kuskokwim River and along a section of the INHT. A discussion of Secretarial Order 3373 was also added to the appendix along with a column in the parcel table stating whether there is public access on the parcel under Secretarial Order 3373.
- Appendix J, Climate Change and Adaptive Management – An introduction was added to this appendix.
- Appendix K, Mitigation Standards – An introduction was added to this appendix.
- Appendix L, Aquatic Resource Value (ARV) Model Information – A new appendix was added in response to public comments that requested additional information on the ARV model that the HVW identification is based off.
- Appendix M, BLM Sensitive Species List – An appendix was added that includes the 2019 special status species (SSS) list.
- Appendix N, Proposed Special Management for Areas of Critical Environmental Concern – Alternative E was added to the ACEC tables and an introduction was added to the appendix. Text was edited to include only special management direction.
- Appendix O, Best Management Practices (BMPs) and Standard Operating Procedures (SOPs) – BMPs and SOPs were revised for consistency of the BMPs and SOPs themselves and with the management actions in Chapter 2 of this PRMP/FEIS, including removal of case-by-case language. An introduction was also added to this appendix.

- Appendix P, Recreation Management Areas – The ERMA tables were split into CFZs and the ERMA Outside CFZs/Undesignated Recreation Lands. An introduction was also added to this appendix.
- Appendix Q, Impact Methodology – A new appendix was added that describes the impact methods used in the analysis, including the reasonably foreseeable future actions included in the cumulative effects analysis. These methods were included in Appendix N of the Draft EIS/RMP.
- Appendix R, Final ANILCA Section 810 Evaluation – Descriptions of the subsistence use areas within the planning area were added. Three new sub-sections under Section 5 were added to satisfy the requirements of ANILCA Section 810(a)(3); the Hearing and Notices section was updated with information on the outreach efforts during the public comment period; additional information or explanations were added in response to public comments received; and clarification was added to sections discussing tree disturbance in trapping areas and connectivity corridors. Alternative E was added to the analysis tables in Appendix R-1, and Section 3.6 and 3.12 were added to address the evaluations and findings for Alternative E and the evaluations and findings for the cumulative case for Alternative E, respectively. Appendix R-2 was added to provide supplemental socioeconomic and environmental justice information. The evaluations and findings for Alternatives A through D were also updated to reflect updates to these alternatives, including changes to ROW acreages, forestry/woodland harvest numbers, exchange or disposal acreage, and the general removal of the phrase “case-by-case.”

Two appendices in the Draft RMP/EIS are not included in this PRMP/FEIS: Appendix M, Affected Environment Report, and Appendix N, Supplemental Impact Information. These two lengthy appendices were a relic of the original Chapter 3 (Affected Environment) and Chapter 4 (Environmental Consequences) sections of draft analysis that were carried over as appendices for select resources in the Draft RMP/FEIS. As subsequent drafts were prepared per streamlining objectives, the analysis was revised to focus on those impact mechanisms most likely to result in impacts and/or differentiate across alternatives. The approach focused on succinct analysis of clear indicators to support this analysis. Appendix M and Appendix N of the Draft RMP/FEIS are still available for viewing on ePlanning and will be maintained in the Administrative Record as the detailed existing conditions on which the RMP and associated impact analysis are based, and more extensive (though extraneous) documentation of impact analysis for a select set of resources.

Maps:

- Map numbers were updated to reflect the inclusion of maps for Alternative E (Maps 2-5, 2-19, 2-34, 2-39, 2-47, 2-51), where appropriate, and a stand-alone map showing the Innoko Bottoms Priority Wildlife Habitat area (Map 2-14).
- “Proposed RMP (Alternative E)” was added to the title of maps where the Proposed RMP (Alternative E) was the same as another alternative.
- Maps 2-8 and 3.2.6-2 have been updated to reflect the 2019 BLM SSS list.
- Maps 2-22 through 2-25 were updated to reflect the changes to the woodland harvest decisions.
- Map 2-27 was updated to reflect HVWs are open to reindeer grazing under Alternative C.
- Map 2-46 was updated to reflect the removal of “case-by-case” as a separate category.
- Minor map labeling corrections, color changes, and text clarifications to the legends were made in the following maps: 2-2, 2-3, 2-4, 2-7, 2-8, 2-10, 2-11, 2-12, 2-15, 2-16, 2-21, 2-22, 2-23, 2-24, 2-25, 2-26, 2-27, 2-28, 2-30, 2-31, 2-32, 2-33, 2-35, 2-36, 2-37, 2-38, 2-40, 2-41, 2-42, 2-43, 2-44, 2-45, 2-46, 2-48, 2-49, 2-50, 2-55, 2-56, 3.2.7-7, and 3.2.8-1.

Appendix F: Management Regulations, Policy, and Program Guidance

Appendix F. Management Regulations, Policy, and Program Guidance

Section 1. Introduction

Federal and State of Alaska legislation along with Bureau of Land Management (BLM)-specific policies could influence decisions, constrain alternatives, or affect implementation of the Approved Resource Management Plan (RMP). This appendix includes management regulations that were used to develop the Bering Sea–Western Interior (BSWI) Proposed RMP, including regulations related to locatable, leasable, and salable minerals; federal guidance (Executive Orders); and federal and state laws. Selected provisions of the Alaska National Interest Lands Conservation Act (ANILCA) are provided at the end of the appendix and include those related to access, temporary facilities and equipment related to the take of fish and wildlife, cabins, navigation aids, and subsistence management and use findings.

Also included in this appendix is a list of BLM policy and program guidance, such as instruction memorandums (IMs), handbooks, manuals, and secretarial orders that were used to develop the RMP and would influence subsequent implementation-level projects and planning conducted under the Approved RMP. The list of management regulations and BLM policies and program guidance in this appendix is not intended to be comprehensive but rather provide an indication of the key laws and regulations that govern resource management in the planning area. While some BLM IMs have expiration dates, the IMs listed in this appendix were current during the development of the RMP and are subject to future changes or deletion.

Section 2. Management Regulations

1.1 Locatable, Leasable, and Salable Mineral Development

- 43 Code of Federal Regulations (CFR) 2800, 3100, 3200, 3500, 3600, 3700, 3800
- Alaska Surface Coal Mining Control and Reclamation Act of 1983
- Domestic Minerals Program Extension Act of 1953
- Energy Policy Act of 2005
- Federal Coal Leasing Amendments Act of 1976 (amendment to the Mineral Leasing Act)
- General Mining Law of 1872
- Geothermal Act of 1970
- Information Bulletin 2008-017 – BLM Energy and Mineral Policy
- Materials Act of July 31, 1947
- Mineral Leasing Act for Acquired Lands of 1947
- Mineral Leasing Act of 1920
- Mining and Minerals Policy Act of 1970
- Multiple Surface Use Act of 1955
- National Materials and Minerals Policy, Research and Development Act of 1980

- Surface Mining Control and Reclamation Act of 1977

1.2 Federal Guidance

- Executive Order 11593 – Protection and Enhancement of the Cultural Environment (May 1971)
- Executive Order 11644 – Use of Off-Road Vehicles on the Public Lands (February 1972)
- Executive Order 11988 – Floodplain Management (May 1977)
- Executive Order 11989 – Off-Road Vehicles on Public Lands (May 1977)
- Executive Order 11990 – Protection of Wetlands (May 1977)
- Executive Order 12898 – Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (February 1994)
- Executive Order 13007 – Indian Sacred Sites (May 1996)
- Executive Order 13112 - Invasive Species (February 1993)
- Executive Order 13186 – Responsibilities of Federal Agencies to Protect Migratory Birds (January 2001)
- Executive Order 13195 – Trails for America in the 21st Century (January 2001)
- Executive Order 13287 – Preserve America (March 2003)
- Executive Order 13751 – Safeguarding the Nation from the Impacts of Invasive Species (December 2016)
- Executive Order 13855 – Promoting Active Management of America’s Forests, Rangelands, and Other Federal Lands to Improve Conditions and Reduce Wildfire Risk (December 2018)

1.3 Federal Laws

- 1927 Alaska Livestock Grazing Act (43 CFR 4200)
- 1937 Reindeer Industry Act (43 CFR 4300)
- Agriculture Act of 2014, Section 8205 (16 United States Code [U.S.C.] 6591)
- Airport and Airway Improvement Act of September 3, 1982 (43 CFR 2640 & 43 CFR 2911)
- Alaska Land Transfer Acceleration Act of 2004 (Public Law [PL] 108-452)
- Alaska Native Veterans Land Allotment Equity Act of 2002
- Alaska Sustainable Energy Act (Senate Bill 220)
- American Indian Religious Freedom Act of 1978 (42 U.S.C. 1996)
- Antiquities Act of 1906 (16 U.S.C. 431 et seq.)
- Archaeological and Historic Preservation Action of 1974, which amends the Reservoir Salvage Act of 1960 (PL 86523; PL 93291; 16 U.S.C 469 et seq.)

- Archaeological Resources Protection Act of 1979, as amended (16 U.S.C. 470)
- Bald and Golden Eagle Protection Act of 1940 (16 U.S.C. 668-688c)
- Clean Water Act of 1972, Sections 402 and 404 (33 U.S.C. 1251 et seq.)
- Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. & (33) 9601(14) & (33))
- Curation of Federally Owned and Administered Archaeological Collections (36 CFR 79)
- Department of Interior Appropriations Act of 1976 (PL 94-165)
- Endangered Species Act of 1973 (as amended) (16 U.S.C. 1531-1544)
- Federal Cave Resources Protection Act of 1988 (43 CFR 37)
- Federal Clean Air Act of 1970/1977 and Clean Air Act Amendments of 1990 (42 U.S.C. 7401 et seq.)
- Federal Land Assistance, Management, and Enhancement Act of 2009
- Federal Land Management Policy Act of 1976 (43 U.S.C. 35)
- Federal Subsistence Hunting Regulations (36 CFR 242)
- Fish and Wildlife Conservation Act of 1980 (16 U.S.C. 2901-2911)
- Fish and Wildlife Coordination Act of 1934 (16 U.S.C. 661-666c)
- Healthy Forest Restoration Act of 2003 (PL 108-148)
- Historic Sites Act of 1935 (16 U.S.C. 461-467)
- John D. Dingell, Jr. Conservation, Management, and Recreation Act of 2019 (PL 116-9)
- Land and Water Conservation Fund Act of 1965 (16 U.S.C. 4601-4 through 4601-11)
- Leases, Permits, and Easements (43 CFR 2920)
- Magnuson-Stevens Fishery Conservation and Management Act of 1976 (PL 94-265)
- Migratory Bird Treaty Act of 1918 (as amended) (16 U.S.C. 703-712)
- National Historic Preservation Act of 1966 (as amended) (16 U.S.C. 470 et seq.)
- National Trails System Act (PL 90-543) as amended by the National Parks and Recreation Act (PL 96-625)
- National Trails System Act of 1968 (as amended) (16 U.S.C. 1241-1251)
- Native Allotment Act of 1906 (PL 59-171)
- Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. 12411249)
- Off-Road Vehicles (43 CFR 8340)
- Omnibus Public Land Management Act of 2009 (PL 111-11)

- Paleontological Resources Preservation Act (16 U.S.C. 470)
- Protection Act of September 20, 1922 (16 U.S.C. 594)
- Provisions for Interim Administration (43 CFR 2650.1)
- Recreation and Public Purposes Act (43 CFR 2912 & 43 CFR 2741)
- Resource Conservation and Recovery Act of 1976 (40 CFR 239-282)
- Special Recreation Permits for Commercial Use, Competitive Events, Organized Groups, and Recreation Use in Special Areas (43 CFR 2932)
- Spill Prevention, Control, and Countermeasure Rule (40 CFR 112)
- Toxic Substance Control Act of 1976 (15 U.S.C. 53)
- Transportation and Utility Systems In and Across, and Access Into, Conservation System Units in Alaska (43 CFR 36)
- Visitor Services (43 CFR 8360-8365)
- Wild and Scenic Rivers Act (16 U.S.C. 1271-1287)
- Yukon River Salmon Act of 2000 (16 U.S.C. 5727)

1.4 State Laws

- Alaska Administrative Code (AAC) Title 11 – Natural Resources
- AAC Title 18, Chapter 50 (18 AAC 50) Air Quality Control; 18 AAC 52, Emissions Inspection and Maintenance Requirements for Motor Vehicles; 18 AAC 53, Fuel Requirements for Motor Vehicles; and 18 AAC 70, Surface Water Quality Standards
- Alaska Statute (AS) Title 16 Fish and Game Law
- Alaska Forestry Resources and Practices Act (AS 41.17)
- Alaska Historic Preservation Act (AS 41.35.010–41.35.240)
- Anadromous Fish Act (AS 16.05.871)
- Fishway Act (AS 16.05.841)
- State of Alaska regulations regarding importing, possessing, transporting, or releasing fish and animals into wild Alaska (AS 03.015.010; AS 03.05.027; AS 44.37.030; AS 03.05.090, 11 AAC 34.130; 11 AAC 34.140; 11 AAC 34.160; 11 AAC 34.170; AAC 34.115)
- Subsistence Use and Allocation of Fish and Game (AS 16.05.258)

Section 3. BLM Policy and Program Guidance for Implementation-Level Planning and Projects

Subsequent implementation-level projects and planning conducted under the Approved RMP will be subject to the following policy and program guidance:

- A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: 10-Year Comprehensive Strategy (August 2001)
- A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: 10-Year Strategy Implementation Plan (December 2006)
- Alaska Enhanced Smoke Management Plan for Planned Fire, Procedures Manual Alaska Department of Environmental Conservation (June 2015)
- Avian Protection Plan Guidelines (April 2005)
- BLM IM-AK-2007-037 – Alaska Native Claims Settlement Act 17(b) Easement Management Handbook
- BLM IM-AK-2009-141 – Guidance on the BLM Fisheries Program and the National Fish Habitat Action Plan
- BLM IM-AK-2011-001 – State Invasive Weed Policy
- BLM IM-AK-2012-012 – Special Conditions for Subsistence Wood Permits (Form 5510-1)
- BLM IM-AK-2016-124 – Potential Fossil Yield Classification (PFYC) System for Paleontological Resources on Public Lands
- BLM IM-AK-2017-078 – Instructions for Implementing the Final Programmatic Environmental Impact Statement Using Aminopyralid, Fluroxypyr, and Rimsulfuron on the Bureau of Land Management Lands in 17 Western States
- BLM-IM-AK-2019-001 – BLM Alaska Updated Special Status Species List – 2019
- BLM IM-AK-2019-010 – Stream Reclamation Approval Process
- BLM IM-AK-2019-011 – Revegetation for Reclamation Approval Process
- BLM IM-AK-2019-013 – Alaska Reindeer Program Policy
- BLM Handbook H-1601-1 – Land Use Planning Handbook, Appendix D: Social Science Considerations in Land Use Planning Decisions (2005)
- BLM Handbook H-1703-1 – Comprehensive Environmental Response, Compensation, and Liability Act Responses Actions Handbook (July 2001)
- BLM Handbook H-1740-2 – Integrated Vegetation Management (March 2008)
- BLM Handbook H-1742-1 – Burned Area Emergency Stabilization and Rehabilitation (February 2007)
- BLM Handbook H-2930-1 – Recreation Permit Administration (November 2014)
- BLM Handbook H-3070-2 – Economic Evaluation of Oil and Gas Properties (no date)
- BLM Handbook H-3073-1 – Coal Evaluation (October 2014)
- BLM Handbook H-3100-1 – Oil and Gas Leasing Handbook (September 1985)
- BLM Handbook H-3101-1 – Issuance of Leases (November 1985)

- BLM Handbook H-3150-1 – Onshore Oil and Gas Geophysical Exploration Surface Management Requirements (June 1994)
- BLM Handbook H-3203-1 – Leasing Terms (no date)
- BLM Handbook H-3468 – Coal Inspection and Enforcement (August 2014)
- BLM Handbook H-3600-1 – Mineral Materials Disposal Handbook (September 2016)
- BLM Handbook H-3809-1 – Surface Management (September 2012)
- BLM Handbook H-3830-1 – Administration of Mining Claims, Mill Sites, and Tunnel Sites (October 2015)
- BLM Handbook H-3890-3 – Validity Mineral Reports (October 2003)
- BLM Handbook H-5400 Series – Sale of Forest Products
- BLM Handbook H-8320-1 – Planning for Recreation and Visitor Services (August 2014)
- BLM Handbook H-8342 – Travel and Transportation (March 2012)
- BLM Handbook H-8410-1 – Visual Resource Inventory (January 1986)
- BLM Handbook H-8431-1 – Visual Resource Contrast Rating (January 1986)
- BLM Handbook H-9211-1 – Fire Planning Handbook (September 2012)
- BLM Manual 1601 – Land Use Planning (November 2000)
- BLM Manual 1613 – Areas of Critical Environmental Concern (September 1988)
- BLM Manual 1626 – Travel and Transportation (July 2011)
- BLM Manual 1730 – Management of Domestic Sheep and Goats to Sustain Wild Sheep (March 2016)
- BLM Manual 1740 – Renewable Resource Improvements and Treatments (February 2008)
- BLM Manual 1794 – Draft Regional Mitigation Strategy Manual (2013)
- BLM Manual 2920 – Alaska State Office Supplement (November 1987)
- BLM Manual 2930 – Recreation Permits and Fees (October 2007)
- BLM Manual 5000 Series – Forest Management
- BLM Manual 6250 – National Scenic and Historic Trail Administration (2012)
- BLM Manual 6280 – Management of National Scenic and Historic Trails Under Study or Recommended as Suitable for Congressional Designation (September 2012)
- BLM Manual 6310 – Conducting Wilderness Characteristics Inventory on BLM Lands (March 2012)
- BLM Manual 6320 – Considering Lands with Wilderness Characteristics in the BLM Land Use Planning Process (March 2012)

- BLM Manual 6400 – Wild and Scenic Rivers – Policy and Program Direction for Identification, Evaluation, Planning, and Management (July 2012)
- BLM Manual 6500 – Wildlife and Fisheries Management (June 1988)
- BLM Manual 6600 – Fish, Wildlife, & Special Status Plant Resources Inventory & Monitoring (August 1990)
- BLM Manual 6720 – Aquatic Resource Management (March 1991)
- BLM Manual 6840 – Special Status Species Management (December 2008)
- BLM Manual 7000 Series – Soil, Water, and Air Management
- BLM Manual 8100 – Cultural Resource Management (December 2004)
- BLM Manual 8270 – Paleontological Resource Management (July 1998)
- BLM Manual 8320 – Planning for Recreation and Visitor Services (March 2011)
- BLM Manual 8353 – Trail Management Areas – Secretarially Designated National Recreation, Water and Connecting and Side Trails (September 2012)
- BLM Manual 8400 Series – Visual Resource Management
- BLM Manual 9100 – Facilities Planning, Design, Construction and Maintenance (June 2008)
- Dust Control Field Guide for Gravel Driving Surfaces, Alaska Department of Transportation (2015)
- Guidance for Implementation of Federal Wildland Fire Management Policy (2009)
- Healthy Forest Initiative (Ongoing)
- Information Bulletin 2010-110 – Memorandum of Understanding Between the Bureau of Land Management and the U.S. Fish and Wildlife Service to Promote the Conservation of Migratory Birds
- Information Bulletin 2020-010 – Implementation of Secretarial Order 3373: Evaluating Public Access in Bureau of Land Management Public Land Disposals and Exchanges
- National Fire Plan: Federal Wildland Fire Management Policy (1995)
- National Fire Plan: Review and Update of the 1995 Federal Wildland Fire Management Policy (2001)
- National Programmatic Agreement with the Advisory Council on Historic Preservation and the National Conference of State Historic Preservation Officers (2012)
- Protecting People and Natural Resources: A Cohesive Fuels Treatment Strategy (2006)
- Protocol for Managing Cultural Resources on Lands Administered by the Bureau of Land Management in Alaska (2014)
- Record of Decision Final Vegetation Treatments Using Herbicides Programmatic Environmental Impact Statement (2007)

- Riparian Area Management – Management Techniques in Riparian Areas (1992)
- Secretarial Order 3308 – Management of the National Landscape Conservation System (November 2010)
- Secretarial Order 3310 – Protecting Wilderness Characteristics on Lands Managed by the Bureau of Land Management (December 2010)
- Secretarial Order 3319 – Establishment of a National Water Trails System (February 2012)
- Secretarial Order 3356 – Hunting, Fishing, Recreational Shooting, and Wildlife Conservation Opportunities and Coordination with States, Tribes, and Territories (September 2017)
- Secretarial Order 3366 – Increasing Recreational Opportunities on Lands and Waters Managed by the U.S. Department of the Interior (April 2018)
- Secretarial Order 3372 – Reducing Wildfire Risks on Department of the Interior Land Through Active Management (January 2019)
- Secretarial Order 3373 – Evaluating Public Access in Bureau of Land Management Public Land Disposals and Exchanges (March 2019)
- Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006 (2006)
- Wetland Riparian Initiative (1990)

Section 4. Select Provisions from the Alaska National Interest Lands Conservation Act (ANILCA)

Access Authorized under ANILCA

ANILCA authorizes specific methods of access for subsistence use and traditional activities:

- The use of snowmobiles, motorboats and other means of surface transportation traditional used for subsistence purposes by local residents on all federally managed public lands (Section 811(b)).
- The use of snowmachines, motorboats, airplanes and non-motorized surface transportation methods for traditional activities on conservation system units, national recreation areas, and national conservation areas (Section 1110(a)).

ANILCA authorized access is subject to “reasonable regulation.” To comply with ANILCA, should travel management planning decisions restrict or close any of these methods of access, BLM will initiate a supplemental regulatory process following issuance of the final decision document (Record of Decision for Environmental Impact Statements and Finding of No Significant Impact for Environmental Assessments). This regulatory process will be followed for both proposed interim and proposed final travel management decisions, which includes public notice, hearings in the affected vicinities, and an opportunity for public comment.

Access to State and Private Inholdings

ANILCA Section 1110(b) grants “rights as may be necessary to assure adequate and feasible access for economic and other purposes” to state and private inholdings, including subsurface rights, valid mining claims, or other valid occupancy, within or effectively surrounded by conservation system units. Department of Interior implementing regulations at 43 CFR 36.10 identify procedures for providing such access not otherwise provided by ANILCA Title XI.

ANILCA Section 1323(b) grants access to nonfederally owned land surrounded by public land managed by BLM to secure to the owner “reasonable use and enjoyment,” subject to terms and conditions and the rules and regulations applicable to access across the public lands.

ANILCA Title XI – Transportation and Utility Systems in and Across, and Access into Conservation System Units

Congress found that Alaska’s transportation and utility network was largely undeveloped and the future needs for transportation and utility systems in Alaska would best be identified and provided for through an orderly, continuous decision-making process involving the State and Federal Governments and the public (ANILCA Section 1101(a)). If any portion of a proposed transportation and utility route or system identified in ANILCA Section 1102(4)(B) would be located within a conservation system unit, the application for the proposed project is subject to the applicable provisions in ANILCA Title XI and Department of Interior regulations at 43 CFR 36.

Temporary Facilities and Equipment for the Take of Fish and Wildlife

Existing and future establishment of temporary facilities and equipment related to the take of fish and wildlife are allowed on all federally managed public lands where the taking of fish and wildlife is permitted and must be constructed, used and maintained in the manner described in ANILCA Section 1316(a).

Existing and New Cabins

Cabins are allowed within conservation system units as provided in ANILCA Sections 1303 and 1315. In designated wilderness, previously existing public use cabins are allowed to continue and may be maintained and replaced, subject to conditions that preserve wilderness character. New public use cabins and shelters are allowed in designated wilderness for the protection of public health and safety, subject to conditions identified in ANILCA Section 1315(d), including notice to Congress of an intention to remove an existing cabin or construct a new public use cabin.

Navigation Aids and Other Facilities

Access to, and establishment, operation, and maintenance of new and existing air and water navigation aids, communication sites and related facilities, facilities for weather, climate, and fisheries research and monitoring, and national defense are allowed within conservation system units, including designated wilderness, in accordance with ANILCA Section 1310.

ANILCA Title VIII – Subsistence Management and Use Findings

SUBSISTENCE AND LAND USE DECISIONS

§810. (a) In determining whether to withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition of public lands under any provision of law authorizing such actions, the head of the Federal agency having primary jurisdiction over such lands or his designee shall evaluate the effect of such use, occupancy, or disposition on subsistence uses and needs, the availability of other lands for the purposes sought to be achieved, and other alternatives which would reduce or eliminate the use, occupancy, or disposition of public lands needed for subsistence purposes. No such withdrawal, reservation, lease, permit, or other use, occupancy or disposition of such lands which would significantly restrict subsistence uses shall be effected until the head of such Federal agency--

(1) gives notice to the appropriate State agency and the appropriate local committees and regional councils established pursuant to §805;

(2) gives notice of, and holds, a hearing in the vicinity of the area involved; and

(3) determines that--

(A) such a significant restriction of subsistence uses is necessary, consistent with sound management principles for the utilization of the public lands,

(B) the proposed activity will involve the minimal amount of public lands necessary to accomplish the purposes of such use, occupancy, or other disposition, and

(C) reasonable steps will be taken to minimize adverse impacts upon subsistence uses and resources resulting from such actions.

(b) If the Secretary is required to prepare an environmental impact statement pursuant to §102(2)(C) of the National Environmental Policy Act, he shall provide the notice and hearing and include the findings required by subsection (a) as part of such environmental impact statement.

(c) Nothing herein shall be construed to prohibit or impair the ability of the State or any Native Corporation to make land selections and receive land conveyances pursuant to the Alaska Statehood Act or the Alaska Native Claims Settlement Act.

(d) After compliance with the procedural requirements of this section and other applicable law, the head of the appropriate Federal agency may manage or dispose of public lands under his primary jurisdiction for any of those uses or purposes authorized by this Act or other law.

Appendix G: Goals and Objectives

Appendix G. Goals and Objectives

Section 1. Introduction

Land use plan decisions for public lands fall into two categories: desired outcomes (goals and objectives) and allowable uses and actions anticipated to achieve desired outcomes (BLM 2005). Goals and objectives direct the Bureau of Land Management's (BLM's) actions in most effectively meeting legal mandates, numerous regulatory responsibilities, national policy, State Director guidance, and other resource or social needs.

Goals are broad statements of desired outcomes that usually are not quantifiable. For example, a goal might be "Maintain healthy, productive plant and animal communities of native and other desirable species at sustainable population levels."

Objectives identify specific desired outcomes for resources. Objectives are usually quantifiable and measurable and may have established time frames to achieve. For example, an objective might be "Manage vegetative communities on the upland portion of the Clear Creek watershed to achieve and average 30 to 40 percent canopy cover of spruce to support raptor populations" (BLM 2005).

1.1 How to Use this Appendix

The analysis performed in the Bering Sea–Western Interior (BSWI) Proposed Resource Management Plan (PRMP)/Final Environmental Impact Statement (FEIS) begins with identifying the applicable BLM goals and objectives for the resources and resource uses in the planning area. As described above, the origins of each goal may be a law, an agency regulation, guidance from the BLM State Director, or the particular needs of planning area. Because the sources of the goals are diverse, this appendix has compiled them into one location for ease of reference by BLM staff, partner agencies, project sponsors, and members of the public.

Specific management actions are designed to support the BLM's goals and objectives. Because it can be difficult to understand why certain management actions were proposed without knowing the objectives they are intended or required to achieve, having all of the goals and objectives in one location creates a single point of reference across the resource disciplines that may be affected by a proposed action.

Section 2. Resource and Resource Uses

2.1 Air Quality and Air Quality-Related Values

2.1.1 Goals

1. Protect air quality and related resource values within the planning area.
2. Coordinate and cooperate with the Alaska Department of Environmental Conservation (ADEC), other federal land management agencies, and adjacent landowners to resolve air quality issues.

2.1.2 Objectives

1. Air quality and air quality-related values would remain comparable to historical levels and are not degraded by the BLM or BLM-authorized activities. This would be measured, as applicable,

through monitoring of appropriate indicators such as visibility, and concentrations of criteria pollutants subject to National Ambient Air Quality Standards. This monitoring would occur as necessary at the project implementation/permitting level.

2. All activities and authorized uses on BLM-managed public lands in the planning area would comply with applicable federal, State, tribal, and local air quality regulations, as required by the Clean Air Act, Executive Order (EO) 12088, and the Alaska State Implementation Plan.
3. Activities authorized by BLM would not lead to exceedances of the national or State Ambient Air Quality Standards within the planning area.
4. Permitting of new stationary sources (as outlined in 18 Alaska Administrative Code [AAC] 50.306) on BLM-managed public lands would adhere to Prevention of Significant Deterioration to prevent new non-attainment areas.
5. Air quality, visibility, and other related values in adjacent mandatory federal Class I and Class II Sensitive areas would meet regulatory standards.
6. The effects of smoke on human health, communities, recreation, and tourism would be minimized to the extent practicable and appropriately mitigated in all prescribed fire management activities.

2.2 Soils

2.2.1 Goals

1. Manage BLM-authorized activities to make progress toward properly functioning soil conditions with soil properties appropriate to specific climate and landform. These properties include, but are not limited to, bulk density, infiltration/permeability rates, and moisture storage.
2. Manage actions on BLM-managed public lands in the planning area to provide for long-term sustainability of soil including protection from vegetation trampling/removal, soil compaction, and accelerated soil erosion.
3. Wherever practicable, encourage that surface-disturbing development be located in previously developed or disturbed areas.
4. Increase efforts to inventory soil resources in the planning area.

2.2.2 Objectives

1. Implement proactive stabilization or other appropriate rehabilitation measures in response to anthropogenic or non-anthropogenic events that would impact public health and safety or sensitive ecosystem values.
2. Prioritize proactive reclamation on abandoned mine lands.
3. Reclaim soils in the planning area where oil spills or other hazardous material releases have impaired soil quality.
4. On an implementation-level basis, harden identified preferred routes that provide primary access to available resources, allowing for rehabilitation and restoration of redundant routes to reduce accelerated soil erosion and increased soil compaction. This would be done through implementation-level travel planning.
5. In areas designated as allowing summer off-highway vehicle (OHV) use, monitor and identify thresholds for evaluating vulnerability to accelerated erosion and use best management practices (BMPs) and closures to limit erosion and delivery of sediment to aquatic resource areas.

6. Promote maintenance of soil properties and vegetation conditions consistent with the potential/capability of the site.
7. Conduct regular and routine monitoring of areas affected by BLM-permitted activities. Monitoring requirements would be determined on a project-by-project basis.
8. To the extent possible, monitor modifications to the landscapes such as soil disturbance from fire, vegetation manipulation, and climate change. Use this information to prioritize stabilization and rehabilitation to protect human health/safety and the functions of critical ecosystems.
9. Reduce accelerated erosion/compaction from mining and other activities through use of BMPs, concurrent reclamation, and frequent monitoring.
10. Apply BMPs to mitigate for BLM-permitted surface-disturbing activities.
11. Coordinate with the Natural Resources Conservation Service to prioritize soil inventory efforts to the Unalakleet Wild River Corridor, Areas of Critical Environmental Concern (ACECs), high-value watersheds (HVWs), and any other identified sensitive/critical areas. Expand these inventory efforts to adjacent areas as funding permits.
12. Protect sensitive/critical soil resources within high-value watersheds and other high priority areas. These would be identified through Assessment, Inventory, and Monitoring (AIM) monitoring.
13. Collaborate with U.S. Fish and Wildlife Service (USFWS) to sustain and strengthen landscape-level ecosystem resiliency to human change by managing for connectivity corridors.

2.3 Water Resources and Fisheries

2.3.1 Goals

1. Water Resources

- Within the planning area, watersheds remain intact, healthy, and diverse. Water quality remains pristine and impaired watersheds are to be rehabilitated. High-quality aquatic habitat is provided for native species and organisms throughout the planning area.
- Ensure that watersheds are in, or are making significant progress toward, properly functioning physical condition, including their upland, riparian, wetland, and aquatic components; soil and plant condition support infiltration, soil moisture storage, and the release of water that are in balance with climate and landform flow (BLM Alaska Land Health Standards).
- Ensure hydrologic cycle remains in balance and supports healthy biotic populations and communities (BLM Alaska Land Health Standards).
- Protect, restore, and maintain the hydrologic regime (i.e., timing, magnitude, groundwater recharge, duration, stream network/groundwater connectivity) to achieve sustainable riparian, aquatic, and wetland habitats.
- Protect, restore, and maintain the natural chemical, physical, and biological quality of surface water and groundwater, wetlands, and floodplains influenced by BLM resource management activities. Ensure full compliance with applicable federal and State laws and, to the extent appropriate, EOs.
- Protect, restore, and maintain the natural flow regime, water levels, and integrity of surface water and groundwater influenced by BLM resource management activities.
- Ensure availability of surface water and groundwater for public land management purposes by acquiring and protecting federal reserved water rights and water rights obtained through

State-based administrative and judicial systems. Ensure full compliance with applicable federal and State laws and, to the extent appropriate, EOs.

- Ensure water quality complies with federal and State water quality standards and achieves, or is making significant progress toward achieving, established BLM-management objectives, such as meeting wildlife needs (BLM Alaska Land Health Standards) by adopting federal and State water quality standards as specific BLM objectives for permitted activities.
- Permit activities consistent with the maintenance of long-term watershed health and function.
- Minimize sediment delivery to aquatic resource areas from BLM-permitted activities.
- Increase baseline water quality/quantity and watershed characterization data collection to better inform BLM permitting decisions.
- Manage wild and scenic rivers (WSRs) and corridors to protect and enhance the values for which the river was designated with protection of water quality and quantity as a principal goal.
- Develop measures to protect and enhance watershed health and function in the following areas: Nulato watershed, HVWs, ACECs, WSRs, and degraded watersheds with elevated Aquatic Resource Value. Management in these areas should include the maintenance of water quality/quantity and timing of runoff.

2. Fisheries and Aquatic Resources

- Maintain and improve habitats that support or in the future could support native fish and aquatic species, especially those that are important to subsistence lifestyles and provide for rural economic opportunities.
- Protect and maintain intact and healthy aquatic habitats in potential natural condition (PNC) to ensure connectivity across the landscape.
- Reverse declines in the quality and quantity of riparian and aquatic habitats to ensure improvement of watershed health toward PNCs.
- Increase the quality and quantity of fish habitats that support a broad natural diversity of fish and other aquatic species.
- Manage, or restore to PNC, riparian and aquatic habitats.
- The following goals are consistent with the 2006 National Fish Habitat Action Plan (Association of Fish and Wildlife Agencies 2006) and BLM Instruction Memorandum 2009-141, *Guidance on the BLM Fisheries Program and the National Fish Habitat Action Plan* (BLM 2009):
 - Maintain water quality that satisfies State standards and provides for stable and productive riparian and aquatic ecosystems.
 - Maintain stream channel integrity, channel processes, and the sediment regime (including the elements of timing, volume, and character of sediment input and transport) under which the riparian and aquatic ecosystems developed in that specific ecoregion.
 - Manage and protect instream flows to support healthy riparian and aquatic habitats, which promote the stability and effective function of stream channels, and the ability to effectively route flood discharges.
 - Maintain natural timing and variability of the water table elevation in meadows and wetlands.

- Manage for diversity and productivity of native plant communities in riparian zones.
- Manage riparian vegetation to:
 - Provide an amount and distribution of large woody debris characteristic of natural aquatic and riparian ecosystems;
 - Provide adequate summer and winter thermal regulation within the riparian and aquatic zones; and
 - Help achieve rates of surface erosion, bank erosion, and channel migration characteristic of those under which the communities developed.
- Maintain riparian and aquatic habitats necessary to foster the unique genetic fish stocks that evolved within the specific geo-climatic region.
- Manage habitat to support populations of well-distributed native plant, vertebrate, and invertebrate populations that contribute to the viability of riparian-dependent communities.

2.3.2 Objectives

1. Water Resources

- BLM-authorized activities, programs, and projects must comply with all applicable federal, State, tribal, and local water quality, wetland, and floodplain laws, statutes, regulations, standards, and State implementation plans (as amended), consistent with EOs, the Clean Water Act, Federal Land Policy and Management Act (FLPMA), and BLM Manuals 6720–Aquatic Resource Management, 7240–Water Quality, and 7250–Water Rights.
- When applicable, collect data to determine if any streams in the planning area should be considered by ADEC for addition to the State of Alaska’s 303(d) impaired streams list.
- Work to restore 303(d) listed streams or other streams affected from past land uses in the planning area to improve conditions toward PNC.
- Conduct regular and routine monitoring of permitted surface-disturbing activities to ensure compliance with federal and State requirements for water quality and watershed health.
- Reduce erosion and sediment delivery from mining activities through sound development of mining plans, adherence to State water quality controls and recommendations, implementation of BMPs, and frequent monitoring.
- Require that prior to approving surface-disturbing activities that would impact streams, detailed stream reclamation plans are provided by the project proponent for approval by the BLM.
- Establish buffer zones/setbacks in riparian areas to eliminate direct disturbance to the stream channel, where applicable.
- Reduce accelerated erosion and sediment delivery from OHV travel through implementation-level travel planning using selected OHV type definitions, restricting the seasons of use, route definitions, route delineations, route improvements, and stream/riparian buffers, or by RMP-level decisions such as closing areas.
- Reduce accelerated erosion and sediment from construction activity by following BMPs and standard operating procedures.
- Reduce non-point source pollution by requiring a Storm Water Engineering Plan (18 AAC 72.600) and a Stormwater Pollution Prevention Plan to manage materials, equipment, and runoff from the site for surface-disturbing permitted activities in sensitive watersheds (Nulato

- watershed, HVWs, ACECs, and WSRs). Locatable mineral development would be an exception (in areas outside the above identified sensitive watersheds) to this, in that this development would address non-point source pollution through Alaska Pollutant Discharge Elimination System permitting requirements.
- Prior to authorizing activities, the Authorized Officer should require proof that Alaska Department of Fish and Game (ADF&G) Fish Habitat Permit permit(s) have been obtained for all activities that include stream crossings on BLM-managed lands.
 - Require that proposed projects that have the potential to impact groundwater, monitor groundwater characteristics.
 - Maintain ecological functions and processes necessary to protect and enhance the outstandingly remarkable values of rivers in the planning area that are included in the WSR System.
 - Prioritize application to the State of Alaska for water rights to preserve required flows in the Nulato watershed, HVWs, ACECs, and WSR corridors.
 - The BLM would pursue instream flow reservations of water for the following rivers, and may prioritize additional rivers in HVWs or ACECs:
 - Anvik River
 - Big River
 - Gisasa River
 - Kateel River
 - North River
 - Unalakleet River
 - Swift River
 - The purpose of pursuing these water rights may include the following:
 - Maintain year-round flows necessary to sustain fish and wildlife habitat, migration, and propagation within and adjacent to said river.
 - Maintain or improve recreational opportunities.
 - Meet navigation and transportation goals.
 - Meet sanitary and water quality goals.
 - Compile summary reports on a rotational basis (every 3 or 4 years, or more frequently as necessary) for inventory and monitoring data collected to support WSR instream flow water rights and water quality. Water rights for anadromous fish streams in the planning area would be managed as per BLM Manual 7250–Water Rights. The objectives of the BLM water rights program are as follows:
 - Acquire and perfect federal reserved and State-based water rights necessary to carry out public land management purposes.
 - Protect federal reserved water rights and water rights obtained through State-based administrative and judicial systems. Ensure full compliance with applicable State laws, federal laws, and EOs.
 - Ensure availability of water for public land management purposes by acquiring and protecting BLM-managed water rights, as part of an overall strategy that may include other cooperative techniques for ensuring water availability. Water rights that result in sole title of said water to the U.S. for uses on federal land should be the primary objective, if possible. In certain circumstances, an opportunity to acquire water from

private lands to be used on federal lands and federal resources without sole title to the water may be considered.

- Document BLM-managed water rights in accordance with the file and records maintenance protocols described in Section 1.6 of BLM Manual 7250–Water Rights.

2. Fisheries and Aquatic Resources

- The BLM would manage aquatic habitats such that stream geomorphic and hydrologic functions are within PNC for the planning area as defined by the AIM Core Indicators listed below. On sites where permitted land use activities result in conditions that are outside of PNC, rehabilitation efforts would be designed to move conditions to within PNC in less than 5 years.
- Similarly, the BLM would manage riparian-wetland habitats so functions are within the PNC for the planning area as defined by the AIM Core Indicators. On sites where permitted land-use activities result in conditions that are outside this PNC, rehabilitation efforts would be designed to move conditions to within PNC in less than 5 years.
- AIM Core Indicators that would be managed to meet these objectives would include (but may not be limited to):
 - Water quality
 - Acidity
 - Conductivity
 - Temperature
 - Turbidity
 - pH
 - Watershed function and instream habitat quality
 - Pool frequency
 - Streambed particle sizes
 - Bank stability and cover
 - Floodplain connectivity
 - Large woody debris
 - Biodiversity and riparian habitat quality
 - Macroinvertebrate biological integrity
 - Ocular estimates of riparian vegetative type, cover, and structure
 - Canopy cover
 - Quantitative estimates of riparian vegetative cover, composition, and structure
 - Other potential indicators
 - Slope
 - Bankfull width
 - Floodplain area
- Mining reclamation plans for the rehabilitation of fish habitat as required under 43 Code of Federal Regulations (CFR) 3809.420(b)(3)(ii)(E) would focus on three objectives. Typically, these requirements would be satisfied through the development of a site-specific reclamation plan using Natural Channel Design techniques and the best available science. These objectives are:

- Provide a stable channel form that is in balance with the surrounding landform such that channel features are maintained and the stream neither aggrades nor degrades. To achieve this, it would be necessary to submit to the BLM a design of a post-mining stream channel using morphological characteristics of the pre-disturbance channel and floodplain (e.g., bankfull and 100-year floodplain dimensions, slope, meander patterns, design flows and velocities, riffle-to-pool ratios, pool depths, substrate particle sizes at riffles and pools), which could be derived from field surveys of the area, remotely sensed information, or information from adjacent watersheds that exhibit similar characteristics as the watershed proposed for mining.
- Provide sufficient lateral stability and riparian vegetation to effectively dissipate stream energy, prevent soil erosion, stabilize streambanks, and maintain water quality and floodplain function. In areas with low recovery potential and moderate to high erosion risk, such as newly constructed streambanks, the use of vegetation transplants and toe rock/wood in areas would be required.
- Provide instream habitat complexity similar to that of pre-disturbance levels through the use of instream structures (e.g., constructed riffles, riffle-steps).

2.4 Vegetation

2.4.1 Goals

1. Manage BLM-permitted and casual use activities to maintain functional ecosystems composed of healthy and diverse native communities as required by the BLM Alaska Land Health Standards. If changes in climate or other factors make managing for all native species not possible, the BLM would manage for healthy and diverse functioning ecosystems.
2. Sustain and strengthen landscape-level ecosystem resiliency to human-caused change by managing for connectivity of neighboring National Wildlife Refuges (NWRs) (Innoko NWR, Yukon Delta NWR, Koyukuk NWR, and Selawik NWR).
3. Prevent the listing of BLM sensitive plant species under the Endangered Species Act.
4. Maintain adequate vegetation to prevent human-related erosion and degradation of permafrost.
5. Cooperate with adjacent landowners and jurisdictional authorities to develop a coordinated monitoring program to detect shifts in undisturbed vegetation condition.

2.4.2 Objectives

1. Prevent statistically significant divergence from natural variability in land cover composition. Specifically focus on preventing divergence from natural composition for the following land cover types (see PRMP/FEIS, Volume 2, Map 2-6, for land cover composition in the planning area):
 - Tall shrub, low shrub, and floodplains (generalized moose habitat)
 - Lichen habitats (generalized caribou habitat)
 - White spruce on well-drained floodplains
 - Dwarf shrub and sparsely vegetated areas (generalized BLM sensitive plant species habitat)
 - Herbaceous wetlands

2. Desired future condition for the following AIM Indicators is to exist within PNC. On sites where permitted land use activities temporarily result in conditions that are outside of PNC, rehabilitation efforts would be designed to move conditions to within PNC after permitted activities have ceased.

Core Indicators:

- Amount of bare ground
- Vegetation composition
- Nonnative invasive plant species presence
- Plant species of management concern
- Vegetation height
- Proportion of soil surface in large canopy gaps
- Soil aggregate stability
- Supplemental Indicators:
- Moss/duff depth
- Active layer depth (when permafrost is present)
- Other indicators that are agreed upon with neighboring landowners and partners to contribute to landscape-level datasets

3. Manage for long-term sustainability of vegetation in the planning area to a high condition such that no more than 10 percent of each vegetation cover type is affected by the human development footprint at a given time. At the time of plan development, the best available source of this information is provided by the University of Alaska Natural Heritage Program (now renamed Alaska Center for Conservation Science) Ecological Intactness Model. Future improved datasets, however, would be adopted. Landscape intactness in the planning area is shown in Map 2-7, in Volume 2 of the PRMP/FEIS.
4. Protect or restore habitat for special status species (SSS) flora. Manage for no net loss of SSS flora habitat. SSS locations within the planning area are shown in Map 2-8, in Volume 2 of the PRMP/FEIS.
5. The BLM would work in partnership with the State of Alaska and other landowners to develop consistent reclamation standards to maintain overall ecosystem function.

2.5 Wildlife

2.5.1 Goals

1. Maintain, protect, and enhance habitats to support natural wildlife diversity, reproductive capability, and a healthy, self-sustaining population of all wildlife species.
2. Manage crucial, high-value, and unfragmented habitats as management priorities.

2.5.2 Objectives

1. EO 13186, "Responsibilities of Federal Agencies to Protect Migratory Birds," would be integrated into all activities with potential adverse impacts, wildlife management programs, and other resources including riparian-wetland habitat, raptor protection, wildland fire management, SSS, off-site mitigation and habitat enhancement.

2. Management would emphasize birds listed on the current USFWS Birds of Conservation Concern and Boreal Partners-in-Flight priority species (as updated). As specific habitat needs and population distribution to Birds of Conservation Concern and Partners-in-Flight priority species are identified, the BLM would use adaptive management strategies to further conserve habitat and avoid impacts on these species.
3. The BLM would establish buffer zones, date limitations, and/or seasonal restrictions around nests or cliff nesting habitats for raptors.
4. The BLM would cooperate with ADF&G to accomplish population surveys and habitat goals and objectives of the RMP for all big game (moose, caribou, bison, and muskox).
5. The BLM would cooperate with ADF&G and Alaska Department of Natural Resources to determine stipulations for barge traffic on rivers to protect raptor habitats and nesting sites on BLM lands adjacent to navigable rivers from disturbance.

2.6 Nonnative Invasive Species

2.6.1 Goals

1. The desired future condition is an intact landscape undamaged by nonnative invasive species (NNIS), species (flora and fauna) that are not native to the planning area and cause ecological or economic harm.
2. Prevent damage to intact and functional ecosystems caused by NNIS infestations. Confine damage caused by NNIS infestations to already degraded areas.
3. Prevent the introduction and spread of NNIS in uninfested areas.
4. Contain, control, or eradicate existing NNIS infestations.
5. Effectively integrate NNIS prevention, control, and management activities into all BLM programs and functions within the planning area.

2.6.2 Objectives

1. Prevent introduction through critical control points: inspection and cleaning, education and outreach, and Early Detection Rapid Response (EDRR).
2. Prioritize species for control, eradication, and containment in accordance with the BLM Alaska State Invasive Species Policy.
3. Prioritize NNIS infestations occurring adjacent to communities or travel routes over infestations farther away from human activities.
4. Prioritize EDRR for any aquatic invasive species found in any surface waters that could be used by float planes or watercraft.

2.7 Wildland Fire

2.7.1 Goals

1. The protection of human life is the single, overriding priority. Setting priorities among protecting human communities and community infrastructure, other property and improvements, and natural and cultural resources will be based on the values to be protected, human health and safety, and

the costs of protection. Once people have been committed to an incident, these human resources become the highest value to be protected (H-9211 Fire Planning Handbook).

2. Wildland fire would be managed for multiple objectives, including protection and resource benefit, on all BLM-managed lands in the planning area. Naturally occurring wildland fire would be used to protect, maintain, and enhance resources and, as nearly as possible, would be allowed to function in its natural ecological role as a disturbance agent (USDA et al. 2009).
3. Fuel treatments would protect values and achieve resource management plan objectives.
4. Wildland fire would be managed at a landscape scale. Fire management strategies and practices would be adapted in response to climate change as necessary to ensure protection and resource objectives continue to be met.
5. Prevention, outreach, and education programs would improve the public's understanding of wildland fire management and the natural role of wildland fire in Alaska's ecosystems.

2.7.2 Objectives

1. Human life and health would be protected from risks associated with wildland fire, smoke, and fire management actions.
2. The cost of protecting BLM resources and assets from wildland fire damage would be kept commensurate with their value.
3. Wildfires on BLM-managed public lands that threaten communities or other jurisdictions would be managed collaboratively by all affected agencies. Wildland fire management actions would consider risks and benefits that span jurisdictional boundaries. The BLM would help local communities build the capacity to reduce the risk that wildland fire poses to their populace and infrastructure.
4. Wildland fire management would be used as a tool to accomplish management objectives for the following resources:
 - Air Quality and Air Quality-related Values
 - Soils
 - Water Resources and Fisheries
 - Vegetation
 - Wildlife
 - Nonnative Invasive Species
 - Cultural Resources
 - Paleontological Resources
 - Visual Resources Management
 - Lands with Wilderness Characteristics
 - Forestry and Woodland Products
5. Wildland fire management decisions would be based on a foundation of sound science. As the effects of climate change become better understood, strategies may be adapted to reduce or delay alterations in fire regime and vegetation structure or limit the release of greenhouse gases into the atmosphere, recognizing that it may not continue to be possible, practical, economical, or desirable to maintain vegetation within historical ranges of variation.

6. Wildland fire management activities would be conducted in a manner that avoids damaging impacts on resources and other values including the introduction and spread of nonnative and invasive species, introduction of suppression chemicals into waterways, disturbance of erodible soils or ecologically sensitive systems, and the degradation of air quality as a result of prescribed fire activities. Where damage occurs, it would be repaired or mitigated to the extent possible.
7. Emergency Stabilization and Rehabilitation efforts would identify and mitigate threats to life or property or unacceptable degradation to natural and cultural resources resulting from the natural effects of a wildland fire.
8. The BLM would clearly communicate to the public how fire management policies and practices work to balance the natural role of wildland fire with the protection of human life, communities, and other values.
9. Unauthorized human ignitions would be prevented through collaborative prevention efforts with interagency partners and other affected groups and individuals.

2.8 Cultural Resources

2.8.1 Goals

1. Identify, preserve, and protect significant cultural resources and ensure that they are available for appropriate uses by present and future generations under FLPMA, Section 103(c), 201(a) and (c); National Historic Preservation Act (NHPA), Section 110(a); and Archaeological Resources Protection Act, Section 14(a).
2. Seek to reduce imminent threats and resolve potential conflicts from natural or human-caused deterioration, or potential conflict with other resource uses (National Environmental Policy Act [42 U.S. Code Section 4321]; FLPMA Section 103(c); NHPA Section 110(a)(2)), by ensuring that all authorizations for land use and resource use will comply with NHPA Section 106.
3. Maintain the condition (National Register of Historic Places eligibility) of cultural resources: protect from destruction and deterioration.
4. Maintain the number of cultural resources: ensure sites are not lost to actions such as development, erosion, or fire.
5. Increase knowledge of cultural resources in the planning area (through proactive surveys, oral histories, and other methods).

2.8.2 Objectives

1. Maintain or increase the number of known sites within the planning area.
2. Increase the acres of planning area inventoried for cultural resources.
3. Maintain the NHRP eligibility of known cultural resource sites within the planning area.
4. Ensure that access to sensitive cultural resource sites is not increased.
5. Increase general (not site-specific) outreach, interpretation, and education for cultural resources in the planning area.

2.9 Paleontological Resources

2.9.1 Goals

1. Protect and conserve significant paleontological resources.

2.9.2 Objectives

1. Conduct inventory, identify, record, evaluate, manage, and protect significant paleontological resources for scientific research, educational purposes, and public outreach.
2. Protect significant paleontological resources from surface-disturbing activities by conducting inventory in high probability paleontological areas.
3. Develop education/interpretation related to important paleontological resources.
4. Develop an updated Potential Fossil Yield Classification system 1 (low) through 5 (high) for the planning area (see PRMP/FEIS, Volume 2, Map 2-15).
5. Complete and maintain an inventory of fossil localities and monitor known occurrences of any significant paleontological resources that are under possible threat.

2.10 Visual Resources Management

2.10.1 Goals

1. Manage public lands in a manner that would protect the quality of the scenic (visual) values of these lands for present and future generations.
2. Manage public lands administered by the BLM according to Visual Resource Management (VRM) classes that are determined based on the visual resource inventory, land use allocation, and management action decisions made in the RMP.

2.10.2 Objectives

1. Establish VRM classes for the planning area.
2. Maintain the overall integrity of visual resource inventory classes while allowing for development of existing and future uses.
3. Promote BMPs for reclamation of landscapes, restoration of native habitats, and rehabilitation of waterways and riparian areas to enhance natural/historical scenic values that have been negatively altered. These would include BMPs found in *Best Management Practices for Reducing Visual Impacts of Renewable Energy Facilities on BLM-Administered Lands* (BLM 2013).

2.11 Lands with Wilderness Characteristics

2.11.1 Goals

1. Maintain the area's existing natural conditions.
2. Maintain opportunities for solitude or primitive and unconfined types of recreation.

2.11.2 Objectives

1. Following the guidance of BLM Manual 6310—Conducting Wilderness Characteristics Inventory on BLM Lands, maintain the inventory of the 80 parcels of land throughout the life of the RMP.

2.12 Forestry and Woodland Products

2.12.1 Goals

1. Maintain and restore health, productivity, and biological diversity of forest and woodland ecosystems.
2. Consistent with other resource values, provide personal use wood products for local consumption and opportunities for commercial harvest.

2.12.2 Objectives

1. Continue to inventory additional acres of the planning area for forest resources.
2. Define areas where timber or biomass harvesting is acceptable.
3. Provide forest resources to meet subsistence needs of rural Alaskans.
4. Provide forest resources to promote economic opportunity throughout the region for community biomass or other products that could enhance the economic stability of the region.

2.13 Grazing

2.13.1 Goals

1. Manage permitted grazing to meet BLM Alaska Land Health Standards.
2. Provide opportunities for grazing by local communities if proper grazing management can ensure the protection, conservation, and improvement of rangeland ecological health.
3. Manage rangelands for long-term sustainability of habitat, resilient ecosystems, and connectivity of native wildlife movement.
4. Prevent domestic animal conflict with caribou herds.

2.13.2 Objectives

1. Maintain or restore rangelands to ensure or to make progress toward meeting BLM Alaska Land Health Standards.

2.14 Locatable and Salable Minerals

2.14.1 Goals

1. Support a successful and innovative mineral development program that can allow for job opportunities while reclaiming mined lands to ecologically successful and environmentally stable function through the use of modern reclamation techniques.
2. Provide for the opportunity to develop locatable and salable mineral resources on public lands to meet national, regional, and local needs while ensuring the long-term health and diversity of the land.
3. Encourage exploration of public lands to define potential mineral resources of national strategic interest, that are economically crucial for State and local communities, and to support green technology development and carbon reduction technology.

2.14.2 Objectives

Locatables

1. Conduct all mandatory compliance inspections to ensure proper compliance with the law and regulations, policy, and mine and reclamation plan. Provide constructive feedback to miners on the status of their mining operation.
2. Focus on resolving issues at the lowest and most reasonable level and progressively working through the steps of allowable enforcement actions to return any mining operation in noncompliance to compliance.
3. Ensure adequate reclamation of mine sites, both placer and hard rock, to comply with the latest industry standards and BMPs.

Salables

1. Conduct all mandatory compliance inspections to ensure proper compliance with the law and regulations, policy, and mining and reclamation plan. Provide constructive feedback to operators on the status of their mining operation.
2. Focus on resolving issues at the lowest and most reasonable level and progressively working through the steps of allowable enforcement actions to return any mining operation in noncompliance to compliance.
3. Perform production verification to ensure accurate accounting of materials removed and proper compensation to the federal government.
4. Identify and resolve any mineral material trespass.

2.15 Leasable Minerals

2.15.1 Goals

1. The public lands and federal mineral estate will be made available for orderly and efficient exploration, development, and production of leasable mineral resources (includes oil, natural gas, tar sands, coal bed methane, and geothermal steam), unless withdrawal or other administrative action is justified in the national interest.
2. All leasable minerals actions will comply with goals, objectives, and resource restrictions (mitigation) to protect other resource values in the planning area.

2.15.2 Objectives

1. If demand arises, provide opportunities for environmentally responsible exploration and development of leasable mineral and energy resources subject to appropriate BLM policies, laws, and regulations.

2.16 Lands and Realty

2.16.1 Goals

1. Meet public needs for use authorizations such as rights-of-way (ROWs), leases, and permits while minimizing adverse impacts to resource values.
2. Retain lands within the BLM's administration except where necessary to accomplish resource goals and objectives outlined in the RMP. The BLM would transfer lands out of federal ownership or

acquire non-federal lands where needed to accomplish resource goals and objectives, improve administration of public lands, or meet essential community needs.

3. Acquire and maintain access to public lands to improve management efficiency, facilitate multiple use, and promote the public's enjoyment of these lands in coordination with other federal agencies, State and local governments, and private land owners.

2.16.2 Objectives

1. Consolidate land management to accomplish resource goals and objectives outlined in the Plan.
2. Determine if existing Alaska Native Claims Settlement Act (ANCSA) 17(d)(1) withdrawals should remain in place or if a recommendation should be forwarded to the Secretary to revoke. Determine if new withdrawals should be recommended to the Secretary to protect identified areas with resource or management concern.
3. Manage 17(b) easements reserved in patents or interim conveyances to ANCSA corporations for continued access to public lands in accordance with the ANCSA 17(b) Easement Management Handbook (BLM 2007).

2.17 Recreation and Visitor Services

2.17.1 Goals

1. Within the identified recreation management areas, manage for the primary activities to achieve the identified experiences and benefits.
2. Plan for and manage the physical, social, and operational settings within each area and the activities that occur within them.
3. Increase and improve collaboration with communities within the planning area, businesses, and BLM permittees.
4. Focus the recreation program and administer special recreation permits to conserve the identified recreation outcomes, manage visitor use, protect recreational and natural resources, provide fair market value to the United States, and provide for health and safety of visitors.
5. Provide basic visitor services, including interpretation, information and education in the context of the desired recreation setting.

2.17.2 Objectives

1. Throughout the life of the plan, evaluate visitor satisfaction on a 5-year basis using such methods as field visits, staff monitoring, and surveys. The objective is to manage recreation such that the minimum visitor satisfaction achieves a rating of 75 percent.
2. Throughout the life of the plan, manage the planning area's recreation setting character as a range from front country to back country as further defined by outcomes-focused management objectives for recreation management areas.
3. Throughout the life of the plan and within the Iditarod National Historic Trail (INHT) Special Recreation Management Area (SRMA), manage for the primary activities of dog mushing and snowmobile riding, secondary activities of trapping and hunting.
4. Throughout the life of the plan, and within the INHT SRMA, provide a setting in which the following experiences and benefits could be achieved:

- Experiences

- Gain recognition from others for using the trail.
- Tell others about the trip.
- Enjoy exploring on one's own.
- Enjoy participation in group outdoor events.
- Enjoy strenuous exercise.
- Escape everyday responsibilities.
- Experience and feel good about solitude, isolation, and independence.
- Experience and enjoy adventure.
- Experience and enjoy the sights, sounds, and smells of nature.
- Test one's endurance (secondary experience).

- Benefits

- Benefits (personal)
 - Greater self-reliance
 - Improved outdoor recreation skills
 - Enhanced awareness and understanding of nature
 - Enhanced sense of personal freedom
 - Enhanced sense of competence
 - Greater sense of adventure
- Benefits (community/social)
 - Heightened awareness of natural world
 - Improved community closeness and bonding
 - Greater family bonding
 - Enlarge sense of community dependency on public lands
 - Increased independence/autonomy
 - Greater interaction with visitors from different cultures
- Benefits (environmental)
 - Greater retention of distinctive natural landscape features
 - Reduced negative impacts such as litter, vegetative trampling, and unplanned trail construction.

5. Throughout the life of the plan, and on an annual basis, manage the INHT SRMA for the following recreation setting characteristics (RSCs):

- Physical

- The INHT SRMA is more than 0.5 mile from paved roads, and the existing natural landscape has been retained and modifications to the landscape are not evident. Visitor facilities consist of simple/basic recreation developments such as shelter cabins and trail signs.

- Social

- There are two seasons of use on the INHT SRMA; the high season occurs from February to March, and visitors can expect to see an average of 15-29 people on the trail per day, in group sizes of four to six. The low season occurs April to January, and visitors can expect

to see fewer than three other people each day. Evidence of use is limited to small localized areas with vegetation impacts. Wood lathe with reflective tape from permitted events is occasionally seen along the trail. Signs identifying the INHT would be visible at access points, cabins, and periodically along the trail.

- Operational

- Public access is predominantly by snowmobile, with a lesser use by dog sleds, winter mountain bikes, and cross-country skiing. No full-size vehicles would be in use. Visitor information would consist of maps available at BLM offices and shelter cabins, websites, and minimal signage along the trail.
- Signs would be directional in nature with the exception of BLM public shelter cabins, which may also provide educational and interpretive signs. BLM staff would be present occasionally, most frequently during permitted events.
- Partnerships would be explored and utilized to maintain a minimal management presence.
- Management controls would include, but not be limited to, limits to group size, limits to duration of stay, waste management (human and litter), and permitted activities and commercial filming. Dispersed recreation uses would be lightly managed, with little to no cost to the public.

6. Within the Rohn Recreation Management Zone (RMZ) of the INHT SRMA, manage for the primary activities of group use, camping and hunting, and for the secondary activities of snowmobile riding and sightseeing. Monitoring by staff to ensure this objective is being met would be performed on an annual basis, with an emphasis on winter months.

7. Within the Rohn RMZ, provide a setting in which the following experiences and benefits could be achieved:

- Experiences

- Testing one's endurance
- Enjoying a risk-taking adventure
- Experiencing togetherness with similar people
- Participating in group outdoor activities
- Being in control of things that happen
- Enjoying the sights, sounds, and smells of nature
- Enjoying an escape from crowds of people
- Gaining recognition from others for completing a trip to Rohn RMZ
- Feeling good about solitude, isolation, and independence

- Benefits

- Personal
 - Greater self-reliance
 - Improved skills for outdoor enjoyment, both by one's self and in group settings
 - Improved outdoor knowledge and self-confidence
 - Increased adaptability
 - Stronger ties with family and friends
 - Become a more well-informed and responsible visitor
 - Increase one's personal relationship with the natural world

- Gain a greater sense of adventure
 - Community/Social
 - Increased awareness of nearby communities
 - Increased revenue to nearby communities
 - Greater protection of area historic structures
 - Environmental
 - Heightened awareness of the natural world
 - Greater management of fish, wildlife, and plant resources
8. Throughout the life of the plan, and on an annual basis, manage the Rohn RMZ for the following RSCs:
- Physical
 - Rohn is within 0.5 mile of a trail and airstrip.
 - An unmaintained gravel airstrip, cabin, and toilet have partially modified the existing natural landscape but are not visible from the entire zone.
 - Simple/basic recreation developments such as the Rohn shelter cabin and primitive toilet, hazardous materials storage locker, portal sign, and site maintenance tools are found on site.
 - Social
 - There are two seasons of use at the Rohn RMZ; the high season occurs from February to March, and visitors can expect to see an average of 15-29 people on the trail per day, in group sizes of three or fewer. The low season occurs April to January, and visitors can expect to see fewer than three other people each day, which often consists of passengers of small airplanes landing at the site.
 - Evidence of use is limited to small localized areas of vegetation alteration and compacted/bare soils at the shelter cabin and adjacent to the airstrip. Surface vegetation would continue to be managed to allow minimal wear and bare soils along the trail.
 - Operational
 - Winter access is predominantly by aircraft, with some dog mushing, winter mountain biking, and snowmobile riding. Summer access is possible by aircraft and small inflatable watercraft only.
 - Visitor information would consist of maps available at BLM offices and shelter cabins, websites, and minimal signage at the cabin and along the trail. Signs would be directional in nature.
 - BLM staff would be present occasionally, most frequently during permitted events. Partnerships would be explored and utilized to maintain a minimal management presence.
 - Management controls would include, but not be limited to, limits to group size, limits to duration of stay, waste management (human and litter), and permitted activities and commercial filming.
 - Dispersed recreation uses would be lightly managed and little to no cost to the public.
 - Shelter cabin rules would be posted in plain sight at the cabin. Permitted use such as organized group activities includes restrictions, limitations, and stipulations on such acts as group size, camping ethics, human waste, and litter disposal.
9. Dispersed recreation uses would be lightly managed and without cost to the public remainder of the planning area (comprising of the North and South Nulato Hills, the Yukon River Lowlands, the

Kuskokwim Mountains, the Tanana-Kuskokwim Lowlands, the Lime Hills, and the Ahklun Mountains) and would be managed annually as an Extensive Recreation Management Area (ERMA). The ERMA would be applied uniformly to all areas not managed as INHT SRMA and Rohn RMZ because recreation values are considered uniform across the planning area.

10. Within the BSWI ERMA, the land would be managed to sustain recreational activities of hunting, dispersed camping, fishing, and snowmobile riding and fishing.
 - Manage for sustainable wildlife and fisheries resources that support hunting and fishing activities.
 - Manage OHV use as limited.
11. Within the BSWI ERMA, provide a setting in which the following experiences and benefits could be achieved:
 - Experiences
 - Escaping crowds
 - Experiencing solitude
 - Enjoying the sights, sounds, and smells of nature
 - Testing one's abilities (secondary experience)
 - Benefits
 - Personal
 - Enhanced sense of personal freedom
 - Enhanced sense of competence
 - Greater sense of adventure
 - Environmental
 - Heightened awareness of the natural world
 - Greater management of fish, wildlife, and plant resources
12. Throughout the life of the plan, the BLM would monitor on an annual basis the management of the BSWI ERMA for the following RSCs:
 - Physical
 - Most of the ERMA is more than 0.5 mile from mechanized or motorized trails/routes and navigable waterways.
 - The natural landscape is undisturbed.
 - There are no structures, visitor facilities, or trailheads. Few existing trails were developed by traditional subsistence activities and village-to-village transportation and would be managed as such.
 - Social
 - Fewer than three encounters per day at dispersed/primitive campsites, primarily passengers of small fixed wing air craft. Groups most often consist of three or fewer people.
 - There are no alterations to the natural terrain, and sounds of people are mostly absent, with the exception of the sounds of the occasional fixed wing aircraft.
 - Operational

- Public recreational access in the winter is rare to non-existent away from the INHT SRMA, which bisects the ERMA. Summer access is by fixed-wing aircraft with tundra tires and by jet boats along major rivers (e.g., Yukon, Anvik, Unalakleet, and Kuskokwim Rivers). The entire ERMA is roadless.
 - Visitor information would consist of maps available at BLM offices and shelter cabins, websites, and minimal signage along the trail. Signs would be directional in nature. BLM staff would be present occasionally, most frequently during permitted events. Partnerships would be explored and utilized to maintain a minimal management presence. Management controls would include, but not be limited to, limits to group size, limits to duration of stay, waste management (human and litter), and permitted activities and commercial filming. Dispersed recreation uses would be lightly managed and without cost to the public.
13. Throughout the life of the plan, the Community Focus Zones (CFZ) of the BSWI ERMA would provide opportunities for village residents to conduct subsistence harvest activities free from the impacts of permitted sport harvests in areas immediately adjacent to their villages.
14. Throughout the life of the plan, and within the CFZ of the BSWI ERMA, desired experiences and benefits would focus on traditional subsistence use.
- Experiences
 - Engaging in traditional use in traditional areas
 - Engaging on traditional practices alone or with others
 - Connecting to nature through reliance on natural resources
 - Enjoying the sights, sounds, and smells of nature
 - Benefits
 - Personal
 - Satisfaction in carrying out traditional uses
 - Pride in providing for family and community
 - Enhanced sense of personal freedom
 - Enhanced sense of competence
 - Enhanced sense of self-reliance
 - Community
 - Passing knowledge of subsistence from generation to generation
 - Fostering connection across generations
 - Environmental
 - Heightened awareness of the natural world
 - Participation in stewardship of subsistence resources
 - Reduced pressure for fish, wildlife, and plant resources
15. Throughout the life of the plan, the BLM would monitor on an annual basis the management of the CFZ in the BSWI ERMA for the following RSCs:
- Physical
 - No visitor facilities or trailheads would be developed by the BLM.
 - BLM would coordinate with communities to support cultural tourism if desired by community.

- Existing trails resulting from traditional subsistence activities and village-to-village transportation would remain for the life of the plan.
 - Social
 - Encounters would be limited to individuals or groups engaged in subsistence use or cross-country travel.
 - Encounters with commercial outfitter groups would be minimized.
 - Operational
 - Access by existing trails resulting from traditional subsistence use would continue.
 - Information would consist of hard copy maps available at BLM offices and shelter cabins.
 - Signs would indicate the outer boundary of CFZ.
 - BLM staff would have minimal presence; however, monitoring may occur during hunting season.
 - Dispersed non-commercial recreation uses would be lightly managed and without cost to the public.
16. Throughout the life of the plan and where resource management areas overlap with designated ACECs, manage recreation in a manner that is consistent with protection of relevant and important values of that ACEC.

2.18 Travel and Transportation Management

2.18.1 Goals

1. Meet the minimalization criteria in 43 CFR 8342 and/or manage the transportation network to reduce fragmentation and reduce impacts to habitat.
2. Provide for traditional community access, per Alaska National Interest Lands Conservation Act requirements.
3. Support education and outreach programs that promote trail ethics, travel safety, and public land stewardship.

2.18.2 Objectives

1. Educate trail users about allowable modes of travel, designated routes, and seasons of use on BLM-managed public lands.
2. Reduce conflicts and competition between recreational OHV activities and subsistence access to resources.
3. Conduct monitoring of transportation systems to ensure resource management objectives are being met.

2.19 Areas of Critical Environmental Concern

2.19.1 Goals

1. Manage ACECs to provide special management as required to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes.

2.19.2 Objectives

1. Maintain the long-term sustainability of the relevant and important values for which the ACECs are managed.

2.20 National Trails

2.20.1 Goals

1. The nature and purpose of the INHT (BLM 1986) is to provide the following:
 - A rich diversity of climate, terrain, scenery, wildlife, recreation, and resources largely unchanged since the days of the [gold rush] stampedeers.
 - An extensive, isolated, primitive, historic landscape unmatched in the National Trail System.
 - A setting that demands user durability and skill.
 - A setting in which contemporary users can duplicate the experience and challenge of yesteryear.
 - Per the INHT nature and purpose, as described by Congress in 1978:
 - Conserve today's INHT and adjacent landscape so users can experience the wildland setting and challenges faced by gold rush trail travelers and mushers a century ago.
 - Provide users with opportunities to view, experience, and appreciate examples of historic human use of the resources along the INHT demonstrating how these resources are being managed (1) in harmony with the environment, (2) in support of the nature and purposes for which the trail was designated, and (3) without detracting from the overall experience of the trail.
 - Maintain the INHT National Trail Management Corridor (NTMC) to provide high-quality winter, trail-based use opportunities. Conserve natural, historic, and cultural resources along the trail.
 - Use of the INHT would minimally affect adjacent natural and cultural environments and harmonize with the management objectives of land and resource uses which are, or may be, occurring on the lands through which the trail passes.
 - Preserve and protect the historical remains and historical settings of INHTs and associated historic sites for public use and enjoyment.
2. Provide opportunities for users to meet subsistence needs and outdoor recreation outcomes and promote the preservation of public access and enjoyment of the open air, outdoor areas, and historic resources of the nation, in a manner that supports the nature and purpose of the Congressionally designated trails.
3. The proposed INHT NTMC was determined with the goal of harmonizing with and complementing any established multiple use plans for the areas where it is located. In selecting the National Trail System Act (NTSA) ROWs and the NTMC, full consideration shall be given to minimizing any potential adverse impacts upon adjacent landowners and users or their operations.

2.20.2 Objectives

1. Inventory, maintain, and enhance the significant qualities of high-potential INHT segments and sites as defined in the NTSA.
2. Avoid adverse effects to intact INHT segments, their settings, and associated sites and interference with the resources associated with the nature and purpose of the trail.

3. Protect historic viewshed, trail traces, roadhouses, landmarks, artifacts, and other remains associated with the INHT to enhance historical research and public use and enjoyment.
4. Provide for no net loss of protected national trail resources on BLM-managed public lands.
5. Manage the landscape (viewshed) associated with the INHT so that visitors continue to get a sense of how this landscape was viewed and how it influenced historic users of the trail (i.e., maintain integrity of location, setting, feeling, and association as described in National Register Bulletin 15 (NPS 1990).
6. Work with adjacent landowners to maintain the continuity of the trail across all land ownership as identified in the INHT Comprehensive Management Plan (BLM 1986).
7. Manage the Rohn Site as part of the INHT NTMC for specific uses, to support trail-history-related events, and affected stakeholders.
8. Manage the INHT NTMC (and the Iditarod-Anvik INHT Connecting/Side Trail on BLM lands) as an SRMA to achieve the outcomes-focused recreation objectives (Appendix P of the PRMP/FEIS).
9. Manage the INHT to increase awareness, understanding, and foster a sense of stewardship for the INHT, which safeguards historic trail-associated cultural and natural resources.
10. Ensure visitors are not exposed to unhealthy or unsafe human-created conditions (defined by a repeat incident in the same year, of the same type, in the same location, due to the same cause).
11. Fulfill the NTSA, BLM Manual 6250–National Scenic and Historic Trail Administration (Public), BLM Manual 6280–Management of National Scenic and Historic Trails and Trails Under Study or Recommended as Suitable for Congressional Designation (Public), National Register Bulletin 15 (NPS 1990), the INHT Comprehensive Management Plan (BLM 1986), and others, as applicable.
12. Manage conflict between recreation participants and (1) other resource and/or resource uses, sufficient to enable the achievement of identified land use plan goals, objectives, and actions; (2) private land owners sufficient to curb illegal trespass and property damage; and (3) other recreation participants sufficient to maintain a diversity of recreation activity participation.

2.21 Wild and Scenic Rivers

2.21.1 Goals

1. WSRs within the planning area will be managed in such a manner so as to maintain – throughout the life of the plan – all outstanding remarkable values (ORVs) identified during the BSWI WSR eligibility inventory (BLM 2018).
2. Apply relevant BMPs identified for other resources in the designated WSR corridor.

2.21.2 Objectives

1. Maintain and enhance the ORVs throughout the life of the plan by authorizing uses that are compatible with the river values.
2. Maintain the aesthetic values of the WSR through bank stabilization and effective management of human activities.
3. Within 5 years of the signing of the Record of Decision, the BLM will have established resource indicators and thresholds to determine impacts and modify use levels as necessary to maintain ORVs for designated WSRs.

2.22 Hazardous Materials and Health and Human Safety

2.22.1 Goals

1. Require that the use of hazardous materials within the planning area is managed in accordance with all applicable federal, State, and local laws and regulations.

2.22.2 Objectives

1. Prevent new spills from occurring and prevent the creation of new contaminated sites.
2. Successfully clean up all contamination that occurs, or is discovered from past land use, to a degree that meets regulatory requirements and BLM future land uses.

2.23 Support for BSWI Communities

2.23.1 Goals

1. Sustain subsistence resources and access to resources on BLM-managed public lands.
2. Support village efforts to develop local economies.
3. Support increased collaboration and coordination between the BLM and villages in and near the planning area.
4. Minimize the burdens on rural communities of multi-jurisdictional planning processes.

2.23.2 Objectives

1. When providing and managing recreation opportunities and visitor services, increase and improve collaboration with community networks of service providers.
2. In managing the INHT NTMC, work to minimize (to the extent possible) the level of conflict between recreation participants and other resource and/or resource uses, including subsistence.
3. Consider transferring lands out of federal ownership or acquire non-federal lands where needed to accomplish resource goals and objectives, improve administration of public lands, or meet essential community needs. Meet public needs for use authorizations such as ROWs, alternative energy sources, and permits while minimizing, to the extent possible, adverse impacts to resource values.
4. To the extent allowed by planning area mineral resources, support mineral exploration and development in part to meet local energy needs, provide stable employment, and provide economic opportunities while ensuring the long-term health and diversity of the land.
5. Increase knowledge of native cultures and ways of life through proactive surveys, preservation of oral histories, curation, and other appropriate methods available.

Section 3. References

Association of Fish and Wildlife Agencies. 2006. National Fish Habitat Action Plan (NFHAP), 1st Edition. April 24, 2006.

BLM (Bureau of Land Management). 1986. The Iditarod National Historic Trail, Seward to Nome Route: A Comprehensive Management Plan. Washington, DC.

- BLM. 2005. Land Use Planning Handbook (H-1601-1). March 11, 2005. Washington, DC. Available at: https://www.ntc.blm.gov/krc/uploads/360/4_BLM%20Planning%20Handbook%20H-1601-1.pdf (accessed July 31, 2018).
- BLM. 2007. BLM Instruction Memorandum No. 2007-037. Alaska Native Claims Settlement Act 17(b) Easement Management Handbook. July 3, 2007.
- BLM. 2009. BLM Instruction Memorandum No. 2009-141, Guidance on the BLM Fisheries Program and the National Fish Habitat Action Plan.
- BLM. 2013. Best Management Practices for Reducing Visual Impacts of Renewable Energy Facilities on BLM-Administered Lands. April 2013. Cheyenne, Wyoming.
- BLM. 2018. Wild and Scenic Study Report for the Bering Sea Western Interior Resource Management Plan. September.
- NPS (National Park Service). 1990 (revised 1991, 1995, 1997; revised for Internet 1995) How to Apply the National Register Criteria for Evaluation. National Register Bulletin 15. Washington, DC: U.S. Department of the Interior, National Park Service, Interagency Resources Division.
- USDA, U.S. Department of the Interior, Bureau of Land Management, National Park Service, U.S. Fish and Wildlife Service, and Bureau of Indian Affairs. 2009. Guidance for the Implementation of Federal Wildland Fire Management Policy. February 13, 2009. Available at: http://www.nifc.gov/policies/policies_documents/GIFWFMP.pdf.

Appendix H: Responses to Comments on the Draft RMP/EIS

Contents – Comment Topic Responses

Alaska National Interest Lands Conservation Act (ANILCA)	2
Alaska Native Claims Settlement Act (ANCSA) and 17(d) Withdrawals.....	4
Areas of Critical Environmental Concern (ACECs).....	6
Climate Change.....	9
Commercial Woodland Harvest.....	9
Community Focus Zones	10
Data Used in the Draft RMP/EIS	11
Document Language/Formatting/Maps	13
Economic Development.....	15
Environmental Justice.....	15
Federal Land Policy and Management Act (FLPMA).....	16
Grazing Issues.....	16
High-Value Watersheds	17
Lands with Wilderness Characteristics	18
Llamas and Alpacas	20
Meetings and Public Involvement Process	21
Mineral Resources and Mining	22
Multiple-Use Mandate	24
Paleontological Resources	25
ROW Avoidance and Exclusion Areas.....	26
Subsistence Resources and Access	27
Support for BSWI Communities.....	28
Travel and Transportation Management Issues	30
Tribal Outreach and Cooperating Agencies.....	31
Wild and Scenic Rivers.....	32
Wildlife Topics	34
Single Topic Responses	36
References.....	38

Alaska National Interest Lands Conservation Act (ANILCA)

Issue: Adequacy of ANILCA hearings

A commenter expressed concern that ANILCA Section 810 hearings did not adequately invite or nurture public comments, because the public meetings were too lengthy.

Response:

The Bureau of Land Management (BLM) notified the public of each of the 17 community meetings and ANILCA hearings at least 15 days prior to the meeting. Notice was provided in multiple ways, including publication in the *Federal Register*, legal advertisements in newspapers, postcards, e-blasts, radio announcements, and community fliers. Additionally, the meeting schedule and any updates were posted to the project website at least 15 days before the community meetings and ANILCA hearings. A summary of the notice efforts is included in Section 1.3 of the Comment Summary Report.

At the start of each community meeting, BLM explained that the ANILCA hearing would follow the community meeting and that questions and comments could be taken at any point during the hearing. At the start of the hearing, BLM stated that the purpose of being there was to receive comments on the Draft Bering Sea-Western Interior (BSWI) Draft Resource Management Plan (RMP)/Environmental Impact Statement (EIS), to present the findings of the ANILCA 810 Evaluation, and receive input from subsistence users on ways to help mitigate impacts. BLM indicated numerous times before, during, and after the meeting and hearing that members of BLM would be available for as long as the community members wished to discuss the plan. BLM stayed overnight in 16 of the 17 communities and offered extended discussion times in the morning after the meeting and hearing if the community so desired.

BLM recognizes that it can be difficult in a short period of time like a meeting to absorb and respond to multi-part decisions that entail significant background information and decision reasoning. Because of this, BLM prepared community-specific leave-behind information packets that included localized maps of the BLM lands nearest to each community and summaries showing how each alternative would affect land uses nearest the community. Wall-sized versions of these localized maps were left with community leaders to facilitate discussion and commenting at the local level. Additionally, copies of the community meeting and ANILCA hearing presentations were provided on the sign-in table of every meeting so that attendees could review the presentations at home if they wished. The last page of both presentations listed the various ways in which BLM accepted comments. Appendix C of the Comment Summary Report includes copies of the leave-behind materials.

During the ANILCA hearings, BLM invited both individual attendees and community representatives to look through these materials in depth, to consult with each other or others, and to send comments at any time during the comment period. BLM emphasized that there is no limit on the number of times comments could be submitted and also advised that community members or representatives should call the BLM project managers if they had questions regarding the plan or meeting materials.

BLM has received numerous post-meeting comments from community members and representatives. All comments received during the comment period were reviewed, considered, and entered in the administrative record.

Transcripts of the ANILCA hearings are included in Appendix D of the Comment Summary Report.

Issue: Compliance of use designations in the Draft RMP with ANILCA

Commenters expressed concern that any area designations in the RMP that regulate allowed uses are a violation of ANILCA. Examples given included Areas of Critical Environmental Concern (ACECs), Wild and Scenic Rivers (WSRs), high-value watersheds (HVWs), Right-of-Way (ROW) Exclusion or Avoidance Areas, Visual Resource Management (VRM) designations and the Iditarod National Historic Trail Management Corridor.

Response:

The BSWI Draft RMP/EIS is in compliance with all laws and regulations. Land use designations do not prohibit subsistence use.

Issue: Protection of subsistence uses under ANILCA

Commenters expressed concern that the Draft RMP/EIS did not adequately protect access for subsistence users or protection of subsistence resources as required under ANILCA.

Response:

A subsistence impacts analysis was completed for the Proposed RMP/Final EIS. Section 2.3.1 of the Proposed RMP/Final EIS addresses BLM's position on Section 811 and 1110(a) of ANILCA.

Issue: Resource protections in the context of ANILCA 810 analysis

A commenter expressed concern that in the context of the 810 analysis, many types of management actions identified as resource protections in the Draft RMP/EIS could interfere with subsistence activities or limit rural communities' economic opportunities, but that only actions related to locatable minerals, off-highway vehicle (OHV) access, and ROW development were analyzed in the context of subsistence use.

Response:

BLM acknowledges that various management actions in the Draft RMP/EIS could impact subsistence users. The three actions chosen to include in the ANILCA 810 analysis were chosen as representative indicators, as these are the three actions most likely to cause impacts to subsistence users. A clarification was added to the Final ANILCA 810 analysis that is published as part of the Proposed RMP/Final EIS.

Issue: ANILCA 810 requirements for future development

A commenter requested clarification regarding the requirement that subsequent ANILCA 810 analyses be conducted on any future proposed development.

Response:

The BLM has added clarification to the Final ANILCA 810 analysis to explain that a project-specific 810 analysis would be required any time BLM makes future decisions in the planning area to "withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition of public lands under any provision of law authorizing such actions."

Issue: Scope of ANILCA 810 analysis

A commenter expressed concern that the ANILCA 810 analysis was applied to State-selected lands.

Response:

Land management decisions contained in the BSWI PRMP/FEIS only apply to BLM-managed lands within the BSWI planning area, which includes, in part, State-selected and ANCSA Native corporation-selected lands that have not yet been conveyed. However, selected lands (State-selected and ANCSA) do not qualify as Federal Public Lands under ANILCA Section 810. Because of the land use planning-level resolution of this analysis, all BLM-administered lands were considered, regardless of land status. This approach results in a conservative assessment of impacts and is most consistent with a scenario in which selections are relinquished or rejected.

Alaska Native Claims Settlement Act (ANCSA) and 17(d) Withdrawals**Issue: Concern regarding proposed lifting of existing ANCSA 17(d)(1) withdrawals on BLM land in the planning area**

Many commenters expressed opposition to the lifting of ANCSA 17(d)(1) withdrawals under all action alternatives. In particular, commenters expressed concern that this would also open lands up for mining that were withdrawn under the 17(d)(1) withdrawals. Objections were raised by commenters based on one or more of the following assertions:

- The likely negative effects on subsistence resources
- The likely negative effects on HVWs
- The likely negative effects on sport and commercial fisheries
- Failure to conduct a public interest analysis as required by ANCSA
- Failure to adopt sufficient protections to replace withdrawals
- Failure to comply with section 207 of the 2004 Alaska Land Transfer Acceleration Act
- Failure to justify why it is in the public interest to open low mineral potential land to mining
- Concern about whether it is legal for BLM to retain the ANCSA(d)(1) withdrawals, which were established for a different purpose, until it receives Congressional approval of the 9.8 million acres it proposes to withdraw under Alternative B.

Some tribes expressed their wish that BLM retain Public Land Orders in HVWs and ACECs in order to close the areas to mining, to provide layered protections for the traditional and culturally important values.

Response:

These withdrawals currently cover over 99 percent of the planning area. Under the BLM's Proposed RMP/Final EIS (Alternative E), all 17(d)(1) withdrawals would be recommended for revocation. Each 17(d)(1) withdrawal has a different purpose(s) and segregative effect(s), as summarized in the Withdrawal Summary publicly available on the BSWI ePlanning website: https://eplanning.blm.gov/epl-front-office/projects/lup/36665/157274/192399/PLO_Withdrawal_Summary-rev09132018.pdf. Not all withdrawn lands are closed to mining; about 8.6 million acres of BLM land are currently open to locatable mining and/or leasing.

A total of 13,461,531 acres (greater than 99 percent) of BLM lands within the planning area are withdrawn through 17(d)(1). Approximately 64 percent of these are currently open to locatable mineral entry, and less than 1 percent of BLM-managed open lands are considered to have medium to high

locatable mineral potential. The majority of medium and high mineral potential in the planning area occurs on State and ANCSA-corporation-owned lands. Most (66 percent) of BLM-managed lands in the planning area with medium to high locatable mineral potential is selected by the State of Alaska or Native corporations under current conditions.

The BLM's land use planning process serves as the means to assess resource values and make recommendations to the Secretary of the Interior regarding withdrawals. As a result, it is appropriate to consider continuing, modifying, and/or revoking all withdrawals in the planning area. The withdrawals kept the lands unencumbered for selection by ANCSA corporations and prevented the creation of new third-party interests that would interfere with land conveyance. The withdrawals also allowed the BLM time to study and classify the lands. These original purposes of the 17(d)(1) withdrawals are no longer applicable because the selection process is now complete and because the land use planning process is being utilized to determine appropriate classifications of the lands. Secondly, lifting of these withdrawals would open new areas for locatable mineral claims, exploration and development, and for leasing. In addition, lifting of 17(d)(1) withdrawals would allow for non-discretionary conveyances under the Alaska Statehood Act and the Dingell Act of 2019. Lifting withdrawals in the planning area would also open upland exchange options, should the BLM receive such applications for exchange in the future.

Resource values will also continue to be managed through the following provisions:

- NEPA analysis to determine potential environmental consequences of a proposed action prior to selling any leases.
- Approval of an application for Permit to Drill prior to ground disturbance on BLM-managed lands.
- Approval of a plan of operations and National Environmental Policy Act (NEPA) analysis prior to engaging in mining activity for locatable minerals.
- Oil and gas lease stipulations, required operating procedures, and surface management regulations for miners to assess and protect the resources in most situations.

The listed requirements and other tools for managing development mean the original protections from the 17(d)(1) withdrawals are no longer critical for the protection of the public's interest. Given these provisions, the Draft RMP/EIS analysis points to minimal differences in impacts between Alternatives B and E, due in large part to the generally low mineral potential on BLM lands throughout the planning area. Revoking 17(d)(1) withdrawals would allow for more efficient multiple-use land use decisions by removing encumbrance on the public land records.

Issue: Support for proposed lifting of ANCSA 17(d) withdrawals under Alternatives C and D

Commenters also expressed support for lifting the existing ANCSA 17(d) withdrawals on the basis that their purpose had been fulfilled and/or that lifting the withdrawals would stimulate economic development and mining opportunities.

Response:

BLM acknowledges support for the lifting of existing ANCSA 17(d) withdrawals and has described above the rationale behind proposing this action in its Proposed RMP/Final EIS (Alternative E).

Areas of Critical Environmental Concern (ACECs)

Issue: Lack of analysis on mining impacts to relevant and important values.

Commenters expressed concern that the Draft RMP/EIS did not evaluate mining impacts on relevant and important values for locally nominated watersheds and asserted that the BLM should protect those important values on lands in the planning area.

Response:

A discussion of impacts to fisheries and cultural resources from management decisions pertaining to mineral development is provided in Sections 3.2.5 and 3.2.10 of the Final EIS, respectively. The impact analysis for relevant and important (R&I) values (Final EIS Section 3.4.1) focused on protections that would be in place under a full range of alternatives, considering designation and special management, as well as general management actions. As part of this analysis, best management practices (BMPs) and standard operating procedures were considered. Additional analysis is provided in Appendix N (Supplemental Impact Analysis) of the Draft RMP/EIS, available on BLM's BSWI ePlanning site.

Issue: Questions regarding the framework for analysis for ACEC designation.

Commenter requested that BLM disclose all the evidence and factors reviewed and considered in proposing the ACECs and requested the Proposed RMP/Final EIS include the specifics of the criteria used to determine ACEC designations under each alternative.

Response:

The framework for analysis of ACEC designations is detailed in Federal Land Policy and Management Act (FLPMA), 43 Code of Federal Regulations (CFR) 1610.7-2, and BLM Manual 1613. "Chapter 2. Requirements for ACEC Designation" in the *Areas of Critical Environmental Concern Report on the Application of the Relevance and Importance Criteria of Special Management* (BLM 2018) details criteria used to establish R&Is.

The Proposed RMP/Final EIS includes the results of the analysis used to determine whether designation as an ACEC with special management attention is necessary to protect R&Is.

Issue: Questions regarding the standards for relevant and important values of ACECs

Many commenters had questions regarding how R&I value thresholds were determined for ACECs.

Response:

R&I values for nominated ACECs were evaluated using criteria described in 43 CFR 1610.7-2 and BLM Manual 1613. ACECs that met both the relevance and importance criteria were carried forward and further analyzed in the Draft RMP/EIS. Relevance and importance are defined as follows:

Relevance:

There shall be present a significant historic, cultural, or scenic value, a fish or wildlife resource or other natural system or process, or natural hazard. An area meets the threshold for relevance if it contains one or more of the following:

- A significant historic, cultural, or scenic value (including but not limited to rare or sensitive archeological resources and religious or cultural resources important to Native Americans).

- A fish and wildlife resource (including but not limited to habitat for endangered, sensitive, or threatened species or habitat essential for maintaining species diversity).
- A natural process or system (including but not limited to endangered, sensitive, or threatened plant species; rare, endemic, or relic plants or plant communities that are terrestrial, aquatic, or riparian; or rare geological features).
- Natural hazards (including but not limited to areas of avalanche, dangerous flooding, landslides, unstable soils, seismic activity, or dangerous cliffs). A hazard caused by human action might meet the relevance criteria if it is determined through the resource management planning process to have become part of a natural process.

Importance:

The above-described value, resource, system, process, or hazard shall have substantial significance and value, which generally requires qualities of more than local significance and special worth, consequence, meaning, distinctiveness, or cause for concern. A natural hazard can be important if it is a significant threat to life or property. An area meets the threshold for importance if it meets one or more of the following criteria:

- Has more than locally significant qualities that give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource.
- Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change.
- Has been recognized as warranting protection to satisfy national priority concerns or to carry out the mandates of the FLPMA.
- Has qualities that warrant highlighting to satisfy public or management concerns about safety and public welfare.
- Poses a significant threat to human life and safety or to property.

Please see “Chapter 2. Requirements for ACEC Designation” in the *Areas of Critical Environmental Concern Report on the Application of the Relevance and Importance Criteria of Special Management* (BLM 2018) for more details.

Issue: ACEC designations and tribal sharing and trade networks

A commenter was concerned that the BLM rejected detailed studies from the Alaska Department of Fish & Game (ADF&G) on the grounds that the subsistence data only had local importance for ACEC nomination. The commenter maintains that subsistence relies on trading with nearby and distant tribes, which creates a food matrix of sharing and trade of subsistence gathered foods.

Response:

For an ACEC to be carried forward for analysis, it needs to meet at least one relevance criteria and at least one importance criteria. The BLM acknowledges that regional sharing of subsistence harvest is an important facet of culture and the subsistence way of life across Alaska. However, the sharing networks do not meet the criteria of “more than locally significant” for ACEC consideration because fish and wildlife used in subsistence harvest are available in other portions of the planning area.

Issue: Consistency of the Sheefish Spawning ACEC with the State of Alaska land management plans

The State of Alaska expressed concern that its Kuskokwim Area Plan provides management intent that is contrary to the proposed Sheefish Spawning ACEC, in that it identifies and designates areas of important habitat for sheefish spawning that are significantly smaller than those in the proposed ACEC.

Response:

The BLM acknowledges the identification of important habitat areas for sheefish spawning on State of Alaska lands. The proposed Sheefish Spawning ACEC under Alternative B would be applicable only on BLM-managed lands. In this way, there would be consistent management for this important resource across land management boundaries. BLM's Proposed RMP/Final EIS (Alternative E) does not include designation of ACECs.

Issue: Anvik River fish species

A commenter suggested that BLM explore available data showing the existence of five sub-species of grayling in the Anvik River and should consider this data as part of the nomination of the Anvik River Watershed ACEC.

Response:

The Anvik River Watershed ACEC already meets the relevance and importance criteria for fisheries as nominated and was analyzed in Alternative B. If additional criteria warrant further consideration as a R&I value, information detailing this rationale should be provided to BLM as an update to the existing nomination. BLM would be very interested to have a copy of this data or a citation referencing where it can be found. Recent contact with ADF&G indicated that the Agency is also not aware of this data. Additional information would be very welcome as there have been few studies conducted across Alaska on grayling.

Issue: Protection of cultural resources via designation of ACECs

A commenter objected to the use of ACEC designation to protect cultural resource values on the basis that these are protected under Section 106 of the National Historic Preservation Act (NHPA).

Response:

The FLPMA requires priority shall be given to the designation and protection of ACECs. ACECs are defined in FLPMA¹ as "areas within the public lands where special management attention is required (when such areas are developed or used or where no development is required) to protect and prevent irreparable damage to important historic, **cultural** (emphasis added), or scenic values, fish and wildlife resources or other natural systems or processes, or to protect life and safety from natural hazards." The analysis and the resultant findings for ACEC relevance and importance criteria was performed pursuant to FLPMA Section 202(c)(3) (43 United States Code [U.S.C.] 1712), 43 CFR 1610.7-2, and BLM Manual 1613, *Areas of Critical Environmental Concern* (BLM 2018). The results of this analysis informed the identification of potential ACECs considered in Alternative B.

¹ Section 103(a) (43 U.S.C. 1702) and in 43 CFR 1601.0-5(a)

Climate Change

Issue: Request that BLM collaborate with tribes to monitor climate change in the BSWI area and to hire community members to perform this work

Response:

Draft RMP/EIS Section 2.7.23, Support for BSWI Communities, includes several management actions that include working with local community members, such as monitoring and data collection activities.

Issue: Adequacy of data used to evaluate likely effects of climate change

Commenters noted that the Draft RMP/EIS used the Third National Climate Assessment to evaluate climate change and should have assumed a higher warming trajectory when discussing climate change impacts.

Response:

The Proposed RMP/Final EIS document was updated with current climate data based on the Fourth National Climate Assessment.

Commercial Woodland Harvest

Issue: Requests that Commercial Woodland Harvest Permits not apply to harvesting for tribal and community buildings

Commenters expressed concern that timber that is harvested from BLM land and used to heat tribal buildings or community bio-mass plants would now require a commercial woodland harvest permit. Commenters requested that this use be classified as subsistence and not be required to obtain BLM permits.

Response:

BLM has proposed commercial woodland permits so that the location, season, scale, and type of harvest can be reviewed before the project takes place. Under Alternative E, subsistence users can still collect up to 10 cords of firewood from BLM land outside of 100-year floodplains without a permit. Projects that are larger than that, such as harvesting enough trees for a village-wide biomass plant, typically require larger harvesting and transport equipment, and have a greater potential to impact soils, waterways, and other vegetation around the harvest area. Permits are currently \$10 per cord.

Personal use gathering of forest firewood of more than 10 cords of firewood per household per year and gathering forestry products would require a permit.

Issue: Concerns about permitted Commercial Woodland Harvest

Several commenters expressed concern that allowing commercial woodland harvest would lead to negative effects on subsistence resources or habitat. Others criticized the permit system as confusing.

Response:

The objective of having commercial harvesting permits for forest products is to provide an orderly management of the resource so that habitat is not degraded, and resources remain available for local use

and subsistence. It provides a positive tool to support village needs. Any potential large-scale harvesting by outside entities would require substantial NEPA review, which would directly analyze local impacts before permits would be issued.

Issue: Tribal consultation on issuance of Commercial Woodland Harvest Permits

A commenter requested that tribal consultation and coordination should be required prior to issuing Commercial Woodland Harvest permits within the tribe's traditional use area.

Response:

Tribal consultation would be addressed during the NEPA process for each Commercial Woodland Harvest permit.

Community Focus Zones

Issue: The designation of Community Focus Zones, their size, and questions regarding activity restrictions

Commenters expressed both support for and opposition to proposed Community Focus Zones. Comments from supporters of this designation also frequently requested they be larger in size and include restrictions to permits for guided fishing as well as hunting. Commenters opposed to the designations expressed concern over limits to economic opportunity and restrictions on commercial berry and house log harvest.

Response:

The use of Community Focus Zones was considered during the development of the alternatives as a means to manage potential conflict between subsistence users and sport hunters. This buffer varies in acreage, depending on the amount of BLM land actually located within the Community Focus Zone. The BLM considered comments in support of an in opposition to the proposed Community Focus Zones as it prepared the Proposed RMP/Final EIS. Note that fishing permits are regulated by ADF&G and are outside the scope of the BSWI Draft RMP/EIS.

Issue: Concerns regarding jurisdiction and public interest of Community Focus Zone designations

A commenter expressed concern that Community Focus Zones would benefit private interests by excluding public uses, and that BLM would exceed its jurisdiction if Community Focus Zones were designated, as BLM does not have statutory authority to regulate fish and wildlife allocation.

Response:

BLM has no jurisdiction related to hunting and fishing regulations. BLM is, however, responsible for recreation management on BLM-managed lands and does so by issuing special recreation permits for commercial guide/outfitter services. Establishing Community Focus Zones would not limit non-commercial or non-subsistence sport hunters from accessing BLM-managed land within the Community Focus Zones for the purpose of hunting or fishing.

Issue: Permissibility of Community Focus Zones under ANCSA

A commenter contends that "The CFZ [Community Focus Zone] concept is in direct conflict with the intent of ANCSA and ANILCA, as well as existing processes to settle local land ownership and subsistence priorities on federal lands."

Response:

BLM is authorized to administer special recreation permits on BLM-managed land as described in FLPMA and 43 CFR 2930. This authority is not in conflict with ANCSA or ANILCA.

Issue: Language in Section 2.7.1 of the Draft RMP/EIS regarding Community Focus Zones

A commenter requested that the term “village” be clarified with regard to Community Focus Zones and expressed concern that the Draft RMP/EIS language could encourage favoritism, improper influence, or unfair treatment.

Response:

BLM has removed the following sentence from the Proposed RMP/Final EIS regarding Community Focus Zones:

“Exceptions could be made to allow permitting of SRPs and commercial special forest product permits based upon concurrence from the affected CFZ village for a particular use by a resident or other concern.”

Data Used in the Draft RMP/EIS**Issue: Question regarding adequacy of subsistence data used to evaluate alternatives**

Several commenters questioned the data sources used to develop the subsistence analysis and/or suggested alternative or additional sources.

Response:

The subsistence review and 810 analysis were completed using the best available data from numerous sources, including databases and technical papers from the ADF&G and a land use study from the University of Alaska Fairbanks. Using a GIS database, the subsistence use areas for each community were overlaid with the three RMP decision areas to complete the quantitative and qualitative review of subsistence impacts.

Issue: Detail of baseline data in the Affected Environment RMP/EIS section

Commenters requested that the document provide a more robust baseline characterization of the affected environment and provide more detail on maps that represent this data. In particular, more detail on wildlife distribution was requested.

Response:

Due to the large geographic area detailed, survey-level data are not available throughout the planning area. Additional information was added to the fisheries section where incomplete data are discussed. Map 2-10 of the Draft RMP/EIS displays all available data for the Western Arctic herd and the Mulchatna herd (adjacent to the Kuskokwim River).

Issue: Request for additional detail in the impact analysis

Commenters suggested adding more detail on the resource impact from the alternatives would be helpful for the readers. The following additional information was requested:

- Additional details on the impacts or consequences to fish, air quality, and aquatic resources were requested to be added to the Proposed RMP/Final EIS.
- Discussion of Alaska Pollutant Discharge Elimination System (APDES) permitting for operational discharges under each of the analyzed alternatives.
- A table summarizing the priority resources and a discussion of cultural events (i.e., potlatches, memorial parties) where traditional harvest might be allowed outside of the regulated seasons.
- Discussion of potential climate impacts on subsistence activities.
- Analysis of impacts to the wood bison herd recently reintroduced to the planning area.
- Discussion of how the project can help sheefish habitat to be more widely identified and protected.

Response:

The Draft RMP/EIS document is in line with 40 CFR 1500.4 and limited in length to 300 pages, per Secretarial Order 3355. The document only briefly discusses issues other than significant issues, limiting the amount of detail provided in the main body of the document. Due to the nature of the Draft RMP/EIS, a quantitative analysis for air quality is not feasible due to the lack of specific information on actual emission-producing activities that would occur.

The Draft RMP/EIS does not include specific actions that would require an APDES permit. However, BLM acknowledges that any operation discharging wastewater or stormwater to surface waters of the U.S. would need an APDES permit under the Clean Water Act. Section 402 of the Clean Water Act is included in Appendix E, Management Regulations, Policy, and Program Guidance, of the Draft RMP/EIS.

The Draft RMP/EIS does not apply to seasons for subsistence harvest. Fishing and hunting seasons are regulated by the ADF&G and are not covered under this RMP.

Impacts to the wood bison herd are discussed in the Draft RMP/EIS, Section 3.2.7, to the same extent as other wildlife species. Table 3.2.7-2 includes acres of impacts to the wood bison range.

More information on sheefish habitat and potential protections is included in the Proposed RMP/Final EIS.

Issue: Information provided to the BLM regarding traditional use areas and subsistence practices in the planning area

Commenters expressed concern that BLM had not considered reports or published data when making decisions regarding subsistence and suggested particular studies or publications that should be included in the Proposed RMP/Final EIS.

Response:

The BLM reviewed the suggested documents if available and incorporated information as appropriate for the analysis and comparison of alternatives.

Document Language/Formatting/Maps

Issue: Requests for line item changes to the Draft RMP/EIS, questions or concerns regarding maps in the Draft RMP/EIS, or Draft RMP/EIS formatting concerns

Many commenters requested specific changes to the text, graphics, or formatting of the Draft RMP/EIS.

Response:

As part of the larger revisions made to the Draft RMP/EIS as a result of the public involvement process and ongoing review, BLM has evaluated and incorporated, as appropriate, the requested line item, formatting, and graphics change requests into the Proposed RMP/Final EIS.

Issue: Complex language in the Draft RMP/EIS

Commenters expressed concern that the language in the Draft RMP/EIS is too complex to be understood in most planning area communities.

Response:

EISs are large, complex documents by nature. A detailed analysis of RMP alternatives is required to fully assess the potential outcomes of management decisions, but the BLM took steps to help make the RMP/EIS documents (and the analysis they covered) more accessible to the public. The BLM hosted an “Online Open House” where meeting materials could be downloaded and reviewed at home, visited 17 communities to host public meetings, and stayed overnight in most of the communities in order to be available to answer questions and take comments. In addition, to help understand the document, the BLM released “Summary Sheets” to present key information more simply and quickly. These materials were made available on the Online Open House website in March of 2019 after the release of the Draft RMP/EIS (these sheets were updated over time, with the last update happening on April 15, 2019). Summary Sheets addressed the following topics:

- Summary of Alternatives
- Areas of Critical Environmental Concern
- ANILCA 810
- Cultural and Paleontological Resources
- Fisheries
- Forestry and Woodland Products
- High-Value Watershed Aquatic Resource Values
- Iditarod National Historic Trail
- Lands and Realty
- Minerals
- Parcels Proposed for Disposal
- Recreation and Visitor Services
- Reindeer Grazing
- Soils and Vegetation

- Support for BSWI Communities
- Travel and Transportation Management
- Visual Resources
- Wildlife Resources

Issue: Definition of terms used in the Draft RMP/EIS

Commenters requested that “case-by-case” be defined in the plan and allow additional public comment on this definition if it is included in the final plan.

Response:

BLM acknowledges that use of the term “case-by-case” in the Draft RMP/EIS created confusion, as the “open” vs. “case-by-case” management actions would in most circumstances be the same. BLM retains decision discretion at the project level to approve or deny proposals in areas that are open. Allowable use planning decisions may include whether certain lands may be open or closed to specific uses based on legislative, regulatory, or policy requirements and criteria to protect sensitive resource values.

BLM’s *Land Use Planning Handbook* (BLM 2005) defines the terms “open” and “closed,” and the descriptions of the alternatives have been updated to reflect this.

- “Open” generally denotes that an area is available for a particular use or uses. Refer to specific program definitions found in law, regulations, or policy guidance for application to individual programs. For example, 43 CFR 8340.0-5 defines the specific meaning of “open” as it pertains to OHV use.
- “Closed” generally denotes an area that is not available for a particular use or uses; refer to specific definitions found in law, regulations, or policy guidance for application to individual programs. For example, 43 CFR 8340.0-5 sets forth the specific meaning of “closed” as it relates to OHVs, and 43 CFR 8364 defines “closed” as it relates to closure and restriction orders.

In preparing the Proposed RMP/Final EIS, BLM eliminated the use of the term “case-by-case” and classified these areas as “open.” Acreage reported in Chapter 2 of the Proposed RMP/Final EIS and summarized in Table 2-1 of that document are reflective of this consolidation.

Issue: Inconsistencies in language between different sections of the Draft RMP/EIS

Commenters provided examples where plan language in different sections of the document seemed to inconsistently reference plan actions.

Response:

BLM has addressed inconsistencies in plan language between sections for the Proposed RMP/Final EIS.

Issue: Adaptive management not clearly explained

A commenter expressed that the concept of adaptive management has not been explained, although the term is used frequently in the Draft RMP/EIS.

Response:

BLM has added clarifying language regarding adaptive management to the Proposed RMP/Final EIS, because this is an important land management framework.

Examples of adaptive management under Alternative E include the following:

- Wildlife Management for Caribou and Moose: Seasonal restrictions may change based on changes in caribou or moose habitat.
- Grazing Utilization: Grazing operations would be administered to a maximum utilization threshold of Grazed Class 4 (50 to 75 percent of primary forage species utilized). This utilization would be revised if scientific research indicates a different level of utilization is necessary to maintain rangeland health.

Economic Development**Issue: RMP support for economic development of the Region**

Commenters expressed concern that the Draft RMP/EIS placed too many restrictions on land use, which would hinder private economic development of the region. Commenters further asserted that management actions have significant implications on the ability of Native corporations to enjoy the benefits of their land selections.

Response:

BLM evaluated a range of alternatives in the Draft RMP/EIS that include different levels of resource protection and allowable resource uses to satisfy BLM's multiple-use mandate, which includes resources uses that can provide economic opportunities such as woodland harvest and mineral development. The Proposed RMP/Final EIS incorporated these concerns into the development of Alternative E.

Environmental Justice**Issue: Concerns regarding how Environmental Justice issues are incorporated into the Draft RMP/EIS**

Commenters expressed concern that the Draft RMP/EIS does not adequately explore environmental justice in the context of the large proportion of tribal members residing in communities within the planning area.

Response:

Environmental Justice principles and practices are extremely important to BLM. All of the alternatives in the Draft RMP/EIS were analyzed thoroughly to identify and understand negative environmental consequences, harm, and risk.

Section 5.1 of the Draft RMP/EIS details the Environmental Justice elements that went into the planning process. All of the communities within the planning area were determined to qualify as Environmental Justice communities in consideration of the proportion of Alaska Native residents and/or low-income proportion of the population.

Since the inception of the planning process, BLM has provided outreach to and sought input from community members and their representatives. BLM sought to craft alternatives to balance economic opportunity while ensuring subsistence resources and activities are not restricted unnecessarily.

Federal Land Policy and Management Act (FLPMA)

Issue: Consistency with the FLPMA

Commenters assert that Alternatives B and C do not meet policy requirements in Section 102, 202, and 204 of FLPMA or provide for ROWs consistent with Title V of FLPMA. Commenters also state the RMP must comply with FLPMA's directives regarding coordination with State and local governments and consistency with State and local land use plans.

Response:

The BLM prepared the Draft RMP/EIS consistent with FLPMA. Commenters did not provide any examples of where the Draft RMP/EIS is inconsistent with the sections referenced above, and BLM asserts that the Draft RMP/EIS is consistent with those sections. The BLM coordinated with State and local governments as cooperating agencies and during scoping; throughout the development of the RMP; and during the public comment period, as summarized in Section 1.1 of the Comment Summary Report. State and local plans were given consideration during the development of the Draft RMP/EIS, per Section 202(c)(9) of FLPMA and 43 CFR 1610.3-2.

Grazing Issues

Issue: Desire to allow reindeer grazing throughout the planning area

Commenters expressed the importance of reindeer grazing in the planning area and requested that BLM protect and maintain the use of BLM land for future reindeer grazing permits.

Response:

BLM appreciates the input and has analyzed a range of alternatives for lands available or not available for grazing in the Draft RMP/EIS to select the alternative that best balances the desire for individuals in the planning area to use the land for reindeer grazing, along with the health of resources in the planning area and other resource uses.

Issue: Future wood bison grazing

A commenter expressed interest in future wood bison herding and does not want measures that could preclude this use included in the Proposed RMP/Final EIS.

Response:

The only Act that is applicable to non-reindeer livestock grazing in Alaska is the Alaska Livestock Grazing Act of 1927. BLM cannot authorize grazing under this Act until it promulgates implementing regulations. If that occurs, an amendment to the plan to manage this use could be made.

High-Value Watersheds

Issue: The designation of, extent of, determination of and regulations regarding HVWs

Commenters had varied concerns regarding proposed HVW identification. Some opposed management of HVW as unnecessary because of existing State and federal regulations, as detrimental to economic development, as potentially restrictive to subsistence activities, or as burdensome on nearby private landowners. Other commenters supported HVW identification as a tool to protect riparian ecology and important fisheries. Commenters also had questions regarding the data and models used to determine which watersheds were HVWs.

Response:

The BLM acknowledges the various concerns submitted by commenters regarding HVWs and has taken them into consideration in developing the Proposed RMP/Final EIS (Alternative E). The Proposed RMP balances resource protections with economic opportunity by applying management actions for Lands and Realty and Salable and Leasable Minerals to the 100-year floodplain of HVWs.

Appendix L of the Proposed RMP/Final EIS includes a description of the HVW identification process, and Chapter 2 and Chapter 3 of the Proposed RMP/Final EIS include updates to data and the analysis prepared between the Draft RMP/EIS and the Proposed RMP/Final EIS (Alternative E). A report summarizing modeling methods and data used in HVW assessment is included in the Proposed RMP/Final EIS in Appendix L.

For information on the data and models used to inform the identification of HVWs, please see the High-Value Watershed and Aquatic Resources Value Summary Sheet on the Project's ePlanning site: <https://eplanning.blm.gov/eplanning-ui/project/36665/570>.

Issue: Authority to designate HVWs

Commenters questioned BLM's statutory authority to designate HVWs.

Response:

"HVW" is not a "designation" but rather the outcome of an identification process utilized by BLM to identify watersheds that provide for priority fish species and aquatic habitats. BLM Manual H-1601-1 provides guidance on land use planning, including what types of resource decisions should be made at the land use plan level. Required decisions include:

- Designating priority species and habitats;
- Identifying desired outcomes using BLM Strategic Plans, State Plans, and similar sources;
- Identifying desired habitat conditions; and
- Identifying actions and area-wide use restrictions needed to achieve desired population and habitat conditions, while maintaining a thriving natural ecological balance and multiple-use relations.

To meet these plan requirements for aquatic resources, BLM took a systematic approach to rank the conditions of watersheds and develop use restrictions to support desired habitat conditions and priority species. The systematic approach included the following:

- Identifying priority fish species

- Identifying priority habitats
- Prioritizing management of watersheds that provide for priority fish species and aquatic habitats.

For information on the data and models used to determine HVW identification, please see the High-Value Watershed and Aquatic Resources Value Summary Sheet on the Project's ePlanning site: <https://eplanning.blm.gov/eplanning-ui/project/36665/570>.

Lands with Wilderness Characteristics

Issue: Concern that lands with wilderness characteristics are not protected in the plan

Commenters voiced concerns that the Draft RMP/EIS does not adequately evaluate impacts to wilderness characteristics or provide proper protection measures for those characteristics, including protection of subsistence uses and resources as part of lands with wilderness characteristics management.

Response:

The BLM analyzed the effects of plan alternatives on lands with wilderness characteristics. The BLM also analyzed the management of lands with wilderness characteristics on other resources and resource uses, including (1) emphasizing other multiple uses as a priority over protecting wilderness characteristics; (2) emphasizing other multiple uses while applying management restrictions (conditions of use, mitigation measures) to reduce impacts to wilderness characteristics; and (3) the protection of wilderness characteristics as a priority over other multiple uses.

The alternatives analysis provided in Section 3.2.13 of the Proposed RMP/Final EIS considered potential impacts that could result from management direction for mineral, ROW, land exchange or disposal, and renewable energy development across all alternatives. The analysis also considered the extent to which VRM I or VRM II could provide protection for lands with wilderness characteristics.

Issue: Concern that protection of wilderness characteristics as a priority over other resource values would limit multiple uses of those lands

Commenters expressed opposition to the designation of areas that would be managed to protect wilderness characteristics as a priority over other resource values and multiple uses, out of concern that management actions such as the establishment of ROW avoidance areas could impact the ability to access neighboring lands or could limit wildland fire management.

Response:

Alternative B is the only alternative that considers managing any lands to protect wilderness characteristics as a priority over other resource values and multiple uses, and it considers approximately 2 percent of BLM-managed land in the planning area for such management. As stated in Table 2-10 of the Draft RMP/EIS, "fire management actions taken in areas managed for wilderness characteristics would be conducted to protect life and safety, to meet natural and cultural resource objectives."

ROW Avoidance indicates areas where new ROWs should be placed in other areas if feasible. Determinations to allow a ROW within a ROW avoidance area would be made by the Authorized Officer (AO) after project-specific NEPA analysis has been completed.

Issue: Lands with wilderness characteristics consistency with tribal governments' notion of wilderness

Commenters asserted that per guidance found in 43 CFR 1610, the Proposed RMP/Final EIS and amendments must be consistent, to the extent practical, with officially approved tribal governments and that BLM has not demonstrated how any of the alternatives meet or are compatible to tribal governments' notions of wilderness.

Response:

Section 202(c)(9) of FLPMA requires the BLM to coordinate plan preparation for public lands with plans for lands controlled by tribes. Per 43 CFR 1610.3-2, BLM's RMPs shall be consistent with tribes' officially approved or adopted resource related plans, and policies and programs contained therein, to the extent possible, consistent with federal law.

Issue: Access effects to adjoining landholders of designated areas identified for management of wilderness characteristics as a priority

Commenters expressed concern that managing lands for wilderness characteristics as a priority would impact Native corporations' ability to access their lands and also suggest that BLM's ability to manage those lands to protect wilderness characteristics would be limited, because some areas are Native-selected lands or surround Native-selected or Native-owned lands.

Response:

Only approximately 2 percent of the planning area under one alternative (Alternative B) is proposed to be managed to protect wilderness characteristics as a priority. Those lands do not surround lands with different land ownership; therefore, managing those lands to protect wilderness characteristics as a priority would not affect access.

Issue: Request to update lands with wilderness characteristics inventory

Commenters stated that BLM is required to maintain a current inventory of lands with wilderness characteristics. Commenters also asserted that BLM did not take a "hard look" at impacts to wilderness characteristics or provide proper mitigation measures to protect these characteristics or to protect subsistence use and resources in its management of wilderness characteristics.

Response:

An inventory of lands with wilderness characteristics was performed as part of this RMP planning effort. The report is available on the BSWI ePlanning website: https://eplanning.blm.gov/epl-front-office/projects/lup/36665/168767/205410/BSWI_2015_Wilderness_Characteristics_Inventory_508.pdf. BLM did include an assessment of impact to lands with wilderness characteristics (Section 3.2.13 of the Draft RMP/EIS) and subsistence (Section 3.5.2 of the Draft RMP/EIS). The commenter did not provide specifics on what they believed was missing from the analysis.

Issue: Analysis of lands with wilderness characteristics in the context of ANILCA Section 1326(b)

A commenter requested clarification on language in Section 2.5.1 of the Draft RMP/EIS, which was interpreted to mean that a detailed analysis of lands with wilderness characteristics was not completed due to a prohibition in ANILCA Section 1326(b).

Response:

Section 2.5.1 of the Draft RMP/EIS was removed and not included in the Proposed RMP/Final EIS. An inventory of lands with wilderness characteristics was performed as part of this RMP planning effort. The report is available on the BSWI ePlanning website: https://eplanning.blm.gov/epl-front-office/projects/lup/36665/168767/205410/BSWI_2015_Wilderness_Characteristics_Inventory_508.pdf.

Issue: Objection to BLM's lands with wilderness characteristics policy in Alaska based on provisions in ANILCA Section 1326(b)

A commenter objected to BLM's lands with wilderness characteristics policy being implemented in Alaska. Provisions of ANILCA 1326(b) prohibit studies that consider recommending new conservation system units (CSUs) or other designations for related or similar purposes, unless authorized by ANILCA or another act of Congress. Commenter recommended 100 percent of lands with wilderness characteristics in the planning area be managed to emphasize other resource values and multiple use over protecting wilderness characteristics.

Response:

Commenter's position on lands with wilderness characteristics policy direction in Alaska is noted. The inventory of lands with wilderness characteristics that was conducted as part of the BSWI RMP planning effort was used to develop a range of alternatives. Alternative B would manage 277,489 acres (2 percent of the BLM lands in the planning area) to protect lands with wilderness characteristics as a priority over other resources values and multiple uses and 12,049,536 acres (89 percent of the BLM lands in the planning area) to reduce impacts to lands with wilderness characteristics. Alternatives D and E emphasize other resource values and multiple use as a priority over protecting lands with wilderness characteristics.

Llamas and Alpacas**Issue: Regulation of llamas and alpacas in the Draft RMP/EIS**

Commenters expressed concern that the Draft RMP/EIS proposes a ban on the use of llamas and alpacas as pack animals on BLM-managed public lands.

Response:

In the Draft RMP/EIS, all alternatives are proposed to include the following action under Wildlife Management:

To minimize the potential for disease transmission to wildlife, applications for the use of domestic sheep, goats, alpacas, llamas, and other similar species in Dall sheep habitat will be reviewed on a project-specific basis (Map 2-11).

This proposed action would not ban the use of llamas and alpacas as recreational or commercial pack animals on BLM-managed public lands.

For further clarification, the text in the Proposed RMP/Final EIS under Wildlife Management has been changed to: "To minimize the potential for disease transmission to wildlife, applications for the use of pack animals will be reviewed on a project-specific basis."

Submittals on this topic also included references to domestic sheep grazing and the Taylor Grazing Act. Note that there is no sheep grazing in the plan, and the Taylor Grazing Act does not apply to Alaska.

Meetings and Public Involvement Process

Issue: Concern about schedule and the amount of time allowed for public and/or Cooperating Agency review of the documents

Commenters expressed concern about the effects of NEPA timeline streamlining on the planning and public involvement process and BLM's ability to receive meaningful input.

Response:

Secretarial Order 3355, issued on August 31, 2017, directs the bureaus under the U.S. Department of the Interior to complete EISs within a year of the issuance of the Notice of Intent (referred to as "streamlining"). The BLM held the required 90-day public comment period that existed prior to Secretarial Order 3355 and in order to address issues that were raised during the public comment period, BLM added additional time in the schedule to develop Alternative E as the Proposed RMP/Final EIS. BLM therefore set a revised schedule for the BSWI RMP/EIS to have a Proposed RMP/Final EIS published in August 2020 and a Record of Decision in November 2020.

Issue: Requests for comment period extension

Commenters expressed concern that the comment period for the Draft RMP/EIS is too short, and it does not account for when community members are engaged in subsistence activities and cannot submit comments.

Response:

The RMP/EIS comment period began March 15, 2019, and ended on June 13, 2019. This 90-day comment period is standard practice for an RMP/EIS. The time period spanned seasons both before and after breakup to accommodate various subsistence activities.

Issue: Outreach methods to Bering Straits villages

A commenter was concerned that the BLM did not adequately facilitate discussion of the RMP within the Bering Strait coastal and northern region and primarily relied upon its website to inform the public, although many residents of the area have limited internet access.

Response:

BLM conducted public meetings to discuss the Draft RMP/EIS and collect public comments in the Bering Straits communities of Unalakleet and Nulato. Additional community-specific materials were prepared and brought to the Unalakleet meeting to distribute to community members who attended from Shaktoolik, St. Michael, and Stebbins. Public involvement contractors asked knowledgeable meeting attendees in Unalakleet whether any individuals from these towns had attended; only a Stebbins council member was present, and he was given the Stebbins community packet. Information for the meetings was advertised in *The Nome Nugget* (printed on March 28), *Fairbanks Daily News-Miner* (printed on March 25), *The Delta Discovery* (printed on March 27), and *Anchorage Daily News* (printed on March 25). In addition to newspaper advertisements, meeting details were aired on local radio stations, including KNOM, APR, KYUK, KIYU, KYKD, KSKO, and KDLG. KNOM also published an article about the Draft RMP/EIS and linked to the public meeting schedule on the BLM project website.

Mineral Resources and Mining

Issue: Restrictions on the use of BLM lands for mineral exploration and development, salable mineral development, and other uses that require access across BLM lands

Commenters expressed concern that Alternatives B and C would adversely affect neighboring State lands, ANCSA lands, and private lands by creating unnecessary restrictions on development. Commenters felt that the following management actions would result in adverse impacts on mineral exploration and development:

- HVWs
- Lands with wilderness characteristics
- Retention of ANCSA (d)(1) and FLPMA withdrawals
- ROW exclusion and avoidance designations
- ACECs
- WSRs

Response:

BLM evaluated a range of alternatives with varying management decisions regarding lands open for development. As a result of comments received during the public comment period, BLM developed Alternative E as the Proposed RMP/Final EIS. The Proposed RMP/Final EIS decision provides for 13,182,385 acres of land (more than 98 percent of BLM-managed land in the planning area) to be open for salable minerals development, while balancing long-term sustainability of resources, which is consistent with BLM's multiple-use mandate. Alternative E includes no ACECs, ROW exclusion areas, or new WSR corridors, so access would not be restricted. ROW avoidance areas would be limited to 509,798 acres (less than 4 percent of BLM-managed land in the planning area) located in the Unalakleet Wild River Corridor, the Innoko Bottoms Priority Wildlife Habitat Area, and the South Connectivity Corridor. In addition, ROW avoidance would apply to five areas without currently available acreage calculations: locations of BLM Sensitive plants, highly erodible soils, tundra mats, riparian areas, and permafrost areas. Additionally, there are lands within this planning area that are available for exchange; once conveyed, this plan will not have jurisdiction on those lands.

Issue: Mineral potential in the planning area

Commenters expressed concern that mineral potential was not adequately addressed and noted that BLM did not cite the U.S. Geological Survey (USGS) in the evaluation of resource potential in the planning area. Commenters also asserted that there is no scientific documentation by BLM in the Draft RMP/EIS that the "low mineral potential" finding is current and accurate, and no other documentation has been provided regarding the basis for opinions regarding the viability of future mining in the region.

Response:

BLM evaluated mineral potential in the BSWI 2010 and 2017 *Mineral Occurrence and Development Potential Reports* (BLM 2010; BLM 2017), which included the most recent available information. The 2017 report was peer reviewed by the USGS, State of Alaska Division of Geophysical and Geological Surveys, and BLM geological staff. The 2017 *Mineral Occurrence and Development Report* included an analysis of the Nulato Hills area, which was added to the planning area after the 2010 report was published. The 2017 report also included the following updates: adding the 2016 mining claims as a layer,

replacing the Mineral Terrane Areas data layer, and adding a layer containing the closed federal mining claims that are on lands selected by the State or Alaska Native corporations. The commenters did not provide new or additional data in their submittal. The information used in the 2017 *Mineral Occurrence and Development Potential Report* constitutes the best available data on mineral potential in the planning area.

Issue: Effects of Draft RMP/EIS on support facilities for the Donlin Gold Project's gas line

Commenters expressed concern that restrictions on salable minerals in the Sheefish Spawning ACEC (Alternative B), proposed Big River WSR corridor (Alternative B), HVWs, and ROW exclusion areas would pose problems for required material sites and other support facilities that would be needed for the Donlin Project gas line, which has already been approved.

Response:

All pre-existing authorizations, such as the Donlin Gold Project Pipeline Right of Way Authorization, are honored and maintained as originally authorized. BLM's Proposed RMP/Final EIS decision includes no ACECs, no new WSR designations, no ROW exclusion areas, and limited ROW avoidance areas. The Record of Decision for the Donlin Gold Project included approval of temporary access roads, airstrips, and ancillary facilities necessary for construction of the natural gas pipeline and fiber optic cable across 97 miles of BLM-managed lands (Donlin Final EIS Section 2.3). Approval was also provided for material sales (gravel, rock, and soil) and removal from BLM-managed lands necessary for pipeline access, construction, operations, and termination (Donlin Final EIS Section 2.3). Specifically, "In addition to the ROW Corridor, ancillary facilities will affect approximately 561 acres of BLM lands, including one new airstrip, 22 material sites, two large (300-person) civilian camps, as well as temporary access roads and work spaces."

Issue: Detailed level of management actions common to all action alternatives for locatable and salable minerals

Comments expressed concern that the actions common to all action alternatives for locatable and salable minerals on pages 2-52 and 2-54 of the Draft RMP/EIS are detailed stipulations that should be incorporated in the permitting process but should not be contained in the RMP. Commenters asserted that by including these in the RMP, BLM and operators lose the flexibility to modify these requirements when issuing permits based on site-specific considerations, changing technology, and other new information.

Response:

The management actions common to all action alternatives have been revised to enhance flexibility with the approval of the AO and provide opportunities to account for site-specific circumstances.

Issue: Opposition to 1872 Mining Act, and roads, pipelines, and ROW under Revised Statute (RS) 2477 due to their detrimental effects to subsistence

Commenters expressed disapproval of federal laws regarding mining on BLM-managed land.

Response:

As a federal agency, the BLM is obligated to uphold the laws of the United States and the regulations of the U.S. Department of the Interior.

Per the FLPMA, BLM's policies must support a "multiple-use" mission, which includes conventional and renewable energy development, livestock grazing, conservation, mining, watershed protection, hunting, fishing, and recreation. Multiple uses can, at times, conflict with one another.

As described in Section 2.7.23 of the Draft RMP/EIS, under all proposed alternatives, the BLM would continue to work with local BSWI-area communities on the project and implementation level to ensure that subsistence needs are understood and supported throughout the life of the management plan.

Issue: Opposition to Pebble and Donlin mines and associated ROWs

Several commenters expressed opposition to the Pebble and Donlin mining projects.

Response:

Donlin Gold LLC received key permits on August 13, 2018, for development of the Donlin Gold Project, an open-pit hardrock mine near the village of Crooked Creek, including ROW permit approval from BLM. Those approvals were received outside of this RMP planning process. A separate NEPA process and associated public comment period was provided for the Donlin Gold Project; public comments were solicited and responded to during that time.

The proposed Pebble Mine is outside of the planning area.

Issue: Use of Statewide Bond Pool

Commenters expressed concern that the BLM would propose modifications to the terms of use of the Statewide Bond Pool, particularly under Alternative B. The commenters suggested that it is inappropriate to propose modifications in an RMP document.

Response:

The BLM acknowledges the concern. All action alternatives would be subject to reclamation bonding policy developed for plans and notices by the BLM and the terms of the BLM-Alaska Department of Natural Resources Bond Pool Agreement.

Multiple-Use Mandate

Issue: How the Draft RMP/EIS meets the BLM multiple-use mandate

Commenters expressed concern that revoking the existing 17(d) withdrawals (under all action alternatives) would constitute an RMP focused solely or mostly on mineral development, without properly considering other land uses. Commenters also expressed concern that BLM's decision in Alternative C to open all but 1 percent of the planning area to mining gives sole use of the planning area to mining interests and fails to meet BLM's mandate for multiple use and sustained yield. Commenters suggest that BLM's final plan should create better balance for uses other than mining by providing protections from mining for tribally nominated watersheds and ACECs as in Alternative B.

Other commenters asserted that designation of any special management areas would violate the BLM multiple-use mandate. Commenters also expressed concerns that Alternative B is not consistent with FLPMA's multiple-use mandate because of the percentage of BLM-managed lands closed to mineral entry, salable minerals, and mineral leasing under that alternative.

Response:

Per the FLPMA, BLM's policies must support a "multiple use" mission, which includes conventional and renewable energy development, livestock grazing, conservation, mining, watershed protection, hunting, fishing, and recreation. Multiple uses can, at times, conflict with one another.

As described in the Final EIS, BLM's Proposed RMP (Alternative E) balances multiple uses via management tools such as the designation and protection of HVWs, VRM, wildlife habitat, support for BSWI communities, and the provision of mineral development opportunities.

Paleontological Resources**Issue: Monitoring of paleontological resources geared toward macrofossils**

Commenters expressed concern that monitoring for paleontological resources during surface-disturbing activities would only be effective and feasible for vertebrate macrofossils (sabre-toothed tigers, Dinosauria etc.) but not for invertebrates. The commenters suggest that the BLM explicitly state that the monitoring requirements are geared toward vertebrate macrofossils.

Response:

The BLM has added language to the Proposed RMP/Final EIS that clarifies monitoring is focused on vertebrate fossils. However, if significant invertebrate or plant fossils are accidentally discovered during operations, they should be properly reported, and associated mitigation actions be undertaken. BLM will clarify this in the Proposed RMP/Final EIS.

Issue: Potential Fossil Yield Classification (PFYC)

Commenters expressed concern for the use of the PFYC system because it has not been peer reviewed or published, and information on how it was developed is lacking. Commenters requested that if the PFYC system is to be used as a justification to limit surface activities, it should be thoroughly reviewed by a broad range of paleontologists.

Response:

The PFYC system is an important management tool used for assessment, mitigation, and management of BLM paleontological resources. Alaska's PFYC is being developed by paleontologists at the University of Alaska–Museum of the North, based on known occurrences of paleontological resources in the state. The geologic unit rankings given are based on these fossil occurrences and are consistent with other states and follow BLM Instruction Memorandum (IM 2016-124). Alaska's PFYC is nearly completed and has already provided important information for this and other management plans in Alaska. As is standard practice with PFYC documents, PYFCs are not formally published. However, they are developed by paleontologists (both internal and external to the BLM) and peer reviewed by BLM paleontologists. The current document has been reviewed by the BLM National Paleontologist, the BLM Montana Paleontologist (BLM's PFYC Lead), and the Alaska Regional Paleontologist. When finalized, it will be open information and will be available for use. Comments on the PFYC are welcome anytime, and the rankings for Alaska may be adjusted as additional data become available. Although some of the current rankings for units within the EIS may change slightly in the final document, most of the PFYC numbers will remain the same. Management actions following the PFYC rankings are formally outlined in BLM IM 2016-124. For more information on the BLM's PFYC system, please see BLM IM 2016-124.

ROW Avoidance and Exclusion Areas

Issue: Concern that ROW exclusion and avoidance areas could limit economic opportunities

Commenters were concerned that ROW exclusion and avoidance areas could limit economic opportunities, inhibit access to private lands, prohibit development of communications infrastructure, and preclude the BLM from accommodating future ROWs.

Response:

The acreage of ROW avoidance areas under the Proposed RMP (Alternative E) is 509,798 acres, or less than 4 percent of BLM-managed land in the planning area. The Proposed RMP/Final EIS (Alternative E) includes ROW avoidance areas only, which does not necessarily preclude the development of a ROW. Rather, they are areas where new ROWs may be available for location of ROWs with special stipulations, as long as the ROW application documentation demonstrates (1) the other locations researched and reasons each is not feasible, and (2) project design features/mitigation measures are incorporated to minimize resource concerns. Determinations to allow a ROW within a ROW avoidance area would be made by the AO after project-specific NEPA compliance has been completed.

Issue: Concern that parts of the planning area without ROW avoidance or exclusion areas would not allow for the protection of historic trails

A commenter expressed concern that easement corridors proposed in non-restricted ROW areas on BLM-managed land would jeopardize the presence of historic travel routes and trails. The commenter is concerned that uses such as communication infrastructure and commercial hunting have resulted in damage to important cultural trails that are currently unprotected.

Response:

Exclusion areas would affect proposed future ROW applications filed with the BLM by prohibiting such authorizations in these areas. The BLM's Proposed RMP (Alternative E) proposes no ROW exclusion areas. In any exclusion area, local travel on 17(b) easements or subsistence travel protected by ANILCA would not be affected. Local trails that may be identified for improvement or new development requiring BLM authorization would not be allowed in such areas under Alternative B.

In areas without designated ROW avoidance areas, any permit application would be required to consider the impacts to cultural resources such as historic trails. At the time of permit review, the BLM would consult with area residents, and the public would have a chance to comment on a specific proposed project. Additionally, the BLM would conduct NHPA Section 106 consultation with interested parties to identify potential cultural resources.

Issue: ROW avoidance/exclusion areas at the headwaters of salmon streams

A commenter suggested that ROWs should not be allowed across the headwaters of salmon streams.

Response:

Any permit granted for a ROW would undergo an environmental review to determine impacts from the proposed project.

Issue: ROW avoidance/exclusion areas in ACECs

Commenters expressed concern that designating ACECs as ROW exclusion areas would prohibit landowners from being able to access their lands adjacent to the ACEC.

Response:

The BLM acknowledges the concern expressed by landowners regarding access to lands adjacent to ROW exclusion areas. The BLM's Proposed RMP (Alternative E) proposes no ROW exclusion areas or ACECs. In any exclusion area, local travel on 17(b) easements or subsistence travel protected by ANILCA would not be affected.

Issue: ROW avoidance/exclusion areas and RS 2477 ROWs

A commenter requested that the BSWI RMP/EIS recognize, delineate, and identify all RS 2477 ROWs claimed by the State of Alaska within the planning area.

Response:

RS 2477 claims are not considered or evaluated in the BLM's land use planning process. RS 2477 rights are determined through a process entirely independent of the BLM's land use planning process. RMPs do not recognize or reject RS 2477 assertions. The BSWI RMP is not intended to provide any evidence bearing on or addressing the validity of any RS 2477 assertions and does not adjudicate, analyze, or otherwise determine the validity of claimed ROWs. Nothing in this RMP extinguishes any valid ROW or alters in any way the legal rights the State and boroughs have to assert RS 2477 claims.

Subsistence Resources and Access**Issue: Concerns regarding the plan's effects on Subsistence Resources**

Many commenters emphasized the importance of subsistence resources to the communities in the planning area.

Response:

BLM recognizes the vital importance that subsistence resources hold in the BSWI area. Actions that result in healthy and sustainable fisheries, wildlife populations, and woodland products harvest are key parts of the long-term land management strategy and are part of BLM's multiple-use mandate.

The alternatives:

- Identify areas of HVW that are crucial to subsistence fisheries health;
- Propose the designation of wildlife connectivity corridor areas to support the long-term health of subsistence hunting resources;
- Designate ROW avoidance areas in discrete locations of sensitive subsistence resources in order to protect them from ground disturbance;
- Include VRM designations that limit the scope of landscape-altering development; and
- Propose "no surface occupancy" standards for leasable minerals.

The Final ANILCA 810 analysis includes determinations in accordance with ANILCA Section 810(a)(3).

Issue: Concerns regarding provisions for access to Subsistence Resources

Commenters expressed concern that the RMP/EIS meet ANILCA standards that require “actions that could significantly restrict subsistence uses” only be undertaken if they are necessary and if the adverse effects are minimized.

Response:

It is BLM’s position that the alternatives may significantly restrict access to subsistence resources, and that they are necessary and consistent with sound management principles for the utilization of the public lands; the proposed activity will involve the minimal amount of public lands necessary to accomplish the purposes of such use, occupancy, or other disposition; and reasonable steps will be taken to minimize adverse impacts upon subsistence uses and resources resulting from such actions.

The EIS includes alternatives that:

- Provide more travel and transportation flexibility for subsistence users than casual users;
- Provide more opportunity and flexibility for subsistence house log, timber, and berry resource collection over commercial and personal uses; and
- Provide Community Focus Zones near BSWI communities, where BLM would not issue permits to commercial guide/outfitter services to reduce conflict with local subsistence use.

Support for BSWI Communities**Issue: Concerns regarding Support for BSWI Communities treatment in the Draft RMP/EIS**

Commenters expressed concern that the Support for BSWI Communities sections of the Draft RMP/EIS present these rural communities as a resource and attempts to apply BLM mitigation and climate change policy on them. Commenters suggest removing this section in the Proposed RMP/Final EIS because it is “unnecessary and confusing.”

Response:

The Support for BSWI Communities section is not considered a resource but a theme that applies across all alternatives to social and economic conditions in the planning area. BLM's intent in including the "Support for BSWI Communities" section is to provide one location within the RMP with land management decisions most relevant to BSWI communities. Given the large volume and dense material contained in the Draft RMP/EIS, BLM's position is that this section is helpful to communities in reviewing those management decisions that could affect tradition and livelihood.

Issue: Support for BSWI Communities under Alternative A

Commenters asserted that the Draft RMP/EIS overstates the negative social indicator from Alternative A. Comments suggest that past and present management of the area allows for subsistence to occur, for healthy communities to exist, and that communities within the Bering Sea portion of the BSWI presently enjoy a great deal of coordination and collaboration. Commenters also indicated support for Alternative B because it considers local perspectives, reflects local values, and protects subsistence.

Response:

Regarding Alternative A, no new actions would be taken to provide additional protection for subsistence resources, reduce conflicts with other uses, collect additional information about community use areas and values, or increase coordination and collaboration with communities. The other alternatives address these issues to varying degrees in response to scoping and other comments received. The rating is consistent with the results of the ANILCA 810 analysis, which concluded that Alternative A was one of the alternatives that would result in a significant restriction in subsistence uses.

Issue: Fairness of restrictions on commercial guide/outfitter permits

Commenter expressed concern that requiring commercial guide/outfitter permit applications to consider community interests in the selection criteria and capacity determinations would be unfair or could set a precedent that nearby communities could exclude other users from public lands.

Response:

BLM is responsible for recreation management on BLM-managed lands and does so by issuing special recreation permits for guide/outfitter services. BLM will consider potential conflict between commercial and non-commercial uses as part of this decision-making process. Note that locally operated commercial guide/outfitter services would operate under the same conditions as those headquartered in other areas.

Issue: Emergency shelter and trapping cabins

Commenters expressed support for community-led development and maintenance of emergency shelter cabins.

Response:

As discussed under the Lands and Realty section of the Proposed RMP/Final EIS, proposals for non-private recreational cabin permits and leases would be processed on a case-by-case basis subject to FLPMA and 43 CFR 2920.

Issue: System-wide trail maintenance

Commenter requested that BLM maintain existing trail systems including portions on private, State, and other federally managed public lands.

Response:

The BLM cannot administer lands outside of its jurisdiction. The BLM would work cooperatively with residents from rural communities and any other local landowners to maintain existing trail systems on BLM land to be compatible with those on adjacent lands.

Issue: Use of historic trails

Commenters emphasized the importance of historic trails and routes for subsistence and to access other communities, particularly in the context of unsafe river travel due to climate change.

Response:

Trails used for subsistence purposes do not require ROW authorization from BLM. However, these trails and their use would be subject to operating criteria described in the Travel and Transportation section of the Draft RMP/EIS.

Travel and Transportation Management Issues**Issue: Concern that OHV management should focus on local and regional goals**

Commenters stated that the RMP's recognition of the use of OHVs is critical to subsistence and community life, and restrictions on their use should be more correctly defined as managing their use to accomplish local and regional goals within the BLM mission.

Response:

Development of site-specific Travel Management Plans after completion of the Proposed RMP/Final EIS will provide more detail with respect to local and regional goals.

Issue: Management action effects on development of future transportation networks

Commenters suggested that new freight and fuel-barging operations in the planning area could include a surface transport linkage in the Portage Mountains area, where the Yukon and Kuskokwim Rivers come within 25 miles of each other, and that VRM classes and designation of ACECs could impede the use of that area as a transportation corridor. Commenters further suggested that VRM classes for large portions of the Portage Mountains area seem unnecessary, because residential, commercial, or industrial infrastructure development is unlikely, and, given the flat and shrub-forested terrain of the Pike Lake area, a 5- to 15-mile visual barrier to development impacts seems excessive, while the terrain of a 1- to 2-mile visual zone seems reasonable.

Response:

It is too early in the planning process to consider a transportation corridor in the Portage Mountains as mentioned by commenters as a reasonable and foreseeable future action. If the project becomes viable and foreseeable, it may be considered during the next RMP planning process for the BSWI area. If the project becomes viable and conflicts with management outlined in the Final RMP, the NEPA process performed for the project would evaluate the need for a revision to the RMP. However, the project concept is not developed enough to be considered a reasonable and foreseeable future action, and therefore is not considered as part of this planning effort.

Issue: Travel management compliance with ANILCA

A commenter contended that all travel management regulations were not compliant with ANILCA and requested that these be removed from the final plan or that BLM initiate a separate public process for their review.

Response:

BLM has the flexibility to tailor the proposed travel and transportation management actions to ensure that rural residents engaged in subsistence uses have reasonable access to subsistence resources on public lands per ANILCA 811. BLM also has the flexibility to ensure special access and access to inholdings protected under ANILCA 1110.

Issue: Objection to limits on casual OHV use

A commenter objected to proposals limiting casual summer OHV use to existing trails on the ground and suggested that new trails may be desirable over the life of the plan.

Response:

The intent of restrictions on casual (non-subsistence) OHV off-trail use during summer is to protect important subsistence uses from damage and erosion. BLM will work with local communities throughout the life of the plan to develop and site new routes as needs may arise.

Tribal Outreach and Cooperating Agencies**Issue: Concerns regarding requests for Cooperating Agency status and the roles of Cooperating Agencies**

Several commenters had questions regarding how BLM had approved or disapproved Cooperating Agency requests and how BLM had chosen which communities should have outreach regarding Cooperating Agency status. Commenters also expressed the desire for Cooperating Agencies to have greater influence over decisions made in the planning process and Proposed RMP/Final EIS.

Response:

Chapter 1 of the Comment Summary Report provides a detailed chronology of outreach efforts to potential Cooperating Agencies. Appendix E includes copies of outreach materials. At no point in the BSWI RMP planning process has a request for Cooperating Agency status from an eligible government been denied.

BLM cannot delegate its decision authority for BLM lands. While BLM strives to inform and cooperate with tribal entities, Native corporations, and other State and federal governing agencies, decisions regarding BLM management actions on BLM-managed land rest with BLM.

Issue: Outreach to and opportunity for input from communities in the northern part of the planning area and in “downstream” communities

Several commenters expressed concern that the January 2015 boundary change of the planning area (when approximately 2.9 million acres that had been administered in the Central Yukon planning area was administratively transferred to the BSWI area) meant that communities in the northern part of the BSWI area were excluded from scoping and alternatives development. Others commented that communities outside of the planning area boundaries but potentially affected by actions in the plan should have received directed outreach from BLM.

Response:

As soon as was possible after the administrative transfer, BLM initiated outreach to these areas and solicited community input on the preliminary plan alternatives. BLM held a March 2015 public meeting in Kaltag, where local input was solicited. Input was received on the following topics: resource use, the Nulato River, the Iditarod National Historic Trail, travel and transportation management, and guides and recreation. BLM also held a March 2015 meeting in Nulato to solicit local input. Topics discussed during the Nulato meeting included coal deposits near the village, short-term versus long-term impacts, the Nulato River and Nulato River ACEC, travel management and roads, and issues with outside guiding services.

Note also that the Draft BSWI RMP/EIS carried forward the BLM Central Yukon planning area's preliminary recommendations for this transferred area and did not start from a "clean slate." Central Yukon sent notice to all post office box holders in the scoping communities between November 2013 and January 2014 alerting them to upcoming scoping meetings about updating the RMP. Public scoping meetings were held in Nulato on November 5, 2013; in Koyukuk on December 10, 2013; in Tenana on December 11, 2013; and in Galena on December 13, 2013.

Wild and Scenic Rivers

Issue: Request the BLM clarify its methodology for designating and managing WSRs in the Draft RMP/EIS, and support for, or opposition, to such designations

Commenters requested clarification on how waterways currently found to be eligible WSRs were determined to be suitable or unsuitable, and requested more detail on how outstandingly remarkable values (ORVs) of eligible WSRs would be protected in the absence of a suitability finding. Some commenters expressed support for designation of some or all of the currently eligible WSRs, while others expressed opposition to such designation.

Response:

The Wild and Scenic River Study, including the eligibility and suitability determinations, was completed per protocols provided in BLM Manual 6400, *Wild and Scenic Rivers – Policy and Program Direction for Identification, Evaluation, Planning, and Management* (BLM 2012).

The first phase of a WSR study is the eligibility determination, whereby rivers or river segments are evaluated for potential inclusion in the National System based their status as free flowing and possessing one or more ORV(s). Section 16(b) of the WSR Act defines "free-flowing" as "existing or flowing in natural condition without impoundment, diversion, straightening, rip-rapping or other modification of the waterway." ORVs are river-related values or features considered unique, rare, or exemplary, and exceptional at a comparative regional or national scale. ORVs are classified as scenic, recreational, wildlife, fish, cultural, historic, or subsistence resource values. The eligibility determination is an inventory and does not require a decision or approval document. Although jurisdictional or management constraints are not considered, only those values present on BLM-managed lands and related waters are applicable.

The suitability analysis provides the basis for determining which rivers to recommend to Congress as potential additions to the National System. The suitability analysis addressed a series of questions aimed at evaluating the benefits and impacts of WSR designation and the types of alternative protection measures for ORVs that could be applied through the RMP process. The suitability factors evaluated as part of this study included the following (BLM 2012):

- The current status of land ownership and use in the area.
- The reasonably foreseeable potential uses of the land and water that would be enhanced, foreclosed, or curtailed if the area were included in the National System.
- The federal agency that will administer the area should it be added to the National System.
- The extent to which the agency proposes that administration of the river, including the costs thereof, is shared by State and local agencies.

- The estimated cost to the United States of acquiring necessary lands or interests in land within the corridor, as well as the cost of administering the area should it be added to the National System.
- A determination of the extent that other federal agencies, the State, or its political subdivisions might participate in the preservation and administration of the river should it be proposed for inclusion in the National System.
- An evaluation of local zoning and other land use controls in protecting the river's ORVs and preventing incompatible development.
- The State/local government's capacity to manage and protect the ORVs on non-federal lands. This factor requires an evaluation of the river protection mechanisms available through the authority of State and local governments. Such mechanisms may include, for example, statewide programs related to population growth management, vegetation management, water quantity or quality, or protection of river-related values such as open space and historic areas.
- The existing support or opposition of designation. Assessment of this factor will define the political context. The interest in designation or non-designation by federal agencies; State, local, and tribal governments; national and local publics; and the State's congressional delegation should be considered.
- The consistency of designation with other agency plans, programs, and policies in meeting regional objectives. Designation may help or impede the goals of tribal governments or other federal, State, or local agencies. For example, designation of a river may contribute to State or regional protection objectives for fish and wildlife resources. Similarly, adding a river that includes a scarce recreation activity or setting to the National System may help meet statewide recreation goals. Designation might, however, limit irrigation and/or flood control measures in a manner inconsistent with regional socioeconomic goals.
- The contribution to river system or basin integrity. This factor reflects the benefits of a "systems" approach (e.g., expanding the designated portion of a river in the National System or developing a legislative proposal for an entire river system—headwaters to mouth—or watershed). Numerous benefits may result from managing an entire river or watershed, including the ability to design a holistic protection strategy in partnership with other agencies and the public.
- The potential for water resources development. This factor requires identification of any proposed water resource projects that may be foregone, as designation may limit development of water resources projects as diverse as irrigation and flood control measures, hydropower facilities, dredging, diversion, bridge construction, and channelization.

The suitability study resulted in a preliminary determination of "not suitable for inclusion in the National System." The Draft RMP/EIS considered a range of alternatives to provide protection to ORVs. Under Alternative A, eligible segments would continue to be managed per guidelines provided in BLM Manual 6400 (BLM 2012) until a decision on their suitability is made. Alternative B evaluated eligible segments as recommended suitable for inclusion in the National System, with management actions commensurate with a designated segment considered. Actions under Alternatives C, D, and E do not manage these waterbodies as eligible or suitable. Analysis presented in Chapter 3 of the Proposed RMP/Final EIS assesses protections to these waterbodies through combinations of VRM, HVW identification, and ROW avoidance.

Issue: Objection to restrictions on hazardous materials in designated WSR corridors

A commenter objected to restrictions on use of hazardous materials within designated WSR corridors on the basis that it could impede fisheries management or scientific research.

Response:

Maintaining water quality in a designated WSR segment is a statutory obligation.

Wildlife Topics**Issue: Concerns regarding how locations were determined and the usefulness of proposed connectivity corridors. Concerns that such designations would negatively impact economic development of adjoining private lands.**

Commenters suggested that the Draft RMP/EIS does not provide adequate justification for the connectivity corridors and expressed concern that the South Connectivity Corridor includes many non-federal landholdings, requiring cooperation with adjacent landowners. Some adjacent landowners have indicated they oppose all connectivity corridors for the Final RMP.

Response:

The purpose of the connectivity corridors is to design structural connectivity between two or more land management units in order to increase the conservation value of the entire region by increasing the resilience of the established conservation estate. The Innoko National Wildlife Refuge (NWR) and Yukon Delta NWR were selected for connectivity corridor analysis because they are two of only four conservation units within the planning area. Connectivity corridors between Denali National Park, which is adjacent to the planning area, and Innoko NWR were not considered because these connectivity corridors are under consideration in the Central Yukon RMP. Connectivity corridors are designed to link geophysical features because these features are climate resilient and provide an unchanging stage upon which biological processes take place. This strategy does not focus on the current biogeography of species and communities because they are more dynamic.

The goal of connectivity corridors is to retain ecological resilience and adaptability at a landscape level by allowing species to respond as environmental conditions change. Wildlife movement through them is assumed to be necessary for that function, but they are not wildlife management features. They are recognized as existing characteristics of the landscape, with proposed management aimed at retaining landscape permeability between conservation units. Connectivity corridors also have the potential to provide connectivity of subsistence users to resources on NWRs. Connectivity corridors are not conservation lands and can be used in multiple ways while being managed to maintain landscape permeability.

Issue: Habitat value of connectivity corridors

Commenters contended that the analysis presented in the Draft RMP/EIS incorrectly assume that the connectivity corridors have special value as wildlife habitat.

Response:

The wildlife analysis in the Proposed RMP/Final EIS has been revised to better reflect what the connectivity corridors are, which is explained in the above response.

Issue: Designation of the Innoko Bottoms Wildlife Area

Commenters requested additional information on why this area should be closed to mineral development. Commenters questioned whether the designation of the Innoko Bottoms Priority Wildlife Habitat Area is connected to the Paradise Controlled Use Area and asserted that no additional management actions from BLM are needed above the management of the Paradise Controlled Use Area. Commenters also requested information on the unique characteristics of Innoko Bottoms that justify why it is closed to salable mineral development under Alternative C.

Response:

The Innoko Bottoms area is an important waterfowl production area. It also supports known winter concentrations of moose, with some of the highest density of moose populations in the state—recognized for density, size, public interest by Alaska residents, as well as non-resident sport and subsistence hunters. The area is also home to a population of wood bison successfully re-introduced into the area, recognized for their remnant character, as well as public interest for a species that has been absent from the landscape but recently been re-introduced to the area. Innoko Bottoms also provides important connectivity corridors between the Innoko NWR and the Yukon Delta NWR and is also important for subsistence and non-subsistence hunting for moose and waterfowl. It is because of these values that the Innoko Bottoms Priority Wildlife Habitat Area is proposed, and management actions are proposed to maintain those values.

The proposed Innoko Bottoms Priority Wildlife Area supports Secretarial Order 3356 by enhancing waterfowl production and waterfowl hunting opportunities in Alaska as well as in states along the Pacific Flyway and areas where migratory waterfowl will be wintering. The Innoko Bottoms area is an important waterfowl production area in Alaska and contributes to waterfowl populations nationwide.

The establishment of the Innoko Bottoms Priority Wildlife Area also supports Secretarial Order 3362, by working with the state wildlife agency to enhance moose and introduced wood bison populations to protect habitats important to their winter range and seasonal movements. Conservation of the area provides access to the area for moose hunts by sport and subsistence users and helps ensure healthy populations of moose and wood bison, using the best available wildlife management practices.

Issue: Lands identified for exchange in or near the Innoko NWR boundary

Commenters expressed concern that BLM identified lands for exchange within and near the Innoko NWR boundary, and that if these lands were exchanged, it could allow the Donlin Gold Project to expand and damage lands in the refuge.

Response:

The Draft RMP/EIS does not propose any management actions outside of BLM jurisdiction. Parcels identified for exchange near the Innoko NWR boundary are small parcels surrounded by NWR land or by State or Native-patented land; therefore, BLM cannot meaningfully manage those lands, because management of the much larger tracts that surround them would dominate. Category 1 lands near the NWR include four parcels that cover 60,485 acres. Category 2 lands include nine parcels that cover 14,633 acres. Category 3 lands include three parcels that cover 4,480 acres. See the maps in Appendix G of the Draft RMP/EIS for the locations of these parcels.

Single Topic Responses

Issue: Weed management and invasive plant species

A commenter expressed concern that weeds not previously seen before were now growing in the BSWI area as a result of straw used during the Iditarod sled dog race and recommended preventative action such as weed-free straw rather than post-introduction action such as spraying.

Response:

BLM agrees that preventative measures that reduce the likelihood of nonnative invasive plant species being introduced to an area are an effective way to preclude their spread. Page 2-76 of the Draft RMP/EIS outlines the management actions for invasive species that are common to all of the action alternatives. Any use of chemical control on BLM-managed public lands would have to be approved by BLM and would follow restrictions for the type of chemical, application method, and training of the person applying. Chemical eradication of nonnative invasive species is typically only performed on high-priority target species to protect special habitats such as lichen-rich areas, berry areas, or streambanks, where important subsistence species would be negatively affected by the spread of an invasive weed. Table K-18 in Draft RMP/EIS Appendix K lists BMPs for the Iditarod National Historic Trail, which include a requirement that only feed and mulch (hay cubes, hay pellets, or straw, for example) certified as weed-free through the Alaska Weed-Free Forage certification program (or other programs with approval of the AO) will be authorized on BLM lands.

Issue: Questions regarding staffing and qualifications of the planning team and Draft RMP/EIS preparers, including lack of documentation to justify decisions

Commenters expressed concern that the BSWI planning team does not include a trained anthropologist, a designated tribal liaison, or any Native Alaska persons. Commenters also questioned whether BLM and its contractors are qualified to prepare the Draft RMP/EIS. A commenter expressed concern that the Draft RMP/EIS does not provide documentation to justify decisions.

Response:

BLM staff and the contractors who prepared the Draft RMP/EIS are listed in Appendix C of the Draft RMP/EIS. Staff and contractors were selected as analysts and subject matter experts by BLM based on their qualifications and areas of experience related to the resources that were analyzed in the RMP.

Documentation, reference materials, and methodologies of analysis that are the basis for decisions are included in Appendix D, References; Appendix M, the BSWI Affected Environment Report; and Appendix N, the Supplemental Impact Analysis Report of the Draft RMP/EIS.

Issue: Concerns regarding Draft RMP/EIS compatibility with existing land use plans

A commenter suggested that consistency between various land use plans of other landowners in the planning area encourages better land and resource management practices and promotes more seamless management transition when selected lands are conveyed.

Response:

Land use on non-BLM-managed lands within the planning area was considered in the Cumulative Effects analysis and when developing alternatives. Area plans for the State of Alaska, the National Park Service,

the U.S. Fish and Wildlife Service, Native corporations, the military, and BLM lands adjacent to the planning area were considered when developing alternatives and analyzing cumulative effects.

Issue: Coordination with Native corporations

Several commenters expressed that BLM has a regulatory obligation to coordinate with Native corporations during the development of the RMP/EIS.

Response:

BLM has worked closely with Native corporations to develop the Proposed RMP/Final EIS. BLM considered input received from the Draft EIS to develop Alternative E, the Proposed RMP/Final EIS, which combined elements of Alternatives B, C, and D in response to input from Native corporations and other stakeholders.

Issue: Analysis of wildlife effects

Several commenters objected to Alternative B's stipulation of "no surface occupancy" in specific wildlife habitat areas on the basis that it did not include data to show that wildlife impacts would be higher under "controlled surface occupancy."

Response:

Although the Draft RMP/EIS did not consider management designation of "controlled surface occupancy," the analysis did consider a range of alternatives with varying acreage identified as No Surface Occupancy and Open to Leasing Subject to Standard Stipulations.

Issue: Plan has too many goals/objectives

A commenter objected to the basis of the NEPA analysis on the grounds that the desired outcome objectives were not stated, and the stated goals were complex and sometimes conflicting.

Response:

Under BLM's multiple-use mandate, land management actions in a large area such as BSWI are by nature complex. The purpose of an RMP is not to provide specific end outcomes but to provide a framework upon which project-level decisions can be made.

Issue: Visual resource classification of Iditarod National Historic Trail

A commenter objected to the classification of the Iditarod National Historic Trail as VRM Class I on the basis that it is a "historic" rather than a "scenic" trail.

Response:

VRM tools are designed not solely to protect "scenic" views. They may also be utilized to protect the historical character of designated historical sites.

Issue: Renewable energy

A commenter requested that the "Renewable Energy" section of the RMP be deleted on the basis that there were a "limited number" of renewable energy projects in the region.

Response:

RMPs typically have a lifespan of 20 to 30 years. As a land manager, it is BLM's obligation to provide a management decision framework for both current conditions and reasonably likely future uses.

Issue: Compensatory mitigation

A commenter stated that compensatory mitigation can only be offered voluntarily and requested that BLM clarify its standards and implementation for mitigation.

Response:

The Proposed RMP/Final EIS includes additional clarification on the standards, implementation, and regulatory framework for mitigation requirements.

Issue: Trapping

A commenter expressed concern that although Chapter 2 did not include regulations on setting trap structures, references to such were made elsewhere in the document.

Response:

The Proposed RMP/Final EIS clarifies any proposed management actions related to trapping.

References

- BLM (Bureau of Land Management). 2005. Land Use Planning Handbook. H-1601-1. Available at: https://www.ntc.blm.gov/krc/uploads/360/4_BLM%20Planning%20Handbook%20H-1601-1.pdf (accessed June 18, 2019).
- BLM. 2010. Mineral Occurrence and Development Potential Report. Locatable and Salable Minerals. BLM Alaska Technical Report 60. BLM/AK/ST-10/009+9218+3130.
- BLM. 2012. Manual 6400 – Wild and Scenic Rivers – Policy and Program Direction for Identification, Evaluation, Planning, and Management. Available at: https://www.blm.gov/sites/blm.gov/files/uploads/mediacenter_blmpolicymanual6400.pdf (accessed June 18, 2019).
- BLM. 2017. Mineral Occurrence and Development Potential Report. Locatable and Salable Minerals. BLM Alaska Technical Report 63.
- BLM. 2018. Manual 1613 – Areas of Critical Environmental Concern: Report on the Application of the Relevance and Importance Criteria and Special Management. Available at: https://eplanning.blm.gov/epl-front-office/projects/lup/36665/168768/205411/BSWI_2018_ACEC_Report_508.pdf (accessed June 18, 2019).

Appendix I: Parcels Available for Exchange or Disposal

Appendix I: Parcels Available for Exchange or Disposal

In preparation for this land use planning initiative, the Bureau of Land Management (BLM) conducted an inventory of the public land in the planning area to determine whether there are any tracts that meet one or more of the Federal Land Policy Management Act (FLPMA) Section 203 disposal criteria, Section 206 exchange criteria, or Alaska-specific exchange under the Alaska National Interest Lands Conservation Act (ANILCA) or Alaska Native Claims Settlement Act (ANCSA). This is because the BLM may only sell or exchange public land using this FLPMA authority if the BLM has first found, through land use planning, that the tract meets one or more of these criteria:

- (1) Such tract because of its location or other characteristics is difficult and uneconomic to manage as part of the public lands, and is not suitable for management by another federal department or agency; or
- (2) Such tract was acquired for a specific purpose and the tract is no longer required for that or any other federal purpose; or
- (3) Disposal of such tract will serve important public objectives, including but not limited to, expansion of communities and economic development, which cannot be achieved prudently or feasibly on land other than public land and which outweigh other public objectives and values, including, but not limited to, recreation and scenic values, which would be served by maintaining such tract in federal ownership.

The BLM would strive to process mutually benefiting public interest land exchanges. When considering public interest, full consideration shall be given to efficient management of public lands and achievement of important objectives, including protection of fish and wildlife, cultural resources, and wilderness and aesthetic values; enhancement of recreational opportunities; consolidation of mineral and timber holdings for the most logical and efficient management; expansion of communities; promotion of multiple use values; and fulfillment of public needs. Exchanges are conducted in accordance with 43 Code of Federal Regulations (CFR) Part 2200 unless the application of the regulations to exchanges made under ANCSA or ANILCA conflict with these acts (43 CFR 2200.0-7(c)).

The BLM has identified three categories of public land in the planning area that meet one or more of the above FLPMA disposal or exchange criteria or an exchange under ANILCA or ANCSA. For purposes of this Resource Management Plan, these criteria were used to identify tracts available for exchange or disposal.

- Category 1 includes unselected lands in BLM ownership adjacent to State or Native-patented lands that are 1.5 townships (34,560 acres) or smaller that the BLM would consider for exchange or disposal.
- Category 2 includes State or Native-selected lands that are 1.5 townships (34,560 acres) or smaller that, if relinquished or rejected, the BLM would consider for exchange or disposal.
- Category 3 includes unselected lands in BLM ownership that are 1.5 townships (34,560 acres) or smaller that are adjacent to State or Native-selected land that, if conveyed, the BLM would consider for exchange or disposal.

The tracts considered for exchange or disposal are listed in the tables on the following pages and shown on the maps also included in this appendix.

All land tenure decisions would be consistent with Secretarial Order 3373, Evaluating Public Access in Bureau of Land Management (BLM) Public Land Disposals and Exchanges, and BLM Information Bulletin No. 2020-010, which requires documentation of impacts to recreational access as well as a comparison of acres disposed of and exchanged since 2017.

In determining whether a parcel of land identified for possible disposal or exchange is consistent with Secretarial Order 3373 and Information Bulletin No. 2020-010, the BLM has indicated whether or not a specific parcel being proposed for disposal or exchange has existing public access by road, trail, water, easement, or right-of-way (ROW) to document public access as a value criteria for possible retention on a specific tract of land. BLM has used existing data to make this public access determination. Existing data include but are not limited to known trail routes, ANCSA 17(b) easements, Iditarod National Historic Trail trail segments, authorized ROWs, National Hydrography Dataset stream data, and Special Recreation Permits.

The BLM acknowledges that all parcels identified for potential disposal or exchange currently have or are available for dispersed recreational and subsistence use and access. Access by the general public to public lands within the planning area takes place for a variety of recreational pursuits and transportation and can be seasonal. BLM lands are generally available for recreational use and access by snowmobile, boat, all-terrain vehicle, utility terrain vehicle, fixed-wing aircraft and rotary aircraft (helicopter). Additionally, ANILCA ensures rural residents have reasonable access on public lands to access subsistence resources with snowmobiles, motorboats, and other means of surface transportation traditionally employed for such purposes subject to reasonable regulations.

Parcels Available for Exchange or Disposal

ID	Category	Meridian	MTR	Township, Range	Section(s)	Number Sections	Acres in Sections	Actual Acres	Case	Public Access on Parcel under SO 3373
PD001	1	Kateel	K024S018W	T24S, R18W	25, 26, 35	3	1,920	1,880.00	AKAA 091175	No
PD002	1	Kateel	K025S018W	T25S, R18W	1 to 2, 11 to 14	6	3,840	3,840.00	AKAA 091175	No
PD002	1	Kateel	K025S017W	T25S, R17W	7 to 30, 33 to 36	28	17,920	17,761.24		No
PD002	1	Kateel	K025S016W	T25S, R16W	25 to 36	12	7,680	7,607.84		No
PD003	1	Seward	S031N058W	T31N, R58W	3 to 10, 17 to 20, 30 to 31	14	8,960	8,066.13	AKFF 085667	Yes
PD004	1	Seward	S030N059W	T30N, R59W	1, 12	2	1,280	1,171.42	AKFF 085667	Yes
PD005	1	Seward	S030N059W	T30N, R59W	3 to 10	8	5,120	3,798.93	AKFF 085667	Yes
PD006	2	Seward	S031N057W	T31N, R57W	7, 18	2	1,280	1,488.55	AKAA 00810305	Yes
PD007	2	Kateel	K029S007W	T29S, R7W	2	1	640	62.10	AKAA 00810305	Yes
PD010	1	Seward	S031N056W	T31N, R56W	1 to 3, 10 to 12	6	3,840	3,514.18	AKFF 085667	Yes
PD011	1	Seward	S031N056W	T31N, R56W	17 to 36	20	12,800	11,617.44	AKFF 085667	Yes
PD012	1	Seward	S030N057W	T30N, R57W	1 to 5, 8 to 36	34	21,760	22,603.24	AKFF 085667	Yes
PD013	1	Seward	S029N058W	T29N, R58W	1, 12, 13, 24, 25, 36	6	3,840	3,662.47	AKFF 085667	Yes
PD014	2	Seward	S028N060W	T28N, R60W	2, 11	2	1,280	1,094.30	AKAA 00810305	Yes
PD016	3	Kateel	K023S006W	T23S, R6W	25, 36	2	1,280	1,280.00		No
PD016	3	Kateel	K024S006W	T24S, R6W	1, 12 to 14, 23 to 26, 34 to 36	11	7,040	7,040.00		No
PD017	3	Kateel	K022S005W	T22S, R5W	27, 34	2	1,280	1,280.00	AKAA 00810343	No
PD019	2	Kateel	K026S006W	T26S, R6W	3, 10, 15, 22, 27, 34	6	3,840	3,840.00	AKAA 00810349	No
PD315	2	Kateel	K027S006W	T27S, R6W	3, 10, 15	3	1,920	1,912.65	AKAA 00810351	No
PD020	2	Kateel	K027S006W	T27S, R6W	20, 29, 32	3	1,920	1,920.00	AKAA 012873	No
PD021	2	Seward	S032N054W04	T32N, R54W	4	1	640	513.00	AKAA 00810305	No
PD022	2	Seward	S032N054W15	T32N, R54W	15	1	640	618.00	AKAA 00810305	No
PD023	2	Seward	S032N054W	T32N, R54W	28 to 29	2	1,280	1,264.35	AKAA 00810305	No
PD025	1	Seward	S020N069W	T20N, R69W	1 to 4	4	2,560	2,560.00	AKFF 085667	No
PD026	2	Seward	S020N069W05	T20N, R69W	5	1	640	640.00	AKFF 085667	No
PD027	2	Seward	S020N068W	T20N, R68W	1, 12	2	1,280	1,280.00	AKAA 076404	Yes
PD201	2	Seward	S020N069W06	T20N, R69W	6	1	640	598.10	AKAA 087834	Yes

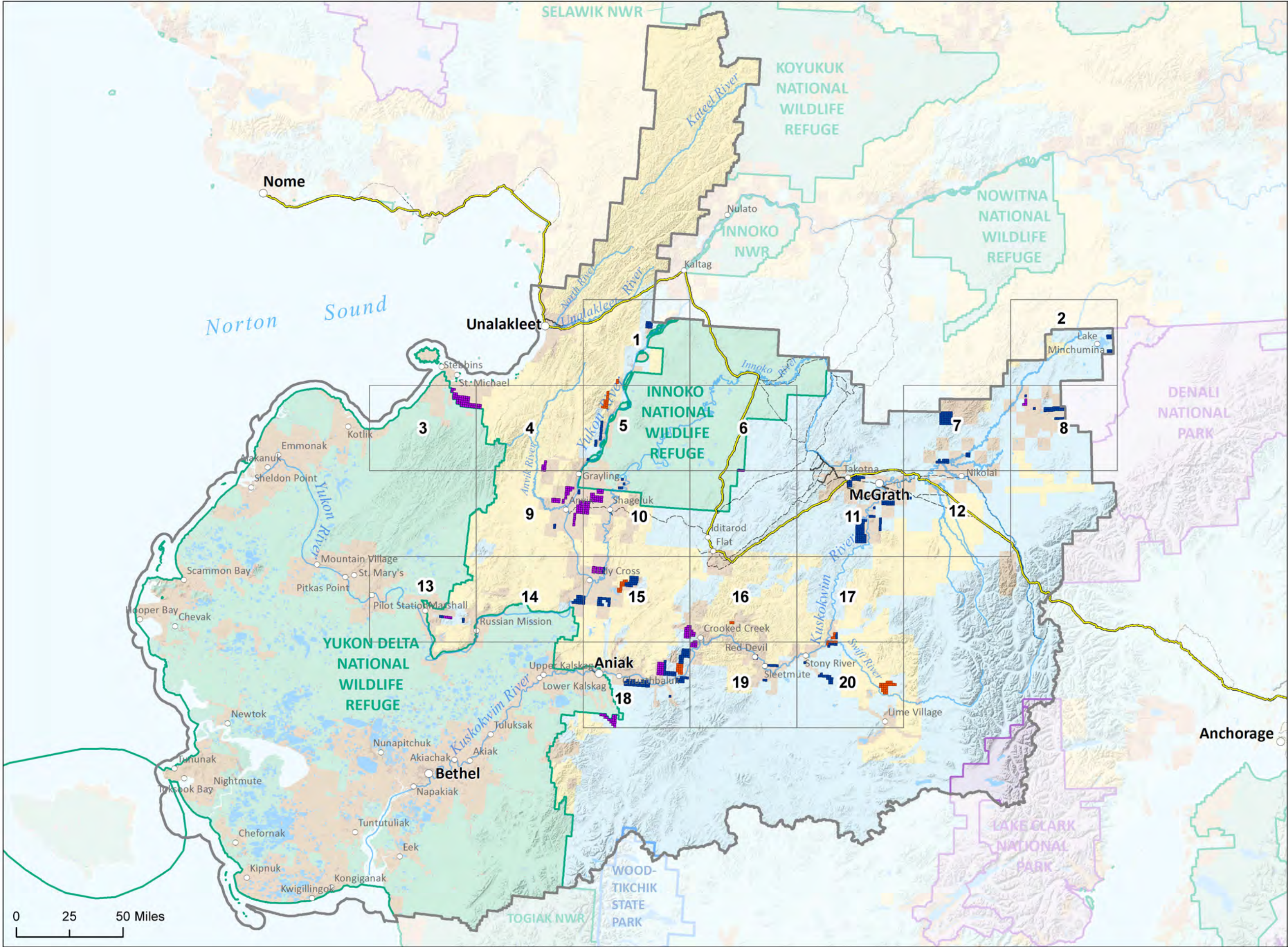
ID	Category	Meridian	MTR	Township, Range	Section(s)	Number Sections	Acres in Sections	Actual Acres	Case	Public Access on Parcel under SO 3373
PD240	2	Seward	S023N058W	T23N, R58W	13 to 16, 20 to 36	21	13,440	9,036.54	AKAA 076992	Yes
PD244	2	Seward	S023N056W	T23N, R56W	13 to 20, 23 to 25, 29 to 33, 36	17	10,880	8,771.97	AKAA 076546	Yes
PD245	3	Seward	S024N055W	T24N, R55W	1, 2, 11, 12, 14, 22, 23, 26, 27	9	5,760	5,677.03	AKFF 085667	Yes
PD245	3	Seward	S025N054W	T25N, R54W	34, 35	2	1,280	1,280.00	AKAA 00810364	No
PD247	1	Seward	S025N056W	T25N, R56W	2 to 11, 14 to 18	15	9,600	7,839.99	AKFF 085667	Yes
PD2467	2	Seward	S025N056W	T25N, R56W	1, 12, 13	3	1,920	1,577.11	AKAA 076578	Yes
PD248	1	Seward	S033N060W	T33N, R60W	12, 13, 23 to 26, 35, 36	8	5,120	5,120.00		No
PD249	1	Kateel	K029S006E	T29S, R6E	1, 2, 3	3	1,920	1,920.00		No
PD250	2	Kateel	K018S003W	T18S, R3W	1, 2, 3, 10 to 15	9	5,760	5,760.00		No
PD252	2	Seward	S017N054W	T17N, R54W	20, 22, 23, 25 to 36	15	9,600	9,478.41	AKAA 012892	Yes
PD252	2	Seward	S017N053W	T17N, R53W	21, 22, 23, 25 to 36	15	9,600	9,529.20	AKAA 021474	Yes
PD253	1	Seward	S018N052W	T18N, R52W	1, 2, 3, 10 to 15, 22 to 27, 34, 35, 36	18	11,520	11,520.00		Potentially ¹
PD254	2	Seward	S018N051W	T18N, R51W	6, 7, 18, 19	4	2,560	2,488.52	AKAA 074571	No
PD254	2	Seward	S019N051W	T19N, R51W	31	1	640	617.68		No
PD255	2	Seward	S018N051W	T18N, R51W	25 to 36	12	7,680	7,655.00	AKAA 070152	No
PD256	1	Seward	S014N057W	T14N, R57W	13, 14	2	1,280	1,280.00	AKAA 076495	No
PD256	1	Seward	S014N056W	T14N, R56W	18, 19, 20	3	1,920	1,920.00	AKAA 076494	No
PD257	1	Seward	S014N056W	T14N, R56W	13, 14, 23 to 28, 34, 35, 36	11	7,040	7,040.00	AKAA 061005	Yes
PD257	1	Seward	S013N056W	T13N, R56W	1, 2, 12	3	1,920	1,920.00		No
PD258	2	Seward	S017N050W	T17N, R50W	1 to 4, 7 to 10, 15 to 18	12	7,680	7,665.13	AKAA 012898	Yes
PD259	2	Seward	S016N051W19	T16N, R51W	19	1	640	604.00	AKFF 014900 A	No
PD260	2	Seward	S025N053W	T25N, R53W	19 to 22, 27 to 34	12	7,680	7,680.00	AKAA 00810363	No
PD260	2	Seward	S024N054W	T24N, R54W	1 to 10	10	6,400	6,400.00	AKAA 00810365	Yes
PD261	3	Seward	S018N050W	T18N, R50W	4 to 9, 16 to 21, 28, 29	14	8,960	8,888.56		No
PD262	2	Seward	S019N050W	T19N, R50W	1 to 4, 9 to 17, 20, 21, 28, 29, 32, 33	19	12,160	12,160.00	AKAA 021483	No
PD262	2	Seward	S020N050W	T20N, R50W	33 to 36	4	2,560	2,560.00	AKAA 074568	No
PD263	1	Seward	S020N049W	T20N, R49W	8, 9, 16 to 21	8	5,120	4,979.57		Yes
PD264	1	Seward	S021N049W	T21N, R49W	4, 5, 7, 8, 9, 15 to 23, 26 to 33	22	14,080	14,057.00		Yes

ID	Category	Meridian	MTR	Township, Range	Section(s)	Number Sections	Acres in Sections	Actual Acres	Case	Public Access on Parcel under SO 3373
PD265	3	Seward	S022N046W	T22N, R46W	22, 23	2	1,280	1,280.00		No
PD266	2	Seward	S019N044W	T19N, R44W	5 to 8	4	2,560	1,881.76	AKAA 086371	Yes
PD267	2	Seward	S019N043W	T19N, R43W	25 to 29	5	3,200	3,200.00	AKFF 014936 A	Yes
PD268	2	Seward	S018N044W36	T18N, R44W	36	1	640	640.00	AKFF 014936 A	Yes
PD268	2	Seward	S018N043W31	T18N, R43W	31	1	640	628.39	AKFF 014936A2	No
PD269	2	Seward	S019N040W18	T19N, R40W	18	1	640	488.94	AKAA 012894	Yes
PD270	2	Seward	S018N039W	T18N, R39W	9, 13 to 17, 24	7	4,480	4,041.69	AKFF 014838A2	Yes
PD270	2	Seward	S018N038W	T18N, R38W	18, 19, 20	3	1,920	1,566.51	AKAA 021475	Yes
PD271	2	Seward	S018N038W	T18N, R38W	29 to 32	4	2,560	2,237.96	AKAA 021475	Yes
PD272	3	Seward	S021N038W	T21N, R38W	2, 11, 14, 15	4	2,560	2,340.18	AKAA 076405	Yes
PD273	2	Seward	S021N038W	T21N, R38W	1, 12, 13	3	1,920	1,880.00	AKAA 076405	No
PD274	3	Seward	S021N038W	T21N, R38W	25 to 29, 32	6	3,840	3,633.00		Yes
PD275	2	Seward	S021N038W	T21N, R38W	33 to 36	4	2,560	2,560.00	AKFF 014838A2	No
PD275	2	Seward	S020N039W01	T20N, R39W	1	1	640	640.00	AKAA 076405	No
PD276	3	Seward	S018N034W	T18N, R34W	25, 26, 27, 31 to 36	9	5,760	5,760.00	AKAA 076161	No
PD276	3	Seward	S018N033W	T18N, R33W	31, 32	2	1,280	1,280.00	AKAA 076160	No
PD276	3	Seward	S017N034W	T17N, R34W	3 to 6, 8, 9, 10, 15, 16, 17, 21, 22	12	7,680	7,680.00	AKAA 076393	No
PD281	2	Kateel	K029S015E	T29S, R15E	2, 3	2	1,280	1,124.32	AKAA 00810304	Yes
PD282	2	Seward	S034N035W	T34N, R35W	31 to 36	6	3,840	3,143.02	AKAA 021571	Yes
PD283	2	Seward	S033N035W	T33N, R35W	3 to 6	4	2,560	2,496.30	AKAA 00810303	Yes
PD284	2	Seward	S033N036W	T33N, R36W	11 to 14, 23, 24	6	3,840	3,389.68	AKAA 021572	Yes
PD285	2	Seward	S032N031W	T32N, R31W	17, 18	2	1,280	977.00	AKAA 076309	No
PD286	2	Seward	S032N033W	T32N, R33W	25 to 36	12	7,680	7,609.24	AKAA 021550	Yes
PD287	2	Seward	S031N034W09	T31N, R34W	9	1	640	639.99	AKAA 021535	No
PD288	2	Seward	S031N034W	T31N, R34W	31 to 33	3	1,920	1,567.55	AKAA 021535	Yes
PD289	2	Seward	S030N035W	T30N, R35W	5 to 10, 15 to 22, 27 to 34	22	14,080	13,959.00	AKAA 021523	Yes
PD290	2	Seward	S030N035W11	T30N, R35W	11	1	640	625.00	AKAA 00810397	No
PD291	2	Seward	S030N034W	T30N, R34W	1, 12, 13, 24, 25, 36	6	3,840	3,840.00	AKAA 00810371	No

ID	Category	Meridian	MTR	Township, Range	Section(s)	Number Sections	Acres in Sections	Actual Acres	Case	Public Access on Parcel under SO 3373
PD292	2	Seward	S029N035W	T29N, R35W	3 to 10, 14 to 23, 26 to 35	28	17,920	17,886.00	AKAA 00810372	No
PD293	2	Kateel	K027S022E	T27S, R22E	25 to 27, 29, 31 to 36	10	6,400	4,395.93	AKFF 014906 A	Yes
PD294	2	Kateel	K027S024E	T27S, R24E	9, 10, 15, 16	4	2,560	2,204.93	AKFF 014906 A	Yes
PD295	2	Kateel	K022S028E26	T22S, R28E	26	1	640	530.44	AKAA 00810301	Yes
PD296	1	Kateel	K023S028E	T23S, R28E	2, 11, 14, 15	4	2,560	2,499.50	AKAA 012630	Yes
PD297	2	Kateel	K023S029E28	T23S, R29E	28	1	640	637.61	AKAA 00810301	Yes
PD298	2	Kateel	K023S030E	T23S, R30E	26 to 29, 32 to 35	8	5,120	5,161.53	AKAA 021319	Yes
PD298	2	Fairbanks	F017S028W	T17S, R28W	1 to 12	12	7,680	7,405.45	AKAA 012644	No
PD299	2	Fairbanks	F017S028W	T17S, R28W	32 to 36	5	3,200	3,137.17	AKAA 012644	No
PD300	2	Kateel	K024S022E	T24S, R22E	1 to 36	36	23,040	23,040.00	AKAA 00810309	Potentially ²
PD301	2	Fairbanks	F011S023W	T11S, R23W	19 to 21, 28 to 30	6	3,840	3,808.00	AKAA 021220	No
PD302	2	Fairbanks	F012S023W	T12S, R23W	28 to 33	6	3,840	3,578.00	AKAA 076554	Yes

Notes:

- 1) Existing data show ANCSA 17(b) trail easement EIN 18, C4, C5 stops just shy of Section 3 and is likely intended to access parcel ID PD253.
- 2) Existing data show ANCSA 17(b) trail easement EIN 115 C5 stops just shy of reaching Section 12 and is likely intended for access to parcel ID PD300 (along Nixon Fork).



Potential Exchange or Disposal Areas Category
1
2
3
Map Page Index
Iditarod National Historic Trail
Iditarod Connecting Trails

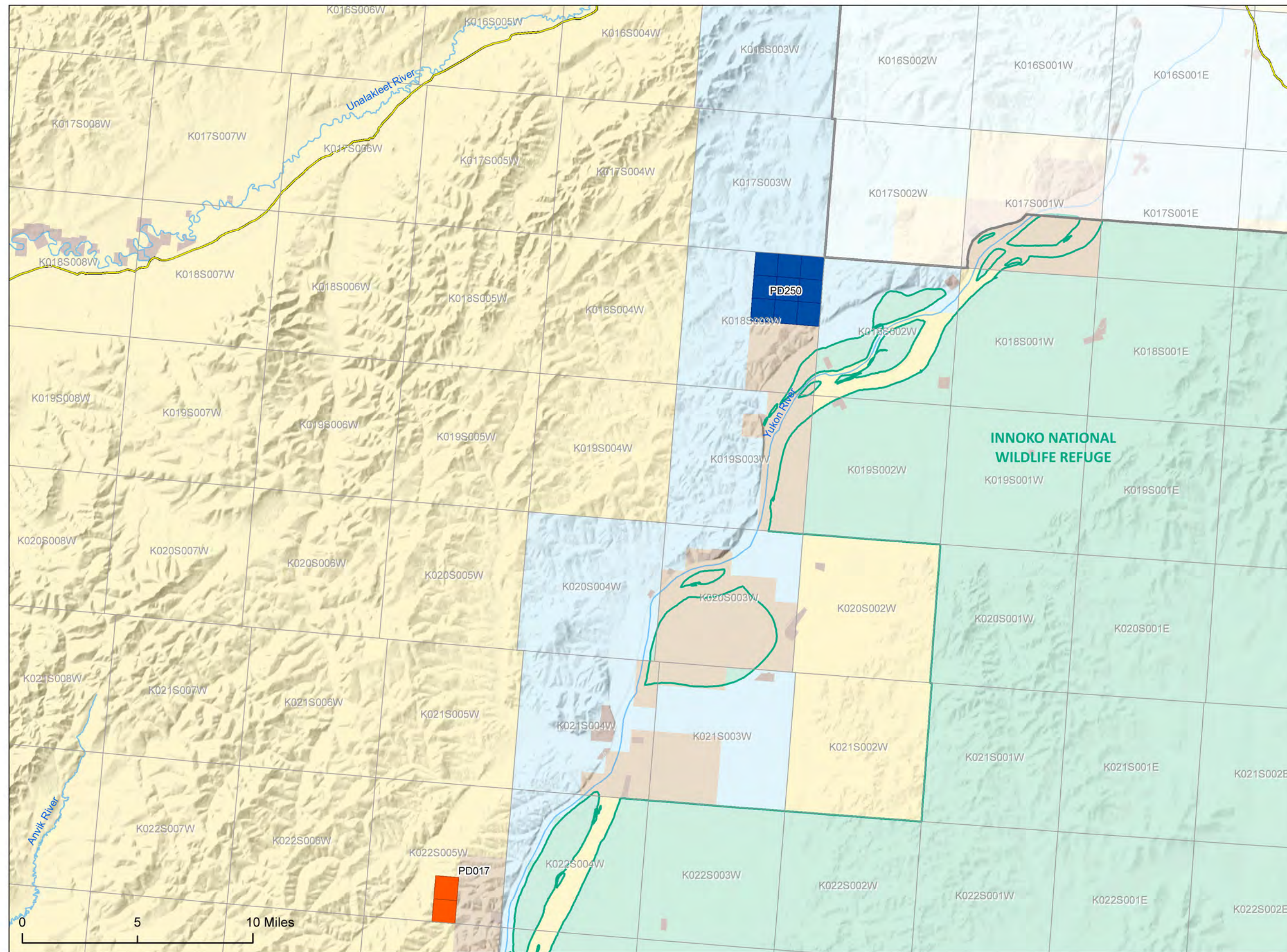
Land Manager
BLM-managed Land
U.S. Fish and Wildlife Service
U.S. Forest Service
National Park Service
Native Allotment
Native Lands (Patented or Interim Conveyed)
Private
State (Patented or Interim Conveyed)
Water

Data Source: BLM GIS 2017

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.



Map 1



Potential Exchange or Disposal Areas Category

- 2
- 3

Land Manager

- BLM-managed Land
- U.S. Fish and Wildlife Service
- Native Allotment
- Native Lands (Patented or Interim Conveyed)
- State (Patented or Interim Conveyed)

Iditarod National Historic Trail

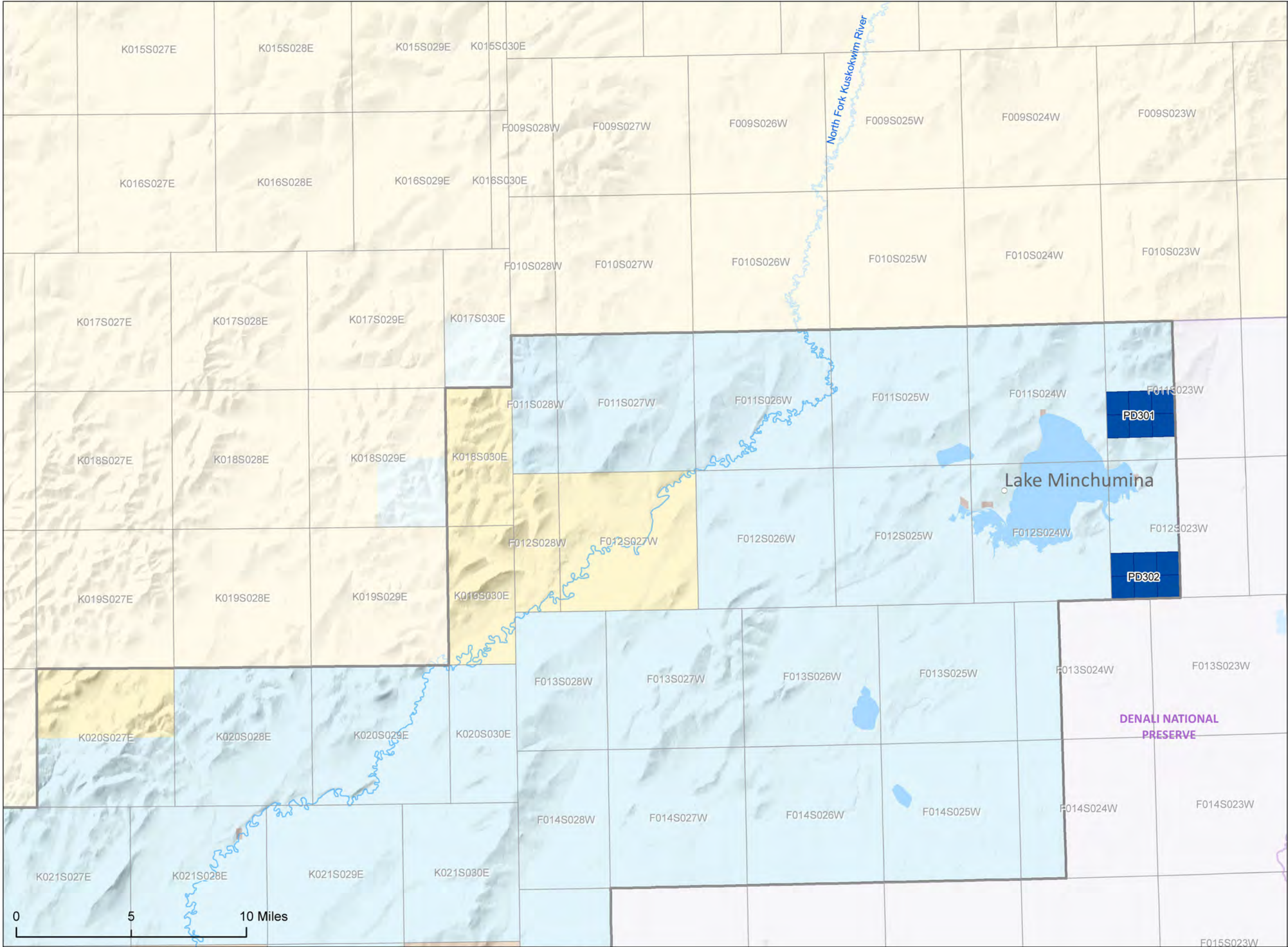
Iditarod Connecting Trails

Data Source: BLM GIS 2017

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.



Map 2



Potential Exchange or Disposal Areas Category

2

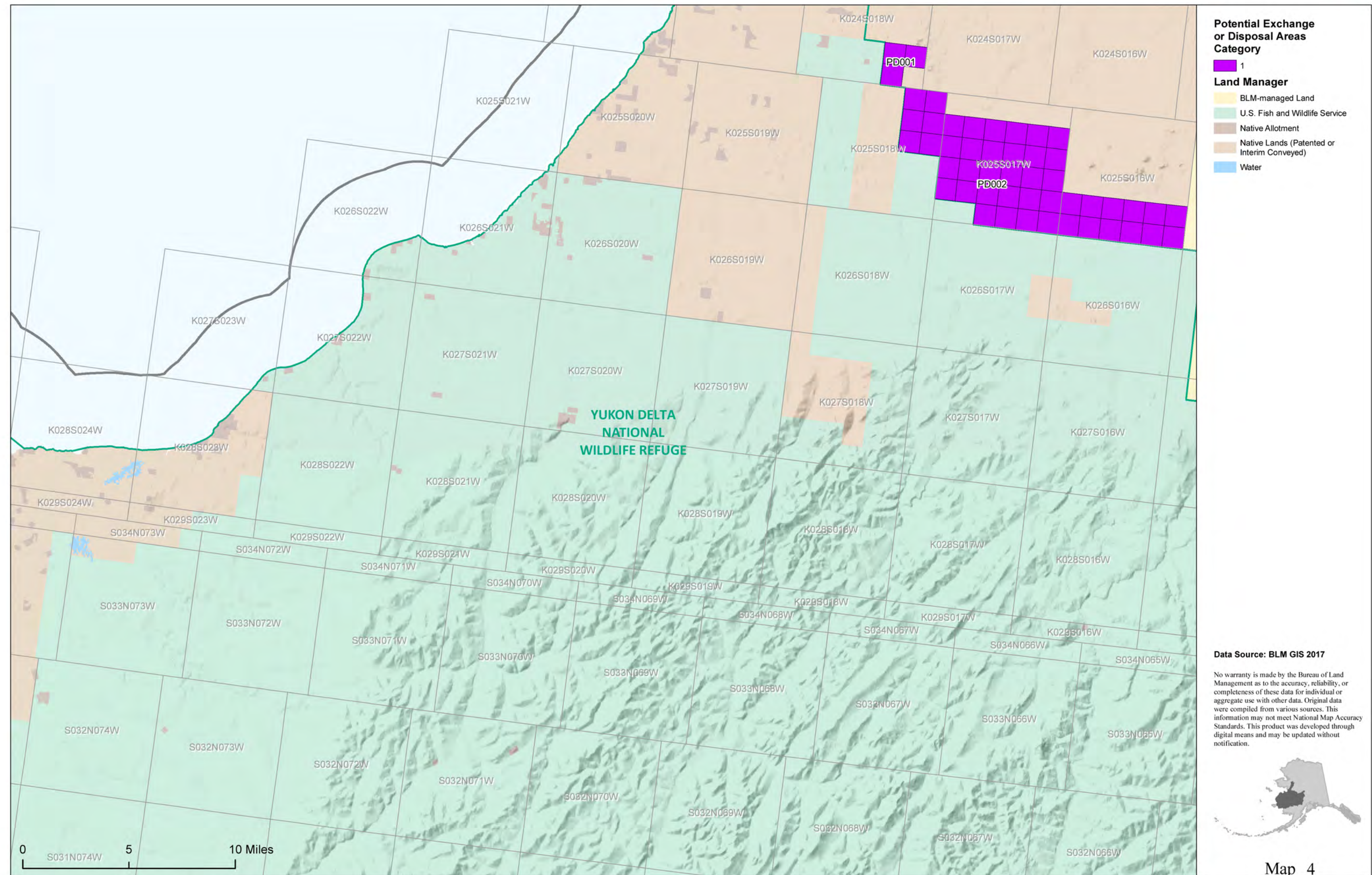
Land Manager

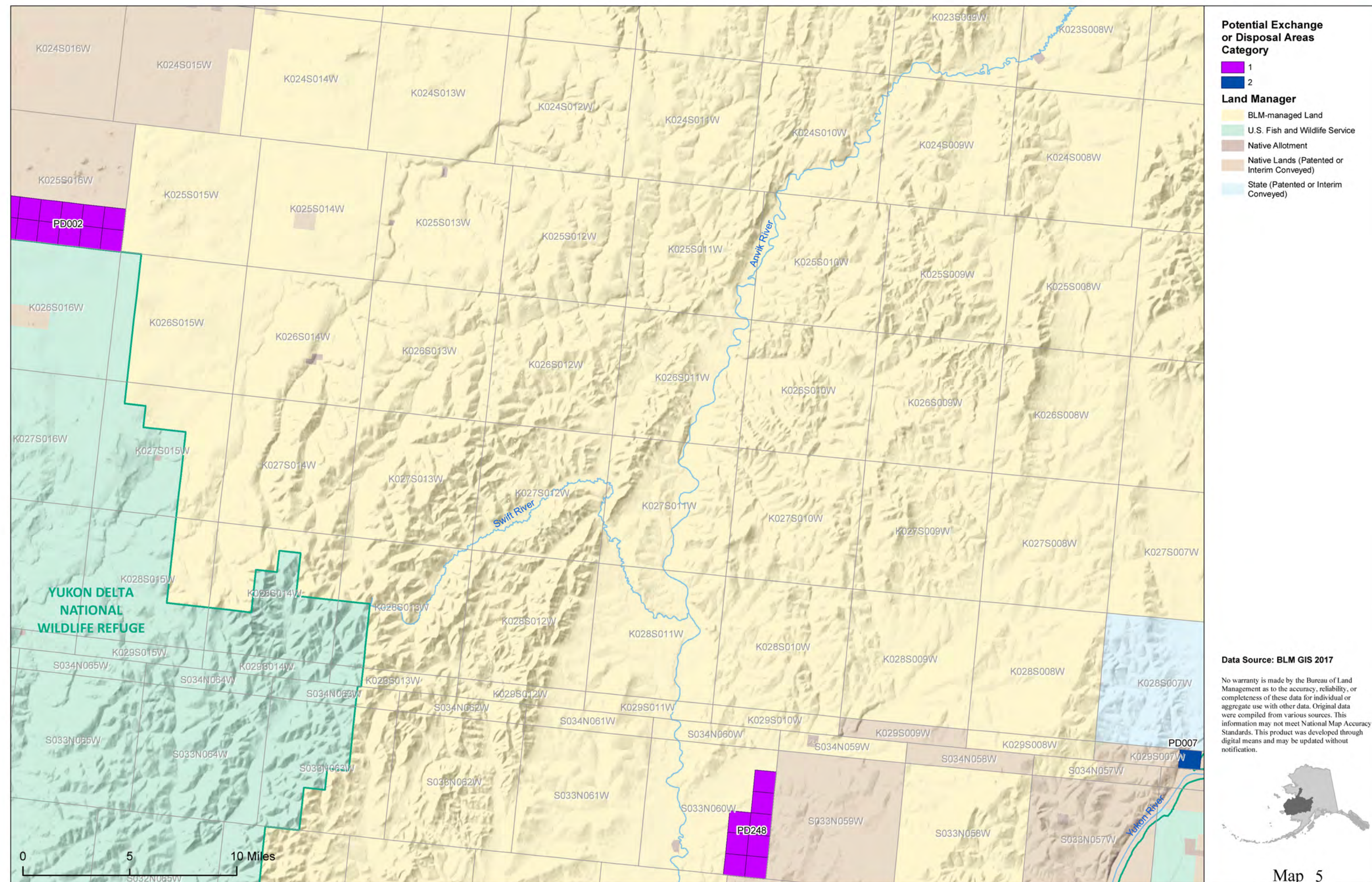
- BLM-managed Land
- National Park Service
- Native Allotment
- Native Lands (Patented or Interim Conveyed)
- State (Patented or Interim Conveyed)
- Water

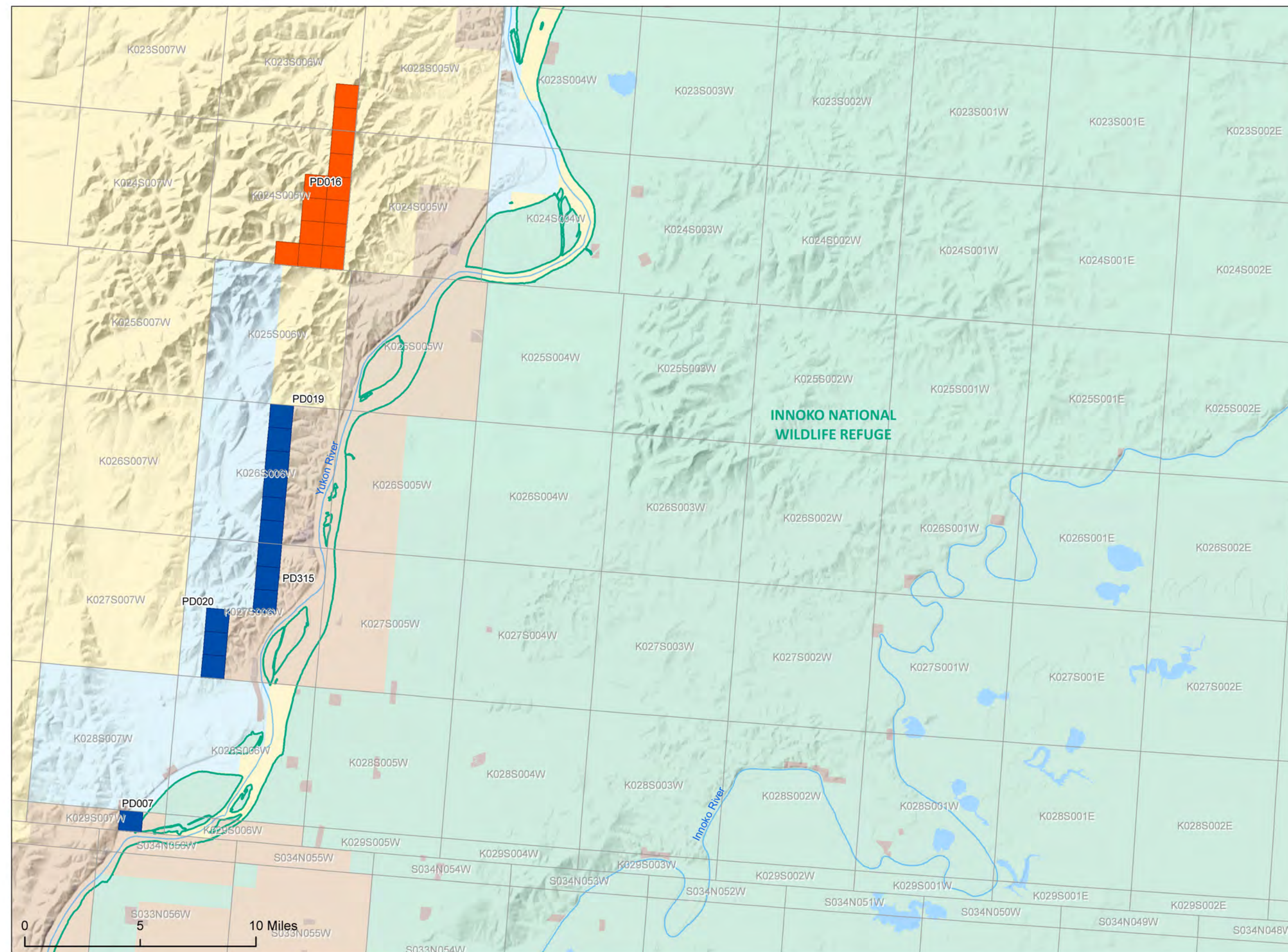
Data Source: BLM GIS 2017

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.









Potential Exchange or Disposal Areas Category

- 2
- 3

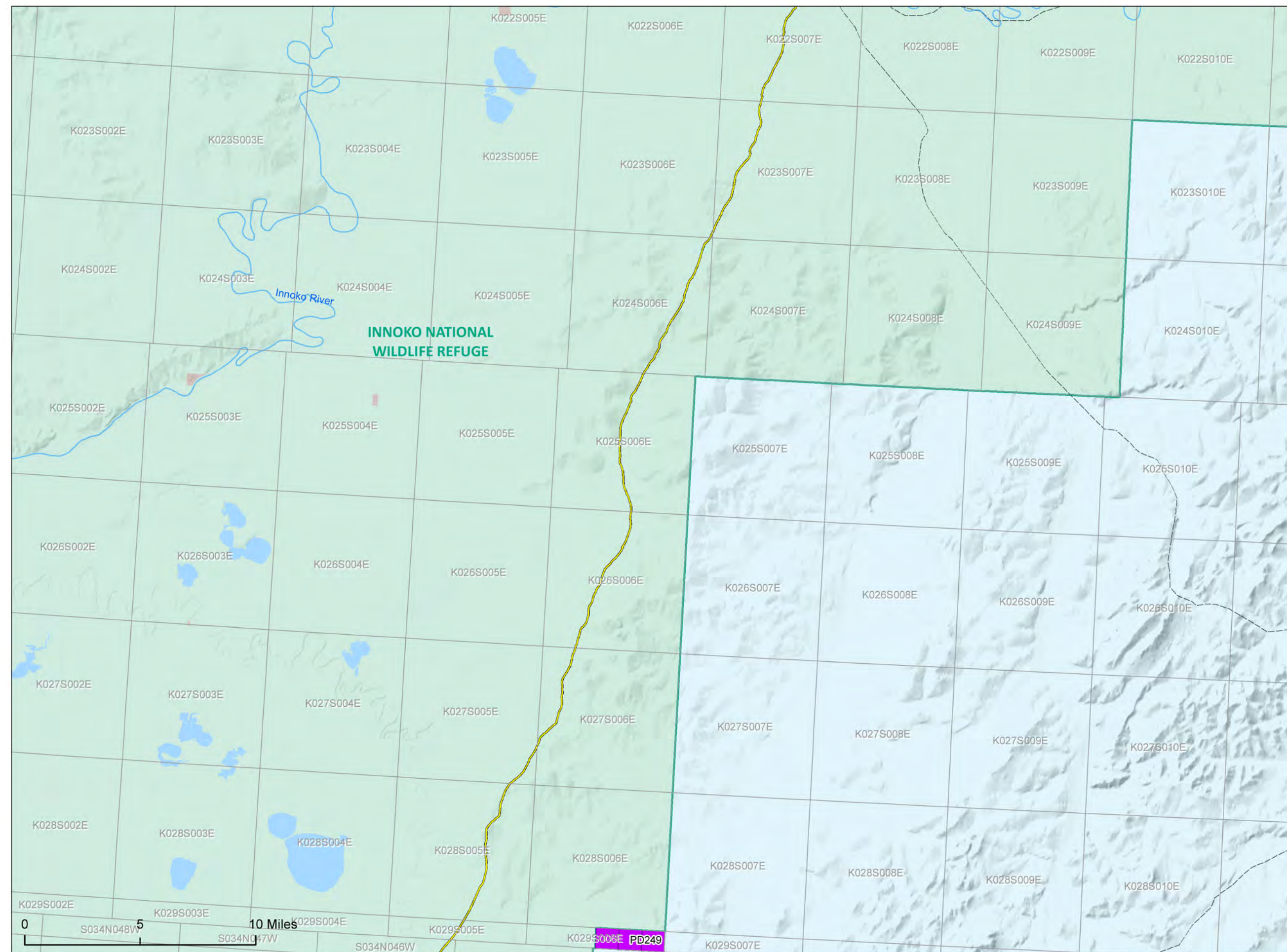
Land Manager

- BLM-managed Land
- U.S. Fish and Wildlife Service
- Native Allotment
- Native Lands (Patented or Interim Conveyed)
- State (Patented or Interim Conveyed)
- Water

Data Source: BLM GIS 2017

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.





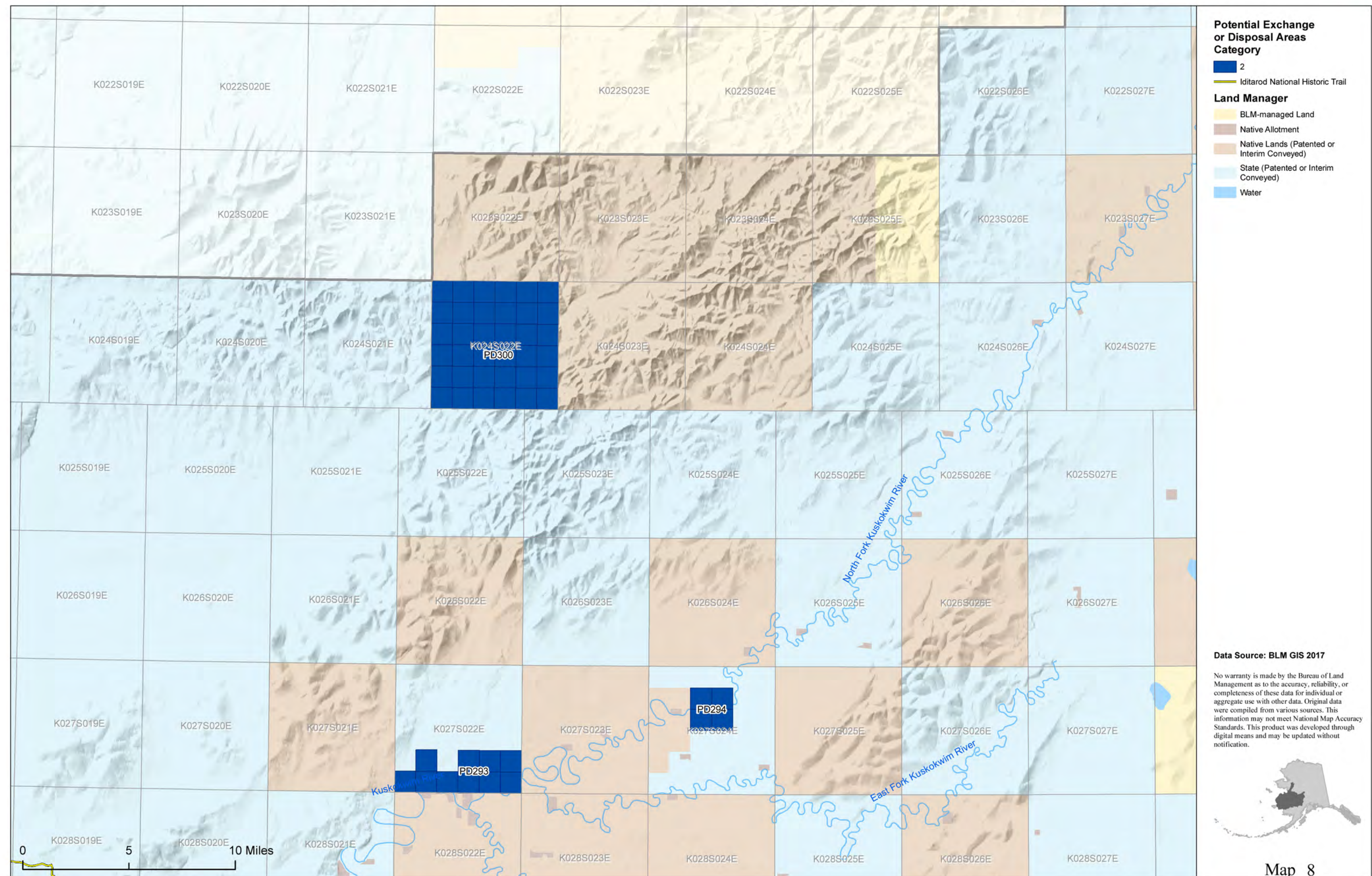
Potential Exchange or Disposal Areas Category

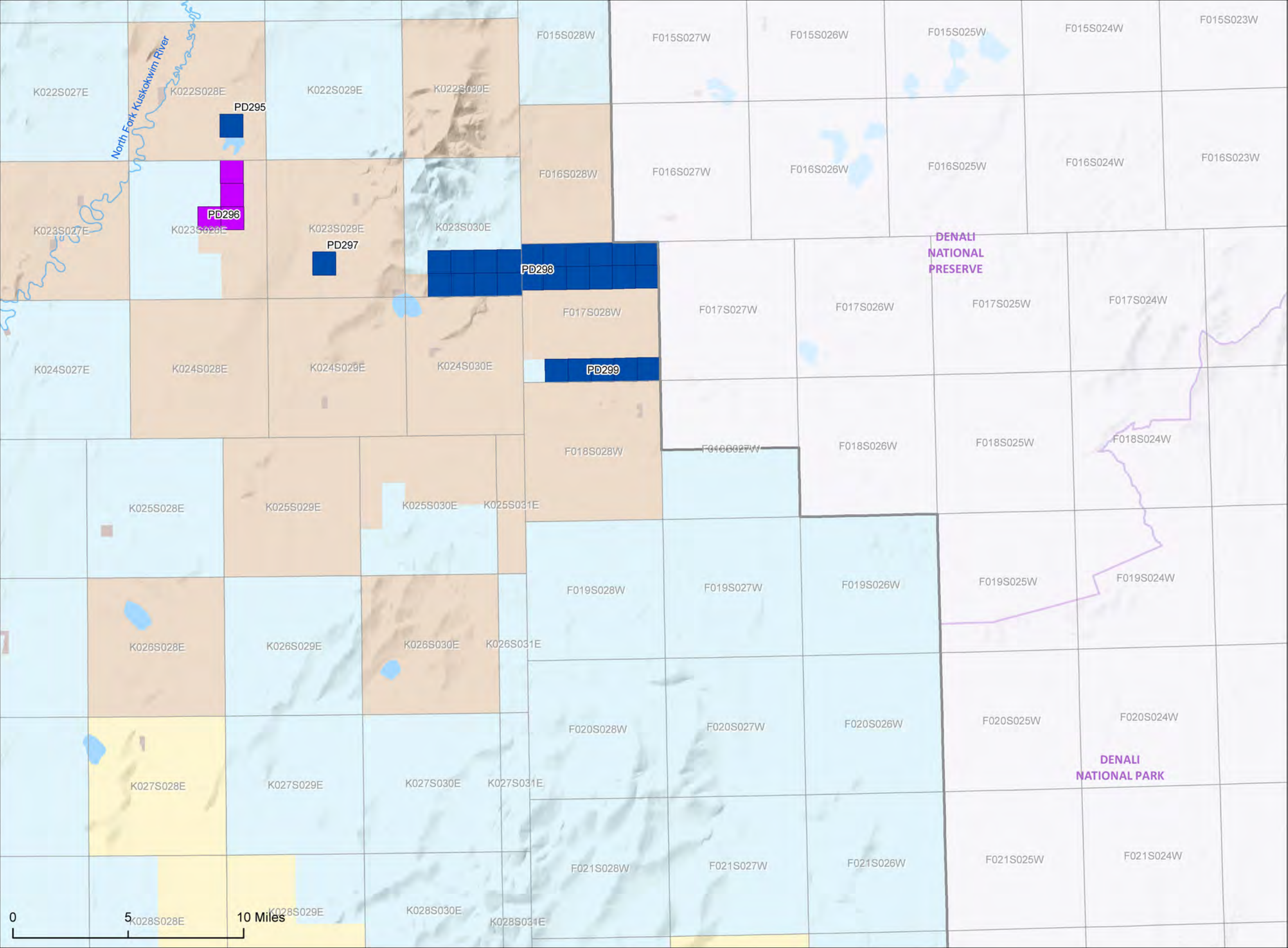
- 1
 - Iditarod National Historic Trail
 - Iditarod Connecting Trails
- Land Manager**
- BLM-managed Land
 - U.S. Fish and Wildlife Service
 - Native Allotment
 - State (Patented or Interim Conveyed)
 - Water

Data Source: BLM GIS 2017

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.







Potential Exchange or Disposal Areas Category

- 1
- 2

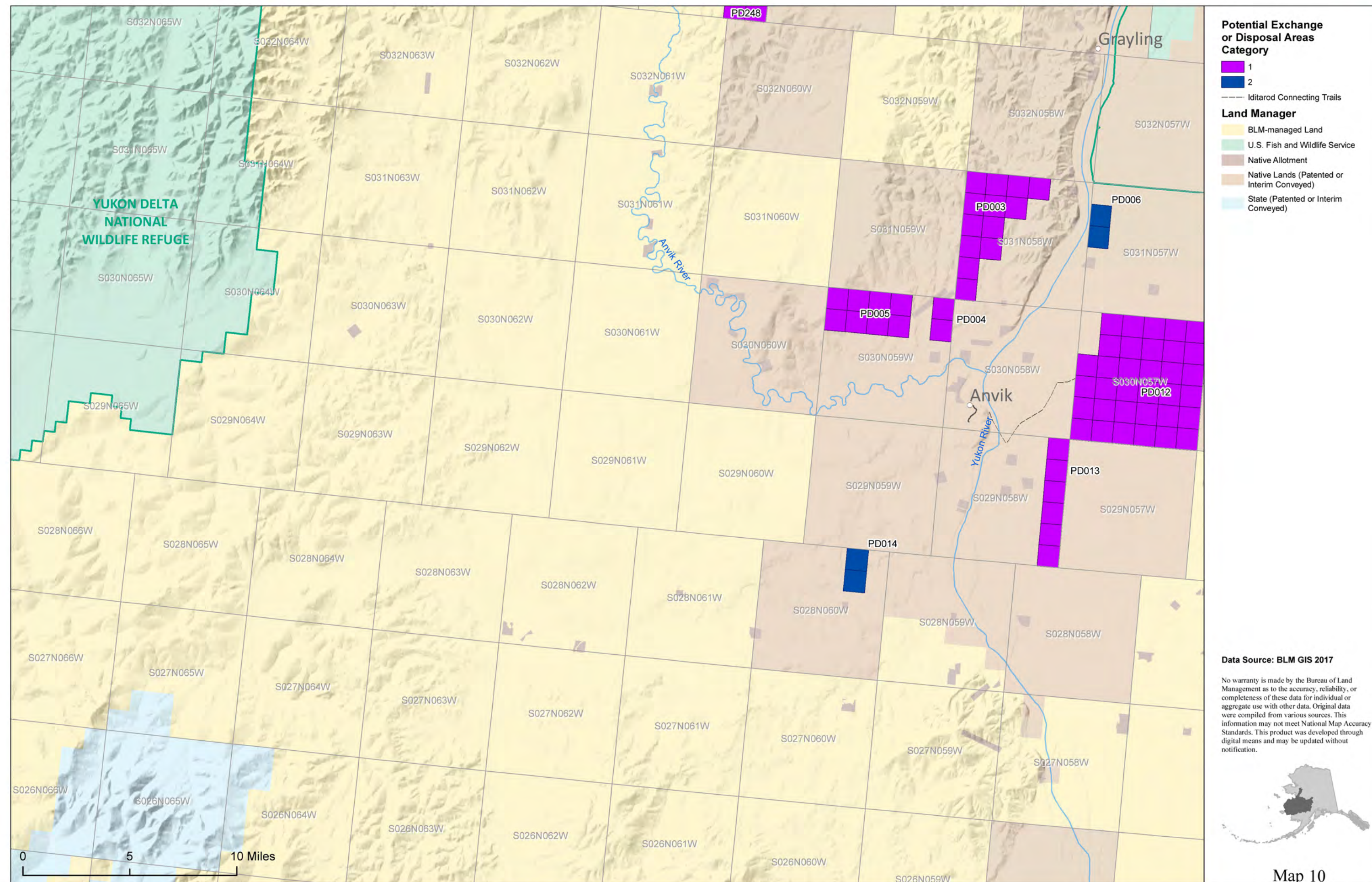
Land Manager

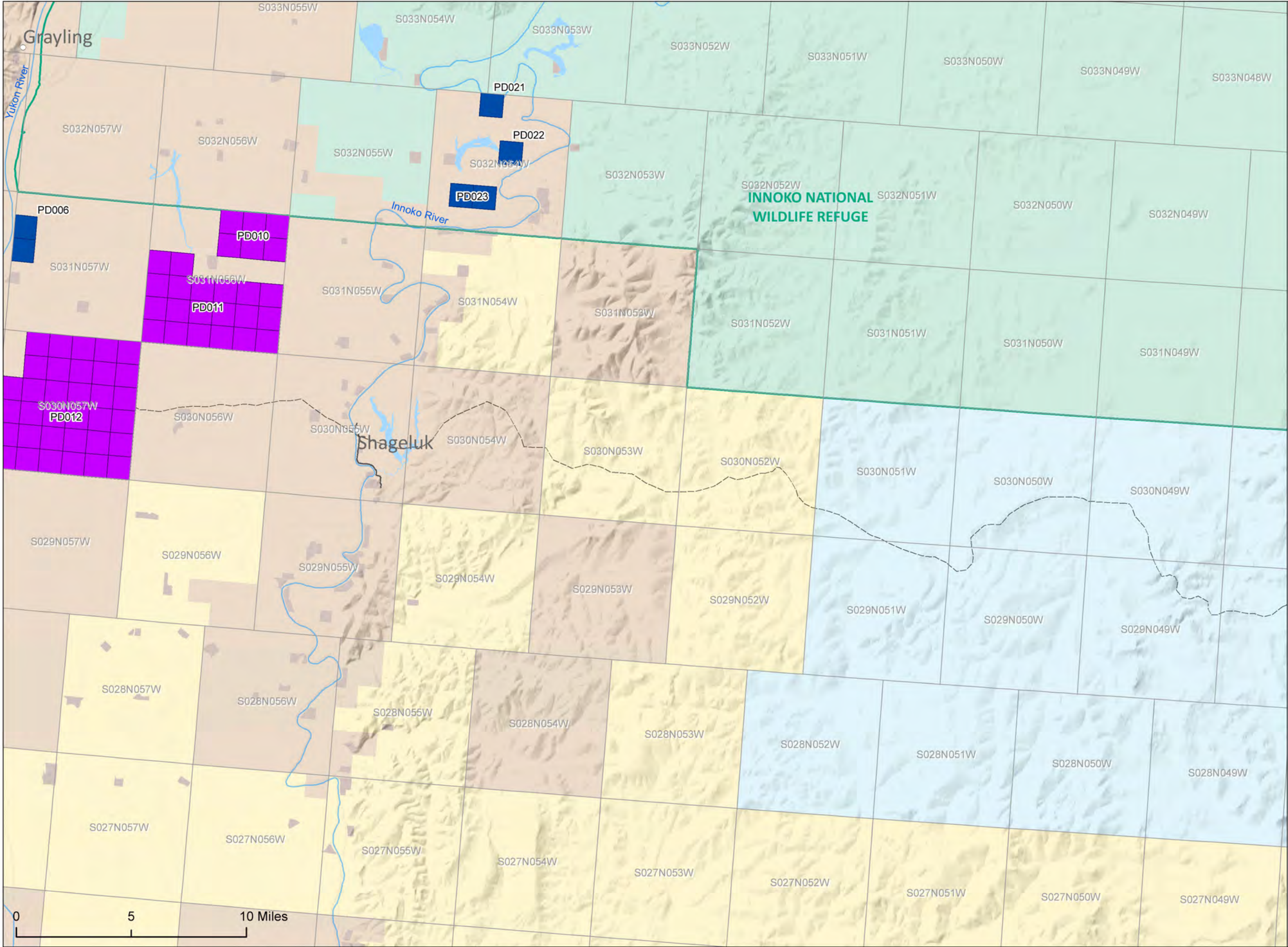
- BLM-managed Land
- National Park Service
- Native Allotment
- Native Lands (Patented or Interim Conveyed)
- State (Patented or Interim Conveyed)
- Water

Data Source: BLM GIS 2017

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.







Potential Exchange or Disposal Areas Category

- 1
- 2

Iditarod Connecting Trails

Land Manager

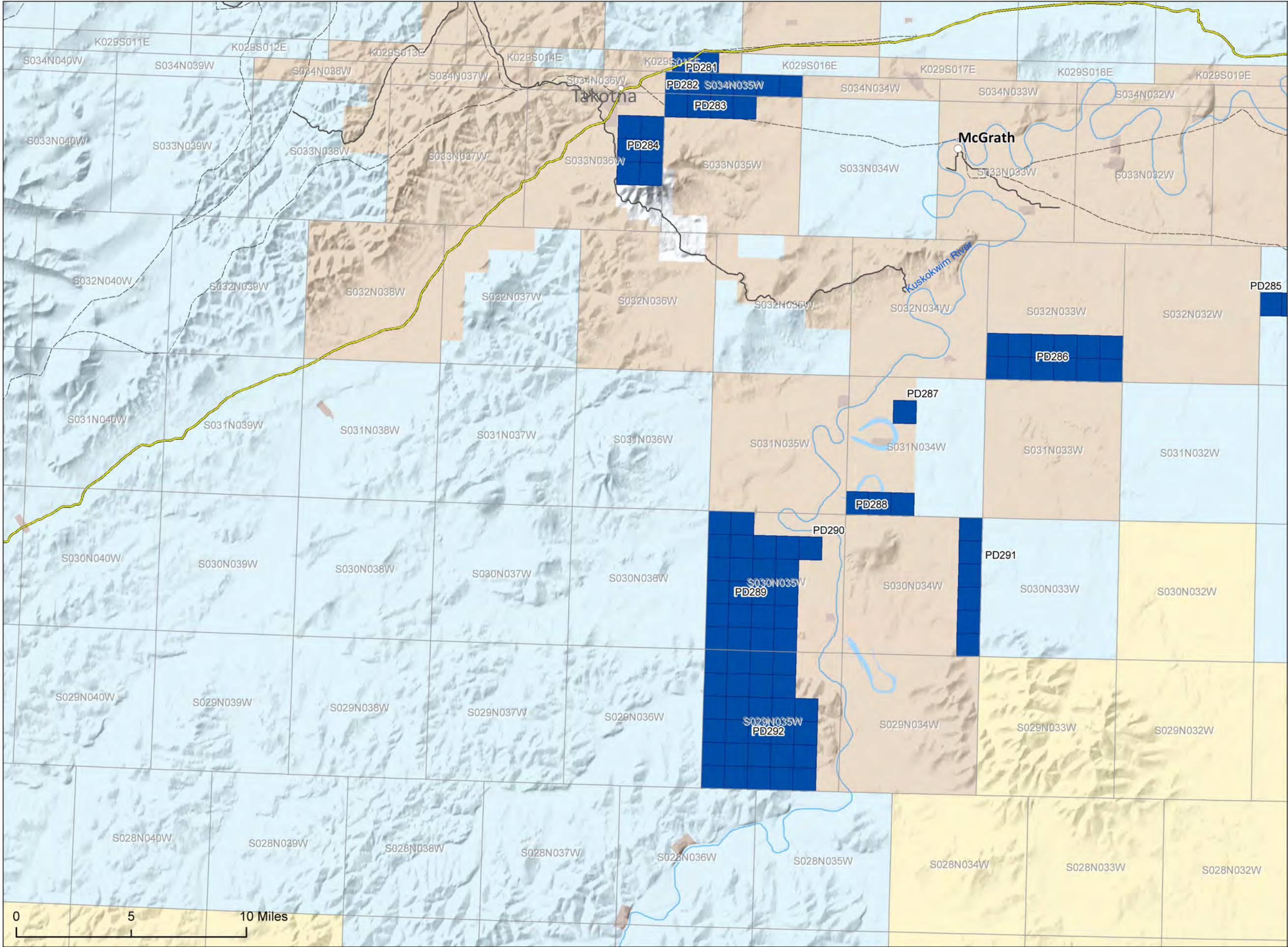
- BLM-managed Land
- U.S. Fish and Wildlife Service
- Native Allotment
- Native Lands (Patented or Interim Conveyed)
- State (Patented or Interim Conveyed)
- Water

Data Source: BLM GIS 2017

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.



Map 11



Potential Exchange or Disposal Areas Category

- 2
 - Iditarod National Historic Trail
 - Iditarod Connecting Trails
- Land Manager**
- BLM-managed Land
 - Native Allotment
 - Native Lands (Patented or Interim Conveyed)
 - State (Patented or Interim Conveyed)
 - Water

Data Source: BLM GIS 2017

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.





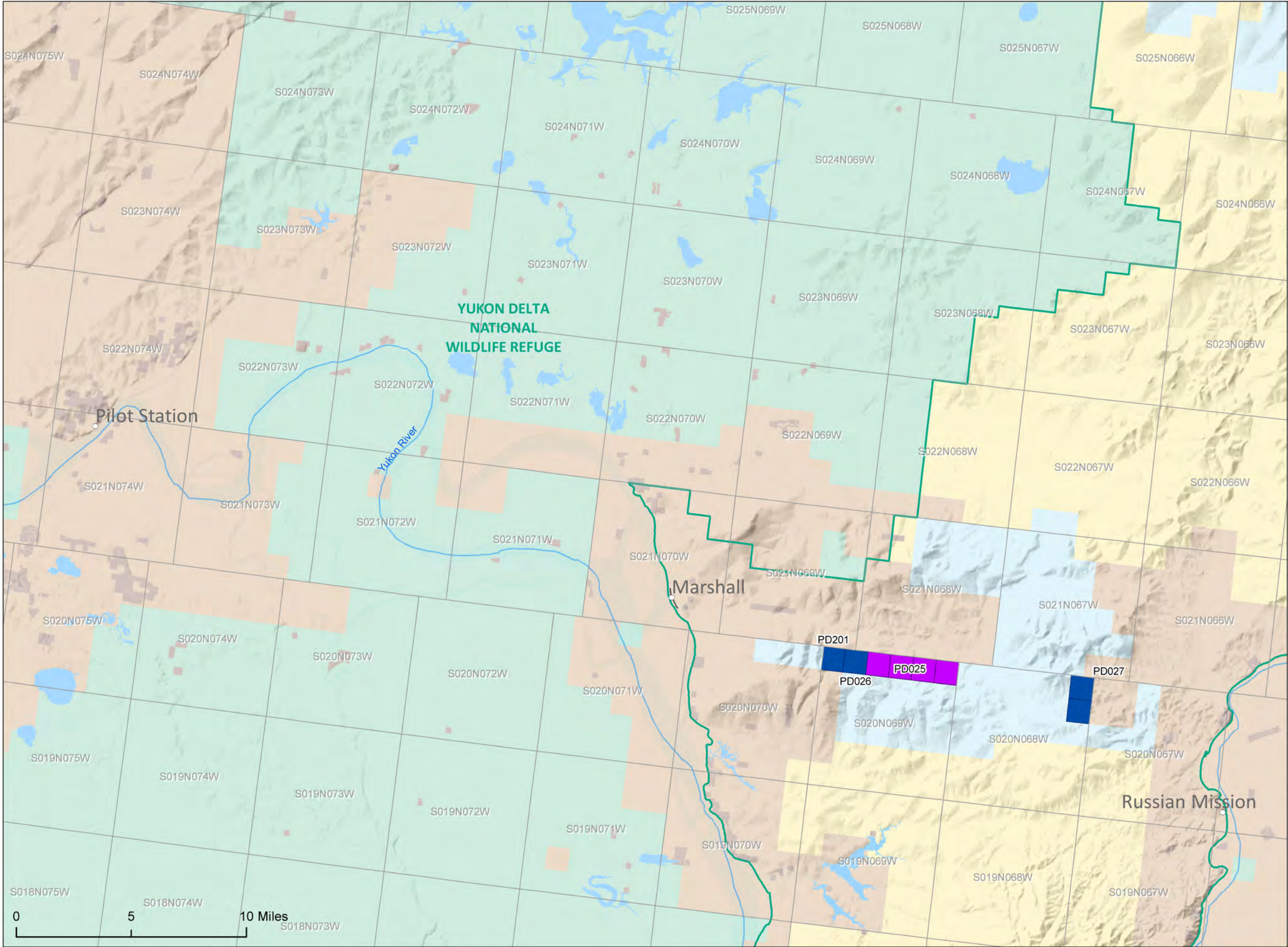
Potential Exchange or Disposal Areas Category

- 2
 - Iditarod National Historic Trail
 - Iditarod Connecting Trails
- Land Manager
- BLM-managed Land
 - Native Allotment
 - Native Lands (Patented or Interim Conveyed)
 - State (Patented or Interim Conveyed)
 - Water

Data Source: BLM GIS 2017

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.





Potential Exchange or Disposal Areas Category

1

2

Land Manager

BLM-managed Land

U.S. Fish and Wildlife Service

Native Allotment

Native Lands (Patented or Interim Conveyed)

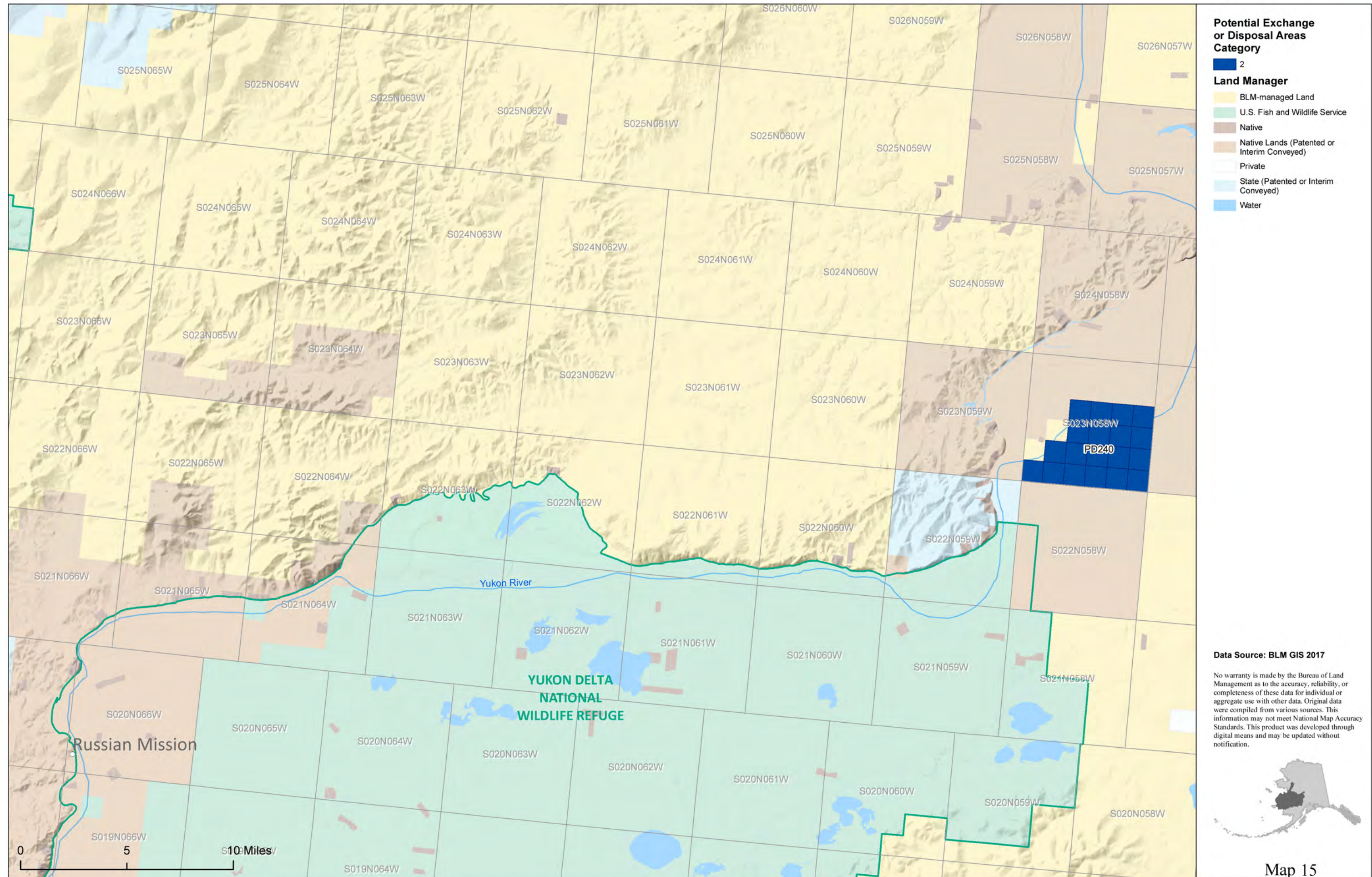
State (Patented or Interim Conveyed)

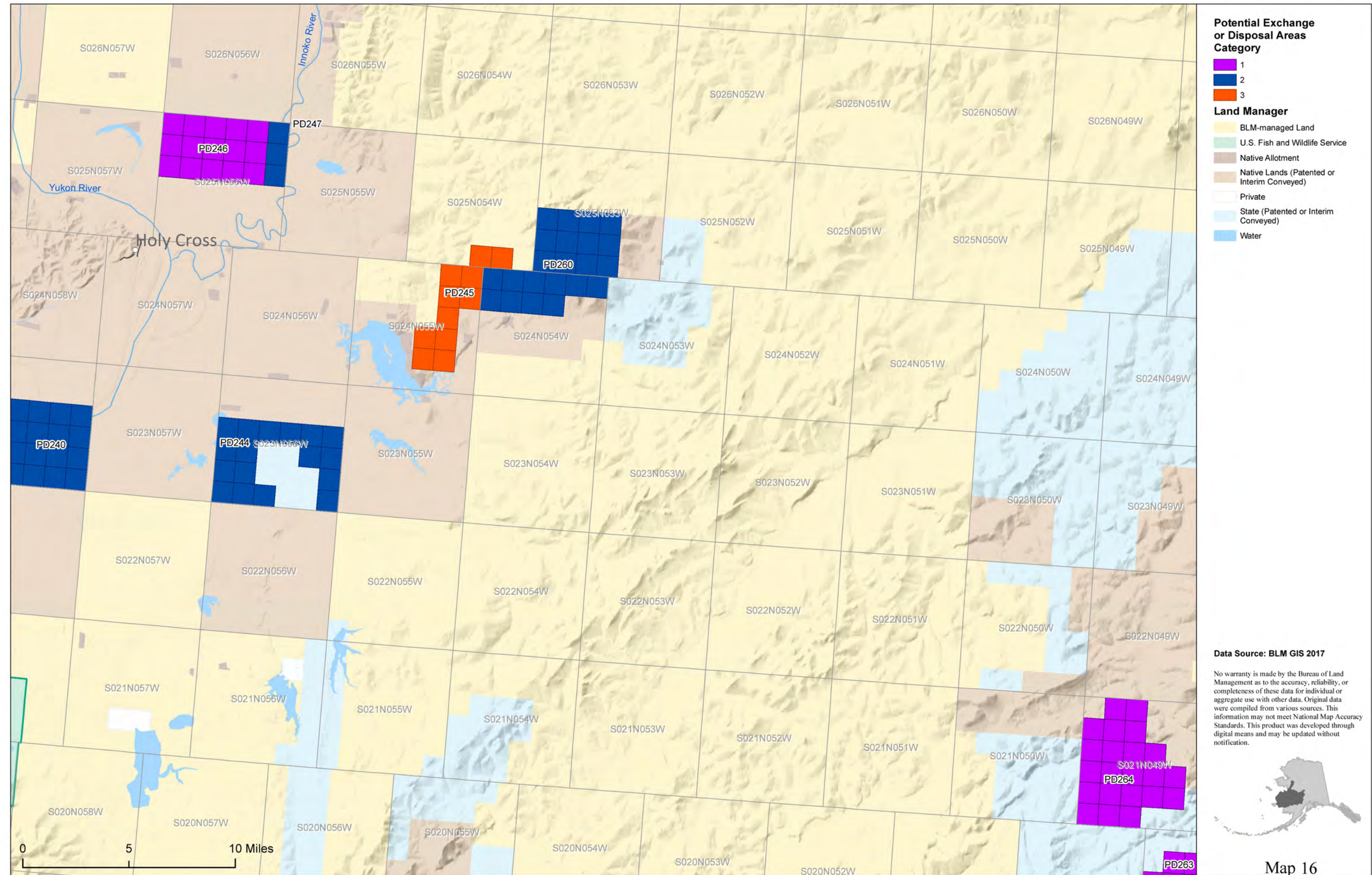
Water

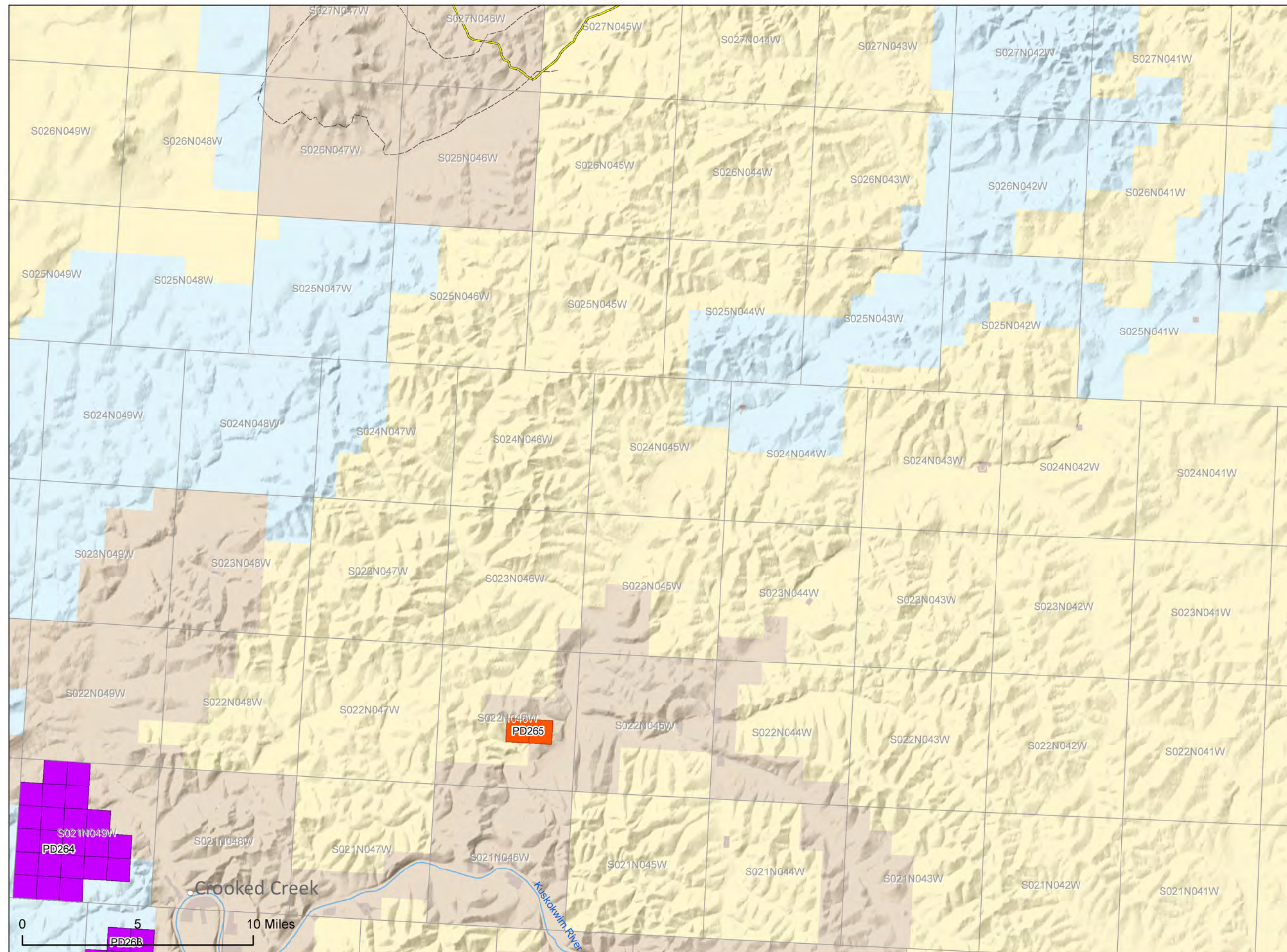
Data Source: BLM GIS 2017

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.









Potential Exchange or Disposal Areas Category

- 1
- 3

Iditarod National Historic Trail
Iditarod Connecting Trails

Land Manager

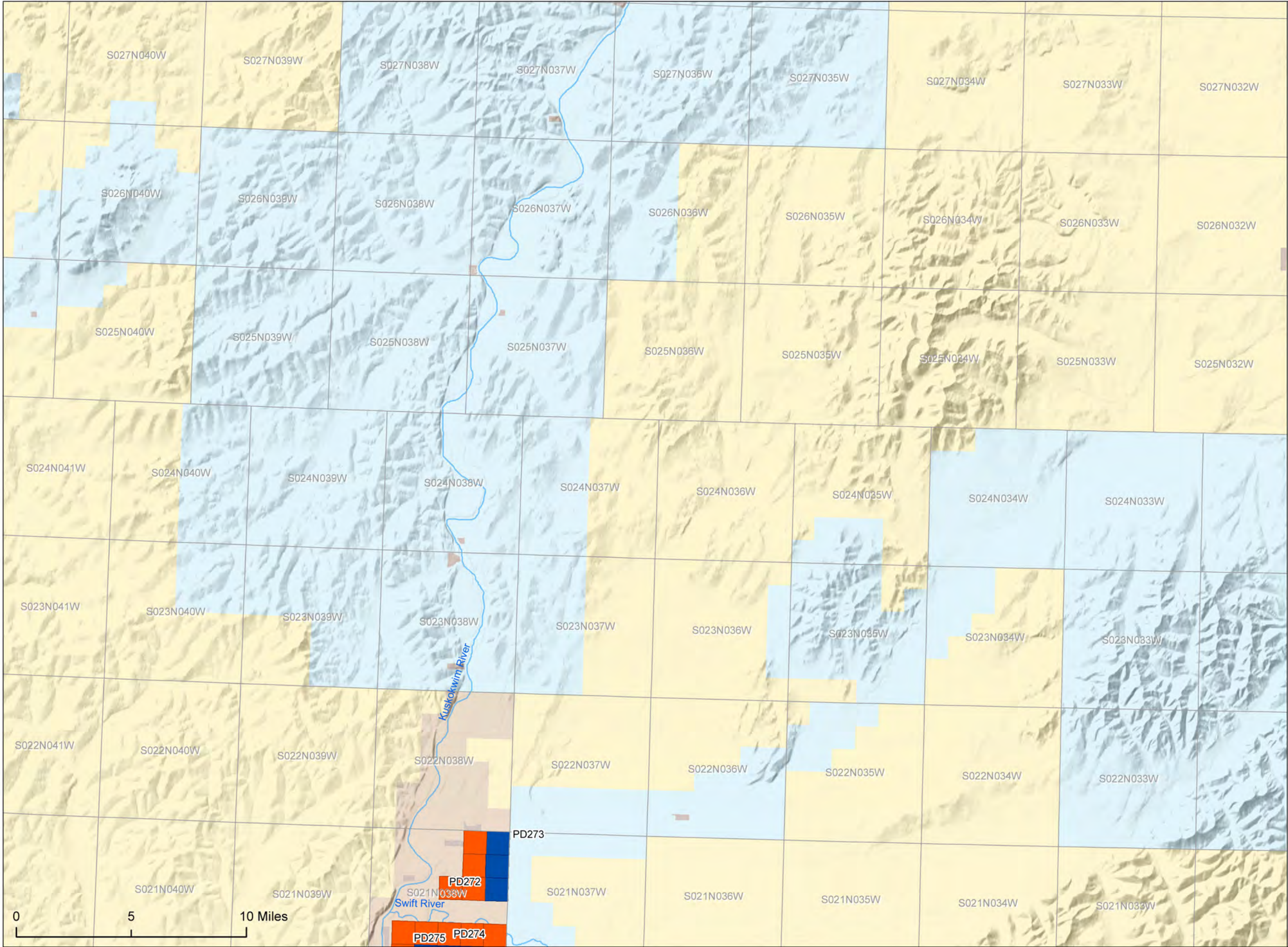
- BLM-managed Land
- Native Allotment
- Native Lands (Patented or Interim Conveyed)
- State (Patented or Interim Conveyed)

Data Source: BLM GIS 2017

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.



Map 17



Potential Exchange or Disposal Areas Category

- 2
- 3

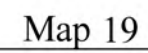
Land Manager

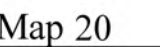
- BLM-managed Land
- Native Allotment
- Native Lands (Patented or Interim Conveyed)
- State (Patented or Interim Conveyed)

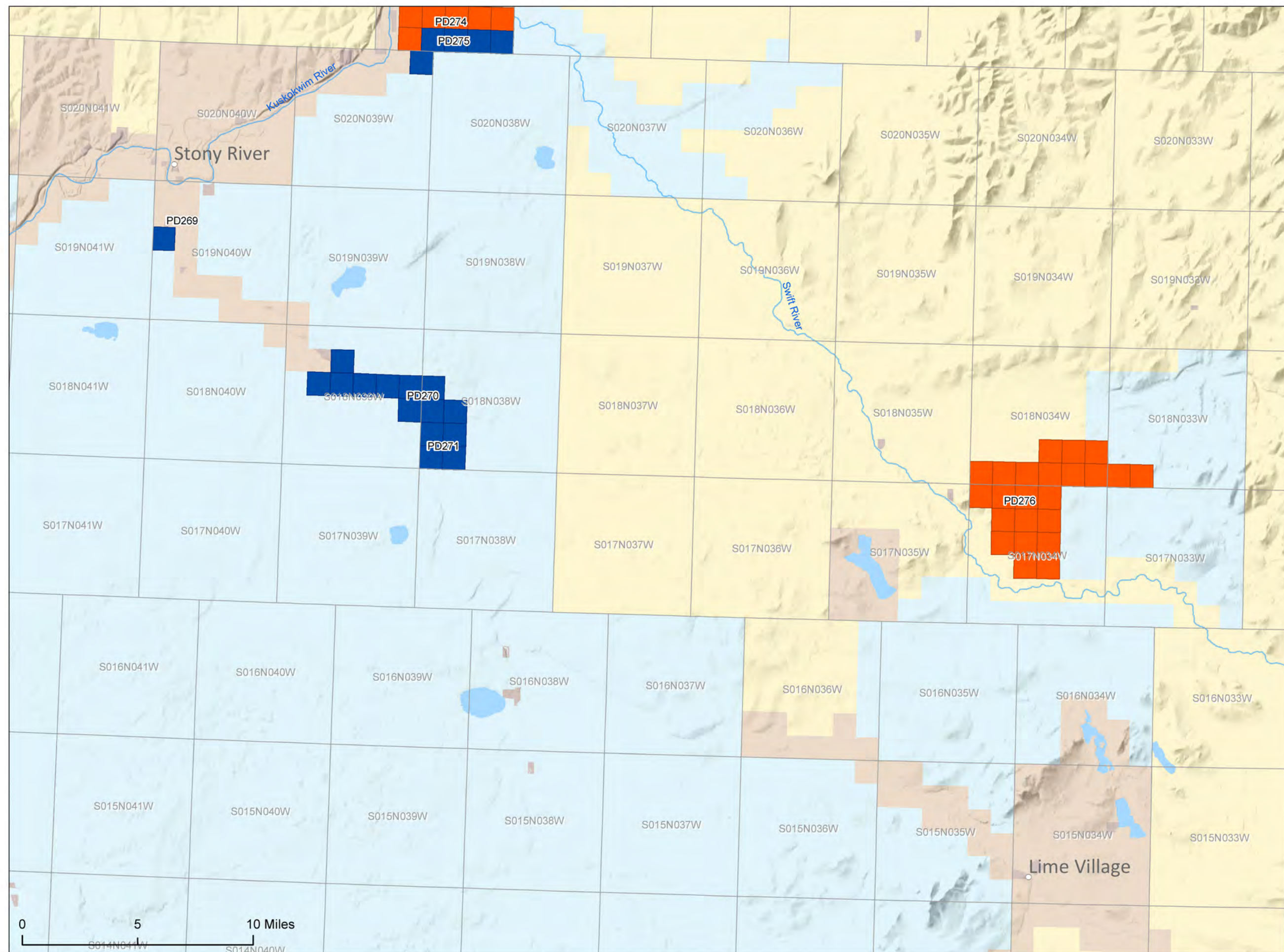
Data Source: BLM GIS 2017

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.









Potential Exchange or Disposal Areas Category

- 2
- 3

Land Manager

- BLM-managed Land
- Native Allotment
- Native Lands (Patented or Interim Conveyed)
- State (Patented or Interim Conveyed)
- Water

Data Source: BLM GIS 2017

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.



Written Description of Maps

Map Number	Map Description
Appendix I, Map 1	Map 1 provides an overview of the Appendix H maps, which depict the same information that is summarized in the table on the preceding pages. Map 1 shows the planning area and the location of each of the more detailed Map pages in the appendix (numbered 1 to 20). The Map pages start in the north end of the planning area, and go left to right sequentially, in five rows that cover all areas with lands available for exchange or disposal, skipping areas where there are no lands available for exchange or disposal. The Map provides an overview of the potential exchange and/or disposal areas in the planning area, represented as different colors based on their exchange/disposal category (1, 2, or 3). The Map also shows the Iditarod National Historic Trail and generalized land status. For BLM-managed land, land status includes categories for Native selected and State selected lands.
Appendix I, Map 2	Map 2 is Page 1 of the Potential Exchange or Disposal Areas Map series. Its geographic area includes portions of the Unalakleet and Yukon rivers, and the northwest corner of the Innoko NWR. The Map shows two parcels proposed for exchange or disposal. PD250 is a Category 2 potential exchange/disposal area consisting of nine sections in K018S003W, located just northwest of the Yukon River and west of the Innoko NWR at the north end of the planning area. PD017 is a Category 3 potential exchange/disposal area consisting of two sections in K022S005W, located west of the Yukon River and Innoko NWR.
Appendix I, Map 3	Map 3 is Page 2 of the Potential Exchange or Disposal Areas Map series. Its geographic area includes the northeast corner of the planning area. The Map shows two parcels proposed for exchange or disposal. PD301 is a Category 2 potential exchange/disposal area consisting of six sections in F011S023W, located just northeast of Lake Minchumina on the eastern edge of the planning area. PD302 is a Category 2 potential exchange/disposal area consisting of six sections in F012S023W, located southeast of Lake Minchumina on the eastern edge of the planning area.
Appendix I, Map 4	Map 4 is Page 3 of the Potential Exchange or Disposal Areas Map series. Its geographic area includes the western end of the planning area south of St. Michael. The Map shows two parcels proposed for exchange or disposal. PD001 and PD002 are Category 1 potential exchange/disposal areas located adjacent to the Yukon Delta NWR boundary. PD001 includes three sections in K024S018W, and PD002 includes 46 sections: 12 in K025S016W, 28 in K025S017W, and 6 in K025S018W.
Appendix I, Map 5	Map 5 is Page 4 of the Potential Exchange or Disposal Areas Map series. Its geographic area generally lies between the Yukon Delta and Innoko NWRs, and includes stretches of the Anvik and Swift rivers. The Map shows two parcels proposed for exchange or disposal. PD248 is a Category 1 potential exchange/disposal area consisting of eight sections in S033N060W, located east of the Anvik River. PD007 is a Category 2 potential exchange/disposal area consisting of one section in K029S007W, located west of and adjacent to the Yukon River and Innoko NWR.
Appendix I, Map 6	Map 6 is Page 5 of the Potential Exchange or Disposal Areas Map series. Its geographic area includes a large portion of the Innoko NWR and the area just to the west. The Map shows five parcels proposed for exchange or disposal, all of which are just west of the Yukon River and Innoko NWR. PD016 is a Category 3 potential exchange/disposal area consisting of 11 sections in K024S006W and two sections in K023S006W, located west of the Yukon River. PD0019 is a Category 2 potential exchange/disposal area consisting of six sections in K026S006W, located west of the Yukon River. PD315 is a Category 2 potential exchange/disposal area consisting of three sections in K027S006W, adjacent to and south of PD019. PD020 is a Category 2 potential exchange/disposal area consisting of three sections in K027S006W, just southeast of PD019. PD007 is a Category 2 potential exchange/disposal area consisting of one section in K029S007W, located south and east of the other parcels on this map.
Appendix I, Map 7	Map 7 is Page 6 of the Potential Exchange or Disposal Areas Map series. Its geographic area includes a large portion of the Innoko NWR and lands to the east. The Map shows one parcel proposed for exchange or disposal. PD249 is a Category 1 potential exchange/disposal area consisting of three sections in K029S006E, adjacent to the Innoko NWR.

Map Number	Map Description
Appendix I, Map 8	Map 8 is Page 7 of the Potential Exchange or Disposal Areas Map series. Its geographic area includes the northern end of the planning area, north of Nikolai. The Map shows three parcels proposed for exchange or disposal. PD300 is a Category 2 potential exchange/disposal area consisting of all of K024S022E (36 sections), located at the northern boundary of the planning area. PD293 is a Category 2 potential exchange/disposal area consisting of ten sections in K027S022E, located at the confluence of the Kuskokwim and East Fork Kuskokwim rivers. PD294 is a Category 2 potential exchange/disposal area consisting of four sections in K027S024E, located on the Kuskokwim River, northeast of PD293.
Appendix I, Map 9	Map 9 is Page 8 of the Potential Exchange or Disposal Areas Map series. Its geographic area includes the east end of the planning area and a portion of Denali National Park and Preserve. The Map shows five parcels proposed for exchange or disposal. PD295 is a Category 3 potential exchange/disposal area consisting of one section in K022S028E, located east of the North Fork Kuskokwim River. PD296 is a Category 1 potential exchange/disposal area consisting of four sections in K023S028E, located south of PD295. PD297 is a Category 2 potential exchange/disposal area consisting of one section in K023S029E, located southeast of PD295. PD298 is a Category 2 potential exchange/disposal area consisting of eight sections in K023S030E and twelve sections in F017S028W, located on the eastern boundary of the planning area. PD299 is a Category 2 potential exchange/disposal area consisting of five sections in F017S028W, located on the eastern boundary of the planning area and south of PD298.
Appendix I, Map 10	Map 10 is Page 9 of the Potential Exchange or Disposal Areas Map series. Its geographic area includes the Anvik area generally between the Yukon Delta and Innoko NWRs. The Map shows eight parcels proposed for exchange or disposal. The Map shows only a small portion of PD248, which is displayed in full on Page 4. PD003 is a Category 1 potential exchange/disposal area consisting of 13 sections in S031N058W, located west of the Yukon River and southwest of the Innoko NWR. PD006 is a Category 2 potential exchange/disposal area consisting of two sections in S031N057W, located just east of the Yukon River and south of the Innoko NWR. PD005 is a Category 1 potential exchange/disposal area consisting of eight sections in S030N059W, located north of the Anvik River. PD004 is a Category 1 potential exchange/disposal area consisting of two sections in S030N059W, located east of PD005 and south of PD003. PD012 is a Category 1 potential exchange/disposal area consisting of 34 sections in S030N057W, located east of Anvik. PD013 is a Category 1 potential exchange/disposal area consisting of six sections in S029N058W, located just south and east of PD012. PD014 is a Category 2 potential exchange/disposal area consisting of two sections in S028N050W, located west of the Yukon River.
Appendix I, Map 11	Map 11 is Page 10 of the Potential Exchange or Disposal Areas Map series. Its geographic area includes the Shageluk area and the southern portion of the Innoko NWR. The Map shows seven parcels proposed for exchange or disposal. PD006 is a Category 2 potential exchange/disposal area consisting of two sections in S031N057W, located just east of the Yukon River and south of the Innoko NWR. PD012 is a Category 1 potential exchange/disposal area consisting of 34 sections in S030N057W, located west of Shageluk. PD010 is a Category 1 potential exchange/disposal area consisting of six sections in S031N056W, located on the southern boundary of the Innoko NWR. PD011 is a Category 1 potential exchange/disposal area consisting of 20 sections in S031N056W, located south of PD010. PD021 (1 section), PD022 (1 section), and PD023 (2 sections) are Category 2 potential exchange/disposal areas in S032N054W, located along the Innoko River within the Innoko NWR boundary.

Map Number	Map Description
Appendix I, Map 12	Map 12 is Page 11 of the Potential Exchange or Disposal Areas Map series. Its geographic area includes the Takotna and McGrath areas and a portion of the Kuskokwim River. The Map shows 11 parcels proposed for exchange or disposal. The Map shows only a portion of PD285, which is displayed in full on Page 12. PD281 is a Category 2 potential exchange/disposal area consisting of two sections in K029S015E, located northeast of Takotna, along the Iditarod National Historic Trail. PD282 is a Category 2 potential exchange/disposal area consisting of all six sections in S034N035W, located south of and adjacent to PD281. PD283 is a Category 2 potential exchange/disposal area consisting of four sections in S033N035W, located south of and adjacent to PD282. PD284 is a Category 2 potential exchange/disposal area consisting of six sections in S033N036W, located south of Takotna and southwest of PD283. PD286 is a Category 2 potential exchange/disposal area consisting of 12 sections in S032N033W, located southeast of McGrath, east of the Kuskokwim River. PD287 (1 section) and PD288 (3 sections) are Category 2 potential exchange/disposal areas in S031N034W, located east of the Kuskokwim River and southwest of PD286. PD289 and PD290 together form 23 contiguous sections of Category 2 potential exchange/disposal area in S030N035W, located west of the Kuskokwim River. PD292 is a Category 2 potential exchange/disposal area consisting of 28 sections in S029N035W, located south of and adjacent to PD289. PD291 is a Category 2 potential exchange/disposal area consisting of six sections in S030N034W, located east of the Kuskokwim River.
Appendix I, Map 13	Map 13 is Page 12 of the Potential Exchange or Disposal Areas Map series. Its geographic area includes the Nokolia area and a portion of the Kuskokwim River and several of its tributaries. The Map shows one parcel proposed for exchange or disposal. PD285 is a Category 2 potential exchange/disposal area consisting of two sections in S032N031W, located west of the Middle Fork Kuskokwim River and near an Iditarod connecting trail.
Appendix I, Map 14	Map 14 is Page 13 of the Potential Exchange or Disposal Areas Map series. Its geographic area includes the Marshall area and a portion of the Yukon Delta NWR. The Map shows four parcels proposed for exchange or disposal. PD201 (Category 2, 1 section), PD026 (Category 2, 1 section), and PD025 (Category 1, 4 sections) are adjacent parcels in S020N069W, located southeast of Marshall. PD027 is a Category 2 potential exchange/disposal area consisting of two sections in S020N068W, located just east of the other parcels and northwest of Russian Mission.
Appendix I, Map 15	Map 15 is Page 14 of the Potential Exchange or Disposal Areas Map series. Its geographic area is generally northeast of Russian Mission and includes a portion of the Yukon Delta NWR. The Map shows one parcel proposed for exchange/disposal. PD240 is a Category 2 potential exchange/disposal area consisting of 19 sections in S023N058W, located along and northeast of the Yukon Delta NWR.
Appendix I, Map 16	Map 16 is Page 15 of the Potential Exchange or Disposal Areas Map series. Its geographic area includes the Holy Cross area and land to the east. The Map shows eight parcels proposed for exchange/disposal. The Map shows only a portion of PD240, which is displayed in full on Page 14. The Map shows only a portion of PD263, which is displayed in full on Page 20. PD246 (Category 1, 15 sections) and PD247 (Category 2, 3 sections) are adjacent parcels in S025N055W, located northeast of Holy Cross, near the confluence of the Yukon and Innoko rivers. PD245 is a Category 3 potential exchange/disposal area consisting of nine sections in S024N055W and 2 sections in S025N054W, located east of Holy Cross and near a lake that is unlabeled on the map. PD260 is a Category 2 potential exchange/disposal area consisting of ten sections in S024N054W and 12 sections in S025N053W, located adjacent to and east of PD245. PD244 is a Category 2 potential exchange/disposal area consisting of 17 sections in S023N056W, located southwest of PD243. PD264 is a Category 1 potential exchange/disposal area consisting of 22 sections in S021N049W, located northwest of Crooked Creek.
Appendix I, Map 17	Map 17 is Page 16 of the Potential Exchange/Disposal Areas Map series. Its geographic area includes the Crooked Creek area and land to the northeast. The Map shows three parcels proposed for exchange or disposal. The Map shows only a portion of PD263, which is displayed in full on Page 20. PD264 is a Category 1 potential exchange/disposal area consisting of 22 sections in S021N049W, located northwest of Crooked Creek. PD265 is a Category 3 potential exchange/disposal area consisting of two sections in S022N046W, located northeast of Crooked Creek and north of the Kuskowkim River.

Map Number	Map Description
Appendix I, Map 18	Map 18 is Page 17 of the Potential Exchange or Disposal Areas Map series. Its geographic area is northeast of Stony River and includes a long stretch of the Kuksokwim River. The Map shows four parcels proposed for exchange or disposal. The southern edge of the Map shows portions of PD274 and PD275, which are displayed more completely on Page 21. PD272 (Category 3, 4 sections) and PD273 (Category 2, 3 sections) are adjacent parcels in S021N038W, located northeast of the the confluence of the Kuskokwim and Swift rivers.
Appendix I, Map 19	Map 19 is Page 18 of the Potential Exchange or Disposal Areas Map series. Its geographic area includes the Aniak and Chuathbaluk areas and a portion of the Yukon Delta NWR. The Map shows eleven parcels proposed for exchange or disposal. The Map shows a portion of PD263, which is displayed in full on Page 20. PD262 is a Category 2 potential exchange/disposal area consisting of 19 sections in S019050W and 4 sections in S020N050W, located east of the Kuskokwim River. PD253 is a Category 1 potential exchange/disposal area consisting of 18 sections in S018N052W, located northeast of Chuathbaluk and north of the Kuskokwim River. PD 254 and PD255 are adjacent parcels of Category 2 potential exchange/disposal area consisting of 17 contiguous sections in S018N051W, located east of and adjacent to PD253. PD261 is a Category 3 potential exchange/disposal area consisting of 14 sections in S018N050W, located adjacent to and south of PD262 and east of PD255. PD252 is a Category 2 potential exchange/disposal area consisting of 15 sections in S017N054W and 15 sections in S017N053W, located southeast of Chuathbaluk and south of the Kuskokwim River. PD258 is a Category 2 potential exchange/disposal area consisting of 12 sections in S017N050W, located southeast of the Kuskokwim River. PD259 is a Category 2 potential exchange/disposal area consisting of one section in S016N051W, located southeast of the Kuskokwim River and PD252. PD257 is a Category 1 potential exchange/disposal area consisting of 11 sections in S014N056W and 3 sections in S013N056W, located adjacent to the Yukon Delta NWR boundary. PD256 is a Category 1 potential exchange/disposal area consisting of three sections in S014N056W and two sections in S014N057W, located west of PD257 and adjacent to the Yukon Delta NWR boundary.
Appendix I, Map 20	Map 20 is Page 19 of the Potential Exchange or Disposal Areas Map series. Its geographic area includes the Red Devil and Sleetmute areas and a stretch of the Kuskokwim River. The Map shows six parcels proposed for exchange or disposal. The Map shows a portion of PD262 and PD258, which are displayed in full on Page 19. PD263 is a Category 1 potential exchange/disposal area consisting of eight sections in S020N049W, located adjacent to the Kuskokwim River. PD266 is a Category 2 potential exchange/disposal area consisting of four sections in S019N044W, located near Red Devil along the Kuskokwim River. PD267 is a Category 2 potential exchange/disposal area consisting of five sections in S019N043W, located east of Sleetmute and north of the Kuskokwim River. PD268 is a Category 2 potential exchange/disposal area consisting of one section in S018N044W and one section in S018N043W, located south of the Kuskokwim River.
Appendix I, Map 21	Map 21 is Page 20 of the Potential Exchange or Disposal Areas Map series. Its geographic area includes the Stony River and Lime Village areas, as well as stretches of the Kuskokwim and Swift rivers. The Map shows six parcels proposed for exchange or disposal. PD274 is a Category 3 potential exchange/disposal area consisting of six sections in S021N038W, located near the confluence of the Kuskokwim and Swift rivers. PD275 is a Category 2 potential exchange/disposal area consisting of four sections in S021N038W and one section in S020N039W, located adjacent to and south of PD274. PD269 is a Category 2 potential exchange/disposal area consisting of one section in S019N040W, located south of Stony River and the Kuskokwim River. PD270 is a Category 2 potential exchange/disposal area consisting of seven sections in S018N039W and three sections in S018N038W, located southeast of Stony River and PD269. PD271 is a Category 2 potential exchange/disposal area consisting of four sections in S018N038W, located adjacent to and south of PD270. PD276 is a Category 3 potential exchange/disposal area consisting of 12 sections in S017N034W, nine sections in S018N034W, and two sections in S018N033W, located just north and east of the Swift River.

Appendix J: Climate Change and Adaptive Management

Appendix J. Climate Change and Adaptive Management

Section 1. Introduction

As used by the Bureau of Land Management (BLM), the term *adaptive management* refers to a decision-making process that promotes flexible decisions that can be adjusted as outcomes from management actions and other events become better understood over time (DOI 2009). Careful monitoring of outcomes helps adjust policies and operations as part of an iterative learning process. Adaptive management also recognizes the importance of natural variability in contributing to ecological resilience and productivity. Under adaptive management, decisions, plans, and proposed activities are treated as working hypotheses rather than final solutions to management of resources and uses.

Over the expected life of the Bering Sea–Western Interior (BSWI) Resource Management Plan (RMP), climate variability in Alaska is likely to create changes to landscape conditions, wildland fire risks, animal habitats, and community resources that cannot be pinpointed in advance. Consequently, the RMP emphasizes adaptive management to provide the flexibility to respond to new conditions as they occur, within a framework of consistent policy standards and guidelines.

This appendix documents anticipated and/or potential changes to resources managed in this RMP as a result of climate change and how the adaptive management approach will be used throughout the life of the RMP to address and manage for those changes. Some resources and resource uses are likely to be more impacted by climate variability than others. This appendix will allow BLM staff, partner agencies, project sponsors, and members of the public to knowledgeably participate in the monitoring of outcomes and response to changes from variable conditions.

Section 2. Resources and Resource Uses

2.1 Soils

Warmer air temperatures and subsequent rise in soil temperature are not likely to substantially alter soil-forming processes. However, a rise in soil temperature may affect nutrient cycling and evapotranspiration (drier or wetter soil conditions). Decomposition of plant material has historically been very slow in the planning area. However, as soil temperatures rise and permafrost thaws, decomposition rates will increase that will alter nutrient cycles, affecting plant communities and other ecosystem functions. Plant root growth in permafrost areas is limited to the active soil layer (the topmost soil horizons that thaw every summer). As soil temperatures rise, the active layer deepens, and that soil becomes destabilized, leading to erosion and land subsidence. Structurally, the increase in active layer depth is expected to have a negative effect on the ability of soil to carry loads, such as roads and structures.

Monitoring of climate change impacts on vegetation shifts, changes to permafrost, and resulting changes in soil erodibility would be used to prioritize the management actions listed above, and, if necessary, mandate measures to protect soils from surface-disturbing BLM-permitted activities and casual use. To the extent possible, the BLM would conduct and/or require insulation of disturbed permafrost areas to

prevent additional permafrost thaw and associated possible subsidence, by restoring the natural ground surface thermal regime, particularly on steep erosion-prone slopes.

2.2 Water Resources and Fisheries

According to the Scenarios Network for Alaska and Arctic Planning (SNAP), 50-year modeled surface water temperature may increase in some watersheds or decrease in other areas where more ice melt is occurring. Other potential changes could include:

- Water flow increase or decrease;
- Sedimentation from melting permafrost and changes related to peak-flow events;
- Lake bed drying;
- Invasive species introduction due to changing condition; or
- Changes to the occurrence, quantity, distribution, movement, and quality of water affecting fish production and survival.

A combination of continued monitoring (including Assessment, Inventory, and Monitoring [AIM]) and projected climate change modeling through SNAP would be used to adaptively shift fisheries management to high-priority watersheds supporting significant fisheries that are at risk due to climate change or a combination of climate change and resource use. As fish distributions shift in response to changing landscape conditions, the best available fish distribution data would be used to update the Aquatic Resource Value model and identification of high-value watersheds as part of the adaptive management process.

2.3 Vegetation

A combination of AIM monitoring, State and Transition Models developed from the approved Ecological Site Description System, and Rapid Ecoregional Assessments would be used to evaluate potential changes in vegetative communities and to adjust the identified management actions to shift with any changes in vegetation cover type.

2.4 Wildlife

The direct connection between vegetation cover types and wildlife habitat would allow the adaptive management described for vegetation cover types to be used to guide adaptive shifts in habitat management for wildlife. This adaptive management would also include the ability to shift proposed timing restrictions to adapt to changes around critical periods, such as nesting or calving, which may result from climate change. For example, nesting seasons may start earlier compared to historic seasons because earlier spring snow and ice breakup and earlier availability of prey.

2.5 Nonnative Invasive Species

Continuing monitoring of locations and extent of nonnative invasive species infestations would be used to shift management priorities and eradication efforts to target changes caused by climate change.

2.6 Wildland Fire

The interactions between climate change, wildland fire, and resource objectives would be monitored and measured. Fire management strategies and practices would be adapted as necessary to ensure resource objectives for vegetation, air quality, wildlife, and forestry, paleontological resources, water, and fisheries continue to be met. Investments in science, research, and monitoring would be used to understand how ecosystems respond to environmental changes and to develop mitigations.

2.7 Cultural Resources

The following indicators of risk to cultural resources would be monitored as part of other resource programs: permafrost melting, increased erosion (river and coastal), and increased wildland fire activity. Based on this monitoring, management would be shifted to prioritize surveying and stabilizations of significant cultural resources at risk.

2.8 Paleontological Resources

The BLM would monitor potential risks of climate change to geologic units with high likelihood of having significant paleontological resources and prioritize those areas for survey. If accelerated soil erosion from climate change or other processes is damaging significant paleontological resources, the BLM would work with partners (as appropriate) to mitigate these impacts, salvage specimens, and, if possible, reduce further threat to other specimens at the site.

2.9 Visual Resources Management

Evidence of climate change trends affecting visual resources has not been analyzed and documented in the planning area. However, the warming trend experienced over the last 50 years has resulted in substantial increases in wildland fire, resulting in large burn areas that are slow to recover. These burn areas affect, and will continue to affect, visual resources by creating readily apparent contrast in vegetation cover until revegetation occurs.

By the 2060s, it is forecast that erosion caused through thermokarst or other permafrost slumping and thaw may affect viewsheds near large rivers and coastlines. If climate warming or any subsequent effect of warming promotes human development in the planning area, that could also affect visual resources.

2.10 Lands with Wilderness Characteristics

Evidence of climate change trends affecting lands with wilderness characteristics have not been analyzed and documented in the planning area. The warming trend experienced over the last 50 years has not been shown to be a cause in altering the quality of wilderness character in any regions of the planning area.

A re-inventory of project areas for wilderness characteristics would occur whenever projects are triggered for adaptive management to climate change. Adjustment of the administrative boundary of areas allocated to protect wilderness characteristics would be undertaken if necessary during these adaptive management actions.

2.11 Forestry and Woodland Products

Monitoring of vegetation and shifts to climate change would inform shifts in location and priority for managing forestry and woodland resources.

2.12 Grazing

AIM monitoring, State and Transition Models, and Alaska-specific rangeland health monitoring in grazed areas would be used to determine appropriate adaptive shifts in grazing required to address potential climate change effects. These could include changes in caribou migration and changes in forage type, coverage, and location.

2.13 Locatable and Salable Minerals

The BLM would continue working with permittees to monitor climate change impacts on mining and would adjust individual plan requirements, as needed, to address any such impacts. These could include (but are not limited to) the following:

- Changes in requirements for mine operations to address potential changes in water availability due to climate change (e.g., requirements for dust abatement, stringent control of hazardous materials at mine site, differing requirements for tailings ponds and dams).
- Changes in permafrost conditions and how that may change requirements related to tailings ponds/dams, overland access, and available placer resources.
- Expanded exploration potential for resources at recently exposed areas from retreating glaciers.
- Use of seed mixtures that provide vegetation cover types that are resilient to potential climate changes. This may involve alterations in desired future vegetation conditions that emphasize resiliency, ecosystem function and comparable habitat value over restoration to native species only.

2.14 Leasable Minerals

The BLM has designated the bulk of the planning area open to leasable exploration, even though the demand does not currently exist. This is to allow flexibility to adjust to increased accessibility or increased demand by local communities as a result of climate change.

2.15 Lands and Realty

As required based on changes in climate, the BLM would consider providing opportunities for community relocation using right-of-way grants, permitting, exchanges, Recreation and Public Purposes Act, leases, or other appropriate permitting actions as determined mutually beneficial for the community and the long-term sustainability of BLM-managed public lands.

2.16 Recreation and Visitor Services

Climate change has increased interest in glacier viewing due to marked recession of many glaciers in Alaska. The planning area does not contain glaciers, but increased tourism from this associated activity in other parts of the state could raise visitation with other recreation opportunities within the planning area.

Summer recreation activities such as hunting and camping have increased over the last 50 years. Some of this increase may be attributed to an increase in snow-free days, although this increase could also be attributed to improved modes of access (e.g., aircraft, off-highway vehicles [OHVs]) (ADNR 2016). However, access for recreation use in the roadless planning area requires a commitment of resources substantially greater than recreation access in roaded areas. Access for summer recreation predominantly relies either on small aircraft or small boats. Overland access for summer recreation is very difficult due

to the predominance of impassable wetlands. Access for winter recreation is typically by small aircraft and snowmobiles. The frequency of participation in recreation activities that do not involve resource consumption (e.g., hunting, fishing, berry picking) is extremely low. The largest number of “non-consumptive” recreationists may involve persons travelling with or spectating long-distance winter overland races such as the Iditarod Sled Dog Race or Iron Dog Snowmobile Race.

Conversely, winter recreation activity use levels, such as snowmobiling on the Iditarod National Historic Trail (INHT), may have decreased within the last 50 years due to fewer days with adequate snow cover. In general, summer recreation levels could increase, and winter recreation levels could decrease with the expected lengthening of the summer season and warmer average annual temperatures. However, increasing fire frequency could reduce visitation to areas impacted by smoke or recently burned areas. The traveling season on the INHT could shorten due to predicted wintertime warming.

Travel management actions identified along the INHT and Unalakleet Wild River corridors are designed to address climate change impacts.

2.17 Travel and Transportation Management

Travel and transportation are limited by seasonal changes in ground cover (e.g., tundra, wetland, snow). Management will be defined to allow flexibility for adapting to seasonal conditions and any subsequent new technology to overcome changing conditions. Additionally, travel limitations related to sensitive vegetation cover types and habitats would allow flexibility in travel management to changes in the location of these sensitive habitats due to climate change.

In terms of adaptive management, if resource monitoring required under the Resource Management Plan indicates substantial travel-related disturbance to these resources, implementation level travel management planning would be conducted at a geographic scale appropriate to address those concerns.

2.18 Areas of Critical Environmental Concern

Potential changes in Areas of Critical Environmental Concern (ACECs) and resulting adaptive management are represented by those changes and management described for other resources that are found in the ACECs, including Vegetation, Cultural Resources, Wildlife, and Water Resources and Fisheries.

2.19 National Trails

The BLM has developed adaptive management that allows flexibility in seasonal limitations on OHV use to ensure that this type of use occurs only when conditions are appropriate to prevent impacts. Because these seasonal limitations are based on site condition, not specific dates, they are flexible and responsive to climate change. Key features along the INHT are also prioritized for fuels reduction and fire management to reduce risks associated with potential increased fire intensity and frequency due to climate change. Additionally, proposed trail management includes the monitoring of shifting resource condition with resulting changes in allowed uses to minimize that damage.

Based on potential changes in climate, the BLM would promulgate supplementary rules, consistent with the INHT’s comprehensive management plan, to implement time-of-use rules related to winter use beginning and ending dates that reflects the actual yearly beginning and ending dates of sufficient snow cover.

2.20 Wild and Scenic Rivers

Limitations on OHV use in the wild and scenic river corridors were developed to be responsive to conditions, not fixed dates. This allows flexibility for allowable OHV use to adjust with changing climatic conditions.

2.21 Hazardous Materials and Health and Human Safety

The management criteria for prioritizing cleanup of hazardous materials and for storing and using hazardous material are based on material and site condition, and therefore would be adaptive responsive to any changes associated with climate change.

2.22 Support for BSWI Communities

Communities in rural Alaska and the Arctic are especially vulnerable to climate change (Arctic Council 2013). Regular monitoring and collaboration with rural communities will provide a mechanism for the BLM to be responsive to community needs in the face of climate change. Additionally, adaptive management in other resource areas such as Vegetation, Wildlife, Cultural, and Transportation will assist in continuing to provide for long-term sustainability and access to resources upon which these communities depend and that are part of their cultural heritage.

Section 3. References

- ADNR (Alaska Department of Environmental Conservation). 2016. North to the future: Alaska's Statewide Comprehensive Outdoor Recreation Plan (SCORP): 2016–2021.
- Arctic Council. 2013. Arctic Resilience Interim Report 2013. Stockholm Environment Institute and Stockholm Resilience Centre, Stockholm.
- DOI (United States Department of the Interior). 2009. Adaptive Management: The U.S. Department of the Interior Technical Guide. B.K. Williams, R.C. Szaro, and C.D. Shapiro. Adaptive Management Working Group, U.S. Department of the Interior, Washington, DC. ISBN 978-1-4133-2478-7.

Appendix K: Mitigation Standards

Appendix K. Mitigation Standards

Section 1. Introduction

The term *mitigation* encompasses measures or procedures that could reduce or avoid adverse impacts and are not incorporated into the proposed action. Mitigation is a key component of the Bureau of Land Management's (BLM's) multiple-use sustainable yield mandate. When one permitted use could diminish a different permitted use, the application of mitigation standards can ensure multiple uses are balanced and provide for sustainable yields.

For National Environmental Policy Act (NEPA) purposes, under Council on Environmental Quality regulations, 40 Code of Federal Regulations (CFR) 1508.20, mitigation may include one or more of the following:

- (a) Avoiding the impact altogether by not taking a certain action or parts of an action;
- (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation;
- (c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
- (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and/or
- (e) Compensating for the impact by replacing or providing substitute resources or environments. Note that in 2018 BLM established a policy that except where a law specifically requires or as described in the policy, the BLM must not require compensatory mitigation from public land users. Compensation can be offered on a voluntary basis by the project sponsor but cannot be required by BLM (BLM 2018).

When assessing appropriate mitigation options, the BLM relies upon the mitigation hierarchy—first seeking to avoid impacts, then minimizing them, and then compensating for unavoidable impacts that could impair the productivity of the land and the values it sustains. The BLM works proactively with project proponents to assist them in designing and siting projects so that proposed projects can have fewer adverse impacts to resources of concern. Together, proactive work with the applicant and the implementation of the mitigation hierarchy can lead to successful development projects with improved outcomes for local communities, the project proponent, and the environment.

Section 2. How to Use this Appendix

This appendix provides a single location where BLM's goals and standards for mitigation can be referenced by BLM staff, project sponsors, and members of the public. It is often the case that a proposed action could have impacts on multiple resources. For example, a proposed road might intersect with an important fisheries habitat, the location of a significant cultural resource, and a recreational trail. This appendix outlines the mitigation goals that would apply to each impacted resource, allowing all interested parties to reference them easily. Mitigation described in this appendix is distinct from that required under Section 404 of the Clean Water Act.

Each sub-heading below corresponds to a resource area covered by the Bering Sea–Western Interior (BSWI) Proposed Resource Management Plan (RMP)/Final Environmental Impact Statement (EIS). Potential impacts and mitigation for each resource are discussed in more detail in the corresponding Chapter 3 sections of the Proposed RMP/Final EIS document.

Section 3. Mitigation Goals by Resource Area

3.1 Air and Air Quality-Related Values

Permitted activities would not have a no-net-loss¹ goal with regards to air quality. However, permittees would be required to mitigate to a level that meets requirements of the FLPMA, as well as applicable National Ambient Air Quality Standards and other applicable standards that provide for human health and safety and meet visual resource management (VRM) requirements.

3.2 Soils

Permitted activities would not have a no-net-loss mitigation goal with regards to soil resources. However, actions would be required to meet the requirements of FLPMA as well as to reclaim per soil and vegetation reclamation, riparian and stream disturbance/reclamation, and fisheries rehabilitation requirements described for Locatable and Salable Minerals in the RMP. Permittees would also be required to mitigate to a level that meets all other applicable requirements mandated in the RMP and ensures the long-term sustainability of watershed health and function.

3.3 Water Resources and Fisheries

Permitted activities impacting Essential Fish Habitat (EFH) within all identified high-value watersheds (HVWs) would have a goal of no net loss. For EFH, the performance standard for no net loss would restore riparian function, assure stable channel form, and progress toward higher Stream Functional Objectives. Activities would achieve this performance standard through implementation of the mitigation hierarchy: avoid, minimize, rectify, reduce, or eliminate over time (BLM 2018). This required mitigation (including avoidance and minimization) would be determined through site-specific NEPA analysis at the project implementation/permitting level. However, potential recovery opportunities to offset net loss include the following:

- Restoration of identified Restoration Watersheds. These would include watersheds prioritized for restoration with medium-high or high aquatic resource value and low watershed condition.
- All Notice and Plan operations with stream disturbance require reclamation to rehabilitate fisheries and wildlife habitat consistent with 43 CFR 3809.420 and BLM Handbook H-3809-1 (BLM 2012). In cases where modern mining is planned for areas that are historically degraded from past land use practices, the reclamation would be expected to improve overall aquatic resource condition by rehabilitating habitats.

Additionally, permitted activities with the potential to impact community water supply water quality would have a goal of no net loss. The performance standard for no net loss would be maintenance of applicable water quality standards for safe drinking water. The required mitigation (including avoidance and minimization) to meet this performance standard would be determined through site-specific NEPA analysis and project implementation/permitting level. Potential recovery opportunities to offset net loss include the following:

¹ “No net loss” is defined as when mitigation results in no negative changes to baseline conditions (e.g., impacts are fully offset or balanced) (BLM 2016).

- Ensure water quality complies with federal and State water quality standards and achieves, or is making significant progress toward achieving, established BLM-management objectives, such as meeting wildlife needs (BLM Alaska Land Health Standards) by adopting federal and State water quality standards as specific BLM objectives for permitted activities.
- Reverse declines in the quality and quantity of aquatic habitats to ensure improvement of watershed health toward potential natural conditions (PNCs).
- Work to restore 303(d)-listed streams or other streams impacted from past land uses in the planning area to improve conditions toward PNC.
- Prioritize application to the State of Alaska for water rights to preserve required flows in the Nulato watershed, HVWs, Areas of Critical Environmental Concern (ACECs), and Wild and Scenic River (WSR) corridors. The BLM would pursue instream flow reservations of water for the following rivers and may prioritize additional rivers in HVWs or ACECs:
 - Anvik River
 - Big River
 - Gisasa River
 - Kateel River
 - North River
 - Swift River
 - Unalakleet River
- The purpose of pursuing these water rights may include the following:
 - Maintain year-round flows necessary to sustain fish and wildlife habitat, migration, and propagation within and adjacent to said river.
 - Maintain or improve recreational opportunities.
 - Meet navigation and transportation goals.
 - Meet sanitary and water quality goals.

3.4 Vegetation

Permitted activities affecting special status species (SSS) flora and rare ecosystems would have a no-net-loss mitigation goal. For SSS flora and rare ecosystems, the no-net-loss goal performance standard would be maintenance of those populations and ecosystems at the same level of population size, health, and community diversity as before the action was taken. Activities would achieve this performance standard through implementation of the mitigation hierarchy; avoidance of impacts and then minimization of remaining impacts (BLM 2018). The required mitigation (avoidance and minimization) to meet this performance standard would be determined through site-specific NEPA analysis at the project implementation/permitting level.

3.5 Wildlife

Permitted activities affecting wildlife habitat would not have a no-net-loss mitigation goal. However, permittees would have to mitigate as necessary to meet the requirements of FLPMA as well as any mitigation requirements identified in the revised RMP.

3.6 Nonnative Invasive Species

Permitted activities would not have a no-net-loss mitigation goal with regard to nonnative invasive species (NNIS). However, permittees would be required to mitigate as required by FLPMA, and to a level that meets all other applicable requirements mandated in the RMP, thereby minimizing the extent of NNIS species to the maximum extent possible.

3.7 Wildland Fire

Permitted activities would not have a no-net-loss mitigation goal with fire management actions. However, activities that would increase the probability of human-caused ignitions or require additional protection measures would require mitigation as necessary to meet the requirements of FLPMA as well as applicable requirements mandated in the RMP to ensure the long-term sustainability of resources in the planning area while prioritizing protection of human lives and property. Specific mitigation requirements would be addressed during the NEPA process for project permitting. Examples include the following:

- Roads (potential increase in human-caused ignitions would require mitigation through fuels treatments)
- Powerlines (potential increase in human-caused ignitions would require mitigation through fuels treatments)
- Mining camps (potential increase in human-caused ignitions and additional protection measures would require mitigation through fuels treatments)

3.8 Cultural Resources

Permitted activities affecting culturally significant areas would have a no-net-loss mitigation goal. For cultural resources, the no-net-loss performance standard and the determination of whether it meets that standard would be made on a case-by-case basis through project-specific Section 106 consultation with the State Historic Preservation Office (SHPO) at the project implementation/permitting level. Activities would achieve this performance standard through implementation of the mitigation hierarchy: avoidance of impacts first and then minimization of impacts that cannot be avoided (BLM 2018). This required mitigation (avoidance and minimization) would also be determined through the Section 106 consultation process at the project implementation/permitting level.

3.9 Paleontological Resources

Permitted activities would not be required to meet a net gain or no-net-loss mitigation standard with regards to paleontological resources. However, permittees would be required to mitigate to a level that meets the requirements of FLPMA, as well as all other applicable requirements mandated in the RMP, and ensures the long-term preservation of paleontological resources in the planning area (BLM 2008).

3.10 Visual Resources Management

Permitted activities would not be required to meet a net gain or no-net-loss mitigation goal with regard to visual resources. However, permittees would be required to mitigate to a level that meets the requirements of FLPMA and all other applicable requirements mandated in the RMP and, specifically, is consistent with VRM requirements.

3.11 Lands with Wilderness Characteristics

Permitted activities would not be required to meet a net gain or no-net-loss mitigation standard with regards to mitigating impacts to lands with wilderness characteristics. Permittees would, however, be required to mitigate to a standard that meets the requirements of FLPMA and does not adversely impact those wilderness characteristics for lands that the RMP determines will be managed for wilderness characteristics as a priority. For those lands where the BLM had determined it will not manage for wilderness characteristics as priority, permittees would still be required to mitigate to a level that meets all other applicable requirements in the regulations or mandated in the RMP. These RMP mitigations would provide a measure of protection for wilderness characteristics present on these lands.

3.12 Forestry and Woodland Products

Permitted activities would not be required to meet a net gain or no-net-loss mitigation standard with regards to forestry and woodland products. However, permittees would be required to mitigate to a level that meets the requirements of FLPMA, as well as all other applicable requirements mandated in the RMP, and ensures the long-term sustainability of resources supporting woodland harvest areas.

3.13 Reindeer Grazing

Permitted activities would not be required to meet a net gain or no-net-loss mitigation standard with regards to reindeer grazing. However, permittees would be required to manage reindeer grazing such that it is compliant with the requirements of FLPMA, BLM Alaska Land Health Standards, and any other promulgated range health standards. They would also have to manage at a level that meets all other applicable requirements mandated in the RMP.

3.14 Locatable and Salable Minerals

Permitted activities would not be required to meet a net gain or no-net-loss mitigation standard with regards to locatable and salable mineral development. They would be required to mitigate to a level that ensures no unnecessary or undue degradation as mandated by 43 CFR 3809 and 43 CFR 3715.

3.15 Leasable Minerals

Permitted leasable mineral development would not be required to meet a net gain or no-net-loss mitigation standard. However, permittees would be required to mitigate to a level that meets the requirements of FLPMA, as well as all applicable requirements mandated in the RMP, and any stipulations and requirements through their respective mineral leases.

3.16 Lands and Realty

Permitted land and realty activities would not be required to meet a net gain or no-net-loss mitigation standard. However, permittees would be required to comply with FLPMA and the Alaska National Interest Lands Conservation Act (ANILCA) and meet all other applicable requirements mandated in the RMP.

3.17 Recreation and Visitor Services

Permitted recreational activities would not be required to meet a net gain or no-net-loss mitigation standard. Permittees would be required to mitigate to a level that meets the requirements of FLPMA, as

well as all applicable requirements mandated in the RMP, ensures long-term resource sustainability, and provides for human health and safety.

3.18 Travel and Transportation Management

Travel and transportation activities would not be required to meet a no-net-loss or net gain mitigation standard. Permittees would be required to mitigate to a standard that meets the requirements of FLPMA, all applicable requirements from the RMP, complies with ANILCA, maintains long-term resource sustainability, and ensures public health and safety.

3.19 Areas of Critical Environmental Concern

Any permitted development affecting EFH in the Sheefish or Swift River Whitefish Spawning ACECs would have a no-net-loss mitigation goal. For EFH in these ACECs, the performance standard for no net loss would be geomorphic stability with adequate floodplain vegetation to dissipate flood energy (BLM Surface Management Handbook H-3809-1) with an upward trend. Mitigation can voluntarily go beyond meeting the performance standards that prevent unnecessary or undue degradation as mandated by 43 CFR 3809 and 43 CFR 3715. Such mitigation activities could achieve this performance standard through voluntary implementation of the mitigation hierarchy; avoidance of impacts first, minimization of impacts that cannot be avoided, and if there are residual impacts after these two steps, compensation for those remaining impacts (BLM 2018). This required mitigation (avoidance and minimization) would be determined through site-specific NEPA at the project implementation/permitting level. Potential recovery opportunities to offset net loss include those identified for EFH in HVWs in the Water Resources and Fisheries section of the RMP.

3.20 National Trails

Permitted development affecting intact Iditarod National Historic Trail (INHT) segments, their settings, and associated sites, or the resources associated with the nature and purpose of the INHT would have a no-net-loss goal. For the INHT, the no-net loss performance standard and the determination of whether a project meets that standard would be made on a case-by-case basis through project-specific NEPA analysis and, if necessary, Section 106 consultation with the SHPO at the project implementation/permitting level. Activities would achieve the identified performance standard through implementation of the mitigation hierarchy; avoidance of impacts first and then minimization of impacts that cannot be avoided (BLM 2018). This required mitigation (avoidance and minimization) would also be determined on a case-by-case basis through project-specific NEPA analysis, and, if necessary, the Section 106 consultation process at the project implementation/permitting level.

The BLM would continue to work with adjacent landowners to manage for a no-net-loss goal, and if possible, net gain to INHT integrity, setting, and resources for segments of the INHT that are not located on BLM-managed public lands.

3.21 Wild and Scenic Rivers

Permitted development affecting designated WSR corridors would not have a no-net-loss mitigation goal. However, permittees would be required to mitigate to a level that is consistent with FLPMA and with protecting and enhancing the outstandingly remarkable values for which the WSR has been designated. Additionally, they would be required to mitigate to be compliant with all applicable requirements in the RMP.

3.22 Hazardous Materials and Health and Human Safety

Permitted development associated with hazardous materials would not have a no-net-loss mitigation goal. However, permittees would be required to mitigate to a level that meets the requirements of FLPMA and is compliant with all applicable federal, State, and local laws and regulations, as well as requirements in the RMP.

3.23 Support for BSWI Communities

Permitted projects with the potential to impact local rural communities would not have a no-net-loss mitigation goal. However, permittees would be required to mitigate to a level that meets the requirements of FLPMA and is compliant with ANILCA and the applicable requirements in the RMP.

Section 4. References

BLM (Bureau of Land Management). 2008. Instruction Memorandum (IM) 2009-011. Assessment and Mitigation of Potential Impacts to Paleontological Resources. October 10, 2008. Expires September 30, 2010.

BLM. 2012. BLM Handbook 3809-1, Surface Management. Available at:
<https://www.blm.gov/sites/blm.gov/files/H-3809-1.pdf> (accessed December 20, 2018).

BLM. 2016. BLM Handbook 1794-1, Mitigation. December 22.

BLM. 2018. IM 2019-018. Compensatory Mitigation. Supersedes IM No. 2018-093. December 6, 2018. Expires September 30, 2022.

This page intentionally left blank

Appendix L: Aquatic Resource Value (ARV) Model Information

Appendix L. Aquatic Resource Value (ARV) Model Information

Section 1. Introduction

To identify the highest resource value aquatic habitats, the Bureau of Land Management (BLM) developed a priority ranking system using a combination of automated GIS modelling and professional judgment. Priority ranking for each of the 726 6th level (12-digit) Hydrologic Unit Code (HUC6) watersheds that contained BLM-managed lands in the Bering Sea–Western Interior (BSWI) planning area was based on a variety of factors using an Aquatic Resource Value (ARV) model. The primary aquatic factors considered in the model were priority fish species presence, diversity of species, habitat conditions, and productivity. The ARV scores were then grouped into four distinct classes with similar scores described as Low, Medium, Medium-High, or High to allow development of a range of alternatives for consideration in the Land Use Plan (LUP).

BLM Manual H-1601-1 provides guidance on Land Use Planning, including what types of resource decisions should be made at the LUP level. For fish and wildlife resources, the manual provides the following required LUP decisions:

- Designate priority species and habitats.
- Identify desired outcomes using BLM Strategic Plans, State Plans, and other similar sources.
- Identify desired habitat conditions.
- Identify actions and area-wide use restrictions needed to achieve desired population and habitat conditions while maintaining a thriving natural ecological balance and multiple-use relationships.

To meet these plan requirements for aquatic resources, BLM Alaska has outlined a systematic approach that includes three steps:

1. Identifying priority fish species
2. Identifying priority habitats
3. Watershed prioritization that provides for priority fish species and aquatic habitats in the development of alternatives

Each of these steps is discussed in the following, corresponding sections.

Section 2. Priority Fish Species

To identify priority species, BLM fish biologists considered fish species that are important for subsistence or recreation within the planning areas (Table 1).

Table 1. Draft List of Priority Fish Species Common on BLM-Managed Lands in Alaska

Common Name	Scientific Name	Priority Status
Chinook salmon	<i>Oncorhynchus tshawytscha</i>	Subsistence, Recreation
Chum salmon	<i>Oncorhynchus keta</i>	Subsistence
Coho salmon	<i>Oncorhynchus kisutch</i>	Subsistence, Recreation
Arctic grayling	<i>Thymallus arcticus</i>	Subsistence, Recreation
Broad whitefish	<i>Coregonus nasus</i>	Subsistence
Humpback whitefish	<i>Coregonus pidschian</i>	Subsistence
Round Whitefish	<i>Prosopium cylindraceum</i>	Subsistence
Whitefish	<i>Coregoninae</i> spp.	Subsistence
Least cisco	<i>Coregonus sardinella</i>	Subsistence
Sheefish	<i>Stenodus leucichthys</i>	Subsistence, Recreation
Northern pike	<i>Esox lucius</i>	Subsistence, Recreation
Burbot	<i>Lota lota</i>	Subsistence, Recreation
Alaska Brook Lamprey	<i>Lampetra alaskense</i>	BLM sensitive

Section 3. Identification of Priority Habitats

To identify priority habitats and conditions across the planning areas, BLM utilized a landscape-level approach to evaluate ARVs (Table 2). This approach was adapted from one that was used in the Eastern Interior Resource Management Plan (RMP) process and Trout Unlimited's Conservation Success Index (William et al. 2007). One of the key policy considerations is the use of a landscape approach to identify priority habitats, as outlined in BLM Instruction Memorandum 2009-141. This policy outlines BLM's commitment to the National Fish Habitat Action Plan and establishes four goals:

1. Protect and maintain intact and healthy aquatic systems.
2. Prevent further degradation of fish habitats that have been adversely affected.
3. Reverse declines in the quality and quantity of aquatic habitats to improve the overall health of fish and other aquatic organisms.
4. Increase the quality and quantity of fish habitats that support a broad natural diversity of fish and other aquatic species.

The ARV model approach is consistent with these National Fish Habitat Action Plan goals.

Table 2. ARV Model Inputs

Value	Definition	Score
Essential Fish Habitat Present	Using the Alaska Department of Fish & Game Anadromous Waters Catalog (AWC), GIS data, and/or professional knowledge, determine if salmon species occur in the watershed.	2 points
Fish Species Diversity	Based on reports and/or professional knowledge, determine the number of fish species occurring in the watershed.	1-2 species = 1 point 3-4 species = 2 points 5-6 species = 3 points 7-8 species = 4 points > 9 species = 5 points
Anadromous Species Present (Non Salmon)	Using the AWC GIS data, select watersheds that contain non-salmon species (whitefish, lamprey, etc.).	2 points
Unique or Rare Fishery Resource or Habitat (incl. BLM Special Status Species/Watch sp.)	All known spawning areas for priority species based on the AWC GIS data and professional judgment (5 points). Determination of unique resources or habitats based on professional judgment (5 points).	5 + 5 points

Section 4. Watershed Prioritization—ARV Model Results and Classification

ARV numeric scores were summed for each of the 726 HUC6 watersheds. The ARV score results had a minimum score of 0 and a maximum score of 14 (of a possible maximum of 19), with a mean of 5.53 and a standard deviation (SD) of 4.31. No unique or rare fishery professional judgment points were used in the current analysis, but they may be necessary in future model runs to assure protection of not yet known unique fisheries resources that are not a part of the AWC.

An SD classification method was used to classify the ARV scores into four classes: Low, Medium, Medium-High, and High. The classification break between Low and Medium is 3.38, 0.5 SD below the mean (i.e., mean-0.5SD). The classification break between Medium and Medium-High is 7.69, 0.5 SD above the mean. The classification break between Medium-High and High is 9.84, 1 SD above the mean.

Figures 1 and 2 show the results of the ARV model SD classification for the four classes for the BSWI HUC6 watersheds.

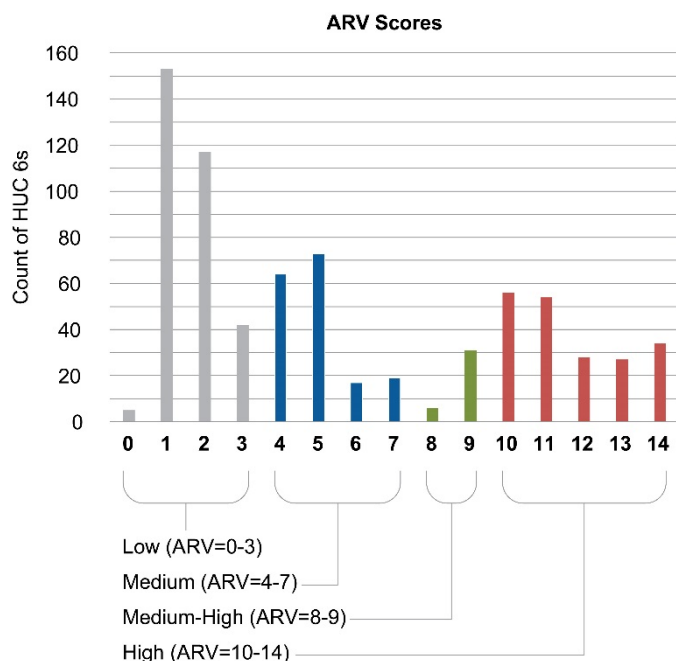


Figure 1. ARV Model Results. Histogram showing the 15 ARV scores along the horizontal axis and the count of watersheds that received each score on the vertical axis.

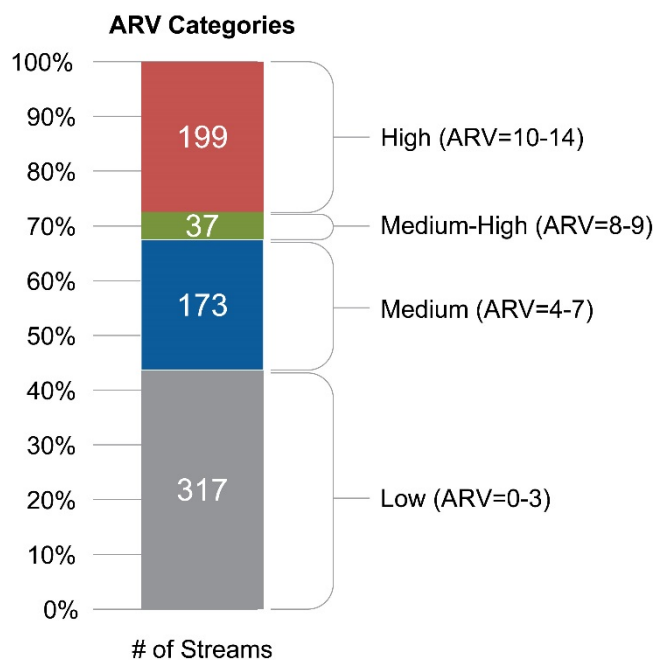


Figure 2. ARV Classification Results. Stacked bar chart showing the proportion and count of watersheds with BLM lands in the BSWI plan in each ARV class.

Section 5. *Conclusions—High Value Watersheds (HVWs) by Alternative*

The ARV model examined all HUC6 watersheds with BLM lands in the planning area assessing different ecological attributes and assigned them ARV scores. These scores were classified into four groups using a

SD classification scheme. The four categories of ARV scores were used in the Proposed BSWI RMP to vary by plan alternative the number of watersheds to be managed as HVWs as follows:

- Alternative A: Existing management has no HVWs.
- Alternative B: ARVs with a rating of High, Medium-High, and Medium were selected to be HVWs.
- Alternative C: ARVs with a rating of High and Medium-High were selected to be HVWs.
- Alternative D: ARVs with a rating of High were selected to be HVWs.
- Alternative E: ARVs with a rating of High were selected to be HVWs.

Section 6. References

Williams, J. E., A. L. Hank, N. G. Gillespie, and W. T. Colyer. 2007. The conservation success index: synthesizing and communicating salmonid condition and management needs. *Fisheries* 32:477-492.

This page intentionally left blank

Appendix M: BLM Sensitive Species List

Eligibility Criteria from BLM 6840 - Special Status Species Manual (2008)

6840.06.2(A) *Species designated as Bureau sensitive must be native species that occur on BLM lands, and for which BLM has significant management capability to affect their conservation status. In addition, one of the following two criteria must also apply:*

- (1) *There is information that a species is known or predicted to undergo a downward trend such that viability of the species or a distinct population segment of the species is at risk across all or a significant portion of its range, or*
- (2) *The species depends on ecological refugia, specialized habitats or unique habitats, and there is evidence that such areas are threatened with alteration such that the continued viability of the species in that area would be at risk.*

Standardized Formula for Inclusion on Special Status Species List

A standardized formula for determining the BLM Special Status Species (SSS) list inclusion was used to increase transparency and repeatability of the process. However, not all information is published on species status population, trend, and geographic distribution, so some expert input through personal communication was used in situations where information is lacking and specialized knowledge is harbored by a BLM biologist, Alaska Department of Fish and Game (ADFG), or other partner.

SSS LIST CANDIDATE SCREENING FOR ANIMALS AND PLANTS: Does the species occur on BLM-managed land in a way BLM could have “*significant management capability to affect their conservation status*” either positively or negatively AND is the species in a downward trend OR does it rely on threatened unique habitats? If “yes”, the species is a candidate and it goes to the review process below, if “no”, end consideration of the species.

The process for candidate animals is as follows:

1. If the species is an Endangered Species Act Endangered, Threatened, Proposed, or Candidate species, or a species that has been delisted in the last five years, it is automatically on the BLM SSS List as a special status species
2. NatureServe G4 + S3 or G5 + S2 or higher = “Sensitive”
3. (G5 + S4) + (2 or more of the following: FWS Birds of Conservation Concern or ADFG Stewardship Species or Partners in Flight or Audubon Alaska or Yukon or Weiser 2018) = “Sensitive”
4. (G5 + S4) + Expert input = “Sensitive”
5. G5 + S4 = “Watchlist”
6. (G5 + S5) + other lists and known threats or declines (expert input) = “Watchlist”.

The process for candidate plants is as follows:

1. G1 or G2 or G3 = “Sensitive”, if not, then;
2. S1 = “Sensitive”, if not, then;
3. S2 or S3 = “Watchlist”, if not, then;
4. G3G4 = “Watchlist”.

Note that only “Sensitive” has official BLM status under 6840 policy. The “Watchlist” is a list of species that were candidates for “Sensitive” and did not warrant inclusion, but are recorded to document that process, raise awareness, and retain them for the next Special Status Species List review process. Note that unless otherwise specified, species with a range ranking (e.g. S1S2, G2G3) are rounded to the lower number, following BLM national practices.

BLM SENSITIVE ANIMALS (37)

Birds (22)

Scientific Name	Common Name
<i>Brachyramphus brevirostris</i>	Kittlitz's Murrelet
<i>Branta canadensis occidentalis</i>	Dusky Canada Goose
<i>Calcarius pictus</i>	Smith's Longspur
<i>Calidris alpina arctica</i>	Dunlin <i>arctica</i>
<i>Calidris canutus roselaari</i>	Red Knot
<i>Calidris ptilocnemis ptilocnemis</i>	Bering Sea (Pribilof Island) Rock Sandpiper
<i>Calidris subruficollis</i>	Buff-breasted Sandpiper
<i>Contopus cooperi</i>	Olive-sided Flycatcher
<i>Euphagus carolinus</i>	Rusty Blackbird
<i>Gavia adamsii</i>	Yellow-billed Loon
<i>Gavia stellata</i>	Red-throated Loon
<i>Limosa fedoa beringiae</i>	Marbled Godwit
<i>Limosa haemastica</i>	Hudsonian Godwit
<i>Limosa lapponica</i>	Bar-tailed Godwit
<i>Numenius phaeopus rufiventris</i>	Whimbrel
<i>Numenius borealis</i>	Eskimo Curlew (ESA E – presumed extinct)
<i>Numenius tahitiensis</i>	Bristle-thighed Curlew
<i>Onychoprion aleuticus</i>	Aleutian Tern
<i>Plectrophenax hyperboreus</i>	McKay's Bunting
<i>Poecile cinctus lathamii</i>	Gray-headed Chickadee
<i>Polysticta stelleri</i>	Steller's Eider (ESA T)
<i>Somateria fischeri</i>	Spectacled Eider (ESA T)

Mammals (4)¹

Scientific Name	Common Name
<i>Bison bison athabasca</i>	Wood Bison (ESA T, 10(j))
<i>Enhydra lutris kenyoni</i>	Northern Sea Otter (ESA T)
<i>Odobenus rosmarus divergens</i>	Pacific Walrus
<i>Ursus maritimus</i>	Polar Bear (ESA T, CH)

Invertebrates (8)

Scientific Name	Common Name
<i>Acentrella feropagus</i>	Mayfly (no common name)
<i>Alaskaperla ovibovis</i>	Alaska Sallfly
<i>Bombus bohemicus</i>	Ashton Cuckoo Bumble Bee, Gypsy Cuckoo Bumble Bee
<i>Bombus distinguendus</i>	Northern Yellow Bumble Bee, Great Yellow Bumble Bee
<i>Bombus kluanensis</i>	Bumble Bee (no common name)
<i>Bombus perplexus</i>	Confusing Bumble Bee
<i>Bombus suckleyi</i>	Suckley's Cuckoo Bumble Bee
<i>Rhithrogena ingalik</i>	Alaska Endemic Mayfly

Fish (3)

Scientific Name	Common Name
<i>Lampetra alaskensis</i>	Alaskan Brook Lamprey
<i>Onchorhynchus mykiss</i>	Steelhead (Gulkana River)
<i>Salvelinus alpinus</i>	Arctic Char (Kigluaik Mtns)

ESA – Endangered Species Act, E – Endangered, T – Threatened, 10(j) – ESA section 10(j) experimental population, CH – ESA Critical Habitat

¹ Note that numerous ESA and MMPA marine mammal species may occur in areas where BLM has management authority of marine areas or may be impacted by offsite effects related to BLM actions (e.g., marine vessel traffic). These species are not included on this list but would necessitate additional BLM impacts analysis.

BLM SENSITIVE PLANTS (51)

Scientific Name	Common Name	Family
<i>Antennaria densifolia</i>	Denseleaf Pussytoes	Asteraceae
<i>Arnica lonchophylla</i> ssp. <i>lonchophylla</i> (<i>A. lonchophylla</i>)	Longleaf Arnica	Asteraceae
<i>Artemisia globularia</i> var. <i>lutea</i>	Purple Wormwood	Asteraceae
<i>Artemisia senjavinensis</i>	Arctic Wormwood	Asteraceae
<i>Botrychium spathulatum</i>	Spoon-leaf Moonwort	Ophioglossaceae
<i>Carex laxa</i>	Weak Sedge	Cyperaceae
<i>Carex parryana</i>	Parry Sedge	Cyperaceae
<i>Claytonia ogilviensis</i>	Ogilvie Mountain Springbeauty	Montiaceae
<i>Cochlearia sessilifolia</i>	Sessileleaf Scurvygrass	Brassicaceae
<i>Cryptantha shackletteana</i>	Shacklette's Cryptantha	Boraginaceae
<i>Douglasia arctica</i> (<i>Androsace americana</i>)	Mackenzie's River Douglasia	Primulaceae
<i>Douglasia beringensis</i> (<i>Androsace beringensis</i>)	Arctic Dwarf-Primrose	Primulaceae
<i>Draba micropetala</i>	Small-flowered Draba	Brassicaceae
<i>Draba murrayi</i>	Kathul Mountain Draba	Brassicaceae
<i>Draba ogilviensis</i>	Ogilvie Range Draba	Brassicaceae
<i>Draba pauciflora</i>	Fewflower Draba	Brassicaceae
<i>Erigeron muirii</i>	Muir's fleabane	Asteraceae
<i>Gentianopsis richardsonii</i>	no common name	Gentianaceae
<i>Juncus articulatus</i>	Jointed Rush	Juncaceae
<i>Mertensia drummondii</i>	Drummond's Bluebells	Boraginaceae
<i>Micranthes nelsoniana</i> ssp. <i>insularis</i>	no common name	Saxifragaceae
<i>Micranthes porsildiana</i> (<i>M. nelsoniana</i> var. <i>porsildiana</i>)	Porsild's Saxifrage	Saxifragaceae
<i>Montia vassilievii</i> ssp. <i>vassilievii</i>	Bostock's Minerslettuce	Montiaceae
<i>Orobanche uniflora</i>	Naked Broom-rape	Orobanchaceae
<i>Oxytropis kokrinensis</i>	Kokrines Locoweed	Fabaceae
<i>Papaver gorodkovii</i>	Arctic Poppy	Papaveraceae
<i>Parrya nauruaq</i>	Naked-stemmed Wallflower	Brassicaceae
<i>Pedicularis hirsuta</i>	Hairy Lousewort	Orobanchaceae
<i>Phacelia mollis</i>	Soft Phacelia	Hydrophyllaceae

Scientific Name	Common Name	Family
<i>Physaria calderi</i>	Calder's Bladderpod	Brassicaceae
<i>Pleuropogon sabinei</i>	False Semaphoregrass	Poaceae
<i>Poa hartzii ssp. alaskana</i>	Alaskan Bluegrass	Poaceae
<i>Poa macrantha</i>	Seashore Bluegrass	Poaceae
<i>Poa porsildii</i>	Porsild's Bluegrass	Poaceae
<i>Poa sublanata</i>	no common name	Poaceae
<i>Podistera yukonensis</i>	Yukon Podistera	Apiaceae
<i>Potentilla fragiformis</i>	Strawberry Cinquefoil	Rosaceae
<i>Primula tschuktschorum</i>	Chukchi Primrose	Primulaceae
<i>Puccinellia banksiensis</i>	no common name	Poaceae
<i>Puccinellia vaginata</i>	Sheathed Alkaligrass	Poaceae
<i>Ranunculus pacificus</i>	Pacific Buttercup	Ranunculaceae
<i>Ranunculus ponojensis</i>	no common name	Ranunculaceae
<i>Ranunculus turneri ssp. turneri</i>	no common name	Ranunculaceae
<i>Romanzoffia unalaschcensis</i>	Alaska Mistmaiden	Hydrophyllaceae
<i>Rumex aureostigmaticus</i>	no common name	Polygonaceae
<i>Rumex beringensis</i>	Bering Sea Dock	Polygonaceae
<i>Rumex krausei</i>	Krause's Sorrel	Polygonaceae
<i>Smelowskia johnsonii</i>	no common name	Brassicaceae
<i>Smelowskia pyriformis</i>	Pearshaped Smelowskias	Brassicaceae
<i>Symphyotrichum pygmaeum</i>	Pygmy Aster	Asteraceae
<i>Symphyotrichum yukonense</i>	Yukon Aster	Asteraceae

Plant species scientific names follow Alaska Center for Conservation Science (ACCS), and include synonyms from Integrated Taxonomic Information System (ITIS). Common names from ITIS and NatureServe.

Note that the entire species is included on the list unless there is a subspecies or variety specifically noted in the scientific name or a run (for fish) noted in the common name. The taxonomy of species and subspecies varies by taxa and was recommended by various Alaska-based taxa experts.

The BLM SSS list is used for BLM planning purposes in order to avoid and minimize potential negative impacts of a proposed project on SSS, and to prevent the need to list these species under the Endangered Species Act. The BLM also uses the list to raise awareness of rare and under-surveyed species and to prompt BLM staff to collect more data, which helps better understand the status and distribution of these species.

WATCHLIST ANIMALS (30)

Birds (12)

Scientific Name	Common Name
<i>Asio flammeus</i>	Short-eared Owl
<i>Aquila chrysaetos</i>	Golden Eagle
<i>Chen canagica</i>	Emperor Goose
<i>Cygnus buccinator</i>	Trumpeter Swan
<i>Dendragapus obscurus</i>	Blue (Sooty) Grouse
<i>Dendroica striata</i>	Blackpoll Warbler
<i>Dendroica townsendi</i>	Townsend's Warbler
<i>Falco rusticolus</i>	Gyr Falcon
<i>Limnodromus griseus</i>	Short-billed Dowitcher
<i>Pluvialis dominica</i>	American Golden Plover
<i>Riparia riparia</i>	Bank Swallow
<i>Selasphorus rufus</i>	Rufous Hummingbird

Mammals (5)

Scientific Name	Common Name
<i>Lepus othus</i>	Alaska Hare
<i>Mustela americana</i>	American Marten (Kenai subspecies)
<i>Myotis lucifugus</i>	Little Brown Bat
<i>Spermophilus parryii</i> ² (<i>Uroditellus parryi</i>)	Arctic Ground Squirrel ²
<i>Synaptomys borealis</i>	Northern Bog Lemming

Invertebrates (9)

Scientific Name	Common Name
<i>Oeneis alpina</i>	Eskimo Arctic
<i>Bombus bifarius</i>	Two Form Bumble Bee
<i>Bombus centralis</i>	Central Bumble Bee
<i>Bombus insularis</i>	Indiscriminate Cuckoo Bumble Bee
<i>Bombus neoboreus</i>	Active Bumble Bee
<i>Bombus occidentalis</i>	Western Bumble Bee

² The 2010 BLM list had Osgood's Arctic Ground Squirrel (*Spermophilus parryii osgoodi*) listed as Sensitive. Due to uncertain subspecies taxonomy and range differentiation, the entire species has been shifted to the Watchlist and should be reviewed as more information becomes available.

Scientific Name	Common Name
<i>Bombus sitkensis</i>	Sitka Bumble Bee
<i>Callophrys augustinus</i>	Brown Elfin
<i>Callophrys polios</i>	Hoary Elfin

Any of the 374 Alaska endemic invertebrates when found on BLM-managed lands ³

Fish (4)

Scientific Name	Common Name
<i>Oncorhynchus keta</i>	Chum Salmon (Clear Creek)
<i>Oncorhynchus tshawytscha</i>	Chinook Salmon (Beaver Creek)
<i>Oncorhynchus tshawytscha</i>	Chinook Salmon (Norton Sound)
<i>Oncorhynchus tshawytscha</i>	Chinook Salmon (Yukon Riv.)

WATCHLIST PLANTS (39)

Scientific Name	Common Name	Family
<i>Agoseris glauca</i>	Pale Dandelion	Asteraceae
<i>Alyssum obovatum</i>	American Madwort	Brassicaceae
<i>Ambrosia chamissonis</i>	Silver Bur Ragweed	Asteraceae
<i>Arenaria longipedunculata</i>	Longstem Sandwort	Caryophyllaceae
<i>Artemisia tanacetifolia</i>	no common name	Asteraceae
<i>Astragalus robbinsii</i> var. <i>harringtonii</i>	Harold's Milkvetch	Fabaceae
<i>Botrychium alaskense</i>	Alaska Moonwort	Ophioglossaceae
<i>Cardamine blaisdellii</i>	Small-leaf Bittercres	Brassicaceae
<i>Carex deflexa</i> var. <i>deflexa</i>	Northern Sedge	Cyperaceae
<i>Carex peckii</i>	Peck's Sedge	Cyperaceae
<i>Carex phaeocephala</i>	Dunehead Sedge	Cyperaceae
<i>Castilleja hyetophila</i>	Coastal Red Indian Paintbrush	Orobanchaceae
<i>Cypripedium parviflorum</i> var. <i>exiliens</i>	no common name	Orchidaceae
<i>Draba densifolia</i>	Denseleaf Draba	Brassicaceae
<i>Draba macounii</i>	Macoun's Draba	Brassicaceae
<i>Draba mulliganii</i>	Mulligan's Draba	Brassicaceae
<i>Erigeron porsildii</i>	Largeflower Fleabane	Asteraceae

³ These species have been identified by experts at University of Alaska Fairbanks and have been recommended for inclusion by ADFG. Further coordination with experts will work to reduce this list to species potentially impacted by BLM actions. For the species list, see the [Aretos Database](#).

Scientific Name	Common Name	Family
<i>Eriogonum flavum</i> var. <i>aquilinum</i>	Alpine Golden Buckwheat	Polygonaceae
<i>Erysimum angustatum</i> (<i>Erysimum capitatum</i> var. <i>capitatum</i>)	Dawson Wallflower	Brassicaceae
<i>Gentianella propinqua</i> ssp. <i>aleutica</i>	Fourpart Dwarf Gentian	Gentianaceae
<i>Gentianopsis barbata</i> ssp. <i>barbata</i>	no common name	Gentianaceae
<i>Juncus tenuis</i>	Field Rush	Juncaceae
<i>Koeleria asiatica</i>	Eurasian Junegrass	Poaceae
<i>Micranthes nudicaulis</i> ssp. <i>nudicaulis</i>	no common name	Saxifragaceae
<i>Oxygraphis glacialis</i>	Kamchatka Buttercup	Ranunculaceae
<i>Oxytropis arctica</i> var. <i>barnebyana</i>	Barneby's Locoweed	Fabaceae
<i>Phyllospadix serrulatus</i>	Toothed Surfgrass	Zosteraceae
<i>Plagiobothrys orientalis</i>	Oriental Popcornflower	Boraginaceae
<i>Potamogeton subsibiricus</i>	Yenisei River Pondweed	Potamogetonaceae
<i>Potentilla drummondii</i>	Drummond's Cinquefoil	Rosaceae
<i>Potentilla stipularis</i>	Stipulated Cinquefoil	Rosaceae
<i>Puccinellia vahliana</i>	Vahl's Alkaligrass	Poaceae
<i>Puccinellia wrightii</i> ssp. <i>wrightii</i>	no common name	Poaceae
<i>Ranunculus camissonis</i> (<i>R. glacialis</i> var. <i>camissonis</i>)	Glacier Buttercup	Ranunculaceae
<i>Rosa woodsii</i> ssp. <i>woodsii</i>	Woods' Rose	Rosaceae
<i>Salix planifolia</i>	Tea-leaf Willow	Salicaceae
<i>Saxifraga adscendens</i> ssp. <i>oregonensis</i>	Wedgeleaf Saxifrage	Saxifragaceae
<i>Saxifraga rivularis</i> ssp. <i>arctolitoralis</i>	Weak Saxifrage	Saxifragaceae
<i>Vicia americana</i>	American Vetch	Fabaceae

Plant species scientific names follow Alaska Center for Conservation Science (ACCS), and include synonyms from Integrated Taxonomic Information System (ITIS). Common names from ITIS and NatureServe.

**Appendix N: Proposed Special Management for Areas of Critical
Environmental Concern**

Appendix N. Proposed Special Management for Areas of Critical Environmental Concern (ACECs)

Section 1. Introduction

Areas of Critical Environmental Concern (ACECs) are locations within public lands where special management attention is required to protect important historic, cultural, or scenic values or fish and wildlife or other natural systems or processes. ACECs can also be designated to protect life and safety from natural hazards. Development is allowed in designated ACECs as long as it does not impact the resource for which the ACEC was designated.

Section 2. How to Use this Appendix

Because of the different values that may be recognized in different ACECs, the management actions proposed are specific to each ACEC. Chapter 3 of the Bering Sea–Western Interior Proposed Resource Management Plan/Final Environmental Impact Statement focuses on broad comparisons between the alternatives in terms of the size of ACEC designations and total acres covered by various management actions. This appendix is organized to present each ACEC proposed under Alternative B (potential ACEC) individually, so that the location-specific information that was used to create the analysis in Chapter 3 can be referenced easily.

Table 1: Areas of Critical Environmental Concern Actions by Alternative – Summary of Proposed ACECs

Alternative A	Alternative B	Alternatives C, D and E
Anvik Traditional Trapping Area ACEC Not managed as an ACEC.	Anvik Traditional Trapping Area ACEC (21,366 acres) Relevance and Importance criteria: Cultural Resources.	N/A
Anvik River ACEC (114,386 acres) Relevance and Importance criteria: Fisheries.	Anvik River ACEC Not managed as an ACEC. 100,948 acres within the existing Anvik River ACEC would be managed as the Anvik River Watershed ACEC. 13,438 acres within the existing Anvik River ACEC boundary would no longer be managed as an ACEC.	N/A
Anvik River Watershed ACEC Not managed as an ACEC.	Anvik River Watershed ACEC (248,872 acres) Relevance and Importance criteria: Fisheries. Anvik River Watershed ACEC would encompass 100,948 acres of land within the existing Anvik River Watershed.	N/A
Gisasa River ACEC (278,055 acres) Relevance and Importance criteria: Fisheries.	Gisasa River ACEC Same as Alternative A, but would be 278,247 acres.	N/A
Inglutalik ACEC (71,713 acres) Relevance and Importance criteria: Fisheries.	Inglutalik ACEC Same as Alternative A, but would be 70,891 acres.	N/A
Kateel River ACEC (568,083 acres) Relevance and Importance criteria: Fisheries.	Kateel River ACEC Same as Alternative A, but would be 692,659 acres.	N/A
Nulato River ACEC Not managed as an ACEC.	Nulato River ACEC (344,183 acres) Relevance and Importance criteria: Fisheries Nulato River ACEC would encompass 649 acres of land within the existing North River ACEC boundary and 868 acres within the existing Drainages of the Unalakleet ACEC boundary.	N/A
Shaktoolik River ACEC (192,591 acres) Relevance and Importance criteria: Fisheries.	Shaktoolik River ACEC Same as Alternative A, but would be 191,725 acres. Shaktoolik River ACEC would encompass 1,621 acres of land within the existing North River ACEC boundary.	N/A
Sheefish ACEC Not managed as an ACEC.	Sheefish ACEC (696,901 acres) Relevance and Importance criteria: Cultural Resources, Fisheries.	N/A
Swift River Whitefish Spawning ACEC Not managed as an ACEC.	Swift River Whitefish Spawning ACEC (220,032 acres) Relevance and Importance criteria: Fisheries.	N/A
Tagagawik River ACEC Not managed as an ACEC.	Tagagawik River ACEC (301,044 acres) Relevance and Importance criteria: Cultural Resources.	N/A
Unalakleet River Watershed ACEC Not managed as an ACEC.	Unalakleet River Watershed ACEC (733,995 acres) Relevance and Importance criteria: Cultural Resources, Fisheries. Unalakleet River Watershed ACEC would encompass 299,968 acres of land within the existing Drainages of the Unalakleet ACEC boundary and 65,046 acres within the existing North River ACEC boundary.	N/A
Ungalik River ACEC (112,719 acres) Relevance and Importance criteria: Fisheries.	Ungalik River ACEC Same as Alternative A, but would be 113,455 acres.	N/A
North River ACEC (132,200 acres) Relevance and Importance criteria: Fisheries.	North River ACEC Not managed as an ACEC. 67,315 acres within the existing North River ACEC would be managed as part of the Nulato River ACEC, Shaktoolik ACEC, and Unalakleet River Watershed ACEC. 64,885 acres within the existing North River ACEC boundary would no longer be managed as an ACEC.	N/A
Drainages of the Unalakleet ACEC (403,378 acres) Relevance and Importance criteria: Fisheries.	Drainages of the Unalakleet ACEC Not managed as an ACEC. 300,836 acres within the existing Drainages of the Unalakleet ACEC would be managed as part of the Nulato River ACEC and Unalakleet River Watershed ACEC. 102,542 acres within the existing Drainages of the Unalakleet ACEC boundary would no longer be managed as an ACEC.	N/A

Alternative A	Alternative B	Alternatives C, D and E
Box River Treeline Research Natural Area (RNA) (13,592 acres) Relevance and Importance criteria: Not found to meet criteria.	Box River Treeline RNA Not managed as an ACEC.	N/A
Peregrine Falcon Nesting Habitat ACEC (6,354 acres) Relevance and Importance criteria: Not found to meet criteria.	Peregrine Falcon Nesting Habitat ACEC Not managed as an ACEC.	N/A
Kuskokwim River Raptor Nesting Habitat ACEC (4,896 acres) Relevance and Importance criteria: Not found to meet criteria.	Kuskokwim River Raptor Nesting Habitat ACEC Not managed as an ACEC.	N/A
Total ACEC Acreage (percentage of planning area) by Alternative A 1,884,376 acres (14%)	Total ACEC Acreage (percentage of planning area) by Alternative B 3,913,372 acres (29%)	N/A

Table 2: Areas of Critical Environmental Concern Actions by Alternative – Anvik Traditional Trapping Area ACEC

Alternative A	Alternative B	Alternatives C, D and E
No Anvik Traditional Trapping Area ACEC under Alternative A.	Anvik Traditional Trapping Area ACEC ACEC Size: 21,366 acres	N/A
Cultural Resources Management Decisions No special management decisions because this ACEC does not exist under Alternative A.	Cultural Resources Management Decisions No surface occupancy (NSO) for any externally proposed structures (e.g., cell towers, cabins).	N/A
Forestry and Woodlands Decisions No special management decisions because this ACEC does not exist under Alternative A.	Forestry and Woodlands Decisions Closed to commercial woodland harvest. Non-subsistence house log harvest prohibited.	N/A
Lands and Realty Decisions No special management decisions because this ACEC does not exist under Alternative A.	Lands and Realty Decisions Federal Land Policy and Management Act (FLPMA) right-of-way (ROW) avoidance area.	N/A
Minerals Decisions No special management decisions because this ACEC does not exist under Alternative A.	Minerals Decisions - Closed to salable. - Closed to leasable. - Withdrawn from locatable mineral entry recommended (Public Land Order [PLO] 5180, currently open to metalliferous) If the recommended locatable withdrawal is not approved, locatable development would comply with all other management under this alternative. All reclamation must result in the rehabilitation of fisheries and wildlife habitats. The rehabilitation of fisheries habitat is defined as a geomorphically stable channel (i.e., functioning conditions for lateral stability, bedform diversity, and floodplain connectivity [as defined by Harman et al. 2012 or Assessment, Inventory, and Monitoring–National Aquatic Monitoring Framework {AIM-NAMF} datasets] and sufficient floodplain roughness and riparian vegetation to dissipate stream energy and minimize erosion. Baseline hydrological data that characterizes seasonal flow pattern and discharge and riparian vegetation condition would be required from the operator to establish the baseline for reclamation/rehabilitation purposes. The BLM would be available to advise operators on the exact type of baseline data and detailed needed to meet this requirement.	N/A
Recreation Decisions No special management decisions because this ACEC does not exist under Alternative A.	Recreation Decisions Any special recreation permits issued within the ACEC would require that human waste from those activities be compatible with Alaska Department of Environmental Conservation (ADEC) Temporary Camp Practices and/or BLM permit conditions. If no facilities are available, waste will be contained and removed.	N/A

Alternative A	Alternative B	Alternatives C, D and E
Transportation and Travel Management Decisions No special management decisions because this ACEC does not exist under Alternative A.	Transportation and Travel Management Decisions (These prescriptions are consistent with criteria for designation found in 43 Code of Federal Regulations [CFR] 8342.1(a), (b), and (d) and are considered interim until the time of completion of a travel management plan for the areas in question.) Summer subsistence use would be limited to all-terrain vehicles (ATVs) and utility terrain vehicles (UTVs). Summer casual would be limited to existing roads, primitive roads and trails (as shown in existing BLM route inventory) by ATVs only. Winter subsistence and casual use would allow cross-country travel by snowmobiles. No future construction or designation of routes within the 100-year floodplain of surface waters unless it can be demonstrated through design, route placement, and alignment that the route will not measurably contribute to sediment delivery to the adjacent surface waters.	N/A
Visual Resources Management Decisions No special management decisions because this ACEC does not exist under Alternative A.	Visual Resources Management Decisions Managed as VRM Class II.	N/A

Table 3: Areas of Critical Environmental Concern Actions by Alternative – Anvik River Watershed ACEC

Alternative A	Alternative B	Alternatives C, D and E
No Anvik River Watershed ACEC under Alternative A. Instead, the existing 114,386-acre Anvik River ACEC would be maintained.	ACEC Size: 248,872 acres	N/A
Water Resources and Fisheries Management Decisions No special management decisions because this ACEC does not exist under Alternative A.	Water Resources and Fisheries Management Decisions Any proposal to use or develop the lands, waters, or resources within or the 100-year floodplain of active stream channels must demonstrate to the satisfaction of the Authorized Officer (AO) that such use or development: • Would not adversely alter the condition and ecological function of aquatic and riparian systems by impacting water quality, stream flow, velocity, ground water hydrology, channel connectivity, channel form, material recruitment, substrate composition, energy (food) flow, and riparian function; and • Would not diminish the quality and diversity of habitats needed to sustain the production of fish and wildlife populations at their natural potential.	N/A
Forestry and Woodlands Decisions No special management decisions because this ACEC does not exist under Alternative A.	Forestry and Woodlands Decisions Closed to commercial woodland harvest. Non-subsistence house log harvest prohibited.	N/A
Lands and Realty Decisions No special management decisions because this ACEC does not exist under Alternative A.	Lands and Realty Decisions ROW avoidance area.	N/A

Alternative A	Alternative B	Alternatives C, D and E
Minerals Decisions No special management decisions because this ACEC does not exist under Alternative A.	Minerals Decisions • Closed salable • Closed to leasable • Withdrawn from locatable mineral entry (PLO 5180, currently open to metalliferous) If the recommended locatable withdrawal is not approved, locatable development would comply with all other management under this alternative and the following management would apply (subject to valid existing rights): • Cooperate with the State of Alaska to help determine appropriate management of suction dredge mining in navigable waterways of the Anvik River. In accordance with 43 CFR 3809.201(a), the BLM may establish an agreement with the State to allow suction dredging on BLM-managed lands which will provide maximum possible coordination with the State to avoid duplication and to ensure that operators prevent unnecessary or undue degradation of public lands. As directed by 3809.201(b), the agreement must require that the State notify the BLM within 15 days of application receipt to suction dredge so that the BLM may determine if federally proposed or listed threatened or endangered species or their proposed or designated critical habitat would be affected by the proposed action and to specify any necessary mitigation measures. The use of a suction dredge within the scope and allowances of the agreement, State statute, BLM regulations, and all applicable laws need not to submit to the BLM a notice or plan of operations. Any existing or future agreements that apply regionally or statewide, that meet the requirements outlined above will be considered adequate to meet the conditions of the Bering Sea–Western Interior (BSWI) Resource Management Plan (RMP). • No recreational suction dredging on the non-navigable waterways of the Anvik River Watershed ACEC. • All reclamation must result in the rehabilitation of fisheries and wildlife habitats. The rehabilitation of fisheries habitat is defined as a geomorphically stable channel (i.e., functioning conditions for lateral stability, bedform diversity, and floodplain connectivity (as defined by Harman et al. 2012 or AIM-NAMF datasets) and sufficient floodplain roughness and riparian vegetation to dissipate stream energy and minimize erosion. • Baseline hydrological data that characterizes seasonal flow pattern and discharge and riparian vegetation condition would be required from the operator to establish the baseline for reclamation/rehabilitation purposes. The BLM would be available to advise operators on the exact type of baseline data and detail needed to meet this requirement.	N/A
Recreation Decisions No special management decisions because this ACEC does not exist under Alternative A.	Recreation Decisions Any special recreation permits issued within the ACEC would require that human waste from those activities be compatible with ADEC Temporary Camp Practices and/or BLM permit conditions. If no facilities are available, waste will would be contained and removed.	N/A
Transportation and Travel Management Decisions No special management decisions because this ACEC does not exist under Alternative A.	Transportation and Travel Management Decisions (These prescriptions are consistent with criteria for designation found in 43 CFR 8342.1(a), (b), and (d) and are considered interim until the time of completion of a travel management plan for the areas in question). Summer subsistence use would be limited to ATVs and UTVs. Summer casual would be limited to existing roads, primitive roads and trails (as shown in existing BLM route inventory) by ATVs only. Winter subsistence and casual use would allow cross-country travel by snowmobiles. No future construction or designation of routes within the 100-year floodplain of surface waters unless it can be demonstrated through design, route placement, and alignment that the route will not measurably contribute to sediment delivery to the adjacent surface waters. The BLM would work in coordination with the State of Alaska to designate stream crossing routes, and these routes would be designated within the 100-year floodplain.	N/A

Alternative A	Alternative B	Alternatives C, D and E
Visual Resources Management Decisions No special management decisions because this ACEC does not exist under Alternative A.	Visual Resources Management Decisions Managed as VRM Class III.	N/A
Water Resources Decisions No special management decisions because this ACEC does not exist under Alternative A.	Water Resources Decisions The existing water rights application filed with the state of Alaska DNR (File: LAS 27140; ADN 2007) for the Anvik River will be perfected acquiring a certificate of appropriation. Further quantification and delineation of existing, and additional, reaches will be conducted, as needed, to adequately reserve monthly minimum instream flow rates to assure the protection of fish habitat, migration, and propagation within the Anvik River Watershed ACEC.	N/A

Table 4: Areas of Critical Environmental Concern Actions by Alternative – Gisasa ACEC

Alternative A	Alternative B	Alternatives C, D and E
ACEC Size: 278,055 acres	ACEC Size: 278,247 acres	N/A
Water Resources and Fisheries Management Decisions Central Yukon Resource Management Plan (CYRMP; BLM 1986) Watershed ACECs have been established for all portions of the watershed lying above the lower limit of the above identified river withdrawals. These ACEC designations include all lands within the river withdrawal area.	Water Resources and Fisheries Management Decisions Any proposal to use or develop lands, waters, or resources within the 100-year floodplain of the banks of active stream channels must demonstrate to the satisfaction of the AO that such use or development: • Would not adversely alter the condition and ecological function of aquatic and riparian systems by impacting water quality, stream flow, velocity, ground water hydrology, channel connectivity, channel form, material recruitment, substrate composition, energy (food) flow, and riparian function; and • Would not diminish the quality and diversity of habitats needed to sustain the production of fish and wildlife populations at their natural potential.	N/A
Forestry and Woodlands Decisions No special management decisions.	Forestry and Woodlands Decisions Closed to commercial woodland harvest. Non-subsistence house log harvest prohibited.	N/A
Lands and Realty Decisions No special management decisions.	Lands and Realty Decisions ROW avoidance area.	N/A

Alternative A	Alternative B	Alternatives C, D and E
Minerals Decisions CYRMP (BLM 1986) All withdrawals are subject to valid existing rights, including properly recorded unpatented mining claims. Areas designated as ACECs are open to mineral location under the 1872 Mining Law and to mineral leasing under the Mineral Leasing Act of 1920 as amended and supplemented. Lands withdrawn from mineral location are open to non-surface-disturbing mineral leasing, such as oil and gas. Mining operations within designated ACECs will require an approved plan of operations prior to starting any surface-disturbing activities other than those described as casual use by 43 CFR 3809. Plan approval will require compliance with both the general guidelines established in this plan and the specific watershed ACEC Management Plan. All ACECs will require that surface-disturbing activities associated with mineral exploration and development be conducted under an approved plan of operations. Casual uses as defined under 43 CFR 3809 are exempt from this requirement. Additional requirements will be identified in the appropriate ACEC management plans. ACEC management plans are subject to public review before they are finalized.	Minerals Decisions • Closed to salable • Closed to leasable • Recommended for withdrawal from locatable mineral entry (PLO 5180, currently open to metalliferous) If the recommended locatable withdrawal is not approved, locatable development would comply with all other management under this alternative and the following management would apply (subject to valid existing rights): • Cooperate with State of Alaska to help determine appropriate management of suction dredge mining in navigable waterways of the Gisasa River. In accordance with 43 CFR 3809.201(a), the BLM may establish an agreement with the State to allow suction dredging on BLM-managed lands, which will provide maximum possible coordination with the State to avoid duplication and to ensure that operators prevent unnecessary or undue degradation of public lands. As directed by 3809.201(b), the agreement must require that the State notify the BLM within 15 days of application receipt to suction dredge so that the BLM may determine if federally proposed or listed threatened or endangered species or their proposed or designated critical habitat would be affected by the proposed action and to specify any necessary mitigation measures. The use of a suction dredge within the scope and allowances of the agreement, State statute, BLM regulations, and all applicable laws need not to submit to the BLM a notice or plan of operations. Any existing or future agreements that apply regionally or statewide, that meet the requirements outlined above will be considered adequate to meet the conditions of the BSWI RMP. • No recreational suction dredging on the non-navigable waterways of the Gisasa River ACEC. • All reclamation must result in the rehabilitation of fisheries and wildlife habitats. The rehabilitation of fisheries habitat is defined as a geomorphically stable channel (i.e., functioning conditions for lateral stability, bedform diversity, and floodplain connectivity (as defined by Harman et al. 2012 or AIM-NAMF datasets) and sufficient floodplain roughness and riparian vegetation to dissipate stream energy and minimize erosion. • Baseline hydrological data that characterizes seasonal flow pattern and discharge and riparian vegetation condition would be required from the operator to establish the baseline for reclamation/ rehabilitation purposes. The BLM would be available to advise operators on the exact type of baseline data and detailed needed to meet this requirement.	N/A
Recreation Decisions No special management decisions.	Recreation Decisions Any special recreation permits issued within the ACEC would require that human waste from those activities be compatible with ADEC Temporary Camp Practices and/or BLM permit conditions. If no facilities are available, waste would be contained and removed.	N/A
Transportation and Travel Management Decisions No special management decisions.	Transportation and Travel Management Decisions (These prescriptions are consistent with criteria for designation found in 43 CFR 8342.1(a), (b), and (d) and are considered interim until the time of completion of a travel management plan for the areas in question.) Summer subsistence use would be limited to ATVs and UTVs. Summer casual would be limited to existing roads, primitive roads and trails (as shown in existing BLM route inventory) by ATVs only. Winter subsistence and casual use would allow cross-country travel by snowmobiles. No future construction or designation of routes within the 100-year floodplain of surface waters unless it can be demonstrated through design, route placement, and alignment that the route will not measurably contribute to sediment delivery to the adjacent surface waters. Work in coordination with the State of Alaska to designate stream crossing routes and these routes would be designated within the 100-year floodplain.	N/A

Alternative A	Alternative B	Alternatives C, D and E
Visual Resources Management Decisions No special management decisions.	Visual Resources Management Decisions Managed as VRM Class III.	N/A
Water Resources Decisions No special management decisions.	Water Resources Decisions Coordinate with the U.S. Fish and Wildlife Service (USFWS) in the pursuance of instream water right with the State of Alaska to maintain minimum instream flow for the Gisasa River. Prioritize navigability determinations for the Gisasa River.	N/A

Table 5: Areas of Critical Environmental Concern Actions by Alternative – Inglutalik ACEC

Alternative A	Alternative B	Alternatives C, D and E
ACEC Size: 71,713 acres	ACEC Size: 70,891 acres	N/A
Water Resources and Fisheries Management Decisions CYRMP (BLM 1986) Watershed ACECs have been established for all portions of the watershed lying above the lower limit of the above identified river withdrawals. These ACEC designations include all lands within the river withdrawal area.	Water Resources and Fisheries Management Decisions Any proposal to use or develop lands, waters, or resources within the 100-year floodplain of the banks of active stream channels must demonstrate to the satisfaction of the AO that such use or development: • Would not adversely alter the condition and ecological function of aquatic and riparian systems by impacting water quality, stream flow, velocity, ground water hydrology, channel connectivity, channel form, material recruitment, substrate composition, energy (food) flow, and riparian function; and • Would not diminish the quality and diversity of habitats needed to sustain the production of fish and wildlife populations at their natural potential.	N/A
Forestry and Woodlands Decisions Southwest Management Framework Plan (SWMFP; BLM 1981) No special management decisions.	Forestry and Woodlands Decisions Closed to commercial woodland harvest. Non-subsistence house log harvest prohibited.	N/A
Lands and Realty Decisions The existing Inglutalik River ACECs occur within lands withdrawn by PLO 5180. PLO 5180 withdrew lands identified by legal description (subject to valid existing rights) from all forms of appropriation under the public land laws, including selections by the State of Alaska under the 1958 Alaska Statehood Act and from location and entry under the mining laws (except locations for metalliferous minerals) and from leasing under the Mineral Leasing Act. The lands were reserved for study to determine the proper classification of the lands under Section 17(d)(1) of the Alaska Native Claims Settlement Act (ANCSA). The lands are currently managed under the 1986 CYRMP (BLM 1986) and are open on a case-by-case basis to permits, leases, ROWs, and easements.	Lands and Realty Decisions ROW avoidance area.	N/A

Alternative A	Alternative B	Alternatives C, D and E
Minerals Decisions Closed to mineral leasing and non-metalliferous mineral entry by PLO 5180. Open to mining for metalliferous minerals, leases, permits, and ROWs. CYRMP (BLM 1986) All withdrawals are subject to valid existing rights, including properly recorded unpatented mining claims. Areas designated as ACECs are open to mineral location under the 1872 Mining Law and to mineral leasing under the Mineral Leasing Act of 1920 as amended and supplemented. Lands withdrawn from mineral location are open to non-surface-disturbing mineral leasing, such as oil and gas. Mining operations within designated ACECs will require an approved plan of operations prior to starting any surface-disturbing activities other than those described as casual use by 43 CFR 3809. Plan approval will require compliance with both the general guidelines established in this plan and the specific watershed ACEC Management Plan. All ACECs will require that surface-disturbing activities associated with mineral exploration and development be conducted under an approved plan of operations. Casual uses as defined under 43 CFR 3809 are exempt from this requirement. Additional requirements will be identified in the appropriate ACEC management plans. ACEC management plans are subject to public review before they are finalized.	Minerals Decisions • Closed to salable • Closed to leasable • Recommended for withdrawal from locatable mineral entry (PLO 5180, currently open to metalliferous) If the recommended locatable withdrawal is not approved, locatable development would comply with all other management under this alternative and the following management would apply (subject to valid existing rights): • Cooperate with State of Alaska to help determine appropriate management of suction dredge mining in navigable waterways of the Inglutalik River. In accordance with 43 CFR 3809.201(a), the BLM may establish an agreement with the State to allow suction dredging on BLM-managed lands, which will provide maximum possible coordination with the State to avoid duplication and to ensure that operators prevent unnecessary or undue degradation of public lands. As directed by 43 CFR 3809.201(b), the agreement must require that the State notify the BLM within 15 days of application receipt to suction dredge so that the BLM may determine if federally proposed or listed threatened or endangered species or their proposed or designated critical habitat would be affected by the proposed action and to specify any necessary mitigation measures. The use of a suction dredge within the scope and allowances of the agreement, State statute, BLM regulations, and all applicable laws need not to submit to the BLM a notice or plan of operations. Any existing or future agreements that apply regionally or statewide that meet the requirements outlined above will be considered adequate to meet the conditions of the BSWI RMP. • No recreational suction dredging on the non-navigable waterways of the Inglutalik River ACEC. • All reclamation must result in the rehabilitation of fisheries and wildlife habitats. The rehabilitation of fisheries habitat is defined as a geomorphically stable channel (i.e., functioning conditions for lateral stability, bedform diversity, and floodplain connectivity (as defined by Harman et al. 2012 or AIM-NAMF datasets) and sufficient floodplain roughness and riparian vegetation to dissipate stream energy and minimize erosion. • Baseline hydrological data that characterizes seasonal flow pattern and discharge and riparian vegetation condition would be required from the operator to establish the baseline for reclamation/rehabilitation purposes. The BLM would be available to advise operators on the exact type of baseline data and detailed needed to meet this requirement.	N/A
Recreation Decisions No special management decisions.	Recreation Decisions Any special recreation permits issued within the ACEC would require that human waste from those activities be compatible with ADEC Temporary Camp Practices and/or BLM permit conditions. If no facilities available waste will be contained and removed.	N/A
Transportation and Travel Management Decisions No special management decisions.	Transportation and Travel Management Decisions (These prescriptions are consistent with criteria for designation found in 43 CFR 8342.1(a), (b), and (d) and are considered interim until the time of completion of a travel management plan for the areas in question.) Summer subsistence use would be limited to ATVs and UTVs. Summer casual would be limited to existing roads, primitive roads and trails (as shown in the BLM's current route inventory) by ATVs only. Winter subsistence and casual use would allow cross-country travel by snowmobiles. No future construction or designation of routes within the 100-year floodplain of surface waters unless it can be demonstrated through design, route placement, and alignment that the route will not measurably contribute to sediment delivery to the adjacent surface waters. Work in coordination with the State of Alaska to designate stream crossing routes, and these routes would be designated within the 100-year floodplain.	N/A

Alternative A	Alternative B	Alternatives C, D and E
Visual Resources Management Decisions No special management decisions.	Visual Resources Management Decisions Managed as VRM Class III.	N/A
Water Resources Decisions No special management decisions.	Water Resources Decisions Pursue instream water right with the State of Alaska to maintain minimum instream flow for the Inglutalik River.	N/A

Table 6: Areas of Critical Environmental Concern Actions by Alternative – Kateel River ACEC

Alternative A	Alternative B	Alternatives C, D and E
ACEC Size: 568,083 acres	ACEC Size: 692,659 acres	N/A
Water Resources and Fisheries Management Decisions CYRMP (BLM 1986) Watershed ACECs have been established for all portions of the watershed lying above the lower limit of the above identified river withdrawals. These ACEC designations include all lands within the river withdrawal area.	Water Resources and Fisheries Management Decisions Any proposal to use or develop lands, waters, or resources within the 100-year floodplain of the banks of active stream channels must demonstrate to the satisfaction of the AO that such use or development: • Would not adversely alter the condition and ecological function of aquatic and riparian systems by impacting water quality, stream flow, velocity, ground water hydrology, channel connectivity, channel form, material recruitment, substrate composition, energy (food) flow, and riparian function; and • Would not diminish the quality and diversity of habitats needed to sustain the production of fish and wildlife populations at their natural potential.	N/A
Forestry and Woodlands Decisions SWMFP (BLM 1981) No special management decisions.	Forestry and Woodlands Decisions Closed to commercial woodland harvest. Non-subsistence house log harvest prohibited.	N/A

Alternative A	Alternative B	Alternatives C, D and E
Lands and Realty Decisions The existing Kateel River ACEC occurs within lands withdrawn by PLO 5173, 5179, 5180, and 5184. PLO 5173 withdrew lands identified by legal description (subject to valid existing rights) from all forms of appropriation under the public land laws, including selections by the State of Alaska under the 1958 Alaska Statehood Act and from location and entry under the mining laws and from leasing under the Mineral Leasing Act. The lands were reserved for selection by village corporations. Upon conclusion of village selections, the regional corporations could select the lands under Section 12 of ANCSA. Prior to conveyances, the Secretary could administer the lands and make contracts, and to grant leases, permits, ROWs, or easements. Applications for mineral leasing would be rejected until the PLO is modified or the lands appropriately classified to permit mineral leasing. PLO 5179 withdrew identified lands by legal description (subject to valid existing rights) from all forms of appropriation under the public land laws including selections by the State of Alaska under the 1958 Alaska Statehood Act and from location and entry under the mining laws (which includes locations for metalliferous minerals) and from leasing under the Mineral Leasing Act. PLO 5179 also withdrew the lands from selections by regional corporations under section 12 of ANCSA. The lands were reserved for study and possible recommendations to the Congress as additions or creation as a unit of the National Park, Forest, Wildlife Refuge, and Wild and Scenic River (WSR) System. PLO 5180 withdrew lands identified by legal description (subject to valid existing rights) from all forms of appropriation under the public land laws, including selections by the State of Alaska under the 1958 Alaska Statehood Act and from location and entry under the mining laws (except locations for metalliferous minerals) and from leasing under the Mineral Leasing Act. The lands were reserved for study to determine the proper classification of the lands under section 17(d)(1) of the ANCSA. PLO 5184 withdrew lands (subject to valid existing rights) withdrawn by section 11 of the ANCSA from all forms of appropriation under the public land laws and from location and entry under the mining laws (which includes locations for metalliferous minerals) and from leasing under the Mineral Leasing Act. PLO 5184 also withdrew the lands from selections by the State of Alaska under the 1958 Alaska Statehood Act until 1975. The lands were reserved for study and review by the Secretary of the Interior for the purpose of the classification or reclassification of any lands not conveyed pursuant to section 14 of the ANCSA. PLO 5184 also withdrew lands by section 11 of ANCSA lying between 58 degrees north and 64 degrees north latitude and 161 degrees west longitude not withdrawn as any part of the National Wildlife Refuge and made these lands subject to valid existing rights from all forms of appropriation under the public land laws, including selections by the State of Alaska under the 1958 Alaska Statehood Act and entry under the mining laws and from leasing under the Mineral Leasing Act. The lands were reserved for study and review by the Secretary of the Interior for the purpose of the classification or reclassification of any lands not conveyed pursuant to Section 14 of ANCSA. PLO 5184 also allowed the Secretary to administer the lands under applicable laws and regulations and granted the authority to enter contracts and to grant leases, permits, ROWs, or easements. The lands are currently managed under the 1986 CYRMP (BLM 1986) and are open on a case-by-case basis to permits, leases, ROWs, and easements although FLPMA sales and leases are not allowed within a 300-foot set back zones on the Kateel River.	Lands and Realty Decisions ROW avoidance area.	N/A

Alternative A	Alternative B	Alternatives C, D and E
Minerals Decisions Upper portion of river closed to mineral leasing and non-metalliferous mineral entry by PLO 5180. Open to mining for metalliferous minerals, leases, permits, and ROWs. Lower portion of the river is under PLOs 5173/5184, which close lands to mineral leasing and mining. Open to leases, permits, and ROWs, except possibly for lands within 300 feet of the river, which the Central Yukon ROD specified as closed to sales and leases. CYRMP (BLM 1986) All withdrawals are subject to valid existing rights, including properly recorded unpatented mining claims. Areas designated as ACECs are open to mineral location under the 1872 Mining Law and to mineral leasing under the Mineral Leasing Act of 1920 as amended and supplemented. Lands withdrawn from mineral location are open to non-surface-disturbing mineral leasing, such as oil and gas. Mining operations within designated ACECs will require an approved plan of operations prior to starting any surface-disturbing activities other than those described as casual use by 43 CFR 3809. Plan approval will require compliance with both the general guidelines established in this plan and the specific watershed ACEC Management Plan. All ACECs will require that surface-disturbing activities associated with mineral exploration and development be conducted under an approved plan of operations. Casual uses as defined under 43 CFR 3809 are exempt from this requirement. Additional requirements will be identified in the appropriate ACEC management plans. ACEC management plans are subject to public review before they are finalized.	Minerals Decisions • Closed to salable • Closed to leasable • Recommended for Withdrawal from locatable mineral entry (PLO 5180, currently open to metalliferous) If the recommended locatable withdrawal is not approved, locatable development would comply with all other management under this alternative and the following management would apply (subject to valid existing rights): • Cooperate with State of Alaska to help determine appropriate management of suction dredge mining in navigable waterways of the Kateel River. In accordance with 43 CFR 3809.201(a), the BLM may establish an agreement with the State to allow suction dredging on BLM-managed lands, which will provide maximum possible coordination with the State to avoid duplication and to ensure that operators prevent unnecessary or undue degradation of public lands. As directed by 43 CFR 3809.201(b), the agreement must require that the State notify the BLM within 15 days of application receipt to suction dredge so that the BLM may determine if federally proposed or listed threatened or endangered species or their proposed or designated critical habitat would be affected by the proposed action and to specify any necessary mitigation measures. The use of a suction dredge within the scope and allowances of the agreement, State statute, BLM regulations, and all applicable laws need not to submit to the BLM a notice or plan of operations. Any existing or future agreements that apply regionally or statewide that meet the requirements outlined above will be considered adequate to meet the conditions of the BSWI RMP. • No recreational suction dredging on the non-navigable waterways of the Kateel River ACEC. • All reclamation must result in the rehabilitation of fisheries and wildlife habitats. The rehabilitation of fisheries habitat is defined as a geomorphically stable channel (i.e., functioning conditions for lateral stability, bedform diversity, and floodplain connectivity (as defined by Harman et al. 2012 or AIM-NAMF datasets) and sufficient floodplain roughness and riparian vegetation to dissipate stream energy and minimize erosion. • Baseline hydrological data that characterizes seasonal flow pattern and discharge and riparian vegetation condition would be required from the operator to establish the baseline for reclamation/ rehabilitation purposes. The BLM would be available to advise operators on the exact type of baseline data and detailed needed to meet this requirement.	N/A
Recreation Decisions No special management decisions.	Recreation Decisions Any special recreation permits issued within the ACEC would require that human waste disposal for those activities be compatible with ADEC Temporary Camp Practices and/or BLM permit conditions. If no facilities are available waste will be contained and removed.	N/A

Alternative A	Alternative B	Alternatives C, D and E
Transportation and Travel Management Decisions No special management decisions.	Transportation and Travel Management Decisions (These prescriptions are consistent with criteria for designation found in 43 CFR 8342.1(a), (b), and (d) and are considered interim until the time of completion of a travel management plan for the areas in question.) Summer subsistence use would be limited to ATVs and UTVs. Summer casual would be limited to existing roads, primitive roads and trails (as shown in the BLM's current route inventory) by ATVs only. Winter subsistence and casual use would allow cross-country travel by snowmobiles. No future construction or designation of routes within the 100-year floodplain of surface waters unless it can be demonstrated through design, route placement, and alignment that the route will not measurably contribute to sediment delivery to the adjacent surface waters. Work in coordination with the State of Alaska to designate stream crossing routes, and these routes would be designated within the 100-year floodplain.	N/A
Visual Resources Management Decisions No special management decisions.	Visual Resources Management Decisions Managed as VRM Class III.	N/A
Water Resources Decisions No special management decisions.	Water Resources Decisions Coordinate with USFWS in the pursuance of instream water right with the State of Alaska to maintain minimum instream flow for the Kateel River. Prioritize navigability determinations for the Kateel River.	N/A

Table 7: Areas of Critical Environmental Concern Actions by Alternative – Nulato River ACEC

Alternative A	Alternative B	Alternatives C, D and E
No Nulato River ACEC under Alternative A.	ACEC Size: 344,183 acres	N/A
Water Resources and Fisheries Management Decisions No special management decisions because this ACEC does not exist under Alternative A.	Water Resources and Fisheries Management Decisions Any proposal to use or develop lands, waters, or resources within the 100-year floodplain of the banks of active stream channels must demonstrate to the satisfaction of the AO that such use or development: • Would not adversely alter the condition and ecological function of aquatic and riparian systems by impacting water quality, stream flow, velocity, ground water hydrology, channel connectivity, channel form, material recruitment, substrate composition, energy (food) flow, and riparian function; • Would not diminish the quality and diversity of habitats needed to sustain the production of fish and wildlife populations at their natural potential	N/A
Forestry and Woodlands Decisions No special management decisions because this ACEC does not exist under Alternative A.	Forestry and Woodlands Decisions Closed to commercial woodland harvest. Non-subsistence house log harvest prohibited.	N/A
Grazing Decisions No special management decisions because this ACEC does not exist under Alternative A.	Grazing Decisions The Nulato River ACEC would be closed to grazing.	N/A
Lands and Realty Decisions No special management decisions because this ACEC does not exist under Alternative A.	Lands and Realty Decisions ROW avoidance area within the ACEC upstream of the Village of Nulato.	N/A

Alternative A	Alternative B	Alternatives C, D and E
Minerals Decisions No special management decisions because this ACEC does not exist under Alternative A.	Minerals Decisions • Closed to salable • Closed to leasable • Withdrawn from locatable mineral entry (PLO 5180, currently open to metalliferous) If the recommended locatable withdrawal is not approved, locatable development would comply with all other management under this alternative and the following management would apply (subject to valid existing rights): • Cooperate with State of Alaska to help determine appropriate management of suction dredge mining in navigable waterways of the Nulato River. In accordance with 43 CFR 3809.201(a), the BLM may establish an agreement with the State to allow suction dredging on BLM-managed lands, which will provide maximum possible coordination with the State to avoid duplication and to ensure that operators prevent unnecessary or undue degradation of public lands. As directed by 43 CFR 3809.201(b), the agreement must require that the State notify the BLM within 15 days of application receipt to suction dredge so that the BLM may determine if federally proposed or listed threatened or endangered species or their proposed or designated critical habitat would be affected by the proposed action and to specify any necessary mitigation measures. The use of a suction dredge within the scope and allowances of the agreement, State statute, BLM regulations, and all applicable laws need not to submit to the BLM a notice or plan of operations. Any existing or future agreements that apply regionally or statewide, that meet the requirements outlined above will be considered adequate to meet the conditions of the BSWI RMP. • No recreational suction dredging on the non-navigable waterways of the Nulato River ACEC. • All reclamation must result in the rehabilitation of fisheries and wildlife habitats. The rehabilitation of fisheries habitat is defined as a geomorphically stable channel (i.e., functioning conditions for lateral stability, bedform diversity, and floodplain connectivity (as defined by Harman et al. 2012 or AIM-NAMF datasets) and sufficient floodplain roughness and riparian vegetation to dissipate stream energy and minimize erosion. • Baseline hydrological data that characterizes seasonal flow pattern and discharge and riparian vegetation condition would be required from the operator to establish the baseline for reclamation/rehabilitation purposes. The BLM would be available to advise operators on the exact type of baseline data and detailed needed to meet this requirement.	N/A
Recreation Decisions No special management decisions because this ACEC does not exist under Alternative A.	Recreation Decisions Any special recreation permits issued within the ACEC would require that human waste from those activities be compatible with ADEC Temporary Camp Practices and/or BLM permit conditions. If no facilities are available, waste would be contained and removed.	N/A

Alternative A	Alternative B	Alternatives C, D and E
Transportation and Travel Management Decisions No special management decisions because this ACEC does not exist under Alternative A.	Transportation and Travel Management Decisions (These prescriptions are consistent with criteria for designation found in 43 CFR 8342.1(a), (b), and (d) and are considered interim until the time of completion of a travel management plan for the areas in question.) Summer subsistence use would be limited to ATVs and UTVs. Summer casual would be limited to existing roads, primitive roads and trails (as shown in the BLM's current route inventory) by ATVs only. Winter subsistence and casual use would allow cross-country travel by snowmobiles. No future construction or designation of routes within the 100-year floodplain of surface waters unless it can be demonstrated through design, route placement, and alignment that the route will not measurably contribute to sediment delivery to the adjacent surface waters. Work in coordination with the State of Alaska to designate stream crossing routes, and these routes would be designated within the 100-year floodplain.	N/A
Visual Resources Management Decisions No special management decisions because this ACEC does not exist under Alternative A.	Visual Resources Management Decisions Managed as VRM Class III.	N/A
Water Resources and Fisheries Management Decisions No special management decisions because this ACEC does not exist under Alternative A.	Water Resources and Fisheries Management Decisions In coordination with the Village of Nulato and ADEC, monitor water quality of drinking water in the village. If exceedances of drinking water standards are found, and based on the nature of those exceedances, the following management actions would be taken as appropriate: Hazardous material cleanup would be prioritized to address any hazardous material releases affecting water quality. Additional requirements for removing human waste from campsites for BLM-permitted activities would be implemented. Surface-disturbing casual use activities would be prohibited within the Nulato 100-year floodplain upstream of the Village of Nulato diversion point. With the exception of subsistence use, commercial woodland harvest, permitted woodland harvest, house log cutting, and timber sales would be prohibited within the 100-year floodplain If necessary, the BLM would work cooperatively with the Village of Nulato to find appropriate diversion points on BLM land as necessary to avoid contamination.	N/A

Table 8: Areas of Critical Environmental Concern Actions by Alternative – Shaktoolik River ACEC

Alternative A	Alternative B	Alternatives C, D and E
ACEC Size: 192,591 acres	ACEC Size: 191,725 acres	N/A
Water Resources and Fisheries Management Decisions CYRMP (BLM 1986) All withdrawals are subject to valid existing rights, including properly recorded unpatented mining claims. Areas designated as ACECs are open to mineral location under the 1872 Mining Law and to mineral leasing under the Mineral Leasing Act of 1920 as amended and supplemented. Lands withdrawn from mineral location are open to non-surface-disturbing mineral leasing, such as oil and gas. Mining operations within designated ACECs will require an approved plan of operations prior to starting any surface-disturbing activities other than those described as casual use by 43 CFR 3809. Plan approval will require compliance with both the general guidelines established in this plan and the specific watershed ACEC Management Plan. All ACECs will require that surface-disturbing activities associated with mineral exploration and development be conducted under an approved plan of operations. Casual uses as defined under 43 CFR 3809 are exempt from this requirement. Additional requirements will be identified in the appropriate ACEC management plans. ACEC management plans are subject to public review before they are finalized.	Water Resources and Fisheries Management Decisions Any proposal to use or develop lands, waters, or resources within 300 feet or within the floodplain (whichever is greater) of the banks of active stream channels must demonstrate to the satisfaction of the AO that such use or development: • Would not adversely alter the condition and ecological function of aquatic and riparian systems by impacting water quality, stream flow, velocity, ground water hydrology, channel connectivity, channel form, material recruitment, substrate composition, energy (food) flow, and riparian function; and • Would not diminish the quality and diversity of habitats needed to sustain the production of fish and wildlife populations at their natural potential.	N/A
Forestry and Woodlands Decisions No special management decisions.	Forestry and Woodlands Decisions Closed to commercial woodland harvest. Non-subsistence house log harvest prohibited.	N/A
Lands and Realty Decisions The existing Shaktoolik River ACEC occurs within lands withdrawn by PLO 5180. PLO 5180 withdrew lands identified by legal description (subject to valid existing rights) from all forms of appropriation under the public land laws, including selections by the State of Alaska under the 1958 Alaska Statehood Act and from location and entry under the mining laws (except locations for metalliferous minerals) and from leasing under the Mineral Leasing Act. The lands were reserved for study to determine the proper classification of the lands under Section 17(d)(1) of ANCSA. The lands are currently managed under the 1986 CYRMP (BLM 1986) and are open on a case-by-case basis to permits, leases, ROWs, and easements.	Lands and Realty Decisions ROW avoidance area.	N/A

Alternative A	Alternative B	Alternatives C, D and E
Minerals Decisions CYRMP (BLM 1986) All withdrawals are subject to valid existing rights, including properly recorded unpatented mining claims. Areas designated as ACECs are open to mineral location under the 1872 Mining Law and to mineral leasing under the Mineral Leasing Act of 1920 as amended and supplemented. Lands withdrawn from mineral location are open to non-surface-disturbing mineral leasing, such as oil and gas. Mining operations within designated ACECs will require an approved plan of operations prior to starting any surface-disturbing activities other than those described as casual use by 43 CFR 3809. Plan approval will require compliance with both the general guidelines established in this plan and the specific watershed ACEC Management Plan. All ACECs will require that surface-disturbing activities associated with mineral exploration and development be conducted under an approved plan of operations. Casual uses as defined under 43 CFR 3809 are exempt from this requirement. Additional requirements will be identified in the appropriate ACEC management plans. ACEC management plans are subject to public review before they are finalized.	Minerals Decisions • Closed to salable • Closed to leasable • Withdrawn from locatable mineral entry (PLO 5180, currently open to metalliferous) If the recommended locatable withdrawal is not approved, locatable development would comply with all other management under this alternative and the following management would apply (subject to valid existing rights): • Cooperate with State of Alaska to help determine appropriate management of suction dredge mining in navigable waterways of the Shaktoolik River. In accordance with 43 CFR 3809.201(a), the BLM may establish an agreement with the State to allow suction dredging on BLM-managed lands which will provide maximum possible coordination with the State to avoid duplication and to ensure that operators prevent unnecessary or undue degradation of public lands. As directed by 43 CFR 3809.201(b), the agreement must require that the State notify the BLM within 15 days of application receipt to suction dredge so that the BLM may determine if federally proposed or listed threatened or endangered species or their proposed or designated critical habitat would be affected by the proposed action and to specify any necessary mitigation measures. The use of a suction dredge within the scope and allowances of the agreement, State statute, BLM regulations, and all applicable laws need not to submit to the BLM a notice or plan of operations. Any existing or future agreements that apply regionally or statewide, that meet the requirements outlined above will be considered adequate to meet the conditions of the BSWI RMP. • No recreational suction dredging on the non-navigable waterways of the Shaktoolik River ACEC. • All reclamation must result in the rehabilitation of fisheries and wildlife habitats. The rehabilitation of fisheries habitat is defined as a geomorphically stable channel (i.e., functioning conditions for lateral stability, bedform diversity, and floodplain connectivity (as defined by Harman et al. 2012 or AIM-NAMF datasets) and sufficient floodplain roughness and riparian vegetation to dissipate stream energy and minimize erosion. Baseline hydrological data that characterizes seasonal flow pattern and discharge and riparian vegetation condition would be required from the operator to establish the baseline for reclamation/rehabilitation purposes. The BLM would be available to advise operators on the exact type of baseline data and detailed needed to meet this requirement.	N/A
Recreation Decisions No special management decisions.	Recreation Decisions Any special recreation permits issued within the ACEC would require that human waste from those activities be compatible with ADEC Temporary Camp Practices and/or BLM permit conditions. If no facilities are available, waste will be contained and removed.	N/A

Alternative A	Alternative B	Alternatives C, D and E
Transportation and Travel Management Decisions No special management decisions.	Transportation and Travel Management Decisions (These prescriptions are consistent with criteria for designation found in 43 CFR 8342.1(a), (b), and (d) and are considered interim until the time of completion of a travel management plan for the areas in question.) Summer subsistence use would be limited to ATVs and UTVs. Summer casual would be limited to existing roads, primitive roads and trails (as shown in the BLM's current route inventory) by ATVs only. Winter subsistence and casual use would allow cross-country travel by snowmobiles. No future construction or designation of routes within the 100-year floodplain of surface waters unless it can be demonstrated through design, route placement, and alignment that the route will not measurably contribute to sediment delivery to the adjacent surface waters. Work in coordination with the State of Alaska to designate stream crossing routes, and these routes would be designated within the 100-year floodplain.	N/A
Visual Resources Management Decisions No special management decisions.	Visual Resources Management Decisions Managed as VRM Class III.	N/A
Water Resources Decisions No special management decisions.	Water Resources Decisions Pursue instream water right with the State of Alaska to maintain minimum instream flow for the Shaktoolik River.	N/A

Table 9: Areas of Critical Environmental Concern Actions by Alternative – Sheefish ACEC

Alternative A	Alternative B	Alternatives C, D and E
No Sheefish ACEC under Alternative A.	ACEC Size: 696,901 acres	N/A
Water Resources and Fisheries Management Decisions No special management decisions because this ACEC does not exist under Alternative A.	Water Resources and Fisheries Management Decisions Coordinate with State of Alaska in the annual monitoring of potential Sheefish spawning rivers within the boundary of the Sheefish ACEC. For those rivers identified as supporting spawning sheefish, the following management actions would apply within 0.25 mile on each side (from ordinary high water mark) of the reaches with known active spawning: Any proposal to use or develop lands, waters, or resources within the 100-year floodplain of active stream channels must demonstrate to the satisfaction of the AO that such use or development: • Would not adversely alter the condition and ecological function of aquatic and riparian systems by impacting water quality, stream flow, velocity, ground water hydrology, channel connectivity, channel form, material recruitment, substrate composition, energy (food) flow, and riparian function; and • Would not diminish the quality and diversity of habitats needed to sustain the production of fish and wildlife populations at their natural potential.	N/A
Cultural Resources Management Decisions No special management decisions because this ACEC does not exist under Alternative A.	Cultural Resources Management Decisions NSO for any externally proposed structures (e.g., cell towers, cabins). The Sheefish ACEC is co-located with the Iditarod National Historic Trail (INHT) National Trails Management Corridor (NTMC), which includes historic structures, the INHT tread itself, and cultural setting. Where overlap occurs, management proposed for the INHT NTMC would take precedence within the NTMC over management prescribed for the Sheefish ACEC.	N/A
Forestry and Woodlands Decisions No special management decisions because this ACEC does not exist under Alternative A.	Forestry and Woodlands Decisions Except for subsistence use, no woodland harvest within 0.25 mile of active spawning area. This would include house logs, commercial wood harvest, permitted woodland gathering for personal use and commercial timber harvest.	N/A

Alternative A	Alternative B	Alternatives C, D and E
Lands and Realty Decisions No special management decisions because this ACEC does not exist under Alternative A.	Lands and Realty Decisions ROW avoidance area. Coordinate with the State of Alaska on potential land exchanges to obtain all Hydrologic Unit Code 6 watershed acreage along the Big River and Middle Fork of the Kuskokwim.	N/A
Minerals Decisions No special management decisions because this ACEC does not exist under Alternative A.	Minerals Decisions • Closed to salable • Closed to leasable • Withdrawn from locatable mineral entry (PLO 5180, currently open to metalliferous) Withdrawal from mineral entry portion of the Big River starting at the BLM boundary up river to N 62°, 32' 22" N, 155 ° 03' 27" W, to include the river bed and a 1,000-foot buffer on each side of bankfull. Withdrawal from mineral entry a portion of the Middle Fork Kuskokwim River starting at the BLM boundary up river to 62° 41' 31" N, 154 ° 41' 05" W to include the river bed and 1,000 feet on each side of bank full. Total withdrawal would be 4,996 acres. If the recommended locatable withdrawal is not approved, locatable development would comply with all other management under this alternative and the following management would apply (subject to valid existing rights): • Cooperate with State of Alaska to help determine appropriate management of suction dredge mining in navigable waterways of the Big Fork and Middle Fork of the Kuskokwim River. In accordance with 43 CFR 3809.201(a), the BLM may establish an agreement with the State to allow suction dredging on BLM-managed lands which will provide maximum possible coordination with the State to avoid duplication and to ensure that operators prevent unnecessary or undue degradation of public lands. As directed by 43 CFR 3809.201(b), the agreement must require that the State notify the BLM within 15 days of application receipt to suction dredge so that the BLM may determine if federally proposed or listed threatened or endangered species or their proposed or designated critical habitat would be affected by the proposed action and to specify any necessary mitigation measures. The use of a suction dredge within the scope and allowances of the agreement, State statute, BLM regulations, and all applicable laws need not to submit to the BLM a notice or plan of operations. Any existing or future agreements that apply regionally or statewide, that meet the requirements outlined above will be considered adequate to meet the conditions of the BSWI RMP. • No recreational suction dredging on the non-navigable waterways of the Sheefish Spawning River ACEC. • All reclamation must result in the rehabilitation of fisheries and wildlife habitats. The rehabilitation of fisheries habitat is defined as a geomorphically stable channel (i.e., functioning conditions for lateral stability, bedform diversity, and floodplain connectivity (as defined by Harman et al. 2012 or AIM-NAMF datasets) and sufficient floodplain roughness and riparian vegetation to dissipate stream energy and minimize erosion. Baseline hydrological data that characterizes seasonal flow pattern and discharge and riparian vegetation condition would be required from the operator to establish the baseline for reclamation/rehabilitation purposes. The BLM would be available to advise operators on the exact type of baseline data and detailed needed to meet this requirement.	N/A
Recreation Decisions No special management decisions because this ACEC does not exist under Alternative A.	Recreation Decisions Any special recreation permits issued within the ACEC would require that human waste from those activities be compatible with ADEC Temporary Camp Practices and/or BLM permit conditions. If no facilities are available, waste will be contained and removed.	N/A

Alternative A	Alternative B	Alternatives C, D and E
Transportation and Travel Management Decisions No special management decisions because this ACEC does not exist under Alternative A.	Transportation and Travel Management Decisions (These prescriptions are consistent with criteria for designation found in 43 CFR 8342.1(a), (b), and (d) and are considered interim until the time of completion of a travel management plan for the areas in question.) Summer subsistence use would be limited to ATVs and UTVs. Summer casual would be limited to existing roads, primitive roads and trails (as shown in the BLM's current route inventory) by ATVs only. Winter subsistence and casual use would allow cross-country travel by snowmobiles. No future construction or designation of routes within the 100-year floodplain of surface waters unless it can be demonstrated through design, route placement, and alignment that the route will not measurably contribute to sediment delivery to the adjacent surface waters. Work in coordination with the State of Alaska to designate stream crossing routes, and these routes would be designated within the 100-year floodplain.	N/A
Visual Resources Management Decisions No special management decisions because this ACEC does not exist under Alternative A.	Visual Resources Management Decisions Managed as VRM Class II.	N/A
Water Resources Decisions No special management decisions because this ACEC does not exist under Alternative A.	Water Resources Decisions Pursue instream water rights with the State of Alaska to maintain minimum instream flow for the Big River and Middle Fork of the Kuskokwim River. Prioritize navigability determinations for the Big River and Middle Fork of the Kuskokwim River.	N/A

Table 10: Areas of Critical Environmental Concern Actions by Alternative – Swift River Whitefish Spawning ACEC

Alternative A	Alternative B	Alternatives C, D and E
No Swift River Whitefish Spawning ACEC under Alternative A.	ACEC Size: 220,032 acres	N/A
Water Resources and Fisheries Management Decisions No special management decisions because this ACEC does not exist under Alternative A.	Water Resources and Fisheries Management Decisions Any proposal to use or develop lands, waters, or resources within the 100-year floodplain of active stream channels must demonstrate to the satisfaction of the AO that such use or development: • Would not adversely alter the condition and ecological function of aquatic and riparian systems by impacting water quality, stream flow, velocity, ground water hydrology, channel connectivity, channel form, material recruitment, substrate composition, energy (food) flow, and riparian function; and • Would not diminish the quality and diversity of habitats needed to sustain the production of fish and wildlife populations at their natural potential	N/A
Forestry and Woodlands Decisions No special management decisions because this ACEC does not exist under Alternative A.	Forestry and Woodlands Decisions Closed to commercial woodland harvest. Non-subsistence house log harvest prohibited.	N/A
Lands and Realty Decisions No special management decisions because this ACEC does not exist under Alternative A.	Lands and Realty Decisions ROW avoidance area.	N/A

Alternative A	Alternative B	Alternatives C, D and E
Minerals Decisions No special management decisions because this ACEC does not exist under Alternative A.	Minerals Decisions • Closed to salable • Closed to leasable • Withdrawn from locatable mineral entry (PLO 5180, currently open to metalliferous) If the recommended locatable withdrawal is not approved, locatable development would comply with all other management under this alternative and the following management would apply (subject to valid existing rights): • Cooperate with State of Alaska to help determine appropriate management of suction dredge mining in navigable waterways of the Swift River. In accordance with 43 CFR 3809.201(a), the BLM may establish an agreement with the State to allow suction dredging on BLM-managed lands which will provide maximum possible coordination with the State to avoid duplication and to ensure that operators prevent unnecessary or undue degradation of public lands. As directed by 43 CFR 3809.201(b), the agreement must require that the State notify the BLM within 15 days of application receipt to suction dredge so that the BLM may determine if federally proposed or listed threatened or endangered species or their proposed or designated critical habitat would be affected by the proposed action and to specify any necessary mitigation measures. The use of a suction dredge within the scope and allowances of the agreement, State statute, BLM regulations, and all applicable laws need not to submit to the BLM a notice or plan of operations. Any existing or future agreements that apply regionally or statewide, that meet the requirements outlined above will be considered adequate to meet the conditions of the BSWI RMP. • No recreational suction dredging on the non-navigable waterways of the Swift River Whitefish Spawning River ACEC. • All reclamation must result in the rehabilitation of fisheries and wildlife habitats. The rehabilitation of fisheries habitat is defined as a geomorphically stable channel (i.e., functioning conditions for lateral stability, bedform diversity, and floodplain connectivity (as defined by Harman et al. 2012 or AIM-NAMF datasets) and sufficient floodplain roughness and riparian vegetation to dissipate stream energy and minimize erosion. Baseline hydrological data that characterizes seasonal flow pattern and discharge and riparian vegetation condition would be required from the operator to establish the baseline for reclamation/rehabilitation purposes. The BLM would be available to advise operators on the exact type of baseline data and detailed needed to meet this requirement.	N/A
Recreation Decisions No special management decisions because this ACEC does not exist under Alternative A.	Recreation Decisions Any special recreation permits issued within the ACEC would require that human waste from those activities be compatible with ADEC Temporary Camp Practices and/or BLM permit conditions. If no facilities are available, waste would be contained and removed.	N/A

Alternative A	Alternative B	Alternatives C, D and E
Transportation and Travel Management Decisions No special management decisions because this ACEC does not exist under Alternative A.	Transportation and Travel Management Decisions (These prescriptions are consistent with criteria for designation found in 43 CFR 8342.1(a), (b), and (d) and are considered interim until the time of completion of a travel management plan for the areas in question.) Summer subsistence use would be limited to ATVs and UTVs. Summer casual would be limited to existing roads, primitive roads and trails (as shown in the BLM's current route inventory) by ATVs only. Winter subsistence and casual use would allow cross-country travel by snowmobiles. No future construction or designation of routes within the 100-year floodplain of surface waters unless it can be demonstrated through design, route placement, and alignment that the route will not measurably contribute to sediment delivery to the adjacent surface waters. Work in coordination with the State of Alaska to designate stream crossing routes, and these routes would be designated within the 100-year floodplain.	N/A
Visual Resources Management Decisions No special management decisions because this ACEC does not exist under Alternative A.	Visual Resources Management Decisions Managed as VRM Class III.	N/A
Water Resources Decisions No special management decisions because this ACEC does not exist under Alternative A.	Water Resources Decisions Pursue instream water rights with the State of Alaska to maintain minimum instream flow for the Swift River.	N/A

Table 11: Areas of Critical Environmental Concern Actions by Alternative – Tagagawik River ACEC

Alternative A	Alternative B	Alternatives C, D and E
No Tagagawik River ACEC under Alternative A.	ACEC Size: 301,044 acres	N/A
Cultural Resources Management Decisions No special management decisions because this ACEC does not exist under Alternative A.	Cultural Resources Management Decisions NSO for any externally proposed structures (e.g., cell towers, cabins).	N/A
Forestry and Woodlands Decisions No special management decisions because this ACEC does not exist under Alternative A.	Forestry and Woodlands Decisions Closed to commercial woodland harvest. Non-subsistence house log harvest prohibited.	N/A
Lands and Realty Decisions No special management decisions because this ACEC does not exist under Alternative A.	Lands and Realty Decisions ROW avoidance area.	N/A

Alternative A	Alternative B	Alternatives C, D and E
Minerals Decisions No special management decisions because this ACEC does not exist under Alternative A.	Minerals Decisions • Closed to salable • Closed to leasable • Withdrawn from locatable mineral entry (PLO 5180, currently open to metalliferous) If the recommended locatable withdrawal is not approved, locatable development would comply with all other management under this alternative. All reclamation must result in the rehabilitation of fisheries and wildlife habitats. The rehabilitation of fisheries habitat is defined as a geomorphically stable channel (i.e., functioning conditions for lateral stability, bedform diversity, and floodplain connectivity (as defined by Harman et al. 2012 or AIM-NAMF datasets) and sufficient floodplain roughness and riparian vegetation to dissipate stream energy and minimize erosion. Baseline hydrological data that characterizes seasonal flow pattern and discharge and riparian vegetation condition would be required from the operator to establish the baseline for reclamation/rehabilitation purposes. The BLM would be available to advise operators on the exact type of baseline data and detailed needed to meet this requirement.	N/A
Recreation Decisions No special management decisions because this ACEC does not exist under Alternative A.	Recreation Decisions Any special recreation permits issued within the ACEC would require that human waste from those activities be compatible with ADEC Temporary Camp Practices and/or BLM permit conditions. If no facilities are available, waste would be contained and removed.	N/A
Transportation and Travel Management Decisions No special management decisions because this ACEC does not exist under Alternative A.	Transportation and Travel Management Decisions (These prescriptions are consistent with criteria for designation found in 43 CFR 8342.1(a), (b), and (d) and are considered interim until the time of completion of a travel management plan for the areas in question.) Summer subsistence use would be limited to ATVs and UTVs. Summer casual would be limited to existing roads, primitive roads and trails (as shown in the BLM's current route inventory) by ATVs only. Winter subsistence and casual use would allow cross-country travel by snowmobiles and over-the-snow vehicles. No future construction or designation of routes within the 100-year floodplain of surface waters unless it can be demonstrated through design, route placement, and alignment that the route will not measurably contribute to sediment delivery to the adjacent surface waters.	N/A
Visual Resources Management Decisions No special management decisions because this ACEC does not exist under Alternative A.	Visual Resources Management Decisions • Managed as VRM Class II.	N/A

Table 12: Areas of Critical Environmental Concern Actions by Alternative – Unalakleet River Watershed ACEC

Alternative A	Alternative B	Alternatives C, D and E
No Unalakleet River Watershed ACEC under Alternative A.	ACEC Size: 733,995 acres	N/A
Water Resources and Fisheries Management Decisions No special management decisions because this ACEC does not exist under Alternative A.	Water Resources and Fisheries Management Decisions Any proposal to use or develop lands, waters, or resources within 300 feet or within the 100-year floodplain (whichever is greater) of the banks of active stream channels must demonstrate to the satisfaction of the AO that such use or development: • Would not adversely alter the condition and ecological function of aquatic and riparian systems by impacting water quality, stream flow, velocity, ground water hydrology, channel connectivity, channel form, material recruitment, substrate composition, energy (food) flow, and riparian function. • Would not diminish the quality and diversity of habitats needed to sustain the production of fish and wildlife populations at their natural potential.	N/A
Cultural Resources Management Decisions No special management decisions because this ACEC does not exist under Alternative A.	Cultural Resources Management Decisions NSO for any externally proposed structures (e.g., cell towers, cabins).	N/A
Forestry and Woodlands Decisions No special management decisions because this ACEC does not exist under Alternative A.	Forestry and Woodlands Decisions Closed to commercial woodland harvest. Non-subsistence house log harvest prohibited.	N/A
Lands and Realty Decisions No special management decisions because this ACEC does not exist under Alternative A.	Lands and Realty Decisions ROW avoidance area. Prioritize cooperation with the State of Alaska and Native Village of Unalakleet to develop coordinated strategy for management of the Unalakleet River corridor within the ACEC. Work toward developing a cooperative agreement with the state of Alaska to coordinate the management objectives for both BLM and State lands within the Unalakleet River Corridor.	N/A

Alternative A	Alternative B	Alternatives C, D and E
Minerals Decisions No special management decisions because this ACEC does not exist under Alternative A.	Minerals Decisions • Closed to salable • Closed to leasable • Withdrawn from locatable mineral entry (PLO 5180, currently open to metalliferous) If the recommended locatable withdrawal is not approved, locatable development would comply with all other management under this alternative and the following management would apply (subject to valid existing rights): • Cooperate with State of Alaska to help determine appropriate management of suction dredge mining in navigable waterways of the Main Unalakleet River and the North River. In accordance with 43 CFR 3809.201(a), the BLM may establish an agreement with the State to allow suction dredging on BLM-managed lands which will provide maximum possible coordination with the State to avoid duplication and to ensure that operators prevent unnecessary or undue degradation of public lands. As directed by 43 CFR 3809.201(b), the agreement must require that the State notify the BLM within 15 days of application receipt to suction dredge so that the BLM may determine if federally proposed or listed threatened or endangered species or their proposed or designated critical habitat would be affected by the proposed action and to specify any necessary mitigation measures. The use of a suction dredge within the scope and allowances of the agreement, State statute, BLM regulations, and all applicable laws need not to submit to the BLM a notice or plan of operations. Any existing or future agreements that apply regionally or statewide, that meet the requirements outlined above will be considered adequate to meet the conditions of the BSWI RMP. • No recreational suction dredging on the non-navigable waterways of the Unalakleet River Watershed ACEC. • All reclamation must result in the rehabilitation of fisheries and wildlife habitats. The rehabilitation of fisheries habitat is defined as a geomorphically stable channel (i.e., functioning conditions for lateral stability, bedform diversity, and floodplain connectivity (as defined by Harman et al. 2012 or AIM-NAMF datasets) and sufficient floodplain roughness and riparian vegetation to dissipate stream energy and minimize erosion. • Baseline hydrological data that characterizes seasonal flow pattern and discharge and riparian vegetation condition would be required from the operator to establish the baseline for reclamation/rehabilitation purposes. The BLM would be available to advise operators on the exact type of baseline data and detailed needed to meet this requirement.	N/A
Recreation Decisions No special management decisions because this ACEC does not exist under Alternative A.	Recreation Decisions Any special recreation permits issued within the ACEC would require that human waste from those activities be compatible with ADEC Temporary Camp Practices and/or BLM permit conditions. If no facilities are available, waste would be contained and removed.	N/A

Alternative A	Alternative B	Alternatives C, D and E
Transportation and Travel Management Decisions No special management decisions because this ACEC does not exist under Alternative A.	Transportation and Travel Management Decisions (These prescriptions are consistent with criteria for designation found in 43 CFR 8342.1(a), (b), and (d) and are considered interim until the time of completion of a travel management plan for the areas in question.) Summer subsistence use would be limited to ATVs and UTVs. Summer casual would be limited to existing roads, primitive roads and trails (as shown in the BLM's current route inventory) by ATVs only. Winter subsistence and casual use would allow cross-country travel by snowmobiles. No future construction or designation of routes within the 100-year floodplain of surface waters unless it can be demonstrated through design, route placement, and alignment that the route will not measurably contribute to sediment delivery to the adjacent surface waters. Work in coordination with the State of Alaska to designate stream crossing routes, and these routes would be designated within the 100-year floodplain.	N/A
Visual Resources Management Decisions No special management decisions because this ACEC does not exist under Alternative A.	Visual Resources Decisions Managed as VRM Class II (WSR corridor managed as VRM Class I). To the extent practicable, restoration activities would be required to restore to original contour and revegetate with species to avoid visual contrast. The goal is that permitted surface-disturbing activities restore sites to near-original site condition.	N/A
WSR Management Decisions No special management decisions because this ACEC does not exist under Alternative A.	WSR Management Decisions Where the ACEC boundary overlaps with the WSR, the ACEC takes precedent with management prescriptions. The WSR management prescriptions would only apply to that portion of the ACEC within the Unalakleet Wild River Corridor.	N/A
Water Resources Decisions No special management decisions because this ACEC does not exist under Alternative A.	Water Resources Decisions Continue to pursue instream water right with the State of Alaska to maintain minimum instream flow for the Main Unalakleet River and the North River.	N/A

Table 13: Areas of Critical Environmental Concern Actions by Alternative – Ungalik River ACE

Alternative A	Alternative B	Alternatives C, D and E
ACEC Size: 112,719 acres	ACEC Size: 113,455 acres	N/A
Water Resources and Fisheries Management Decisions CYRMP (BLM 1986) Watershed ACECs have been established for all portions of the watershed lying above the lower limit of the above identified river withdrawals. These ACEC designations include all lands within the river withdrawal area.	Water Resources and Fisheries Management Decisions Any proposal to use or develop lands, waters, or resources within 300 feet or within the 100-year floodplain (whichever is greater) of the banks of active stream channels must demonstrate to the satisfaction of the AO that such use or development: • Would not adversely alter the condition and ecological function of aquatic and riparian systems by impacting water quality, stream flow, velocity, ground water hydrology, channel connectivity, channel form, material recruitment, substrate composition, energy (food) flow, and riparian function; and • Would not diminish the quality and diversity of habitats needed to sustain the production of fish and wildlife populations at their natural potential.	N/A
Forestry and Woodlands Decisions No special management decisions.	Forestry and Woodlands Decisions Closed to commercial woodland harvest. Non-subsistence house log harvest prohibited.	N/A

Alternative A	Alternative B	Alternatives C, D and E
Lands and Realty Decisions The existing Ungalik River ACEC occurs within lands withdrawn by PLO 5180. PLO 5180 withdrew lands identified by legal description (subject to valid existing rights) from all forms of appropriation under the public land laws, including selections by the State of Alaska under the 1958 Alaska Statehood Act and from location and entry under the mining laws (except locations for metalliferous minerals) and from leasing under the Mineral Leasing Act. The lands were reserved for study to determine the proper classification of the lands under Section 17(d)(1) of the ANCSA. The lands are currently managed under the 1986 CYRMP (BLM 1986) and are open on a case-by-case basis to permits, leases, ROWs, and easements.	Lands and Realty Decisions ROW avoidance area.	N/A
Minerals Decisions Closed to mineral leasing and non-metalliferous mineral entry by PLO 5180. Open to mining for metalliferous minerals, leases, permits, and ROWs. CYRMP (BLM 1986) All withdrawals are subject to valid existing rights, including properly recorded unpatented mining claims. Areas designated as ACECs are open to mineral location under the 1872 Mining Law and to mineral leasing under the Mineral Leasing Act of 1920 as amended and supplemented. Lands withdrawn from mineral location are open to non-surface-disturbing mineral leasing, such as oil and gas. Mining operations within designated ACECs will require an approved plan of operations prior to starting any surface-disturbing activities other than those described as casual use by 43 CFR 3809. Plan approval will require compliance with both the general guidelines established in this plan and the specific watershed ACEC Management Plan. All ACECs will require that surface-disturbing activities associated with mineral exploration and development be conducted under an approved plan of operations. Casual uses as defined under 43 CFR 3809 are exempt from this requirement. Additional requirements will be identified in the appropriate ACEC management plans. ACEC management plans are subject to public review before they are finalized.	Minerals Decisions • Closed to salable • Closed to leasable • Withdrawn from locatable mineral entry (PLO 5180, currently open to metalliferous) If the recommended locatable withdrawal is not approved, locatable development would comply with all other management under this alternative and the following management would apply (subject to valid existing rights): • Cooperate with State of Alaska to help determine appropriate management of suction dredge mining in navigable waterways of the Ungalik River. In accordance with 43 CFR 3809.201(a), the BLM may establish an agreement with the State to allow suction dredging on BLM-managed lands which will provide maximum possible coordination with the State to avoid duplication and to ensure that operators prevent unnecessary or undue degradation of public lands. As directed by 43 CFR 3809.201(b), the agreement must require that the State notify the BLM within 15 days of application receipt to suction dredge so that the BLM may determine if federally proposed or listed threatened or endangered species or their proposed or designated critical habitat would be affected by the proposed action and to specify any necessary mitigation measures. The use of a suction dredge within the scope and allowances of the agreement, State statute, BLM regulations, and all applicable laws need not to submit to the BLM a notice or plan of operations. Any existing or future agreements that apply regionally or statewide, that meet the requirements outlined above will be considered adequate to meet the conditions of the BSWI RMP. • No recreational suction dredging on the non-navigable waterways of the Ungalik River ACEC. • All reclamation must result in the rehabilitation of fisheries and wildlife habitats. The rehabilitation of fisheries habitat is defined as a geomorphically stable channel (i.e., functioning conditions for lateral stability, bedform diversity, and floodplain connectivity (as defined by Harman et al. 2012 or AIM-NAMF datasets) and sufficient floodplain roughness and riparian vegetation to dissipate stream energy and minimize erosion. • Baseline hydrological data that characterizes seasonal flow pattern and discharge and riparian vegetation condition would be required from the operator to establish the baseline for reclamation/rehabilitation purposes. The BLM would be available to advise operators on the exact type of baseline data and detailed needed to meet this requirement.	N/A

Alternative A	Alternative B	Alternatives C, D and E
Transportation and Travel Management Decisions No special management decisions.	Transportation and Travel Management Decisions (These prescriptions are consistent with criteria for designation found in 43 CFR 8342.1(a), (b), and (d) and are considered interim until the time of completion of a travel management plan for the areas in question.) Summer subsistence use would be limited to ATVs and UTVs. Summer casual would be limited to existing roads, primitive roads and trails (as shown in the BLM's current route inventory) by ATVs only. Winter subsistence and casual use would allow cross-country travel by snowmobiles. No future construction or designation of routes within the 100-year floodplain of surface waters unless it can be demonstrated through design, route placement, and alignment that the route will not measurably contribute to sediment delivery to the adjacent surface waters. Work in coordination with the State of Alaska to designate stream crossing routes, and these routes would be designated within the 100-year floodplain.	N/A
Recreation Decisions No special management decisions.	Recreation Decisions Any special recreation permits issued within the ACEC would require that human waste from those activities be compatible with ADEC Temporary Camp Practices and/or BLM permit conditions. If no facilities are available, waste will be contained and removed.	N/A

Section 3. References Cited

ADNR (Alaska Department of Natural Resources). 2007. Reservation of Water Application; DNR file application LAS 27140. September 14, 2007.

BLM (Bureau of Land Management). 1981. Management Framework Plan Southwest Planning Area. BLM Anchorage District Office.

BLM. 1986. Central Yukon Resource Management Plan.

Harman, W., R. Starr, M. Carter, K. Tweedy, M. Clemmons, S. Suggs, and C. Miller. 2012. A function-based framework for developing stream assessments, restoration goals, performance standards, and standard operating procedures. Washington, DC: U.S. Environmental Protection Agency, Office of Wetlands, Oceans, and Watersheds.

**Appendix O: Best Management Practices (BMPs)
and Standard Operating Procedures (SOPs)**

Appendix O. Best Management Practices (BMPs) and Standard Operating Procedures (SOPs)

Section 1. Introduction

Appendix O lists BMPs and SOPs identified during the development of the Bering Sea–Western Interior (BSWI) Proposed Resource Management Plan (PRMP)/Final Environmental Impact Statement (FEIS) that may be used at the project level to achieve desired outcomes for their respective resources. These BMPs and SOPs are guidelines to choose from for future National Environmental Policy Act (NEPA) projects analyzed in this planning area; however, they are not considered land use plan decisions. Because the BMPs/SOPs presented in this appendix are not mandatory, they may be updated or modified without a plan amendment.

BMPs/SOPs were based on the best information available during development of the BSWI PRMP/FEIS. The BMPs/SOPs will augment management decisions described in Chapter 2 or provide protections where action alternatives do not include measures that would be considered protective of resources or would “open” areas to surface-disturbing activity. For example, for Alternatives C, D, and E, which do not include Area of Critical Environmental Concern (ACEC) designation protections, the impact analysis considers BMPs/SOPs protective of fisheries and cultural resources that could be implemented by the Bureau of Land Management (BLM), which would protect relevant and important values. The Alaska National Interest Lands Conservation Act (ANILCA) 810 Analysis (Appendix R) also calls out the establishment of BMPs/SOPs to satisfy ANILCA 810(a)(3)(C): “Reasonable steps will be taken to minimize adverse impacts upon subsistence uses and resources results from such actions.”

The BLM will apply applicable BMP/SOPs to all actions, whether implemented by the BLM or authorized by the BLM and implemented by another individual, organization, or agency on public land, including but not limited to Federal Land Policy and Management Act (FLPMA) leases and permits, oil and gas activities, Special Recreation Permits, renewable energy activities, timber harvest activities, mining Plans of Operation, and authorizations for rights-of-way. For fluid mineral leasing activities, BMPs/SOPs would apply in addition to the Standard Lease Terms and Leasing Stipulations, unless specifically excluded under a particular alternative. Only those BMPs/SOPs concerning resources that are potentially affected by the action will be applied to authorized permits and authorizations. For example, BMPs/SOPs protecting caribou habitat would not apply to projects that are not located in caribou habitat. BMPs/SOPs may be modified through site-specific analysis of subsequent authorizations but still must meet the goals and objectives of the BSWI PRMP/FEIS. BMPs/SOPs will continue to evolve as better resource information is gained and/or changes in technology become available. Modifications to BMPs/SOPs may be appropriate if other measures are taken to protect resources that would result in the same or reduced impact.

BMPs and SOPs are considered during the site-specific analysis that occurs during activity-level planning and, if adopted, are applied as conditions of approval to land use authorizations and permits. BMPs/SOPs are not selected as a condition of the permitted activities if the applicant has included them as part of the proposal or has identified an alternative, such as adoption of an acceptable BMP to meet stated resource management objectives. Applicants are encouraged to consider alternative methods, BMPs, and/or design features for BLM’s consideration during the

permitting process. If an applicant does not include alternatives for agency consideration, the BMPs/SOPs identified will be incorporated into an approval for a proposed activity.

The Authorized Officer (AO) or their representative is responsible for ensuring that the intent of the BMPs and SOPs presented in this appendix are followed and that permittees comply with the conditions of their authorization. Non-compliance will be documented, and a notice will be sent to the permittee, along with corrective actions and a time frame in which the actions are to be completed.

Section 2. Resource Areas

Table O-1: Air Quality and Air Quality-Related Values

SOP / BMP Number	SOP / BMP	Construction or Operation
Air-1	<i>Road Use and Dust Abatement</i> <i>Apply water or road surface stabilizers/dust control additives to reduce dust deposition and degradation of air quality near communities.</i>	Both

Table O-2: Soils

SOP / BMP Number	SOP / BMP	Construction or Operation
Soils-1	Where appropriate, roadways will be ditched on the uphill side. Culverts or low water crossings will be installed at suitable intervals. Spacing of drainage devices and water bars will be appropriate for the road gradient and soil erodibility of the site.	Construction
Soils-2	Design roads and trails for minimal disruption of natural drainage patterns. All road-building activity shall use BMPs established by the U.S. Forest Service (FSH 7709.56 – Road Construction Handbook Chapter 40 – Design) as well as BLM Manual 9113 and BLM Handbooks 9113-1, 9113-2, and 9115-1 to guide maintenance and road construction designs and requirements.	Construction
Soils-3	Roads and trails should avoid areas with unstable or fragile soils.	Construction
Soils-4	Water bars will be placed across reclaimed roads. Spacing will be dependent on road gradient, soil erodibility, and other site-specific factors.	Construction

SOP / BMP Number	SOP / BMP	Construction or Operation
Soils-5	Road Construction - Locate temporary and permanent roads and landings on stable locations, e.g., ridge tops, stable benches, or flats, and gentle-to-moderate side slopes. Minimize road construction on steep slopes (>36.4 percent). - Confine pioneer roads to the construction limits of the permanent roadway to reduce the amount of area disturbed and avoid deposition in wetlands, Riparian Areas, floodplains, and waters of the State. Install temporary drainage, erosion, and sediment control structures. Storm proof or close pioneer roads prior to the onset of the wet season. - Design road cut and fill slopes with stable angles to reduce erosion and prevent slope failure. - End-haul material excavated during construction, renovation, or maintenance where side slopes generally exceed 36.4 percent and any slope where side-cast material may enter wetlands, floodplains, and waters of the State. - Construct road fills to prevent fill failure using inorganic material, compaction, buttressing, sub-surface drainage, rock facing, or other effective means. - Design and construct sub-surface drainage (e.g., trench drains using geo-textile fabrics and drain pipes) in landslide-prone areas and saturated soils. Minimize or eliminate new road construction in these areas. - Locate waste disposal areas outside wetlands, Riparian Areas, floodplains, and unstable areas to minimize risk of sediment delivery to waters of the State. Apply surface erosion control prior to the wet season. Prevent overloading areas, which may become unstable. - Use controlled blasting techniques to minimize loss of material on steep slopes or into wetlands, Riparian Areas, floodplains, and waters of the State. - Effectively drain the road surface by using crowning, insloping or outsloping, grade reversals (rolling dips), and water bars or a combination of these methods. Avoid concentrated discharge onto fill slopes unless the fill slopes are stable and erosion-protected. - Outslope temporary and permanent low volume roads to provide surface drainage on road gradients up to 6 percent unless there is a traffic hazard from the road shape.	Construction
Soils-6	Water Dependent Facilities Construct boat ramps and approaches with hardened surfaces. Minimize riprap to a 4-foot width to protect concrete ramps. Docks must not be wider than 6 feet and must not include any treated wood.	Construction
Soils-7	Snow and ice bridges will be removed, breached, or slotted before spring break-up. Ramps and bridges will be substantially free of soil and debris.	Both
Soils-8	Overland moves and heavy equipment use: - Whenever possible, overland moves that are a part of permitted operations will occur during winter when frost and snow cover is sufficient to minimize vegetation and soil disturbance and compaction. The AO will determine the date when sufficient frost and snow cover exists, and overland moves should not occur until these conditions are met. - Design and locate winter trails and ice roads for overland moves to minimize compaction of soils and breakage, abrasion, compaction, or displacement of vegetation. - Clearing of drifted snow is generally allowed, to the extent that vegetative ground cover is not disturbed. - When access is required in snow-free months, routes that utilize naturally hardened sites will be selected to avoid trail braiding, and wetlands will be avoided. The permittee will employ vehicle types and methods that minimize vegetation and soil disturbance, such as use of air or water craft, utilizing existing roads or trails, or use of low ground pressure vehicles. - The use of heavy machinery in saturated soil conditions will be limited to low ground pressure designated machinery, unless mats or other mitigation are employed.	Both
Soils-9	At the beginning of any surface-disturbing activities, topsoil will be stockpiled and saved for later reclamation. At sites with little or no pre-disturbance topsoil, which will result in an insufficient amount of topsoil to distribute over the entire disturbed area at a deep enough depth to adequately foster revegetation, specific areas best suited for reclamation efforts should be selected to receive the topsoil. If practicable, use topsoil and vegetation from adjacent areas. At sites where topsoil is not available, fine material may be stockpiled and used in place of topsoil. If any organics are available, they should be mixed in with the fines.	Both

SOP / BMP Number	SOP / BMP	Construction or Operation
Soils-10	Prudent use of erosion control measures, including diversion terraces, riprap, matting, temporary sediment traps, and water bars, will be employed as necessary to control soil erosion, as appropriate. In areas where little to no topsoil is present, efforts should be made to place the limited quantity of soil in areas prone to erosion or failure. If natural composition, texture, or porosity of the surface materials is not conducive to natural revegetation, an operator shall take measures to promote natural revegetation, including redistribution of topsoil, where available/practicable (11 Alaska Administrative Code [AAC] 97(a)(3)).	Both
Soils-11	Areas disturbed during project operation or construction will be reclaimed to as near pre-project conditions as practical. Wetland topsoil will be handled so it remains segregated from other soils. If necessary, use mulching, erosion control measures, and fertilization to achieve acceptable ground stabilization. Use inter-seeding, secondary seeding, or staggered seeding to accomplish revegetation objectives, as needed. Use follow-up seeding, corrective erosion control measures, or other approved measures on areas of surface disturbance that experience revegetation or ground stability failure. Corrective erosion control measures include, but are not limited to, broadcasting woody debris, planting viable portions of live shrubs (sprigging), and transplanting live vegetation from adjacent areas within the project area.	Both
Soils-12	The BLM recognizes that there may be more than one correct way to achieve successful reclamation of soil resources, and a variety of methods may be appropriate to the varying circumstances. The BLM will continue to allow applicants to use their own expertise in recommending and implementing construction and reclamation projects. These allowances still hold the applicant responsible for final reclamation standards of performance. The BLM will review the applicant's reclamation plan and if needed, incorporate conditions of approval to enhance success and mitigate impacts.	Both
Soils-13	Natural revegetation of disturbed sites is the generally preferred method for revegetation/stabilization of disturbed soils. Where erosion is problematic or rapid establishment of plant cover is desired, utilize a combination of seeding, planting, and transplanting of adult plants or vegetation mats, and/or fertilizing as necessary to mitigate soil erosion.	Both
Soils-14	For long-term storage of soil stockpiles provide protective cover such as organic mulch, herbaceous vegetation, jute matting, or other erosion-preventative fabric.	Both
Soils-15	Where roads are not available, overland movement of equipment, materials, and supplies is allowed when soils are frozen and sufficient snow cover exists to prevent soil compaction and loss or damage to vegetation. Overland travel at other times may be allowed by the AO based on the site characteristics and equipment types.	Both
Soils-16	Soil erosion will be minimized by restricting the removal of vegetation adjacent to streams and by stabilizing disturbed soil as soon as possible. (NOTE: This is not intended to preclude activities that by nature must occur within riparian or wetland areas, such as placer mining.)	Both
Soils-17	To minimize soil erosion, surface-disturbing proposals, involving constructions on slopes greater than 33 percent (3:1) will include an approved erosion control strategy, topsoil segregation/restoration plan, be properly surveyed, and designed by an engineer registered in the State of Alaska and approved by BLM prior to construction and maintenance. If, after an environmental analysis, the AO determines that pursuing other placement alternatives will cause undue or unnecessary degradation, occupancy in the no surface occupancy (NSO) area may be authorized. A modification may be granted if a detailed analysis finds that surface disturbance could occur without accelerated erosion. Locatable mining operations must include slope stability and erosion mitigation measures in their reclamation plan. The BLM may require an engineering review of slopes steeper than 33 percent that are proposed to be part of final reclamation. During active operations, slopes steeper than 33 percent must comply with all safety guidelines required by federal and State requirements.	Both

SOP / BMP Number	SOP / BMP	Construction or Operation
Soils-18	Erosion Control Measures • During roadside brushing, remove vegetation by cutting rather than uprooting. • Limit road and landing construction, reconstruction, or renovation activities to the dry season. Keep erosion control measures concurrent with surface disturbance to allow immediate storm proofing. • Apply native seed and certified weed-free mulch to cut and fill slopes, ditch lines, and waste disposal sites with potential for sediment delivery to wetlands, Riparian Areas, floodplains, and waters of the State. If needed to promote a rapid ground cover and prevent aggressive invasive plants, use interim erosion control non-native sterile annuals before attempting to restore natives. Apply seed on completion of construction and as early as possible to increase germination and growth. Reseed if necessary to accomplish erosion control. Select seed species that are fast-growing, and provide ample ground cover and soil-binding properties. Apply mulch that will stay in place and at site-specific rates to prevent erosion. • Place sediment-trapping materials or structures such as straw bales, jute netting, or sediment basins at the base of newly constructed fill or side slopes where sediment could be transported to waters of the State. Keep materials away from culvert inlets or outlets. • Use biotechnical stabilization and soil bioengineering techniques as appropriate to control bank erosion (e.g., commercially produced matting and blankets, transplanted vegetation mats, live plants or cuttings, dead plant material, rock, and other inert structures). • Suspend surface-disturbing activity if forecasted rain will saturate soils to the extent that there is potential for movement of sediment from the road to wetlands, floodplains, and waters of the State, or otherwise employ engineering controls to prevent such movement. Cover or temporarily stabilize exposed soils during work suspension. • Upon completion of surface-disturbing activities, immediately stabilize fill material over stream crossing structures such as culverts. Measures could include but not be limited to erosion control blankets and mats, soil binders, soil tackifiers, or placement of slash. • Apply fertilizer in a manner to prevent direct fertilizer entry to wetlands, Riparian Areas, floodplains, and waters of the State.	Both
Soils-19	Road Maintenance • Prior to the defined site-specific wet season, provide effective road surface drainage maintenance. Clear ditch lines in sections where there is lowered capacity or obstructed by dry loose slough, gravel, sediment wedges, small failures, or fluvial sediment deposition. Remove accumulated sediment and blockages at cross-drain inlets and outlets. Grade natural surface and aggregate roads where the surface is uneven from surface erosion or vehicle rutting. Restore crowning, outsloping, or insloping for the road type for effective runoff. Remove or provide outlets through berms on the road shoulder. After ditch cleaning prior to hauling, allow vegetation to reestablish or use sediment entrapment measures (e.g., sediment trapping blankets and silt fences). • Retain ground cover in ditch lines, except where sediment deposition or obstructions require maintenance. • Maintain water flow conveyance, sediment filtering and ditch line integrity by limiting ditch line disturbance and groundcover destruction when machine cleaning within 200 feet of road stream crossings. • Avoid undercutting of cut-slopes when cleaning ditch lines. • Remove and dispose of slide material when it is obstructing road surface and ditch line drainage. Place material on stable ground outside of wetlands, Riparian Areas, floodplains, and waters of the State. Seed with native seed and use weed-free mulch. • Do not sidecast loose ditch or surface material where it can enter wetlands, Riparian Areas, floodplains, and waters of the State. • Retain low-growing vegetation on cut-and-fill slopes. • Seed and mulch cleaned ditch lines and bare soils that drain directly to wetlands, floodplains, and waters of the State, with native species and weed-free mulch.	Both

SOP / BMP Number	SOP / BMP	Construction or Operation
Soils-20	Road Closure and Reclamation - Inspect reclaimed roads to ensure that vegetation stabilization measures are operating as planned, drainage structures are operational, and noxious weeds are not providing erosion control. Conduct vegetation treatments and drainage structure maintenance as needed. - Reclaim temporary roads upon completion of use. - Prevent vehicular traffic, utilizing methods such as gates, guard rails, earth/log barricades, to reduce or eliminate erosion and sedimentation. - Convert existing drainage structures such as ditches and cross drain culverts to a long-term maintenance free drainage configuration such as an outsloped road surface and water bars. - Place and remove temporary stream crossings during the dry season, without overwintering, unless designed to accommodate the 100-year design flood event. - Place excavated material from removed stream crossings on stable ground outside of wetlands, Riparian Areas, floodplains, and waters of the State. In some cases, material could be used to recontour old road cuts or be spread across roadbed to prevent erosion. - Reestablish stream crossings to the natural stream gradient. Excavate side slopes back to the natural bank profile. Reestablish appropriate channel width and floodplain surface slope and extent to promote stream stability and geomorphic function. - Install cross ditches or water bars upslope from stream crossing to direct runoff and potential sediment to the hillslope rather than deliver it to the stream. - Following culvert removal and prior to the wet season, apply erosion control and sediment trapping measures (e.g., seeding, mulching, straw bales, jute netting, and native vegetative cuttings) where sediment can be delivered into wetlands, Riparian Areas, floodplains, and waters of the State. - Implement tillage measures for remaining fill, including ripping or subsoiling to an effective depth. Treat compacted areas including the roadbed, landings, construction areas, and spoils sites. - After tilling the road surface, pull back unstable road fill and end-haul or contour to the natural slopes.	Both
Soils-21	Road Use - On active haul roads, use durable rock or engineered surfacing designed to resist rutting or development of sediment on road surfaces that drain directly to wetlands, floodplains, and waters of the State. - Prior to winter hauling activities, implement structural road treatments such as increasing the frequency of cross drains, installing sediment barriers or catch basins, applying gravel lifts or asphalt road surfacing at stream crossing approaches, and armoring ditch lines. - Remove snow on surfaced roads in a manner that will protect the road and adjacent resources. As much as practical, retain a minimum layer (4 inches) of compacted snow on the road surface. Provide drainage through the snow bank at intervals to allow snowmelt to drain off the road surface. - Avoid removing snow from unsurfaced roads where runoff drains to waters of the State. - To reduce sediment tracking from natural surface roads during active haul, provide a gravel approach before entrance onto surfaced roads. - Install temporary culverts and washed rock on top of low-water ford to reduce vehicle contact with water during active haul. - Remove culverts promptly after use.	Both

SOP / BMP Number	SOP / BMP	Construction or Operation
Soils-22	Off-Highway Vehicle (OHV) Trails • Locate new OHV trails on stable locations (e.g., ridge tops, benches, and gentle-to-moderate side slopes) as much as possible. Minimize trail construction on slopes 8 percent or greater where runoff could channel to a waterbody or create excessive erosion. • Design, construct, and maintain trail width, grades, curves, and switchbacks suitable to the terrain and designated use. Use and maintain surfacing materials suitable to the site and use, to withstand traffic and to minimize runoff and erosion. • Suspend construction or maintenance of trails where erosion and runoff into waterbodies would occur. • Locate staging areas outside Riparian Areas. Design or upgrade staging areas to prevent sediment/pollutant delivery to wetlands, floodplains, and waterbodies, (e.g., rocking or hardening and drainage through grading or shaping). • Designate class of vehicle suitable for the trail location, width, trail surfaces, and waterbody crossings, to prevent erosion and potential sediment delivery. • Designate season of use if the trail bed is prone to erosion, rutting, gully, or compaction, due to high soil moisture, standing water or snowmelt. • Use existing road crossings of streams and floodplains on low-volume roads and partially decommissioned roads that tie with the trail system, where safety permits. • Minimize low-water stream crossings for constructed or existing trails. Cross streams on stable substrate (e.g., bedrock, cobble) in areas of low streambanks. • Block alternate stream-crossing routes where OHV wheel slippage (acceleration/ braking) would tear down banks or deliver sediment. • Avoid motorized vehicle use in ponds and wetlands, and navigating up or down streams and side-channels. Use suitable barriers where feasible. • Design improved stream crossings (culverts and bridges) for the 100-year flood event. • In OHV bridge structures, avoid chemically treated materials at water level contact points where leachate or solids may enter waterbodies. • Use a temporary flow diversion bypass to minimize downstream turbidity, when constructing in perennial stream crossings. • When constructing or maintaining trails within Riparian Areas, do not cut the portion of logs or down woody material that extend into the active stream channel. Provide for adequate stabilization of the logs if not doing so would create a safety hazard. • Harden trail approaches to stream crossings using materials such as geotextile fabric and rock aggregate. • Hydrologically disconnect trails from waterbodies to the extent practicable. Install drainage features (e.g., drain dips and leadoff ditches), on approaches to stream crossings as needed to divert runoff and reinforce with rock for longevity. • Where trails intersect road ditches, provide erosion resistant crossings. Divert water from the trail to keep from reaching wetlands, floodplains, and waterbodies. • If trail width is too wide for the designated use (such as old roads converted to trails), consider tilling one side of the trail, covering with brush, and seeding or planting. • Repair rills and gullies to keep sediment from reaching wetlands, floodplains, and waterbodies. • Construct and repair water bars, drain dips, and leadoff ditches as needed. These features may need rock reinforcement to promote longevity. Self-maintaining drain dips or leadoff features are the preferred design. • Monitor trail condition to identify surface maintenance and drainage needs to prevent or minimize sediment delivery to waterbodies. • Close and rehabilitate unauthorized trails, where needed, to protect sensitive areas and water quality.	Both

SOP / BMP Number	SOP / BMP	Construction or Operation
Soils-23	Stream Channels • In stream channels that are especially sensitive to disturbance (e.g., meadow streams or streams dominated by fine substrate), when practical, do not drive heavy equipment in flowing channels and floodplains. • Design access routes for individual work sites to reduce exposure of bare soil and extensive stream bank shaping. • Limit the number and length of equipment access points through Riparian Areas. • Inspect all mechanized equipment daily for leaks and clean as necessary to ensure that toxic materials, such as fuel and hydraulic fluid, do not enter the stream. • Locate equipment storage areas at least 100 feet from any water feature, including machinery used in stream channels for more than one day. • When using heavy equipment in or adjacent to stream channels during restoration activities, develop and implement an approved spill containment plan that includes having a spill containment kit on-site and at previously identified containment locations. • Use water bars, barricades, recovered top soil, vegetation mats and/or seeding, and mulching to stabilize bare soil areas along project access routes prior to snowfall. • Prior to the wet season, stabilize disturbed areas where soil will support seed growth, with the potential for sediment delivery to wetlands, and waters of the State. Apply native seed and certified weed-free mulch or erosion control matting in steep or highly erosive areas. If needed to promote a rapid ground cover and prevent aggressive invasive plants, use interim erosion control non-native sterile annuals before attempting to restore native seed or plants. • Stabilize headcuts and gullies using techniques outlined in the NEH Part 654 Technical Supplements 14A-Q or other appropriate methods. Use large wood if appropriate and available.	Both
Soils-24	Soil and Water Protection BMPs • BLM-permitted activities would be required to conform to State of Alaska requirements for minimum distances from perennial waterbodies. • Minimize riparian vegetation removal to what is necessary for BLM-permitted activity. • Monitoring and Evaluation: Develop objectives that are measurable, include a time frame, and are realistic for the reclamation treatments implemented. Objectives should address requirements for soil stability, establishment of vegetation (percent cover, species diversity, and density), and invasive species control. Undeveloped areas or regional reference datasets (e.g., AIM) should be used as the reference for setting the standard for attainment of objectives. • No BLM-permitted surface-disturbing activities would be performed during periods when the soil is too wet to adequately support construction equipment, unless appropriate engineering controls are used (e.g., mats, etc). Generally, if equipment creates ruts more than 2 inches deep, the soil may be deemed too wet to adequately support construction equipment; however, this standard may be varied by the AO based on site-specific conditions.	Both

SOP / BMP Number	SOP / BMP	Construction or Operation
Soils-25	Permafrost Protection Measures - For all surface-disturbing BLM-permitted activities and activities that require a reclamation plan (e.g., notice-level activities) in areas with permafrost, the BLM would require the project proponent's reclamation plan to include BMPs to avoid or minimize impacts to permafrost. These BMPs could include, but are not limited to, avoidance of critical areas; applying permafrost impact prevention measures (e.g., meet conditions of appropriate snow cover and frozen ground, leave vegetation intact, implement reclamation timeline, adjust seasons for operation and overland equipment moves, use minimum impact equipment); and compliance with State of Alaska Arctic Civil Engineering Requirements, if applicable. - Surface disturbance would be avoided to the extent possible in areas with moss and peat to provide insulation to permafrost and prevent accelerated thawing. - To the extent possible, the BLM would avoid authorizing temporary routes in areas with permafrost. - BLM-permitted temporary routes constructed on permafrost should be built only in winter when snow cover and frost depth are adequate to leave vegetative layer intact. - To the extent possible, the BLM would conduct or require re-insulation of disturbed permafrost areas to prevent additional permafrost thaw, and associated possible subsidence, by restoring the natural ground surface thermal regime, particularly on steep erosion-prone soils. - Adequate snow cover (as defined in Appendix B of the Proposed RMP/FEIS) shall be present for snowmobile use or use of heavy equipment, which means a combination of snow and frost depth sufficient to protect the underlying vegetation and soil. When there is not adequate snow cover, use of all-terrain vehicles (ATVs) and utility terrain vehicles (UTVs) would be allowed if their use is compatible with the resource management objectives defined in this resource management plan for soils and applicable resources and resource uses. - BLM-permitted roads/airstrips would be required to incorporate necessary engineering considerations on permafrost to provide adequate base material for insulation. - Gas and oil pipelines and power utilities in permafrost areas would be required to be designed to account for permafrost conditions, which may include such features as being raised on elevated utilidors, laid on gravel foundations or pilings, or buried and sufficiently insulated to prevent permafrost degradation.	Both
Soils-26	Where economically, technically, and logistically feasible, mining operation must directly transport all organic material (grass, plants, trees, tundra, etc.) from its original location to the point of reclamation without intermediate stockpiling. If stockpiling is required, all organic material should be specifically isolated from topsoil and overburden and utilized at the earliest feasible time.	Operation
Soils-27	At the end of operations, roads, well pads, and other disturbed areas will be re-contoured and revegetated per an approved reclamation plan or Plan of Operations. Revegetate through seeding of native seed or by providing soil conditions that allow the site to re-vegetate naturally, whichever provides the most effective means of reestablishing ground cover and minimizing erosion. Depending on soil type and the requirement of the reclamation plan, the final land surface may be required to be scarified to provide seed traps and erosion control.	Operation
Soils-28	All Recreation Facilities - Implement erosion control measures at recreation sites to stabilize exposed soils where water flows or sediment may reach waterbodies. - Minimize development of recreation facilities that are not water-dependent (e.g., boat ramps and docks) in the Riparian Areas.	Operation

Table O-3: Water Resources and Fisheries

SOP / BMP Number	Previous SOP / BMP Number	SOP / BMP	Construction or Operation
Water-1	Water-1	Minimize as much as feasible road crossings causing disturbance below the ordinary high water mark in priority fish species spawning habitat.	Construction
Water-2	Water-2	New, replacement, and reconstructed stream crossing structures (such as bridges and culverts) will be designed to: - Accommodate a 100-year flood event, including bedload and debris; - Maintain fish and aquatic organism passage; - Maintain channel integrity; - Accommodate mean bankfull channel widths; and - Incorporate adjacent reclamation (such as willow cuttings, wattles, brush layering) on the disturbed areas up and downstream of the abutments.	Construction
Water-3	Water-5	Development within floodplains will be avoided where there is a practicable alternative. The 8-step process as identified in Executive Order 11988: Floodplain Management will be followed: - Determine if a proposed action is in the base floodplain (that area which has a 1 percent or greater chance of flooding in any given year). - Conduct early public review, including public notice. - Identify and evaluate practicable alternatives to locating in the base floodplain, including alternative sites outside of the floodplain. - Identify impacts of the proposed action. - If impacts cannot be avoided, develop measures to minimize the impacts and restore and preserve the floodplain, as appropriate. - Reevaluate alternatives. - Present the findings and a public explanation. - Implement the action.	Construction
Water-4	Water-6	The following provisions apply to the development, construction or use of roads, bridges, and culverts in rivers, streams, and wetlands: - Bridge or culvert construction shall comply with site-specific requirements provided by BLM hydrology and fisheries staff, the Alaska Department of Natural Resources, the Alaska Department of Fish and Game (ADF&G), and other appropriate agencies. - Authorization holders of BLM-permitted activities shall furnish and install culverts using materials and in a manner to ensure free passage of fish, reduce erosion, maintain natural drainage, and minimize adverse effects to natural stream flow. - The holder would construct low-water crossings in a manner that will prevent any blockage or restriction of the existing channel. Material removed shall be stockpiled for use in rehabilitation of the crossings. - Culvert design and installation shall incorporate established techniques, modified where necessary for implementation in an Arctic or Sub-arctic environment, such as those found in U.S. Fish and Wildlife Service (USFWS) Culvert Design Guidelines for Ecological Function, Alaska Fish Passage Program (USFWS 2020). - Bridge and culvert designs and installations shall account for the effects of channel scour and constriction. - Culvert diameter must be designed for site-specific conditions. - Road crossings shall generally not be permitted in anadromous and resident spawning habitat, unless no feasible alternative exists.	Construction

SOP / BMP Number	Previous SOP / BMP Number	SOP / BMP	Construction or Operation
Water-5	Water-8	Apply the following provisions to stream crossings: - Project proponents must first consider a bridge, stream simulation culvert, or other spanning structure with a continuous natural channel before considering other options. - The holder would construct low-water crossings in a manner that will prevent any blockage or restriction of the existing channel and the creation of a downstream perch or lip. Material removed shall be stockpiled for use in rehabilitation of the crossings. - Bridges and culverts will be designed to avoid altering the direction and velocity of stream flow or interfering with migrating, rearing, or spawning activities of fish and wildlife. - Bridges and culverts should span the entire non-vegetated stream channel at a minimum. - No road crossings shall be permitted in anadromous and resident spawning habitat, unless no feasible alternative exists, and it can be demonstrated that no long-term adverse effects will occur. - Roads will cross riparian zones and water courses perpendicular to the main channel.	Construction
Water-6	N/A	Survey for special status species and other species of concern within a project area when a project is proposed to accurately determine baseline conditions. Design the project to avoid (if possible), minimize, or mitigate impacts on resources if there could be any potential negative impacts.	Construction
Water-7	Water-9	Drilling is prohibited in fish-bearing rivers and streams, as determined by the active floodplain and fish-bearing lakes, except where the applicant can demonstrate on a site-specific basis that impacts would be minimal or it is determined by the AO that there is no feasible or prudent alternative. Exploratory hardrock drilling should be conducted during periods of low water or when the area is frozen. Heavy, commercial, or exploratory equipment working in wetlands must be placed on mats, or other measures must be taken to mitigate or prevent vegetation and soil disturbance, e.g., ice roads, ice pads, adequate snow cover and 12 inches of ground frost, use of low ground-pressure equipment, etc. Avoid ground operations in wetlands during spring break-up. Drilling could be allowed in these areas with appropriate mats installed and water control and 100 percent containment implemented.	Both
Water-8	Water-10	When feasible, all water intakes in fish-bearing waters will be screened and designed to avoid injury to fish prevent fish intake, in accordance with ADF&G permit requirements.	Both
Water-9	Water-11	Reclamation plans for the rehabilitation of fish habitat as required under 43 CFR 3809.420(b)(3)(ii)(E). Consistent with 43 CFR 3809.420, stream reclamation plans will be designed to result in a geomorphically stable channel with adequate vegetation to reduce erosion, dissipate stream energy and promote the recovery of instream habitat. Stream reclamation will be evaluated using metrics of geomorphic stability based on established science, policy, and/or regional datasets (e.g., Assessment, Inventory, and Monitoring [AIM]-National Aquatic Monitoring Framework). At the completion of reclamation, floodplain conditions should be able to withstand moderate flood discharge events (5- to 10-year flood event) through implementation of features such as, natural channel design, proper floodplain grading, vegetation mats or transplants, integrated rock and organic debris, and seeding (if appropriate). Bond release would be based on meeting specific measurable objectives outlined in a monitoring plan (43 CFR 3809.401(b)(3)).	Both

SOP / BMP Number	Previous SOP / BMP Number	SOP / BMP	Construction or Operation
Water-10	Water-12	Within high-value watersheds, ACEC and Wild and Scenic River (WSR) baseline hydrological data adequate to characterize the seasonal flow patterns and discharge will be required prior to surface-disturbing activities with the potential to affect stream channel integrity, or reduce riparian functioning condition. The BLM will be available to advise operators on the exact type of information and detail needed to meet this requirement. In these special management areas, reclamation plans will be designed to result in rehabilitation of habitats approved by the AO and will focus on enhanced revegetation techniques in floodplains, coupled with the standards and practices that have been demonstrated to result in creation of a geomorphically stable channels on placer-mined streams in Alaska.	Both
Water-11	Water-13	No low-water crossings (fords) will be permitted in priority fish species spawning habitat during times of active spawning and when immobile life stages of fish are present (eggs and alevins) unless it is determined that impacts would be negligible.	Both
Water-12	Water-14	Streams altered by channeling, diversion, or damming will be reclaimed to a condition that rehabilitates aquatic and riparian habitats. For mining operations, reclamation of the altered stream will be measured by the criteria identified in 43 CFR 3809.420.	Both
Water-13	Water-15	Settling ponds will be cleaned out and maintained at appropriate intervals to comply with State and federal water quality standards. Fine sediment captured in the settling ponds will be protected from washout and left in a stable condition at the end of each field season to prevent unnecessary or undue degradation to the environment during periods of non-operation. Where not specifically specified in the mine plan, fines should be removed from the settling ponds where they can be mixed into the reclamation soils to facilitate fines replacement. Settling pond fines shall not be stockpiled without proper erosion control measures installed to prevent the erosion and transportation of fines. Erosion control measures can include placing berms around the base of the stockpile, covering the stockpile with a synthetic liner, temporarily covering the fines with topsoil and vegetation.	Both
Water-14	Water-17	To the extent feasible and practicable, channeling, diversion, or damming that will alter the natural hydrological conditions will be avoided. This is not intended to preclude activities that by nature must occur within floodplain-riparian areas, such as placer mining.	Both
Water-15	Water-18	Structural and vegetative treatments in riparian, wetland, and floodplain areas will be compatible with the ecological capability of the site, including the system's hydrologic regime, and will contribute to maintenance or restoration of natural and proper functioning conditions (Executive Order 11988).	Both
Water-16	Water-19	Projects requiring the withdrawal of water will be designed to maintain sufficient quantities of surface water and contributing groundwater to support fish, wildlife, and other beneficial uses. Minimal flows will be monitored to assure aquatic life forms are not impacted by withdrawals (such as strandings or freeze out). Withdrawing water from a fish-bearing waterbody requires an ADF&G Fish Habitat Permit.	Both
Water-17	Water-20	State-designated stream crossings will be used where possible for vehicle travel. Stream crossings are online at http://www.habitat.adfg.alaska.gov/gpvehstreamxings.php , noted under the General Permits Index-Authorized Vehicle Stream Crossings.	Both
Water-18	Water-22	When a stream must be crossed, the crossing will be as close to possible to a 90 degree angle to the stream. As much as feasible, stream crossings will be made at stable sections in the stream channel (which have low sensitivities to disturbance and low streambank erosion potential), based on Rosgen channel type evaluations. Crossing rivers or streams that support anadromous fish requires an ADF&G Fish Habitat Permit.	Both
Water-19	Water-23	Disturbed stream banks will be recontoured and revegetated (or other protective measures taken) to prevent soil erosion into adjacent waters and provide stream bank stability. Active stream bank revegetation or other stabilization techniques will be required for all erosion-prone areas (such as stream bank and near stream areas), and active seeding and/or fertilization will be required for sites with little to no organic content (i.e., essentially bare mineral soil).	Both

SOP / BMP Number	Previous SOP / BMP Number	SOP / BMP	Construction or Operation
Water-20	Water-27	Avoid overland heavy equipment moves through wetlands in spring and summer when feasible. Stipulations and mitigating measures are provided through the normal permitting process to ensure wetland conservation and practical management.	Both
Water-21	Water-28	Identify, encourage, and support research and studies needed to ensure that floodplain-wetland area management objectives can be properly defined and met. Incorporate research findings into the planning and management of floodplain-wetland ecosystems.	Both
Water-22	Water-32	Water withdrawal from lakes may be authorized on a site-specific basis depending on size, water, volume, depth, fish population, and species diversification.	Both
Water-23	Water-33	It is preferred that access and human activity in wetlands occur in the winter months, with sufficient snow cover and ground frost to prevent wetland vegetation and soil disturbance. Avoid ground operations in wetlands during spring break up.	Both
Water-24	Water-34	Where appropriate, maintain appropriate vegetation and riparian buffers around waterbodies to protect water quality and ensure wildlife habitat suitability is maintained. Manage Riparian Areas to provide adequate shade, sediment control, bank stability, and recruitment of wood into stream channels.	Both
Water-25	Water-37	Vehicular travel up and down streambeds except by watercraft is prohibited unless ice is frozen to a sufficient depth to sustain the activity and the stream banks are a sufficient distance apart to allow for passage without adverse impacts to the banks.	Both
Water-26	Water-38	For BLM-permitted activities, no storage of hazardous materials would be allowed within the 100-year floodplain of rivers or streams or within 100 feet of the ordinary high water mark of lentic features, such as lakes, ponds, springs, and wetlands; or on frozen bodies of water. Exceptions could be allowed at the discretion of the AO when approved spill prevention practices are implemented to prevent accidental release of the hazardous materials. The storage area for any hazardous materials must be approved by the AO.	Both
Water-27	Water-40	Where instream operations are authorized, streams must be diverted using an appropriately sized bypass channel that is stable and resistant to erosion. For mining operations, reclamation of the altered stream will be measured by regulations and policy found in 43 CFR 3809.420.	Operations
Water-28	Water-41	In mining operations and fluid mineral leasing operations, all process water and groundwater seeping into an operating area must be treated appropriately (i.e., use of settling ponds) prior to re-entering the natural water system.	Operations
Water-29	Water-42	All permitted operations will be conducted in a manner to not block any stream or drainage feature.	Operations
Water-30	Water-44	Where appropriate, overburden should be placed on uplands or on the upland side of mine pits.	Operations
Water-31	Water-46	Scraping salable gravel from fish-bearing streams will be prohibited.	Operation
Water-32	Water-47	Timber sales will include buffers to prevent disturbance of priority fish species habitat and sedimentation into streams. Buffer widths will be dependent on harvest method, season of harvest, equipment used, slope, vegetation, soil type, and 100-year floodplain areas for appropriate fish-bearing locations. Winter operations will be considered in order to avoid the need for road building and reduce impacts to soils, vegetation, and Riparian Areas.	Operation

Table O-4: Vegetation

SOP / BMP Number	SOP / BMP	Construction or Operation
Veg-1	Design and locate permanent and temporary facilities to minimize the development footprint.	Construction
Veg-2	Survey for special status species and other species of concern within a project area when a project is proposed to accurately determine baseline conditions. Where populations or individual sensitive status plant species are located, take measures to protect these populations or individuals through site-specific buffers or management prescriptions. Route new roads and trails away from known sensitive plant communities, with minimum 100-foot buffers; and minimize summer cross-country OHV travel where there are sensitive plants.	Both

Table O-5: Wildlife and Special Status Species

SOP / BMP Number	Previous SOP / BMP Number	SOP / BMP	Construction or Operation
Wildlife-1	Wildlife-1	Design pipelines and roads to allow the free movement of wildlife and the safe, unimpeded passage of the public while participating in traditional subsistence activities. The currently accepted design practices are: (1) Above-ground pipelines will be elevated a minimum of 7 feet, measured from the ground to the bottom of the pipeline at vertical support members, to facilitate human and wildlife movement under the pipe; (2) In areas where facilities or terrain may funnel caribou movement, ramps over pipelines or buried pipelines may be required; (3) Co-locate roads and pipelines to address impacts to wildlife and subsistence; and, (4) Where feasible, maintain a minimum distance of 500 feet between above-ground pipelines and roads.	Construction
Wildlife-2	Wildlife-2	Employ industry-accepted BMPs to minimize raptors and other birds from colliding with or being electrocuted by utility lines, alternative energy structures, towers, and poles (http://www.aplic.org/). Where economically, technically, and logistically feasible, the BLM would require the burying of utility lines in raptor nesting areas. Where raptors are likely to nest in human-made structures (such as cell phone towers) and such use could impede operation or maintenance of the structures or jeopardize the safety of the raptors; equip the structures with either (1) devices engineered to discourage raptors from building nests, or (2) nesting platforms that will safely accommodate raptor nests without interfering with structure performance. Follow BMPs in accordance with Avian Power Line Interaction Committee for electrical lines. Guidelines for towers should follow USFWS guidelines for towers.	Construction
Wildlife-3	Wildlife-3	The use of guy wires on towers should be avoided in known raptor or waterbird concentration areas or in major avian migration routes if possible. However, if tall towers require the use of guy-wired apparatus, regardless of purpose, they will be marked in accordance with the guidance provided by the USFWS Guidance on the Siting, Construction, Operation, and Decommissioning of Communications Towers, dated September 14, 2000, or a more current or contemporaneous version of that guidance.	Construction
Wildlife-4	Wildlife-4	Survey for special status species and other species of concern within a project area when a project is proposed to accurately determine baseline conditions. Design the project to avoid (if possible), minimize, or mitigate impacts on resources if there could be any potential negative impacts.	Construction
Wildlife-5	Wildlife-5	To minimize habitat loss, the surface disturbance and the aerial extent of facilities will be minimized.	Construction

SOP / BMP Number	Previous SOP / BMP Number	SOP / BMP	Construction or Operation
Wildlife-6	Wildlife-6	Caribou and moose wintering season generally occurs from October 31 through April 1. During this time, permitted activities in areas identified by the ADF&G as occupied caribou or moose wintering habitat must be planned to avoid or minimize impacts to wintering caribou and moose. Caribou and moose calving season generally occur from April 15 through May 31. During this time, permitted activities in areas identified by the ADF&G as occupied caribou or moose calving habitat must be planned to avoid or minimize impacts to calving caribou and moose. Caribou movement corridors identified by BLM or ADF&G must be planned to avoid and minimize direct impacts to caribou movement across the landscape. Additionally, impacts from ground and vegetation disturbing activities in these corridors must avoid severing the movement of caribou across the landscape.	Both
Wildlife-7	Wildlife-7	From May 1 through August 31, avoid sustained human activity within one-quarter mile of known trumpeter swan nests and rearing ponds.	Both
Wildlife-8	Wildlife-8	Overhead powerline construction will be avoided in primary trumpeter swan breeding habitat as defined by the USFWS. Recreational developments, permits, or leases on lakes or lakeshores with historically active trumpeter swan nest sites or staging areas will only be allowed if the lessee or permittee can demonstrate on a site-specific basis that impacts are properly identified and mitigated.	Both
Wildlife-9	Wildlife-9	To prevent the entrapment of small animals, particularly birds, all hollow pipes or tubes that are approximately 5 to 25 centimeters (2 to 10 inches) in diameter will be filled or capped prior to installation (unless fixed horizontally). Mining claim posts shall be capped. Preference shall be made to the use of solid wood or metal posts.	Both
Wildlife-10	Wildlife-10	The best demonstrated and available technologies and methods will be used to prevent permanent facilities from providing nesting, denning, or shelter sites for ravens, raptors, and foxes to protect ground nesting birds from increased predation. Where preventative measures are not applied, nesting platforms should be considered as an alternative mean to safely accommodate raptors.	Both
Wildlife-11	Wildlife-11	Permanent or semi-permanent access routes, regardless of purpose, shall be routed and concentrated to minimize habitat fragmentation.	Both
Wildlife-12	Wildlife-12	Projects would follow USFWS guidance for activities near active bald and golden eagle nests, including timing and distance requirements. Exceptions may be applied by written approval from the USFWS in situations where no practicable alternative exists.	Both
Wildlife-13	Wildlife-15	In crucial Dall sheep and mountain goat habitat, helicopters used in support of permitted activities will maintain one-half mile horizontal and 1,500 meter (4,921 feet) vertical distance from goats and sheep. Helicopter landings, unless for emergency purposes, are not permitted in Dall sheep or goat crucial ranges, as identified based on ADF&G maps and refined by monitoring.	Both
Wildlife-14	Wildlife-16	Minimize the potential spread of white nose syndrome in bats in caves and abandoned mines by applying containment and decontamination procedures.	Both
Wildlife-15	Wildlife-17	Priority raptor species are defined as peregrine falcon, gyrfalcon, golden eagle, and bald eagle. Nesting seasons are defined as from March 1–August 31 for bald eagles and golden eagles, and from May 1–July 15 for gyrfalcons and peregrine falcons (though they can start nesting up to 2 months earlier). For activities proposed within the nesting period, a raptor nest survey would be required within 5 days of the disturbance activity beginning. Exceptions to raptor SOPs may be applied by written approval from the USFWS in situations where no practicable alternative exists; disturbance is adequately mitigated by site characteristics such as topography or vegetation, or by known tolerance of nesting birds to activities at the location, or where raptors establish nests near previously constructed facilities.	Both
Wildlife-16	Wildlife-18	To minimize the direct loss of priority raptor foraging habitat, all reasonable and practicable efforts will be made to locate permanent facilities as far from priority raptor nests as feasible and to minimize habitat loss to the extent feasible. Of particular concern for avoidance are ponds, lakes, streams, wetlands, and riparian habitats.	Both

SOP / BMP Number	Previous SOP / BMP Number	SOP / BMP	Construction or Operation
Wildlife-17	Wildlife-19	To minimize disturbance to nesting priority raptors, minimize BLM-authorized activity around nest sites.	Both
Wildlife-18	Wildlife-20	Vegetation clearing or introduction of domestic animals in riparian and wetland areas must maintain or restore to properly functioning condition and maintain hydrologic regime.	Both
Wildlife-19	Wildlife-21	In areas open to fluid or hardrock mineral leasing, prevent avoidable damage to habitats supporting special status species animals from proposed land uses by applying stipulations that requires applicants to avoid or minimize impacts to special status species or their habitats pursuant to BLM policy and Endangered Species Act consultation.	Both
Wildlife-20	Wildlife-22	Operations requiring vegetation clearing or other land disturbance should avoid migratory bird-nesting areas when birds are present and likely to be nesting/fledging during May 1–July 15. If these activities are to be conducted during the nesting window, a qualified biologist hired by the permittee and approved by BLM will conduct a site-specific study to determine if migratory bird nesting is applicable to the area within 5 days of the disturbance activity beginning.	Operations
Wildlife-21	Wildlife-24	All reasonable precautions will be taken to avoid attracting wildlife to food and garbage. Garbage from all BLM-authorized activities will be removed and properly disposed to prevent habituation of wildlife or alteration of populations. The BLM may require food and garbage to be stored in bear-proof containers or by methods that make it unavailable to bears or other wildlife.	Operations
Wildlife-22	Wildlife-26	When authorizing mineral material sale sites, avoid habitats crucial to local wildlife populations such as calving areas or raptor nesting sites. Avoid key geomorphic features such as cliffs; caves; river cut banks and associated riparian zones; springs; active channels of small, single channel rivers; and wetlands.	Operations

Table O-6: Wildland Fire

SOP / BMP Number	SOP / BMP	Construction or Operation
Fire-1	Utilize active management BMPs such as mowing, pre-commercial and commercial thinning, manual and mechanical cutting, linear fuel breaks, biological and chemical treatment, access road maintenance, prescribed fire and controlled burns, timber salvage, timber and biomass sales, piling, yarding, removing vegetative material, selling of vegetative products (including, but not limited to: firewood; biomass; timber; and fence posts), issuing grazing permits, application of pesticides, bio-pesticides and herbicides, seeding native species, invasive species management, jackpot and pile burning, fuels conversion to a less flammable type such as spruce to hardwoods, shearblading, and shaded fuel breaks.	Both
Fire-2	Work with interdisciplinary team during the project design phase to address potential impacts to permafrost and soils, habitat, watershed, fisheries, hydrology, hazmat, sensitive species, visual resource management, air quality, cultural resources, and other concerns.	Both
Fire-3	Maximize the utilization of natural barriers and physical features (such as roads and rights-of-way) within landscapes when designing fuel breaks and other vegetative treatments.	Both
Fire-4	Off-road use of heavy equipment and other motorized vehicles in wildland fire suppression or management activities requires approval of the AO. Any such use will be conducted in a manner that minimizes erosion and Riparian Area damage, avoids water quality or fish habitat degradation, and does not contribute to stream channel sedimentation.	Operations
Fire-5	Fire management in high-value watersheds, lands managed for wilderness characteristics as a priority, ACECs, the Iditarod National Historic Trail (INHT) National Trail Management Corridor, and the Unalakleet Wild River Corridor, will be implemented without OHVs, heavy equipment, or other surface-disturbing vehicles.	Operations
Fire-6	Aerial and ground delivery of wildland fire chemicals on BLM-managed public lands will comply with the most current interagency and BLM policy (2016 Interagency Standards for Fire and Fire Aviation Operations, Chapter 12 or subsequent versions [DOI et al. 2018]).	Operations

SOP / BMP Number	SOP / BMP	Construction or Operation
Fire-7	Minimum Impact Suppression Techniques (MIST) will be considered for all fire management actions on BLM-managed public lands within the planning area.	Operations
Fire-8	Fire lines to mineral soil will not be built in or around Riparian Areas, unless they are needed to protect life, property, and/or wetland resources. Use natural features as preferred firebreaks over fire lines constructed to mineral soil. When possible, use hand crews to establish fire lines within (or adjacent to) Riparian Areas.	Operations
Fire-9	Firefighting camps will use appropriate food storage and deterrent techniques for bears.	Operations
Fire-10	To the extent practicable, manned and unmanned aircraft will avoid overflights within 1,500 feet of known occupied raptor nests during fire management activities.	Operations
Fire-11	Fire management actions, including prescribed fire operations, wildland fire suppression, and fire rehabilitation efforts, will protect burned and adjacent areas from the introduction and spread of nonnative invasive plants. Protection may include the use of washing stations with a containment system.	Operations
Fire-12	The responsible fire protection agency/organization would be required to use BMPs for cleaning and inspection of personal gear, tools, and all equipment prior to deployment to fire sites. Washing stations used for cleaning would be required to have a containment system.	Operations
Fire-13	Water delivery aircraft will not dip or scoop from waters infested by Elodea or other aquatic invasive species.	Operations
Fire-14	Suppression repair plans will be developed and implemented at the incident level to address resource damage caused by wildfire management actions.	Operations
Fire-15	Emergency stabilization and rehabilitation plans will be developed and implemented for inventorying, monitoring, and treatment of adverse fire effects that threaten life or property or natural and cultural resources resulting from the natural effects of a wildfire. The BLM will prioritize natural recovery from wildfire (USDA et al. 2006). Plans will be developed as needed.	Operations
Fire-16	Use unmanned aerial systems as a tool for wildland fire prevention, suppression, and landscape rehabilitation.	Operations

Table O-7: Cultural Resources

SOP / BMP Number	Previous SOP / BMP Number	SOP / BMP	Construction or Operation
Cult-1	Cult-1	Standard Measures to Reduce Visual Contrast—When a proposed project is found to be within the contributing setting of a historic property, an assessment of potential impacts is conducted through viewshed analyses, on-site inspection, and photo inspection. For historic trails such as INHT, protection measures would be carried out similarly to other historic properties if any project were found to be located within designated buffer of a contributing portion of the historic trail. When a proposed project is outside of the designated buffer of the trail but found to be within the Area of Potential Effects that contributes to National Register of Historic Places (NRHP) eligibility, analyses of potential impacts to the integrity of the setting will be carried out in the same way as other properties where setting is an aspect of integrity. Examples of BMPs used to ensure that there is not an adverse visual effect to historic properties include the following: - Consolidating project facilities among oil, gas and geothermal developers, which also facilitates cumulative analysis - Developing coordinated road and pipeline systems - Reducing the amount of surface development by consolidating facilities (e.g., develop bottom hole wells using directional drilling from a single surface well location) - Using low-profile facilities - Using proper sighting and location to maximize the use of topography and vegetation to screen development - Designing projects to blend with topographic forms and existing vegetation patterns - Using environmental coloration or advanced camouflage techniques to break up visual intrusion of facilities that cannot be completely hidden - Using broken linear patterns for road developments to screen roads as much as possible (including feathering or blending of the edges of linear rights-of-way to break up the linearity) - Using electric fencing with low-visibility fiberglass posts and environmental colors (e.g., sage green) for livestock control - Designing linear facilities and seismic lines to run parallel to key observation points rather than perpendicular - Crossing the historic trails at right angles with linear developments when it would reduce the physical and visual impact - Modifying the orientation of facilities to present less of a visual impact (e.g., a facility with several tanks lined up so that one obscures the visibility of the others)	Construction
Cult-2	Cult-4	Make every effort to avoid adverse effects if historic properties, including Traditional Cultural Properties, are found at project locations. Cultural resource protections and conservation will be consistent with Section 106, Section 110, and Section 101d; procedures under BLM's 2012 National Programmatic Agreement for Section 106 compliance or its successor agreement; and the 2014 Protocol for Managing Cultural Resources in Alaska between BLM Alaska and the Alaska State Historic Preservation Officer (SHPO) or its successor agreement.	Both
Cult-3	Cult-5	Mitigation measures will be considered for all actions that may potentially affect historic properties per Section 106 of the National Historic Preservation Act (NHPA) (54 United States Code 306108) and its implementing regulations. As noted in 36 CFR 800.1(a), federal agencies must "seek ways to avoid, minimize, or mitigate any adverse effects on historic properties." The extent and nature of recommended mitigation will be commensurate with the significance of the cultural resource involved and the anticipated extent of the damage. Costs for mitigation will be borne by the land use applicant. If the AO determines mitigation measures are necessary to protect and conserve cultural resources or to comply with the section 106 process, a mitigation plan will be developed and implemented in consultation with the SHPO, and following the requirements and guidance of the NHPA and 36 CFR 800.	Both

SOP / BMP Number	Previous SOP / BMP Number	SOP / BMP	Construction or Operation
Cult-4	Cult-6	Where a proposed undertaking may affect the physical integrity of a historic property, measures can be applied to reduce or eliminate the effects. BLM will work with the project proponent, the SHPO, and other consulting parties, to determine which practices would suit the needs of all parties. Application of BMPs depends on the nature of the undertaking and the nature of the historic property.	Both
Cult-5	Cult-8	Monitoring—Where avoidance of adverse effects is not feasible, or monitoring is a condition of a determination of no adverse effects because of the potential for an inadvertent discovery, a BLM-permitted archaeologist will monitor surface-disturbing activities. The presence of the monitors is to ensure that previously unknown cultural materials are immediately identified and construction in that area is halted to avoid further impacts to the resource and to ensure that known cultural resources located very near the project area are not inadvertently disturbed through construction activities. Before BLM authorization of the project, the project proponent submits a discovery plan outlining how the resources will be treated and the responsibilities of the project proponent and its subsidiaries. BLM archaeologists will review this plan, and it will be submitted to SHPO for concurrence. In the case where monitoring results in a discovery situation, the discovery plan is implemented. Depending on the nature of the discovery, the project may be allowed to proceed or be redesigned. Data recovery may also be required.	Both
Cult-6	Cult-9	Mitigation—Mitigation measures are determined by the types of proposed actions, the nature of the potential effect, and the qualities of the historic property that render it eligible for NRHP listing. Project-specific mitigation is also dependent on the result of consultation with consulting parties. As noted in 36 CFR 800.1(a), federal agencies must "seek ways to avoid, minimize, or mitigate any adverse effects on historic properties." Mitigation measures are applied when BMPs will not reduce or minimize impacts to a less than adverse effect. Mitigation may include data recovery or other agreed-upon measures. Consultation with the Alaska SHPO, the Advisory Council on Historic Preservation, and other consulting parties, is required when proposed actions are expected to adversely affect properties eligible for the NRHP and mitigation is required.	Both
Cult-7	Cult-13	Any cultural resource discovered by a user, permittee, or claimant or any person working on their behalf on public land will be immediately reported to the AO. The user, permittee or claimant or any person working on their behalf will suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the AO. An evaluation of the discovery will be made by the AO to determine appropriate actions to prevent the loss of significant cultural or scientific values. This may include the professional collection and analysis of significant specimens by scientists. After scientific study, appropriate mitigation measures will be developed and implemented.	Both
Cult-8	Cult-14	For oil and gas activities, cultural resource protection is covered under the standard lease terms.	Operations
Cult-9	Cult-15	Management practices will consider protection and conservation of known cultural resources, including historical sites, prehistoric sites, and plant and animal populations of significance.	Operations
Cult-10	Cult-16	For all BLM-issued permits, authorizations, or rights-of-way, the following stipulation will be included: Disturbance, damage, or removal of any archaeological or historical districts, sites, structures, or objects is prohibited by federal law. Any cultural resource (historic or prehistoric site or object) discovered by the Permittee, or any person working on their behalf, on BLM-managed lands shall be immediately reported to the Authorized Officer. The Permittee shall suspend all operations in the immediate area of such a discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the BLM Anchorage Field Office Archaeologist, or a BLM-permitted archaeologist, on behalf of the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The Permittee will be responsible for the cost of evaluation, and the Authorized Officer will make any decision as to proper mitigation measures after consulting with the Permittee, and other relevant consulting parties.	Both

Table O-8: Paleontological Resources

SOP / BMP Number	SOP / BMP	Construction or Operation
Paleo-1	Avoidance, through modification of the proposed undertaking, is the primary and preferred measure used to protect paleontological resources. This can be accomplished at the project planning stage supported by site assessments completed by qualified BLM or BLM-permitted paleontologists.	Both
Paleo-2	Monitoring—In situations where avoidance of adverse effects is not feasible, or there is a determination of no adverse effects to significant fossil remains, but the potential remains for there to be adverse effects through inadvertent discovery, a BLM-permitted paleontologist will monitor surface-disturbing activities. This determination will be made based upon the NEPA process and the Potential Fossil Yield Classification (PFYC) in the project area. The presence of the monitors is to ensure that previously unknown, significant paleontological resources are immediately identified and that construction activities in that area are halted to avoid further impacts to the resource. Before BLM authorization of the project, the project proponent submits a discovery plan outlining the way in which the resources will be treated and the responsibilities of the project proponent and its subsidiaries. A BLM paleontologist will review and approve the draft plan. In the case where monitoring results in a discovery situation, the discovery plan is implemented. Depending on the nature of the discovery, the project may be allowed to proceed or be redesigned. Recovery of fossil remains may also be required. The project proponent will be responsible for bearing the costs of monitoring, excavation, analysis, and curation in a federal repository, as appropriate.	Both
Paleo-3	Mitigation—The BLM will evaluate the impacts of proposed actions to known paleontological resources. Any significant paleontological resource discovered by a user, permittee, or claimant or any person working on their behalf on public land will be immediately reported to the AO. The user, permittee, or claimant or any person working on their behalf will suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the AO. An evaluation of the discovery will be made by the BLM Anchorage Field Office cultural resource program manager, or a BLM-permitted paleontologist, on behalf of the AO to determine appropriate actions to prevent the loss of significant cultural or scientific values. If damage to known significant paleontological resources cannot be avoided, the applicant (or the BLM for internal actions) will arrange at their expense for a qualified BLM or BLM-permitted paleontologists to perform scientific examination of the impacted significant paleontological resources followed by mitigation approved by the AO. This may include the professional collection, analysis, and curation of significant specimens by qualified paleontologists.	Both
Paleo-4	All BLM activities and BLM-authorized activities shall comply with the following laws and measures regarding the consideration of paleontological resources: • NEPA (1969) • FLPMA (1976) • Paleontological Resources Preservation Act (2009) • BLM IM 2016-124 PFYC • BLM IM 2009-001 Assessment and Mitigation • BLM Manual Section 8270 regarding paleontological resource • Applicable sections of BLM's regulations in Title 43 of the CFR • Any future implementing regulations for the Paleontological Resources Preservation Act	Both
Paleo-5	BLM paleontologists and qualified, BLM-permitted paleontologists should be involved at all levels of survey, analysis, collection, and storage of paleontological resources.	Both
Paleo-6	A paleontologist must have a valid paleontological resource use permit, issued by the BLM Alaska State Office, before collecting or disturbing fossil resources on BLM-managed lands. To be eligible for a permit, the applicant must have received formal education and professional instruction in a field of paleontology equivalent to a graduate degree and meet other requirements as specified in the permit application.	Both
Paleo-7	All fossils and the appropriate associated notes that are collected under a paleontological resource use permit must be transferred to a publicly accessible, federal curation facility. All permittees must have an agreement with a repository before they will be considered eligible for a permit.	Both
Paleo-8	For all BLM-issued permits, authorizations, or rights-of-way, the following stipulation will be included: Disturbance, damage, or removal of any significant paleontological resource (vertebrate fossils, including mammoth and mastodon bones, tusks, trace fossils, etc.) is strictly prohibited. If paleontological resources are encountered then all material will be left in place and the AO will be notified immediately.	Both

Table O-9: Visual Resources Management

SOP / BMP Number	Previous SOP / BMP Number	SOP / BMP	Construction or Operation
Visual-1	Visual-1	In panoramic landscapes, development will be located in the opposite direction from the primary scenic views, key observation points and located using natural or artificial screening, where feasible.	Construction
Visual-2	Visual-2	The following considerations should be considered when choosing a project location: • Visual contrasts or impacts decrease as the distance between the viewer and the proposed development increases, so projects should be located as far away from prominent viewing locations as possible. • The human eye is naturally drawn to prominent topographic features, so projects should not be located on or near such features. • The shape and placement of projects should be designed to blend with topographic forms and existing vegetation patterns. • Both topographic features and vegetation should be used to screen proposed development.	Construction
Visual-3	Visual-3	The following techniques to help reduce surface disturbance should be considered: • Co-locating several projects within the same right-of-way • Placing underground utilities either along the edge or under the surface of an existing road • Placing several underground utilities within the same trench • Establishing limits of disturbance that reflect the minimum area required for construction • Consolidating development of a similar nature within a common structure • Planning projects so that they use existing infrastructure, whenever possible • Locating construction staging and administrative areas in less visually sensitive areas • Requiring restoration of disturbed areas no longer required after construction has been completed	Construction
Visual-4	Visual-4	The following should be taken into consideration when making color selections to minimize visual impacts: • Natural surfaces are usually well textured and have shade and shadow effects that darken them; surfaces of structures are usually smooth and reflect light even if dull-finish paint is used; as a general rule, colors on smooth human-made structures need to be two or three shades darker than the background colors to compensate for the shadow patterns created by naturally textured surfaces that make colors appear darker. • The color for all structures should be selected to achieve the best blending with the surrounding landscape in both summer and winter. • Galvanized steel on utility structures should be darkened to prevent glare; low-luster paints should be used wherever possible to help reduce glare (although it is almost impossible to remove all sun glare). • Color (hue) is most effective within 1,000 feet; beyond that point, color becomes more difficult to distinguish, and tone or value determines visibility and resulting visual contrast. • Colors should be selected from a distance that permits viewing of the entire landscape surrounding the proposed development. • Colors that blend with or are in harmony with the existing colors of the earth, rocks, and vegetation are usually more visually pleasing and attract less attention than colors that are chosen to match the color of the sky.	Construction

SOP / BMP Number	Previous SOP / BMP Number	SOP / BMP	Construction or Operation
Visual-5	Visual-5	The following techniques should be considered to minimize the visual impact from new structures placed on the existing landscape: • Repeating form, line, color, and texture • Minimizing the number of structures and combining different activities in one structure wherever possible • Using earth-tone paints and stains and self-weathering metals • Chemically treating wood so that it can be allowed to self-weather • Using natural stone in wall surfaces • Burying all or part of the structure • Selecting paint finishes with low levels of reflectivity • Using rustic designs and native building materials • Using natural-appearing forms to complement landscape character • Screening the structure from view with natural landforms and vegetation	Construction
Visual-6	Visual-6	The following techniques should be considered to reduce the contrasts created by earthwork construction • Fitting the proposed development to the existing landforms so as to minimize the size of cuts and fills will greatly reduce visual impacts from earthwork • Minimize cut and fill, and create cuts and fills that match existing lines, forms, and textures of surrounding landscapes to the extent practical • Hauling in or hauling out excessive earth cut or fill in sensitive viewing areas • Rounding or warping slopes (shaping cuts and fills to appear as natural forms) • Bending slopes to match existing landforms • Retaining rock formations, vegetation, and drainage, whenever possible • Blasting split-face rock (cutting rock areas so that the resulting rock forms are irregular in shape, as opposed to making uniform "highway" rock cuts) • Toning down freshly broken rock faces using asphalt emulsions and rock stains • Using retaining walls to reduce the amount and extent of earthwork • Retaining vegetation by using retaining walls, reducing surface disturbance, and protecting roots from damage during excavation • Avoiding soil types that will generate strong contrasts with the surrounding landscape when they are disturbed • Prohibiting dumping of excess earth/rock on downhill slopes	Construction
Visual-7	Visual-8	The following strategies should be considered to enhance any restoration or reclamation activity, consistent with applicable Visual Resource Management (VRM) objectives: • Stripping, saving, and replacing topsoil (6-inch surface layer) on disturbed earth surfaces • Enhancing vegetation by mulching cleared areas, furrowing slopes, using planting holes on cut/fill slopes to retain water, choosing native plant species, fertilizing, mulching, and watering vegetation, replacing soil, brush, rocks, forest debris over disturbed earth surfaces when appropriate, thus allowing for natural regeneration rather than introducing an unnatural looking grass cover • Minimizing the number of structures and combining different activities in one structure wherever possible	Construction

SOP / BMP Number	Previous SOP / BMP Number	SOP / BMP	Construction or Operation
Visual-8	Visual-9	The following should be considered for determining an alignment that reduces visual impacts: - Topography is a crucial element in alignment selection. Visually, it can be used to subordinate or hide human-made changes in the landscape. Projects located at breaks in topography or behind tree groupings are usually of much less visual impact than projects on steep side slopes. By taking advantage of natural topographic features, cut and fill slopes can be greatly minimized. - Topographic breaks frequently exhibit a natural line element that the proposed alignments can repeat or blend with to strengthen the design. This line element is partly established by a visual shadow zone, which will further reduce the contrast of the project. - Soils are especially important when selecting an alignment and should be analyzed for stability and fertility, and a revegetation program should be planned. - Hydrological conditions can strongly affect the visual impact of buried and surface construction. The risks of surface and subsurface erosion within the corridor should be analyzed and evaluated. - Crossings with other linear features or structures should be designed to minimize their visual impact, as follows: - when possible, crossings should be made at right angles; - structures should be set as far back from the crossing as possible; and - in areas with tree and shrub cover, the rights-of-way and structures should be screened from the crossing area. - Avoid fall-line cuts, bisection ridge tops, and valley bottoms.	Construction
Visual-9	Visual-10	To the extent practicable, all facilities and activities will be located away from visually sensitive areas, rivers, trails, and other transportation features; using distance to reduce the facility's visual impact along travel corridors.	Both
Visual-10	Visual-11	All facilities and activities will be designed to meet the VRM class, using proper siting and location so that natural features of vegetation and landforms provide screening from travel corridors and other key observation points, and to blend with the natural surroundings.	Both
Visual-11	Visual-12	Where possible and consistent with applicable VRM objectives, facilities, and activities will be designed so their shapes, sizes, colors, and textures harmonize with the scale and character by repeating the elements of line, form, color and texture of the surrounding landscape to reduce visual contrast between the landscape and proposed activity or development.	Both
Visual-12	Visual-13	The following vegetation management techniques to reduce visual impacts should be considered when vegetation removal is required for a project: - Retain as much of the vegetation as possible and where practical to use it to screen the development from public viewing areas. - Design vegetation openings to repeat natural openings in the landscape; edges that are scalloped and irregular are more natural looking; straight line edges should be avoided - Minimize the impact on existing vegetation by the following: - Partially clearing the limits of construction rather than clearing the entire area (leaving islands of vegetation results in a more natural look) - Using irregular clearing shapes - Feathering and thinning the edges of the cleared areas to reduce strong lines of contrast; to create a more natural look along an edge, retain a good mix of tree/shrub species and sizes - Disposing of all slash	Both
Visual-13	Visual-14	Maintain night sky and darkness through light management. Require use of shielded lights that direct the light downward to reduce light scatter at facilities and other areas that use lights. Use of "warmer" colored lights (3,000 degrees Kelvin) to reduce harsher "blue" spectrum light (5,000 degrees Kelvin). Include lighting management in facility BMPs and monitor to assess any negative impacts to residential and recreational users, wildlife, birds, and insects.	Both

SOP / BMP Number	Previous SOP / BMP Number	SOP / BMP	Construction or Operation
Visual-14	Visual-15	Lighting: For certain permitted activities, as identified in pre-application consultation with the AO, the following may be applied: - A lighting plan should be prepared by the project proponent documenting how lighting will be designed and installed to minimize night-sky impacts and impacts on nocturnal wildlife during construction and operations. The lighting plan should specify the following: (1) Number of lights and lumen output of each—Minimum number of lights and the lowest luminosity consistent with safe and secure operation of the facility; (2) Alternatives to lighting—Retro-reflective or luminescent markers in lieu of permanent lighting where feasible; (3) Fixture design—Lights of the proper design, shielded to eliminate uplight, placed and directed to eliminate light spill and trespass to offsite locations; (4) Lamp color temperature—Lights of the proper color to minimize night-sky impacts; (5) SOPs—Minimization of unnecessary lighting use through alternatives to permanent lighting, such as restricting lighting usage to certain time periods; (6) Any activities that may be restricted to avoid night-sky impacts; and (7) A process for promptly addressing and mitigating complaints about potential lighting impacts. - Where possible, use Aircraft Detection Lighting System Technology for Hazard Lighting on Structures Taller than 200 feet. - Except as required to meet the minimum safety and security requirements (e.g., collision markers required by the Federal Aviation Administration, or other emergency lighting triggered by alarms), all permanent lighting should use full cutoff luminaires, which are fully shielded (i.e., not emitting direct or indirect light above an imaginary horizontal plane passing through the light source), and must meet the Illuminating Engineering Society glare requirement limiting intensity of light from the luminaire in the region between 80 degrees and 90 degrees from the ground. All fixtures must be mounted properly, at the proper angle. - Construction and permanent lighting should be mounted and directed to focus light only on the intended area, and to avoid light spill and offsite light trespass. Lights pointing upward or horizontally should be avoided. - When accurate color rendition is not required (e.g., roadway, basic security), lighting should be amber in color, using either low-pressure sodium lamps or yellow LED lighting, or an equivalent. When white light is required for accurate color rendition, it should be less than or equal to 3,500 degrees Kelvin color temperature (warm-white). Bluish-white lighting should not be used in permanent outdoor lighting. - Consistent with safety requirements, lighting use should be minimized during construction and operations.	Both

Section 3. Resource Uses

Table O-10: Forestry and Woodland Products

SOP / BMP Number	SOP / BMP	Construction or Operation
Forestry-1	Timber sale authorizations will require the proper site preparation and monitoring to ensure regeneration of timber stands.	Operations
Forestry-2	Forest resources will be managed to ensure biodiversity, long-term productivity, and a wide spectrum of multiple uses, including scenic values, recreation, fish and wildlife habitat, watershed protection, and timber harvest. Wildlife, fisheries, plant conservation, fire and fuels objectives will be considered when planning forest product harvests.	Operations
Forestry-3	Timber harvest and subsequent management of harvested lands will comply with the Alaska Forest Resources and Practices Act (Alaska Statute [AS] 41.17). When possible, natural regeneration through proper site preparation will be the preferred means of reforestation. When planting is necessary to meet reforestation objectives, native species compatible with the site potential will be used. When native species will not meet objectives, nonnative species may be used following site-specific NEPA analysis and AO approval.	Operations

SOP / BMP Number	SOP / BMP	Construction or Operation
Forestry-4	Machinery used in timber sales will be inspected for noxious weed seeds, especially if it is brought in from outside the local watershed.	Operations
Forestry-5	Guidelines for Christmas Tree and Firewood Harvesting: • Do not cut trees more than twice your needed height just for the top. • Do not damage adjacent trees. • When cutting down standing trees, cut the stump to 8 inches or less or as close to the ground as possible. • Scatter lopped branches at least 20 feet from the stump. • Use large stem portions for firewood. • Do not top a larger tree to obtain a Christmas tree. • Do not cut trees that have been posted as "WILDLIFE TREE DO NOT DISTURB." • Pack out your trash as well as trash left by others.	Operations

SOP / BMP Number	SOP / BMP	Construction or Operation
Forestry-6	Ground-based Commercial Harvesting: • Exclude ground-based equipment on hydric soils, defined by the Natural Resource Conservation Service, unless soils are frozen. • Limit designated skid trails for thinning or regeneration harvesting to ≤15 percent of the harvest unit area to reduce displacement or compaction to acceptable limits. • Limit width of skid roads to single width of what is operationally necessary for the approved equipment. Where multiple machines are used, provide a minimum-sized pullout for passing. • Ensure leading-end of logs is suspended when skidding. • Restrict non-road, in unit, ground-based equipment used for harvesting operations to periods of low soil moisture or frozen ground. Low soil moisture varies by texture and is based on site-specific considerations. Low soil moisture limits will be determined by qualified specialists using a qualitative method to determine an estimated soil moisture and soil texture. • Incorporate existing skid trails and landings as a priority over creating new trails where feasible, into a designated trail network for ground-based harvesting equipment, consider proper spacing, skid trail direction and location relative to terrain and stream channel features. • Limit non-specialized skidders or tracked equipment to slopes less than 35 percent, except when using previously constructed trails or accessing isolated ground based harvest areas requiring short trails over steeper pitches. Also, limit the use of this equipment when surface displacement creates trenches, depressions, excessive removal of organic horizons, or when disturbance would channel water and sediment as overland flow. • Limit the use of specialized ground-based mechanized equipment (those machines specifically designed to operate on slopes greater than 35 percent) to slopes less than 50 percent, except when using previously constructed trails or accessing isolated ground based harvesting areas requiring short trails over steeper pitches. Also, limit the use of this equipment when surface displacement creates trenches, depressions, excessive removal of organic horizons, or when disturbance would channel water and sediment as overland flow. • Designate skid trails in locations that channel water from the trail surface away from waterbodies, floodplains, and wetlands, or unstable areas adjacent to them. • Directionally fall trees to lead for skidding to minimize surface disturbance when moving logs to skid trails. • Apply erosion control measures to skid trails and other disturbed areas with potential for erosion and subsequent sediment delivery to waterbodies, floodplains, or wetlands. These practices may include seeding, mulching, water barring, tillage, and woody debris placement. • Construct water bars on skid trails where potential for soil erosion or delivery to waterbodies, floodplains, and wetlands exists. • Subsoil skid trails, landings, or temporary roads where needed to achieve 20 percent detrimental soil conditions, minimize surface runoff, improve soil structure, and water movement through the roadbed. • Block skid trails to prevent public motorized vehicle and other unauthorized use at the end of seasonal use. • Plan harvesting operations (cutting and transporting logs) when ground is frozen or adequate snow cover exists to prevent soil compaction and displacement. • Minimize the area where more than half of the depth of the organically enriched upper horizon (topsoil) is removed when conducting forest management operations. • Maintain the minimum percent of effective ground cover needed to control surface erosion following forest management operations. Ground cover may be provided by vegetation, slash, duff, medium to large gravels, cobbles, or biological crusts.	Operations
Forestry-7	Planting and Pre-commercial Thinning: • Limit the crossing of stream channels with motorized support vehicles (e.g., OHVs) and mechanized equipment to existing road crossings or temporary ford crossings to the approved instream work period. • Scatter treatment debris on disturbed soils, and water-bar any equipment access trails that could erode and deposit sediment in waterbodies, floodplains, and wetlands.	Operations

Table O-11: Locatable and Salable Minerals

SOP / BMP Number	Previous SOP / BMP Number	SOP / BMP	Construction or Operation
LS-1	LS-1	With the exception of necessary extraction operations, mining operations and mineral development support facilities and infrastructure, including but not limited to roads, bunkhouses, offices, ore processing facilities, and equipment storage and maintenance facilities and other support operations, should be sited in upland areas.	Both
LS-2	LS-2	Permanent or semi-permanent access routes, regardless of purpose, shall be routed and concentrated to minimize habitat fragmentation.	Both
LS-3	LS-3	Upland source areas, terraces, and inactive floodplains shall be used for mineral material extraction preferentially over active or inactive stream and river channels, deltas, wetlands, riparian zones, active floodplains, or lakes. Mineral material extraction from lakes, active floodplains, riparian zones, wetlands, deltas, and active or inactive stream or river channels should be avoided, if possible. When responding to a request for a material sale or identifying a source for materials on public lands, the highest priority shall be given to using existing upland material sources. Sales or permits for gravel extraction will not be permitted in known fish spawning or rearing areas.	Operations
LS-4	LS-5	Salable mining operations in floodplains shall establish and maintain suitable buffer zones to active streams.	Operations
LS-5	LS-6	All mining operations that have the potential to impact streams, lakes, ponds, or other waterbodies or Riparian Areas should incorporate the practices and recommended designs identified in the Stormwater Pollution Prevention Plan that will address site runoff, stockpiles, tailings, acid drainage, and short- and long-term containment pond management, as applicable. All sites will incorporate site-specific BMPs that will be determined through the normal permitting process.	Operations
LS-6	LS-7	Mine effluent, deleterious material, and mine runoff shall be controlled and prevented from unrestricted discharge into the surrounding watershed without permitted approval. All mining operations must control all mine contact water (to include process, pit dewatering, settling ponds, and milling operations) and discharge it as authorized in accordance with the approved water management plan and monitoring plan. Protocols for discharge reporting shall be followed.	Operations
LS-7	LS-8	Where possible, braided or split stream types will be selected for salable material extraction. Meandering, sinuous, and straight steam channel types should be avoided.	Operations
LS-8	LS-9	Generally, the largest river feasible should be selected for a salable operations in a given area. Larger rivers have higher volumes of gravel and a wider floodplain more forgiving to in-channel disturbance. The proportionately smaller disturbance in large river systems will reduce the overall effect of gravel removal.	Operations
LS-9	LS-10	Mining salable gravel from active channels should generally be avoided to reduce detrimental effects on water quality, aquatic habitat, and biota.	Operations
LS-10	LS-11	Public use cabins are not to be utilized to support plan- or notice-level mining.	Operations
LS-11	LS-12	All mineral material extraction authorizations, permits, and sales shall include stipulations to prevent the introduction and/or spread of nonnative invasive plants and noxious weeds.	Operations
LS-12	LS-14	Existing access routes will be used where possible. Alternatives to and/or upgrading of existing access will be planned in consultation with the AO. When a quarry or rock pit is depleted or vacated, stabilize cutbanks, headwalls, and other surfaces to prevent surface erosion and landslides. Close roads, excavations, and crusher pads. Remove all potential pollutants to prevent their entry into wetlands, Riparian Areas, floodplains, and waters of the State.	Operations
LS-13	LS-15	Upon closure of mining operations, all tailings, dumps, mining improvements, deleterious materials and substances, contaminants, and hazardous and solid waste, including scrap steel, derelict mining machinery and parts will be disposed of in accordance with applicable federal and State laws and regulations.	Operations

SOP / BMP Number	Previous SOP / BMP Number	SOP / BMP	Construction or Operation
LS-14	LS-16	For all mining operations, a Hazardous Materials Emergency Contingency Plan shall be prepared and implemented before transportation, storage, or use of fuel or hazardous substances. The plan shall include a set of procedures to ensure prompt response, notification, and cleanup in the event of a hazardous substance spill or threat of a release. The plan shall include a list of resources available for response (e.g., heavy-equipment operators, spill-cleanup materials or companies), and names and phone numbers of federal and State contacts.	Operations
LS-15	LS-17	Water quality of both surface and underground waters will be regulated by terms and conditions of the Alaska Pollutant Discharge Elimination System (APDES). Note that in the future, implementation of the APDES program regulating water quality of both surface and ground waters may be regulated by 18 AAC, Chapter 70 (Alaska Water Quality Standards) and 18 AAC, Chapter 83 for surface waters.	Operations

Table O-12: Leasable Minerals

SOP/ BMP Number	Previous SOP/ BMP Number	SOP / BMP	Construction or Operation
Leasable-1	Leasable-2	Well Pad and Facility Construction - Ensure that every pad, access road, or facility site has an approved surface drainage plan. - Confine or direct drainage from disturbed areas so that erosion of undisturbed areas would not be increased. - Do not allow runoff water (including that from roads) to flow into intermittent or perennial waterways without first passing through a sediment-trapping mechanism. Erosion control structures may include water bars, berms, drainage ditches, sediment ponds, or devices. - Plan access road construction for exploratory wells such that a permanent road could later be constructed in the event of field development. - Avoid constructing access roads on steep hillsides and near watercourses where alternate routes provide adequate access. - Design access roads requiring construction with cut and fill to minimize surface disturbance; take into account the character of the landform, natural contours, cut material, depth of cut, resource concerns, visual contrast, and where the fill material will be deposited. - Do not cast fill material over hilltops or into drainages. Cut slope ratios should normally be no steeper than 3:1 and fill slopes no steeper than 2:1. - Use low water crossings whenever possible. - Ensure that well site layout takes into account the character of the topography and landform. Avoid deep vertical cuts and steep, long fill slopes. Construct all cut and fill slopes to the least percent slope practical. - Require trash to be retained in portable trash cages and hauled to an authorized disposal site for disposal. Prohibit burning on the well site.	Construction
Leasable-2	Leasable-6	Mining and oil and gas operations, facilities, and infrastructure will be designed and located to minimize a development's footprint.	Both
Leasable-3	Leasable-10	Objective: Minimize impact on the human environment. Stipulation: The operator will construct drill pads at least 500 feet and compressor stations at least 1,500 feet from occupied structures. Areas Where Stipulations Apply: Areas open to oil and gas leasing. Exception: The AO may grant an exception if the operator obtains the consent of the owner of the structure. Modification: None. Waiver: None.	Both

SOP/ BMP Number	Previous SOP/ BMP Number	SOP / BMP	Construction or Operation
Leasable-4	Leasable-11	Objective: Protect, maintain, and preserve the condition and ecological function of the aquatic and riparian zones. Stipulation: The design and location of temporary or permanent oil and gas facilities within 300 feet of the following rivers will be prohibited: Kivalina, Ungalik, Shaktoolik, Inglutalik, Koyuk (including the East Fork), Tubutulik, Kuzitrin, Agiapuk, Pah, and Noatak River. Areas Where Stipulations Apply: Areas open to oil and gas leasing. Exception: The AO may grant an exception if the lessee can demonstrate that impacts to fish, water quality, and aquatic and riparian habitats are minimal, or there is no feasible or prudent alternative. Modification: None. Waiver: None.	Both
Leasable-5	Leasable-15	Objective: Minimize soil erosion. Stipulation: Surface-disturbing proposals involving construction on slopes greater than 25 percent would include an approved erosion control strategy, topsoil segregation/restoration plan, be properly surveyed and designed by a registered engineer, and approved by BLM prior to construction and maintenance. Areas Where Stipulations Apply: All slopes greater than 25 percent within the planning area. Exception: If after an environmental analysis, the AO determines that it would cause undue or unnecessary degradation to pursue other placement alternatives, occupancy in the NSO area may be authorized. Modification: May be granted if a more detailed analysis (Order I soil survey) finds that surface disturbance could occur without accelerated erosion. Waiver: None.	Both
Leasable-6	Leasable-16	Goal: When authorizing leasable minerals actions, ensure that goals to protect other resource values in the planning area are met to the extent possible. Stipulation: Permittees must submit a plan for the surface reclamation or stabilization of all disturbed areas. Prior to final abandonment, land used for infrastructure—including but not limited to well pads, production facilities, access roads, and airstrips—shall be reclaimed to ensure eventual return of ecosystem function. The BLM may grant exceptions to satisfy stated environmental purposes or community needs. Areas Where Stipulations Apply: Areas open to mineral leasing. Exception: The AO determines that it is in the best interest of the public to retain some or all facilities. Modification: None. Waiver: None.	Operations
Leasable-7	Leasable-17	Goal: When authorizing fluid leasable minerals actions, ensure that goals to protect other resource values in the planning area are met to the extent possible. Stipulation: Exploratory drilling will be limited to temporary facilities such as ice pads, ice roads, ice airstrips, and temporary platforms. Areas Where Stipulations Apply: Areas open to fluid mineral leasing. Exception: The AO may grant an exception if the lessee demonstrates that construction of permanent facilities such as gravel airstrips, storage pads, and connecting roads are environmentally preferable or that exploring from temporary facilities is not practical or economically feasible. Modification: None. Waiver: None.	Operations
Leasable-8	Leasable-19	Stockpiled soil and overburden will be spread over mine tailings and stabilized to minimize erosion. The shape of contoured tailing and overburden should approximate the shape of surrounding terrain.	Operations
Leasable-9	Leasable-20	All mining/drilling operations shall include plans for surface water discharge (Stormwater Pollution Prevention Plans), acid drainage, tailings, and short and long-term containment pond management.	Operations

SOP / BMP Number	Previous SOP / BMP Number	SOP / BMP	Construction or Operation
Leasable-10	Leasable-23	Settling ponds, retention/catchment basins, and post-drilling/production operations must be stabilized and secured prior to seasonal mine closures.	Operations

Table O-13: Lands and Realty

SOP / BMP Number	Previous SOP / BMP Number	SOP / BMP	Construction or Operation
Lands-1	Lands-1	Snow ramps may be constructed at stream crossings to accommodate overland heavy equipment moves. Blading of stream or river banks, however, is not permitted. Any ramps that may cause stream blockages during breakup will be removed after crossings are completed.	Both
Lands-2	Lands-2	During an overland heavy equipment move, all motorized equipment shall travel under its own power or be towed on an appropriately sized sled. Broken-down equipment will be repaired on-site, whenever possible, and not towed unless the break down occurs while crossing a river, lake, or pond. Broken-down equipment could be towed out of a river, lake, or pond for emergency purposes to protect water quality from further damage.	Both
Lands-3	Lands-3	During an overland move, new trail segments will be routed to avoid heavy stands of tall shrub. The Field Office Forester will assist in determining the route to avoid heavy timber stands.	Both
Lands-4	Lands-4	Unless authorized, the general Rules of Conduct in 43 CFR 8365 shall apply to all BLM lands.	Both
Lands-5	Lands-5	The permittee will notify the AO when starting an overland move and when the move is completed.	Both

SOP / BMP Number	Previous SOP / BMP Number	SOP / BMP	Construction or Operation
Lands-6	Lands-6	Rights-of-way and other lands and realty authorizations would contain noxious and invasive plant management terms or stipulations for all surface-disturbing actions. Examples of these authorizations are power lines, pipelines, transmission corridors, energy development sites and related development, and gravel pits. This may require the following, as appropriate: • Conduct a pre-disturbance noxious weed inventory. • Design to avoid or minimize vegetation removal and weed introduction or spread. • Manage weeds during the life of the right-of-way or authorization to prevent or minimize weed introduction or spread. • Require the right-of-way or authorization holder establish competitive vegetation on bare ground areas when the right-of-way is abandoned. • Monitor revegetation success and weed prevention and control for a reasonable number of years. • Require the authorization holder to pressure wash any equipment prior to bringing onto public lands. • Allow only the use of certified weed-free, or native seed mixtures when revegetating an area. • Allow only the use of certified weed-free wattles, and other material used often required as part of the Stormwater Pollution Prevention Plan, or erosion control. All authorizations would contain noxious and invasive plant management terms or stipulations to prevent the spread of noxious and invasive plants as a result of the authorized activities. During the term of an authorization, and for a reasonable amount of time after, and based upon field inspections conducted by the BLM, any introduction by the proponent of noxious and invasive plants would need a plan to remove and remediate the lands and be approved by the AO. Areas where known noxious and invasive plants occur will require an inventory to be conducted by the proponent prior to the authorization and approved by the AO. A plan to minimize further spread and/or removal of noxious and invasive plants will be required and approved by the AO prior to any authorization where known noxious and invasive plants occur. Areas where there are no known noxious and invasive plants may require an inventory to be conducted by the proponent and approved by the AO prior to authorization.	Both
Lands-7	Lands-7	ROW Avoidance Areas are areas to be avoided but may be available for location of rights-of-way with special stipulations as long as new right-of-way application documentation demonstrates (1) the other locations researched and reasons each is not feasible, and; (2) project design features/mitigation measures are incorporated to minimize resource concerns. Decisions to grant a right-of-way within a ROW Avoidance Area would be made by the AO after project-specific NEPA has been completed.	Both

SOP / BMP Number	Previous SOP / BMP Number	SOP / BMP	Construction or Operation
Lands-8	Lands-9	The NSO stipulation is intended for use only when other stipulations are determined insufficient to adequately protect an identified resource value that may suffer long term impacts based upon the surface occupancy. The land management plan/NEPA document prepared for the authorization must show that less restrictive stipulations were considered and determined by the AO to be insufficient, i.e., show why the NSO stipulation is needed. The resource value of concern must be identified and tied to a land management plan and/or NEPA document. The geographic extent of the identified resource values must be described and may be stated as: • The "Entire Lease" • Distance from resources and facilities such as rivers, trails, campgrounds, etc. • Legal description • Geographic feature such as a 100-year floodplain • Municipal watershed, percent of slope, etc. • Special areas with identified boundaries; ACEC, WSR, etc. • Other description that specifies the boundaries of the lands affected. The estimated percent of the total lease area affected by the restriction must be given if no legal or geographic description of the location of the restriction is given. In other cases, the estimated percent is optional. Land management plans and/or NEPA documents should identify the specific conditions for providing waivers, exceptions, or modifications to lease stipulations. Waivers, exceptions, or modifications must be supported by appropriate environmental analysis and documentation and are subject to the same test used to initially justify the imposition of this stipulation. Language may be added to the NSO stipulation form to provide the lessee with information or circumstances under which waivers, exceptions, or modifications would be considered. A waiver, exception, or modification may be approved if the record shows that circumstances or relative resource values have changed or that the lessee can demonstrate that operations can be conducted without causing unacceptable impacts, and that less restrictive stipulations will protect the public interest. Waivers, exceptions or modifications can only be granted by the AO. If the waiver, exception, or modification is inconsistent with the land management planning document, that document must be amended or the change disallowed.	Operations
Lands-9	Lands-10	A holder of a BLM right-of-way grant shall not allow any use of the right-of-way by another entity without the prior written authorization by the AO.	Operations
Lands-10	Lands-11	Prior to BLM's authorization of additional uses within a right-of-way, the AO will consult the holder of the right-of-way and determine whether the proposed additional use will interfere with the purposes for which the original right-of-way was granted.	Operations

Table O-14: Recreation and Visitor Services

SOP / BMP Number	SOP / BMP	Construction or Operation
Rec-1	Recreation and visitor services implementation strategies will be evaluated on an individual basis as part of activity and project-level planning. Such evaluations will consider the sensitivity and impacts on recreation and visitor services in the affected area. Stipulations will be attached as appropriate to ensure the compatibility of recreation and non-recreation projects with recreation and visitor services management objectives.	Both
Rec-2	Recreational use permits shall be issued in an equitable manner for specific recreational uses of BLM-managed lands and related waters as a means to manage visitor use; provide for visitor health, safety, and enjoyment; minimize adverse resource impacts; and provide for private and commercial recreational use according to limits or allocations established through the BLM's planning process.	Operations
Rec-3	Lands may be temporarily closed to other uses during recreation performed under a special recreation permit, such as special events along the INHT.	Operations

Table O-15: Travel and Transportation Management

SOP / BMP Number	Previous SOP / BMP Number	SOP / BMP	Construction or Operation
TTM-1	TTM-1	Preconstruction: Use existing roads to the extent possible.	Construction
TTM-2	TTM-2	When developing travel management plans, minimize impacts through appropriate restrictions on cross-country OHV use. Monitor soils for impacts that may be caused by OHVs.	Both
TTM-3	TTM-3	Roads and trails are engineered, constructed, and maintained in a manner that minimizes the effect on landscape hydrology; concentration of overland water flow, subsurface water flows; minimizes erosion, and minimizes sediment transport.	Both
TTM-4	TTM-4	Avoid new road construction or trail development in floodplains, riparian zones, or wetlands as much as feasible. Establishment of permanent or semi-permanent access routes in or through floodplains, riparian zones, wetlands, or federal public lands is subject to constraints developed through project-specific NEPA analysis and/or application of the provisions of 43 CFR 3802.3-1, 3802.3-2(g), and 3802.42. Permanent or semi-permanent access routes, regardless of purpose, shall be routed and concentrated to minimize habitat fragmentation.	Both
TTM-5	TTM-7	Follow Federal Aviation Administration Advisory Circular No: 91-36D for voluntary practices in wildlife habitat: a. Avoid noise-sensitive areas, if practical; avoidance is preferable to overflight at relatively low altitudes. b. Pilots operating noise-producing aircraft (fixed-wing, rotary-wing, and hot air balloons) over noise-sensitive areas should make every effort to fly not less than 2,000 feet above ground level (AGL), weather permitting. For the purpose of this RMP, the ground level of noise-sensitive areas is defined to include the highest terrain within 2,000 feet AGL laterally of the route of flight, or the uppermost rim of a canyon or valley. The intent of the 2,000 feet AGL recommendation is to reduce potential interference with wildlife and complaints of noise disturbances caused by low-flying aircraft over noise-sensitive areas. c. Departure from or arrival to an airport, climb after take-off, and descent for landing should be made to avoid prolonged flight at low altitudes near noise-sensitive areas. d. This advisory does not apply where it would conflict with Federal Aviation Regulations, air traffic control clearances or instructions, or where an altitude of less than 2,000 feet AGL is considered necessary by a pilot to operate safely.	Both
TTM-6	TTM-8	• Continue coordinating with counties and other agency road entities to promote use of BMPs for road maintenance they perform within planning area boundaries. • Maintain an inventory of existing road and trail systems.	Both
TTM-7	TTM-9	• In order to ensure public access and safety, the BLM Anchorage Field Office will continue an active road maintenance program, using redesign, blading, brush removal for sight distance as appropriate, scarification, graveling, water barring, low water crossings, spur ditching, seeding and culvert installation and cleaning. • No new NEPA analysis would be required for road maintenance within the defined maintenance disturbance/easement footprint, which is defined as previously disturbed or maintained. Disturbance outside of the defined maintenance disturbance/easement footprint or road realignment would be subject to additional NEPA compliance.	Both
TTM-8	TTM-10	• Locate roads and landings to reduce total transportation system mileage. Renovate or improve existing roads or landings when it would cause less adverse environmental impact. Where roads traverse land in another ownership, investigate options for using those roads before constructing new roads. • Design roads to the minimum width needed for the intended use as referenced in BLM Manual 9113-1, Roads Design Handbook.	Both
TTM-9	TTM-11	Airstrips: Casual use of fixed-wing aircraft use would be unrestricted and associated landing strips would be allowed with minimal clearing of rocks, downed logs, and brush. Construction of airstrips requires a land use authorization.	Both

SOP / BMP Number	Previous SOP / BMP Number	SOP / BMP	Construction or Operation
TTM-10	TTM-12	Within defined Western Arctic Herd (WAH) insect relief areas, aircraft associated with permitted activities will maintain an altitude of at least 2,000 feet AGL (except for takeoffs and landings) from June 20–August 15, unless doing so would endanger human life or violate safe flying practices.	Operations
TTM-11	TTM-14	Exploration - Install temporary gates for use during the course of operations, unless fence is immediately repaired. On completion of operations, restore fences to at least original condition. - Mitigate or suspend all activities off maintained roads that create excessive surface rutting during adverse conditions affecting soil moisture caused by such climatic factors as thawing, heavy rains, snow, flooding, or drought. - Limit off-road vehicle travel to that necessary to complete the permitted operations.	Operations

Table O-16: Renewable Energy

SOP / BMP Number	Previous SOP / BMP Number	SOP / BMP	Construction or Operation
Renew-1	Renew-2	Prior to the development of renewable energy resources, conduct a thorough assessment of potentially affected resources, including visual, subsistence, wildlife, etc.	Construction
Renew-2	Renew-3	Prior to the development and utilization of natural energy resource development, a decommissioning and reclamation plan should be developed.	Construction
Renew-3	Renew-4	During the construction, maintenance, and operations, appropriate actions should be taken to minimize the project footprint and associated disturbances to visual, subsistence, wildlife, and other resources due to the utilization of renewable energy resources.	Both
Renew-4	Renew-5	For construction, operation, and decommissioning of renewable energy resource development, procedures should be developed to ensure the project site and adjacent lands and areas be kept clean of debris, garbage and other waste generated on-site.	Both

Section 4. Special Designations

Table O-17: Areas of Critical Environmental Concern

SOP / BMP Number	SOP / BMP	Construction or Operation
ACEC-1	Applicants proposing to conduct surface-disturbing activities or other intensive activities will, at the determination of the AO, be required to submit an approved plan to minimize impacts to cultural resource and/or fisheries values. This plan must describe the proposed project, the design and mitigation alternatives considered, the amount and quality of the resource to be affected, the mitigation and restoration to be applied, the residual impacts predicted, and the monitoring to be undertaken to confirm mitigation success.	Both
ACEC-2	Permanent roads will generally not be allowed (although long-term temporary roads may be) and roads will generally not be open to the public. Roads will be of the lowest practical profile. Road construction will not be permitted if other means of access is practical (such as aircraft or winter ice-road). Facilities within ACECs that require year-round access will be located in forested areas where practical. Permitted aircraft will follow a minimum flight level of 1,500 feet AGL, except at landing and takeoff and when it would compromise safety. The AO may allow exceptions to these access requirements where other resource considerations are of higher priority.	Both

SOP / BMP Number	SOP / BMP	Construction or Operation
ACEC-3	To minimize habitat loss, the surface disturbance and the aerial extent of facilities will be minimized. The amount of cumulative vegetation clearing and surface disturbance will be minimized through an integrated review of planned disturbance between all land users.	Both
ACEC-4	Reclamation and revegetation of disturbed areas will be required to meet performance standards set in site-specific reclamation plans, such as a required plant cover (percent) within a certain number of years before a performance bond is released.	Both

Table O-18: National Trails

SOP/ BMP Number	SOP / BMP	Construction or Operation
INHT-1	To eliminate, minimize, or limit the spread of noxious and nonnative invasive plants, only feed and mulch (hay cubes, hay pellets, or straw, for example) certified as weed-free through the Alaska Weed-Free Forage certification program (or other programs with approval of the AO) will be authorized on BLM lands. Where Alaska certified sources are not available, locally produced forage and mulch may be used with approval from the AO. If no certified weed-free or local sources are available, other products may be used with the approval of the AO. Additionally, certified weed-free feed will be required to be fed to the animal 24 hours prior to coming onto public lands to prevent the spread of invasive plants through the animal's excrement. Through educational materials and permit stipulations, develop a land ethic leading to the use of certified weed-free products (hay, straw, bedding, feed) on and before visiting BLM lands. Persons using products other than certified weed free will place a temporary barrier between the ground and the product to prevent the spread of noxious weeds. All product remnants must be removed and discarded away from public lands.	Operations

Table O-19: Wild and Scenic Rivers

SOP / BMP Number	SOP / BMP	Construction or Operation
WSR-1	For commercial timber sales and personal use timber permits, the requirement for a buffer will be considered to prevent disturbance of priority fish species habitat, sedimentation into streams, impairment of visual resource qualities, or to protect outstandingly remarkable values of wild and scenic rivers. Buffer widths will be determined through the normal permitting process.	Operations

Section 5. Social and Economic Conditions

Table O-20: Support for BSWI Communities

SOP / BMP Number	SOP / BMP	Construction or Operation
Socioecon-1	Public Participation - Resolve problems and implement decisions in collaboration with other agencies, State, municipalities, Native corporations, and the public. - Ensure the BLM land users and stakeholders have a meaningful voice in establishing policy and managing BLM land in Alaska. - Provide the general public with culturally appropriate, meaningful opportunities to participate in and influence the process of decision making affecting BLM-managed land in Alaska. - To the extent practical and warranted by local conditions, hold public meetings in the Alaskan community or communities most impacted by proposed decisions affecting BLM land. - When setting deadlines for public participation, recognize and provide for the extra time it takes mail to reach people in rural Alaska. The seasonality of subsistence dependent communities and the land users will also be considered.	Both

SOP / BMP Number	SOP / BMP	Construction or Operation
Socioecon-2	Government, Organization, and Community Participation - Provide local governments, State and federal agencies, Native corporations, and other private landowners and interest groups with meaningful opportunities to participate in and influence the process of decision making affecting BLM-managed land in Alaska. - Consistent with the national policy regarding government-to-government consultation and relationships with tribes, consult as early in the agency's decision-making process as possible, to the greatest extent practicable and to the maximum extent permitted by law, with Federally Recognized Tribes in Alaska prior to taking action or undertaking activities that affect Federally Recognized Tribes, their assets, rights, services, or programs. The BLM actions shall favor maximum participation of Federally Recognized Tribes in Alaska with a goal of informed decision making through consultation and collaboration. - Notify the manager of the appropriate federal conservation system unit of any proposed activity or use that may affect the unit. An opportunity for comment will also be offered. - Work collaboratively to monitor effectiveness of participation and other actions contained in the "Support for BSWI Communities" theme as needed.	Both
Socioecon-3	Coordinate, cooperate, and consult with federal, tribal, State, and local agencies, private landowners, and stakeholder organizations in order to foster a unified, science-based adaptive management approach to wetland-floodplain and all land management in a watershed/ecosystem context.	Both
Socioecon-4	Promote stewardship, conservation, and appreciation of wetland-floodplains and all lands through educational and outreach programs.	Both

Table O-21: Subsistence

SOP / BMP Number	SOP / BMP	Construction or Operation
Sub-1	For externally generated actions, BLM will consider using the following actions to eliminate, minimize, or limit the effects of permitted activities on subsistence use: - BLM may recommend modifications to a proposed activity. - Permittees may be required to provide information to potentially affected subsistence communities regarding the timing, siting, and scope of the proposed activity. - Permittees may be required to consult with potentially affected subsistence communities regarding ways to minimize impacts to subsistence. (The ANILCA 810 Analysis can only be conducted by the federal agency, not by the project proponent.)	Both

Table O-22: Hazardous Materials and Health and Human Safety

SOP / BMP Number	Previous SOP / BMP Number	SOP / BMP	Construction or Operation
Solid Waste			
Hazmat-1	Hazmat-1	Areas of activities will be left clean of all debris to minimize environmental contamination from solid waste.	Both
Hazmat-2	Hazmat-2	All solid wastes, including incinerated ash, will be removed by the permittee from public lands and disposed of within an Alaska Department of Environmental Conservation (ADEC) approved facility, unless otherwise specified. Solid waste combustibles may be incinerated in a contained and controlled manner; however, burn restrictions may apply during high-risk wildland fire seasons. Burial of solid waste is not authorized on public lands. Burning of trash, litter, trees, brush or other vegetative material must be approved by the AO.	Both

SOP / BMP Number	Previous SOP / BMP Number	SOP / BMP	Construction or Operation
Wastewater / Sanitation			
Hazmat-3	Hazmat-3	Wastewater should be managed in accordance with 18 AAC 72, Wastewater disposal. Wastewater can be defined as human wastes (sewage) and gray water (wastewater from a laundry, kitchen, sink, shower, bath or other domestic sources). Pit privies are authorized in accordance with 18 AAC 72.020(b)(c)(i), 72.030 and all applicable updates and must be at least 100 feet away from any waterbody. If these standards cannot be met, then special authorization may be given by the AO. Gray water may not be released in any waterbody, without authorization under the APDES. Gray water may be filtered and released to the surface so as not to cause erosion, and the gray water released must maintain compliance with the ADEC's guidance.	Both
Hazmat-4	Hazmat-4	Sanitation efforts including the disposal of gray water and kitchen wastes will be approved by the AO in accordance with the ADEC General Mine Permit or plan specifically developed in consultation with that agency.	Both
Spill Prevention and Response			
Hazmat-5	Hazmat-5	All hazardous materials and petroleum, oil, and lubricants (POLs) will be stored in containers that are compatible to the material being stored. Containers will be labeled with the responsible party's name, and contents of the container.	Both
Hazmat-6	Hazmat-6	Storage of POLs at any site will require secondary containment. The containment area must be constructed to hold at least 110 percent of the largest container, lined with an impermeable liner that is free of cracks or gaps, compatible with the contents stored, and sufficiently impervious to contain leaks, or spills. The containment area must be covered to eliminate the collection of rainwater within the containment area.	Both
Hazmat-7	Hazmat-7	All hazardous materials/toxic substances must be disposed of in accordance with U.S. Environmental Protection Agency and ADEC regulations at the time of disposal.	Both
Hazmat-8	Hazmat-8	Equipment maintenance by the responsible party may be allowed if it is necessary to operate equipment as described in the authorization. Equipment maintenance that has the potential to release fluids should be completed over an impermeable liner to ensure fluid migration to the environment does not occur.	Both
Hazmat-9	Hazmat-9	A Spill Prevention Plan will be written and implemented for all sites which have the potential to store 1,320 gallons or more of POLs in 55-gallon drums and larger containers. SPCCs will follow the requirements in 40 CFR 112 and State regulations.	Both
Hazmat-10	Hazmat-10	All spills will be contained and cleaned up in accordance with ADEC guidance as soon as the release has been identified, unless health and safety of personnel is at risk. ADEC discharge notifications and reporting requirements are outlined in AS 46.03.755 and 18 AAC 75 Article 3. The release of POLs to any waterbody must be immediately reported to ADEC, as soon as the person has knowledge of the release. The responsible party will contact the AO no later than 24 hours after a spill on public lands. Notifying the U.S. Environmental Protection Agency may be required for discharges of oil, as required by 40 CFR 112.4.	Both
Hazmat-11	Hazmat-11	Application of pesticides and other toxicants will occur in a manner that does not prevent or retard attainment of desired conditions or adversely impacts priority aquatic species.	Both
Hazmat-12	Hazmat-14	Transfer of POLs to equipment will be completed in a secure manner to minimize the possibility of contamination to the surrounding environment. At a minimum, POL-type absorbent pads will be placed under the transfer location to catch overflow or assist the operator in containing a spill.	Both
Hazmat-13	Hazmat-15	With the exception of watercraft or aircraft, no vehicles or motorized equipment shall be left unattended within the 100-year floodplain or below the ordinary high water mark of any river or stream.	Both
Hazmat-14	Hazmat-16	Human use will be managed to achieve and maintain water quality standards and to avoid management problems and water quality impacts. Specific management practices will include public education and construction of toilet facilities where appropriate.	Both

SOP / BMP Number	Previous SOP / BMP Number	SOP / BMP	Construction or Operation
Hazmat-15	Hazmat-17	No fuel barrels, waste oil, garbage, or equipment are to be abandoned along any trails or on federal public lands.	Both
Hazmat-16	Hazmat-18	Hazardous and other regulated wastes shall be properly managed by the generator as required by all applicable federal and State laws and regulations.	Both
Hazmat-17	Hazmat-20	Transportation of POLs will be handled in a safe manner to avoid impacts to the environment and human health.	Both
Hazmat-18	Hazmat-23	Use of pesticides will comply with applicable federal and State laws. Pesticides will be used only in accordance with their registered uses and within limitations imposed by the Secretary of the Interior. Prior to the use of pesticides, the authorized user or permittee will obtain from the AO written approval of a plan showing the type and quantity of material to be used, pest(s) to be controlled, method of application, location of storage and disposal of containers, and any other information deemed necessary by the AO. The plan should be submitted no later than December 1st of any calendar year to cover the proposed activities for the next fiscal year. Emergency use of pesticides will be approved in writing by the AO prior to such use. Pesticide use is subject to case-specific NEPA analysis.	Both
Hazmat-19	Hazmat-24	Hazardous substances used for exploration or mining will be contained and backhauled for disposal at a proper facility for that material. Used petroleum products may be converted on-site or contained and backhauled for proper disposal. The storage of fuels and petroleum products will be in a location approved by the AO in accordance with ADEC permit requirements.	Operations
Hazmat-20	Hazmat-25	Before using biological controls, ensure that they are tested on a variety of species, including taxonomically close relatives. Disclose impacts from use of biological controls and develop appropriate mitigation measures to reduce adverse effects.	Operations
Hazmat-21	Hazmat-26	During any exploration activities, locate powder magazines at least a mile from traveled roads, unless otherwise authorized after analysis or review. Require loaded shot holes and charges to be attended at all times. Require all trash, flagging, and lath to be removed and hauled to an authorized disposal site. Do not allow oil or lubricants to be drained onto the ground surface. Require the undersides of all heavy equipment to be washed before being driven onto public lands and discourage driving through or parking on noxious weed infestations.	Operations

Section 6. References Cited

BLM (Bureau of Land Management). 2007. Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development: The Gold Book. Fourth Edition. Available at: <https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/operations-and-production/the-gold-book>

DOI (U.S. Department of the Interior) Bureau of Land Management, U.S. Department of Agriculture Forest Service, National Park Service, and U.S. Fish and Wildlife Service. 2018. Interagency Standards for Fire and Fire Aviation Operations, NFES 2724.

G.N. McDonald and Associates. 1994. Stream Crossing Design Procedure for Fish Streams on the North Slope Coastal Plain. Anchorage, AK: G.N. McDonald and Associates for BP Exploration (Alaska) Inc.

Oregon Department of Forestry. 2002. Fish Passage Guidelines for New and Replacement Stream Crossing Structures. Forest Practices Technical Note Number 4. Version 1.0. Effective May 10, 2002. Available: <https://www.oregon.gov/ODF/Documents/WorkingForests/FishPassageGuidelinesTechNote4.pdf>

USDA (U.S. Department of Agriculture Forest Service), U.S. Department of the Interior Bureau of Land Management, National Park Service, U.S. Fish and Wildlife Service, and Bureau of Indian Affairs. 2006. Interagency Burned Area Emergency Response Guidebook. Interpretation of Department of the Interior 620 DM 3 and USDA Forest Service Manual 2523 for the Emergency Stabilization of Federal and Tribal Trust Lands, Version 4.0. February 2006. Available at:

<https://www.nps.gov/archeology/npsGuide/fire/docs/18%20Interagency%20BAER%20Handbook.pdf>

USFWS (U.S. Fish and Wildlife Service). 2020. Culvert Design Guidelines for Ecological Function. Revision 5. Alaska Fish Passage Program. February 5.

This page intentionally left blank

Appendix P: Recreation Management Areas

Appendix P. Recreation Management Areas

The Bureau of Land Management (BLM) allocates recreation resources and uses through the land use planning process. There are three required land use planning decisions related to recreation and visitor services¹: (1) Designate recreation management areas, (2) Establish recreation and visitor services objectives for each recreation management area, and (3) Identify land use planning-level supporting management actions and allowable uses for each recreation management area. The BLM has two classifications of recreation management areas: special recreation management area (SRMA) or extensive recreation management area (ERMA). Under the Bering Sea–Western Interior Proposed Resource Management Plan/Final Environmental Impact Statement, all action alternatives would result in classification of one SRMA and one ERMA. Alternative E would also include undesignated recreation lands or lands not included within an SRMA or ERMA; under the other action alternatives, the entire planning area would be within either an SRMA or ERMA.

According to the BLM Handbook on Planning for Recreation and Visitor Services,² an SRMA is managed to protect and enhance a targeted set of activities, experiences, benefits, and desired recreation setting characteristics, while an ERMA is managed to support and sustain principal recreation activities and associated qualities and conditions. The BLM may also subdivide an SRMA into recreation management zones to further delineate specific recreation opportunities. The tables within this appendix match the template tables for SRMAs and ERMAs in Handbook H-8320-1 on Planning for Recreation and Visitor Services. These tables describe the following information for the SRMA, its recreation management zone, and the ERMA (divided into Community Focus Zones and areas outside the Community Focus Zones/undesignated recreation lands under Alternative E):

- Objectives, experiences, and benefits
- Description of recreation setting characteristics
- Management actions and allowable use decisions
- Implementation decisions or guidance

The objectives and management actions and allowable use decisions presented in the following tables fulfill required land use planning decisions (2) and (3) described above. This appendix can be used in the future to guide decision-making within the designated recreation management areas to ensure recreation objectives, experiences, and benefits are realized; provide a list of area-specific management actions and allowable use decisions; and provide guidance for implementation decisions.

¹ BLM. 2014. Handbook H-8320-1: Planning for Recreation and Visitor Services. Available at: https://www.blm.gov/sites/blm.gov/files/uploads/Media_Library_BLM_Policy_H-8320-1.pdf.

² Ibid.

Iditarod National Historic Trail Special Recreation Management Area (SRMA)

SUPPORTING INFORMATION

The Iditarod National Historic Trail (INHT) SRMA would improve management of the unique and distinctive use of the INHT. The INHT is the only national trail within the Bering Sea–Western Interior (BSWI) planning area, composed of 2,400 miles of trail segments and sites associated with a Gold Rush-era trail network that connected Seward to Nome via the Iditarod gold mining district.

Historically, INHT travel occurred during winter and relied on roadhouses and cabins for shelter. Trail segments are still used as primary winter overland routes between communities. Approximately 1,600 miles of the INHT are on public lands and right-of-way identified for modern-day use. Over 700 miles of actively used trail segments are in the planning area, approximately 77 miles of which are on Bureau of Land Management (BLM)-managed lands. The INHT's diverse climate, terrain, scenery, wildlife, and resources are largely unchanged since the Gold Rush, providing an opportunity to experience the natural primitive settings and challenges historically encountered. Contemporary use includes snowmobile travel between villages, trapping, firewood gathering, subsistence, and race events.

Most wintertime trail use takes place from February to April, although winter use begins when sufficiently cold weather and snow coverage enable overland travel. Winter overland travel is mostly via snowmobile and dogsled. Alaska residents and those visiting from outside the state and country use the trail for competitive events, such as the Iditarod Sled Dog Race, the Iron Dog snowmobile race, and various human-powered (foot, bicycle, and ski) endurance races.

SRMA OBJECTIVES

Objective Statement: BLM Manual 6280 requires the establishment of a National Trails Management Corridor (NTMC) that provides for land management measures that safeguard the nature and character of the corridor to meet the legislative goals of the special designation.³ BLM Manual 6280 also requires inventorying national trail resources, qualities, values, and associated settings and the primary use or uses of the trail, as well as identifying management goals, objectives, and actions for each national trail. Designation and management of this area as an SRMA would ensure that desired experiences and benefits of the INHT could be sustained for generations to come.

Activities: Manage for the primary activities of dog mushing and snowmobile riding and secondary activities of trapping and hunting.

Experiences:

- Gain recognition from others for using the trail.
- Tell others about the trip.
- Enjoy exploring on one's own.
- Enjoy participation in group outdoor events.
- Enjoy strenuous exercise.
- Escape everyday responsibilities.
- Experience and feel good about solitude, isolation, and independence.
- Experience and enjoy adventure.
- Experience and enjoy the sights, sounds, and smells of nature.
- Test one's endurance (secondary experience).

³ BLM Manual 6280 – Management of National Scenic and Historic Trails and Trails under Study or Recommended as Suitable for Congressional Designation (Public). September 14, 2012. Available at https://www.blm.gov/sites/blm.gov/files/uploads/mediacenter_blmmanual6280.pdf.

Benefits:Personal

- Greater self-reliance
- Improved outdoor recreation skills
- Enhanced awareness and understanding of nature
- Enhanced sense of personal freedom
- Enhanced sense of competence
- Greater sense of adventure

Community/Social

- Heightened awareness of natural world
- Improved community closeness and bonding
- Greater family bonding
- Enlarge sense of community dependency on public lands
- Increased independence/autonomy
- Greater interaction with visitors from different cultures

Environmental

- Greater retention of distinctive natural landscape features
- Reduced negative impacts such as litter, vegetative trampling, and unplanned trail construction

RECREATION SETTING CHARACTERISTIC DESCRIPTIONS**Physical Components** (e.g., remoteness, naturalness, visitor facilities):

The INHT SRMA is more than 0.5 mile from paved roads. The existing natural landscape has been retained, and modifications to the landscape are not evident. Visitor facilities consist of simple/basic recreation developments such as shelter cabins and trail signs.

Social Components (e.g., contacts, group size, evidence of use):

There are two seasons of use on the INHT SRMA; the high season occurs from February to March, and visitors can expect to see an average of 15-29 people on the trail per day, in group sizes of 4-6. The low season occurs April to January, and visitors can expect to see fewer than 3 other people each day. Evidence of use is limited to small localized areas with vegetation impacts. Wood lathe with reflective tape from permitted events is occasionally seen along the trail.

Operational Components (e.g., access [types of travel], visitor services/information, management controls):

Public access is predominantly by snowmobile, with a lesser use by dog sleds, winter mountain bikes, and cross-country skiing. No full-size vehicles will be in use. Visitor information will consist of maps available at BLM offices and shelter cabins, websites, and minimal signage along the trail. Signs will be directional in nature. Signs identifying the INHT would be visible at access points and cabins and periodically along the trail. BLM staff will be present occasionally, most frequently during permitted events. Partnerships will be explored and utilized to maintain a minimal management presence. Management controls would include, but not be limited to, limits to group size, limits to duration of stay, waste management (human and litter), and permitted activities and commercial filming. Dispersed recreation uses would be lightly managed, with little to no cost to the public.

MANAGEMENT ACTIONS AND ALLOWABLE USE DECISIONS

Recreation and Visitor Services Program (e.g., planning-area wide camping limits, restrictions on shooting sports. Note that many recreation management actions fall under implementation decisions described below).

- Off-highway vehicle (OHV) area designation is established as Limited (details on limitations by alternative are provided in Section 2.7.18 and Table 2-17 of the Proposed Resource Management Plan (RMP)/Final Environmental Impact Statement (EIS).
- Apply administrative actions to create and maintain semi-primitive motorized recreation opportunities, experiences, and outcomes.
- Define stay limits for non-permitted dispersed camping and BLM Public Shelter Cabin casual use. Special recreation permit (SRP) use of INHT public shelter cabins is limited to non-exclusive use of a cabin for one overnight, 12-hour period as part of travel expeditions making use of the trail.

Other Programs:

- Visual Resource Management Decisions
- Travel Management Decisions

(Note that the SRMA does not cross areas of medium to high locatable mineral potential. Leasable mineral potential is considered low throughout the planning area.)

IMPLEMENTATION DECISIONS (analyzed in Land Use Plan) or IMPLEMENTATION GUIDANCE (additional NEPA required)

Management:

- Road and trails will be managed in partnership with local communities to provide access for subsistence activities with minimal change to the current physical setting.
- The BLM will manage public shelter cabins in a manner that supports casual use of these facilities.
- The BLM will manage public shelter cabins to promote casual use by the public as a priority over use by commercial guide/outfitters.
- The BLM would apply stay limits in public shelter cabins to achieve social recreation setting characteristics (RSCs).
- The BLM will limit SRPs as necessary to avoid use conflicts.

Administration:

- Limits to SRPs will be applied as needed to minimize use conflicts (casual, commercial, subsistence) and achieve desired benefits and outcomes.
- Issuance of SRPs would include appropriate stipulations for the protection and management of natural, cultural, and paleontological resources and would minimize potential impacts to those resources to the extent practicable.
- SRPs for competitive events may be limited in number, timing (e.g., between February 1 and April 1) and trail segment to prevent overlap and minimize potential for conflicting use.
- Exclusive use of public shelter cabins may not be permitted to ensure health and safety of casual and subsistence users.

- An adaptive management monitoring program with baseline conditions, impact thresholds, and triggers for actions would be established for the purposes of resource protection, visitor safety, and/or enhancing targeted outcomes and setting character.
- Develop new restrictions and/or facilities, as needed, for the purposes of site protection, visitor safety, and/or enhancing targeted outcomes and setting character.
- New restrictions and/or facilities may be developed for the purposes of site protection, visitor safety, and/or enhancement of targeted outcomes and setting character.

Information and Education:

- Maps will be available at BLM offices, shelter cabins, and websites.
- Minimal signage will exist along the trail. Signs will be directional in nature.
- BLM staff will be present occasionally, most frequently during permitted events.
- Partnerships will be explored and utilized to maintain a minimal management presence.

Monitoring:

- Visitor use monitoring may occur during permitted event and non-event time periods to assess demand, user conflict, evidence of use (litter, waste), etc.

Rohn Site Recreation Management Area

SUPPORTING INFORMATION

The BLM manages the Rohn Air Navigation Site within the INHT. For the past century, Rohn has been the site of the only habitable public shelter between Rainy Pass Lodge, 25 air miles to the east, and Nikolai, 60 air miles to the north. The site consists of 400 acres of upland forest at the confluence of the South Fork Kuskokwim River and the Tatina River. Built facilities include a 1,200-foot unmaintained gravel airstrip, the Primary Trail of the INHT and a segment of Connecting Trail, and the historic Rohn Public Shelter Cabin. The public shelter cabin is the oldest historically intact structure open for public use and managed by the BLM on the entire trail.

The first roadhouse was established at Rohn in 1910. It was used throughout the Iditarod gold rush until it burned down in 1924. Subsequently, a new cabin was built and survived until it was washed away by the Tatina River in 1984. In the late 1930s, the 400-acre site was withdrawn for public use by the U.S. Department of Interior for the development of an emergency airstrip and shelter cabin by the Civil Aeronautical Administration. At that time, the Civilian Conservation Corps built what is today known as the Rohn Public Shelter Cabin.

ROHN MANAGEMENT ZONE (RMZ) OBJECTIVE(S)

Objective Statement:

Today, the Rohn Public Shelter Cabin is one of the most well-known cabins on the INHT, having been used for over 40 years as the first checkpoint for Iditarod Sled Dog Racers north of the Alaska Range. The shelter cabin and airstrip are also used as a checkpoint on the Iron Dog Race and frequently as a base camp in late summer for sheep hunters. The 400-acre site also houses a set of automatic, Internet-based weather monitoring cameras, installed and maintained by the Federal Aviation Administration, which provide real-time images of weather conditions over the adjacent Alaska Range. Due to the historic significance of Rohn, the site is eligible for and managed (per BLM policy) as if it were listed on the National Register of Historic Places, to protect its historic values.

Activities: Within the Rohn RMZ of the INHT SRMA, manage for the primary activities of group use, camping and hunting, and for the secondary activities of snowmobile riding and sightseeing. Monitoring by staff to ensure this objective is being met will be performed on an annual basis, with an emphasis on winter months.

Experiences:

- Testing one's endurance
- Enjoying a risk-taking adventure
- Togetherness with similar people
- Participating in group outdoor activities
- Being in control of things that happen
- Enjoying the sights, sounds, and smell of nature
- Enjoying an escape from crowds of people
- Gaining recognition from others for completing a trip to Rohn RMZ
- Feeling good about solitude, isolation, and independence

Benefits:Personal:

- Greater self-reliance
- Improved skills for outdoor enjoyment, both by one's self and in group settings
- Improved outdoor knowledge and self-confidence
- Increased adaptability
- Stronger ties with family and friends
- Become a more well-informed and responsible visitor
- Increase one's personal relationship with the natural world
- Gain a greater sense of adventure

Community/Social:

- Increased awareness of nearby communities
- Increased revenue to nearby communities
- Greater protection of area historic structures

Environmental:

- Heightened awareness of the natural world
- Greater management of fish, wildlife, and plant resources

RECREATION SETTING CHARACTERISTIC DESCRIPTIONS**Physical Components** (e.g., remoteness, naturalness, visitor facilities):

- Rohn is within 0.5 mile of a trail and airstrip.
- The site consists of an existing unmaintained gravel airstrip, cabin, and toilet, which have partially modified the existing natural landscape but are not visible from the entire zone.
- Simple/basic recreation developments such as the Rohn shelter cabin and primitive toilet, hazardous materials storage locker, portal sign, and site maintenance tools are found on-site.

Social Components (e.g., contacts, group size, evidence of use):

- There are two seasons of use at the Rohn RMZ; the high season occurs from February to March, and visitors can expect to see an average of 15-29 people on the trail per day, in group sizes of 3 or fewer. The low season occurs April to January, and visitors can expect to see fewer than 3 other people each day, which often consist of passengers of small airplanes landing at the site.
- Evidence of use is limited to small localized areas of vegetation alteration and compacted/bare soils at the shelter cabin and adjacent to the airstrip. Surface vegetation will continue to be managed to allow minimal wear and bare soils along the trail.

Operational Components (e.g., access [types of travel], visitor services/information, management controls):

- Winter access is predominantly by aircraft, with some dog mushing, winter mountain biking, and snow machine riding. Summer access is possible by aircraft only.
- Visitor information will consist of maps available at BLM offices and shelter cabins, websites, and minimal signage at the cabin and along the trail. Signs will be directional in nature. BLM staff will be present occasionally, most frequently during permitted events. Partnerships will be explored and utilized to maintain a minimal management presence. Management controls would include, but not be limited to, limits to group size, limits to duration of stay, waste management (human and litter), and permitted activities and commercial filming. Dispersed recreation uses would be lightly managed and little to no cost to the public.
- Shelter cabin rules will be posted in plain sight at the cabin. Permitted use such as organized group activities includes restrictions, limitations, and stipulations on such acts as group size, camping ethics, human waste, and litter disposal.

MANAGEMENT ACTIONS AND ALLOWABLE USE DECISIONS

Recreation and Visitor Services Program

- The Rohn Site RMZ would be established (363 acres) within the INHT SRMA.
- Licensed non-government contracted private transporters (with exception of guide/outfitters) would not be required to obtain an SRP to access the Rohn Site. The BLM would continue to monitor the situation and evaluate implementing an SRP requirement for transporters should use increase or conflict arise.
- Only the use of dead and down trees for the wood stove in the BLM Public Shelter Cabin would be allowed. Cutting of live trees would be prohibited.
- Non-permitted use would be limited to 3 consecutive days and to no more than 6 days in total in a calendar year.

Other Programs:

- Travel Management Decisions
- Visual Resource Management Decisions

IMPLEMENTATION GUIDANCE

Management: (e.g., roads, trails, facilities, use restrictions, services, concessions.)

- Continue to manage the Rohn Site in a manner that supports group use and minimizes conflict between commercial, casual, and subsistence use.

Administration: (e.g., permits, fees, allocation systems, partnerships)

- Consider limits requiring SRPs for non-government contracted private transporters accessing the Rohn Site (e.g., air taxis, boat operators, horseback).
- Consider limits on commercial use of the BLM Public Shelter Cabin to minimize conflict.

Information and Education:

- Maps will be available at BLM offices, shelter cabins, and websites.
- Minimal signage will exist along the trail. Signs will be directional in nature.
- BLM staff will be present occasionally, most frequently during permitted events.
- Partnerships will be explored and utilized to maintain a minimal management presence.

Monitoring:

- Visitor use monitoring may occur during permitted event and non-event time periods to assess demand, user conflict, evidence of use (litter, waste).

BSWI Extensive Recreation Management Area (ERMA) Community Focus Zones (CFZs)

ERMA CFZ OBJECTIVE(S)

ERMA CFZ Objective Statement:

Under Alternatives B, C and E, the CFZs were applied within a certain buffer distance around BSWI communities within the ERMA. Unlike under Alternatives B and C, under Alternative E the ERMA only consists of the CFZs. Under Alternative D, there would be no CFZs.

Under Alternatives C and E, the CFZs apply to a 5-mile radius around every planning area community; under Alternative B, the radius would be 10 miles. These areas would be managed to reduce competition for subsistence fish and wildlife resources within an established radius around remote Alaskan villages. The CFZs will provide opportunities for BSWI communities to conduct subsistence harvest activities free from the impacts of permitted sport and commercial harvest on BLM-managed lands adjacent to BSWI communities. Throughout the life of the plan, and within the CFZs, desired experiences and benefits will focus on traditional subsistence use.

Activities: Within the ERMA CFZs, provide a setting in which the following experiences and benefits could be achieved:

ERMA CFZ Experiences:

- Engaging in traditional use in traditional areas
- Engaging on traditional practices alone or with others
- Connecting to nature through reliance on natural resources
- Enjoying the sights, sounds, and smells of nature

ERMA CFZ Benefits:

Personal:

- Satisfaction in carrying out traditional uses
- Pride in providing for family and community
- Enhanced sense of personal freedom
- Enhanced sense of competence
- Enhanced sense of self-reliance

Environmental:

- Heightened awareness of the natural world
- Participation in stewardship of subsistence resources
- Reduced pressure for fish, wildlife, and plant resources

RECREATION SETTING CHARACTERISTIC DESCRIPTIONS

ERMA CFZ Physical Components (e.g., remoteness, naturalness, visitor facilities):

- No visitor facilities or trailheads will be developed by the BLM.
- BLM will coordinate with communities to support cultural tourism if desired by the community.
- Existing trails resulting from traditional subsistence activities and village-to-village transportation will remain for the life of the plan.

ERMA CFZ Social Components (e.g., contacts, group size, evidence of use):

- Encounters would be limited to individuals or groups engaged in subsistence use or cross-country travel.
- Encounters with commercial outfitter groups would be minimized.

ERMA CFZ Operational Components (e.g., access [types of travel], visitor services/information, management controls):

- Access by existing trails resulting from traditional subsistence use would continue.
- Information will consist of maps available at BLM offices and shelter cabins.
- Maps will be provided to permitted sport and commercial harvest operations nearby that indicate outer boundary of CFZ.
- BLM staff will have minimal presence; however, monitoring may occur during hunting season.
- Dispersed non-commercial recreation uses would be lightly managed and without additional large investment developed recreation facility cost to the public.

MANAGEMENT ACTIONS AND ALLOWABLE USE DECISIONS

ERMA CFZ Recreation and Visitor Services Program:

- CFZs will be established around BSWI communities as described in Table 2-16a of the BSWI Proposed RMP/Final EIS.
- BLM-issued SRPs for guide/outfitter activity will be limited to lands outside the CFZ. Specifically, BLM will not authorize the guiding of paying clients conducting sport hunting and sport fishing within the CFZs.

Other Programs:

- Travel Management
- Visual Resource Management
- Fisheries
- Wildlife
- Locatable Minerals
- Commercial Woodland Harvest
- Lands and Realty

IMPLEMENTATION GUIDANCE

ERMA CFZ Management:

- Identification of specific limitations within the “Limited” designation (e.g., vehicle weight, vehicle width) are implementation-level planning decisions and would be developed as part of a travel and transportation plan that will be completed by the BLM subsequent to this RMP in coordination with BSWI communities.
- Road and trails will be managed in partnership with local communities to provide access for subsistence activities with minimal change to the current physical setting.
- The BLM would continue to work cooperatively with rural communities to mark winter travel routes between communities. Site-specific marking locations and methods would be determined at the implementation level through this cooperative effort.
- If summer use routes are identified during implementation-level travel management planning, these designations would be based on the following criteria:
 - Prioritize a route system on lands of high resilience to repeated passage of summer OHVs.
 - Include existing routes (see Map 3.3.7-1 of the BSWI Proposed RMP/Final EIS, Volume 2) accessing subsistence resources in the designated route network.
 - Reduce redundant or social trails accessing the same areas and resources unless multiple routes are found necessary for multiple recreation experiences that are supported by the RMP.
 - Meet connectivity and destination goals for rural communities.
 - During implementation-level planning, consider resource impacts, other resource decisions, and resource use needs when developing a route system.

ERMA CFZ Administration:

- Partnerships with local communities will be developed as needed to provide or maintain access, facilities, or information.
- Limits to SRPs will be applied as needed to minimize conflicts with subsistence use and achieve desired benefits and outcomes.

ERMA CFZ Information and Education:

- Educate guide/outfitters on the goals and objectives of the BSWI ERMA.
- Provide information to guide/outfitters to use for client education of the goals and objectives for the BSWI ERMA.

Monitoring:

- Conduct community focus groups every 5 years to assess achievement of objectives and effectiveness of management.
- Monitor SRP harvest and camp locations operating outside the ERMA CFZs annually via post use reports to ensure that permitted activities are occurring outside of CFZs.

BSWI ERMA (Outside CFZs)/Undesignated Recreation Lands

BSWI ERMA (Outside CFZs)/UNDESIGNATED RECREATION LANDS OBJECTIVE(S)

BSWI ERMA (Outside CFZs)/Undesignated Recreation Lands Objective Statement:

Under Alternative E, the remainder of the planning area outside of the CFZs (the ERMA under Alternative E) and INHT SRMA would be considered the BSWI Undesignated Recreation Lands. These lands generally coincide with the BSWI ERMA (Outside CFZs) under Alternatives B and C and the ERMA under Alternative D. This area consists of the North and South Nulato Hills, the Yukon River Lowlands, the Kuskokwim Mountains, the Tanana-Kuskokwim Lowlands, the Lime Hills, and the Ahklun Mountains.

Within the BSWI ERMA (Outside CFZs)/Undesignated Recreation Lands, dispersed recreation would be lightly managed and without additional large investment developed recreation facility cost to the public. The BSWI ERMA (Outside CFZs)/Undesignated Recreation Lands will be managed annually for the primary activities of hunting and dispersed camping and for the secondary activities of snowmobile riding and fishing.

Activities: Within the BSWI ERMA (Outside CFZs)/Undesignated Recreation Lands, provide a setting in which the following experiences and benefits could be achieved:

BSWI ERMA (Outside CFZs)/Undesignated Recreation Lands Experiences:

- Escaping crowds
- Experiencing solitude
- Enjoying the sights, sounds, and smells of nature
- Testing one's abilities (secondary experience)

BSWI ERMA (Outside CFZs)/Undesignated Recreation Lands Benefits:

Personal:

- Enhanced sense of personal freedom
- Enhanced sense of competence
- Greater sense of adventure

Environmental:

- Heightened awareness of the natural world
- Greater management of fish, wildlife, and plant resources

RECREATION SETTING CHARACTERISTIC DESCRIPTIONS

BSWI ERMA (Outside CFZs)/Undesignated Recreation Lands Physical Components (e.g., remoteness, naturalness, visitor facilities):

- Most of the ERMA is more than 0.5 mile from mechanized or motorized trails/routes and navigable waterways.
- The natural landscape is undisturbed.
- There are no structures, visitor facilities, or trailheads. Few existing trails were developed by traditional subsistence activities and village-to-village transportation and will be managed as such.

BSWI ERMA (Outside CFZs)/Undesignated Recreation Lands Social Components (e.g., contacts, group size, evidence of use):

- Fewer than three encounters per day at dispersed/primitive campsites, primarily passengers of small fixed wing aircraft; groups most often consist of three or fewer people.
- There are no alterations to the natural terrain, and sounds of people are mostly absent, with the exception of the sounds of the occasional fixed-wing aircraft.

BSWI ERMA (Outside CFZs)/Undesignated Recreation Lands Operational Components (e.g., access [(types of travel], visitor services/information, management controls):

- Public recreational access in the winter is rare to non-existent away from the INHT SRMA. Summer access is by fixed-wing aircraft with tundra tires, helicopter (rotor wing) access, and by jet boats along major rivers (e.g., Yukon, Anvik, Unalakleet, and Kuskokwim Rivers).
- Visitor information will consist of maps available at BLM offices and shelter cabins, websites, and minimal signage along the trail. Signs will be directional in nature. BLM staff will be present occasionally, most frequently during permitted events. Partnerships will be explored and utilized to maintain a minimal management presence. Management controls would include, but not be limited to, limits to group size, limits to duration of stay, waste management (human and litter), and permitted activities and commercial filming. Dispersed recreation uses would be lightly managed and without additional large investment developed recreation facility cost to the public.

MANAGEMENT ACTIONS AND ALLOWABLE USE DECISIONS

BSWI ERMA (Outside CFZs)/Undesignated Recreation Lands Recreation and Visitor Services Program:

- Stay limits for non-permitted dispersed camping would be limited to 14 consecutive days within a 28-day period. After a camp has been occupied for 14 days, the camp must be moved at least 2 miles to start a new 14-day period.
- The BSWI ERMA (Outside CFZs)/Undesignated Recreation Lands would follow travel and transportation management decisions for “All BSWI lands not managed as TMAs, Conservation System Units, or Sensitive Resource Areas” as described in Section 2.7.18, Table 2-17, of the BSWI Proposed RMP/Final EIS.

Other Programs:

- Travel Management
- Visual Resource Management
- Fisheries
- Wildlife
- Locatable Minerals
- Commercial Woodland Harvest
- Lands and Realty

IMPLEMENTATION GUIDANCE

BSWI ERMA (Outside CFZs)/Undesignated Recreation Lands Management:

- Manage use of public shelter cabins by guide/outfitters in a manner that minimizes conflict with other casual, subsistence, or commercial use.

Undesignated Recreation Lands Administration:

- Based on continued future feedback in documented areas of conflict, BLM funding and priorities, the BLM will consider the establishment of an SRP Allocation Plan/Process for guide/outfitters. The plan or process might consider elements of what the National Park Service and U.S. Fish and Wildlife Service use for similar decisions in Alaska, as well as resemble a previous cooperative effort between the State of Alaska and BLM to develop a Guide Concession Program.⁴ The effort would define the following:
 - Allocation limits for big game guide/outfitters operating within each Guide Use Area (GUA) of the BSWI ERMA (Outside CFZs)/Undesignated Recreation Lands
 - The maximum number of GUAs a guide/outfitter may operate in
 - The maximum number of assistant guides and employees, clients, operating days, and camp distances
 - Guide/outfitter evaluation methods, such as demonstrated experience, operation strategies used to conserve and minimize impacts to natural resources, business plans, and practices that demonstrate cooperation with local communities
 - Penalties for violations, including citations, convictions, and default history (including felony or misdemeanor game and non-game related convictions or violation of guide licensing requirements)

Undesignated Recreation Lands Information and Education:

- Educate guide/outfitters on the goals and objectives of the BSWI ERMA (Outside CFZs)/Undesignated Recreation Lands.
- Provide information to guide/outfitters to use for client education of the goals and objectives for the BSWI ERMA (Outside CFZs)/Undesignated Recreation Lands.

Undesignated Recreation Lands Monitoring:

- Reassess guide/outfitter guidelines every year (at a minimum) to determine if established management objectives for the BSWI ERMA (Outside CFZs)/Undesignated Recreation Land are not being met.
- Monitor SRPs harvest and camp locations on post-use reports annually to ensure management objectives are being met.

⁴ Alaska Department of Natural Resources. 2020. Guide Concession Program webpage. Available at <http://dnr.alaska.gov/mlw/gcp/>.

Appendix Q: Impact Methodology

Table of Contents

Section 1. Introduction	1-1
1.1 Analytical Assumptions	1-1
1.2 General Methodology for Analyzing Impacts.....	1-2
1.3 Consideration of Noise Impacts at the Planning Level	1-3
1.4 Incomplete or Unavailable Information	1-3
Section 2. Cumulative Impacts	2-1
2.1 Cumulative Analysis Methodology	2-1
2.2 Past, Present, and Reasonably Foreseeable Future Actions	2-2
2.2.1 Past and Present Land Use and Activities.....	2-2
2.2.2 Reasonably Foreseeable Future Land Use and Actions	2-7
Section 3. Resource-Specific Methods.....	3-1
3.1 Resources	3-1
3.1.1 Air Quality and Air Quality–Related Values	3-1
3.1.2 Climate Change.....	3-1
3.1.3 Soils	3-2
3.1.4 Water Resources	3-2
3.1.5 Fisheries	3-3
3.1.6 Vegetation	3-8
3.1.7 Wildlife and Special Status Species.....	3-8
3.1.8 Nonnative Invasive Species (Wildlife and Plant)	3-10
3.1.9 Wildland Fire	3-10
3.1.10 Cultural Resources	3-11
3.1.11 Paleontological Resources	3-11
3.1.12 Visual Resources Management.....	3-12
3.1.13 Lands with Wilderness Characteristics	3-13
3.2 Resource Uses	3-13
3.2.1 Forestry and Woodland Products.....	3-13
3.2.2 Grazing.....	3-14
3.2.3 Locatable and Salable Minerals	3-14
3.2.4 Leasable Minerals	3-15
3.2.5 Lands and Realty.....	3-16
3.2.6 Recreation and Visitor Services.....	3-17
3.2.7 Travel and Transportation Management.....	3-18
3.2.8 Renewable Energy	3-18

3.3	Special Designations	3-19
3.3.1	Areas of Environmental Concern.....	3-19
3.3.2	National Trails	3-20
3.3.3	Wild and Scenic Rivers.....	3-21
3.4	Social and Economic Features	3-23
3.4.1	Support for BSWI Communities.....	3-23
3.4.2	Subsistence.....	3-25
3.4.3	Hazardous Materials and Health and Human Safety	3-26
Section 4.	References	4-1

List of Figures

Figure 3.1.2-1:	Watershed Boundaries and Hydrography	3-5
Figure 3.1.2-2:	Anadromous Waters and Spawning Habitat	3-6
Figure 3.1.2-3:	Streams within Medium and High Areas of Mineral Potential (HUC 6).....	3-7

List of Tables

Table 2.2.2-1:	High Locatable Mineral Potential in the Planning Area.....	2-10
Table 3.3.3-1:	Rivers Identified as Eligible (Alternative A) and Recommended as Suitable (Alternative B) within the Planning Area	3-22

Section 1. Introduction

This document presents the direct, indirect, and cumulative environmental, social, and economic impacts on the human and natural environment that are expected to result from implementing the alternatives presented in Chapter 2 of the Bering Sea–Western Interior (BSWI) Proposed Resource Management Plan (PRMP)/Final Environmental Impact Statement (FEIS). Irretrievable or irreversible commitment of resources and unavoidable adverse impacts are presented at the end of Chapter 3 of the BSWI PRMP/FEIS.

Impact analyses and conclusions are based on interdisciplinary team knowledge of the BSWI Planning Area (planning area) and resources, information provided by experts in the Bureau of Land Management (BLM), other agencies' monitoring data, and information contained in pertinent literature. The baseline used for the impact analysis is the existing condition or management situation, as described in Chapter 3 of the BSWI PRMP/FEIS. Analysis assumptions have also been developed to help guide the determination of effects. Assumptions that apply to impact analyses for all resources, resource uses, and special designations are included in Section 1.1 below. Additionally, assumptions specific to each resource, resource use, or special designation are described in the respective impact section.

The BSWI PRMP/FEIS provides a broad management framework over the 13.5-million-acre planning area and does not include specifics on actual developments or implementation-level planning. Because the BSWI PRMP/FEIS provides a broad management framework and exact locations of development or management are not specified, the analysis in this report presents best estimates of impacts. Impacts are quantified to the extent practical with available data and all reported acreages throughout this report are approximate. In the absence of quantitative data, best professional judgment provides the basis for the impact analysis. Because of the broad scope, impact analysis of planning-level decisions is speculative with respect to projecting specific activities and therefore would be performed on a project-specific basis. Subsequent documents tiered to this RMP would generally contain a greater level of detail and would be subject to the National Environmental Policy Act (NEPA) analysis and compliance process.

1.1 Analytical Assumptions

Several assumptions were made to facilitate estimating the effects of the alternatives. These assumptions are made only for the purpose of analysis and do not represent potential RMP decisions. The following are general assumptions applicable to all resource categories. Any specific resource assumptions are provided under the “Assumptions” subheading for that resource.

- Sufficient funding and BLM personnel will be available for implementing the final decision.
- Implementing actions from any of the RMP alternatives will comply with all valid existing rights, federal regulations, BLM policies, Alaska National Interest Lands Conservation Act (ANILCA), State laws and regulations, and other requirements.
- Implementation-level actions necessary to execute the land use plan-level decisions in the RMP will be subject to further environmental review, including compliance with NEPA, as appropriate.
- Acres open to potential development (reindeer grazing, mineral development, commercial forestry) would influence the amount of development that would occur over the life of the RMP. However, the number of acres open to development is not directly proportional to the number of acres that would actually be developed under each alternative, because it is unlikely that all acres

open to development would be developed due to the remoteness of the project area and lack of infrastructure (i.e., roads). Actual development will be influenced by economic drivers and ecological conditions.

- The functional capability of all developments will be maintained.
- The discussion of impacts is based on the best available data. Knowledge of the planning area and professional judgment, based on observation and analysis of conditions and responses in similar areas, are used to infer environmental impacts where data are limited.
- Acreage figures and other numbers used in the analyses are approximate projections for comparative and analytic purposes only. Readers should not infer that they reflect exact measurements or precise calculations.

1.2 General Methodology for Analyzing Impacts

Direct, indirect, and cumulative impacts are considered in the effects analysis. The effects analysis was performed consistent with direction provided in Title 40 Code of Federal Regulations (CFR) 1502.16, Considering Cumulative Effects under the National Policy Act (CEQ 1997); BLM National Environmental Policy Act Handbook H-1790-1 (BLM 2008); Council on Environmental Quality (CEQ) NEPA regulations for incomplete or unavailable information dated April 25, 1986, in *Federal Register* 51(80); and Executive Memo to all federal agencies dated January 24, 2005, regarding Guidance on the Consideration of Past Actions in Cumulative Effects Analysis (CEQ 2005).

- *Direct impacts* are caused by an action or implementation of an alternative and occur at the same time and place.
- *Indirect impacts* result from implementing an action or alternative and are later in time or farther removed in distance but are still reasonably foreseeable.
- *Cumulative effects* are defined in Section 2, “Cumulative Impacts.”

Effects are quantified where possible using geographic information system (GIS) analysis. In the absence of quantitative data, best professional judgment was used to describe impacts in qualitative terms.

Management actions that would have the same impacts for all alternatives are described together. However, more emphasis is placed on management actions that would result in different impacts among the alternatives to provide the reader with an understanding of the range of impacts that could result, depending on the alternative selected. Only management actions with potential impacts are described. The standard definitions for terms referring to impact duration that are used in the effects analysis are as follows, unless otherwise stated:

- *Temporary impact*: The impact would occur during or immediately after implementation of the action and may occur intermittently. Duration of temporary impacts would be 1 year or less and could be beneficial or adverse.
- *Short-term impact*: The impact would occur during or immediately after implementation of the action and could be beneficial or adverse (e.g., during the first 5 years of the RMP).
- *Long-term impact*: The impact could last for several years or more and could be beneficial or adverse (e.g., beyond the first 5 years of the RMP).

1.3 Consideration of Noise Impacts at the Planning Level

Changes to noise levels, noise-producing activities, and associated impacts throughout the planning area would depend on actual activities and projects implemented in the planning area. Therefore, a detailed noise analysis is not included in this EIS and instead would be performed at the project level.

Management actions being evaluated in this RMP that would have impacts on noise are primarily related to mining activity, vehicular use (including recreation), and construction activity. The alternatives evaluated in this EIS include areas where these noise-producing activities could occur based on allowable uses and the level of restrictions associated with each alternative. Information about potential noise-producing activities in the planning area was used to provide a high-level discussion of potential changes to noise levels and noise-producing activities to resources, resource uses, and special designations that could be affected by noise.

1.4 Incomplete or Unavailable Information

CEQ established implementing regulations for NEPA requiring that a federal agency identify relevant information that may be incomplete or unavailable for an evaluation of reasonably foreseeable significant adverse effects in an EIS (40 CFR 1502.22). The best available information pertinent to the decisions to be made was used in developing the PRMP/FEIS. Considerable effort has been taken to acquire and convert resource data into digital format for use in the plan—both from BLM sources and from outside sources. However, certain information was unavailable when developing the PRMP/FEIS and is disclosed under the respective resource in Section 3 of this appendix.

This page intentionally left blank

Section 2. Cumulative Impacts

The CEQ regulations implementing NEPA define cumulative impacts as “[T]he impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such actions. Cumulative impacts can result from minor but collectively significant actions taking place over a period of time” (40 CFR 1508.7).

2.1 Cumulative Analysis Methodology

Because of the programmatic nature of an RMP, this cumulative effects analysis methodology is broad and generalized to address potential effects that could occur from a reasonably foreseeable management scenario combined with other reasonably foreseeable activities or projects. The cumulative effects analysis evaluates the projected trends and forecasts of each resource, resource use, or special designation that could result from the RMP. To understand the RMP’s influence on cumulative effects, trends and forecasts are identified in consideration of:

- Past and present actions (synonymous with the affected environment);
- Reasonably foreseeable actions along with past and present actions (this is also representative of Alternative A); and
- Each RMP action alternative along with past, present, and reasonably foreseeable future actions.

As a result of this analysis, trends and forecasts for each resource, resource use, or special designation are identified to fit within one of the following four categories:

- No contribution to resource trend
- Stabilizes existing trend
- Continues existing trend
- Counters existing trend

This analysis provides a broad understanding of how each alternative would influence the cumulative effects, or trends and forecasts, for each resource, resource use, or special designation in the same geographic area. If the resource trend is projected to change as a result of any action alternative, that constitutes a cumulative impact. The impact could be adverse or beneficial, depending on the direction of the change.

The following factors were considered in the cumulative impact assessment:

- Federal, nonfederal, and private actions
- Potential for synergistic interaction among or between effects
- Potential for effects across political and administrative boundaries
- Other spatial and temporal characteristics of each affected resource
- Comparative scale of cumulative impacts across alternatives
- Climate change
- Identified planning issues

2.2 Past, Present, and Reasonably Foreseeable Future Actions

The following sections describe activities that were considered in the cumulative effects analysis.

2.2.1 Past and Present Land Use and Activities

Relevant past and present actions are those that have influenced the current condition of the resources in the planning area. These actions, described below, have been identified based on review of the planning issues; agency records, including existing decisions and formal proposals; and non-federal actions on lands not managed by the BLM.

Land Use

The planning area and much of the surrounding lands are characterized by large tracts of undisturbed ecosystems that support a variety of native wildlife and fish species. Past and present land use and activities within the planning area are summarized below and provide the basis for analysis of cumulative effects.

Although this PRMP/FEIS does not address lands that are not managed by the BLM, including State of Alaska lands, Alaska Native Claims Settlement Act (ANCSA) Native corporation lands, National Park Service (NPS) lands, U.S. Fish and Wildlife Service (USFWS) lands, private lands, and Native allotments, past and present (as well as reasonable foreseeable future actions) land use for all lands within the planning area has influenced or has the potential to influence the current condition of the resources in the planning area and is therefore considered in the cumulative effects analysis. Impacts from such actions include right-of-way (ROW) establishment, lease sales, and surface occupancy. Management of subsurface estate within USFWS lands is administered by the BLM under the Mineral Leasing Act of 1920. ANILCA section 304(c) is addressed in the Mineral Occurrence and Development Potential Report for Leasable Minerals within the planning area (BLM 2015). Conservation System Units and other land tracts established by ANILCA will be addressed individually and are not subject to this plan, with the exception of the Unalakleet Wild River Corridor. Similarly, any prior existing mining claims administered by the BLM within USFWS or NPS lands will be addressed individually.

BLM Lands

Past and current land use on BLM-managed land in the planning area, including the Iditarod National Historic Trail (INHT), is considered for the cumulative effects analysis. These are lands that will most likely be retained in long-term federal ownership. These lands, which constitute 10,727,251 acres, or approximately 17 percent of the planning area, are not selected by the State of Alaska or by Native corporations. An additional 2,594,941 acres (approximately 4 percent of the planning area) and 144,284 acres (less than 1 percent of the planning area) are selected by the State of Alaska and Native corporations, respectively. Selected lands are in BLM management until interim conveyed or tentatively approved.

National Wildlife Refuges

The Yukon Delta National Wildlife Refuge (NWR) and the Innoko Unit of the Innoko NWR fall within the planning area. These refuges were established in 1980 by ANILCA with the following management goals: (1) to conserve fish and wildlife populations and their habitats in their natural diversity; (2) to fulfill the international treaty obligations of the United States with respect to fish and wildlife and their habitats; (3) to provide the opportunity for continued subsistence uses by local residents; and (4) to ensure

adequate water quantity and quality necessary to meet refuge purposes. Activities taking place on the refuges include hunting, fishing, recreational use, and subsistence harvest, as well as research and management activities. Residents of adjacent villages on the lower Innoko and Yukon Rivers harvest the land's fish and wildlife resources (USFWS 1988). Fish and fall hunting camps are still in use today up and down rivers of the Innoko region. Indigenous people known as the Yup'ik and Cup'ik Eskimos and Athabaskans inhabit the Yukon Delta NWR and rely heavily on local natural resources.

Historically, 77 lode and placer mining claims were located within the Yukon Delta NWR, mostly in the Kilbuck Mountains in the southeastern quarter of the refuge. Currently, no active mining claims or valid oil and gas leases are located on refuge lands. Fifty-nine pending oil and gas lease applications are on file with the BLM for the Yukon Delta NWR. All but one were filed in 1968, but leases were never issued. The lease applications were "grandfathered in" under the authority of the Federal Onshore Oil and Gas Leasing Reform Act of 1987 (101 Stat. 1330-256, 259) (BLM 2015).

National Park Service Lands

One NPS Unit, Lake Clark National Park and Preserve, reaches into the southeastern portion of the planning area, constituting approximately 1 percent of the planning area. The 4-million-acre Lake Clark National Park and Preserve was established in 1980 by ANILCA. Approximately 2,572,000 acres of the park is designated wilderness. The stated purpose of Lake Clark National Park and Preserve is to "protect a region of dynamic geologic and ecological processes that create scenic mountain landscapes, unaltered watersheds supporting Bristol Bay red salmon, and habitats for wilderness dependent populations of fish and wildlife, vital to 10,000 years of human history" (NPS 2009). Subsistence activities by local rural residents and those who live on private land within the park and preserve boundaries include hunting, trapping, fishing, and timber harvest. Recreational and sport uses of the Lake Clark area are those commonly associated with Alaskan wilderness activities such as hunting, fishing, trapping, river running, hiking, photography, and wilderness camping. Sport fishing is allowed throughout the park and preserve, but sport hunting and trapping are confined to the national preserve. Visitor access is by commercial and privately operated airplanes and boats. The use of off-road vehicles for other than subsistence activities is prohibited on federal lands within the park and preserve.

Management of the park and preserve is guided by a portfolio of management plans, including a foundation statement (NPS 2009), a general management plan amendment (NPS 2014), and a draft land protection plan (NPS 2013). The guiding principle of land protection plans is to ensure the protection of each unit of the national park system consistent with the stated purposes for which the unit was created and administered.

Nine patented mining claims total 51.2 acres within the Lake Clark Park and Preserve boundary. Park and preserve lands are no longer available for new mineral entry and location (NPS 2013).

State Lands

The planning area includes roughly 18.1 million acres of State lands and 2.6 million acres of BLM lands that have been selected by the State (approximately 21 and 4 percent of the planning area, respectively). The BLM continues to manage lands selected by the State of Alaska that have not yet been conveyed. Lands that have already been conveyed to the State of Alaska constitute approximately 29 percent of the planning area. State lands in the planning area are managed under guidelines outlined in the specific Alaska Department of Natural Resources (ADNR) area plans, such as the Kuskokwim Area Plan (ADNR 1988) and Tanana Basin Area Plan (ADNR 1991). The State lands are managed for multiple uses, with

priorities varying according to the resource values for particular subunits. Primary land uses include forestry, agriculture, minerals management, recreation, fish and wildlife habitat, heritage resources, recreation and tourism, settlement, public access, transportation, and low-value resource management.

Wood-Tikchik State Park reaches into the southern boundary of the planning area. The park is a 1.6-million-acre area that was established to protect fish and wildlife populations and to support traditional subsistence and recreational activities. Traditional activities in the park include subsistence fishing, hunting, and trapping, as well as recreational fishing and hunting. The number of recreational wilderness-travel activities in the park has grown and includes kayaking, river floating, hiking, and some mountain climbing. The park management plan (ADNR 2002) designates the upper Tikchik Lakes and Kulik/Grant lakes as “Wilderness,” designates most of the remainder of the park “Natural Area,” and designates the Agulowak River and Lake Aleknagik State Recreation Site as “Recreational Development.”

Native Lands

The planning area includes lands conveyed to village and regional Native corporations (approximately 16 percent of the planning area) and lands acquired by Alaska Natives under the Alaska Native Allotment Act of 1906 and the Native Townsite Act of 1926 (approximately 440,000 acres, or 1 percent of the planning area).

Over 50 village corporations and five regional corporations (Doyon, Limited; Calista Corporation; Cook Inlet Region Incorporated; Bering Straits Native Corporation; and NANA Regional Corporation) have a nexus to the planning area. Management objectives for regional corporation lands within the planning area are focused on protection of traditional shareholder uses and responsible economic development of resources. Throughout much of the twentieth century, mining provided an economic basis for shareholders. Placer gold mining supported several settlements, including Iditarod, Marshall, and Nyac. Currently, placer gold production continues on a small scale and is an important source of revenue for shareholders. Illustrative of regional corporation objectives to support responsible development is NANA’s historic involvement with the Red Dog mine (north of the planning area).

Exploration and baseline studies for the Donlin Gold Project, located in the Calista Region near Crooked Creek, have been ongoing since 1995. This mineral resource site is located on surface land owned by the Kuskokwim Corporation (TKC), and Calista Corporation owns the subsurface land. Donlin Gold LLC, a limited liability company jointly owned by Barrick Gold U.S. Inc. and NovaGold Resources Alaska, Inc., received key permits on August 13, 2018, for development of the Donlin Gold Project, an open pit hardrock mine near the village of Crooked Creek, including ROW permit approval from BLM. More information is included below under “Future Land Uses” (NovaGold 2018).

Military Lands

Military lands constitute less than 0.1 percent of the planning area. If military lands are released and returned to BLM management during the life of the plan, direction contained in this PRMP/FEIS would apply. Generally, military use of lands in the planning area was during the Cold War era following World War II was tied to the communication, navigation, and radar needs of the time. Most military installations have been decommissioned, and little present use exists.

Past and Present Activities

Oil, Gas, Coal, and Geothermal Leasing and Exploration

The most current report analyzing leasable mineral resource potential within the planning area for this RMP is the Mineral Occurrence and Development Potential Report–Leasable Minerals Bering Sea–Western Interior Resource Management Plan (BLM 2015). Fluid mineral occurrence and development potential in the planning area is primarily associated with coal and coal bed natural gas, oil and gas, peat, and geothermal resources. The following is a summary of findings from this report on past and present activities.

Coal

The areas that contain coal within the planning area have been divided into one field and five districts: Farewell (Little Tonzona) Coal Field and the Windy Fork, Middle Fork, Cheeneetnuk, Big River, and Nelson Island Districts (BSWI PRMP/FEIS, Map 3.3.4-1). The majority of the coal in the planning area is tertiary-aged and subbituminous. Known coal mineral resources are limited to a few thin coal beds on Nelson and Nunivak Islands, but these are considered noncommercial. Modest amounts of coal from Windy Fork have been used by trappers, prospectors, and big game hunters for local home heating applications. Coal was also noted to have been mined at Flat and used for home heating until the 1930s. Some limited coal exploration of the Little Tonzona River coal deposits occurred in the 1980s for Doyon, Limited. However, this field has no substantial past production.

Oil and Gas

Oil and gas basins in the planning area include Bethel, Galena, Holitna, Innoko, Minchumina, and Yukon Delta Basins. Historically, several geophysical surveys (e.g., airborne magnetic surveys, gravity surveys, and reflection seismic surveys) have been conducted in the region, and one exploratory well was drilled in the Bethel Basin (Napatuk Creek No. 1) in the early 1960s, which was abandoned as a dry hole. No additional exploratory wells have been drilled in the area, and no recent federal oil and gas leasing has taken place.

Pending Oil and Gas Leases

Fifty-nine pending oil and gas Pre-Reform Act lease offers within the planning area were filed in the late 1960s, all within the boundary of the Yukon Delta NWR. These pending lease offers were subsequently suspended by Public Land Orders and remain unavailable for oil and gas leasing.

Geothermal

Two geothermal springs are documented within the planning area: Ophir Hot Springs and Chuilnuk Hot Springs. The only spring that is currently being used as a source of energy is the hot spring occurrence near Ophir Creek.

Mineral Exploration and Mining

The most current report analyzing locatable and salable mineral resource potential within the planning area for this RMP is the Mineral Occurrence and Development Potential Report–Locatable and Salable Minerals Bering Sea–Western Interior Resource Management Plan (Kurtak et al. 2017). The following is a summary of findings from this report on past and present activities specific to this resource. Distribution

of mineral occurrences within the planning area is illustrated in BSWI PRMP/FEIS, Map 3.3.3-1, and is generally concentrated in upland portions of the planning area and lowlands in the immediate vicinity of these uplands where placer deposits occur.

The planning area has a long and colorful mining history, dating back to the late 1830s when Russian traders discovered mercury-bearing minerals along the Kuskokwim River near Aniak. Gold was discovered in the Flat area in 1908, driving one of the last great gold rushes in Alaska. Documented mineral production within the planning area totals 3.2 million ounces of gold, 151,750 ounces of silver, 2.1 million pounds of copper, and 41,767 flasks of mercury. The Iditarod Mining District, which includes the Flat area, ranks third in placer gold production in Alaska (Kurtak et al. 2017).

The planning area contains 453 documented mineral occurrences (BSWI PRMP/FEIS, Map 3.3.3-1) and 2,480 mining claims, with 207 of those under federal management. Mineral occurrences include placer gold, gold-bearing quartz veins, copper-gold skarns, and silica-carbonate mercury deposits. In 2015, there were 19 active placer mines and one active lode mine. Currently, less than 1 percent of the total acres taken up by mining claims and prospecting sites in the planning area are under federal management. The majority of the mining and mineral exploration is taking place on State of Alaska, Native corporation, or private lands (Kurtak et al. 2017).

Twelve separate companies or individuals (11 open pit placers and one hard rock mine) were estimated to be producing metals (predominantly gold) in the planning area in 2014. Additionally, the Donlin Gold Project near Crooked Creek is an advanced stage exploration project (Kurtak et al. 2017). On August 13, 2018, the U.S. Army Corps of Engineers and BLM issued a joint Federal Record of Decision, along with the Clean Water Act Section 404/Rivers and Harbors Act Section 10 permit and the Offer to Lease for the pipeline ROW at Donlin Gold. The project is currently seeking State permit approval for initial mine startup (NovaGold 2018).

The primary mineral material commodities used within the planning area are crushed rock and sand and gravel. Thirteen material sites were reported to be active in 2008 in Southwest Alaska, which includes the planning area. Sand and gravel are used in construction and road maintenance. Currently, the BLM does not have any requests to develop sand and gravel on BLM-managed land in the planning area, as local demands are being met by sand and gravel producers located on private or State-owned lands. This status is unlikely to change in the near future due to lack of appropriate BLM-managed land in the vicinity of population centers that require sand and gravel (Kurtak et al. 2017).

Forest Resources Use

Forest resources within the planning area have historically provided materials for sheltering and heating. House logs and local sawmills have been used to construct housing, lodges, and commercial buildings throughout the area. Firewood is a staple of the subsistence lifestyle for heating and, in some instances, cooking. BLM forests, although generally farther from communities than non-BLM lands, still may play a role in the long-term supply of wood—especially those BLM lands near rivers that can assist in wood transport. Most villages have portable sawmills to produce building materials or repair materials locally, and one full sawmill located in Chuathbaluk has produced building materials for use in the Kuskokwim Basin. There has been recent interest from some villages in the use of biomass for heating buildings or communities; these projects could eventually expand to include power generation.

Development of Infrastructure for Communities

Sixty-five rural communities are found within the planning area. Based on 2010 data from the U.S. Census Bureau for these communities, the population of the planning area is approximately 25,000 (U.S. Census 2010a). The largest population center is Bethel, located in the southwest portion of the planning area, with a population of 6,080 (U.S. Census 2010b). Very few roads pass through the planning area; the longest is a 43-mile gravel road that connects Sterling Landing on the Kuskokwim River with the historic mining community of Ophir on the Innoko River. A handful of short roads serving local communities, or remaining from past human activities, also exist. Almost all of these existing roads in the planning area are located on lands managed by entities other than the BLM.

Military Activities

Very little additional military use and activities are anticipated within the planning area. The limited amount of existing use will likely decline.

Research, Monitoring, and Land Management

Research, monitoring, and land management are frequent activities on non-BLM lands in the planning area. Specifically, fixed-wing aircraft and helicopters are used to transport personnel and equipment and to conduct surveys. Remote areas are also accessed by boats during the summer and snowmobile during winter to conduct research, monitoring, and other land management activities.

Recreation and Subsistence

Recreational and subsistence use is the most prevalent land use in the planning area. The undeveloped nature of the planning area, the existence of unique historical features such as the INHT, and the presence of surrounding NWRs provide opportunities for unique outdoor recreational opportunities, including guided hunting, fishing, eco-tourism, and organized events such as the Iditarod Sled Dog Race and the Iron Dog Snowmobile Race. Subsistence fishing and hunting are important for the economies and cultures of many families and communities in Alaska, especially for rural families who depend on subsistence hunting and fishing as sources of nutrition and cultural practices. Subsistence use occurs under both federal subsistence regulations and State general fishing, hunting, and subsistence regulations. The Alaska Department of Fish and Game (ADF&G) reports statewide harvest for 2014 as follows: 0.9 percent—subsistence food harvested by Alaska residents (about 33.8 million pounds); 0.2 percent—personal use fishing and hunting under general regulations by Alaskans; 0.4 percent—sport fishing and hunting; 98.5 percent—commercial fisheries (ADF&G 2014).

2.2.2 Reasonably Foreseeable Future Land Use and Actions

The term “reasonably foreseeable future action” is used in concert with the CEQ definitions of indirect and cumulative effects, but the term itself is not further defined. Most regulations that refer to “reasonably foreseeable” do not define the meaning of the words but do provide guidance on the term. For this analysis, reasonably foreseeable future actions are those actions that are external to the proposed action and likely (or reasonably certain) to occur, although they may be subject to a degree of uncertainty, within the next 15 to 25 years. Typically, they are based on documents such as existing plans, permit applications, and fiscal appropriations.

Future Land Use

BLM Lands

Alternative land use scenarios for BLM-managed land in the planning area are described in Chapter 2 of the BSWI PRMP/FEIS. Conveyance of lands to the State of Alaska and Native corporations is ongoing. On a statewide basis, about 98 percent of the Native conveyances and 95 percent of the State conveyances have been completed.

Donlin Gold LLC, a limited liability company jointly owned by Barrick Gold U.S. Inc. and NovaGold Resources Alaska, Inc., received key permits on August 13, 2018, for development of the Donlin Gold Project, an open pit hardrock mine near the village of Crooked Creek, including ROW permit approval from BLM. The ROW Grant has a term of 30 years. Construction has not yet begun, and Donlin Gold LLC has 8 years from August 13, 2018, to complete construction.

The Donlin Gold Mine Project includes development and operation of an open pit mine, mine facilities, and a port site, as well as ancillary facilities such as airstrips, access roads, material sites, and a connecting 14-inch-diameter, 316-mile-long natural gas pipeline. The pipeline would cross 97 miles of largely remote and undisturbed BLM-managed land. The total footprint for the temporary 150-foot construction ROW and ancillary facilities on BLM land is 2,329 acres. The total footprint for the 51-foot operations and maintenance ROW on BLM land is 601 acres. The proposed project would require 3 to 4 years to construct, followed by an active mine life of approximately 27 years. After the end of the Operations Phase, the mine site facilities, port facilities, and the pipeline would be closed and reclaimed as required by permit conditions. The ROW Grant includes stipulations to reduce impacts to the environment.

National Wildlife Refuges

Conservation plans are in place for the refuges that guide management principles for a span of 15 years. The Yukon Delta plan was prepared in 2004 (USFWS 2004) and the revised Innoko plan was prepared in 2008 (USFWS 2008). This analysis assumes that management of the Yukon Delta and Innoko NWRs would continue as it has during recent decades and as outlined in the current conservation plans (USFWS 1988, 2008). Approximately 1.3 million acres (comprising 35 percent of the refuge) southeast of the Innoko River is designated Wilderness. Two wilderness areas (Andreafsky Wilderness and Nunivak Wilderness) are designated inside the Yukon Delta NWR, totaling approximately 1.9 million acres.

Limited activities are allowed in designated wilderness areas. Wilderness characteristics would be preserved on the majority of the refuge lands that are not designated as wilderness. Development and exploration activities could occur on Native and privately owned lands within the refuge boundaries. While oil and gas development is not reasonably foreseeable on the refuge lands due to low potential, some exploration from Native corporation lands and private landowners within the refuge boundaries could occur. Decisions to allow exploration on refuge lands would be made on a case-by-case basis. These activities would require a Special Use Permit with site-specific stipulations to ensure compatibility with refuge purposes and consistency with comprehensive conservation plan management objectives.

National Park Service Lands

This analysis assumes that the current management direction for the Lake Clark National Park and Preserve would continue. As outlined in the General Management Plan amendment (NPS 2014) and Lake Clark National Park and Preserve Draft Land Protection Plan (NPS 2013), the NPS intends to manage the

park to maintain its natural and cultural resource values and maintain and enhance public understanding and enjoyment of these values.

Park and preserve lands are no longer available for new mineral entry and location. Mining could occur on private lands, including Native corporation lands, within the park and preserve boundaries. Additionally, State mineral claims may currently be filed anywhere on State lands inside the unit (the submerged lands beneath the navigable lakes and rivers). As outlined in the Lake Clark National Park and Preserve Draft Land Protection Plan (NPS 2013), the NPS recommends that the State close the beds of navigable waters to new mineral entry, extraction of oil and gas, and sand and gravel resources, and will apply to the State for these closures. The NPS will also pursue cooperative agreements with the State for the management of lands under navigable waterbodies (shorelands).

Mineral development and operation of the existing mining claims within the park boundary could continue. Development of these claims would need to comply with the Mining in the Parks Act. NPS (2013) identifies the Johnson River as the area of the park most likely to see future mining.

State Lands

State lands would continue under multiple use management, with uses prioritized to conserve valuable resources in some areas while allowing resource use in other areas. As much as possible, State lands are managed so that uses are compatible with land use on adjoining federal lands. Land use for recreation, subsistence, and tourism may increase as local, state, and national populations grow.

One example of anticipated State of Alaska permitting in the planning area is for the proposed Donlin Gold Mine Project's ancillary facilities that would be constructed on State lands, such as material sites and portions of the natural gas pipeline ROW. Project details are listed above in the section "BLM Lands." Significant progress has been made to advance state permitting for the Donlin Gold Mine Project, including issuance of the State air quality and Alaska Pollutant Discharge Elimination System wastewater discharge permits (NovaGold 2018). The State of Alaska would benefit financially from the project's mining license and corporate income taxes.

Native Lands

Economic development of resources is a reasonably foreseeable use of Native-owned lands within the planning area. The Donlin Gold Project, described above in the section "BLM Lands," also includes land leased from Calista Native Corporation, which holds the subsurface (mineral) estate for ANCSA lands in the project area. A surface use agreement with TKC, the village corporation that owns the surface land, grants surface use rights to lands that TKC holds at the mine site. The proposed project would provide an economic boost to the Yukon-Kuskokwim region while helping residents financially sustain a lifestyle with cultural traditions of fishing, hunting, and gathering. The Yukon-Kuskokwim region is one of the most economically depressed regions in Alaska and the U.S. as a whole. Job and economic opportunities are limited. The proposed project would generate up to 3,000 jobs during construction and 800 to 1,400 jobs during operation and give hiring preference to Calista and TKC shareholders, spouses, and descendants. Production royalties would be paid to Calista Corporation with distribution to other ANCSA corporations, and TKC would construct and operate the upriver port (Jungjuk). Additionally, the project proponent has performed numerous community investments and corporate giving in the region to date and are planned to continue into the future.

Future Activities

Oil and Gas, Coal, and Geothermal Leasing and Exploration

The development potential for leasable mineral resources, such as coal, coal bed natural gas, oil and gas, geothermal, peat, and coalbed natural gas, in the planning area is low (BLM 2015). The expense of developing some of these resources and the lack of roads or railroads connecting the planning area to the rest of the state would also likely preclude small and large-scale development in the foreseeable future. Prospective oil and gas basins in the region of the planning area include the Holitna, Bethel, and Minchumina Basins, along with the Yukon Delta. There are 59 pending oil and gas Pre-Reform Act lease offers within the planning area, all within the boundary of the Yukon Delta NWR and, therefore, have been suspended due to their being within the refuge. No additional oil and gas lease offers may be filed until the land selection process that the State and various Alaska Native entities are undertaking is complete. The BLM will continue its adjudicative role on prior existing rights under the mining laws and process dispositions under the mineral leasing laws or material sales. Some areas of known coal (leasable) mineral potential exist, but there has been little interest in developing it to date.

Mineral Exploration and Mining

A total of 101 areas within the planning area are considered to have high locatable mineral potential (LMP), including a number of areas that fall within BLM-managed land and are covered by federal mining claims. These include the Nixon Fork Mine area, Flat-Chicken Mountain area, Ophir Creek drainage (Kilbuck Mountains), and the Nyac (Shamrock Creek) area. Additional areas of interest include the high LMP areas on State-selected lands near the Little Creek (west of Donlin), Oskawalik, Julian Creek, and the Granite-Willow Creek areas. Future mineral exploration and mining activities have the potential to occur in these areas and could have impacts on BLM-managed land extending outside the mining claim boundaries (Kurtak et al. 2017). See discussion of the Donlin Gold Project above in the section “BLM Lands.” Table 2.2.2-1 details the high LMP areas in the planning area as identified in Kurtak et al. (2017).

Table 2.2.2-1: High Locatable Mineral Potential in the Planning Area

District	Name	Production Status	Deposit Type	Land Status
Aniak	Canyon Creek	Past producer	Placer Au-PGE	State
	Cripple Creek	Producer	Placer Au-PGE	State
	Eureka Creek	Past producer	Past producer	Past producer
	Gemuk Mtn	No production	Au-polymetallic	State
	Kisa	No production	Felsic-dike-hosted qtz veinlets	State
	Marvel Creek	Producer	Placer Au-PGE	State
	Nyac Placer	Producer	Placer Au-PGE	Calista Corp./ BLM
	Nyac Lode	No production	Plutonic-hosted cu-au polymetallic	Calista Corp.
	Ophir Creek	No production	Placer Au-PGE	BLM
	Russian Mtns	No production	Polymetallic veins	Calista Corp.

District	Name	Production Status	Deposit Type	Land Status
Georgetown	Donlin Creek (Ruby Gulch)	Producer	Placer Au-PGE	Calista Corp.
	Donlin Creek (Lewis Gulch)	Producer	Placer Au-PGE	Calista Corp.
	Donlin Creek Lode	No production	Felsic-dike-hosted qtz veinlets	Calista Corp.
	Fortyseven Creek	Past producer	Placer Au-PGE	State
	Granite-Willow Creeks	Producer	Placer Au-PGE	State
	Julian Creek	Producer	Placer Au-PGE	State
	Mountain Top	Past producer	Silica-carbonate Hg	State
	Oskawalik River	No production	Polymetallic replacement deposits and veins	State
	Red Devil	Past producer	Silica-carbonate Hg	BLM
	Murry Gulch	Past producer	Placer Au-PGE	State
	Taylor Creek	Past producer	Placer Au-PGE	State
Iditarod	Chicken Mtn-Flat	No production	Plutonic-hosted Cu-Au polymetallic	Doyon Ltd
	Decourcy Mtn	Past producer	Silica-carbonate Hg	Calista Corp.
	Flat Creek	Past producer	Placer Au-PGE	BLM
	Golden Horn Mine	Past producer	Plutonic-hosted Cu-Au polymetallic	State
	Little Creek	No production	Placer Au-PGE	State
	Otter Creek	Past producer	Placer Au-PGE	BLM
	Prince Creek	Past producer	Placer Au-PGE	BLM
	Willow Creek	Past producer	Placer-Au-PGE	BLM
	Little Creek	Producer	Placer Au-PGE	Patented
Innoko	Beaver Mtns (Cirque)	No production	Polymetallic vein	State
	Boob Creek-Mt Hurst	Past producer	Placer Au-PGE	State
	Colorado Creek	Past producer	Placer Au-PGE	State
	Cripple Creek	Past producer	Placer Au-PGE	State
	Ester Creek	Past producer	Placer Au-PGE	State
	Esperanto Creek	Past producer	Placer Au-PGE	State
	Ganes Creek (Lower)	Past producer	Placer Au-PGE	Patented
	Ganes Creek (Upper)	Producer	Placer Au-PGE	Patented/State
	Innoko River (Lower)	Past producer	Placer Au-PGE	State
	Montana Creek	Producer	Placer Au-PGE	State
	Moore Creek	Producer	Placer Au-PGE	State
	Yankee Creek (Lower)	Past producer	Placer Au-PGE	Doyon Ltd.
	Yankee Creek (Upper)	Producer	Placer Au-PGE	Patented/ Doyon Ltd./State
	Win	No production	Sn-polymetallic veins	State
Marshall	Buster Creek	Past producer	Placer Au-PGE	Patented
	Stuyahok - Flat Creek	No production	Felsic-dike-hosted qtz veinlets	Calista Corp.
	Willow Creek	Past producer	Placer Au-PGE	Calista

Source: Kurtak et al. (2017)

Key: AU = gold; Pb = lead; BLM = Bureau of Land Management; PGE = platinum group element; Cu = copper; qtz = quartz; Hg = mercury; Sn = tin; Ni = nickel; Zn = zinc

Sand and Gravel

Future demand for additional sand and gravel will be driven by development in the planning area, such as the proposed Donlin Gold Project pipeline that would cross 97 miles of BLM lands.

Peat

It is possible that villages and individuals in the planning area could develop peat as a resource for small-scale energy and heat generation. Development of this type is unlikely on BLM-managed land due to the low potential for fuel grade peat to occur in accessible areas of the planning area. A study performed in 2007 by Barrick Gold United States Inc. assessing peat deposits in two study areas within the planning area found the peat in both study areas to existing in permafrost (BLM 2015). Additionally, most villages in the planning area have enough land to harvest peat on their own or from adjacent State lands with fewer restrictions and less required infrastructure due to proximity.

Infrastructure and Communities

Potential transportation corridors are under review by the State of Alaska and include two road and ROW corridors, the Western Alaska Access Planning Study (“Road to Nome” Fairbanks–Nome route) and the Yukon-Kuskokwim Energy Corridor Plan (with a terminus at Paimute Slough on the Yukon River and near Upper and Lower Kalskag on the Kuskokwim River), both of which propose to cross BLM-managed land within the planning area. The Western Alaska Access Planning Study has evaluated three routes, including the preferred Yukon River Corridor, to connect the Nome-Council Road to the existing road system in the Fairbanks area. The proposed final stage of the Yukon River Corridor is between the villages of Koyuk and Nulato and would cross BLM-managed land in the Nulato Hills region of the planning area. The Yukon-Kuskokwim Energy Corridor Plan evaluated overland transport routes in the Portage Mountains area to connect the Yukon and Kuskokwim Rivers for fuel and freight transport purposes. The studied routes would cross BLM-managed land from Paimute Slough on the Yukon River to the northeast of the Upper and Lower Kalskag as well as other Kuskokwim River communities.

Projects that have been studied but not considered as a reasonably foreseeable future action for the time frame of the impact analysis include the following:

- Yukon-Kuskokwim Transportation Corridor – This project was proposed by the Association of Village Council Presidents (funded through a State of Alaska general fund appropriation) and is in the planning phase focusing on completion of subsistence and cultural resource studies, public outreach, identifying potential barge improvement projects, and beginning the corridor preservation process. The project is estimated to be practical to construct between 2028 and 2038 (Association of Village Council Presidents 2018a, 2018b).
- Road to Nome – A proposed highway from the Interior to Western Alaska was studied by the Alaska Department of Transportation in the past (study completed in 2011) but has not advanced beyond conceptual design. One route studied would connect the Elliott Highway near Manley Hot Springs to the end of the Nome-Council Highway. No definite sources of funding for the project have been identified, and it is not currently identified in an Alaska Statewide Long Range Transportation Plan.

State Lands

Activities on State lands and for State-managed resources will continue and increase in proportion to population growth and tourism. The mission of the ADF&G is to protect, maintain, and improve the fish, game, and aquatic resources of the state and manage their use and development in the best interest of the economy and the well-being of the people of the state, consistent with the sustained yield principle (ADF&G 2018). Education, nongame management and research, and wildlife viewing opportunities are expected to increase. Future actions will address human-wildlife conflicts, subsistence management, and predator management.

Research, Monitoring, and Land Management

Research, monitoring, and land management will continue on federal, State, and Native lands. Remote areas will continue to be accessed by fixed-wing aircraft, helicopters, boats, and snowmobiles, depending on season.

Subsistence and Recreation

Past recreation, sport hunting and fishing activities, and traditional subsistence practices are expected to continue. Past uses of the INHT are also expected to continue. Recent funding has supported trail improvements such as shelter cabins. Land use for recreation, subsistence, and tourism may increase as local, state, and national populations grow. However, due to the undeveloped nature and limited access to BLM lands in the planning area, recreation, subsistence, and tourism on BLM lands is expected to be stable with no more than a 5 to 10 percent increase over the next 15 to 25 years.

Climate Change

The following climate warming scenarios are likely in the planning area, based on the Rapid Ecoregional Assessment and the National Climate Assessment and are considered in the cumulative effects analysis:

- Increased temperatures
- Permafrost thaw. Aside from isolated permafrost pockets, the Nulato Hills region is the only area in the planning area expected to retain permafrost to a depth of one meter, which is the most influential on vegetation and surface conditions.
- Decreased snow cover (albedo effect), subnivean species impacts
- Increased wildland fire intensity, size, and frequency
- Increase in nonnative invasive species (NNIS) presence/spread
- Later freeze-up dates and earlier breakup dates (river ice)
- Sea level rise (salt intrusion, transportation changes)

There is less agreement from researchers on the following two climate warming scenarios. There is empirical evidence of these already occurring, although the magnitude and rate are expected to increase in the future.

- Shrub encroachment
- Spruce trees replaced with aspen/birch hardwood trees

This page intentionally left blank

Section 3. Resource-Specific Methods

3.1 Resources

3.1.1 Air Quality and Air Quality–Related Values

Methods of Analysis

A qualitative approach was used to analyze impacts on air quality based on an understanding of the current air quality conditions within the planning area and the types of activities likely to emit non-negligible amounts of regulated pollutants.

Assumptions

The following assumptions were used to assess effects associated with air quality and air quality–related values (AQRVs):

- None beyond the general assumptions stated above in Section 1.1.

The effects analysis for air quality and AQRVs is limited due to the following incomplete or unavailable information:

- Limited air quality monitoring data in the region

3.1.2 Climate Change

Methods of Analysis

Current technology makes it difficult to link a specific BLM action to a specific climate-change-related impact. However, because there is a correlation between global concentrations of greenhouse gases (GHGs) and climate change, estimated GHG emissions are used to estimate an alternative's contribution to climate change. A qualitative approach was used to analyze impacts on climate change based on an understanding of the current conditions in the planning area and the types of activities that are likely to emit non-negligible amounts of GHGs. The analysis includes potential effects of management actions on climate change, which were evaluated by assessing the impacts of anticipated future actions on the production of GHG emissions.

Assumptions

The following assumptions were used to assess effects associated with climate change.

- There is a correlation between global concentrations of GHGs and climate change.
- Future changes in precipitation and temperature regimes due to climate change will result in changes in vegetation, fire and fuels, and water availability.
- Best management practices (BMPs) will be implemented for site-specific actions as applicable to the specific project and site location to minimize construction- and operation-related equipment emissions. The BMPs will also minimize combustion-related GHG emissions.

The effects analysis for the climate change resource is limited due to the following incomplete or unavailable information:

- There is a lack of models and methodologies to effectively evaluate the impacts of individual projects to climate change.

3.1.3 Soils

Methods of Analysis

Existing conditions were used as a baseline to evaluate impacts from resource management actions under each of the four alternatives described in Chapter 2 of the BSWI PRMP/FEIS. Potential effects from various resource management actions under each alternative were compared to primary indicators representative of known and potential effects to soils. Specific potential effects and indicators used to conduct the evaluation are described below.

Assumptions

The following assumptions were used to assess effects associated with soils:

- Management actions are consistent with soil resource capabilities, including proper functioning of soil conditions as applicable to the location and stabilization and/or restoration of adverse impairments.
- Surface disturbances are limited to generalized descriptions and qualitative evaluation based on available information pertaining to approximated extents of existing infrastructure and potential opportunities for development (e.g., salable and leasable minerals).
- Due to the size of the planning area, the effects analysis for soils does not account for point-specific or localized conditions, but rather anticipated impact trends on a broader basis relative to existing and potential conditions and actions applicable to each alternative. For example, the relative changes in acres of disturbances to soils and linear miles of stream habitat subjected to ROW crossings relies on the current limited knowledge of the extent of each within the planning area. Available resources vary in establishing baseline extents of these indicators, which are qualitative in character.
- Naturally occurring soil disturbance processes including those of wildland fire effects are generally assumed to be the same for each alternative.

3.1.4 Water Resources

Methods of Analysis

The analysis of impacts to water resources was based on the quantification of acreages that are available to management actions that could result in direct or indirect impacts to water resources. Qualitative descriptions of potential direct or indirect impacts to water resources are presented in the “Effects Common to All Action Alternatives” subsections for each resource, resource use, or special designation analysis section.

Assumptions

The following assumptions were used to assess effects associated with water resources:

- No large-scale hydroelectric projects will occur in the planning area that will disrupt or otherwise change historical flow patterns. Water supplies and demands will remain relatively the same over the planning period.
- Projects that help restore watersheds, desirable vegetation communities, or wildlife habitats (including surface disturbance associated with these efforts) benefit soil and water resources over the long term.
- Roads and trails contribute to soil compaction and erosion. Higher road and trail densities result in relatively greater adverse impacts on soil and water resources. Roads and trails that receive more traffic are at greater risk for soil erosion unless they are improved.
- All surface-disturbing activities include mitigation, standard operating procedures (SOPs), and BMPs to reduce impacts on soil and water resources.
- Assessment of effects may be qualitative, quantitative, or both.
- All management actions on BLM lands follow the BMPs and SOPs in the EIS.
- Impacts from surface-disturbing activities on water resources are influenced by factors such as location in the watershed, proximity to drainages or existing groundwater wells, time and degree of disturbance, reclamation potential of the affected area, existing vegetation, precipitation, functionality, and mitigating actions applied to the disturbance.
- Impacts on groundwater resources include water development projects such as wells, which could lower groundwater levels depending on groundwater pumping demand and water use priorities (e.g., multiple uses versus wildlife use).
- Transportation facilities are designed to BLM minimum standards.
- An aquifer with a shallow water table is more susceptible to contamination. Unconfined aquifers or those with water table elevations of 100 feet below ground surface are more vulnerable to leaks and spills of contaminants at the surface.

The effects analysis for water resources is limited due to incomplete or unavailable information but is based primarily on an evaluation of GIS databases showing water resources in the planning area, including U.S. Geological Survey–designated watersheds and high-value watersheds (HVs).

3.1.5 Fisheries

Methods of Analysis

Potential impacts on aquatic resources, fish, and special status fish from each alternative are based on interdisciplinary team knowledge of the resources and the planning area and information gathered from the public during the planning process. Assessment of potential fish and aquatic resource impacts are discussed at the landscape level within the planning area. The exact values (miles of streams/acres of waterbodies) associated with each action cannot be determined quantitatively and would be addressed on a case-by-case basis in future projects and actions. River and stream (miles), and waterbody (i.e., lakes/ponds; acres) metrics identified in the following analyses are based on data provided from the National Hydrography Data (NHD) set (https://nhd.usgs.gov/NHD_High_Resolution.html). This data set is divided into watersheds for the planning area (Figures 3.1.2-1 through 3.1.2-3) based on the Hydrologic Unit Code (HUC 4 or HUC 6) data set and is generated containing one or more of the following features: watersheds, rivers, streams, lakes, and ponds.

Assumptions

Figure 3.1.2-1 shows HUC 4/Level 2 watersheds within the planning area, rivers and streams on BLM-managed lands (32,931 miles), and waterbodies (lakes and ponds) on BLM-managed lands (53,796 acres). The figure also shows BLM-managed lands. Four watersheds intersect the planning area: Northwest Alaska, which includes Unalakleet and the very northwest portion of the planning area; Lower Yukon River, which includes most of the north half of the Yukon Delta NWR and the Innoko NWR; Southwest Alaska, which includes a large portion of the southern and eastern planning area, including Bethel, Aniak, and McGrath; and Middle Yukon River, which includes a very small piece of the planning area in the northeast at Lake Minchumina. Rivers labeled on the map include the Kateel River, North River, Unalakleet River, Yukon River, Innoko River, Anvik River, Kuskokwim River, and Swift River. No waterbodies are apparent on the figure.

Figure 3.1.2-2 depicts the anadromous waters and spawning streams and waterbodies on BLM-managed lands. The figure also shows the watersheds and BLM-managed lands. Anadromous spawning streams are concentrated in the northwest portion of the planning area and in the area between the Lower Yukon and Innoko NWRs west of the Yukon River, and are scattered elsewhere on BLM-managed lands. Anadromous streams are more prevalent throughout BLM-managed lands. No anadromous waterbodies or anadromous spawning waterbodies are apparent on the map.

There are approximately 133,853 miles of streams and rivers and 3.91 million acres of lakes and ponds within the planning area, and 17,962 miles of streams and 414,967 acres of lakes and ponds have been cataloged as important for the spawning, rearing, and migration of anadromous fish (Johnson and Litchfield 2016 a–c). Approximately 25 percent (32,932 miles) of all streams and 1 percent (53,798 acres) of pond/lake habitats in the planning area occur on BLM-managed public lands. Calculations of potential impacts to streams and waterbodies presented in this section are based on the streams and waterbodies (33,932 miles and 53,798 acres, respectively) located on BLM-managed public lands.

Stream miles and waterbody acres are either summarized in categories by HUC 4 or HUC 6 watershed or as Anadromous Waters or they are summarized in total without category breaks in the BLM-managed lands within the planning area. Information presented in the tables associated with each resource management action section should be viewed as planning-level data. Stream mile and waterbody acreage totals are limited in precision by the resolution of the source data; however, the data allow for the relative comparison of impacts across alternatives. Categories may have overlapping streams and waterbodies as they may be subsets of another data set; therefore, the sums of these categories may not accurately reflect the sums of the total stream miles and waterbody acres.

Depending on the resource being analyzed, the rivers, streams, lakes, and ponds are either summarized across the entire planning area or divided into four regions on BLM-managed lands (Figure 3.1.2-1) based on the HUC 4 watershed data set. For HUC 4, the regions/watersheds are as follows:

- Northwest Alaska: North and Unalakleet Rivers and waterbodies are present within this region.
- Lower Yukon River: Yukon, Innoko, and Anvik Rivers and waterbodies are present within this region.
- Middle Yukon River: Portions of the Kuskokwim River and waterbodies are present within this region.
- Southwest Alaska: Kuskokwim and Swift Rivers and waterbodies are present within this region.

Draft RMP/EIS

Watershed Boundaries and Hydrography



U.S. DEPARTMENT OF THE INTERIOR | BUREAU OF LAND MANAGEMENT | ALASKA | BERING SEA-WESTERN INTERIOR RMP/EIS

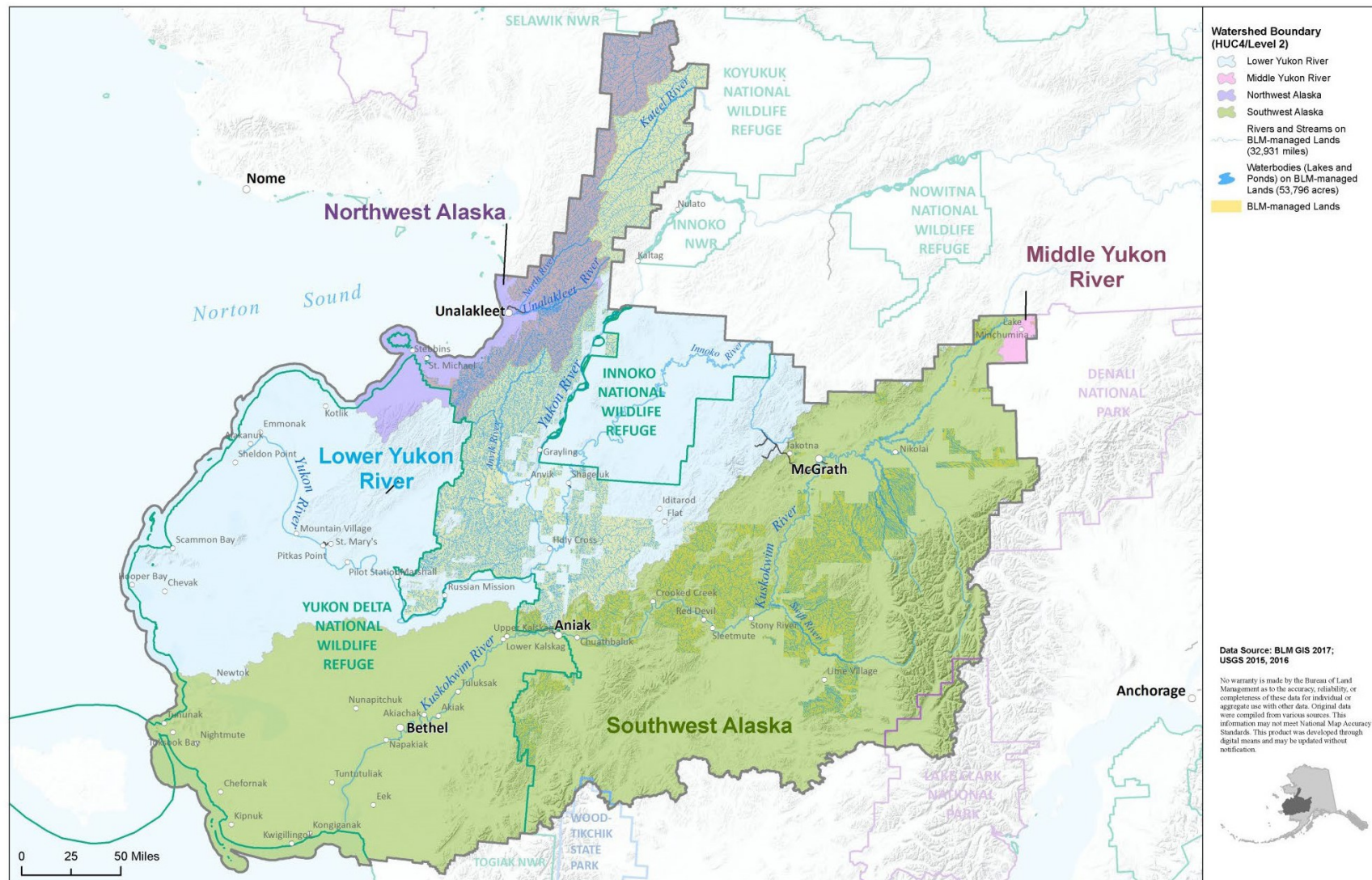


Figure 3.1.2-1: Watershed Boundaries and Hydrography

Draft RMP/EIS

Anadromous Waters and Spawning Habitat
Fisheries

U.S. DEPARTMENT OF THE INTERIOR | BUREAU OF LAND MANAGEMENT | ALASKA | BERING SEA- WESTERN INTERIOR RMP/EIS

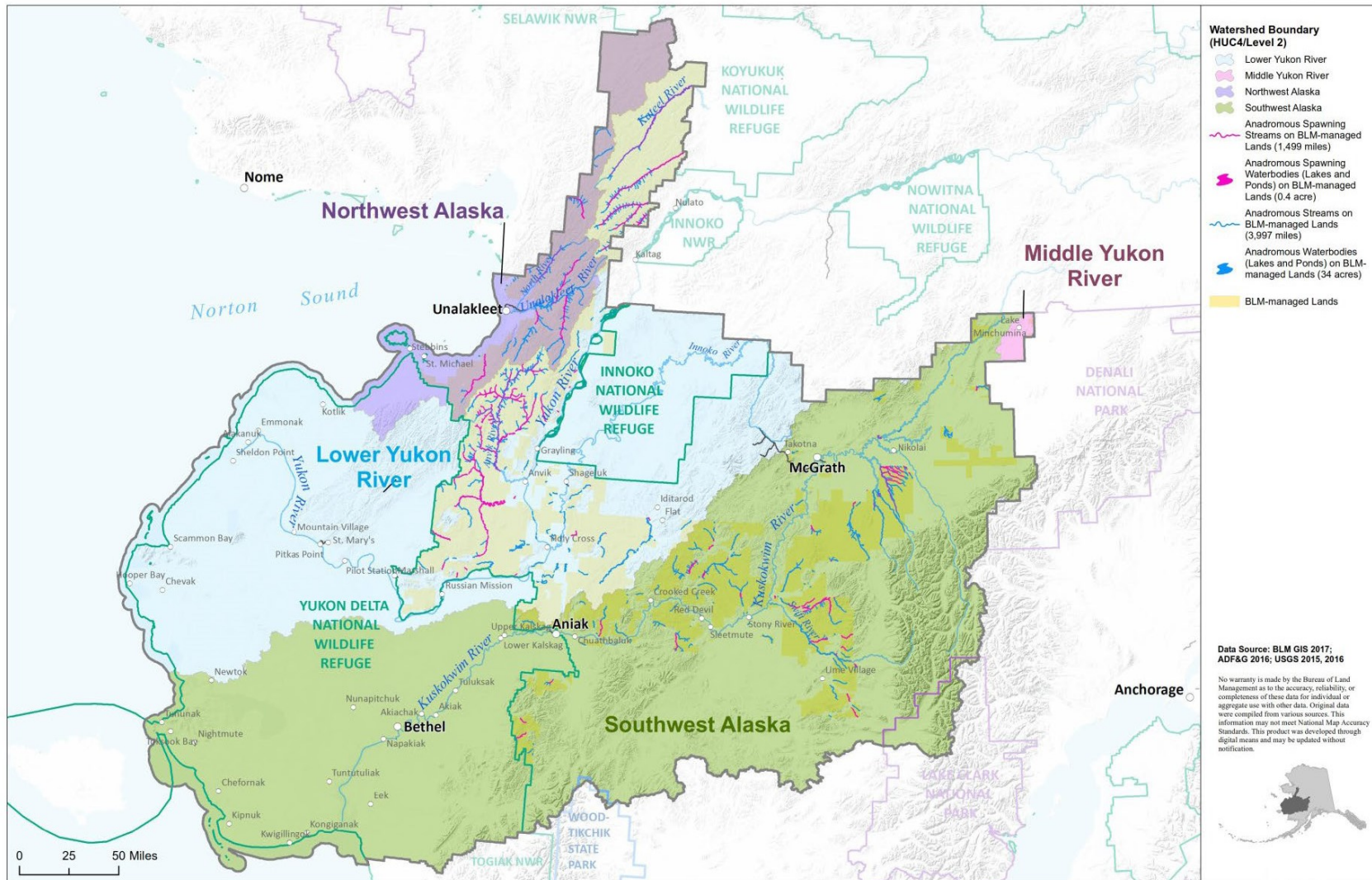


Figure 3.1.2-2: Anadromous Waters and Spawning Habitat

Draft RMP/EIS

HUC6/Level 3 Watersheds and Locatable Mineral Potential



U.S. DEPARTMENT OF THE INTERIOR | BUREAU OF LAND MANAGEMENT | ALASKA | BERING SEA- WESTERN INTERIOR RMP/EIS

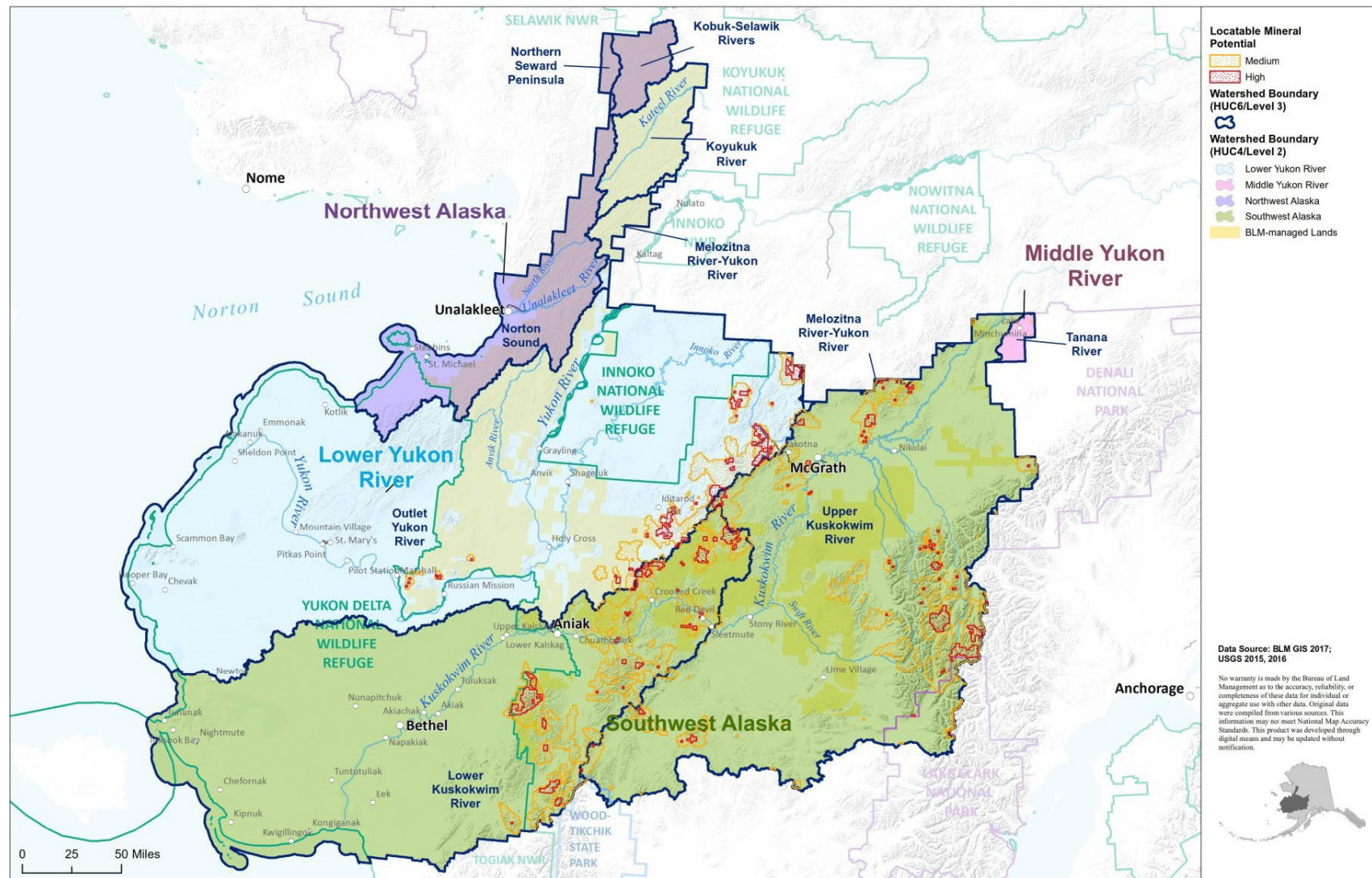


Figure 3.1.2-3: Streams within Medium and High Areas of Mineral Potential (HUC 6)

To identify areas of high and medium mineral potential, HUC 6 regions/watersheds were reviewed. HUC 6 regions follow the same boundaries as HUC 4 but are further broken down into additional watersheds; these data are shown on Figure 3.1.2-3. Figure 3.1.2-3 shows areas of medium and high LMP, as well as HUC 6/Level 3 and HUC 4/Level 2 watershed boundaries. The figure also shows BLM-managed lands. Nearly all areas of medium and high mineral potential are the eastern half of the planning area and most are in the Southwest Alaska watershed, with concentrations in higher elevation areas associated with the Alaska Range and the Kuskokwim and Ahklun Mountains.

The effects analysis for fisheries is limited due to incomplete or unavailable information but is based primarily on evaluation of the following:

- Analysis by BLM using ADF&G Anadromous Waters Catalog and Freshwater Fish Inventory (AFFI) data.
- Agency (e.g., BLM, USFWS) reports on fish studies in the area. Studies identifying spawning and overwintering habitats for anadromous and resident fish species classified by BLM as sensitive.
- GIS databases showing fish distributions in the planning area—GIS map overlaying withdrawal management decisions on HVWs by alternative, Areas of Critical Environmental Concern (ACECs) by alternative, and Anadromous Waters Catalog overlay.

3.1.6 Vegetation

Methods of Analysis

Analysis of impacts to vegetation was based on quantification of acreages that are available or unavailable to management actions that could result in direct or indirect impacts to vegetation. Qualitative descriptions of potential direct or indirect impacts to vegetation are presented in the “Effects Common to All Action Alternatives” subsections for each resource, resource use, or special designation analysis section in the PRMP/FEIS.

Assumptions

The following assumptions were used to assess effects associated with vegetation.

- Future human development proposals would be appropriately distributed in different vegetation community types in proportion to the abundance of those habitat types under the baseline conditions.
- Adaptive management tools would be implemented to test, evaluate, and adjust the assumptions, objectives, actions, and subsequent on-the-ground results from the implementation of RMP decisions. This strategy would provide resource managers with the flexibility to respond quickly and effectively to changing resource and user conditions.

3.1.7 Wildlife and Special Status Species

Methods of Analysis

The direct and indirect impacts of management actions on wildlife and special status species (SSS) resources may vary widely and are difficult to quantify without site-specific information on species and habitats present and the baseline condition of habitats and populations. Seasonal considerations are also

important, as actions may affect wildlife to a greater or lesser degree depending on if they occur during the breeding season, migration or hibernation periods, periods when greater numbers of individuals may be present, periods when food or other habitat elements are scarce, or periods when vegetation and other habitat components are least resilient.

Because of the large number of wildlife species in the planning area, this analysis focused on key habitats and species and addressed the quantity and quality of available habitat, habitat connectivity and the degree to which habitat is fragmented, and what habitat protections and use restrictions would occur under each alternative. The quantitative analysis of alternatives focused on species and habitats for which information is available (moose, caribou, bison, muskox, riparian areas) and on areas within the planning area where land uses with the greatest potential to impact wildlife (mineral development, ROWs, commercial forest harvest) are likely to occur. Additional qualitative descriptions are also included as appropriate. The impact analysis discusses applicable management actions for each resource and resource use and identifies whether they would result in the possible destruction, degradation, or modification of wildlife and SSS habitat, or would minimize these impacts from resource uses in the planning area. Habitat connectivity and landscape-level management through protection of connectivity corridors are discussed where pertinent.

Assumptions

The following assumptions were made to assess effects on wildlife and SSS:

- Although wildlife and SSS may occur throughout the entire planning area, there are areas of higher concentration and/or higher value habitat within the planning area, such as riparian areas, Audubon Important Bird Areas, and the Innoko Bottoms area. Management actions in these areas may have a greater effect on wildlife compared to actions outside these areas.
- The BLM is primarily responsible for managing habitats. State and federal wildlife management agencies (e.g., ADF&G, USFWS) oversee management of wildlife species, although the BLM is the season manager for wildlife populations on federal lands for a subsistence priority. This analysis focuses on impacts to wildlife habitats.
- Disturbance impacts to wildlife are evaluated by comparison to current management practices in the planning area; management actions proposed under the action alternatives that would reduce the potential for adverse impacts, whereas reduced protection compared to current management may increase the potential for adverse impacts.
- Natural and prescribed fires are tools used to manage vegetative communities and can result in short-term adverse impacts with long-term beneficial impacts to wildlife and wildlife habitats.
- Management actions aimed at benefiting specific wildlife species or groups (e.g., moose, caribou, raptors, migratory birds) can have adverse or beneficial impacts on other wildlife species or groups.
- Wildlife is currently using the proposed connectivity corridors for movement and would continue to do so.
- The BLM will use the best available information, management and conservation plans, and other research and related directives, as appropriate, to guide wildlife habitat management on BLM-managed lands in the planning area.

For many wildlife and SSS species, information on specific areas of occurrence and population size and trends is incomplete or unavailable. Therefore, the effects analysis for wildlife and SSS focuses on important wildlife habitats for which information is available. These include caribou calving and wintering habitat, moose calving and wintering habitat, Audubon Important Bird Areas, the Innoko Bottoms area, muskox range, and wood bison range. Riparian areas are also considered, although they have not been mapped for the planning area. Therefore, the quantitative analysis for riparian areas is based on river miles, which gives an approximate location of riparian areas, but not their complete coverage.

3.1.8 Nonnative Invasive Species (Wildlife and Plant)

Methods of Analysis

Analysis of impacts to NNIS was based on management actions that would either increase or decrease potential for NNIS establishment and/or spread.

Assumptions

The following assumptions were used to assess effects associated with NNIS:

- The number and type of NNIS may increase during the life of the RMP but would be concentrated around areas of human activity (e.g., rivers, trails, roads, woodland harvest areas).
- Increases in introduction and spread of NNIS could be accelerated by longer growing seasons (climate change).

The effects analysis for NNIS is limited due to the following incomplete or unavailable information:

- Locations of NNIS where focused surveys have not been completed

3.1.9 Wildland Fire

Methods of Analysis

The analysis of impacts to wildland fire management was based on the quantification of acreage that is available or unavailable to management actions that could result in direct or indirect impacts to wildland fire management.

Assumptions

The following assumptions were used to assess effects associated with wildland fire:

- Fuels treatments would reduce the potential spread and intensity of wildland fires, providing for human health and safety, protection of infrastructure, and preservation of natural and cultural resource values.
- Fuels treatment activities, including the use of prescribed fire, would be considered surface-disturbing activities; however, wildfire suppression activities in the planning area are not considered to be surface disturbing.

3.1.10 Cultural Resources

Methods of Analysis

Addressing the impacts on cultural resources included reviewing the known resources in the planning area with an understanding of the laws pertinent to determining and managing adverse effects on these resources. The information about known resources of the regulations used in evaluating impacts were then compared with each type of management action under each alternative to develop the analysis of actions that may affect known (and potentially discoverable) cultural resources.

Assumptions

The cultural resource impacts analysis rests on the primary assumption that federal actions that require the identification, evaluation, and consideration of adverse effects and the appropriate mitigation of those effects on cultural resources will remain in effect. Nearly all implementation actions will undergo site-specific analysis regarding the potential impacts on cultural resources before authorization. If adverse effects are identified, mitigation measures, including avoidance, would be assessed and implemented to minimize effects.

Overall, actions associated with other resources that result in removal of lands from surface-disturbing activities would result in beneficial impacts (less chance of disturbance) to any resources that might be present. Conversely, actions that result in the potential for more surface-disturbing activities would result in increasing the probability of adverse effects on cultural resources. Impacts to cultural resources such as historic structures and Alaska Native sacred sites may result from management decisions from non-surface-disturbing activities that create auditory and/or visual effects. Impacts to Alaska Native traditional sites may result from management decisions that restrict traditional access or use of such sites.

The primary limiting factor of this analysis is that much of the planning area has not been surveyed for cultural resources, resulting in large tracts of land where quantifying resources and identifying impacts from site-specific actions is not possible. Therefore, this analysis does not attempt to quantify number of sites affected by specific actions, but rather focuses on resources and management actions under the assumption that there is potential for sites to exist across the landscape. The analysis also assumes that cultural resource sites have physical manifestations in the form of objects, artifacts, features, and geographic boundaries. Sacred sites and Traditional Cultural Properties may exist across the landscape; analysis of these site types, effects on them, and appropriate mitigation, are best managed on a case-by-case basis.

3.1.11 Paleontological Resources

Methods of Analysis

Addressing the impacts on paleontological resources included reviewing the known resources in the planning area with an understating of the laws and protection guidance pertinent to determining and managing effects on these resources. Because very limited surveying of paleontological resources has occurred in the planning area, the analysis also relied on modeling the likely occurrence of these resources based on known geological information. These data (likelihood of occurrence and level of management protection) were then compared with each type of management action under each alternative to develop the analysis of actions that may affect known (and potentially discoverable) paleontological resources.

Assumptions

The paleontological resource impacts analysis assumes that federal actions trigger regulatory processes that require the management and protection of paleontological resources. All implementation actions will undergo site-specific analysis before authorization and will follow the statutory requirements for paleontological resources, including the Instruction Memorandums (IMs) for Potential Fossil Yield Classification (PFYC; IM-AK-2016-124) and Assessment and Mitigation (IM-AK-2009-011), BLM Manual Section 8270 regarding paleontological resource management, and guiding federal legislation (Paleontological Resources Preservation Act, Federal Land Policy and Management Act, NEPA). If adverse effects are identified, mitigation measures, including avoidance, would be developed and implemented to minimize effects.

The primary limiting factor of this analysis is that much of the planning area has not been surveyed for paleontological resources, resulting in large tracts of land where quantifying resources and identifying impacts from site-specific actions is not possible. Therefore, this analysis does not attempt to quantify number of sites affected by specific actions, but rather focuses on resources and management actions under the assumption that there is potential for paleontological resources sites to exist across the planning area. This lack of knowledge about specific resource locations is in part alleviated by the PFYC map included as Map 3.2.11-1 in Volume 2 of the BSWI PRMP/FEIS, which indicates the potential of certain areas to contain fossils.

3.1.12 Visual Resources Management

Methods of Analysis

This analysis used proposed Visual Resource Management (VRM) class designations to estimate impacts to visual values within the planning area. Visual resource inventory (VRI) classes represent existing conditions and are used as the baseline for visual values. Because VRM planning objectives could be achieved throughout the planning period, it is assumed that impacts to visual quality would reach the allowable change levels described for the various VRM class objectives. Therefore, comparing VRI class with VRM class provides an understanding of the potential impacts that could occur.

VRI Class II, III, and IV areas that are designated as VRM Class III or IV constitute an adverse impact to visual resources because VRM Class III and IV designations allow moderate to major changes to the characteristic landscape. VRI Class II, III, and IV areas designated as VRM Class I or II would help protect those visual values by allowing only up to low levels of change to the characteristic landscape. VRI Class I is assigned to lands due to nondiscretionary land management decisions that preceded the land use planning process and directed the BLM to preserve the natural character of the landscape. These decisions are typically directed by Congress but can also be directed by the Executive Branch. Examples include Wilderness Areas, Wilderness Study Areas, and Wild and Scenic River (WSR) corridors designated as Wild.

Management actions from numerous resources, resource uses, and special designations would have effects on visual resources. However, regardless of what type of activity is allowed or restricted by a management action, all activities in the planning area would still have to be consistent with the underlying VRM class. Impacts on visual resources are primarily discussed in Section 3.2.12 of the PRMP/FEIS.

Assumptions

The following assumption was used to assess effects on visual resources.

- Impacts to visual quality would reach the allowable change levels described for the various VRM class objectives.

The effects analysis for visual resources is not limited because of incomplete or unavailable information.

3.1.13 Lands with Wilderness Characteristics

Methods of Analysis

Impacts to lands with wilderness characteristics were determined qualitatively and also quantitatively where applicable (e.g., acres open to new ROWs, acres proposed for disposal, etc.). Impact discussions primarily focus on impacts to the wilderness characteristics of naturalness and opportunities for solitude and primitive recreation, which is meant to encompass opportunities for both primitive and unconfined types of recreation.

Assumptions

The following assumptions were used to assess effects associated with lands with wilderness characteristics:

- The wilderness characteristic inventory includes an assessment of most (13,443,282 acres [over 99 percent]) BLM lands within the planning area.¹
- Lands with wilderness characteristics could lose their natural character and opportunities for solitude and primitive recreation due to permitted mineral location and entry, ROW authorizations, off-highway vehicle (OHV) use designated as open, construction of structures, and disposal of BLM lands.
- Actions consistent with VRM Class III and IV could potentially result in loss of natural character.
- Potential impacts to land managed for wilderness characteristics from subsequent undertakings (implementation of the planning decisions or site-specific project proposals) require separate compliance with NEPA.

The effects analysis for lands with wilderness characteristics is limited due to the following incomplete or unavailable information:

- Not all BLM lands have been inventoried for wilderness characteristics.

3.2 Resource Uses

3.2.1 Forestry and Woodland Products

Methods of Analysis

Potential impacts were analyzed quantitatively for commercial harvest areas and personal and subsistence use harvest areas when GIS spatial data were available. Other impacts were analyzed qualitatively.

¹ The original inventory was performed on an earlier version of the BLM-managed lands GIS data. The inventory acreages have been updated to match the BLM-managed lands current as of August 31, 2016, and are constrained to the quality of the data. Since the update, some BLM-managed lands were discovered that were not a part of the original inventory. These have been categorized as “Not Inventoried.”

Assumptions

The following assumptions were used in the assessment of effects associated with forestry and woodland products.

- Management actions related to protecting resources such as water quality, riparian areas, soils, fisheries, wildlife, special status plants, and ACECs affect the number of acres and the output of forest products.
- Forest products that are available for harvest may be impacted by factors outside BLM management decisions including, but not limited to, wildland fires and changes in vegetation due to shifts in vegetation cover type or precipitation levels.
- Levels of demand for forest products will remain relatively stable over the life of the RMP and consist primarily of subsistence use.
- The BLM will continue to issue permits for the harvesting of forest products under sustained yields.

The effects analysis for forestry and woodland products was limited due to incomplete or information, including an incomplete forest inventory. Limited forest inventory data were available to quantify the extent of commercial timber in the planning area. As a result, the analysis of impacts to commercial timber harvest is based on restrictions applied or direct and indirect vegetation changes to the entire area open for commercial harvest.

3.2.2 Grazing

Methods of Analysis

Impacts to grazing were determined primarily through quantitative data, although qualitative information was also used to support qualitatively based analyses or where numerical data does not exist or is not applicable.

Assumptions

The analysis included the following assumptions:

- Lichen is the primary forage species for all months except June and July, when it still comprises a high proportion of diet; lichen presence serves as a proxy for assessing suitable grazing habitat.
- Data regarding unauthorized grazing operations in the planning area are limited or incomplete.

3.2.3 Locatable and Salable Minerals

Methods of Analysis

Where possible, the analysis used quantitative data to describe impacts on locatable and salable minerals from management actions associated with other resources and resource use programs. Qualitative information was also used to support quantitatively based analysis or when numerical data do not exist.

Impacts on locatable and salable minerals development would result from the withdrawal or closure of an area to mining development because the mineral resources in that area would not be able to be accessed and extracted. The withdrawal or closure represents an impact on the potential discovery, development, and use of these resources by decreasing the availability of mineral resources.

Assumptions

The following assumptions were used in the assessment of the effects on locatable and salable minerals.

- Existing mining claims with valid existing rights will not be affected by the proposed withdrawals or closures in the RMP. All others will be impacted.
- SOPs and BMPs will be implemented.
- There will be no major regulatory changes in federal or state statutes, regulations, policies, or guidance that govern exploration and development of minerals.
- Surface-disturbing and other disruptive activities at authorized mining operations could continue.
- Mineral operations will be in compliance with all relevant federal, State, and local permits.
- Mineral exploration and development may occur with valid existing rights. Otherwise, exploration and development will not occur in areas that are identified as withdrawn or closed to mineral entry except for those activities that are undertaken to better understand the geological setting and mineralization of the withdrawn lands to better inform long-term management decisions. Mine operators will implement the guidelines and requirements on placer mine reclamation, revegetation, and wildlife habitat rehabilitation for upland mines that are in the following BLM IMs:
 - Placer Mining Baseline Environmental Information Guidance and Reclamation Effectiveness Monitoring for Alaska Placer Mined Streams (IM-AK-2017-009)
 - Reclamation Effectiveness Monitoring Implementation Guide (IM-AK-2017-010)
 - Revegetation and Wildlife Habitat Rehabilitation Criteria for Upland Mine Reclamation on BLM-Managed Lands in Alaska (IM-AK-2017-011)

3.2.4 Leasable Minerals

Methods of Analysis

Where possible, the analysis used quantitative data to describe impacts on leasable minerals from proposed management actions associated with other resources and resource use. Qualitative information was also used to support quantitatively based analysis or when numerical data do not exist.

Impacts on leasable minerals would result from the closure of an area to exploration and development of coal, gas, oil, phosphate, sodium, and geothermal resources due to management actions for other resource and resource use programs. Areas closed to leasing include areas where it has been determined that other land uses or resource values cannot be adequately protected and appropriate protection can only be ensured by closing the land to leasing through either statutory or administrative requirements. Such closures would remove these areas from leasing and would represent an impact on the potential discovery, development, and use of these resources by decreasing their potential availability.

In addition, BLM-managed land in the planning area that is selected by the State or ANCSA Native corporations represents an impact on leasable minerals because BLM must obtain State concurrence on any contract, lease, license, permit, ROW, or easement authorized on State-selected lands. Similarly, BLM must obtain the consent of the relevant Native corporation on ANCSA-selected lands. Both State- and Native-selected lands are therefore encumbered and represent an impact on leasable minerals. The baseline conditions for leasable minerals in the planning area are described in Section 3.3.4 of the PRMP/FEIS.

Assumptions

The following assumptions were used in the assessment of effects associated with leasable minerals.

- Existing leases will not be affected by the withdrawals or closures proposed under the RMP.
- Existing leases will be managed under the stipulations in effect.
- SOPs and BMPs will be implemented.
- There will be no major regulatory changes in federal or State statutes, regulations, policies, or guidance that govern exploration and development of leasable minerals.
- Mineral exploration and development will not occur in areas identified as closed to mineral leasing.

3.2.5 Lands and Realty

Methods of Analysis

The nature and types of potential impacts on lands and realty from proposed actions under each alternative were based on data gathered during the planning process, the BLM interdisciplinary team's knowledge of the resource, and input provided during the public scoping process. Where possible, this analysis used quantitative data to describe impacts on lands and realty from proposed management actions associated with other resources and resource use. Qualitative information was also used to support quantitatively based analysis or where numerical data does not exist. In all cases, best professional judgment is used in evaluating effects on the lands and realty program.

Assumptions

The following assumptions were used to assess effects associated with lands and realty:

- Land status will change slightly over the course of the planning period as lands are conveyed. Analysis is based on the most current GIS land status data and most current master title plats.
- ROW avoidance areas would only be impacted if no other ROW option was available.
- Changes in land use would be assessed under the specific resource being impacted. For the purpose of this analysis, this section only focuses on land status.
- All land not specifically identified for disposal or exchange is classified for retention.
- Retaining access to BLM-managed lands for public use and administrative purposes will continue to be a priority of the lands and realty program.
- The BLM will continue to periodically review its withdrawals to see if they are still applicable and serve the BLM interests and whether the lands should be returned to the full spectrum of public land laws. Withdrawals held by other agencies would remain unless those other agencies requested a relinquishment.
- Stipulations may be applied for ROW lease or permit approval at the project level.

The effects analysis for lands and realty is limited due to the following incomplete or unavailable information:

- Location and number of unauthorized trapping or subsistence cabins and other unauthorized structures

3.2.6 Recreation and Visitor Services

Methods of Analysis

This analysis evaluated effects on recreation resources within the planning area based on local program area knowledge. Impacts to recreation and visitor services were considered those that result in changes in recreation setting, opportunities, desired experiences and benefits, and use levels. Effects were quantified where possible (e.g., acres managed as ROW avoidance areas, acres managed as VRM Class I, etc.), and, in the absence of quantitative data, qualitative analyses were presented based on professional judgment.

Assumptions

The following assumptions were used to assess effects associated with recreation and visitor services:

- Overall, recreation use in the planning area is very low.
- The majority of recreational visitors to the BLM-managed lands within the planning area are non-local residents. These visitors primarily use services provided by commercial outfitter-guides for hunting and fishing in the region.
- Demand for special recreation permits (SRPs) will increase during the life of the plan. Analysis of the economic impacts of SRP management on guides and outfitters is described in Section 3.5.1, Support for BSWI Communities in the PRMP/FEIS.
- Recreational visitors seek a remote-Alaska experience, characterized by a high degree of naturalness.
- Individual Special Recreation Management Areas (SRMAs) are managed to protect and enhance a targeted set of activities, experiences, benefits, and desired recreation setting characteristics.
- Individual Extensive Recreation Management Areas (ERMAs) are managed to support and sustain the principal recreation activities and the associated qualities and conditions of the ERMA. Management of ERMAs is in balance with the management of other resources and resource uses.
- VRM Class I and II would maintain a primitive and semi-primitive recreation setting.
- The primary modes of transportation for recreation in the summer are all-terrain vehicles (ATVs), OHVs, and motorboats. Snow machines provide recreational access to public lands in the winter months.
- Improved vehicle technology will result in increased demand for summer OHV recreation opportunities.
- Summer recreation use on undeveloped trails will result in greater impacts as recreation use levels increase throughout the planning area in areas with soils not well-suited to OHV travel.
- The duration of summer recreation use is likely to increase, and the duration of winter recreation use may decrease with the continued trend of a longer summer season and warmer summer temperatures.
- Unpermitted air transporters bringing ATV/Argo-type vehicles into remote areas are resulting in localized damage in areas where terrain is characterized by low resilience.
- Conflict between subsistence hunting and guided hunting trips is most likely to occur in close proximity to local communities because most subsistence hunting occurs near communities.

The effects analysis for recreation and visitor services is limited due to incomplete or unavailable quantitative information on existing physical, social, and operational setting within the planning area. Visitor use counts specific to the planning area were also not available. The analysis thus focused on acres of potential disturbance/enhancement by recreation management areas to inform potential changes in recreation setting.

3.2.7 Travel and Transportation Management

Methods of Analysis

Impacts to travel and transportation management were determined qualitatively and also quantitatively where applicable (e.g., acres open to new ROWs, acres proposed for ACEC designation). Impact discussions focus on changes to accessibility throughout the planning area, including temporarily, by certain vehicles, or access restrictions to certain areas. Impacts also describe the potential to increase or decrease the route network.

Assumptions

The following assumptions were used to assess effects associated with travel and transportation management.

- BLM will work in partnership with the State to determine appropriate stream crossings where necessary to maintain travel and transportation access.
- Objectives for VRM Classes I and II, which respectively specify preservation and retention of existing landscape characteristics, have a greater likelihood of limiting future access by restricting the location and/or applying mitigation measures to the development or expansion of new routes/trails.
- Undesignated areas do not allow for unauthorized use of existing routes because no routes are designated for public use.
- Routes (ground or aerial) can be created around areas such as buffer areas and the 100-year floodplain to reach permitted uses, valid existing rights, subsistence areas, and recreation areas.
- BLM will retain a reservation, by easement or otherwise, on lands that are disposed to maintain access to public land.
- Some aircraft landings require more than minimal clearing of vegetation, logs, and similar items. Such landings would require a Land Use 2920 permit.

The effects analysis for travel and transportation management is limited due to the following incomplete or unavailable information:

- Location of subsistence routes and summer and winter motorized trails/routes
- Amount of subsistence use on summer and winter trails/routes.

3.2.8 Renewable Energy

Methods of Analysis

Because of the lack of reasonably foreseeable scenarios, impact assessment for renewable energy alternatives was primarily qualitative. This analysis was based primarily on the changes to available

acreage for resource development, additional actions required for resource utilization, and the relative potential of renewable energy resources in the planning area.

Assumptions

The following assumptions were used in the assessment of effects associated with renewable energy.

- Local demand is relatively small.
- Higher demand areas in the state are far away from the planning area, and transmission costs are high.
- Any renewable energy development is likely to be small scale and in the immediate vicinity of local communities.
- Renewable energy resources in the planning area are limited.

The effects analysis for renewable energy is not limited due to incomplete or unavailable information.

3.3 Special Designations

3.3.1 Areas of Environmental Concern

Methods of Analysis

For the purposes of this analysis, existing and nominated ACECs being considered for designation in this RMP are referred to as “potential ACECs.” The analysis area used to analyze impacts on potential ACECs is the planning area. Impacts identified for ACECs are based on management action impacts to an ACEC’s relevant and important values (i.e., fisheries, cultural resources, or both). For Alternatives C, D, and E, impacts to relevant and important values were evaluated by analyzing management actions applied to geographic areas coinciding with proposed ACECs under Alternative B.

Assumptions

The following assumptions were used to assess effects associated with ACECs:

- Permitted activities are assumed not to impair the relevant and important values for which an ACEC is designated. The exception is locatable minerals; however, specific impacts on relevant and important values would depend on the type of mineral development activity and effectiveness of subsequent reclamation and its interaction (both spatially and temporally) with that value. With the exception of a small part of the potential Sheefish ACEC, all of the potential ACECs are located in areas of low mineral potential, where demand for entry, disposal, and leasing is unlikely.
- Leasable mineral potential is low throughout the planning area.
- Under all alternatives, the BLM would continue to require National Historic Preservation Act (NHPA) Section 106 consultation for any project that would impact cultural and historical sites, including those associated with the Anvik Traditional Trapping Area, Sheefish Spawning, Tagagawik River, and Unalakleet Watershed potential ACECs.
- Under all alternatives, BLM and permitted projects would follow applicable State and federal laws and regulations to manage relevant and important values for fisheries and would continue Alaskan Native and public consultations to implement or revise management actions. These

include federal protections, such as the Clean Water Act, the Endangered Species Act, Magnuson-Stevens Fishery Conservation and Management Act and Essential Fish Habitat; State Title 16 statutes such as the Anadromous Fish Act (Alaska Statute [AS] 16.05.871-.901) and the Fishway or Fish Passage Act (AS 16.05.841).

- The impact analysis below considers the SOPs and BMPs that could be implemented by the BLM. BMPs and SOPs for fisheries and cultural resources would protect relevant and important values. A comprehensive list of SOPs/BMPs is provided in Appendix O.

The effects analysis for ACECs is not limited due to incomplete or unavailable information. All information necessary for analysis was available.

3.3.2 National Trails

Methods of Analysis

The analysis area is the National Trail Management Corridor (NTMC), which includes consideration of physiographic breaks and viewshed in the planning area. To determine impacts from land management decisions, spatial data representing proposed management actions and land uses provided in each alternative were overlaid on the baseline. Where applicable, laws pertinent to determining effects on national trails (e.g., National Trails System Act, NHPA) were also considered.

Impacts were quantified where possible; in the absence of quantitative data, a qualitative analysis was performed. Conclusions were based on assessment of how proposed management actions and land uses may affect known and potentially discoverable INHT resources. A lack of action can, in certain cases, result in deterioration of the trail resource.

Direct impacts on the INHT typically result from actions that disturb the soil or alter characteristics of the surrounding environment. For example, impacts from surface-disturbing activities, such as ruts created by OHV use, are considered direct impacts because the trail has never had noticeable vehicle impacts and because ruts created by OHVs increase the snow depth necessary for safe passage by dog sled teams above the “snow median strip.”

Impacts on characteristics of the surrounding environment are visual elements that are out of character with, or alter, the trail’s setting. Impacts may also include wildland fire damage, such as erosion or downed trees. Indirect impacts are actions that result in data collection and proactive preservation of National Historic Trails (e.g., partnerships that encourage research or a greater understanding of the trail’s historic character). Indirect effects on the INHT could include side trail blockage or degradation outside the NTMC.

The primary natural phenomena directly affecting trail resources are erosion, wildland fire, and changes to the length and intensity of winter weather. A number of historic roadhouses and shelter cabins originally located near waterways are either vulnerable to, or have been washed away by, shifting river and creek beds.

Activities such as ROW authorizations that cross INHT segments or project development, such as wind energy, in the trail’s viewshed can contribute to a decrease in overall trail quality. These actions may cause a change to the visual or historic character and possibly destroy important scientific information related to the trail.

Federal actions defined as federal undertakings under Section 106 of the NHPA require the identification, evaluation, and consideration of adverse effects and the appropriate mitigation of those effects. Nearly all

implementation actions would be subject to further cultural resource review before site-specific projects are authorized or implemented. If adverse effects are identified, mitigation measures, including avoidance, would have to be considered to minimize or eliminate the effects.

Overall, objectives and actions associated with other resources that result in closure to surface disturbance activities near the INHT would be beneficial due to reduced chance of disturbance of INHT features.

Assumptions

The following assumptions were used to assess effects associated with national trails:

- National trails and related sites are protected in accordance with federal laws (National Trails System Act, NHPA), State law (ANILCA), BLM regulations and policy, and interagency or partnership agreements. Specifically, BLM Manual 6280 states that the BLM may not permit proposed uses along national trails that would substantially interfere with the nature and purposes of the trail.
- The BLM will follow 36 CFR 800 and Section 106 of the NHPA when addressing federal undertakings; therefore, adverse impacts on the INHT would be appropriately mitigated.
- Degradation of the national trail from natural processes (e.g., erosion) will continue regardless of avoidance of human-caused impacts.
- Potential impacts on a National Historic Trail and its setting from subsequent undertakings (implementation of the planning decisions or site-specific project proposals) require separate compliance with NEPA and Section 106 of the NHPA.
- No summer use historically occurred on the INHT.
- The INHT is uniformly vulnerable.

The effects analysis for national trails is not limited due to incomplete or unavailable information. All information necessary for analysis was available.

3.3.3 Wild and Scenic Rivers

Methods of Analysis

This section describes methods used to identify potential impacts from proposed management under each alternative to identified river values for eligible and designated rivers and other resources and resource uses. Where impacts were quantifiable, they were based on an assumed half-mile buffer on each side of the eligible river. For Alternatives C, D, and E, impacts to outstandingly remarkable values (ORVs) were evaluated by analyzing management actions applied to geographic areas coinciding with suitable WSR corridors considered under Alternative B.

The approximate length, acreage, ORVs, and tentative classification for eligible rivers are summarized in Table 3.3.3-1.

Table 3.3.3-1: Rivers Identified as Eligible (Alternative A) and Recommended as Suitable (Alternative B) within the Planning Area

Watercourse	Approximate Length on BLM Lands (miles)	Acreage within Eligible WSR Corridor (acres)	Outstandingly Remarkable Value(s)	Tentative Classification
Anvik River	119	61,100	Fish, Cultural	Wild
Bear Creek (Nikolai)	41	17,224	Fish, Historic	Wild
Big River	35	21,859	Fish	Wild
Blackwater Creek	12	7,617	Fish	Wild
Canyon Creek	16	8,233	Fish	Wild
Middle Fork Kuskokwim River	52	23,212	Fish	Wild
North Fork Unalakleet River	48	28,987	Fish	Wild
Otter Creek (Anvik)	35	20,130	Fish	Wild
Otter Creek (Tuluksak)	5	3,247	Fish	Wild
Pitka Fork Middle Fork Kuskokwim River	62	24,921	Fish, Historic	Wild
Salmon River (Nikolai)	21	10,536	Fish, Historic	Wild
Sheep Creek	36	15,861	Fish	Wild
Sullivan Creek	22	9,192	Fish, Historic	Wild
Swift River (Anvik)	31	16,381	Fish	Wild
Tatlawiksuk	17	8,975	Fish	Wild
Theodore Creek	15	7,384	Fish	Wild
Yellow River	70	28,409	Fish	Wild
Yukon River	447	18,908	Cultural	Wild

Assumptions

The following assumptions were used to assess effects associated with WSRs:

- In implementing the mandate of the WSR Act, it is BLM's responsibility to manage all eligible, suitable, or designated WSRs "so as to protect, enhance, and not degrade the free-flowing character, water quality, and identified ORVs" (BLM 2012).
- Rivers identified as eligible (Alternative A) and suitable (Alternative B) would continue to be managed per guidelines provided in BLM Manual 6400 "Wild and Scenic Rivers: Policy and Program Direction for Identification, Evaluation, Planning, and Management" (BLM 2012). These guidelines are applicable to minerals, transportation, authorized ROW, recreation development, motorized travel, vegetation management, livestock grazing, invasive species management, and water resources and hydroelectric projects. Guidelines would protect free-flowing condition, water quality, wild river classification and protection of ORVs until a decision is made regarding their suitability, or in the case of suitable rivers, until Congress designates the river or releases it for other uses. The BLM would exercise discretionary authority on a case-by-case basis, through project-level decision-making and the NEPA processes, not to impact river values or make decisions that might lead to a determination of ineligibility or non-suitability.
- If WSR designation is not provided (i.e., if rivers are not found suitable and released from further study under the WSR Act), provisions could still remain to protect these rivers and relevant

ORVs through existing plans, policies, and other management actions considered in this PRMP/FEIS.

- Existing State and federal laws and regulations protect fish, cultural, and historic resources identified as ORVs in the planning area. For example, the federal Clean Water Act regulates actions that may affect water quality. The ADF&G has the primary responsibility for managing and conserving resident fish and wildlife populations throughout the State. Coastal areas, including the Yukon Delta, are protected through the Alaska Coastal Management Program by specific local provisions provided in local coastal management plans developed for smaller geographic areas referred to as Coastal Resource Service Areas. The State of Alaska, through the following Title 16 statutes (Fish and Game), provides protection to fisheries and the habitat that could aid in the preservation of fish ORVs: Anadromous Fish Act (AS 16.05.871-.901) and the Fishway or Fish Passage Act (AS 16.05.841). The extent to which existing management provisions provide protection to identified ORVs is also detailed through existing federal and State planning documents, including the ADNRR area plans and Yukon Delta National Wildlife Refuge Land Conservation Plan (USFWS 2004). Eligible rivers within the planning area are managed per the Kuskokwim Area Plan (ADNRR 1988) and the Northwest Area Plan (ADNRR 2008). Cultural resources would be protected under NHPA, Section 110(a), and the Archaeological Resources Protection Act, Section 14(a).
- Although the geographic extent of management actions for most resources and resource uses is planning area-wide, WSR management prescriptions apply only to the designated WSR corridor or study corridor (1/2 mile on each side).
- Permitted activities will not be allowed to impair the relevant and important values for which the WSRs are designated.
- WSR designation provides protection and focused management for ORVs beyond that provided through general management of the parent resource as a result of the “protect and enhance” mandate.
- Management of designated, eligible, and suitable WSR is included in other resource and resource use management decisions (e.g., travel restrictions in WSRs are brought forward in travel management and will be recognized during future travel management planning).

3.4 Social and Economic Features

3.4.1 Support for BSWI Communities

Methods of Analysis

The Support for BSWI Communities analysis estimated how each alternative would contribute to the rural mixed economy, including market and non-market or subsistence values. Given the planning area’s strong rural mixed economic composition, it would not be practical or useful to estimate economic effects using IMPLAN or another input-output model. The ratings and qualitative descriptions are based on considerations of how management actions may influence risk to household livelihoods reliant upon cash and subsistence incomes relative to Alternative A. Public comments and effects to other resources informed the analytical approach, narrowing the scope of indicators to those that may reflect a meaningful measure of change in risk to household livelihoods and community vitality. Additionally, the impacts of the alternatives on social conditions in planning area communities were assessed. The qualitative

assessment was largely based on findings from the Subsistence analysis, other resource analyses, and public comments on the preliminary alternatives.

Assumptions

The following assumptions were used to assess impacts associated with economic conditions in the planning area:

- The BLM has the potential to contribute to economic activity in the planning area through management actions that allow or restrict access to marketable resources or employment opportunities.
- It is assumed that communities in the planning area have an exceedingly high *relative* poverty rate,² where over 50 percent of individuals are considered living in poverty as defined by the U.S. Census Bureau, and rely upon subsistence incomes to secure livelihood needs, including but not limited to food, safe drinking water and shelter, to avert the occurrence of *absolute* poverty.³
- In households that are highly reliant upon subsistence incomes, some level of cash income is required to purchase capital and consumable goods, such as snowmobiles and fuel, which support subsistence incomes.
- It is assumed that communities with a low median household income and a relatively high percentage of “unmet subsistence needs” in the Lingle et al. (2011) study are more likely to experience absolute poverty and may be highly sensitive to management changes in the planning area.
- The alternatives may differ in terms of their provision of non-market resources, such as reduction in risk to wildlife and fisheries habitats. These are resources that are valued but not bought or sold through markets.
- Direct and indirect effects from management actions on subsistence and cash incomes are speculative and therefore are described in terms of changes in likelihood or risk.
- Management actions that would reduce the likelihood of direct competition for subsistence resources among guided hunters and residents of the planning area proximal to villages would reduce risks to subsistence incomes.
- People classified as living in poverty, both relative and absolute, are disproportionately affected by higher fuel costs.
- It is assumed that the spatial relationship between where commercial game hunting is allowed in respect to rural community boundaries is positively related to the likelihood of job creation and income flow (cash) in rural communities.
- It is assumed that the spatial relationship between where commercial game hunting is allowed in respect to rural community boundaries is inversely related to risk to subsistence incomes.

² Relative poverty refers to a standard that is defined in terms of the standard of living of the society in which an individual lives and is a standard of measure that changes over time. It is often defined as a percentage of the society’s median income.

³ Absolute poverty does not change over time and refers to the ability to provision a person with the basic necessities of life, such as access to food, clean water, shelter, medicine, and information.

- The indicator “Level of access to subsistence resources” is most closely linked to how the alternatives affect non-market values.
- For the purpose of environmental justice, all of the identified communities are low-income and/or minority environmental justice populations qualifying for a consideration of environmental justice issues.
- Greater resource protection would provide greater benefits to social conditions, but it is difficult to factor in any trade-offs that exist.

The impact analysis Support for BSWI Communities is limited due to incomplete or unavailable information, including the following:

- The rate of occurrence of absolute poverty in the planning area is unknown; however, information on the percent of homes with complete plumbing facilities may provide insight to assess conditions qualitatively.
- A full accounting of subsistence resources typically collected on an annual basis by household for communities in the planning area is unknown.
- Primary reasons why subsistence needs were “unmet” in the Lingle et al. 2011 study is unknown.
- Not all communities in the planning area are represented in the subsistence needs survey (Lingle et al. 2011).
- Changes to noise levels, noise-producing activities, and associated impacts throughout the planning area would depend on actual activities and projects implemented in the planning area. Therefore, a detailed noise analysis is not included in this PRMP/FEIS and instead would be performed at the project level.

3.4.2 Subsistence

Methods of Analysis

The analysis area for subsistence includes the planning area—wholly or in part, Game Management Units 18, 19A, 19B, 27 19C, 19D, 20C, 21A, 21D, 21E, and 22A (Map 3.5.3-1)—and an evaluation of the management decisions that could affect subsistence resources and thereby subsistence harvest practices (e.g., vegetation, fish, large mammals, small furbearers). This analysis used quantitative and qualitative information to describe impacts on subsistence from other resources. Best professional judgment was used in evaluating effects on subsistence resources.

Assumptions

The following assumptions were used to assess impacts associated with subsistence:

- The BLM will continue to have a major role in the management of public lands important to subsistence resources over the life of the RMP. The demand for subsistence resources could increase. Competition for resources could increase, especially those that receive high use from all resource users, because more lands would be private, and recreational use of BLM-managed lands could increase.
- As land conveyance to the State of Alaska and Native corporations is finalized, harvest of wildlife resources on State and Native corporation lands will be regulated only by State subsistence and general hunting regulations, and federal subsistence regulations will no longer be applicable.

- Subsistence harvest patterns and practices follow a seasonal round of harvest and are expected to change and adapt during the planning period based on management decisions. Analysis is based on the current rates of harvest data, seasonal round and areas of use, and traditional use areas.

The effects analysis for subsistence is limited due to the following incomplete or unavailable information:

- Available data are mainly from technical reports by ADF&G Division of Subsistence and a land use study for the BSWI area conducted by the University of Alaska-Fairbanks. Recent studies conducted by regional tribal consortium Kawerak Inc. document tribal subsistence activities in the Bering Strait/Norton Sound region (Raymond-Yakoubian 2013; Raymond-Yakoubian and Raymond-Yakoubian 2015); however, only a small fraction of the traditional knowledge regarding subsistence activities in this area has been formally documented and is currently available. Though it is difficult to truly capture the subsistence use areas and activities of a community, the best available data were used to determine whether an impact may occur to a community due to the implementation of the BSWI RMP. The lack of data for a community is not an indication that subsistence harvests lack importance in the area.

3.4.3 Hazardous Materials and Health and Human Safety

Methods of Analysis

The analysis of impacts on hazardous materials and health and human safety was based on the quantification of acreages that are available or unavailable for management actions that could result in direct or indirect impacts.

Assumptions

The following assumptions were used in the assessment of effects associated with hazardous materials and health and human safety:

- Cleanup levels will not change.
- New contaminants of concern will not be added.
- Closing areas or applying surface-use restrictions to mineral exploration and development reduces access and the potential for exposure to hazards that can affect health and human safety.
- Management plans for recreation reduces the potential for conflict between recreation groups.
- SRMAs may increase visitation and concentrate recreational use in certain areas but allow for intensive management and thereby reduce the potential for user conflicts in popular and high-use areas.
- SRMAs that provide sanitation facilities help maintain health.
- Issuance of SRPs reduces the potential for user conflicts in permitted activities.
- Special designations and delineation of areas increase public awareness or use of areas but also increase the need for management and protection of sensitive resources.

No incomplete or unavailable information was identified that limited the effects analysis for hazardous materials and health and human safety.

Section 4. References

- ADF&G (Alaska Department of Fish and Game). 2014. Subsistence in Alaska: A Year 2014 Update. Division of Subsistence, Anchorage, Alaska. Available at: http://www.adfg.alaska.gov/static/home/subsistence/pdfs/subsistence_update_2014.pdf (accessed December 6, 2017).
- ADF&G. 2018. "Our Agency Mission." Available at: <http://www.adfg.alaska.gov/index.cfm?adfg=about.mission> (accessed October 31, 2018).
- ADNR (Alaska Department of Natural Resources). 1988. Kuskokwim Area Plan for State Lands. Division of Mining, Land and Water Management. Available at: <http://dnr.alaska.gov/mlw/planning/areaplans/kuskokwim/> (accessed October 2016).
- ADNR. 1991. Tanana Basin Area Plan. Division of Mining, Land and Water. Available at: <http://dnr.alaska.gov/mlw/planning/areaplans/tanana/> (accessed November 2016).
- ADNR. 2002. Wood-Tickchik State Park Management Plan. Division of Parks and Outdoor Recreation. Anchorage. Available at: <http://dnr.alaska.gov/parks/plans/woodt/woodtpln.htm> (accessed November 2016).
- ADNR. 2008. Northwest Area Plan for State Lands. Division of Mining, Land and Water, Resource Assessment and Development Section. Adopted October 2008. Available at: http://dnr.alaska.gov/mlw/planning/areaplans/northwest/pdf/nwap_2008_complete.pdf.
- Association of Village Council Presidents. 2018a. Yukon-Kuskokwim Freight and Energy Corridor Fact Sheet. Available at: <https://www.slideshare.net/secret/kEyUCuI0CI9e0u> (accessed December 17, 2018).
- Association of Village Council Presidents. 2018b. Yukon-Kuskokwim Freight and Energy Corridor Frequency Asked Questions. Available at: <http://www.avcp.org/wp-content/uploads/2018/09/62393-AVCP-FAQ-Rev07.pdf> (accessed December 17, 2018).
- BLM (Bureau of Land Management). 2008. BLM Handbook H-1790-1. National Environmental Policy Act. Available at: https://www.ntc.blm.gov/krc/uploads/366/NEPAHandbook_H-1790_508.pdf
- BLM. 2012. BLM Manual 6400: Wild and Scenic Rivers: Policy and Program Direction for Identification, Evaluation, Planning, and Management. Available at: https://www.blm.gov/sites/blm.gov/files/uploads/mediacenter_blmmanual6400.pdf (accessed July 21, 2018).
- BLM. 2015. Mineral Occurrence and Development Potential Report for Leasable Minerals within the Bering Sea – Western Interior Planning Area. Prepared by Zachary Lyons, Geologist, Energy and Minerals Branch, Division of Resources, BLM Alaska State Office. January 2015. Available at: https://eplanning.blm.gov/epl-front-office/projects/lup/36665/43890/58028/2015-01-07_LeasableMineralsReport.pdf (accessed October 16, 2018).
- CEQ (Council on Environmental Quality). 1997. Considering cumulative effects under the National Environmental Policy Act
- CEQ. 2005. Guidance on the Consideration of Past Actions in Cumulative Effects Analysis. June 24. Available at: https://www.energy.gov/sites/prod/files/nepapub/nepa_documents/RedDont/G-CEQ-PastActsCumulEffects.pdf (accessed August 2018).

- Johnson, J., and V. Litchfield. 2016a. Catalog of waters important for spawning, rearing, or migration of anadromous fishes—Interior Region, Effective March 1, 2016. Alaska Department of Fish and Game, Special Publication No. 16-02, Anchorage.
- Johnson, J., and V. Litchfield. 2016b. Catalog of waters important for spawning, rearing, or migration of anadromous fishes—Southwestern Region, Effective June 1, 2016. Alaska Department of Fish and Game, Special Publication No. 16-05, Anchorage.
- Johnson, J., and V. Litchfield. 2016c. Catalog of waters important for spawning, rearing, or migration of anadromous fishes—Western Region, Effective June 1, 2016. Alaska Department of Fish and Game, Special Publication No. 16-06, Anchorage.
- Kurtak, J., J. Hoppe and R. Ellefson. 2017. Mineral Occurrence and Development Potential Report, Locatable and Salable Minerals. BLM Alaska Technical Report 63, July 2017. Available at: https://eplanning.blm.gov/epl-front-office/projects/lup/36665/115496/141125/July_2017_Locatable_and_Salable_Mineral_Potential_Report_-_clean_version.pdf (accessed September 2018).
- Lingle, E.G, P.J. Fix, and A.M. Harrington. 2011. Bering Sea and Western Interior Land Use Study. Final Report for USDI Bureau of Land Management. #MP2011-03. Fairbanks, Alaska: Department of Humans and the Environment, School of Natural Resources and Agricultural Sciences, University of Alaska Fairbanks. Available at: https://eplanning.blm.gov/epl-front-office/projects/lup/36665/43912/47263/Lingle_Fix_BSWI_final_report_12-28-2011.pdf (accessed August 2018).
- NovaGold. 2018. Donlin Gold Permitting. Available at: http://www.novagold.com/properties/donlin_gold/permitting/ (accessed October 2018).
- NPS (National Park Service). 2009. Lake Clark National Park and Preserve Foundation Statement. Alaska Regional Office. Available at: <https://parkplanning.nps.gov/showFile.cfm?projectID=24966&filename=LACL%20Foundation%20Statement%20Final%20101009.pdf&sfid=74704> (accessed August 2018).
- NPS. 2013. Draft Land Protection Plan. Lake Clark National Park and Preserve, Alaska. Available at: <https://parkplanning.nps.gov/document.cfm?parkID=17&projectID=47089&documentID=53457> (accessed August 2018).
- NPS. 2014. Lake Clark General Management Plan Amendment/Environmental Assessment. Lake Clark National Park and Preserve, Alaska. Available at: <https://parkplanning.nps.gov/document.cfm?parkID=17&projectID=36331&documentID=57141> (accessed August 2018).
- Raymond-Yakoubian, J. 2013. When the Fish Come, We Go Fishing: Local Ecological Knowledge of Non-Salmon Fish Used for Subsistence in the Bering Strait Region. U.S. Fish and Wildlife Service, Office of Subsistence Management, Fisheries Resource Monitoring Program, Final Report (Study No. 10-151). Kawerak, Incorporated, Social Science Program, Natural Resources Division, Nome, Alaska. Available: <https://kawerak.org/wp-content/uploads/2018/04/Non-Salmon-Report.pdf>
- Raymond-Yakoubian, B. and J. Raymond-Yakoubian. 2015. Always Taught Not to Waste: Traditional Knowledge and Norton Sound/Bering Strait Salmon Populations. 2015 Arctic-Yukon-Kuskokwim Sustainable Salmon Initiative Project 1333 Final Product. Prepared by Kawerak, Incorporated. Nome, Alaska. Available: <https://kawerak.org/wp-content/uploads/2018/04/TK-of-Salmon-Final-Report.pdf>
- U.S. Census Bureau. 2010a. 2010 Census Fact Finder. Available at: <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml> (accessed October 2018).

U.S. Census Bureau. 2010b. 2010 Census Interactive Population Search Bethel City.

USFWS (U.S. Fish and Wildlife Service). 1988. Yukon Delta National Wildlife Refuge Comprehensive Conservation Plan, Environmental Impact Statement, Wilderness Review, and Wild River Plan: Final. Anchorage, AK: U.S. Department of the Interior, Fish and Wildlife Service, Alaska Region

USFWS. 2004. Land Conservation Plan for Yukon Delta National Wildlife Refuge. Bethel, Alaska September 2004.

USFWS. 2008. Revised Comprehensive Conservation Plan for the Innoko National Wildlife Refuge. Alaska Region U.S. Fish and Wildlife Service. Available at:
<https://ecos.fws.gov/ServCat/DownloadFile/18804?Reference=19938> (accessed August 2018).

This page intentionally left blank

**Appendix R: Final Alaska National Interest Lands Conservation Act
(ANILCA) Section 810 Evaluation**

Table of Contents

Acronyms.....	iv
Section 1. Introduction	1
Section 2. Subsistence Evaluation Factors under ANILCA Section 810(a).....	3
2.1 Findings.....	4
2.2 Determinations.....	5
Section 3. Evaluations and Findings for All Alternatives and the Cumulative Case	7
3.1 Subsistence Use Areas	8
3.1.1 Yukon River Drainage Area Communities.....	8
3.1.2 Kuskokwim River Drainage Area Communities	12
3.1.3 Norton Sound/Unalakleet River Area	17
3.2 Evaluation and Findings for Alternative A (No Action Alternative).....	18
3.2.1 Evaluation of the Effect of Use, Occupancy, or Disposition on Subsistence Uses and Needs.....	21
3.2.2 Evaluation of the Availability of Other Lands for Land Use Decisions Allowed under Alternative A.....	21
3.2.3 Evaluation of Other Alternatives that would Reduce or Eliminate the Use, Occupancy, or Disposition of Public Lands Needed for Subsistence Purposes.....	21
3.2.4 Findings	21
3.3 Evaluation and Findings for Alternative B	22
3.3.1 Evaluation of the Effects of Use, Occupancy, or Disposition on Subsistence Uses and Needs.....	24
3.3.2 Evaluation of the Availability of Other Lands for Land Use Decisions Allowed Under Alternative B.....	25
3.3.3 Evaluation of Other Alternatives that Would Reduce or Eliminate the Use, Occupancy, or Disposition of Public Lands Needed for Subsistence Purposes.....	25
3.3.4 Findings	25
3.4 Evaluation and Findings for Alternative C	26
3.4.1 Evaluation of the Effects of Use, Occupancy, or Disposition on Subsistence Uses and Needs.....	29
3.4.2 Evaluation of the Availability of Other Lands for Land Use Decisions Allowed Under Alternative C.....	30
3.4.3 Evaluation of Other Alternatives that Would Reduce or Eliminate the Use, Occupancy, or Disposition of Public Lands Needed for Subsistence Purposes.....	30
3.4.4 Findings	30

3.5	Evaluation and Findings for Alternative D	32
3.5.1	Evaluation of the Effects of Use, Occupancy, or Disposition on Subsistence Uses and Needs.....	35
3.5.2	Evaluation of the Availability of Other Lands for Land Use Decisions Allowed Under Alternative D.....	36
3.5.3	Evaluation of Other Alternatives that Would Reduce or Eliminate the Use, Occupancy, or Disposition of Public Lands Needed for Subsistence Purposes.....	36
3.5.4	Findings	36
3.6	Evaluation and Findings for Alternative E	38
3.6.1	Evaluation of the Effects of Use, Occupancy, or Disposition on Subsistence Uses and Needs.....	41
3.6.2	Evaluation of the Availability of Other Lands for Land Use Decisions Allowed Under Alternative E	41
3.6.3	Evaluation of Other Alternatives that Would Reduce or Eliminate the Use, Occupancy, or Disposition of Public Lands Needed for Subsistence Purposes.....	41
3.6.4	Findings	42
3.7	Evaluation and Findings for the Cumulative Case.....	43
3.7.1	Past, Present and Reasonably Foreseeable Land Use and Activities	43
3.8	Evaluation and Findings for the Cumulative Case – Alternative A.....	56
3.8.1	Evaluation of the Effects of Use, Occupancy, or Disposition on Subsistence Uses and Needs.....	56
3.8.2	Evaluation of the Availability of Other Lands for Land Use Plan Decisions Allowed in the Planning area	56
3.8.3	Evaluation of Other Alternatives that would Reduce or Eliminate the Use, Occupancy, or Disposition of Public Lands Needed for Subsistence Purposes.....	57
3.8.4	Findings	57
3.9	Evaluation and Findings for the Cumulative Case – Alternative B	57
3.9.1	Evaluation of the Effects of Use, Occupancy, or Disposition on Subsistence Uses and Needs.....	57
3.9.2	Evaluation of the Availability of Other Lands for Land Use Plan Decisions Allowed in the Planning area	58
3.9.3	Evaluation of Other Alternatives that would Reduce or Eliminate the Use, Occupancy, or Disposition of Public Lands Needed for Subsistence Purposes.....	58
3.9.4	Findings	58
3.10	Evaluation and Findings for the Cumulative Case – Alternative C	59
3.10.1	Evaluation of the Effects of Use, Occupancy, or Disposition on Subsistence Uses and Needs.....	59

3.10.2	Evaluation of the Availability of Other Lands for Land Use Plan Decisions Allowed in the Planning area	60
3.10.3	Evaluation of Other Alternatives that would Reduce or Eliminate the Use, Occupancy, or Disposition of Public Lands Needed for Subsistence Purposes.....	60
3.10.4	Findings	60
3.11	Evaluation and Findings for the Cumulative Case – Alternative D.....	61
3.11.1	Evaluation of the Effects of Use, Occupancy, or Disposition on Subsistence Uses and Needs.....	61
3.11.2	Evaluation of the Availability of Other Lands for Land Use Plan Decisions Allowed in the Planning area	61
3.11.3	Evaluation of Other Alternatives that would Reduce or Eliminate the Use, Occupancy, or Disposition of Public Lands Needed for Subsistence Purposes.....	62
3.11.4	Findings	62
3.12	Evaluation and Findings for the Cumulative Case – Alternative E	62
3.12.1	Evaluation of the Effects of Use, Occupancy, or Disposition on Subsistence Uses and Needs.....	62
3.12.2	Evaluation of the Availability of Other Lands for Land Use Plan Decisions Allowed in the Planning area	63
3.12.3	Evaluation of Other Alternatives that would Reduce or Eliminate the Use, Occupancy, or Disposition of Public Lands Needed for Subsistence Purposes.....	63
3.12.4	Findings	64
Section 4.	Notice and Hearings	65
Section 5.	Subsistence Determinations Under ANILCA Sections 810(a)(3)(A), (B), and (C)	66
5.1	Significant Restriction of Subsistence Use is Necessary, Consistent with Sound Management Principles for the Utilization of Public Lands.....	66
5.2	The Proposed Activity Will Involve the Minimal Amount of Public Lands Necessary to Accomplish the Purposes of such Use, Occupancy, or Other Disposition	67
5.3	Reasonable Steps Will be Taken to Minimize Adverse Impacts upon Subsistence Uses and Resources Resulting from such Actions	67
5.4	Conclusion	68
Section 6.	References	69

Tables

Table 1:	High Locatable Mineral Potential in the Planning Area	52

Appendices

Appendix R-1: Impact Methodology and Results

Appendix R-2: Socioeconomic and Environmental Justice Supplemental Information

Acronyms

ACEC	Area of Critical Environmental Concern
ADF&G	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
ANCSA	Alaska Native Claims Settlement Act
ANILCA	Alaska National Interest Lands Conservation Act
APDES	Alaska Pollutant Discharge Elimination System
ATV	all-terrain vehicle
BLM	Bureau of Land Management
BMP	best management practice
BSWI	Bering Sea–Western Interior
CFR	Code of Federal Regulations
CFZ	Community Focus Zone
CYRMP	Central Yukon Resource Management Plan
EIS	Environmental Impact Statement
EO	Executive Order
ERMA	Extensive Recreation Management Area
FEIS	Final Environmental Impact Statement
FLPMA	Federal Land Policy and Management Act of 1976
GMU	Game Management Unit
HVW	high-value watershed
IM	Instruction Manual
INHT	Iditarod National Historic Trail
LMP	locatable mineral potential
LUP	land use plan
NEPA	National Environmental Protection Act
NPS	National Park Service
NSO	no surface occupancy
NTMC	National Trail Management Corridor
NWR	National Wildlife Refuge
OHV	off-highway vehicle
PRMP	Proposed Resource Management Plan
RMP	Resource Management Plan
ROW	right-of-way
SOP	standard operating procedure
SRMA	Special Recreation Management Area
SRP	special recreation permit

SSS	special status species
SWMFP	Southwest Management Framework Plan
TKC	The Kuskokwim Corporation
U.S.C.	United States Code
USFWS	United States Fish and Wildlife Service
UTV	utility terrain vehicle
WSR	Wild and Scenic River

Section 1. Introduction

In 2013, the U.S. Department of the Interior, Bureau of Land Management (BLM), issued a Notice of Intent to prepare a Resource Management Plan (RMP) and associated Environmental Impact Statement (EIS) for public lands in the Bering Sea–Western Interior (BSWI) Planning Area (planning area). In accordance with Alaska National Interest Lands Conservation Act (ANILCA) § 810, the BLM is required to conduct an analysis of the effects of this proposed action on subsistence resources associated with the planning area.

The BLM Anchorage Field Office prepared the BSWI Proposed RMP (PRMP) and Final EIS (FEIS) which provides:

- Consolidated direction to address land and resource use and development on BLM-managed lands in the planning area, and
- Analysis of the environmental effects that could result from the implementation of the alternatives proposed in the BSWI PRMP/FEIS.

When final, the BSWI RMP will replace the current 1981 Southwest Alaska Management Framework Plan (SWMFP [BLM 1981]) and a small portion of the 1986 Resource Management Plan and Record of Decision for the Central Yukon Planning Area (Central Yukon RMP [CYRMP]) (BLM 1986), including amendments.

In accordance with the Federal Land Policy and Management Act of 1976 (FLPMA) (43 United States Code [U.S.C.] 1701 et seq.), resource management planning regulations (43 Code of Federal Regulations [CFR] 1610 et seq.), and BLM's *Land Use Planning Handbook*, H-1601-1 (BLM 2005), the BSWI PRMP/FEIS provides planning-level guidance for the management of resources and designation of uses on all BLM-managed public lands in the planning area and any BLM-managed subsurface estate, including the subsurface beneath private surface estate if the subsurface estate was reserved to the BLM. The BSWI PRMP/FEIS was developed in coordination with federal, State, and local governments; tribal governments; Alaska Native corporations; and interested members of the public. New management direction in the RMP addresses land use issues and conflicts that have emerged since the 1981 SWMFP and 1986 CYRMP were adopted.

The FLPMA requires the BLM to “develop, maintain, and, when appropriate, revise land use plans” (43 U.S.C. 1712 (a)).¹ Because the existing SWMFP does not follow the current land use process for the development of RMPs, the BLM has decided to replace the 1981 plan with the BSWI RMP/EIS (the first RMP for the planning area) rather than revise the 1981 plan. The BLM is also revising the 1986 CYRMP for the portions of that planning area that changed under a district boundary realignment and are now in the current planning area.

The purpose of the BSWI PRMP/FEIS is to document decisions that will guide future land management actions and subsequent site-specific implementation decisions. The decisions will establish goals and objectives for resource management (desired outcomes) and the identified uses (allocations) that are allowable, restricted, or prohibited in order to achieve the goals and objectives. Management actions are also identified where they can help achieve desired outcomes and include measures or criteria that may

¹ For purposes of BLM planning, “land use plan” is synonymous with RMP.

guide day-to-day as well as long-term management. Such management actions could include protection and restoration opportunities; administrative designations such as Areas of Critical Environmental Concern (ACECs); recommended withdrawals, disposals, exchanges, acquisitions; and suitability for congressional designations. All decisions are pursuant to the multiple-use and sustained yield mandate of FLPMA.

Land management decisions contained in the BSWI PRMP/FEIS only apply to BLM-managed lands within the planning area, which include, in part, State-selected and ANCSA Native corporation-selected lands that have not yet been conveyed. However, selected lands (State-selected and ANCSA) do not qualify as Federal Public Lands under ANILCA § 810. Because of the land use planning-level resolution of this analysis, all BLM-managed lands were considered, regardless of land status. This approach results in a conservative assessment of impacts and is most consistent with a scenario in which selections are relinquished or rejected.

Section 2. Subsistence Evaluation Factors under ANILCA Section 810(a)

ANILCA § 810(a) requires an evaluation of the effects on subsistence uses of any federal determination to “withdraw, reserve, lease, or otherwise permit the use, occupancy or disposition of public lands under any provision of law authorizing such actions.” As such, an evaluation of the potential impacts to subsistence under ANILCA § 810(a), must be evaluated for the BSWI RMP. ANILCA § 810(a) (16 U.S.C. 3120) requires that the evaluation include findings on the following three issues:

- Effect of use, occupancy, or disposition on subsistence uses and needs
- Availability of other lands for the purpose sought to be achieved
- Other alternatives that would reduce or eliminate the use, occupancy, or disposition of public lands needed for subsistence purposes

To determine if a significant restriction of subsistence uses and needs may result from any one of the alternatives discussed in the BSWI PRMP/FEIS, including their cumulative effects, the following factors in particular are considered in accordance with BLM Instruction Manual (IM) 2011-008 (BLM 2010):

- *Abundance: The reduction in the availability of subsistence resources caused by a decline in the population or abundance of harvestable resources. This may include fish, wildlife, edible plants, house logs, firewood or drinking water, for example. Forces that might cause a reduction in abundance include adverse impacts on habitat, direct impacts on the resource, increased harvest, and increased competition from non-subsistence users.*
- *Availability: Reductions in the availability of resources used for subsistence purposes caused by alteration of their distribution, migration patterns, or location, and*
- *Access: Limitations on access to subsistence resources, including from increased competition for the resources, including physical and legal barriers.*

The evaluation and findings required by ANILCA § 810(a) are set out for each of the five alternatives considered in the BSWI PRMP/FEIS. The five alternatives are as follows:

- Alternative A (No Action): This alternative represents existing management mandated by current land use plans for the planning area and provides the baseline against which to compare the other alternatives.
- Alternative B: This alternative emphasizes reducing the potential for competition between recreational or developmental uses and subsistence resources by compartmentalizing key areas for additional protections of long-term resource values within the planning area.
- Alternative C: This alternative emphasizes adaptive management at the planning level to protect the long-term sustainability of resources while providing for multiple resource uses.
- Alternative D: This alternative provides additional flexibility at the site-specific implementation level and fewer overarching management restrictions at the planning level.
- Alternative E: This alternative emphasizes adaptive management at the planning level to protect the long-term sustainability of resources while providing for multiple resource uses. This

alternative is meant to provide flexibility at the planning level while still providing enough direction to make processing of site-specific projects easier and more consistent.

2.1 Findings

The IM 2011-008 policy states that the ANILCA § 810 evaluation shall conclude with a distinct finding that the proposed action and alternatives either may or will not significantly restrict subsistence uses for identified subsistence communities or groups (BLM 2010).

A finding of “may significantly restrict” requires either (1) that the process be stopped for the action and the action prohibited; or (2) that the agency proceed to the notice and hearings step described below. A finding of “no significant restriction” concludes the ANILCA § 810 process.

A proposed action and/or alternatives would be considered to significantly restrict subsistence uses if, after consideration of any stipulations or protection measures included as a part of each alternative, that action or alternative can be expected to result in a substantial reduction in the opportunity to continue subsistence uses of renewable resources. Substantial reductions in the opportunity to continue subsistence uses generally are caused by large reductions in the abundance, or a major redistribution of resources; extensive interference with access; or, major increases in the use of those resources by non-local users (BLM 2010). A proposed action and/or alternatives may be found to “not create a significant restriction,” but it may be appropriate for the analyst to identify and attempt to mitigate localized, individual restrictions created by an action.

According to IM 2011-008, the Findings shall be stated as either:

- This evaluation concludes that the action will not result in a significant reduction in subsistence uses; or
- This evaluation concludes that the action may result in a significant restriction to subsistence uses for the communities of _____ due to (specify causes).

The first Finding, above, is frequently referred to as a “Negative Finding,” in that no significant restrictions are expected to occur. Likewise, the second Finding is commonly referred to as a “Positive Finding,” in that significant restriction may be expected to occur.

In some cases, individual alternatives will fall below the “may significantly restrict” threshold, and only the cumulative case exceeds the threshold. Note that the cumulative effects analysis is not, in and of itself, a proposed action. Instead, the purpose of the cumulative effects analysis is to determine the effects of the proposed action and alternatives together with other past, present, and reasonably foreseeable future actions. In this way, a finding of “may significantly restrict” subsistence uses in the cumulative case is, in effect, a Positive Finding, even though the finding is only noted under the cumulative case. A Positive Finding in the cumulative case triggers the Notice, Hearing, and Determination requirements of ANILCA § 810(a).

Section 3.1 of this document provides information on areas and resources important for subsistence use and the degree of dependence of affected villages or communities on different subsistence populations. Chapter 3 of the BSWI PRMP/FEIS also summarizes the affected environment and potential impacts and levels of reduction and limitations under each alternative, which were used to determine whether the action would cause a significant restriction to subsistence uses. Appendix Q lists the methodology and

assumptions used in the analysis for the BSWI PRMP/FEIS. The information in the BSWI PRMP/FEIS and Appendix R-1 are the primary data used in the analysis that is presented in this report.

A subsistence evaluation and findings under ANILCA § 810 must also include a cumulative impacts analysis. The following section begins with evaluations and findings for each of the five alternatives discussed in the BSWI PRMP/FEIS. The cumulative case, as discussed in Chapter 3, Affected Environment and Environmental Consequences, of the BSWI PRMP/FEIS, is evaluated. This approach will help the reader separate the subsistence restrictions that could result from activities proposed under the five alternatives from those that could be caused by past, present, and future activities that could occur, or have already occurred, in the surrounding area.

Any future land use decision that falls under the purview of the approved RMP to withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition of public lands under any provision of law authorizing such actions will require its own project-specific ANILCA § 810 analysis.

Environmental Justice

In addition to ANILCA, Executive Order (EO) 12898, Environmental Justice for Low Income & Minority Populations, calls for an analysis of the effects of federal actions on minority populations with regard to subsistence. Environmental Justice is defined as:

The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies (U.S. Environmental Protection Agency).

Fair treatment is defined as:

The principle that no group of people, including racial, ethnic, or socioeconomic groups should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and Tribal programs and policies (U.S. Environmental Protection Agency).

Section 4-4 of EO 12898, Subsistence Consumption of Fish and Wildlife, requires federal agencies to collect, maintain, and analyze information on the consumption patterns of populations that principally rely on fish and/or wildlife for subsistence. The EO also requires federal agencies to communicate to the public any risks associated with the consumption patterns from activities they are proposing. The following were reviewed and found to comply with EO 12898:

- Description of subsistence use in Section 3.1 of this document, Chapter 3, Affected Environment and Environmental Consequences, of the BSWI PRMP/FEIS and Appendix R-2.
- Subsistence analyses of the alternatives in Chapter 3, Affected Environment and Environmental Consequences, of the BSWI PRMP/FEIS and Appendix R-1.

2.2 Determinations

Pursuant to ANILCA § 810, a finding that the proposed action may significantly restrict subsistence uses imposes additional requirements, including provisions for notices to the State of Alaska and appropriate Subsistence Regional Advisory Councils, a hearing in the vicinity of the area involved, and the making of

the following determinations, as required by ANILCA § 810(a)(3) prior to approving the proposed land use:

Such a significant restriction of subsistence uses is necessary, consistent with sound management principles for the utilization of the public lands;

The proposed activity will involve the minimal amount of public lands necessary to accomplish the purpose of the use, occupancy, or other disposition; and,

Reasonable steps will be taken to minimize adverse effects upon subsistence uses and resources resulting from such actions.

If there is no positive finding (i.e., no significant restrictions to subsistence uses are expected to occur), then the ANILCA § 810(a)(3) determinations are not required.

The impact analysis focused on the following three management actions as they were identified to have the most potential to significantly restrict abundance of, availability to, or access to subsistence resources: locatable mineral decisions, OHV restriction, and ROW decisions. Please see Appendix R-1 for a description of the impact methodology, a summary of the impact findings, and a detailed analysis for each community.

Section 3. Evaluations and Findings for All Alternatives and the Cumulative Case

The ANILCA § 810 evaluations in this section are based on information related to the environmental and subsistence consequences of Alternatives A through E and the cumulative impacts analysis as presented in Chapter 3, Affected Environment and Environmental Consequences, of the BSWI PRMP/FEIS; data are presented in Appendix R-1. The standard operating procedures (SOPs) and best management practices (BMPs) are discussed in Appendix O of the BSWI PRMP/FEIS and were also considered for the alternatives to which they apply. The evaluations and findings focus on potential impacts to the subsistence resources themselves as well as access to resources and economic and cultural issues that relate to subsistence. The communities evaluated in this analysis are associated with the Norton Sounds/Unalakleet River Search and Harvest Areas, Yukon Communities Search and Harvest Areas, and Kuskokwim Communities Search and Harvest Areas (see BSWI PRMP/FEIS, Map 3.5.2-1).²

- Yukon River Drainage Area Communities: Anvik, Grayling, Holy Cross, Kaltag, Marshall, Nulato, Russian Mission, Shageluk
- Kuskokwim River Drainage Communities: Aniak, Bethel, Crooked Creek, Chuathbaluk, Kalskag/Lower Kalskag, Lime Village, McGrath, Nikolai, Sleetmute, Stony River
- Norton Sound/Unalakleet River Area: Unalakleet

There are limited data available for places or areas significant to and for subsistence use in the planning area. Studies investigating patterns of use, such as seasonal cycles, use areas, and resources harvested have been conducted by ADF&G Division of Subsistence and other agencies and organizations. Available data are mainly through technical reports by ADF&G Division of Subsistence but are limited and may be reflective only of use areas during a specific time or may represent historic use areas. The lack of data for a community is not an indication that subsistence harvests lack importance in the area. Not all species are included in the ADF&G surveys, and only a few communities in the state are surveyed each year. The discussion of harvest information in the following sections is supplemented by information available from more recent ADF&G technical papers and publicly available information. Because resource distribution and subsistence use areas change over time, information on subsistence use areas was supplemented by input gathered during the scoping period, alternatives outreach, and ACEC nominations.

The action alternatives (Alternatives B, C, D, and E), and the leasing stipulations, BMPs, and SOPs that accompany them, take into consideration comments and concerns generated during the scoping, the scoping process for alternatives considered in the BSWI PRMP/FEIS, and comments received on the Draft RMP/EIS, including consultation with federally recognized tribal governments.

Under all alternatives, BLM would consider impacts to wildlife used as subsistence resources when evaluating permitted actions in the planning area that could affect the abundance and availability of subsistence resources and would implement mitigation as needed at the implementation level. All future site-specific work would be subject to review under ANILCA § 810.

² The communities of Stebbins and St. Michael were not considered this analysis because of their location outside of the Norton Sound/Unalakleet Search and Harvest Areas and because of their distance from BLM-managed lands. The Community of Koyukuk was not considered because of its distance from the planning area. The communities of Mountain Village, Pitkas Point, St. Mary's, and Pilot Station, though included in the planning area, were not considered in the analysis because of their location within the Yukon Delta NWR and distance from BLM-managed lands.

3.1 Subsistence Use Areas

The following sections discuss subsistence use areas for communities within the planning area. The discussion is organized by river drainage within the planning area. It is important to note that the lack of data for a community is not an indication that subsistence harvests lack importance in the area.

3.1.1 Yukon River Drainage Area Communities

Anvik

Anvik is located on the Yukon River and has a population of approximately 85 people. In March 2012, researchers surveyed 24 of 32 eligible households in this community. The data were expanded for eight unsurveyed households, and the estimated total harvest of wild food for the year 2011 was 34,001 edible pounds, with an average household harvest of 1,075 pounds at 391 pounds per capita (Ikuta et al. 2014). Salmon (Chinook, summer chum, coho, and fall chum) represented 59 percent of the total wild food harvest for the year 2011, with Chinook salmon being the most harvested species in the total community harvest. Moose were the main large land mammals harvested (23 percent); other resources reported were beaver, whitefish, northern pike, and sheefish. As noted by BLM in the ACEC Summary Report (BLM 2016), rural residents along the Yukon River benefit from chum salmon spawned and reared in the Anvik River. As Chinook salmon numbers have declined in recent years, the significance of chum salmon from the Anvik River for food security has increased. These recent 2013 harvest numbers identify the importance of summer chum salmon, supported largely by the Anvik River, and the benefits to the subsistence and commercial fisheries of the lower Yukon River communities. The Anvik River watershed also supports moose habitat; habitat for all species of whitefish and cisco that spawn in the river; major sheefish spawning; and spawning and rearing habitat for all species of salmon. These food resources provide food security and public welfare to the Anvik community. The Anvik River is considered the largest single wild stock producer of summer chum salmon in the Yukon River drainage (Bergstrom et al. 1999). The Anvik watershed provides habitat for black bear, brown bear, caribou, wolf, wolverine, and moose. Wood bison were introduced into the nearby Innoko Bottoms in March 2015. These species are important to subsistence users from the villages of Grayling Anvik, Shageluk, and Holy Cross, and are found throughout the region.

Residents and subsistence hunters reported that they used an area of 302 square miles for harvesting. They reported that the majority of the harvest area was west of Anvik near the Anvik and Bonasila Rivers and that they relied on the Yukon River to travel to other resource harvest areas. Residents reported traveling to hunt for moose roughly 15 miles from the town and as far as 30 miles up the Anvik and Bonasila Rivers. It was also reported that hunting for moose and birds occurs on the Yukon River. Non-salmon fishing for burbot, northern pike, sheefish, and whitefish occurs in the areas close to the community. Trapping was reported to occur for small land mammals on both sides the Anvik (west of the community and along the north end of Garden Island and inland from the Yukon River (Ikuta et al. 2014). The Anvik Traditional Trapping Area also provides important caribou, moose, and furbearing animal habitat that support trapping that many people rely upon in the region (BLM 2016).

Grayling

Grayling is located on the Yukon River. In 2012, the population was estimated at 212 people. Researchers from the ADF&G surveyed 41 of 55 households in the winter of 2012. Grayling residents harvested and estimated 52,094 pounds of wild foods, with an average household harvest of 947 pounds. The most

widely used subsistence resources were salmon (Chinook and summer chum), land mammals (moose), non-salmon fish species, vegetation, and birds and eggs. More households reported using (98 percent) and harvesting (66 percent) Chinook salmon than any other fish species. Important fish subsistence species include coho, Chinook, pink, and chum salmon. These populations are relevant to the local subsistence users from the villages of Grayling, Anvik, Shageluk, and Holy Cross. Moose were the most widely used (98 percent) and harvested (39 percent) of all land mammals. The top ten resources harvested, in terms of edible weight, were Chinook salmon, summer chum salmon, fall chum salmon, moose, beaver, broad whitefish, sheefish, coho salmon, humpback whitefish, and northern pike. Other species harvested by Grayling residents were several species of whitefish, vegetation, and black bear (Ikuta et al. 2014). Local plants and vegetation harvested and used for subsistence include wood (for heating and smoking fish) and berries and edible plants.

Grayling residents reported a harvest area of 1,164 square miles in the Yukon River drainage in 2011. Much of the subsistence harvest activities pursued by Grayling residents occur along the river corridors and to the west of the community (Ikuta et al. 2014). The harvest areas for salmon, non-salmon fish, and vegetation are located upriver from Grayling on the Yukon River, along the Innoko River, and Shageluk Slough. Moose are reported as hunted up and down the Yukon from the village and along the Innoko River.

Holy Cross

Holy Cross is located on the Yukon River. In 2011, the population was estimated at 176 people (ADF&G 2016). Limited data are available for this community in the ADF&G Community Subsistence Information System, with 1990 being the most recent data set. Subsistence harvests were reported at 634 pounds (all resources) per person in Holy Cross with 63 households reporting data. Important subsistence fish species include coho, Chinook, pink, and chum salmon and whitefish. Black bear, brown bear, caribou, wolf, wolverine, lynx, and moose are important land mammal resources.

As described in the ACEC Summary Report (BLM 2016), the Anvik watershed, the Bonasila River watershed, and Anvik Traditional Trapping Area provide habitat for black bear, brown bear, caribou, wolf, wolverine, and moose. These species are important to subsistence users from the villages of Grayling, Anvik, Shageluk, and Holy Cross and are found throughout the region. Holy Cross Village noted in the ACEC Summary Report that community harvest watersheds included Pike Lake, Ranger Lake, and Reindeer Lake for fishing, and Paimiut Slough for hunting, fishing, and trapping (BLM 2016). Moose and ducks are also hunted along the Innoko River.

Kaltag

Kaltag is located on the Yukon River and, in 2011, had an estimated population of 205 people (ADF&G 2016). Limited data are available for this community in the ADF&G Community Subsistence Information System, with 1985 being the representative year. Subsistence harvests were reported at 597 pounds (all resources) per person in Kaltag with 63 households reporting data. Important subsistence fish species included coho, Chinook, and chum salmon. Black bear, brown bear, caribou, wolf, wolverine, lynx, and moose are likely important land mammal resources for this village. The Kaltag Portage between Kaltag and Unalakleet has been an important travel and trade route for Alaska Natives for thousands of years, as described in the ACEC Summary Report (BLM 2016).

Marshall

Marshall is located on the Yukon River and had an estimated population in 2011 of 407 people (ADF&G 2016). Limited data are available for this community in the ADF&G Community Subsistence Information System, with 2010 being the representative year. Subsistence harvests were reported at 393.23 pounds per person (all resources). Salmon was the primary reported fish harvested, with 194.31 estimated pounds per capita, and non-salmon fish harvests were 93.31 per capita. Salmon harvest mainly consisted of summer and fall chum, coho, and Chinook salmon. Non-salmon fish included burbot, northern pike, sheefish, whitefish, and humpback whitefish. Large land mammals harvested were mostly moose, caribou, and black bear. Small land mammals harvested were primarily beaver (ADF&G 2016). Marine mammal harvests were bearded and spotted seal.

Use Areas are mainly on the Yukon River. The Ohogamiut ACEC (BLM 2016) area near Marshall was noted to have cultural and historic relevance to the community of Marshall. Traditional use of animals, fish, plants, and wood from accessible lands and waters has been practiced by the indigenous people of Marshall in this region for thousands of years. The area provides habitat for black bear, brown bear, caribou, wolf, wolverine, lynx, and moose and more recently the reintroduced wood bison.

Nulato

Nulato is located on the Yukon River and, in 2011, had an estimated population 275 people (ADF&G 2016). Limited data are available for this community in the ADF&G Community Subsistence Information System, with 2010 being the representative year. Subsistence harvests were reported at 239 pounds per person (all resources). Salmon was the primary reported fish harvested. with 28,210 estimated pounds, mainly consisting of chum, coho, and Chinook salmon. Non-salmon fish included burbot, char, Dolly Varden, grayling, northern pike, sheefish, whitefish, cisco and least cisco, and humpback whitefish. Large land mammals harvested were mostly moose, caribou, and black bear. Small land mammals harvested include snowshoe hare, beaver, lynx, muskrat, and porcupine (ADF&G 2016).

Use Areas are mainly on the Yukon River between the Koyukuk and Nowitna Rivers. During the preliminary alternatives public meeting in Nulato in 2015, one commenter noted that use areas included an area on the back side of the village closer to BLM-managed public land, where residents may pick berries, set a few trap lines, and harvest moose, caribou, ducks, beaver, wolves, and marten (BLM 2015a). The nearby Nulato River watershed provides habitat for moose, caribou, brown bear, wolf, and wolverine. These species are important to local subsistence users as well as providing opportunity for qualified subsistence users from Unalakleet and Shaktoolik (BLM 2016).

Russian Mission

Russian Mission is located on the west bank of the Yukon River. In 2011, Russian Mission had an estimated population of 402 people (Ikuta et al. 2014). In the winter of 2012, researchers from ADF&G surveyed 46 of 79 households in this community. Russian Mission's estimated total harvest of wild foods was 132,289 pounds. This was reported as an average of 1,675 pounds per household. Fish composed over half of the community's total harvest, with 61 percent coming from both salmon and non-salmon species. Chinook salmon represented the main fish harvest (22 percent), and moose composed just over 31 percent of the total, followed by Arctic lamprey (8 percent), northern pike (7 percent), summer chum salmon (7 percent), and other resources (25 percent) (Ikuta et al. 2014). Other resources harvested included various species of whitefish, coho and chum salmon, and burbot. Moose and black bear are the

main large land mammal species harvested and represent 34 percent and 3 percent, respectively, of the estimated harvest (Ikuta et al. 2014).

Russian Mission residents reported a harvest area of 987 square miles in 2011, with the majority of salmon harvested on the mainstem of the Yukon River. Specific areas fished included an area of 20 continuous miles on the mainstem of the Yukon River, with drift activity occurring from Roosevelt Island 12 miles downstream from Russian Mission to Johnson Island 6 miles upstream from Russian Mission. Respondents in the 2011 study reported that their harvest areas are located away from the community both downstream and upstream and in areas that are distant from the community near Mountain Village in the Kuskokwim drainage. Harvest areas for non-salmon fish species and vegetation largely overlapped those of salmon along the Yukon River. Harvest areas for large land mammals (including moose and black bear) overlapped in a 62-mile area along the mainstem of the Yukon River. Harvest search areas were also reported as being along Mountain Creek north of the Yukon River and in the area near Portage Slough and Kulik Lake. Black bear were also hunted along Portage and Paimiut Sloughs (Ikuta et al. 2014).

Shageluk

Shageluk is located on the Innoko River. In 2011, the population was estimated at 83 people (ADF&G 2016). Limited data are available for this community in the ADF&G Community Subsistence Information System, with 1990 being the representative year. Subsistence harvests were reported at 445.24 pounds per person (all resources). Salmon (Chinook, chum salmon, and summer chum) was the primary reported fish harvested, with 157.86 estimated pounds per capita. Non-salmon fish harvests were 141.43 per capita, mainly consisting of pike, whitefish, and sheefish. Harvests of all whitefish species for Shageluk were reported in Brown et al. (2005), based off of household survey data by ADF&G in 2003 (available at <http://www.adfg.alaska.gov/sb/CSIS/>) observing that 15,783 pounds were harvested at Shageluk. Whitefish are now considered to be the most heavily harvested non-salmon fish by residents (Brown et al. 2005). Large land mammals harvested were moose at 126.06 estimated pounds per capita, and small land mammals harvested were primarily beaver and hare at 8.22 estimated pounds per capita (ADF&G 2016). Birds and egg harvests were 9.07 estimated pounds per capita, and vegetation was 2.58 estimated pounds per capita.

Use Areas as reported by Brown et al. (2005) describe the main harvest areas as along the Innoko River, which is used primarily by residents of Shageluk and also Grayling, who have ties to the Innoko through their residence in the historical village of Holikachuk upriver from Shageluk (Brown et al. 2005). Rates of sharing between Holy Cross, Grayling, Anvik, and Shageluk are considered to be high. The proposed Grayling ACEC is considered an important subsistence fishery for species including coho, Chinook, pink, and chum salmon. These populations are relevant to the local subsistence users from the villages of Grayling, Anvik, Shageluk, and Holy Cross. The proposed Holy Cross ACEC, Anvik Traditional Trapping Area ACEC, Bonasila River Watershed ACEC, and Anvik River Watershed ACEC are also considered areas that provide wildlife habitat for subsistence uses for black bear, brown bear, caribou, wolf, wolverine, lynx, and moose. These species are important to subsistence users from the villages of Grayling, Anvik, Shageluk, Holy Cross, and Kuskokwim River area communities.

3.1.2 Kuskokwim River Drainage Area Communities

Aniak

Aniak is located on the Kuskokwim River. In 2009, the population was estimated at 501 people. In 2009, ADF&G researchers surveyed 141 of 170 households in Aniak, and the data were expanded for the 29 unsurveyed households. Survey data reported that the estimated total wild food harvest was 147,316 pounds. The average household harvest was reported at 1,498 pounds. The species harvested and reported as used were fish (92 percent), vegetation (80 percent), and land mammals (76 percent). Forty-eight percent of households reported that they used birds and eggs. The largest percentage (82 percent) of the Aniak subsistence harvest in 2009 was salmon and non-salmon species. Fish species harvested included Chinook, chum, coho, and sockeye salmon; burbot; humpback whitefish; sheefish; unknown whitefish; and northern pike. Important fish subsistence species include coho, Chinook, pink, and chum salmon. Land mammals that were reported as harvested were moose and black bears, which contributed to 15 percent to the total harvest, while vegetation contributed another 2 percent, and marine mammals, birds and eggs supplied less than 1 percent (Brown et al. 2012).

Aniak residents surveyed in 2009 reported a harvest area of 3,396 square miles. It should be noted that both the Kuskokwim and Aniak Rivers figure prominently in subsistence activities in terms of both harvest locations and transportation corridors. The households surveyed reported that they traveled up the Kuskokwim River as far as the mouth of the George River. The community reported that they traveled on the Aniak River, past the confluence of the Aniak, Salmon, and Kipchuk Rivers. The areas to the south and west of the community were reportedly used for hunting and fishing in the vicinity of Whitefish Lake and the Buckstock Mountains. Salmon were harvested in the mainstem of the Kuskokwim River in the areas east and west of the community. Other areas that are fished were along the Aniak River. Non-salmon fish species were reported as harvested along the Aniak River and Whitefish Lake. Moose, caribou, and black bear are hunted over a wide area. Residents reported hunting moose to the north in Units 21A and 21E in the area towards Paimiut Slough and the Iditarod River drainage (Brown et al. 2012).

Bethel

Bethel is located on the Kuskokwim River, and in 2012, the population was reported as 6,113 people. As reported in 2012, the average per capita harvest was 168 pounds of wild food or 580 pounds per household. Available ADF&G data for household surveys reported in 2012 describe the harvests of 466 of 1,645 households in Bethel (ADF&G 2016). The main species harvested and used included berries, moose, Chinook salmon, coho salmon, sockeye salmon, caribou, and chum salmon. ADF&G reported that over 50 percent of the households fished for salmon and non-salmon fish species, 30 percent harvested land mammals, 43 percent harvested birds and eggs, and 77 percent harvested vegetation such as berries or greens (Fall 2013). Salmon comprised 40 percent of the total harvest, while 26 percent was made up of land mammals, 20 percent non-salmon fish species, 6 percent birds and eggs, 5 percent wild plants, 2 percent marine mammals, and less than 1 percent marine invertebrates. ADF&G reported that the harvest for salmon in 2012 was low because of the regulatory closures caused by poor returns. They noted that the data on total harvests collected in 2012 may not be representative when compared to years where there were no restrictions.

Data collected from harvest tickets and permits shows where Bethel residents have hunted for large land mammals. Residents have hunted primarily in Unit 18 for moose, caribou, and muskoxen. They reported

that in Unit 19, 20, and 21, they mainly hunted moose. The Kuskokwim River is the main fishing area for subsistence salmon fishing. While mapping of Bethel's subsistence use area is very limited, Bethel residents have been reported to share food with other Kuskokwim River communities (Brown et al. 2012) and contribute to wild food harvesting and processing networks in central Kuskokwim River communities.

Crooked Creek

Crooked Creek is located on the Kuskokwim River and, in 2010, had a reported population of 90 people. In April of 2010, ADF&G researchers surveyed 33 of 40 households, reporting from harvest during 2009. When they expanded the data for the seven unsurveyed households, they determined that the estimated total harvest in 2009 was approximately 28,259 pounds, and the average household harvest was reported at 706 pounds (Brown et al. 2012). Chinook, chum, coho, sheefish, and sockeye salmon accounted for 78 percent of the total subsistence harvest in 2009 (Brown et al. 2012), and the remaining 22 percent consisted of moose (7 percent), black bear (3 percent), and beaver (3 percent). A variety of berries and other resources, such as birds, marine mammals, and marine invertebrates, were also reported harvested by residents.

Crooked Creek residents reported using a total of 1,245 square miles for harvest activities in 2009 (Brown et al. 2012). It should be noted that for this year (2009), residents reported that this area was not representative of their entire traditional harvest territory. They noted that their entire use area was broader, but harvest use areas had been affected by regulations, environmental changes, and local animal populations, as well as the price of gasoline. Residents reported that the closure of Unit 19A had affected moose hunts in the areas above the George River and the Holitna and Hoholtna basins (Brown et al. 2012). They reported hunting moose instead farther downriver and in the Bonanza Flats and Donlin Creek areas (Brown et al. 2012).

Land mammals that were hunted included moose, caribou, bears, and small furbearers harvested over a large area that included the mainstem of the Kuskokwim River and its tributaries both downstream and upstream from the village of Crooked Creek. It was observed that the hunting areas for many land mammal species overlapped. Crooked Creek hunters said that they hunted for moose on the mainstem of the Kuskokwim River to as far as Lower Kalskag. They also reported hunting in areas far upriver at the George River. The Kuskokwim River tributaries used for moose hunting were the Holitna, Hoholtna, and George Rivers. Black bear was hunted and harvested primarily along Crooked Creek and in the Oskawalik River drainage (Brown et al. 2012).

Salmon were harvested mainly in the mainstem of the Kuskokwim River from just below the mouth of the Oskawalik River upstream to the mouth of George River. The heaviest fishing was reported to take place along the Great Bend. Non-salmon fish species were reported as harvested in the mainstem of the Kuskokwim River. Arctic grayling were reported as harvested in the George River and in Crooked Creek, near the confluence of Crooked Creek and the Kuskokwim River. Sheefish were harvested in the spring, primarily in the Great Bend in front of the village (Brown et al. 2012). Harvest areas for berries and plants took place both near the community and in areas within a day's travel by boat. There were harvest locations reported in the Canoe Hills area and in the hills directly across the Kuskokwim River from the community of Crooked Creek. Residents reported traveling by boat downstream to an area between the Oskawalik River and Napaimute and also as far upstream as midway between the George River and the community of Red Devil (Brown et al. 2012). Trapping areas at the George River area and the Oskawalik River were reported as popular use areas as well.

Chuathbaluk

Chuathbaluk is located on the Kuskokwim River. In 2009, the estimated population was 122 people. In 2010, ADF&G researchers surveyed 30 of the 36 households in Chuathbaluk. They then expanded the data set for the six unsurveyed households. Chuathbaluk's estimated total harvest was reported as 29,874 pounds. The average household harvest was determined to be 829 pounds. Fish were reported as the most widely used resource category (97 percent), followed by vegetation (87 percent), land mammals (80 percent), and birds and eggs (57 percent). It was reported that over 60 percent of the total harvest was composed of salmon, with Chinook being the main species harvested and also sockeye, coho, and chum salmon. Moose represented 13 percent of the total harvest but was used by over 70 percent of households as reported in the survey. Additional resources harvested included beaver, smelt, sheefish, black bear, and caribou. Caribou harvests were very low in the survey year, with only four total harvested.

Harvest areas for Chuathbaluk were reported to be in an area of 982 square miles. The land use areas were reported to be primarily at the mainstem of the Kuskokwim, Aniak, and Holokuk Rivers, as well as Victoria and Suter Creeks (Brown et al. 2012). Salmon fishing was reported as limited to an area 5 miles upriver of Chuathbaluk and to 6 miles below on the mainstem of the Kuskokwim River. Salmon fishing also occurred near Napaimute and in Aniak Slough. Whitefish and rainbow/steelhead trout harvest locations were reported as similar to those harvest areas used for salmon. Chuathbaluk residents reported that harvest areas extended over a wide area for hunting of moose, caribou, and black bear. Caribou were harvested to the southwest of Aniak and to the east of Whitefish Lake. Black bear were reported as being hunted on the north and south banks of the Kuskokwim River in an area that was upriver of Napaimute. Moose hunting occurred along the river corridor in Unit 19A and in the Holokuk River drainage, the Russian Mountains, Suter Creek, and Kolmakof Lake (Brown et al. 2012).

Kalskag

Kalskag is located on the Kuskokwim River. In 2011, the population was estimated at 219 people (ADF&G 2016). Limited data are available for this community in the ADF&G Community Subsistence Information System, with 2009 being the representative year. Subsistence harvests were reported at 345 pounds per person (all resources) in Kalskag. Important subsistence fish species included coho, Chinook and chum salmon, and whitefish. Moose are the primary land mammal resource harvested for this village.

Lime Village

Lime Village is located on the Stony River, and, in 2011, the population was estimated at 22 people (ADF&G 2016). Limited data are available for this community in the ADF&G Community Subsistence Information System, with 2007 being the representative year. Subsistence harvests were reported at 935 pounds per person (all resources) in Lime Village. Important subsistence fish species included coho, Chinook, sockeye, and chum salmon, and non-salmon fish included pike, whitefish, and grayling. Black bear, caribou, and moose are important land mammal resources for this village.

Lower Kalskag

Lower Kalskag is located on the Kuskokwim River and had an estimated population in 2011 of 287 people (ADF&G 2016). Limited data are available for this community in the ADF&G Community Subsistence Information System, with 2009 being the representative year. Subsistence harvests were reported at 187 pounds per person (all resources) in Lower Kalskag. Important subsistence fish species

included coho, Chinook and chum salmon, and whitefish. Moose are important land mammal resources that are harvested and used by this village.

McGrath

McGrath is located on the Kuskokwim River and had an estimated population in 2011 of 341 people (ADF&G 2016). Limited data are available for this community in the ADF&G Community Subsistence Information System, with 2011 being the representative year. Subsistence harvests were reported at 236 pounds per person (all resources) in McGrath. Important subsistence fish species were coho, Chinook, coho, and chum salmon, and non-salmon fish included pike and sheefish. Moose are the most important land mammal resource for this village. Black bear, brown bear, plains bison, caribou, moose, Dall sheep, wolf, and wolverine are species that are important to rural subsistence users from the village of McGrath (BLM 2016).

In 2011, McGrath residents reported using an area of 3,857 square miles for subsistence. The harvest areas were reported along the Kuskokwim River from the mouth of the Swift Fork roughly 80 miles upstream from the community to the community of Stony River (Ikuta et al. 2014). Residents also reported that they used the areas near the community and the tributaries including the Takotna River, Fourth of July Creek, Nixon Fork, Carl Creek, and the Stony River as harvest areas. Drift gillnet sites were on the lower portions of the Big River and Pitka Fork, which are tributaries of the Middle Fork located about 25 miles upriver from McGrath. Drift net fishing occurred 10 miles up each of these rivers, and drift gillnet fishing occurred near the village of Stony River (Ikuta et al. 2014).

Large land mammal hunting for moose, black bear, brown bear, and caribou occurs over a large portion of lands, with hunting areas for species overlapping. Users in McGrath reported that they hunted along the Kuskokwim from Stony River to upstream of the mouth of the Swift Fork River, which is 88 miles from McGrath. They also reported traveling more than 50 river miles up the Nixon Fork and on the Takotna River from McGrath to roughly 50 miles upstream from the community of Takotna itself. Overland travel by snowmobile to the upper tributaries of the Yukon River occurred to the northwest of McGrath (Ikuta et al. 2014). Some hunting also occurs near the Innoko River 60 miles northeast of McGrath and towards the South Fork of the Kuskokwim River, which is 70 miles southwest of McGrath. Small mammal hunting occurs within a 60-mile diameter of the community. Bird hunting is reported to occur on the Kuskokwim River for roughly 25 miles downstream and upstream for about 80 miles to the mouth of the Swift Fork. Berry harvest occurs mainly on the road near McGrath and along the river.

The sheefish spawning area near McGrath was noted to be an important area for McGrath harvesters (BLM 2016). A 2012 ADF&G report on sheefish spawning grounds on the Kuskokwim River provides detailed information about spawning areas documented on the Kuskokwim River (Stuby 2012). The report shows three spawning locations on the Kuskokwim River for sheefish, located on the Tonzona, Middle Fork, and Big Rivers, all located in the upper Kuskokwim River. Of these locations, there are BLM-managed public lands near the Big River. The greatest use of sheefish in the Kuskokwim River drainage has been for subsistence (Stuby 2012).

Nikolai

Nikolai is an Athabascan community located on the South Fork of the Kuskokwim River. In 2011, the estimated population was 117 people. In January 2012, researchers from the ADF&G surveyed 26 of 39 households in Nikolai, with questions on the survey pertaining to harvests obtained in 2011. Expanding

for the 13 unsurveyed households, Nikolai's estimated total harvest in 2011 was approximately 58,416 pounds, with an average household harvest of 1,498 pounds and the average harvest per person reported at 499 pounds (Ikuta et al. 2014). The main species harvested and used were large land mammals (moose, Chinook salmon, northern pike, coho salmon, and sheefish, with other resources being chum salmon, whitefish, black bear, beaver, and Bering cisco (Ikuta et al. 2014.) Fish species reported to make up the largest percentage of the wild foods harvest. All households in the survey reported using moose, while 73 percent reported using Chinook salmon, 80 percent reported using berries, and 73 percent reported using a freshwater fish species. Some 65 percent of households surveyed said they harvested a large land mammal, and 58 percent said they harvested a moose. All of the households participating in the study reported harvesting vegetation, and 65 percent reported harvesting fish.

In 2011, Nikolai residents reported using an area of 757 square miles for subsistence. Residents reported that harvest areas for most subsistence resources overlap, and their traditional territory includes a very large area that encompasses most of the major tributaries of the Upper Kuskokwim drainage. The Upper Kuskokwim River and its tributaries were the main search and harvest locations and transportation corridors used to reach harvest areas (Ikuta et al. 2014). Non-salmon fishing occurred in areas similar to salmon fishing, on the South Fork of the Kuskokwim downstream from the community and on the tributaries of the Big River. Households reported searching for moose primarily around the village, along the South Fork of the Kuskokwim River downstream from Nikolai, the Salmon River, and the North Fork of the Kuskokwim almost to Telida. Caribou and moose as well as black and brown bear were also hunted along the South Fork of the Kuskokwim River and the upper reaches of Windy Fork of the Kuskokwim into the foothills of the Alaska Range (Ikuta et al. 2014).

Most Nikolai residents fished for Chinook salmon along the Salmon River, Pitkas Fork near Medfra, the North Fork of the Kuskokwim, and Blackwater Creek. Whitefish harvest locations are almost limitless in the area around Nikolai, and residents spoke of harvesting whitefish in numerous locations almost year around. Pike are another important resource that are widely available throughout the area (Ikuta et al. 2014).

Sleetmute

Sleetmute is located on the Kuskokwim River and, in 2010, the population was reported as 86 people. In 2010, ADF&G conducted household surveys and 32 of 37 households participated and reported on their harvest activities during 2009 (Brown et al. 2012). The data were then expanded for five unsurveyed households. Survey data from 2009 estimated a total harvest of approximately 36,547 pounds, with an average per household harvest of 988 pounds. Species harvested and reported used included salmon (used by 91 percent of households); whitefish (84 percent); and large land mammals (63 percent), including moose (56 percent) (Brown et al. 2012). Residents reported that their harvest and use of moose was higher than in the past, and several residents reported that prior to moose hunting being closed in Unit 19A, moose were the primary subsistence resource in the village (Brown et al. 2012). Moose accounted for an additional 9 percent of the total harvest, and other land mammals harvested were beaver and black bear. Sleetmute residents reported that beaver were harvested mainly for their meat instead of their pelts. Salmon accounted for an estimated 68 percent of the total harvest. Other non-salmon fish resources harvested included sheefish, northern pike, and Arctic grayling (Brown et al. 2012). Edible plants that were harvested included blueberries, high bush cranberries, currants, wild rhubarb, rose hips, and Hudson's Bay tea (Brown et al. 2012).

The harvest areas as reported in 2009 by Sleetmute residents comprised 1,712 square miles. Residents reported that the majority of resources were harvested within a 20-mile radius of the community. Some residents noted that they also traveled up to 100 miles or more in search of wild food. The hunting areas for moose, black bear, and caribou were reported in areas that overlapped and included the Kuskokwim River corridor and tributaries, including the Holitna, Hoholitna, and Swift River corridors, the drainage of Titnuk Creek, and the area near the Door Mountains near the upper reaches of the Hoholitna River. Fishing areas are reported as being close to the community, and driftnet and setnet fishing sites are in the direct vicinity of the town (Brown et al. 2012). Residents reported that their driftnets and setnets were used downriver from the village whereas setnets were used at the mouth of the Holitna River, and slightly upriver from the village. Residents also reported fishing up the Holitna and Stony Rivers.

Stony River

Stony River is located on the Kuskokwim River and, in 2010, had a reported population of 42. In March 2010, ADF&G researchers surveyed 12 of 20 households in Stony River. They expanded the data for eight unsurveyed households. The estimated total harvest in 2009 was approximately 33,726 pounds. An average per household harvest of 1,686 pounds was reported. Fish was the main species that was harvested. Survey data indicated that 92 percent of households said they used land mammals and edible plants, and 75 percent of households reported that they harvested birds and eggs. Fifty-eight percent of households said they harvested fish, 50 percent reported harvesting land mammals, 83 percent harvested vegetation, and 67 percent reported that they had harvested birds (Brown et al. 2012). Chinook salmon was the main salmon species harvested, and salmon comprised 68 percent of the total community harvest. Fish were the largest category of wild resource harvested in terms of edible pounds (86 percent of the total community harvest), followed by land mammals, edible plants, and birds (Brown et al. 2012).

Harvest areas as reported by residents of Stony River comprised 487 square miles. Residents reported that moose were hunted along the eastern border of Unit 19A and in the western portion of Unit 19D covering a small area that is downriver from the community and portions of the Swift River, Tatlawiksuk River, and Kuskokwim River. Small land mammal harvest areas for beaver and marten were north of Stony River and upriver from the village (Brown et al. 2012). Salmon fishing areas are concentrated along the mainstem of the Kuskokwim River, with some families reporting that they travel up the Stony River to fish. Non-salmon fishing areas are downriver from Stony River village and near the junction of the Kuskokwim and Stony Rivers (Brown et al. 2012).

3.1.3 Norton Sound/Unalakleet River Area

Unalakleet

The community of Unalakleet is located on the Unalakleet River and had an estimated population in 2011 of 692 people (ADF&G 2016). Limited data are available for this community in the ADF&G Community Subsistence Information System, with 1995 being the representative year and only migratory bird harvest data available and reported at 9 pounds per person.

The Unalakleet River watershed provides habitat for moose, caribou, brown bear, wolf, and wolverine, which are species that are important to local subsistence users. This is an area where the people of Unalakleet have traditionally fished and hunted; it has cultural significance. The proposed Unalakleet River Watershed ACEC contains several significant cultural resources. The Kaltag Portage has been an important travel and trade route for Alaska Natives for thousands of years. Moose populations within the

Unalakleet watershed are at historically low levels; however, they are slowly increasing with intensive population management coordinated by State and federal agencies, including BLM. Moose are an important subsistence species for the residents of local villages, particularly the village of Unalakleet, and are managed under ANILCA on federal lands, and for sustained yields by ADF&G (BLM 2016).

Chinook and coho salmon returning to the Unalakleet River constitute the bulk of the Unalakleet subsistence harvest, and ADF&G has quantified Chinook and coho salmon subsistence harvests in the area since 1961 (Soong et al. 2008). The Unalakleet River watershed is actively fished and hunted for subsistence uses and needs by federally qualified rural residents. The decline of the Chinook salmon population in recent years has elevated the significance of other salmon species for subsistence uses and needs.

The North River supports important subsistence and sport fishing for non-residents and residents of the village of Unalakleet. Resident fish are also present, including Dolly Varden, Arctic char, and whitefish. High-quality salmon spawning beds have been identified in the North River (BLM 2016). The North River watershed provides habitat for moose, caribou, brown bear, wolf, and wolverine. These species are important to local subsistence users, as well as local guides and outfitters that provide services to resident and non-resident sport hunters, providing benefit to the local economy as well as providing opportunity for qualified subsistence users from Unalakleet and Shaktoolik (BLM 2016).

Egavik Creek and its watershed provide habitat for black bear, brown bear, caribou, wolf, wolverine, lynx, and moose; these species are important to users from the villages of Unalakleet and Shaktoolik. The creek is an important spawning area for all species of whitefish, cisco, and all species of salmon. This is an area where the people of Unalakleet have traditionally fished and hunted; it has cultural significance. The proposed Egavik Creek Watershed ACEC has relevant values for an important spawning area for four species of Pacific salmon and whitefish. These species have important subsistence value to the people of Unalakleet, identifying them as a relevant value. The surrounding land is important for subsistence access, hunting, and calving/wintering grounds for moose and caribou.

The Golsovia River watershed provides important caribou and moose habitat. The river is also an important spawning area for all species of whitefish, cisco, and all species of salmon.

3.2 Evaluation and Findings for Alternative A (No Action Alternative)

This section provides an overview of impacts for the planning area. A detailed community-by-community analysis is provided in Appendix R-1.

Alternative A represents the existing management mandated by current land use plans for the planning area. Alternative A meets the National Environmental Policy Act (NEPA) (42 U.S.C. 4321 et seq.) requirement in 40 CFR 1502.14 that the BLM consider a No Action alternative and provides the baseline against which to compare the other alternatives. This alternative would continue the present management direction and practices based on existing land use plans (LUPs) and LUP amendments, SOPs, and BMPs. Direction in existing laws, regulations, policies, and standards would also continue to be implemented, sometimes superseding provisions of the 1981 SWMP (BLM 1981) and the 1986 CYRMP (BLM 1986) and subsequent amendments. The current levels, methods, and mix of multiple use management of BLM-managed lands in the planning area would continue, and resource values would continue to receive attention at present levels.

Alternative A would not designate any high-value watersheds (HVWs); therefore, the amount of fisheries resources protected as HVWs would be less than under Alternative B or C.

Under Alternative A, no acres of land would be protected by vegetation regulations, and there would be no formal program for controlling invasive weeds. Existing conditions would continue under Alternative A in terms of the availability, abundance and access to these resources for subsistence users.

Under Alternative A, the BLM would consider caribou and moose in its management of resource uses although no specific management actions are identified. Existing conditions would continue under Alternative A in terms of the availability, abundance and access to these resources for subsistence users. Alternative A could have a long-term impact on migration and species movement if future development occurs in areas where it would fragment species ranges and reduce habitat connectivity.

Alternative A would continue to include closures and protective stipulations that would provide protections to fish, wildlife, and special status species (SSS) in the planning area. A total of 5,202,221 acres (39 percent) of the planning area would be closed to leasing, and 17,521 acres (less than 1 percent) of the planning area would be designated as no surface occupancy (NSO) leasable. Overall, the area of wildlife habitat covered by management, reducing impacts to wildlife from impacts associated with leasable minerals, would be less than under the action alternatives, although the area of land completely closed to leasing would be greater than under the action alternatives. Existing conditions would continue under Alternative A in terms of the availability, abundance, and access to these resources for subsistence users.

Under Alternative A, 4,804,488 acres (36 percent) of the planning area would continue to be withdrawn from locatable minerals and closed to salable minerals, including withdrawals to protect wildlife habitat and other resource values that are important to subsistence. Under Alternative A, 8,661,406 acres (64 percent of BLM-managed land in the planning area) would continue to be open to locatable and salable mineral development with 294,325 acres open in areas of medium or high locatable mineral potential (LMP). Of these mineral decisions, areas open to locatable mineral development are most likely to affect subsistence resources because there are areas of medium and high LMP in the planning area. Locatable mineral development could affect abundance and availability of subsistence resources by impacting habitat and causing wildlife populations to migrate out of the area, most notably to fishing resources within the planning area. Fish (including salmon, trout, and whitefish) are some of the most heavily harvested resources for the communities within the planning area. If areas open to locatable mineral development that have a medium and high LMP are located upstream or alongside known fishing locations, the abundance and availability of these fish species could be negatively impacted. These impacts may be caused by habitat degradation from mining exploration and operational activities (e.g., the release of chemicals from mining activities and increased particulates in the water due to soil disturbance) but also from the potential for increased competition for fishing resources due to the influx of workers for the mining activities. Communities within the planning area rely heavily on fish (and salmon in particular) to support their subsistence needs. Salmon populations have been declining sharply within the Kuskokwim and Yukon River watersheds (Ikuta et al. 2014), increasing the importance of non-salmon species for subsistence. With the heavy reliance on fish harvesting to supply the subsistence needs for the planning area communities, areas open to locatable mineral development and that have medium or high LMP may threaten the abundance or availability of fish in the planning area.

Under Alternative A, all BLM-managed land within the planning area would be open to right-of-way (ROW) decisions. Alternative A could result in wildlife and subsistence habitat fragmentation and

degradation because there would be no designated ROW exclusion or avoidance areas. Areas open to ROWs with the greatest potential for habitat loss, degradation, and fragmentation from development of ROWs would include habitats that are important for the availability of subsistence resources, including moose, caribou, and fish species important to communities within the planning area.

All existing Alaska Native Claims Settlement Act (ANCSA) 17(d)(1) (43 U.S.C. 1616(d)(1)) withdrawals would remain in place, affecting 13,461,531 acres (over 99 percent) of the planning area. Alternative A does not provide additional management guidance for lands and realty that would affect fish, wildlife, or SSS used as subsistence resources or their indicators. Existing conditions would continue. Under the continuation of current management, there would be a potential for user conflicts, especially in popular recreational areas, such as along the Iditarod National Historic Trail (INHT) and Unalakleet Wild River Corridor. Due to improvements in vehicle technology, there would be more frequent and intense impacts between subsistence and non-local users. The impacts would be greatest during the summer when subsistence activities may be concentrated. The BLM would not designate Recreation Management Areas or manage for specific desired outcomes or setting characteristics. In general, management would support dispersed and unstructured recreational opportunities throughout the entire planning area. Continuing to issue special recreation permits (SRPs) through the normal permitting process would allow outfitters (commercial operators that provide hands-on hunting assistance and guide services) to accommodate demand for guided hunting and fishing (which can conflict with subsistence activities and compete for resources), special events on the INHT, and other specially permitted activities. No current management decisions pertain to the operation of shuttle services in the planning area under Alternative A. Over time, an expanding number and size of SRP activities could increase the potential for conflicts with subsistence users and damage natural resources. These impacts to subsistence that could impact the abundance and availability of harvestable resources would be greatest in areas of high recreational use, such as along the INHT.

All lands in the planning area are managed as undesignated for travel and transportation management, which allows full access to the planning area for subsistence uses. Traditional means of access such as outboard motorboats, airplanes, dogsleds, and snowmobiles are allowed for all river users. Other means of access, such as inboard jet boats, airboats, hovercraft, and all-terrain vehicles (ATVs) are not allowed in the Unalakleet Wild River Corridor. Off-highway vehicle (OHV) use could result in loss or degradation of subsistence resource habitat from physical disturbance and could fragment habitat if new trails were created. OHV use could also create additional access for activities that compete for subsistence resources, such as sport hunting and fishing. Due to the lack of management direction on OHV use, the route network would continue to expand which would adversely affect subsistence resources if there is a reduction in the abundance and availability of harvestable resources because of increased access and/or competition from non-local hunters. The harvesting of large land mammals (including, most notably, moose and caribou) is one of the most important subsistence activities for most of the communities in the planning area (based on weight of harvested resources per year). The moose populations throughout the planning area have experienced some decreases within the past couple decades, especially in Game Management Units (GMUs) 18, 19, and 21 (Ikuta et al. 2014). The BLM has used various management actions to try to boost the moose populations in the GMUs within the planning area. Similarly, threats to caribou populations have also resulted in the Mulchatna caribou herd (the predominant herd in the planning area) being heavily managed in an attempt to increase its population. Undesignated OHV use within the planning area may bring increased competition for moose and caribou harvest and may also degrade the habitat to a degree that the abundance and availability of these resources will be impacted.

3.2.1 Evaluation of the Effect of Use, Occupancy, or Disposition on Subsistence Uses and Needs

Under Alternative A, there would be no reduction in the current availability of harvestable resource area that is used for subsistence, and existing conditions as described in the BSWI PRMP/FEIS would continue. Alternative A would continue to include closures and protective stipulations in certain areas that would provide protections to fish, wildlife, and SSS in the planning area. A total of 5,202,221 acres (39 percent) of the planning area would be closed to leasing, and 17,521 acres (less than 1 percent) of the planning area would be designated as NSO leasable. There would be no limitations on the access of subsistence users to resources. However, harvest, conflict, and competition from non-local users could all increase which could reduce the abundance and availability of the resources for subsistence users. Continuing to issue SRPs through the normal permitting process would allow outfitters to accommodate demand for guided hunting and fishing, special events on the INHT, and other specially permitted activities. Over time, an expanding number and size of SRP activities, particularly during the summer, would increase the potential for these activities to conflict with subsistence users and damage natural resources that contribute to the recreational setting for all users.

3.2.2 Evaluation of the Availability of Other Lands for Land Use Decisions Allowed under Alternative A

The analysis prepared for the BSWI RMP focusses on the planning area. Areas outside of the planning area are not considered in the planning process and therefore are not considered in this analysis. Under Alternative A, the management of the BLM-managed lands in the planning area would continue under the 1981 SWMFP (BLM 1981) and a small portion of the 1986 CYRMP (BLM 1986), including amendments. Subsurface estate within U. S. Fish and Wildlife Service (USFWS) lands is managed by the BLM under the Mineral Leasing Act of 1920. ANILCA § 304(c) is addressed in the *Mineral Occurrence and Development Potential Report for Leasable Minerals within the Bering Sea – Western Interior Planning Area* (BLM 2015b) and would be addressed at the implementation level and would not be subject to the BSWI PRMP/FEIS. Similarly, any prior existing mining claims administered by the BLM existing within USFWS or National Park Service (NPS) lands would be addressed at the implementation level and would not be covered by the BSWI PRMP/FEIS. Other BLM-managed lands in the state already have land use planning documents in place or are being addressed by separate planning processes.

3.2.3 Evaluation of Other Alternatives that would Reduce or Eliminate the Use, Occupancy, or Disposition of Public Lands Needed for Subsistence Purposes

The proposed action and/or alternatives are to occur on BLM-managed lands needed for subsistence purposes. Alternatives that would reduce or eliminate the use of public lands needed for subsistence include Alternatives B, C, D, and E, which are analyzed in Chapters 2 and 3 of the BSWI PRMP/FEIS. These alternatives were created to represent a wide range of potential activities that could occur on BLM-managed lands, along with management actions that would serve to protect specific resource values following current national guidelines. Additional alternatives that were considered but not analyzed in detail are also discussed in Chapter 2 of the BSWI PRMP/FEIS.

3.2.4 Findings

Management actions that are seen as having the most potential to significantly restrict abundance, availability, or access of subsistence resources are:

- Areas open to locatable mineral development in known subsistence use areas (in areas of medium/high LMP);
- OHV closures to subsistence use areas; and
- Areas open to ROW in subsistence use areas.

Appendix R-1 provides detail on the methods and analysis used to determine the communities that may have a significant restriction to subsistence uses.

Alternative A may result in a significant restriction to subsistence uses for the communities of Aniak, Anvik, Bethel, Crooked Creek, Chuathbaluk, Grayling, Holy Cross, Kaltag, Lime Village, Lower Kalskag, Upper Kalskag, Marshall, McGrath, Nikolai, Nulato, Russian Mission, Shageluk, Sleetmute, Stony River, and Unalakleet.

For the communities of Lower Kalskag and Upper Kalskag, locatable mineral decisions may cause a large reduction in the abundance of fish resources and a major redistribution of fish. For all of the communities in the planning area, OHV use may cause a large reduction in the abundance of moose and caribou, and OHV use and ROW decisions may cause a major redistribution of these resources. Appendix R-1 provides a detailed analysis by community that supports these findings.

Under Alternative A, the BLM would continue to follow all laws, regulations, and policies that pertain predominantly to subsistence resources. The BLM would consider impacts to subsistence resources when evaluating actions in the planning area that could affect subsistence resources and would implement BMPs and mitigation as needed. Under Alternative A, the BLM would also work with the Alaska Department of Fish and Game (ADF&G) to monitor caribou and moose populations in the planning area and make management recommendations to the Federal Subsistence Board. The Federal Subsistence Board would determine whether to take management action based on results of caribou and moose populations.

There would be no additional proposed management actions under Alternative A that would adversely affect subsistence.

3.3 Evaluation and Findings for Alternative B

This section provides an overview of impacts for the planning area. A detailed community-by-community analysis is provided in Appendix R-1.

Alternative B emphasizes reducing the potential for competition between recreational and subsistence users by compartmentalizing key areas for additional protections of long-term resource values in the planning area. These areas include ACECs, lands managed for wilderness characteristics, the INHT segments on BLM-managed public lands and associated sites (e.g., Rohn Site, Kaltag Portage, Farewell Burn), and identified HVWs. This alternative seeks to support subsistence uses through sustainable management of the resources on which subsistence depends and by attempting to reduce competition for these resources in key areas surrounding rural communities by applying Community Focus Zones (CFZs) to a 10-mile buffer around BSWI communities (818,935 acres). SRPs would not be authorized in CFZs for hunting guide/outfitters, although shuttle service operations (water, air, and over-snow shuttle services) would be allowed with a required SRP throughout the entire Extensive Recreation Management Area (ERMA) (including CFZs). This alternative also provides clear guidance on the requirements for

subsequent site-specific management and projects, which ensures consistency but limits flexibility at the site-specific implementation level.

Alternative B would decrease the proportion of the planning area currently open to locatable, salable, and locatable mineral development. Of these mineral decisions, areas open to locatable mineral development are most likely to affect subsistence resources because there are areas of medium and high LMP in the planning area. Alternative B would decrease the amount of land open to locatable mineral development compared to Alternative A, with 3,548,061 acres open to locatable mineral development and 167,018 acres open in areas of medium or high LMP (though 60 percent of the acreage on medium or high LMP would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected). Locatable mineral development could affect abundance of subsistence resources by impacting habitat, removing resources (such as trees, plants, and berries), and causing wildlife populations to migrate out of the area. The total area of land open to mineral development would decrease compared to Alternative A. Fish, including salmon and non-salmon species (sheefish, whitefish, and trout) and large land mammals (including moose and caribou) are some of the most heavily harvested resources for the communities within the planning area. If areas open to locatable mineral development that have a medium and high LMP are located upstream or alongside known fishing locations or within the calving areas or travel routes of the Mulchatna caribou herd, the abundance and availability of these species could be negatively impacted. These impacts may be caused by habitat degradation or fragmentation from mining exploration and operational activities (e.g., the release of chemicals from mining activities and increased particulates in the water due to soil disturbance), but also from the increased competition for fishing and hunting/trapping resources due to the influx of workers for the mining activities. Communities within the planning area rely heavily on fish (salmon in particular, but also non-salmon fish including sheefish, whitefish, and trout), moose, and caribou to support their subsistence needs. With the heavy reliance on fish, moose, and caribou harvesting to supply the subsistence needs for the planning area communities, areas open to locatable mineral development in areas of medium or high LMP may threaten the abundance or availability of fish, moose, and caribou in the planning area.

Identification of ROW exclusion and avoidance areas under Alternative B would help minimize habitat fragmentation and degradation in these areas but could adversely affect access for subsistence users to resources. While restrictions on where trapping/subsistence cabins could occur would reduce impacts on fish, wildlife, and subsistence locations, they could also restrict access to traditional subsistence use of cabins. However, areas open to ROW location could cause habitat degradation and fragmentation and increase competition for resources if those ROWs were used to build structures, utilities, or transportation corridors. This may impact moose, caribou, and fish (particularly salmon, but also non-salmon fish including sheefish, whitefish, and trout) resources as these resources are typically the most heavily harvested resources in the planning area communities.

Under Alternative B, 8,637,275 acres of existing ANCSA 17(d)(1) withdrawals would be recommended to be retained and 341,761 acres (3 percent) of the planning area would be available for exchange, which could reduce the total amount of wildlife habitat under BLM management. Lands available for exchange and acquisitions under Alternative B would affect important wildlife habitat and subsistence in the planning area such as changes in riparian area, moose calving and wintering areas, caribou crucial winter habitat, and the Innoko Bottoms Priority Wildlife Habitat Area. Lands available for exchange that leave federal management would remove these lands from priority subsistence use, which would affect subsistence access. These potential reductions could be offset by lands available for acquisitions, which

would include a smaller geographic extent of riparian areas and moose calving and wintering areas and no caribou crucial winter habitat, but a greater extent of the Innoko Bottoms Priority Wildlife Habitat Area. If all exchanges and acquisitions are carried out on lands identified as available for those actions, the amount of high-value wildlife habitat associated with important wildlife habitat in the planning area would be less than under Alternative A, with associated effects on the reduction in the abundance of subsistence resources and access to the resources. BLM management actions to protect wildlife habitat would no longer be implemented on those lands. These actions would not affect fish, wildlife, and SSS habitat important to subsistence in lands with wilderness characteristics being managed as a priority, ACECs, or connectivity corridors.

Under Alternative B, a total of 8,403,829 acres (62 percent of the planning area) would be permitted for commercial woodland harvest. Under this alternative, in personal use and subsistence woodland harvest areas, house log harvesting would not be allowed within the riparian area of streams. Non-subsistence house log harvesting would be prohibited within the Wild and Scenic River (WSR) corridors, the full-Hydrologic Unit Code HVWs, and ACECs. Gathering of forest firewood in excess of that required for personal or household use would require a permit. A pilot project would be instituted to hire a local in a targeted area to issue permits and collect use information and/or include maps or questions in local subsistence surveys. This alternative would also include additional restrictions that would reduce impacts to fish, wildlife, and SSS habitat in HVWs, the INHT National Trail Management Corridor (NTMC), ACECs, and riparian areas, with a total of 5,017,161 acres (37 percent of the planning area) closed to commercial woodland harvest (see Chapter 2 of the BSWI PRMP/FEIS). These permits would include required stipulations to minimize harvesting impacts. Under Alternative B, cutting or otherwise disturbing trees used for trapping for uses other than trapping would be prohibited.

Subsistence cross-country summer³ OHV access would be prohibited on 241,512 acres (2 percent of BLM-managed land in the planning area) and limited to existing roads and trails on 324,443 acres (2 percent of BLM-managed land in the planning area). The remaining acres within the planning area would be open for OHV cross-country access for subsistence. While OHV prohibitions and restrictions on casual use would help to preserve the subsistence resources in the planning area by minimizing habitat fragmentation and degradation, some access restrictions for subsistence uses would impact the planning area communities. OHV restriction and prohibitions extending to subsistence OHV use would limit access to moose, caribou, and fishing subsistence areas for several of the communities. While these access restrictions are fairly limited in scope, they do impact some of the most heavily harvested resources for the planning area communities.

3.3.1 Evaluation of the Effects of Use, Occupancy, or Disposition on Subsistence Uses and Needs

Alternative B would reduce the potential impacts on subsistence use as a result of management actions or designations within the planning area. Several of the proposed actions under this alternative would positively impact subsistence because management decisions and actions would provide for fish and wildlife habitat and in turn provide subsistence resource protections. Management decisions and actions such as ACECs, lands managed for wilderness characteristics, the INHT segments located on BLM-managed public lands and associated sites (e.g., Rohn Site, Kaltag Portage, Farewell Burn), and identified HVWs would not limit or impose any restriction on subsistence. Alternative B would decrease the

³ “Summer” is defined as any time there is not adequate snow cover or frost to allow the operation of over-the-snow vehicles or snowmobiles without damaging surface vegetation and soils.

proportion of the planning area open to locatable mineral development in areas of medium or high LMP to 167,018 acres (1 percent of BLM-managed land in the planning area and 30 percent of medium and high LMP areas). Lands available for exchange and acquisitions under Alternative B could adversely affect important wildlife habitat and subsistence in the planning area, with reductions in riparian area, moose calving and wintering areas, caribou crucial winter habitat, and the Innoko Bottoms Priority Wildlife Habitat Area because BLM management actions to protect wildlife habitat would no longer be implemented on these lands. Lands available for exchange that leave federal management would remove these lands from priority subsistence use, which would affect subsistence access.

3.3.2 Evaluation of the Availability of Other Lands for Land Use Decisions Allowed Under Alternative B

The proposed action and/or alternatives are to occur on lands needed for subsistence purposes. For the BSWI RMP, the planning area is by definition the focus, not other areas. Areas outside of the planning area are not subject to the planning process and therefore would not be considered under this analysis. Under Alternative B, BLM-managed lands in the planning area would be managed to reduce the impacts to species important to subsistence, reduce the potential for competition between recreational and subsistence resources, lessen impacts that impeded access to resources by identifying key areas for additional protections of long-term resource values within the planning area. Other BLM lands in the state already have land use planning documents in place that specify the amounts and types of activities that can or cannot occur or are currently being evaluated by separate planning processes. Activity and land use on adjacent State or Native lands would potentially impact BLM subsistence activity and resources in terms of resource abundance, distribution, movements, and subsistence user access to said resources. BLM lands may provide support infrastructure for access, mineral materials, water resource transportation systems, or other things needed for development on adjacent non-BLM lands, which may have impacts to fish and wildlife resources, habitats, and subsistence uses. Further evaluation of such developments may be necessary if and when they are proposed.

3.3.3 Evaluation of Other Alternatives that Would Reduce or Eliminate the Use, Occupancy, or Disposition of Public Lands Needed for Subsistence Purposes

Alternatives that would reduce or eliminate the use of public lands needed for subsistence include Alternatives C, D, and E, which are presented and analyzed in Chapters 2 and 3 of the BSWI PRMP/FEIS. These alternatives were created to represent a wide range of potential activities that could occur on BLM-managed lands, along with management actions that would serve to protect specific resource values following current national guidelines. Additional alternatives that were considered but not analyzed in detail are also discussed in Chapter 2 of the BSWI PRMP/FEIS.

3.3.4 Findings

Management actions that are seen as having the most potential to significantly restrict abundance, availability, or access of subsistence resources are:

- Areas open to locatable mineral development in known subsistence use areas (in areas of medium/high LMP);
- OHV closures to subsistence use areas; and
- Areas open to ROW in subsistence use areas.

Appendix R-1 provides detail on the methods and analysis used to determine the communities that may have as significant restriction to subsistence uses. Alternative B may result in a significant restriction to subsistence uses for the communities of Aniak, Anvik, Crooked Creek, Chuathbaluk, Grayling, Holy Cross, Kaltag, Lime Village, Lower Kalskag, Upper Kalskag, Marshall, McGrath, Nikolai, Shageluk, Sleetmute, Stony River, and Unalakleet.

For the communities of Aniak, Crooked Creek, Chuathbaluk, Lower Kalskag, McGrath, Sleetmute, and Upper Kalskag, locatable minerals decisions may cause a large reduction in the abundance of fish, moose, and caribou harvesting and a major redistribution of fish, caribou, and moose. In the communities of Anvik, Grayling, Kaltag, Lime Village, McGrath, Nikolai, Shageluk, Sleetmute, Stony River, and Unalakleet, OHV restrictions and prohibitions for subsistence users would decrease access to moose, caribou, and fishing locations. For the communities of Aniak, Crooked Creek, Holy Cross, Kaltag, Lime Village, Marshall, McGrath, Nikolai, Sleetmute, Unalakleet, and Upper Kalskag, ROW decisions may cause a major redistribution of moose, caribou, and fish resources. Appendix R-1 provides a detailed analysis by community that supports these findings.

If all available exchanges and acquisitions are carried out, the amount of high-value wildlife habitat associated with important wildlife habitat in the planning area would be less than under Alternative A and could adversely affect the abundance of subsistence resources if there were reductions in harvest success and limitations in access to resources in areas where BLM is no longer managing the land. Available land exchanges under Alternative B would affect important wildlife habitat and subsistence in the planning area, with reductions in riparian area, moose calving and wintering areas, caribou crucial winter habitat, and the Innoko Bottoms Priority Wildlife Habitat Area. Lands available for exchange that leave federal management would remove these lands from priority subsistence use, which would affect subsistence access. These reductions could be offset to some degree by lands available for acquisitions, which would include a smaller geographic extent of riparian areas and moose calving and wintering areas and no caribou crucial winter habitat but a greater extent of the Innoko Bottoms Priority Wildlife Habitat Area.

Gathering practices of and access to available forestry and woodland resources could also be inhibited and substantially reduced if users became deterred from this harvest due to the requirements to obtain a permit. Management decisions and actions such as ACECs, lands managed for wilderness characteristics, the INHT segments on BLM-managed public lands and associated sites (e.g., Rohn Site, Kaltag Portage, Farewell Burn), and identified HVWs that impact subsistence resources would be beneficial, and any impacts from the limited development allowed under this alternative would be minimized by BMPs, SOPs, and stipulations.

There would be no additional proposed management actions under Alternative B that would adversely affect subsistence.

3.4 Evaluation and Findings for Alternative C

This section provides an overview of impacts for the planning area. A detailed community-by-community analysis is provided in Appendix R-1.

Alternative C emphasizes adaptive management at the planning level to protect the long-term sustainability of resources while providing for multiple resource uses. It provides for planning-level protections of key areas, such as the portions of the INHT on BLM-managed lands while allowing for flexibility in resource use in those areas depending on the monitoring of resource impacts. It emphasizes collaboration with and education of permit applicants to address potential competition for use of existing

resources. This alternative is meant to provide flexibility at the planning level while still providing enough direction to make processing of site-specific projects easier and more consistent.

Alternative C recommends the use of native species for revegetation of disturbed areas but would allow nonnative seed and propagules to be considered if applicable for the climatic condition and ecosystem function and if native plant species were not available or feasible. The use of nonnative plant species for restoration could lead to an adverse effect to subsistence users if reduction of the availability of and access to plants traditionally used for subsistence purposes occurred and therefore affected harvest rates of traditionally used resources.

Alternative C would restrict development on BLM-managed land in one connectivity corridor totaling 576,038 acres (4 percent) of the planning area. Alternative C would only manage one connectivity corridor, the South Connectivity Corridor, rather than the two proposed under Alternative B and would open the connectivity corridor to locatable and salable minerals. Having one corridor rather than two may increase the distance subsistence hunters would have to travel to reach the corridor, making access to available resources more challenging. This in turn may reduce rates of subsistence harvest of wildlife species in this area as hunters will have to travel farther to be successful.

Under Alternative C, 13,418,941 acres (99 percent) of the planning area would be open to locatable minerals and 6,606,321 acres (49 percent) would be open to salable mineral development, with another 6,576,064 acres (about 49 percent) open to salable mineral development subject to terms and conditions. All areas of medium or high LMP on BLM-managed land (565,489 acres) would be open to locatable mineral development, though over half of this acreage would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected. Areas that would be open to locatable and salable mineral development, in areas of medium to high LMP, include important wildlife habitat areas that are important in terms of abundance of subsistence resources (Section 3.2.7 of the BSWI PRMP/FEIS).

Alternative C would open more areas to locatable and salable mineral development than Alternative B, including areas of medium or high LMP where likelihood for development and associated impacts is highest. While Alternative C would open fewer areas to salable mineral development than Alternative A, it would have the potential to open more areas than Alternative A including acreage subject to terms and conditions. Since potential for salable mineral development is low in the planning area, and Alternative C would open more areas of medium or high LMP to locatable mineral development than Alternative A, there would be high magnitude impacts to subsistence resources over a greater geographic extent than Alternative A.

Similar to Alternatives A and B, the potential for a number of new mines and associated infrastructure would likely increase, dependent on future demand for minerals, but would not occur in portions of the planning area closed to development. This could affect access to resources in some areas for subsistence users. Fish, including salmon and non-salmon species (sheefish, whitefish, and trout) and large land mammals (moose and caribou) are some of the most heavily harvested resources for the communities within the planning area. If areas open to locatable mineral development that have a medium and high LMP are located upstream or alongside known fishing locations or within the calving areas or travel routes of the Mulchatna caribou herd, the abundance and availability of these species could be negatively impacted. These impacts may be caused by habitat degradation or fragmentation from mining exploration and operational activities (e.g., the release of chemicals from mining activities and increased particulates in the water due to soil disturbance) but also from the potential for increased competition for fishing and

hunting/trapping resources due to the influx of workers for the mining activities. Communities within the planning area rely heavily on fish (and salmon in particular), moose, and caribou to support their subsistence needs. With the heavy reliance on fish, moose, and caribou harvesting to supply the subsistence needs for the planning area communities, areas open to locatable mineral development and that have medium or high LMP may threaten the abundance or availability of fish, moose, and caribou in the planning area.

Under Alternative C, the combined area designated as NSO leasable (6,863,464 acres; 51 percent of the lands managed by BLM) and closed to leasing (46,953 acres; less than 1 percent of the lands managed by BLM) would be less than under Alternative B, and 6,555,476 acres (49 percent of the lands managed by BLM) would be open to leasing with standard stipulations. Therefore, this alternative would be more likely to impact wildlife and subsistence resources from mineral leasing than Alternative B. This could affect access to resources in some areas for subsistence users. Under Alternative C, within HVWs, BMPs and other protective measures would be similar to Alternative B but less restrictive. For example, HVWs would be NSO leasable under Alternative C but would be closed to mineral leasing under Alternative B.

Alternative C would have a greater risk for habitat fragmentation and degradation than Alternative B because there would be no designated ROW exclusion areas. Additionally, a smaller portion of the planning area (7,528,863 acres or 56 percent of the lands managed by BLM) would be identified as ROW avoidance area and 151,853 acres (about 1 percent of lands managed by BLM) would be ROW avoidance for linear realty actions. Areas outside ROW exclusion and avoidance areas with the greatest potential for habitat loss, degradation, and fragmentation from development of ROWs include habitats that are important to subsistence. The potential increase in wildlife habitat that could affect subsistence in the planning area would be identical to that under Alternative B. Based on the amount of land available for exchange (356,343 acres or 3 percent of the lands managed by BLM), the amount of fish and wildlife habitat under BLM management in the planning area would be slightly reduced compared to Alternative B, with greater reductions in riparian areas and moose calving and wintering areas but the same amount of caribou crucial winter habitat and Innoko Bottoms Priority Wildlife Habitat Area. Lands available for acquisitions that could somewhat offset lands available for disposals would be the same as under Alternative B. Therefore, if all available land exchanges and acquisitions are carried out, the amount of high-value wildlife habitat in the planning area would be less than under Alternative A or B. Overall, Alternative C would have a larger adverse impact on fish, wildlife habitat, and potentially SSS habitat that is important to the abundance and availability of subsistence resources than Alternative B.

Under this alternative, in personal use and subsistence woodland harvest areas, house log harvesting would not be allowed within the riparian area of streams. Additionally, non-subsistence house log harvesting would not be permitted in the WSR corridor. Gathering of forest firewood and forestry products for subsistence would not require a permit. Gathering of more than 10 cords of forest firewood per household per year for personal use (defined as allowed use of renewable resources, which cannot be sold, bartered, traded or used for profit, by individuals other than federally qualified subsistence users) and gathering of forestry products for personal use would require a permit for all areas that are open for subsistence and personal use woodland harvest. Under Alternative C cutting or otherwise disturbing trees used for trapping for uses other than trapping would be prohibited. This may increase the success of subsistence individual trapping activities that require these materials.

Under Alternative C, 13,125,320 acres (97 percent) of the planning area would be managed as an ERMA and 340,574 acres (2 percent) of the planning area would be managed as a Special Recreation

Management Area (SRMA). Impacts under Alternative C would be similar to Alternative B with the exception of a slightly smaller SRMA and smaller CFZs. Under Alternative C, CFZs would be applied to a 5-mile buffer around BSWI communities (95,307 acres). As with Alternative B, SRPs would not be authorized in CFZs for hunting guide/outfitters. These restrictions would not apply to shuttle service operations, which would be allowed without an SRP throughout the ERMA unless increase in use conflicts with the BSWI ERMA objectives, at which point the BLM would engage in additional planning to maintain the objectives. Under Alternative C, casual and subsistence use would be permitted on existing routes at the Rohn Site. Winter casual and subsistence access would be allowed for snowmobiles only, similar to Alternative B, and impacts from winter travel would be the same as Alternative B. Management actions would provide for increased recreation opportunity during summer months, and could also result in increased conflicts between recreational, casual and subsistence users. Increased use could result in damage to the trail resource, thereby altering recreation setting, opportunity, and experience over time. Summer OHV casual use would be limited to existing routes. Subsistence cross-country summer OHV access would be prohibited on 225,925 acres (2 percent of BLM-managed land in the planning area) and limited to existing roads and trails on 363 acres. The remaining acres within the planning area would be open for OHV cross-country access for subsistence.

Under Alternative C, OHV designation in the Unalakleet Wild River Corridor as casual summer access would be limited to existing trails, primitive roads, and roads and would include ATVs only. Subsistence cross-country summer OHV access on lands in the Unalakleet Wild River Corridor would be allowed by ATV. Recreation access in the summer would provide for increased opportunity for conflict and could reduce the availability of resources for harvest by subsistence users. However, due to the wet and boggy condition of the area, summer travel is expected to be minimal such that while damage to the lands (rutting, braiding) could occur and there could be an increased potential for use conflicts between recreationists and subsistence users it would be low in terms of magnitude. Alternative C would be more protective of subsistence resource habitat than Alternative A, which does not have any OHV restrictions except for within the Unalakleet Wild River Corridor. However, some access restrictions for subsistence uses would impact the planning area communities. OHV restriction and prohibitions extending to subsistence OHV use would limit access to moose, caribou, and fishing subsistence areas for several of the communities. While these access restrictions are fairly limited in scope, they do impact some of the most heavily harvested resources for the planning area communities.

3.4.1 Evaluation of the Effects of Use, Occupancy, or Disposition on Subsistence Uses and Needs

Alternative C would reduce the potential impacts on subsistence use as a result of management actions or designations within the planning area. Several of the proposed actions under this alternative would positively impact subsistence because management decisions and actions would provide for fish and wildlife habitat and in turn provide subsistence resource protections. Management decisions and actions such as the INHT segments located on BLM-managed public lands and associated sites (e.g., Rohn Site, Kaltag Portage, Farewell Burn) and identified HVWs would not limit or impose any restriction on subsistence.

Alternative C would have a greater proportion of the planning open to locatable mineral development than Alternatives A and B including areas with medium or high LMP. Lands available for exchange and acquisitions under Alternative C would adversely affect important wildlife habitat and abundance and access to subsistence resources in the planning area, with reductions in riparian area, moose calving and

wintering areas, caribou crucial winter habitat, and the Innoko Bottoms Priority Wildlife Habitat Area because BLM management actions to protect wildlife habitat would no longer be implemented on these lands.

3.4.2 Evaluation of the Availability of Other Lands for Land Use Decisions Allowed Under Alternative C

The proposed action and/or alternatives are to occur on lands needed for subsistence purposes. For the BSWI RMP, the planning area is by definition the focus, not other areas. Areas outside of the planning area are not subject to the planning process and are outside the scope of the planning process and therefore would not be considered under this analysis. Under Alternative C, BLM-managed lands in the planning area would be managed to reduce the impacts to species important to subsistence, reduce the potential for competition between recreational and subsistence resources, and lessen impacts that impede subsistence access to resources by identifying key areas for additional protections of long-term resource values within the planning area. Other BLM lands in the state already have land use planning documents in place that specify the amounts and types of activities that can or cannot occur or are currently being evaluated by separate planning processes. Activity and land use on adjacent State or Native lands would potentially impact BLM subsistence activity and resources in terms of resource abundance, distribution, movements, and subsistence user access to said resources. BLM lands may provide support infrastructure for access, mineral materials, water resources transportation systems, or other things needed for development on adjacent non-BLM lands, which may have impacts to fish and wildlife resources, habitat, and subsistence uses. Further evaluation of such developments may be necessary if and when proposed. Such development would also potentially increase competition for subsistence resources from other user groups by providing increased accessibility, which may increase harvest on BLM lands and adjacent lands that share subsistence resource populations.

3.4.3 Evaluation of Other Alternatives that Would Reduce or Eliminate the Use, Occupancy, or Disposition of Public Lands Needed for Subsistence Purposes

Alternatives that would reduce or eliminate the use of public lands needed for subsistence include actions in Alternatives B and D that are presented and analyzed in Chapters 2 and 3 of the BSWI PRMP/FEIS. These alternatives were created to represent a wide range of potential activities that could occur on BLM-managed lands, along with management actions that would serve to protect specific resource values following current national guidelines. Additional alternatives that were considered but not analyzed in detail are also discussed in Chapter 2 of the BSWI PRMP/FEIS.

3.4.4 Findings

Management actions that are seen as having the most potential to significantly restrict abundance, availability, or access of subsistence resources are:

- Areas open to locatable mineral development in known subsistence use areas (in areas of medium/high LMP);
- OHV closures to subsistence use areas; and
- Areas open to ROW in subsistence use areas.

Appendix R-1 provides detail on the methods and analysis used to determine the communities that may have as significant restriction to subsistence uses.

This evaluation concludes that Alternative C may result in a significant restriction to subsistence uses for the communities of Aniak, Anvik, Crooked Creek, Chuathbaluk, Grayling, Holy Cross, Kaltag, Lime Village, Lower Kalskag, Upper Kalskag, Marshall, McGrath, Nikolai, Russian Mission, Shageluk, Sleetmute, Stony River, and Unalakleet.

For the communities of Aniak, Crooked Creek, Chuathbaluk, Lower Kalskag, McGrath, Sleetmute, and Upper Kalskag, locatable mineral decisions may cause a large reduction in the abundance of fishing resources, and moose and caribou harvesting, and cause a major redistribution of fish, moose, and caribou. In the communities of Anvik, Grayling, Kaltag, Lime Village, Nikolai, Shageluk, Sleetmute, Stony River, and Unalakleet, OHV restrictions and prohibitions for subsistence users would decrease the access to moose, caribou, and fishing locations. For the communities of Aniak, Crooked Creek, Grayling, Holy Cross, Kaltag, Lime Village, Lower Kalskag, Marshall, McGrath, Nikolai, Russian Mission, Shageluk, Sleetmute, Stony River, Unalakleet, and Upper Kalskag, ROW decisions may cause a major redistribution of moose, caribou, and fish resources. Appendix R-1 provides a detailed analysis by community that supports these findings.

In addition to the bullets listed above, the following proposed management under Alternative C would also adversely affect subsistence:

- The use of nonnative plant species for restoration could lead to an adverse effect to subsistence users if reduction of the availability of plants traditionally used for subsistence purposes occurred and substantially affected harvest rates of traditionally used resources.
- For caribou and moose, which are important subsistence resources, the management actions pertaining to leasable minerals and construction would apply only to calving habitat. Therefore, while caribou and moose would be protected during the breeding period, they could be disturbed in their crucial winter habitat areas, with disturbances potentially causing increased energy expenditures and stresses on wintering populations, which could result in decreased survivorship. Decreased survivorship could substantially affect levels of subsistence hunting success in terms of abundance of available resources and reduce rates of harvest and sharing.
- If all available land exchanges are carried out, the amount of high-value wildlife habitat in the planning area would be less than under Alternative A or B. As with Alternative B, these actions would not affect fish, wildlife, or SSS habitat important to subsistence in lands with wilderness characteristics being managed as a priority or connectivity corridor. Overall, this alternative would have a larger adverse negative impact on fish, wildlife habitat, and potentially SSS habitat that is important maintaining abundant subsistence resources and provides access to resources than Alternative B.
- Under Alternative C, in addition to subsistence use, casual use would be permitted on existing routes at the Rohn Site. Winter casual and subsistence access would be allowed for snowmobiles only, similar to Alternative B. This action could result in potential conflict between recreational users and casual users and subsistence users and increased competition for resources and interference with access to resources that reduces subsistence harvest success.

- Subsistence cross-country summer OHV access would be allowed by ATV and utility terrain vehicle (UTV) (Chapter 2 of the BSWI PRMP/FEIS). Summer OHV casual use would be limited to existing routes (as shown in the BLM's current route inventory once implementation planning occurs). Recreational access in the summer could result in impacts to setting through damage to the resource (e.g., rutting, braiding) and could increase the potential for use conflicts between recreationists and subsistence users including increased competition for resources and interference with access to resources that reduces subsistence harvest success.
- While gathering of forest firewood and forestry products for subsistence would not require a permit, gathering of forest firewood of more than 10 cords of firewood per household per year for personal use (defined as allowed use of renewable resources, which cannot be sold, bartered, traded or used for profit, by individuals other than federally qualified subsistence users) and gathering of forestry products for personal use would require a permit for all areas that are open for subsistence and personal use woodland harvest. This action could result in increased competition to the resources by non-local users (including other federally qualified subsistence users) and in a substantial reduction in the opportunity to continue subsistence uses of renewable resources.

Management decisions and actions such as the INHT segments on BLM-managed public lands and associated sites (e.g., Rohn Site, Kaltag Portage, Farewell Burn), and identified HVWs that impact subsistence resources would be beneficial, and any impacts from the limited development allowed under this alternative would be minimized by BMPs, SOPs, and stipulations.

3.5 Evaluation and Findings for Alternative D

This section provides an overview of impacts for the planning area. A detailed community-by-community analysis is provided in Appendix R-1.

Alternative D provides additional flexibility at the project-specific implementation level and fewer overarching management restrictions at the planning level. It also emphasizes lands available for exchange or disposal as necessary to consolidate and simplify management. It depends on existing federal laws and implementation-level NEPA to a greater degree than the other action alternatives to determine how to best manage multiple-use of sensitive resources while preserving long-term sustainability. This alternative provides more flexibility at the site-specific implementation level but requires additional work to ensure consistency and compliance with management requirements. Impacts from the development allowed under this alternative would be minimized to some degree by BMPs, SOPs, and stipulations found in the FEIS Appendix O.

Alternative D proposes protection of a high resource value of 13,070 river miles (40 percent of river miles on BLM-managed lands). As with the other action alternatives, any proposals to develop land, water, or resources within the 100-year floodplain of HVWs would be required to demonstrate that the development would not diminish quality and diversity of habitats needed for fish and wildlife populations, including those used for subsistence. Alternative D would have fewer restrictions on mineral development in HVWs than Alternative B or C because they would be open to mineral leasing subject to standard stipulations. Alternative D would provide the least amount of protection for fish and aquatic resources and would rely on the operator to characterize the potential of streams for reclamation. Additionally, because watershed medium-high and medium resource values would not be protected as HVWs as proposed in Alternatives B and C, resources and their availability to subsistence users in these

areas could degrade due to development activities. They would still be subject the same SOPs and BMPs (FEIS Appendix O) as Alternative B and C that could be implemented by the BLM.

No protections for SSS flora habitats and lichen areas would be implemented if these areas become degraded by OHV use and therefore these areas could be subject to further degradation. Under Alternative D, revegetation of disturbed areas would focus on using plant species that are appropriate for the climatic condition and ecological function, including nonnative plant species. Potential impacts to vegetation and SSS flora would be higher under Alternative D than under Alternative B, C, or E, but still lower than under Alternative A in some cases. There could be an adverse effect to subsistence users if native plants important for subsistence uses were not considered in revegetating areas, limiting the availability and access to these plants for subsistence harvest and use compared to Alternatives B, C, and E. However, subsistence users could respond to a decrease in the availability of an edible plant by harvesting more of another edible resource but would be limited to a small portion of the planning area and would not necessarily coincide with vegetation subsistence harvest areas.

Under Alternative D, all acres of medium or high LMP within the planning area would be open to locatable minerals development, which is the same as Alternative C and substantially less protective than Alternative B. Alternative D would close 283,509 acres (2 percent) to salable minerals mineral development; however, potential for impacts from salable mineral development is low to due to low potential and demand. Alternative D would also result in the lowest proportion of the planning area designated as NSO and the greatest proportion designated as open to leasing subject to standard stipulations. Based on geographic extent of areas open to locatable salable minerals and leasable minerals, this alternative would have a lower potential to reduce impacts to fish, wildlife, and SSS associated with mineral development than Alternatives B and C, but a higher potential than Alternative A. Areas that would be open to locatable and salable mineral development in areas of medium to high LMP include important wildlife habitat areas described in Section 3.3.3 of the BSWI PRMP/FEIS. Fish, including salmon and non-salmon species (sheefish, whitefish, and trout) and large land mammals (moose and caribou) are some of the most heavily harvested resources for the communities within the planning area. If areas open to locatable mineral development that have a medium and high LMP are located upstream or alongside known fishing locations or within the calving areas or travel routes of the Mulchatna caribou herd, the abundance and availability of these species could be negatively impacted. These impacts may be caused by habitat degradation or fragmentation from mining exploration and operational activities (e.g., the release of chemicals from mining activities and increased particulates in the water due to soil disturbance), but also from the potential for increased competition for fishing and hunting/trapping resources due to the influx of workers for the mining activities. Communities within the planning area rely heavily on fish (and salmon in particular), moose, and caribou to support their subsistence needs. With the heavy reliance on fish, moose, and caribou harvesting to supply the subsistence needs for the planning area communities, areas open to locatable mineral development and that have medium or high LMP may threaten the abundance or availability of fish, moose, and caribou in the planning area.

Alternative D offers fewer restrictions than Alternative A, B, C, or E on construction and mineral development, which could interfere with or displace subsistence activities in migratory bird habitat, the Innoko Bottoms Priority Wildlife Habitat Area, and in moose and caribou calving and wintering habitat. Unlike Alternatives B and C, there would be no restrictions on casual use airboats and hovercraft and therefore no reduction in the potential for impacts to waterbirds and other species from associated disturbance. Because restrictions and mitigations for migratory birds would be determined at the implementation level, it is difficult to assess the difference as far as impacts to migratory birds relative to

other alternatives. Alternative D would have a greater effect on the availability of resources to subsistence than Alternative A, and Alternative D would be less protective than Alternatives B and C.

Similar to Alternatives A and B, the potential for a number of new mines and associated infrastructure would likely increase, dependent on future demand for minerals, but would not occur in portions of the planning area closed to development. Under Alternative D, surface-disturbing activities or permanent structures would be allowed within the 100-year floodplain streams, if permittees can demonstrate these activities would not substantively impact floodplain function. If adverse effects resulted from these actions in displacement and disturbance to the resource, then access to resources for subsistence activities in these areas and availability of the harvests could be affected. BMPs and reclamation procedures under this alternative would be the same as Alternatives B and C.

Alternative D would have a greater risk for wildlife and subsistence habitat fragmentation and degradation than Alternatives B and C because there would be no designated ROW exclusion areas, and the acreage of ROW avoidance areas would be lower (5,163,653 acres; 38 percent of the lands managed by BLM). Areas outside of ROW exclusion and avoidance areas with the greatest potential for habitat loss, degradation, and fragmentation from development of ROWs would include habitats that are important for available subsistence resources. Based on the amount of available land proposed for exchange or disposal (450,575 acres; 3 percent of the lands managed by BLM), this alternative would result in the greatest reduction in the amount of wildlife habitat under BLM management, compared to Alternatives B and C, and there would be no acquisitions of these habitats to help offset the losses. The amount of caribou crucial winter habitat proposed for exchange or disposal would be the same as Alternatives B and C, but with no acquisition of this habitat to help offset the loss. If all available exchanges/disposals and acquisitions are carried out, the amount of high-value wildlife in the planning area would be less than under Alternatives A, B, and C. The amount of caribou crucial winter habitat would be the same as Alternatives B and C, but less than under Alternative A. Overall, Alternative D would have a greater adverse impact on fish and wildlife habitat and related availability of subsistence resources than Alternatives A, B, and C in terms of the geographic extent of key wildlife habitats important for subsistence available for disposal.

Under this alternative, subsistence use gathering of forest firewood and forestry products and personal use gathering of forest firewood would not require a permit. Personal use gathering of forestry products would require a permit. Non-subsistence house log harvesting would be prohibited in the WSR corridor. Unless otherwise restricted by other resource management actions in this RMP, all of the planning area would be available for personal use and subsistence woodland harvest, outside of the restrictions for non-subsistence house log harvesting in the WSR corridor. Under Alternative D, cutting or otherwise disturbing trees used for trapping for uses other than trapping would be prohibited. This may increase the success of subsistence individual trapping activities that require these materials to be available in order to be used during subsistence trapping activities.

Under Alternative D, the 13,125,320 acres of the planning area would be managed as ERMA. A total of 340,574 acres would be managed as SRMA, same as Alternative C. Under Alternative D, the BLM would designate the INHT SRMA; however, there would be limited additional management beyond that specified in Alternative A to limit SRPs or mitigate user conflicts. OHV designation in the Unalakleet Wild River Corridor would be limited. Casual and subsistence summer access would be the same as Alternative C; however, travel could be by ATV or UTV. Winter access would be the same as under Alternative B. The expanded mode of summer travel would provide increased recreation opportunities.

However, due to the wet and boggy condition of the area, summer travel is expected to be minimal such that while damage to the lands (rutting, braiding) could occur and there may be an increase potential for use conflicts between recreationists and subsistence users it would be low in terms of magnitude, similar to Alternative C. Impacts from winter travel would be identical to Alternative C. There would be no CFZ applied under this alternative. Alternative D does not propose SRP limitations for hunting guide-outfitters and guide/outfitter business authorizations operating within a radius of any applied CFZ in the planning area and allows shuttle service operations throughout the planning area without an SRP. However, if the ERMA objectives are not being met, BLM would increase monitoring, outreach, education, and/or enforcement, at the implementation level. Therefore, this alternative would be less protective in terms of preventing increased competition for available resources between subsistence users and non-local users than existing conditions under Alternatives A, and the buffer zones provided under Alternatives B and C.

Alternative D would not prohibit casual use airboats or hovercraft on non-navigable waterways on BLM-managed land. Alternatives B and C include additional travel management for caribou habitat and the Innoko Bottoms Priority Wildlife Habitat Area, reducing disturbance impacts to wildlife and subsistence. Alternative D does not include this travel management, so disturbance impacts could lead to increase potential for use conflicts between recreationists and subsistence users. Alternative D would prohibit casual OHV use on about 2 percent of the lands managed by BLM and restrict less than 1 percent to existing trails. Subsistence OHV use would be prohibited nowhere within the planning area and limited to existing roads and trails in 225,925 acres (2 percent of BLM-managed land in the planning area). Therefore, Alternative D would have the least impact on existing access for both casual and subsistence use and would only limit OHV use to existing routes in one area (INHT NTMC Travel Management Area) thus providing opportunities for network expansion. The harvesting of large land mammals (including, most notably, moose and caribou) is one of the most important subsistence activities for most of the communities in the planning area (based on weight of harvested resources per year). Unrestricted OHV use throughout most of the planning area under Alternative D may bring increased competition for moose and caribou harvest and may also degrade the habitat to a degree that the abundance and availability of these resources will be impacted.

3.5.1 Evaluation of the Effects of Use, Occupancy, or Disposition on Subsistence Uses and Needs

Under Alternative D, the impacts to subsistence would be associated with management decisions that could result in reduction in the availability of harvest of subsistence resources or limitations to access and cause increased competition for subsistence resources between local and nonlocal user groups by acting on lands available for disposal. Alternative D would have more land open to locatable mineral development in areas of medium or high LMP than Alternatives A and B. There would be no designation of ACECs and fewer restrictions on construction and mineral development, which could interfere with or displace subsistence activities in migratory bird habitat, the Innoko Bottoms Priority Wildlife Habitat Area, and in moose and caribou calving and wintering habitat. Alternative D does not include the management of connectivity corridors potentially resulting in long-term effects to ecological resilience and adaptability in the area as the connectivity corridors are intended to retain ecological resilience. The BLM would not manage connectivity corridors under this alternative, which would result in fewer protections for caribou and moose, particularly during the winter use period. There would be no restrictions on casual use airboats and hovercraft, which could disturb waterbirds and the other subsistence species that are harvested.

3.5.2 Evaluation of the Availability of Other Lands for Land Use Decisions Allowed Under Alternative D

The proposed action and/or alternatives are to occur on lands needed for subsistence purposes. For the BSWI RMP, the planning area is by definition the focus, not other areas. Areas outside of the planning area are not subject to the planning process and are outside the scope of the planning process and therefore would not be considered under this analysis. Under Alternative D, BLM-managed lands in the planning area would be managed to reduce the impacts to species important to subsistence, reduce the potential for competition between recreationists and subsistence resources, and lessen impacts that impede access to resources by identifying key areas for additional protections of long-term resource values within the planning area. Alternative D would manage BLM lands in the planning area in order to provide additional flexibility at the project-specific implementation level and fewer overarching management restrictions at the planning level. Lands managed by other federal agencies in the planning area are managed under NPS or USFWS planning documents, and wide-scale development of these lands is limited or disallowed by the mission and goals of these federal lands as conservation system units. Additional BLM lands in the state are managed by current planning documents that allow a mixture of development and conservation following the BLM multiple-use mission or are currently being evaluated through the planning process. Activities on adjacent State and Native land may impact subsistence fish and wildlife resources and the access to and use of subsistence resources on BLM-managed lands. BLM has little control over such activities except by active participation in input and the management of proposed actions that would occur on BLM lands in support of development on non-BLM lands.

3.5.3 Evaluation of Other Alternatives that Would Reduce or Eliminate the Use, Occupancy, or Disposition of Public Lands Needed for Subsistence Purposes

Alternatives that would reduce or eliminate the use of public lands needed for subsistence include Alternatives B, C, and E, which are analyzed in Chapters 2 and 3 of the BSWI PRMP/FEIS. These alternatives were created to represent a wide range of potential activities that could occur on BLM-managed lands, along with management actions that would serve to protect specific resource values following current national guidelines. Additional alternatives that were considered but not analyzed in detail are also discussed in Chapter 2 of the BSWI PRMP/FEIS.

3.5.4 Findings

Management actions that are seen as having the most potential to significantly restrict abundance, availability, or access of subsistence resources are:

- Areas open to locatable mineral development in known subsistence use areas (in areas of medium/high LMP);
- OHV closures to subsistence use areas; and
- Areas open to ROW in subsistence use areas.

Appendix R-1 provides detail on the methods and analysis used to determine the communities that may have as significant restriction to subsistence uses.

This evaluation concludes that Alternative D may result in a significant restriction to subsistence uses for the communities of Aniak, Anvik, Bethel, Crooked Creek, Chuathbaluk, Grayling, Holy Cross, Kaltag,

Lime Village, Lower Kalskag, and Upper Kalskag, Marshall, McGrath, Nikolai, Nulato, Russian Mission, Shageluk, Sleetmute, Stony River, and Unalakleet.

For the communities of Aniak, Crooked Creek, Chuathbaluk, Lower Kalskag, McGrath, Sleetmute, and Upper Kalskag, locatable mineral decisions may cause a large reduction in the abundance of fishing resources, and moose and caribou harvesting. For all of the communities in the planning area, OHV use may cause a large reduction in the abundance of moose and caribou and fish resources, and ROW decisions may cause a major redistribution of these resources for all of the communities in the planning area, except Nulato. Appendix R-1 provides a detailed analysis by community that supports these findings.

In addition to the bullets listed above, the following proposed management under Alternative D would also adversely affect subsistence:

- This alternative would provide the least amount of protection for fish and aquatic resources and would rely on the operator to characterize the potential of streams for reclamation. Additionally, because watershed medium-high and medium resource values would not be protected as HVWs as proposed in Alternatives B and C, resources in these areas could degrade due to allowable development activities. This action could result in a substantial reduction in the opportunity to continue subsistence uses of renewable resources.
- No protections for SSS flora habitats and lichen areas would be implemented if these areas became degraded by OHV use, and these areas could therefore be subject to further degradation. There could be an adverse effect to subsistence users if native plants important for subsistence uses were not considered in revegetating areas, reducing the abundance and availability of these plants for subsistence harvest and use compared to Alternatives B and C.
- There would be no restrictions on casual use airboats and hovercraft and therefore no reduction in the potential for impacts to waterbirds and other species from associated disturbance. Because restrictions and mitigations for migratory birds would be determined at the implementation level, it is difficult to assess the difference in impacts to migratory birds relative to other alternatives. This action could result in a substantial reduction in the opportunity to continue subsistence uses of renewable resources.
- There would be no restriction on areas that would be available for exchange or disposal. If all lands available for disposal are carried out, the amount of high-value wildlife important to preserve the abundance of subsistence resources in the planning area would be less than under Alternative A, B, C, or E.
- Alternative D does not apply CFZ buffers around the communities in the planning area. The lack of this buffer could increase the potential for use conflicts and increase competition for available resources between subsistence users and non-local resource users. This action could result in a substantial reduction in the opportunity to continue subsistence uses of renewable resources and interference with access.
- Alternative D would not prohibit casual use airboats or hovercraft on non-navigable waterways on BLM-managed land. There would be no additional travel management for caribou habitat and the Innoko Bottoms Priority Wildlife Habitat Area, so disturbance impacts to wildlife could increase and reduce the abundance and availability of wildlife resources for subsistence in these

areas. This action could result in a substantial reduction in the opportunity to continue subsistence uses of renewable resources and interference with access.

3.6 Evaluation and Findings for Alternative E

This section provides an overview of impacts for the planning area. A detailed community-by-community analysis is provided in Appendix R-1.

Alternative E emphasizes adaptive management at the planning level to protect the long-term sustainability of resources while providing for multiple resource uses. It provides for planning-level protections of key areas, such as the portions of the INHT on BLM-managed lands while allowing for flexibility in resource use in those areas depending on the monitoring of resource impacts. Alternative E was developed after the release of the Draft RMP/EIS by combining elements of Alternatives B, C, and D and analysis within the range of alternatives to balance the public feedback received. It emphasizes collaboration with and education of permit applicants to address potential competition for use of existing resources. This alternative is meant to provide flexibility at the planning level while still providing enough direction to make processing of site-specific projects easier and more consistent.

Alternative E recommends the use of native species for revegetation of disturbed areas but would allow nonnative seed and propagules to be considered if applicable for the climatic condition and ecosystem function and if native plant species were not available or feasible. The use of nonnative plant species for restoration could lead to an adverse effect to subsistence users if reduction of the availability of and access to plants traditionally used for subsistence purposes occurred and therefore affected harvest rates of traditionally used resources.

Alternative E would restrict development on BLM-managed land in one connectivity corridor totaling 576,038 acres (4 percent) of the planning area. Alternative E would only manage one connectivity corridor, the South Connectivity Corridor, rather than the two proposed under Alternative B and would open the connectivity corridor to locatable and salable minerals. This in turn may reduce rates of subsistence harvest of wildlife species in this area as hunters will have to travel farther to be successful.

Under Alternative E, 13,418,941 acres (99 percent) of the planning area would be open to locatable minerals and 9,408,012 acres (70 percent) would be open to salable mineral development, with another 3,774,373 acres (about 28 percent) open to salable mineral development subject to terms and conditions. All areas of medium or high LMP on BLM-managed land would be open to locatable mineral development, though over half of this acreage would be closed to locatable mineral development until the selection by the State or ANCSA Native corporation is relinquished or rejected. Areas that would be open to locatable and salable mineral development, in areas of medium to high LMP, include important wildlife habitat areas that are important in terms of abundance of subsistence resources (Section 3.2.7 of the BSWI PRMP/FEIS).

Alternative E would open more areas to locatable mineral development than Alternative B (but the same acreages as Alternatives C and D), including areas of medium or high LMP where likelihood for development and associated impacts is highest. Alternative E would open more areas to salable mineral development than Alternatives A, B, and C. Since potential for salable mineral development is low in the planning area, and Alternative E would open more areas of medium or high LMP to locatable mineral development than Alternative A, there would be high magnitude impacts to subsistence resources over a greater geographic extent than Alternative A.

Similar to Alternatives A, B, C, and D, the potential for a number of new mines and associated infrastructure would likely increase, dependent on future demand for minerals, but would not occur in portions of the planning area closed to development. This could affect access to resources in some areas for subsistence users. Fish, including salmon and non-salmon species (sheefish, whitefish, and trout) and large land mammals (moose and caribou) are some of the most heavily harvested resources for the communities within the planning area. If areas open to locatable mineral development that have a medium and high LMP are located upstream or alongside known fishing locations or within the calving areas or travel routes of the Mulchatna caribou herd, the abundance and availability of these species could be negatively impacted. These impacts may be caused by habitat degradation or fragmentation from mining exploration and operational activities (e.g., the release of chemicals from mining activities and increased particulates in the water due to soil disturbance) but also from the potential for increased competition for fishing and hunting/trapping resources due to the influx of workers for the mining activities. Communities within the planning area rely heavily on fish (and salmon in particular), moose, and caribou to support their subsistence needs. With the heavy reliance on fish, moose, and caribou harvesting to supply the subsistence needs for the planning area communities, areas open to locatable mineral development and that have medium or high LMP may threaten the abundance or availability of fish, moose, and caribou in the planning area.

Under Alternative E, the combined area designated as NSO leasable (4,062,543 acres; 30 percent of the lands managed by BLM) and closed to leasing (46,953 acres; less than 1 percent of the lands managed by BLM) would be less than under Alternatives B and C, and 9,356,398 acres (69 percent of the lands managed by BLM) would be open to leasing with standard stipulations. Therefore, this alternative would be more likely to impact wildlife and subsistence resources from mineral leasing than Alternatives B and C, but less likely than Alternative D. This could affect access to resources in some areas for subsistence users. Under Alternative E, within the 100-year floodplain of HVWs, BMPs and other protective measures would be similar to Alternative B but less restrictive. For example, the 100-year floodplain of HVWs would be NSO leasable under Alternative E but would be closed to mineral leasing under Alternative B.

Alternative E would have a greater risk for habitat fragmentation and degradation than Alternative B because there would be no designated ROW exclusion areas. Additionally, a smaller portion of the planning area (509,798 acres or 4 percent of the lands managed by BLM) would be identified as ROW avoidance area and 413,179 acres (about 3 percent of lands managed by BLM) would be ROW avoidance for linear realty actions. Areas outside ROW exclusion and avoidance areas with the greatest potential for habitat loss, degradation, and fragmentation from development of ROWs include habitats that are important to subsistence. The potential increase in wildlife habitat that could affect subsistence in the planning area would be identical to that under Alternative B. Based on the amount of land available for exchange (356,343 acres or 3 percent of the lands managed by BLM), the amount of fish and wildlife habitat under BLM management in the planning area would be slightly reduced compared to Alternative B, with greater reductions in riparian areas and moose calving and wintering areas but the same amount of caribou crucial winter habitat and Innoko Bottoms Priority Wildlife Habitat Area. Lands available for exchange that leave federal management would remove these lands from priority subsistence use, which would affect subsistence access. Therefore, if all available land exchanges are carried out, the amount of high-value wildlife habitat in the planning area would be less than under Alternative A or B. Overall, Alternative E would have a larger adverse impact on fish, wildlife habitat, and potentially SSS

habitat that is important to the abundance and availability of subsistence resources than Alternatives B, C, and D.

Under this alternative, in personal use and subsistence woodland harvest areas, house log harvesting would not be allowed within the riparian zone of streams. Gathering of forest firewood and forestry products for subsistence would not require a permit. Gathering of more than 10 cords of forest firewood per household per year for personal use (defined as allowed use of renewable resources, which cannot be sold, bartered, traded or used for profit, by individuals other than federally qualified subsistence users) and gathering of forestry products for personal use would require a permit. Permits would be granted based on resource concerns. Under Alternative E, cutting or otherwise disturbing trees used for trapping for uses other than trapping would be prohibited. This may increase the success of subsistence individual trapping activities that require these materials.

Under Alternative E, 95,307 acres (less than 1 percent) of the planning area would be managed as an ERMA, 340,574 acres (3 percent) of the planning area would be an SRMA, and the rest of the planning area would be undesignated recreation lands. Under Alternative E, CFZs would be applied to a 5-mile buffer around BSWI communities (95,307 acres). As with Alternative B, SRPs would not be authorized in CFZs for hunting guide/outfitters. These restrictions would not apply to shuttle service operations, which would be allowed without an SRP throughout the ERMA unless increase in use conflicts with the BSWI ERMA objectives, at which point the BLM would engage in additional planning to maintain the objectives. Under Alternative E, casual and subsistence use would be permitted on existing routes at the Rohn Site. Winter casual and subsistence access would be allowed for snowmobiles only, similar to Alternative B, and impacts from winter travel would be the same as Alternative B. Management actions would provide for increased recreation opportunity during summer months, and could also result in increased conflicts between recreational, casual and subsistence users. Increased use could result in damage to the trail resource, thereby altering recreation setting, opportunity, and experience over time. Summer OHV casual use would be limited to existing routes. Subsistence cross-country summer OHV access would be prohibited on 225,925 acres (2 percent of BLM-managed land in the planning area) and limited to existing roads and trails on 363 acres. The remaining acres within the planning area would be open for OHV cross-country access for subsistence.

Under Alternative E, OHV designation in the Unalakleet Wild River Corridor as casual summer access would be limited to existing trails, primitive roads, and roads and would include ATVs only. Subsistence cross-country summer OHV access on lands in the Unalakleet Wild River Corridor would be allowed by ATV. Recreation access in the summer would provide for increased opportunity for conflict and could reduce the availability of resources for harvest by subsistence users. However, due to the wet and boggy condition of the area, summer travel is expected to be minimal such that while damage to the lands (rutting, braiding) could occur and there could be an increased potential for use conflicts between recreationists and subsistence users, it would be low in terms of magnitude. Alternative E would be more protective of subsistence resource habitat than Alternative A, which does not have any OHV restrictions except for within the Unalakleet Wild River Corridor. However, some access restrictions for subsistence uses would impact the planning area communities. OHV restriction and prohibitions extending to subsistence OHV use would limit access to moose, caribou, and fishing subsistence areas for several of the communities. While these access restrictions are fairly limited in scope, they do impact some of the most heavily harvested resources for the planning area communities.

3.6.1 Evaluation of the Effects of Use, Occupancy, or Disposition on Subsistence Uses and Needs

Alternative E would reduce the potential impacts on subsistence use as a result of management actions or designations within the planning area. Several of the proposed actions under this alternative would positively impact subsistence because management decisions and actions would provide for fish and wildlife habitat and in turn provide subsistence resource protections. Management decisions and actions such as the INHT segments located on BLM-managed public lands and associated sites (e.g., Rohn Site, Kaltag Portage, Farewell Burn) and identified HVWs would not limit or impose any restriction on subsistence.

Alternative E would have a greater proportion of the planning open to locatable mineral development than Alternatives A and B including areas with medium or high LMP. Lands available for exchange under Alternative E would adversely affect important wildlife habitat and abundance and access to subsistence resources in the planning area due to reductions in riparian area, moose calving and wintering areas, caribou crucial winter habitat, and the Innoko Bottoms Priority Wildlife Habitat Area because BLM management actions to protect wildlife habitat would no longer be implemented on these lands. This outcome would be the same as Alternative C, but less than Alternative D.

3.6.2 Evaluation of the Availability of Other Lands for Land Use Decisions Allowed Under Alternative E

The proposed action and/or alternatives are to occur on lands needed for subsistence purposes. For the BSWI RMP, the planning area is by definition the focus, not other areas. Areas outside of the planning area are not subject to the planning process and are outside the scope of the planning process and therefore would not be considered under this analysis. Under Alternative E, BLM-managed lands in the planning area would be managed to reduce the impacts to species important to subsistence, reduce the potential for competition between recreational and subsistence resources, and lessen impacts that impede subsistence access to resources by identifying key areas for additional protections of long-term resource values within the planning area. Other BLM lands in the state already have land use planning documents in place that specify the amounts and types of activities that can or cannot occur or are currently being evaluated by separate planning processes. Activity and land use on adjacent State or Native lands would potentially impact BLM subsistence activity and resources in terms of resource abundance, distribution, movements, and subsistence user access to said resources. BLM lands may provide support infrastructure for access, mineral materials, water resources transportation systems, or other things needed for development on adjacent non-BLM lands, which may have impacts to fish and wildlife resources, habitat, and subsistence uses. Further evaluation of such developments may be necessary if and when proposed. Such development would also potentially increase competition for subsistence resources from other user groups by providing increased accessibility, which may increase harvest on BLM lands and adjacent lands that share subsistence resource populations.

3.6.3 Evaluation of Other Alternatives that Would Reduce or Eliminate the Use, Occupancy, or Disposition of Public Lands Needed for Subsistence Purposes

Alternatives that would reduce or eliminate the use of public lands needed for subsistence include actions in Alternatives B and D that are presented and analyzed in Chapters 2 and 3 of the BSWI PRMP/FEIS. These alternatives were created to represent a wide range of potential activities that could occur on BLM-managed lands, along with management actions that would serve to protect specific resource values

following current national guidelines. Additional alternatives that were considered but not analyzed in detail are also discussed in Chapter 2 of the BSWI PRMP/FEIS.

3.6.4 Findings

Management actions that are seen as having the most potential to significantly restrict abundance, availability, or access of subsistence resources are:

- Areas open to locatable mineral development in known subsistence use areas (in areas of medium/high LMP),
- OHV closures to subsistence use areas, and
- Areas open or open to ROW in subsistence use areas.

Appendix R-1 provides detail on the methods and analysis used to determine the communities that may have as significant restriction to subsistence uses.

This evaluation concludes that Alternative E may result in a significant restriction to subsistence uses for the communities of Aniak, Anvik, Crooked Creek, Chuathbaluk, Grayling, Holy Cross, Kaltag, Lime Village, Lower Kalskag, Upper Kalskag, Marshall, McGrath, Nikolai, Nulato, Russian Mission, Shageluk, Sleetmute, Stony River, and Unalakleet.

For the communities of Aniak, Crooked Creek, Chuathbaluk, Lower Kalskag, McGrath, Sleetmute, and Upper Kalskag, locatable mineral decisions may cause a large reduction in the abundance of fish, moose, and caribou harvesting and a major redistribution of fish, caribou, and moose. In the communities of Anvik, Grayling, Kaltag, Lime Village, Nikolai, Shageluk, Sleetmute, Stony River, and Unalakleet, OHV restrictions and prohibitions for subsistence users would decrease the access to moose, caribou, and fishing locations. For the communities of Aniak, Anvik, Chuathbaluk, Crooked Creek, Grayling, Holy Cross, Kaltag, Lime Village, Lower Kalskag, Marshall, McGrath, Nikolai, Nulato, Russian Mission, Shageluk, Sleetmute, Stony River, Unalakleet, and Upper Kalskag, ROW decisions may cause a major redistribution of moose, caribou, and fish resources. Appendix R-1 provides a detailed analysis by community that supports these findings.

In addition to the bullets listed above, the following proposed management under Alternative E would also adversely affect subsistence:

- The use of nonnative plant species for restoration could lead to an adverse effect to subsistence users if reduction of the availability of plants traditionally used for subsistence purposes occurred and substantially affected harvest rates of traditionally used resources.
- For caribou and moose, which are important subsistence resources, the management actions pertaining to leasable minerals and construction would apply only to calving habitat. Therefore, while caribou and moose would be protected during the breeding period, they could be disturbed in their crucial winter habitat areas, with disturbances potentially causing increased energy expenditures and stresses on wintering populations, which could result in decreased survivorship. Decreased survivorship could substantially affect levels of subsistence hunting success in terms of abundance of available resources and reduce rates of harvest and sharing.
- If all available exchanges are carried out, the amount of high-value wildlife habitat in the planning area would be less than under Alternative A or B. As with Alternative B, these actions

would not affect fish, wildlife, or SSS habitat important to subsistence in lands with wilderness characteristics being managed as a priority or connectivity corridor. Overall, this alternative would have a larger adverse negative impact on fish, wildlife habitat, and potentially SSS habitat that is important maintaining abundant subsistence resources and provides access to resources than Alternative B.

- Under Alternative E, in addition to subsistence use, casual use would be permitted on existing routes at the Rohn Site. Winter casual and subsistence access would be allowed for snowmobiles only, similar to Alternative B. This action could result in potential conflict between recreational users and casual users and subsistence users and increased competition for resources and interference with access to resources that reduces subsistence harvest success.
- Subsistence cross-country summer OHV access would be allowed by ATV and UTV (Chapter 2 of the BSWI PRMP/FEIS). Summer OHV casual use would be limited to existing routes (as shown in the BLM's current route inventory once implementation planning occurs). Recreational access in the summer could result in impacts to setting through damage to the resource (e.g., rutting, braiding) and could increase the potential for use conflicts between recreationists and subsistence users including increased competition for resources and interference with access to resources that reduces subsistence harvest success.
- While gathering of forest firewood and forestry products for subsistence would not require a permit, gathering of forest firewood of more than 10 cords of firewood per household per year for personal use (defined as allowed use of renewable resources, which cannot be sold, bartered, traded or used for profit, by individuals other than federally qualified subsistence users) and gathering of forestry products for personal use would require a permit. This action could result in increased competition to the resources by non-local users (including other federally qualified subsistence users) and in a substantial reduction in the opportunity to continue subsistence uses of renewable resources.
- Management decisions and actions such as the INHT segments on BLM-managed public lands and associated sites (e.g., Rohn Site, Kaltag Portage, Farewell Burn), and identified HVWs that impact subsistence resources would be beneficial, and any impacts from the limited development allowed under this alternative would be minimized by BMPs, SOPs, and stipulations.

3.7 Evaluation and Findings for the Cumulative Case

The goal of the cumulative analysis is to evaluate the incremental impact of the current action in conjunction with all past, present, and reasonably foreseeable future actions in or near the planning area. The cumulative analysis considers in greatest detail the activities that are more certain to happen and activities that were identified as being of great concern during scoping. Actions considered in the cumulative analysis include, but are not limited to, the actions that are presented in the following subsections. Past and present land use activities are described below.

3.7.1 Past, Present and Reasonably Foreseeable Land Use and Activities

Relevant past and present actions are those that have influenced the current condition of the resources in the planning area. These actions, described below, were identified based on a review of the planning

issues; agency records, including existing decisions and formal proposals; and non-federal actions on lands not managed by the BLM.

Land Use

The planning area and much of the surrounding lands are characterized by large tracts of undisturbed ecosystems that support a variety of native wildlife and fish species. Past and present land use and activities in the planning area are summarized below and provide the basis for analysis of cumulative effects. More detail regarding land uses in the planning area can be found in Chapter 1 of the BSWI PRMP/FEIS.

Although the BSWI PRMP/FEIS does not address lands that are not managed by the BLM, including State of Alaska lands, ANCSA Native corporation lands, NPS lands, USFWS lands, private lands, and Native allotments, past and present (as well as reasonable foreseeable future actions) land use for all lands within the planning area has influenced or has the potential to influence the current condition of the resources in the planning area and is therefore considered in the cumulative effects analysis. Impacts from such actions include ROW establishment, lease sales, and surface occupancy. As noted in Chapter 1 of the BSWI PRMP/FEIS, subsurface estate within USFWS lands is managed by the BLM under the Mineral Leasing Act of 1920. ANILCA § 304(c) is addressed in the *Mineral Occurrence and Development Potential Report for Leasable Minerals within the Bering Sea – Western Interior Planning Area Planning Area* (BLM 2015b). Conservation system units and other land tracts established by ANILCA will be addressed through the normal permitting process and are not subject to this plan. Similarly, any prior existing mining claims administered by the BLM within USFWS or NPS lands will be addressed through the normal permitting process.

BLM Land

Past and current land use on BLM-managed land in the planning area (see BSWI PRMP/FEIS, Map 1-2), including the INHT, are considered for the cumulative effects analysis. This information is described in detail in Chapter 3 of the BSWI PRMP/FEIS. These are lands that will most likely be retained in long-term federal ownership. These lands, which constitute 10,727,251 acres, or approximately 17 percent of the lands managed by BLM, are not selected by the State of Alaska or by Native corporations. An additional 2.6 million acres (approximately 4 percent of the lands managed by BLM) and 143,220 acres (less than 1 percent of the lands managed by BLM) are selected by the State of Alaska and Native corporations, respectively. Selected lands are in BLM management until interim conveyed or tentatively approved; however, selected lands do not qualify as Federal Public Lands under ANILCA § 810.

National Wildlife Refuges

The Yukon Delta National Wildlife Refuge (NWR) and the Innoko Unit of the Innoko NWR are in the planning area. These refuges were established in 1980 by ANILCA with the following management goals: (1) to conserve fish and wildlife populations and their habitats in their natural diversity, (2) to fulfill the international treaty obligations of the United States with respect to fish and wildlife and their habitats, (3) to provide the opportunity for continued subsistence uses by local residents, and (4) to ensure adequate water quantity and quality necessary to meet refuge purposes. Activities taking place on the refuges include hunting, fishing, recreational use, and subsistence harvest, as well as research and management activities. Residents of adjacent villages on the lower Innoko and Yukon Rivers harvest the land's fish and wildlife resources. Fish and fall hunting camps are still in use upriver and downriver of the

Innoko region. Indigenous people known as the Yup'ik and Cup'ik Eskimos and Athabaskans inhabit the Yukon Delta NWR and rely heavily on local natural resources.

Historically, 77 lode and placer mining claims were located in the Yukon NWR, mostly in the Kilbuck Mountains in the southeastern quarter of the refuge. Currently, no active mining claims or valid oil and gas leases are located on refuge lands. Eight pending oil and gas lease applications (totaling 20,392 acres) are on file with the BLM for the Yukon NWR. All were filed in 1968, but leases were never issued. The lease applications were “grandfathered in” under the authority of the Federal Onshore Oil and Gas Leasing Reform Act of 1987 (101 Stat. 1330-256, 259).

National Park Service Lands

One NPS unit, Lake Clark National Park and Preserve, reaches into the southeastern portion of the planning area, constituting approximately 1.0 percent of the lands managed by BLM. The 4-million-acre Lake Clark National Park and Preserve was established in 1980 by ANILCA. Approximately 2,572,000 acres of the park is designated wilderness. The stated purpose of Lake Clark National Park and Preserve is to “protect a region of dynamic geologic and ecological processes that create scenic mountain landscapes, unaltered watersheds supporting Bristol Bay red salmon, and habitats for wilderness dependent populations of fish and wildlife, vital to 10,000 years of human history” (NPS 2009). Subsistence activities by local rural residents and those who live on private land in the park and preserve boundaries include hunting, trapping, fishing, and timber harvest. Recreational and sport uses of the Lake Clark area are those commonly associated with Alaskan wilderness activities such as hunting, fishing, trapping, river running, hiking, photography, and wilderness camping. Sport fishing is allowed throughout the park and preserve, but sport hunting and trapping are confined to the national preserve. Visitor access is by commercial and privately operated airplanes and boats. The use of off-road vehicles for other than subsistence activities is prohibited on federal lands within the park and preserve.

Management of the park and preserve is guided by a portfolio of management plans, including a foundation statement (NPS 2009), a general management plan amendment (NPS 2014), and draft land protection plan (NPS 2013). The guiding principle of land protection plans is to ensure the protection of each unit of the national park system consistent with the stated purposes for which the unit was created and administered.

Nine patented mining claims total 51.2 acres within the Lake Clark Park and Preserve boundary. Park and preserve lands are no longer available for new mineral entry and location (NPS 2013).

State Lands

The planning area includes roughly 18.1 million acres of State lands and 2.6 million acres of BLM lands that have been selected by the State (approximately 21 and 4 percent of the lands managed by BLM, respectively). The BLM continues to manage lands selected by the State of Alaska that have not yet been conveyed. Lands that have already been conveyed to the State constitute approximately 29 percent of lands managed by BLM. State lands in the planning area are managed under guidelines outlined in Alaska Department of Natural Resources (ADNR) area plans, such as the *Kuskokwim Area Plan* (ADNR 1988) and *Tanana Basin Area Plan* (ADNR 1991). The State lands are managed for multiple uses, with priorities varying according to the resource values for particular subunits. Primary land uses include forestry, agriculture, minerals management, recreation, fish and wildlife habitat, heritage resources, recreation and tourism, settlement, public access, transportation, and low-value resource management.

Wood-Tikchik State Park reaches into the southern boundary of the planning area. The park is a 1.6-million-acre area that was established to protect fish and wildlife populations and to support traditional subsistence and recreational activities. Traditional activities in the park include subsistence fishing, hunting, and trapping, as well as recreational fishing and hunting. The number of recreational wilderness-travel activities in the park has grown and includes kayaking, river floating, hiking, and some mountain climbing. The park management plan (ADNR 2002) designates the upper Tikchik Lakes and Kulik/Grant lakes as “Wilderness,” most of the remainder of the park “Natural Area,” and the Agulowak River and Lake Aleknagik State Recreation Site as “Recreational Development.”

Native Lands

The planning area includes lands conveyed to village and regional Native corporations (approximately 16 percent of the lands managed by BLM) and lands acquired by Alaska Natives under the Alaska Native Allotment Act of 1906 (34 Stat. 197) and the Native Townsite Act of 1926 (43 U.S.C. 733–736) (approximately 440,000 acres, or about 1 percent of the lands managed by BLM).

Federally recognized tribes, ANCSA village corporations, and ANCSA regional corporations with a nexus to the planning area are listed in Chapter 1 of the BSWI PRMP/FEIS. More than 50 village corporations and five regional corporations (Doyon, Limited; Calista Corporation; Cook Inlet Region Incorporated; Bering Straits Native Corporation; and NANA Regional Corporation) have a nexus to the planning area. Management objectives for regional corporation lands in the planning area are focused on the protection of traditional shareholder uses and responsible economic development of resources. Throughout much of the twentieth century, mining provided an economic basis for shareholders. Placer gold mining supported several settlements, including Iditarod, Marshall, and Nyac. Currently, placer gold production continues on a small scale and is an important source of revenue for shareholders. Illustrative of regional corporation objectives to support responsible development is NANA’s historical involvement with the Red Dog mine north of the planning area.

Exploration and baseline studies for the Donlin Gold Project in the Calista Region near Crooked Creek have been ongoing since 1995. This mineral resource site is located on surface land owned by The Kuskokwim Corporation (TKC), and Calista Corporation owns the subsurface land.

Military Lands

Military lands constitute less than 0.1 percent of the lands managed by BLM. If military lands are released and returned to BLM management during the life of the BSWI RMP, the direction in the BSWI PRMP/FEIS would apply. Generally, military use of lands in the planning area was during the Cold War era following World War II and was tied to the communication, navigation, and radar needs of the time. Most military installations have been decommissioned, and little present use exists.

Past and Present Activities

Oil, Gas, Coal, and Geothermal Leasing and Exploration

Fluid mineral occurrence and development potential in the planning area is associated primarily with coal and coal bed natural gas, oil and gas, peat, and geothermal resources (BLM 2015b). The findings in this report on past and present activities are summarized in the following subsections.

Oil and Gas

Oil and gas basins in the planning area include Bethel, Galena, Holitna, Innoko, Minchumina, and Yukon Delta Basins. Historically, several geophysical surveys (e.g., airborne magnetic surveys, gravity surveys, reflection seismic surveys) have been conducted in the region, and one exploratory well was drilled in the Bethel Basin (Napatuk Creek No. 1) in the early 1960s but was abandoned as a dry hole. No additional exploratory wells have been drilled in the area, and no recent federal oil and gas leasing has taken place.

Pending Oil and Gas Leases

Fifty-nine pending oil and gas lease offers within the planning area were filed in the late 1960s, all within the boundary of the Yukon Delta NWR. These pending lease offers were subsequently suspended by Public Land Orders and remain unavailable for oil and gas leasing.

Coal

The areas in the planning area that contain coal have been divided into one field and five districts: Farewell (Little Tonzona) Coal Field and the Windy Fork, Middle Fork, Cheeneetnuk, Big River, and Nelson Island Districts (see BSWI PRMP/FEIS, Map 3.3.4-1). Most of the coal in the planning area is tertiary-aged and subbituminous. Known coal mineral resources are limited to a few thin coal beds on Nelson and Nunivak Islands, but these are considered noncommercial. Modest amounts of coal from Windy Fork have been used by trappers, prospectors, and big game hunters for local home heating applications. Coal was also noted to have been mined at Flat and used for home heating until the 1930s. Some limited coal exploration of the Little Tonzona River coal deposits occurred in the 1980s for Doyon, Limited. However, this field has no substantial past production.

Geothermal

Two geothermal springs are documented in the planning area: Ophir Hot Springs and Chuilnuk Hot Springs. The only spring that is currently being used as a source of energy is the hot spring occurrence near Ophir Creek.

Mineral Exploration and Mining

The current report analyzing locatable and salable mineral resource potential in the planning area for the BSWI RMP is the *Mineral Occurrence and Development Potential Report – Locatable and Salable Minerals Bering Sea-Western Interior Resource Management Plan* (Kurtak et al. 2017). The findings from this report on past and present activities specific to this resource are summarized in the following subsections. Distribution of mineral occurrences in the planning area is illustrated in the BSWI PRMP/FEIS, Map 3.3.3-1, and is generally concentrated in upland portions of the planning area and lowlands in the immediate vicinity of these uplands where placer deposits occur.

The planning area has a long and colorful mining history, dating back to the late 1830s when Russian traders discovered mercury-bearing minerals along the Kuskokwim River near Aniak. Gold was discovered in the Flat area in 1908, driving one of the last great gold rushes in Alaska. Documented mineral production in the planning area totals 3.2 million ounces of gold, 151,750 ounces of silver, 2.1 million pounds of copper, and 41,767 flasks of mercury. The Red Devil Mine, which was a mercury mine on the middle Kuskokwim River, was mined from 1933 to 1971. The Iditarod Mining District, which includes the Flat area, ranks third in placer gold production in Alaska (Kurtak et al. 2017).

The planning area contains 453 documented mineral occurrences (see BSWI PRMP/FEIS, Map 3.3.3-3) and 2,480 mining claims, with 207 of those under federal management. Mineral occurrences include placer gold, gold-bearing quartz veins, copper-gold skarns, and silica-carbonate mercury deposits. In 2015, there were 19 active placer mines and one active lode mine. Currently, less than 1 percent of the total acreage taken up by mining claims and prospecting sites in the planning area are under federal management. The majority of the mining and mineral exploration is taking place on State of Alaska, Native corporation, or private lands (Kurtak et al. 2017).

Twelve separate companies or individuals (11 open pit placers and one hard rock mine) were estimated to be producing metals (predominantly gold) in the planning area in 2014. Additionally, the Donlin Gold Project near Crooked Creek is an advanced stage exploration project (Kurtak et al. 2017). On August 13, 2018, the U.S. Army Corps of Engineers and BLM issued a joint Federal Record of Decision, along with the Clean Water Act Section 404/Rivers and Harbors Act Section 10 permit and the Offer to Lease for the pipeline ROW at Donlin Gold. The project is currently seeking State permit approval for initial mine startup (NovaGold 2018).

The primary mineral material commodities used in the planning area are crushed rock and sand and gravel. Thirteen material sites were reported to be active in 2008 in Southwest Alaska, which includes the planning area. Sand and gravel are used in construction and road maintenance. Currently, the BLM does not have any requests to develop sand and gravel on BLM-managed land in the planning area because local demands are being met by sand and gravel producers located on private or State-owned lands. This status is unlikely to change in the near future due to lack of appropriate BLM-managed land in the vicinity of population centers that require sand and gravel (Kurtak et al. 2017).

Forest Resources Use

Forest resources in the planning area have historically provided materials for sheltering and heating. House logs and local sawmills have been used to construct housing, lodges, and commercial buildings throughout the area. Firewood is a staple of the subsistence lifestyle for heating and, in some instances, cooking. BLM forests, although generally farther from communities than non-BLM lands, may still play a role in the long-term supply of wood—especially BLM lands near rivers that can assist in wood transport. Most villages have portable sawmills to produce building materials or repair materials locally, and one full sawmill just south of Lower Kalskag in Chuathbaluk has produced building materials for use in the Kuskokwim Basin. There has been recent interest from villages in the use of biomass for heating buildings or communities; these projects could eventually expand to include power generation.

Development of Infrastructure for Communities

There are 65 rural communities in the planning area. Based on 2010 data from the U.S. Census Bureau for these communities, the population in the planning area is approximately 25,000 (U.S. Census Bureau 2010a). The largest population center is Bethel in the southwest portion of the planning area, with a population of 6,080 (U.S. Census Bureau 2010b). Very few roads pass through the planning area; the longest is a 43-mile gravel road that connects Sterling Landing on the Kuskokwim River with the historical mining community of Ophir on the Innoko River. A handful of short roads serving local communities, or remaining from past human activities, also exist. Almost all of these existing roads in the planning area are on lands managed by entities other than the BLM.

Military Activities

Little additional military use and activities are anticipated in the planning area.

Research, Monitoring, and Land Management

Research, monitoring, and land management are frequent activities on non-BLM lands in the planning area. Specifically, fixed-wing aircraft and helicopters are used to transport personnel and equipment and to conduct surveys. Remote areas are also accessed by boats during the summer and snow machines during the winter to conduct research, monitoring, and other land-management activities.

Recreation and Subsistence

Sport hunting and subsistence uses are the most prevalent land uses in the planning area. The undeveloped nature of the planning area, the existence of unique historical features such as the INHT, and the presence of surrounding NWRs provide opportunities for unique outdoor recreational opportunities, including guided hunting, fishing, eco-tourism, and organized events such as the Iditarod Sled Dog Race and the Iron Dog Snowmobile Race. Subsistence fishing and hunting are important for the economies and cultures of many families and communities in Alaska, especially for rural families who depend on subsistence hunting and fishing as sources of nutrition and cultural practices. Subsistence use occurs under both federal subsistence regulations and State general fishing, hunting, and subsistence regulations. ADF&G reports statewide harvest for 2017 as follows: 0.9 percent—subsistence food harvested by Alaska residents (about 34.0 million pounds); 0.1 percent—personal use fishing and hunting under general regulations by Alaskans; 0.2 percent—sport fishing and hunting; 98.6 percent—commercial fisheries (ADF&G 2017a).

Reasonably Foreseeable Future Land Use and Actions

For this analysis, reasonably foreseeable future actions are actions that are external to the proposed action and likely (or reasonably certain) to occur, although they may be subject to a degree of uncertainty, within the next 15 to 25 years. Typically, they are based on documents such as existing plans, permit applications, and fiscal appropriations.

Future Land Use**BLM Lands**

Alternative land use scenarios for BLM-managed land in the planning area are described in Chapter 2 of the BSWI PRMP/FEIS. Conveyance of lands to the State of Alaska and Native corporations is ongoing. On a statewide basis, about 98 percent of the Native conveyances and 95 percent of the State conveyances have been completed.

Donlin Gold LLC, a limited liability company jointly owned by Barrick Gold U.S. Inc. and NovaGold Resources Alaska, Inc., received key permits on August 13, 2018, for development of the Donlin Gold Project, an open pit hardrock mine near the village of Crooked Creek., including ROW permit approval from BLM. The ROW Grant has a term of 30 years. Construction has not yet begun, and Donlin Gold LLC has 8 years from August 13, 2018, to complete construction.

The Donlin Gold Mine Project includes development and operation of an open pit mine, mine facilities, and a port site, as well as ancillary facilities such as airstrips, access roads, material sites, and a

connecting 14-inch-diameter, 316-mile-long natural gas pipeline. The pipeline would cross 97 miles of largely remote and undisturbed BLM-managed land. The total footprint for the temporary 150-foot construction ROW and ancillary facilities on BLM land is 2,329 acres. The total footprint for the 51-foot operations and maintenance ROW on BLM land is 601 acres. The proposed mine and related facilities would have a total footprint of approximately 16,300 acres located throughout 80,600 acres of leased land (USACE 2018). The proposed project would require 3 to 4 years to construct, followed by an active mine life of approximately 27 years. After the end of the Operations Phase, the mine site facilities would be closed and reclaimed as required by permit conditions. The ROW Grant includes stipulations to reduce impacts to the environment. However, Donlin Gold's proposed mine may result in a significant restriction to subsistence uses for communities along the Kuskokwim River and communities along the gas pipeline ROW (Appendix N in USACE 2018). The development of ancillary facilities, temporary access roads, and airstrips developed in association with the pipeline may result in unintended development along this corridor, which affects subsistence gathering regions. Designations that provide measures of protections for aquatic and terrestrial habitats, such as HVW, ACEC, WSRs, and areas managed to preserve wilderness characteristics, will reduce risk to sensitive areas important for the protection of subsistence values.

National Wildlife Refuges

Conservation plans are in place for the refuges that guide management principles. The Yukon Delta plan was prepared in 2004 (USFWS 2004) and the revised Innoko plan was prepared in 2008 (USFWS 2008). This analysis assumes that management of the Yukon Delta and Innoko NWRs would continue as it has during recent decades and as outlined in the current conservation plans. Approximately 1.3 million acres (35 percent of the refuge) southeast of the Innoko River is designated wilderness. Two wilderness areas (Andreafsky Wilderness and Nunivak Wilderness) are designated inside the Yukon Delta NWR, totaling approximately 1.9 million acres. Limited activities are allowed in designated wilderness areas. Wilderness characteristics would be preserved on the majority of the refuge lands that are not designated as wilderness. Development and exploration activities could occur on Native and privately owned lands within the refuge boundaries. While oil and gas development is not reasonably foreseeable on the refuge lands due to low potential, some exploration from Native corporation lands and private land owners within the refuge boundaries could occur. Decisions to allow exploration on refuge lands would be made at the implementation level. These activities would require a Special Use Permit with site-specific stipulations to ensure compatibility with refuge purposes and consistency with comprehensive conservation plan management objectives.

National Park Service Lands

This analysis assumes that the current management direction for the Lake Clark National Park and Preserve would continue. As outlined in the *General Management Plan Amendment* (NPS 2014) and Lake Clark National Park and Preserve Draft Land Protection Plan (NPS 2013), the NPS intends to manage the park to maintain its natural and cultural resource values and maintain and enhance public understanding and enjoyment of these values.

Park and preserve lands are no longer available for new mineral entry and location. Mining could occur on private lands, including Native corporation lands, within the park and preserve boundaries. Additionally, State mineral claims may currently be filed anywhere on State lands inside the unit (the submerged lands beneath the navigable lakes and rivers). As outlined in the Lake Clark National Park and

Preserve Draft Land Protection Plan (NPS 2013), the NPS recommends that the State close the beds of navigable waters to new mineral entry, extraction of oil and gas, and sand and gravel resources and will apply to the State for these closures. The NPS will also pursue cooperative agreements with the State for the management of lands under navigable waterbodies (shorelands).

Mineral development and operation of the existing mining claims within the park boundary could continue. Development of these claims would need to be in compliance with the Mining in the Parks Act (16 U.S.C. 1901 et seq.). NPS (2013) identifies the Johnson River as the area of the park most likely to see future mining.

State Lands

State lands would continue under multiple use management, with uses prioritized to conserve valuable resources in some areas while allowing resource use in other areas. As much as possible, State lands are managed so that uses are compatible with land use on adjoining federal lands. Land use for recreation, subsistence, and tourism may increase as local, state, and national populations grow.

State of Alaska permitting in the planning area is for the proposed Donlin Gold Project's ancillary facilities that would be constructed on State lands, such as material sites and portions of the natural gas pipeline ROW. Project details are listed above in the section "BLM Lands." Significant progress has been made to advance State permitting for the Donlin Gold Mine Project, including issuance of the State air quality and Alaska Pollutant Discharge Elimination System (APDES) wastewater discharge permits (NovaGold 2018).

Native Lands

Economic development of resources is a reasonably foreseeable use of Native-owned lands within the planning area. The Donlin Gold Project, described above in the section "BLM Lands," also includes land leased from Calista Native Corporation, which holds the subsurface (mineral) estate for ANCSA lands in the project area. A surface use agreement with TKC, the village corporation that owns the surface land, grants surface use rights to lands that TKC holds at the mine site. The proposed mine would provide income from employment during both construction and operations of the mine. This would allow employed subsistence users to better afford fuel and equipment necessary for subsistence activities. Project employment and incomes would benefit 25 to 29 percent of area households during the estimated 3- to 4-year construction period and 5 to 9 percent of households during the estimated 27-year operation period (USACE 2018, Section 3.21). Higher mean income levels are associated with lower subsistence productivity at the community level (Wolfe and Walker 1987), suggesting households with jobs and incomes participate less in subsistence activities, and subsistence productivity may increase with lower median income at the community level. Outmigration and adverse effects of rotation work shifts may also affect up to half of households with project employment, with greater impacts in the smaller communities with more concentrated project employment (USACE 2018).

Future Activities

Oil and Gas, Coal, and Geothermal Leasing and Exploration

The development potential for leasable mineral resources such as coal, coal bed natural gas, oil and gas, geothermal, peat, and coalbed natural gas in the planning area is low (BLM 2015b). The expense of

developing some of these resources and the lack of roads or railroads connecting the planning area to the rest of the state would also likely preclude small- and large-scale development in the foreseeable future. Prospective oil and gas basins in the region of the planning area include the Holitna, Bethel, and Minchumina Basins, along with the Yukon Delta. There are 59 pending oil and gas Pre-Reform Act lease offers in the planning area, all within the boundary of the Yukon Delta NWR and therefore have been suspended. No additional oil and gas lease offers may be filed until the land selection process that the State and various Alaska Native entities are undertaking is complete. The BLM will continue its adjudicative role on prior existing rights under the mining laws and process dispositions under the mineral leasing laws or material sales. Some areas of known coal (leasable) mineral potential exist, but there has been little interest in developing it to date.

Mineral Exploration and Mining

A total of 101 areas in the planning area are considered to have high LMP, including a number of areas that are in BLM-managed land and covered by federal mining claims. These include the Nixon Fork Mine area, Flat-Chicken Mountain area, Ophir Creek drainage (Kilbuck Mountains), and the Nyac (Shamrock Creek) area. Additional areas of interest include the high LMP areas on State-selected lands near the Little Creek (west of Donlin), Oskawalik, Julian Creek, and the Granite-Willow Creek areas. Future mineral exploration and mining activities have the potential to occur in these areas and could have impacts on BLM-managed land extending outside the mining claim boundaries (Kurtak et al. 2017). See the discussion of the Donlin Gold Project above in the section “BLM Lands.” Table 1 details the high LMP areas in the planning area as identified in Kurtak et al. (2017).

Table 1: High Locatable Mineral Potential in the Planning Area

District	Name	Production Status	Deposit Type	Land Status
Akiak	Canyon Creek	Past producer	Placer Au-PGE	State
	Cripple Creek	Producer	Placer Au-PGE	State
	Eureka Creek	Past producer	Past producer	Past producer
	Gemuk Mtn	No production	Au-polymetallic	State
	Kisa	No production	Felsic-dike-hosted qtz veinlets	State
	Marvel Creek	Producer	Placer Au-PGE	State
	Nyac Placer	Producer	Placer Au-PGE	Calista Corp./BLM
	Nyac Lode	No production	Plutonic-hosted cu-au polymetallic	Calista Corp.
	Ophir Creek	No production	Placer Au-PGE	BLM
Georgetown	Russian Mtns	No production	Polymetallic veins	Calista Corp.
	Donlin Creek (Ruby Gulch)	Producer	Placer Au-PGE	Calista Corp.
	Donlin Creek (Lewis Gulch)	Producer	Placer Au-PGE	Calista Corp.
	Donlin Creek Lode	No production	Felsic-dike-hosted qtz veinlets	Calista Corp.
	Fortyseven Creek	Past producer	Placer Au-PGE	State
	Granite-Willow Creeks	Producer	Placer Au-PGE	State
	Julian Creek	Producer	Placer Au-PGE	State
	Mountain Top	Past producer	Silica-carbonate Hg	State
	Oskawalik River	No production	Polymetallic replacement deposits and veins	State
	Red Devil	Past producer	Silica-carbonate Hg	BLM
	Murry Gulch	Past producer	Placer Au-PGE	State
	Taylor Creek	Past producer	Placer Au-PGE	State

District	Name	Production Status	Deposit Type	Land Status
Iditarod	Chicken Mtn-Flat	No production	Plutonic-hosted Cu-Au polymetallic	Doyon Ltd
	Decourcy Mtn	Past producer	Silica-carbonate Hg	Calista Corp.
	Flat Creek	Past producer	Placer Au-PGE	BLM
	Golden Horn Mine	Past producer	Plutonic-hosted Cu-Au polymetallic	State
	Little Creek	No production	Placer Au-PGE	State
	Otter Creek	Past producer	Placer Au-PGE	BLM
	Prince Creek	Past producer	Placer Au-PGE	BLM
	Willow Creek	Past producer	Placer-Au-PGE	BLM
	Little Creek	Producer	Placer Au-PGE	Patented
Innoko	Beaver Mtns (Cirque)	No production	Polymetallic vein	State
	Boob Creek-Mt Hurst	Past producer	Placer Au-PGE	State
	Colorado Creek	Past producer	Placer Au-PGE	State
	Cripple Creek	Past producer	Placer Au-PGE	State
	Ester Creek	Past producer	Placer Au-PGE	State
	Esperanto Creek	Past producer	Placer Au-PGE	State
	Ganes Creek (Lower)	Past producer	Placer Au-PGE	Patented
	Ganes Creek (Upper)	Producer	Placer Au-PGE	Patented/State
	Innoko River (Lower)	Past producer	Placer Au-PGE	State
	Montana Creek	Producer	Placer Au-PGE	State
	Moore Creek	Producer	Placer Au-PGE	State
	Yankee Creek (Lower)	Past producer	Placer Au-PGE	Doyon Ltd.
	Yankee Creek (Upper)	Producer	Placer Au-PGE	Patented/ Doyon Ltd./ State
	Win	No production	Sn-polymetallic veins	State
Marshall	Buster Creek	Past producer	Placer Au-PGE	Patented
	Stuyahok – Flat Creek	No production	Felsic-dike-hosted qtz veinlets	Calista Corp.
	Willow Creek	Past producer	Placer Au-PGE	Calista
McGrath	Bowser	No production	Zn-Pb skarn deposits	State
	Broken Shovel	No production	Plutonic-hosted Cu-Au polymetallic	State
	Candle Creek	Producer	Placer Au-PGE	State/ Doyon Ltd.
	Eagle Creek	Past producer	Placer Au-PGE	State
	Nixon Fork Mine	Producer	Cu skarn deposits	BLM/ Doyon Ltd.
	Roberts Pgm	No production	Noril'sk Cu-Ni-PGE	State
	Sheep Creek	No production	Polymetallic replacement deposits and veins	Doyon Ltd.
	Terra	Producer	Low-sulfide Au-quartz veins	State
	Tin Creek	No production	Zn-Pb skarn deposits	Doyon Ltd.
	Vinasale	No production	Plutonic-hosted Cu-Au polymetallic	Doyon Ltd.
Tonzona	Reef Ridge	No production	Southeast Missouri Pb-Zn	Doyon Ltd.

Source: Kurtak et al. (2017)

AU = gold

BLM = Bureau of Land Management

Cu = copper

Hg = mercury

Ni = nickel

Pb = lead

PGE = platinum group element

qtz = quartz

Sn = tin

Zn = zinc

Sand and Gravel

Future demand for additional sand and gravel will be driven by development in the planning area, such as the proposed Donlin Gold Project pipeline that would cross 97 miles of BLM lands.

Peat

It is possible that villages and individuals in the planning area could develop peat as a resource for small-scale energy and heat generation. This type of development is unlikely on BLM-managed land because most villages in the planning area have enough land to harvest peat on their own or from adjacent State lands with fewer restrictions. Additional discussion of peat resources can be found in Section 3.3.8, Renewable Energy, of the BSWI PRMP/FEIS.

Infrastructure and Communities

Potential transportation corridors are under review by the State of Alaska and include two road and ROW corridors—the Western Alaska Access Planning Study (“Road to Nome” Fairbanks–Nome route [DOWL 2010]) and the Yukon-Kuskokwim Energy Corridor Plan (WHPacific Inc. and Information Insights 2015)—both of which would cross BLM-managed land in the planning area. The Western Alaska Access Planning Study has evaluated three routes, including the preferred Yukon River Corridor, to connect the Nome-Council Road to the existing road system in the Fairbanks area. The proposed final stage of the Yukon River Corridor is between the villages of Koyuk and Nulato and would cross BLM-managed land in the Nulato Hills region of the planning area. The Yukon-Kuskokwim Energy Corridor Plan evaluated overland transport routes in the Portage Mountains area to connect the Yukon and Kuskokwim Rivers for fuel and freight transport purposes. The assessed routes would cross BLM-managed land from Paimute Slough on the Yukon River to the northeast of the Upper and Lower Kalskag and Kuskokwim River communities.

Projects that have been studied but not considered as a reasonably foreseeable future action for the time frame of the impact analysis include the following:

- Yukon-Kuskokwim Transportation Corridor – This project was proposed by the Association of Village Council Presidents (funded through a State of Alaska general fund appropriation) and is currently in the planning phase. A report on this potential project was presented at the Association of Village Counsel President’s Annual Convention in 2013 and prepared for Alaska Department of Transportation and Public Facilities. However, the project has no appropriation for construction and is not currently on the Alaska Department of Transportation and Public Facilities’ Statewide Transportation Improvement Program for construction funding or identified in an Alaska Statewide Long Range Transportation Plan (ADOT 2002).
- Road to Nome – A proposed highway from the Interior to Western Alaska was studied by the Alaska Department of Transportation but has not advanced beyond conceptual design. One route that was studied would connect the Elliott Highway near Manley Hot Springs to the end of the Nome-Council Highway. No definite sources of funding for the project have been identified, and it is not currently identified in an Alaska Statewide Long Range Transportation Plan.

State Lands

Activities on State lands and for State-managed resources will continue and increase in proportion to population growth, resource development to generate economic activity and revenue for corporation shareholders, and tourism. The mission of the ADF&G is to protect, maintain, and improve the fish, game, and aquatic resources of the state and manage their use and development in the best interest of the economy and the well-being of the people of the state, consistent with the sustained yield principle (ADF&G 2017b). Education, nongame management and research, and wildlife viewing opportunities are expected to increase. Future actions will address human-wildlife conflicts, subsistence management, and predator management.

Research, Monitoring, and Land Management

Research, monitoring, and land management will continue on federal, State, and Native lands. Remote areas will continue to be accessed by fixed-wing aircraft, helicopters, boats, and snowmobiles, depending on the season.

Subsistence and Recreation

Past recreation, sport hunting, and fishing activities and traditional subsistence practices are expected to continue. Past uses of the INHT are also expected to continue. Recent funding has supported trail improvements such as shelter cabins. Land use for recreation, subsistence, and tourism may increase as local, state, and national populations grow.

Climate Change

Climate change will benefit some subsistence resources and adversely affect others. Frequency and severity of natural wildland fire in western Alaska are predicted to increase and result in shifts to deciduous and shrub-dominated landscapes, which may benefit moose and some furbearers but not caribou. Predicted increases in water temperatures would alter chemical and biotic conditions to the detriment of subsistence fish diversity and abundance. Increases in soil temperatures would result in drying of lakes and ponds.

The following climate warming scenarios are likely in the planning area, based on the Rapid Ecoregional Assessment and the National Climate Assessment and are considered in the cumulative effects analysis:

- Increased temperatures
- Permafrost thaw; the only areas in the planning area that are expected to retain permafrost to a depth of 1 meter, the most influential on vegetation and surface conditions, in the future, aside from isolated pockets, are in the Nulato Hills region.
- Decreased snow cover (albedo effect), subnivean species impacts
- Increased wildland fire intensity, size, and frequency
- Increase in nonnative invasive species presence/spread
- Later freeze-up dates (river ice)
- Sea level rise (salt intrusion, transportation changes)

- Shrub encroachment
- Spruce trees replaced with aspen/birch hardwood trees

3.8 Evaluation and Findings for the Cumulative Case – Alternative A

3.8.1 Evaluation of the Effects of Use, Occupancy, or Disposition on Subsistence Uses and Needs

Based on the analyses in Chapter 3 of the BSWI PRMP/FEIS, potential development of transportation corridors, mineral exploration and development on State and Native lands, and the potential for increased recreational activities occurring in or adjacent to the planning area would have cumulative impacts on subsistence resources. Depending on the location, extent, intensity, and duration of development, these impacts may include alteration of the traditional lifestyles of rural residents, subsistence resource degradation and limits to subsistence access, distribution to and limited abundance of subsistence resources, and increased competition to local subsistence users. The intensity and extent of impacts would differ by alternative, per information presented in Appendix R-1, and the findings are discussed below. The potential list of cumulative activities would, depending on timing, magnitude, duration, intensity, and type of activity, impact the full spectrum of local and regional subsistence species fish and wildlife relative to abundance, distribution, seasonal habitat use, movement patterns, habitat integrity (relative to fragmentation, degradation, conversion).

The continued use of small roads that connect communities in the planning area may aid subsistence users in accessing their traditional harvest areas. However, these small roads may also concentrate hunting efforts along the road/trail corridors, depleting resources from the area, and potentially altering harvest from current traditional harvest areas. Increased competition for subsistence resources would likely result if smaller communities were linked by construction of new transportation corridors because non-resident and non-local hunters would be able to access the area with little effort. This may also result in an increase in recreational use of the area, resulting in additional impacts to wildlife.

3.8.2 Evaluation of the Availability of Other Lands for Land Use Plan Decisions Allowed in the Planning area

The proposed action and/or alternatives are to occur on lands needed for subsistence purposes. For the BSWI RMP, the planning area is by definition the focus, not other areas. Areas outside of the planning area are not subject to the planning process and are outside the scope of the planning process and therefore would not be considered under this analysis. As described, the cumulative case contains information on reasonably foreseeable activities that could have an effect on the management decisions being analyzed as part of the BSWI PRMP/FEIS. The purpose of the cumulative case is to present known ongoing activity by all entities on all lands near or within the planning area, as well as activities that have been proposed for the future and are likely to occur. The cumulative case is not an implementable alternative that specifies land uses and management but is instead a discussion of impacts that could affect the management decisions in Alternatives A through E.

3.8.3 Evaluation of Other Alternatives that would Reduce or Eliminate the Use, Occupancy, or Disposition of Public Lands Needed for Subsistence Purposes

As described, the cumulative case contains information on reasonably foreseeable activities that could have an effect on the management decisions being analyzed as part of the BSWI PRMP/FEIS. The purpose of the cumulative case is to present known ongoing activity by all entities on all lands near or within the planning area, as well as activities that have been proposed for the future and are likely to occur. The cumulative case is not an implementable alternative that specifies land uses and management but is instead a discussion of impacts that could affect the management decisions in Alternatives A through E. Alternatives that would reduce or eliminate other uses of public lands otherwise needed for subsistence include the alternatives that are presented and analyzed in Chapters 2 and 3 of the BSWI PRMP/FEIS. These alternatives were created to represent a wide range of potential activities that could occur on BLM-managed lands, along with management actions that would serve to protect specific resource values following current national guidelines. Additional alternatives that were considered but not analyzed in detail are also discussed in Chapter 2 of the BSWI PRMP/FEIS.

3.8.4 Findings

The cumulative case, together with Alternative A as presented in this analysis, may result in a significant restriction of subsistence uses for the communities of Aniak, Anvik, Bethel, Crooked Creek, Chuathbaluk, Grayling, Holy Cross, Kaltag, Lime Village, Lower Kalskag, Upper Kalskag, Marshall, McGrath, Nikolai, Nulato, Russian Mission, Shageluk, Sleetmute, Stony River, and Unalakleet due to a decrease in resource availability, alteration in the distribution of resources, obstruction to access of resources, and an increase in competition from access by non-qualified subsistence.

Increased recreational activities occurring in or adjacent to the planning area, and climate influences (climate change) may cause a major reduction in the abundance of resources important to subsistence users, such as fish, moose, and caribou. With the trends of continued natural resource development and increased casual and recreational use in the planning area, subsistence resources would continue to be degraded and subsistence users would face increased competition for resources by non-local users. Donlin Gold's proposed mine may result in a restriction to subsistence uses for communities along the Kuskokwim River and communities along the gas pipeline ROW. The development of ancillary facilities, temporary access roads, and airstrips developed in association with the pipeline may result in unintended development along this corridor, which may decrease access to subsistence gathering regions. Designations that provide measures of protections for aquatic and terrestrial habitats, such as HVW, ACEC, wild and scenic rivers, and areas managed to preserve wilderness characteristics, would reduce risk to sensitive areas important for the protection of subsistence values.

3.9 Evaluation and Findings for the Cumulative Case – Alternative B

3.9.1 Evaluation of the Effects of Use, Occupancy, or Disposition on Subsistence Uses and Needs

Based on the analyses in Chapter 3 of the BSWI PRMP/FEIS, potential development of transportation corridors, mineral exploration and development on State and Native lands, and the potential for increased recreational activities occurring in or adjacent to the planning area would have cumulative impacts on subsistence resources. Depending on the location, extent, intensity, and duration of development, these impacts may include alteration of the traditional lifestyles of rural residents, subsistence resource

degradation and limits to subsistence access, distribution to and limited abundance of subsistence resources, and increased competition to local subsistence users. The intensity and extent of impacts would differ by alternative, per information presented in Appendix R-1, and the findings are discussed below.

The potential list of cumulative activities would, depending on timing, magnitude, duration, intensity, and type of activity, impact the full spectrum of local and regional subsistence species fish and wildlife relative to abundance, distribution, seasonal habitat use, movement patterns, habitat integrity (relative to fragmentation, degradation, conversion).

The continued use of small roads that connect communities in the planning area may aid subsistence users in accessing their traditional harvest areas. However, these small roads may also concentrate hunting efforts along the road/trail corridors, depleting resources from the area, and potentially altering harvest from current traditional harvest areas. Increased competition for subsistence resources would likely result if smaller communities were linked by construction of new transportation corridors because non-resident and non-local hunters would be able to access the area with little effort. This may also result in an increase in recreational use of the area, resulting in additional impacts to wildlife.

3.9.2 Evaluation of the Availability of Other Lands for Land Use Plan Decisions Allowed in the Planning area

The proposed action and/or alternatives are to occur on lands needed for subsistence purposes. For the BSWI RMP, the planning area is by definition the focus, not other areas. Areas outside of the planning area are not subject to the planning process and are outside the scope of the planning process and therefore would not be considered under this analysis. As described, the cumulative case contains information on reasonably foreseeable activities that could have an effect on the management decisions being analyzed as part of the BSWI PRMP/FEIS. The purpose of the cumulative case is to present known ongoing activity by all entities on all lands near or within the planning area, as well as activities that have been proposed for the future and are likely to occur. The cumulative case is not an implementable alternative that specifies land uses and management but is instead a discussion of impacts that could affect the management decisions in Alternatives A through E.

3.9.3 Evaluation of Other Alternatives that would Reduce or Eliminate the Use, Occupancy, or Disposition of Public Lands Needed for Subsistence Purposes

Alternatives that would reduce or eliminate other uses of public lands otherwise needed for subsistence include the alternatives that are presented and analyzed in Chapters 2 and 3 of the BSWI PRMP/FEIS. These alternatives were created to represent a wide range of potential activities that could occur on BLM-managed lands, along with management actions that would serve to protect specific resource values following current national guidelines. Additional alternatives that were considered but not analyzed in detail are also discussed in Chapter 2 of the BSWI PRMP/FEIS.

3.9.4 Findings

The cumulative case, together with Alternative B as presented in this analysis and using the data presented in Appendix R-1, may result in a significant restriction of subsistence uses for the communities of Aniak, Anvik, Crooked Creek, Chuathbaluk, Grayling, Holy Cross, Kaltag, Lime Village, Lower Kalskag, Upper Kalskag, Marshall, McGrath, Nikolai, Shageluk, Sleetmute, Stony River, and Unalakleet due to a decrease in resource availability, alteration in the distribution of resources, obstructions to access

of resources, and an increase in competition from access by non-qualified subsistence, primarily because of proximity to mineral extraction.

Increased mineral exploration and development due to the lifting of withdrawals, increased recreational activities occurring in or adjacent to the planning area, and climate influences (climate change) may cause a major reduction in the abundance of resources important to subsistence users, such as fish, moose, and caribou. With the trends of continued natural resource development and increased casual and recreational use in the planning area, subsistence resources would continue to be degraded and subsistence users would face increased competition for available resources by non-local users. For species with habitat or populations that are degrading, this alternative would lessen the rate of degradation or stabilize or counter the existing trend. For species with habitat or populations that are improving, this alternative would allow the improvement to continue at a similar or greater rate. Alternative B would provide a greater measure of protection than the other alternatives for the maintenance and perpetuation of subsistence resources indirectly affected by the development of the Donlin Gold Mine and the associated natural gas pipeline.

3.10 Evaluation and Findings for the Cumulative Case – Alternative C

3.10.1 Evaluation of the Effects of Use, Occupancy, or Disposition on Subsistence Uses and Needs

Based on the analyses in Chapter 3 of the BSWI PRMP/FEIS, potential development of transportation corridors, mineral exploration and development on State and Native lands, and the potential for increased recreational activities occurring in or adjacent to the planning area would have cumulative impacts on subsistence resources. Depending on the location, extent, intensity, and duration of development, these impacts could include alteration of the traditional lifestyles of rural residents, subsistence resource degradation and limits to subsistence access, distribution to and limited abundance of subsistence resources, and increased competition to local subsistence users. The intensity and extent of impacts would differ by alternative, per information presented in Appendix R-1, and the findings are discussed below.

The potential list of cumulative activities would, depending on timing, magnitude, duration, intensity, and type of activity, impact the full spectrum of local and regional subsistence species fish and wildlife relative to abundance, distribution, seasonal habitat use, movement patterns, habitat integrity (relative to fragmentation, degradation, conversion).

The continued use of small roads that connect communities in the planning area may aid subsistence users in accessing their traditional harvest areas. However, these small roads may also concentrate hunting efforts along the road/trail corridors, depleting resources from the area, and potentially altering harvest from current traditional harvest areas. Increased competition for subsistence resources would likely result if smaller communities were linked by construction of new transportation corridors because non-resident and non-local hunters would be able to access the area with little effort. This may also result in an increase in recreational use of the area, resulting in additional impacts to wildlife.

Alternative C would provide a greater measure of protection than Alternatives A, D, and E, but to a lesser extent than Alternative B for the maintenance and perpetuation of subsistence resources indirectly affected by the development of the Donlin Gold Mine and the associated natural gas pipeline.

3.10.2 Evaluation of the Availability of Other Lands for Land Use Plan Decisions Allowed in the Planning area

The proposed action and/or alternatives are to occur on lands needed for subsistence purposes. For the BSWI RMP, the planning area is by definition the focus, not other areas. Areas outside of the planning area are not subject to the planning process and are outside the scope of the planning process and therefore would not be considered under this analysis. As described, the cumulative case contains information on reasonably foreseeable activities that could have an effect on the management decisions being analyzed as part of the BSWI PRMP/FEIS. The purpose of the cumulative case is to present known ongoing activity by all entities on all lands near or within the planning area, as well as activities that have been proposed for the future and are likely to occur. The cumulative case is not an implementable alternative that specifies land uses and management but is instead a discussion of impacts that could affect the management decisions in Alternatives A through E.

3.10.3 Evaluation of Other Alternatives that would Reduce or Eliminate the Use, Occupancy, or Disposition of Public Lands Needed for Subsistence Purposes

Alternatives that would reduce or eliminate other uses of public lands otherwise needed for subsistence include the alternatives that are presented and analyzed in Chapters 2 and 3 of the BSWI PRMP/FEIS. These alternatives were created to represent a wide range of potential activities that could occur on BLM-managed lands, along with management actions that would serve to protect specific resource values following current national guidelines. Additional alternatives that were considered but not analyzed in detail are also discussed in Chapter 2 of the BSWI PRMP/FEIS.

3.10.4 Findings

The cumulative case, together with Alternative C as presented in this analysis and using the data presented in Appendix R-1, may result in a significant restriction of subsistence use for the communities of Aniak, Anvik, Crooked Creek, Chuathbaluk, Grayling, Holy Cross, Kaltag, Lime Village, Lower Kalskag, Upper Kalskag, Marshall, McGrath, Nikolai, Russian Mission, Shageluk, Sleetmute, Stony River, and Unalakleet due to a decrease in resource availability, alteration in the distribution of resources, obstruction to access of resources, and an increase in competition from access by non-qualified subsistence. Increased mineral exploration and development due to the lifting of withdrawals, increased recreational activities occurring in or adjacent to the planning area, and climate influences (climate change) may cause a major reduction in the abundance of resources important to subsistence users, such as fish, moose, and caribou. With the trends of continued natural resource development and increased casual and recreational use in the planning area, subsistence resources would continue to be degraded and subsistence users would face increased competition for available resources by non-local users. For species with habitat or populations that are degrading, the degradation may continue but at a lesser rate and could be stabilized. Alternative C would provide a greater measure of protection than Alternatives A D, and E, but to a lesser extent than Alternative B for the maintenance and perpetuation of subsistence resources indirectly affected by the development of the Donlin Gold Mine and the associated natural gas pipeline.

3.11 Evaluation and Findings for the Cumulative Case – Alternative D

3.11.1 Evaluation of the Effects of Use, Occupancy, or Disposition on Subsistence Uses and Needs

Based on the analyses in Chapter 3 of the BSWI PRMP/FEIS, potential development of transportation corridors, mineral exploration and development on State and Native lands, and the potential for increased recreational activities occurring in or adjacent to the planning area would have cumulative impacts on subsistence resources. Depending on the location, extent, intensity, and duration of development, these impacts may include alteration of the traditional lifestyles of rural residents, subsistence resource degradation and limits to subsistence access, distribution to and limited abundance of subsistence resources, and increased competition to local subsistence users. The intensity and extent of impacts would differ by alternative, per information presented in Appendix R-1, and the findings are discussed below.

The potential list of cumulative activities would, depending on timing, magnitude, duration, intensity, and type of activity, impact the full spectrum of local and regional subsistence species fish and wildlife relative to abundance, distribution, seasonal habitat use, movement patterns, habitat integrity (relative to fragmentation, degradation, conversion).

The continued use of small roads that connect communities in the planning area may aid subsistence users in accessing their traditional harvest areas. However, these small roads may also concentrate hunting efforts along the road/trail corridors, depleting resources from the area, and potentially altering harvest from current traditional harvest areas. Increased competition for subsistence resources would likely result if smaller communities were linked by construction of new transportation corridors because non-resident and non-local hunters would be able to access the area with little effort. This may also result in an increase in recreational use of the area, resulting in additional impacts to wildlife.

For forest and woodland-dwelling species and species in areas of medium to high mineral development that are important as subsistence resources, potential trends could degrade as a result of the cumulative effects of future development, climate change, and fragmentation of habitats. These species would experience a trend of increased degradation or lessened improvement. Donlin Gold's proposed mine may result in a restriction to subsistence uses for communities along the Kuskokwim River and communities along the gas pipeline ROW. Alternative D would provide a greater measure of protection than Alternative A, but to a lesser extent than Alternatives B, C, and E for the maintenance and perpetuation of subsistence resources indirectly affected by the development of the Donlin Gold Mine and the associated natural gas pipeline.

3.11.2 Evaluation of the Availability of Other Lands for Land Use Plan Decisions Allowed in the Planning area

The proposed action and/or alternatives are to occur on lands needed for subsistence purposes. For the BSWI RMP, the planning area is by definition the focus, not other areas. Areas outside of the planning area are not subject to the planning process and are outside the scope of the planning process and therefore would not be considered under this analysis. As described, the cumulative case contains information on reasonably foreseeable activities that could have an effect on the management decisions being analyzed as part of the BSWI PRMP/FEIS. The purpose of the cumulative case is to present known ongoing activity by all entities on all lands near or within the planning area, as well as activities that have been proposed for the future and are likely to occur. The cumulative case is not an implementable

alternative that specifies land uses and management but is instead a discussion of impacts that could affect the management decisions in Alternatives A through E.

3.11.3 Evaluation of Other Alternatives that would Reduce or Eliminate the Use, Occupancy, or Disposition of Public Lands Needed for Subsistence Purposes

Alternatives that would reduce or eliminate other uses of public lands otherwise needed for subsistence include the alternatives that are presented and analyzed in Chapters 2 and 3 of the BSWI PRMP/FEIS. These alternatives were created to represent a wide range of potential activities that could occur on BLM-managed lands, along with management actions that would serve to protect specific resource values following current national guidelines. Additional alternatives that were considered but not analyzed in detail are also discussed in Chapter 2 of the BSWI PRMP/FEIS.

3.11.4 Findings

The cumulative case, together with Alternative D as presented in this analysis and using the data presented in Appendix R-1, may result in a significant restriction of subsistence uses for the communities of Aniak, Anvik, Bethel, Crooked Creek, Chuathbaluk, Grayling, Holy Cross, Kaltag, Lime Village, Lower Kalskag, Upper Kalskag, Marshall, McGrath, Nikolai, Nulato, Russian Mission, Shageluk, Sleetmute, Stony River, and Unalakleet due to a decrease in resource availability, alteration in the distribution of resources, obstruction to access of resources, and an increase in competition from access by non-qualified subsistence. Increased mineral exploration and development due to the lifting of withdrawals, increased recreational activities occurring in or adjacent to the planning area, and climate influences (climate change) may cause a major reduction in the abundance of resources important to subsistence users, such as fish, moose, and caribou. With the trends of continued natural resource development and increased casual and recreational use in the planning area, subsistence resources would continue to be degraded and subsistence users would face increased competition for available resources by non-local users. For forest and woodland-dwelling species and species in areas of medium to high mineral development that are important as subsistence resources, potential trends could degrade as a result of the cumulative effects of future development, climate change, and fragmentation of habitats. These species would experience a trend of increased degradation or lessened improvement. Donlin Gold's proposed mine may result in a restriction to subsistence uses for communities along the Kuskokwim River and communities along the gas pipeline ROW. Alternative D would provide a greater measure of protection than Alternative A but to a lesser extent than Alternatives B, C, and E for the maintenance and perpetuation of subsistence resources indirectly affected by the development of the Donlin Gold Mine and the associated natural gas pipeline.

3.12 Evaluation and Findings for the Cumulative Case – Alternative E

3.12.1 Evaluation of the Effects of Use, Occupancy, or Disposition on Subsistence Uses and Needs

Based on the analyses in Chapter 3 of the BSWI PRMP/FEIS, potential development of transportation corridors, mineral exploration and development on State and Native lands, and the potential for increased recreational activities occurring in or adjacent to the planning area would have cumulative impacts on subsistence resources. Depending on the location, extent, intensity, and duration of development, these impacts could include alteration of the traditional lifestyles of rural residents, subsistence resource

degradation and limits to subsistence access, distribution to and limited abundance of subsistence resources, and increased competition to local subsistence users. The intensity and extent of impacts would differ by alternative, per information presented in Appendix R-1, and the findings are discussed below.

The potential list of cumulative activities would, depending on timing, magnitude, duration, intensity, and type of activity, impact the full spectrum of local and regional subsistence species fish and wildlife relative to abundance, distribution, seasonal habitat use, movement patterns, habitat integrity (relative to fragmentation, degradation, conversion).

The continued use of small roads that connect communities in the planning area may aid subsistence users in accessing their traditional harvest areas. However, these small roads may also concentrate hunting efforts along the road/trail corridors, depleting resources from the area, and potentially altering harvest from current traditional harvest areas. Increased competition for subsistence resources would likely result if smaller communities were linked by construction of new transportation corridors because non-resident and non-local hunters would be able to access the area with little effort. This may also result in an increase in recreational use of the area, resulting in additional impacts to wildlife.

For species with habitat or populations that are degrading, the degradation may continue but at a lesser rate and could be stabilized. Alternative E would provide a greater measure of protection than Alternative A but to a lesser extent than Alternatives B and C, and to a greater extent than D for the maintenance and perpetuation of subsistence resources indirectly affected by the development of the Donlin Gold Mine and the associated natural gas pipeline.

3.12.2 Evaluation of the Availability of Other Lands for Land Use Plan Decisions Allowed in the Planning area

The proposed action and/or alternatives are to occur on lands needed for subsistence purposes. For the BSWI RMP, the planning area is by definition the focus, not other areas. Areas outside of the planning area are not subject to the planning process and are outside the scope of the planning process and therefore would not be considered under this analysis. As described, the cumulative case contains information on reasonably foreseeable activities that could have an effect on the management decisions being analyzed as part of the BSWI PRMP/FEIS. The purpose of the cumulative case is to present known ongoing activity by all entities on all lands near or within the planning area, as well as activities that have been proposed for the future and are likely to occur. The cumulative case is not an implementable alternative that specifies land uses and management but is instead a discussion of impacts that could affect the management decisions in Alternatives A through E.

3.12.3 Evaluation of Other Alternatives that would Reduce or Eliminate the Use, Occupancy, or Disposition of Public Lands Needed for Subsistence Purposes

Alternatives that would reduce or eliminate other uses of public lands otherwise needed for subsistence include the alternatives that are presented and analyzed in Chapters 2 and 3 of the BSWI PRMP/FEIS. These alternatives were created to represent a wide range of potential activities that could occur on BLM-managed lands, along with management actions that would serve to protect specific resource values following current national guidelines. Additional alternatives that were considered but not analyzed in detail are also discussed in Chapter 2 of the BSWI PRMP/FEIS.

3.12.4 Findings

The cumulative case, together with Alternative E as presented in this analysis and using the data presented in Appendix R-1, may result in a significant restriction of subsistence use for the communities of Aniak, Anvik, Crooked Creek, Chuathbaluk, Grayling, Holy Cross, Kaltag, Lime Village, Lower Kalskag, Upper Kalskag, Marshall, McGrath, Nikolai, Nulato, Russian Mission, Shageluk, Sleetmute, Stony River, and Unalakleet due to a decrease in resource availability, alteration in the distribution of resources, obstruction to access of resources, and an increase in competition from access by non-qualified subsistence. Increased mineral exploration and development due to the lifting of withdrawals, increased recreational activities occurring in or adjacent to the planning area, and climate influences (climate change) may cause a major reduction in the abundance of resources important to subsistence users, such as fish, moose, and caribou. With the trends of continued natural resource development and increased casual and recreational use in the planning area, subsistence resources would continue to be degraded and subsistence users would face increased competition for available resources by non-local users. For species with habitat or populations that are degrading, the degradation may continue but at a lesser rate and could be stabilized. Alternative E would provide a greater measure of protection than Alternative A but to a lesser extent than Alternatives B and C and to a greater extent than D for the maintenance and perpetuation of subsistence resources indirectly affected by the development of the Donlin Gold Mine and the associated natural gas pipeline.

Section 4. Notice and Hearings

ANILCA § 810(a) provides that no “withdrawal, reservation, lease, permit, or other use, occupancy or disposition of the public lands which would significantly restrict subsistence uses shall be effected” until the federal agency gives the required notice and holds a hearing in accordance with ANILCA § 810(a)(1) and (2). In announcing the availability of the Draft BSWI RMP/EIS (BLM 2019), the BLM provided notice in the *Federal Register* that it had made positive findings pursuant to ANILCA § 810 that the alternatives and the cumulative case presented in the initial subsistence evaluation met the “may significantly restrict” threshold. As a result, public hearings were held in the vicinity of the potentially affected communities in the planning area in 2019. The BLM held public hearings in the communities of Anchorage, Aniak, Anvik, Bethel, Crooked Creek, Chuathbaluk, Grayling, Holy Cross, Kaltag, Lower Kalskag, Upper Kalskag, McGrath, Nikolai, Nulato, Russian Mission, Sleetmute, and Unalakleet. The determinations presented below are based on the results of the hearings held after the release of the Draft BSWI RMP/EIS. Notice of these hearings was provided by way of the local media, including the newspaper and the local radio station, with coverage to communities in the planning area.

Section 5. Subsistence Determinations Under ANILCA Sections 810(a)(3)(A), (B), and (C)

ANILCA § 810(a) provides that no “withdrawal, reservation, lease, permit, or other use, occupancy or disposition of the public lands which would significantly restrict subsistence uses shall be effected” until the federal agency gives the required notice and holds a hearing in accordance with ANILCA § 810(a)(1) and (2) and makes the three determinations required by ANILCA § 810(a)(3)(A), (B), and (C). The three determinations are (1) that such a significant restriction of subsistence use is necessary, consistent with sound management principles for the utilization of the public lands, (2) that the proposed activity will involve the minimal amount of public lands necessary to accomplish the purposes of such use, occupancy, or other such disposition, and (3) that reasonable steps will be taken to minimize adverse impacts to subsistence uses and resources resulting from such actions (16 U.S.C. 3120(a)(3)(A), (B), and (C)).

The BLM has found in this subsistence evaluation that each of the alternatives considered in the BSWI PRMP/FEIS may significantly restrict subsistence uses. Therefore, the BLM undertook the notice and hearing procedures required by ANILCA § 810(a)(1) and (2) in conjunction with release of the BSWI Draft RMP/FEIS to solicit public comment from the potentially affected communities and subsistence users in Aniak, Anvik, Bethel, Crooked Creek, Chuathbaluk, Grayling, Holy Cross, Kaltag, Lime Village, Lower Kalskag, Upper Kalskag, Marshall, McGrath, Nikolai, Nulato, Russian Mission, Shageluk, Sleetmute, Stony River, and Unalakleet.

The determinations under the requirements of ANILCA § 810(a)(3)(A), (B), and (C) are found in Sections 5.1, 5.2, and 5.3 below.

5.1 Significant Restriction of Subsistence Use is Necessary, Consistent with Sound Management Principles for the Utilization of Public Lands

On July 18, 2013, the BLM issued a Notice of Intent in the *Federal Register* to prepare an RMP and associated EIS for lands administered by the Anchorage Field Office. As defined by the FLPMA of 1976, as amended, public lands are those federally owned lands and interests in lands (e.g., federally owned mineral estate) that are administered by the Secretary of the Interior, specifically through BLM. This includes lands selected, but not yet conveyed, to the State of Alaska and Native corporations and villages.

The approved RMP will meet BLM statutory requirements for a LUP as mandated by Section 202 of FLPMA, which specifies the need for comprehensive LUPs consistent with multiple use and sustained yield objectives. The EIS will fulfill NEPA requirements to disclose and address environmental impacts of proposed major federal actions through a process that includes public participation and cooperation with other agencies.

After considering a broad range of alternatives, a proposed action was developed that serves to fulfill the multiple-use mission of BLM. Through the completion of this RMP/EIS, the BLM proposes to provide a comprehensive LUP that will guide management of the public lands and interests administered by the Anchorage Field Office.

Current management of these lands in part is guided by the SWMFP and a small portion of the CYRMP, including amendments (BLM 1981; BLM 1986). Since approval of the SWMFP in 1981 and CYRMP in 1986, new regulations and policies and changes in land status have created additional considerations that affect the management of public lands. In addition, new issues and concerns have arisen over the past 25

years. Consequently, some of the decisions in the SWMFP and CYRMP are no longer valid or have been superseded by requirements that did not exist when the SWMFP and CYRMP were prepared.

The BLM has selected Alternative E as the Proposed RMP.

BLM has determined that the significant restriction that may occur under the Proposed RMP, when considered together with all the possible impacts of the cumulative case, is necessary, consistent with sound management principles for the use of these public lands, and necessary for BLM to fulfill the management goals for the Planning Area as guided by the statutory directives in FLPMA and other applicable laws.

5.2 The Proposed Activity Will Involve the Minimal Amount of Public Lands Necessary to Accomplish the Purposes of such Use, Occupancy, or Other Disposition

BLM has determined that the Proposed RMP involves the minimal amount of public lands necessary to accomplish the purposes of the proposed action—which is the creation of an inclusive, comprehensive plan that provides clear direction to both BLM and the public on how BLM lands and resources in the BSWI Planning Area should be managed. The Proposed RMP is only applicable to BLM lands within the planning area.

5.3 Reasonable Steps Will be Taken to Minimize Adverse Impacts upon Subsistence Uses and Resources Resulting from such Actions

When BLM began its NEPA scoping process for the BSWI RMP, it internally identified subsistence use as one of the major issues to be addressed based on scoping comments, consultation, and input from public meetings, and which has been reinforced by comments received on the Draft RMP/EIS. The results of public scoping meetings in communities throughout the planning area, consultation with tribal governments, and numerous meetings and correspondence with local governments were all used to craft the Proposed RMP. In addition, BLM took into consideration comments from villages and individuals during the ANILCA § 810 Subsistence Hearings. This information resulted in protections and management parameters that are beneficial to subsistence use and are included as part of the Proposed RMP. These include the following:

- Designation of ROW avoidance areas that could protect locations of sensitive subsistence resources from ground disturbance
- Designation of visual resource management designations that limit the scope of landscape-altering development
- Establishment of SOPs and BMPs (Appendix O) for all permitted activities within the planning area
- Limitations on ground disturbance and permanent structures in the 100-year floodplain
- Review of proposed mineral development projects in the planning area
- Adoption of mining stipulations (Appendix O) that serve to protect subsistence resources and their habitats from mining activity and development by stipulating the acceptable parameters under which mining exploration and development can be conducted on BLM lands

Given these steps, BLM has determined that the final Proposed RMP includes reasonable steps to minimize adverse impacts on subsistence uses and resources that may result from the proposed action.

5.4 Conclusion

The BLM has determined that, after consideration of all alternatives, subsistence evaluations, and public hearings, such a significant restriction of subsistence uses is necessary and consistent with sound management principles for the utilization of this land, and that Alternative E (the Proposed RMP) will involve the minimal amount of public lands necessary to accomplish the approved RMP. Finally, reasonable steps have and will be taken to minimize the adverse impacts upon subsistence uses and resources arising from this action.

Section 6. References

- ADF&G (Alaska Department of Fish and Game). 2016. Community Subsistence Information System (CSIS). Kaltag, Bethel, Upper Kalskag, Lower Kalskag, Lime Village, Marshall, Shageluk, Holy Cross, Nulato, and Unalakleet. Available from: <http://www.ADF&G.alaska.gov/sb/CSIS/index.cfm?ADF&G=commInfo.Summary&CommID=59&Year=2012> (accessed October 24, 2016).
- ADF&G. 2017a. Subsistence in Alaska: A Year 2017 Update. Division of Subsistence, Anchorage, Alaska. Accessed August 10, 2020. Available at: https://www.adfg.alaska.gov/static/home/subsistence/pdfs/subsistence_update_2017.pdf ADNR (Alaska Department of Natural Resources). 1988. Kuskokwim Area Plan. Available at: <http://dnr.alaska.gov/mlw/planning/areaplans/kuskokwim/> (accessed October 2018)
- ADF&G. 2017b. Alaska Department of Fish and Game “Agency Mission,” accessed December 6, 2017. Available at: <http://www.adfg.alaska.gov/index.cfm?adfg=about.mission>
- ADNR (Alaska Department of Natural Resources). 1988. Kuskokwim Area Plan. Available at: <http://dnr.alaska.gov/mlw/planning/areaplans/kuskokwim/> (accessed October 2018)
- ADNR. 1991. Tanana Basin Area Plan. Available at: <http://dnr.alaska.gov/mlw/planning/areaplans/tanana/> (accessed October 2018).
- ADNR. 2002. Wood-Tikchik State Park Management Plan. Available at: <http://dnr.alaska.gov/parks/plans/woodt/woodtpln.htm> (accessed October 2018).
- ADOT (Alaska Department of Transportation and Public Facilities). 2002. Yukon Kuskokwim Delta Transportation Plan. Executive Summary.
- Bergstrom, D.J., K.C. Schultz, V. Golembeski, B.M. Borba, D. Huttunen, L.H. Barton, T.L. Lingnau, R.R. Holder, J.S. Hayes, K.R. Boeck, and W.H. Busher. 1999. Annual management report Yukon Area, 1998. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A99-26, Anchorage.
- BLM (U.S. Bureau of Land Management). 1981. Management Framework Plan, Southwest Planning Area. Anchorage: BLM Anchorage District Office. Available at: <https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage&currentPageId=48431> (accessed October 2016).
- BLM. 1986. Central Yukon Planning Area Resource Management Plan and Record of Decision, September 1986. Fairbanks District Office, Northwest Resource Area. Available at: <https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage&currentPageId=48431> (accessed October 2016).
- BLM. 2005. Land Use Planning Handbook (H-1601-1). March 11, 2005. Washington, DC. Available at: https://www.ntc.blm.gov/krc/uploads/360/4_BLM%20Planning%20Handbook%20H-1601-1.pdf (accessed July 31, 2018).
- BLM. 2010. Instruction Manual, Bureau of Land Management (BLM) Instructions and Policy for Compliance with Section 810 the Alaska National Interest Lands Conservation Act (ANILCA). Available at: <https://www.blm.gov/policy/im-ak-2011-008>.

- BLM. 2015a. BSWI Preliminary Alternatives Comment Summary Report, August 2015. Available at: https://eplanning.blm.gov/epl-front-office/projects/lup/36665/62070/67313/FINAL_BSWI_Prelim_Alts_Rpt_and_Appendices.pdf (accessed August 1, 2016).
- BLM. 2015b. Mineral Occurrence and Development Potential Report for Leasable Minerals within the Bering Sea – Western Interior Planning Area. Prepared by Zachary Lyons, Geologist, Energy and Minerals Branch, Division of Resources, BLM Alaska State Office. January 2015. Available at: https://eplanning.blm.gov/epl-front-office/projects/lup/36665/43890/58028/2015-01-07_LeasableMineralsReport.pdf.
- BLM. 2016. Areas of Critical Environmental Concern Report on the Application of the Relevance and Importance Criteria. Bering Sea Western Interior Resource Management Plan. Original publication April 2015. Revised version October 2016. Bureau of Land Management, Anchorage Field Office, Anchorage, Alaska. Available at: <https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage&currentPageId=48431> (accessed October 2016).
- BLM. 2019. Bering Sea-Western Interior Draft Resource Management Plan and Environmental Impact Statement.
- Brown, C., Burr, J., Elkin, K., and R. J. Walker. 2005. Contemporary Subsistence Uses and Population Distribution of Non-salmon Fish in Graying, Anvik, Shageluk, and Holy Cross. Prepared by ADF&G, Fairbanks, AK. Technical Paper 289.
- Brown, C., J.S. Magdanz, D.S. Koster and N.M. Braem. 2012. Subsistence Harvests in 8 Communities in the Central Kuskokwim River Drainage, 2009. Alaska Department of Fish & Game, Division of Subsistence. Technical paper No. 365.
- DOWL. 2010. Western Alaska Access Planning Study Corridor Planning Report. Executive Summary. Prepared for State of Alaska, Department of Transportation and Public Facilities. Northern Region Planning. 14 p.
- Fall, J.A., editor. 2013. Report on proposed changes to non-subsistence areas. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 386, Anchorage.
- Ikuta, H., C.L. Brown, and D.S. Koster. 2014. Subsistence Harvests in 8 Communities in the Kuskokwim River Drainage and Lower Yukon River, 2011. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 396. Fairbanks, AK.
- Kurtak, J., J. Hoppe, and R. Ellefson. 2017. Mineral Occurrence and Development Potential Report, Locatable and Salable Minerals. BLM Alaska Technical Report 63, July 2017. Available at: https://eplanning.blm.gov/epl-front-office/projects/lup/36665/145032/178739/2017_Minerals_Occurrence_and_Development_Potential_Report_Rev1.pdf.
- NovaGold. 2018. NovaGold. 2018. Donlin Gold Permitting. Available at: http://www.novagold.com/properties/donlin_gold/permitting/ (accessed September 7, 2018).
- NPS (National Park Service). 2009. Lake Clark National Park and Preserve Foundation Statement, October 2009. National Park Service, Alaska Regional Office.
- NPS. 2013. Lake Clark National Park and Preserve Draft Land Protection Plan.
- NPS. 2014. General Management Plan Amendment/Environmental Assessment.

- Soong, J., A. Banducci, S. Kent, and J. Menard. 2008. 2007 annual management report Norton Sound, Port Clarence, and Kotzebue. Alaska Department of Fish and Game, Fishery Management Report No. 08-39, Anchorage.
- Stubby, L. 2012. Spawning locations, seasonal distribution, and migration timing of Kuskokwim River sheefish using radiotelemetry, 2007-2011. Alaska Department of Fish and Game, Fish Data Series No. 12-65, Anchorage.
- U.S. Census Bureau. 2010a. 2010 Census Fact Finder. Available at: <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml> (accessed October 2016).
- U. S. Census Bureau. 2010b. 2010 Community Facts Search Bethel City. Available at: https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml (accessed October 2018).
- USACE (U.S. Army Corps of Engineers). 2018. Donlin Gold Project Final Environmental Impact Statement. Alaska District.
- USFWS (U.S. Fish and Wildlife Service). 2004. Land Conservation Plan for Yukon Delta National Wildlife Refuge, Bethel, Alaska. Available at: https://www.fws.gov/r7/nwr/planning/pdf/YD_LCP.pdf (accessed October 2018)
- U. S. Fish and Wildlife Service (USFWS). 2008. *Revised Comprehensive Conservation Plan: Innoko National Wildlife Refuge*.
- WHPacific Inc., and Information Insights. 2015. *Yukon-Kuskokwim Energy Corridor Plan*. Executive Summary. Prepared for Nuvista Light and Electric Cooperative, Inc. Draft June 2015. 89 p.
- Wolfe, R. J., and R. J. Walker. 1987. Subsistence economies in Alaska: productivity, geography, and development impacts. *Arctic Anthropology*. 24(2): 56-81.

Appendix R-1: Impact Methodology and Results

Impact Methodology

The Final Alaska National Interest Lands Conservation Act (ANILCA) Section 810 Evaluation performed for the Bering–Sea Western Interior (BSWI) Resource Management Plan (RMP)/Environmental Impact Statement (EIS) included a quantitative and qualitative analysis to identify which communities may have a significant restriction to subsistence uses.

The ANILCA § 810 evaluations in this section are based on information related to the environmental and subsistence consequences of Alternatives A through E and the cumulative impacts analysis as presented in Chapter 3, Affected Environment and Environmental Consequences, of the Draft BSWI RMP/EIS. The standard operating procedures (SOPs) and best management practices (BMPs) are discussed in Appendix K of the Draft BSWI RMP/EIS and were also considered for the alternatives to which they apply. The evaluations and findings focus on potential impacts to the subsistence resources themselves as well as access to resources and economic and cultural issues that relate to subsistence.

The action alternatives (Alternatives B, C, D, and E), and the leasing stipulations and SOPs that accompany them, take into consideration comments and concerns generated during the scoping and alternative scoping process for the Draft BSWI RMP/EIS, and public review of that document, including consultation with federally recognized tribal governments.

Through feedback provided during the scoping meetings and through other public involvement actions, the BLM made a preliminary determination that land management decisions considered in the BSWI RMP/EIS may restrict subsistence uses and resources within the following communities in the planning area: Aniak, Anvik, Bethel, Crooked Creek, Chuathbaluk, Grayling, Holy Cross, Kaltag, Lime Village, Lower Kalskag, Marshall, McGrath, Nikolai, Nulato, Russian Mission, Shageluk, Sleetmute, Stony River, Unalakleet, and Upper Kalskag. These communities are evaluated in the ANILCA Section 810 Evaluation presented in this appendix.

The impact analysis focused on the following three management actions as they were identified to have the most potential to significantly restrict abundance of, availability to, or access to subsistence resources:

- **Areas open to locatable mineral development in known subsistence use areas.** Impacts from locatable mineral development could occur to the availability of subsistence resources as wildlife species would likely move out of the area while exploration, operation, and reclamation activities occur. Subsistence users would likely make some adjustments to where they might traditionally harvest resources and then target resources that would be less affected by mineral development activities. Only areas of medium to high locatable mineral potential (LMP) were considered.
- **Off-highway vehicle (OHV) closures to subsistence use areas.** Summer subsistence OHV travel restrictions could obstruct existing routes to subsistence resources used by rural communities.
- **Areas open to rights-of-way (ROWs).** Areas open for ROW development could impact availability of subsistence resources due to the long-term impact ROWs could have on availability of subsistence resources by changing species movement patterns. New ROWs would likely be associated with locatable mineral development for roads and pipelines needed for transportation of personnel, equipment, and resources. Access to subsistence resources and

traditional harvest areas could be of low to high magnitude depending on the portions of the nearby communities' harvest areas that are affected and could be adverse or beneficial.

While these three management actions have the most potential to restrict subsistence uses and resources, other proposed management actions could potentially have an impact on these resources and users as well. Due to the wide-scale and broad nature of an RMP, these three actions were chosen as representative of the impacts that RMP decisions could have on users and resources.

Quantitative Analysis

In determining the impacts threshold for quantitative analysis, for the management actions listed above (i.e., areas open to locatable mineral development in a location of medium/high LMP, areas of OHV restrictions for subsistence use, and areas open to ROW development), if the overlap of the decision geography was found to cover 10 percent or greater of the total subsistence use area for the community (regardless of ownership of land), a rebuttable presumption of significance was made. Areas with less than a 10 percent overlap could have specific impacts to individuals that use those areas; however, these impacts were presumed to be less than significant. If there is no overlap, there is an assumption of no significant adverse effect (i.e., no positive finding).

Qualitative Analysis

Potentially significant impacts identified per the quantitative analysis were next reviewed using a qualitative approach. For the qualitative analysis, a potentially significant impact was determined if the analyzed management action intersects a known travel route; closure would occur during the season in which the resource is harvested; closure would impact a resource that is heavily relied upon by a community; or, in the case of ROW development under Alternative A, all BLM-managed lands are open to ROW development and lack adequate best management practices/standard operating procedures to protect subsistence resources and uses.

Assumptions

Due to similarities between some communities we may be able to make assumptions to “reasonably predict” subsistence use areas for communities where detailed subsistence use area data was not available:

- Shageluk and Holy Cross are located within the Lower Middle Yukon River in an area that is referred to as the “GASH.” It was assumed that subsistence use information for these two communities is the same as other GASH communities for which we do have data (Grayling and Anvik).
- For Marshall, subsistence uses would be similar to other communities that are upstream (such as Holy Cross).
- Kaltag has similar subsistence uses as Unalakleet due to the proximity of the two communities, though Unalakleet also harvests marine mammals due to its location near the coast. Marine mammals were not analyzed in the Final ANILCA 810 document.
- Lime Village and Nulato are very small communities; however, they are dependent on specific caribou herds.

Impact Analysis Results

A “(+)” symbol indicates a positive finding for one or more subsistence use areas within the community for the respective management action (LM = locatable minerals; OHV = subsistence OHV access; ROW = Right-of-Way) and a “(-)” symbol indicates a negative finding. Communities with a positive finding for a minimum of one subsistence use area for a minimum of one management action are considered to have a positive finding for the purposes of this analysis.

Community	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Aniak	LM (-) OHV (+) ROW (+)	LM (+) OHV (-) ROW (+)	LM (+) OHV (-) ROW (+)	LM (+) OHV (+) ROW (+)	LM (+) OHV (-) ROW (+)
Anvik	LM (-) OHV (+) ROW (+)	LM (-) OHV (+) ROW (-)	LM (-) OHV (+) ROW (-)	LM (-) OHV (+) ROW (+)	LM (-) OHV (+) ROW (+)
Bethel	LM (-) OHV (+) ROW (+)	LM (-) OHV (-) ROW (-)	LM (-) OHV (-) ROW (-)	LM (-) OHV (+) ROW (-)	LM (-) OHV (-) ROW (-)
Crooked Creek	LM (-) OHV (+) ROW (+)	LM (+) OHV (-) ROW (+)	LM (+) OHV (-) ROW (+)	LM (+) OHV (+) ROW (+)	LM (+) OHV (-) ROW (+)
Chuathbaluk	LM (+) OHV (+) ROW (+)	LM (+) OHV (-) ROW (-)	LM (+) OHV (-) ROW (-)	LM (+) OHV (+) ROW (+)	LM (+) OHV (-) ROW (+)
Grayling	LM (-) OHV (+) ROW (+)	LM (-) OHV (+) ROW	LM (-) OHV (+) ROW (+)	LM (-) OHV (+) ROW (+)	LM (-) OHV (+) ROW (+)
Holy Cross	LM (-) OHV (+) ROW (+)	LM (-) OHV (-) ROW (+)	LM (-) OHV (-) ROW (+)	LM (-) OHV (+) ROW (+)	LM (-) OHV (-) ROW (+)
Kaltag	LM (-) OHV (+) ROW (+)	LM (-) OHV (+) ROW (+)	LM (-) OHV (+) ROW (+)	LM (-) OHV (+) ROW (+)	LM (-) OHV (+) ROW (+)
Lime Village	LM (-) OHV (+) ROW (+)	LM (-) OHV (+) ROW (+)	LM (-) OHV (+) ROW (+)	LM (-) OHV (+) ROW (+)	LM (-) OHV (+) ROW (+)
Lower Kalskag	LM (+) OHV (+) ROW (+)	LM (+) OHV (-) ROW (-)	LM (+) OHV (-) ROW (+)	LM (+) OHV (+) ROW (+)	LM (+) OHV (-) ROW (+)
Marshall	LM (-) OHV (+) ROW (+)	LM (-) OHV (-) ROW (+)	LM (-) OHV (-) ROW (+)	LM (-) OHV (+) ROW (+)	LM (-) OHV (-) ROW (+)
McGrath	LM (-) OHV (+) ROW (+)	LM (+) OHV (+) ROW (+)	LM (+) OHV (-) ROW (+)	LM (+) OHV (+) ROW (+)	LM (+) OHV (-) ROW (+)
Nikolai	LM (-) OHV (+) ROW (+)	LM (-) OHV (+) ROW (+)	LM (-) OHV (+) ROW (+)	LM (-) OHV (+) ROW (+)	LM (-) OHV (+) ROW (+)
Nulato	LM (-) OHV (+) ROW (+)	LM (-) OHV (-) ROW (-)	LM (-) OHV (-) ROW (-)	LM (-) OHV (+) ROW (-)	LM (-) OHV (-) ROW (+)
Russian Mission	LM (-) OHV (+) ROW (+)	LM (-) OHV (-) ROW (-)	LM (-) OHV (-) ROW (+)	LM (-) OHV (+) ROW (+)	LM (-) OHV (-) ROW (+)
Shageluk	LM (-) OHV (+) ROW (+)	LM (-) OHV (+) ROW (-)	LM (-) OHV (+) ROW (+)	LM (-) OHV (+) ROW (+)	LM (-) OHV (+) ROW (+)

Community	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Sleetmute	LM (-) OHV (+) ROW (+)	LM (+) OHV (+) ROW (+)	LM (+) OHV (+) ROW (+)	LM (+) OHV (+) ROW (+)	LM (+) OHV (+) ROW (+)
Stony River	LM (-) OHV (+) ROW (+)	LM (-) OHV (+) ROW (-)	LM (-) OHV (+) ROW (+)	LM (-) OHV (+) ROW (+)	LM (-) OHV (+) ROW (+)
Unalakleet	LM (-) OHV (+) ROW (+)	LM (-) OHV (+) ROW (+)	LM (-) OHV (+) ROW (+)	LM (-) OHV (+) ROW (+)	LM (-) OHV (+) ROW (+)
Upper Kalskag	LM (+) OHV (+) ROW (+)	LM (+) OHV (-) ROW (+)	LM (+) OHV (-) ROW (+)	LM (+) OHV (+) ROW (+)	LM (+) OHV (-) ROW (+)

Impact Analysis Results—Aniak

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Hunting and Trapping (LLM)	Black Bear Caribou Moose	41.2	LM: 3% of use area. Closest open area is located ~25 miles from the town. It covers a portion of the Kolmakof River, but a majority of the river corridor is withdrawn. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: 2% of use area. Closest open area is located ~15 miles from the village, but most areas located 20 miles or more from town. Open areas are located towards the northern and eastern boundaries of the use polygon, and generally leave areas around waterways clear. There is a potential chokepoint that could occur along the Kuskokwim River near the confluence of Kolmakof River, though travel could still take place on the Kuskokwim River itself. Additionally, there is a route along a valley area that is withdrawn from locatable and may serve as a travel route. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 40% of the use area limits summer casual use to existing trails. This same 40% is also limited to snowmobiles only for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 12% of use area would be open to ROW location, 27% would be ROW avoidance areas, and 0.6% would be ROW exclusion areas. LLM are the second most heavily harvested resource category (by edible weight) for Aniak. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A, but may still have a significant impact. Positive (+).	LM: 7% of use area. Closest open area is located ~15 miles from the village, but most areas located 20 miles or more from town. Open areas are located towards the northern and eastern boundaries of the use polygon, and generally leave areas around waterways clear. There is a potential chokepoint that could occur along the Kuskokwim River near the confluence of Kolmakof River, though travel could still take place on the Kuskokwim River itself even if this section were fully developed. Larger amount of land impacted than Alternative A. LLM are the second most heavily harvested resource (by weight) for Aniak. Positive (+). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 40% of the use area limits summer casual use to existing trails. There is no limit on casual winter use. Therefore, there is no access restriction for subsistence uses and some protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 20% of the use area is open to ROW location and 20% would be ROW avoidance areas. LLM are the second most heavily harvested resource category (by edible weight) for Aniak. This could have a potentially significant impact on subsistence uses and resources, but is less than Alternative A, which has no restrictions. Positive (+).	LM: Same as Alternative C. Positive (+). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: 40% of the use area would be open to ROW location, 0.6% of the use area would be a ROW avoidance area, and virtually none of the use area would be ROW avoidance for linear realty actions. LLM are the second most heavily harvested resource category (by edible weight) for Aniak. This could have a potentially significant impact on subsistence uses and resources, but is less than Alternative A, which has no restrictions. Positive (+).	LM: 7% of use area. Closest open area is located ~15 miles from the village, but most areas located 20 miles or more from town. Open areas are located towards the northern and eastern boundaries of the use polygon, and generally leave areas around waterways clear. There is a potential chokepoint that could occur along the Kuskokwim River near the confluence of Kolmakof River, though travel could still take place on the Kuskokwim River itself even if this section were fully developed. Larger amount of land impacted than Alternative A. LLM are the second most heavily harvested resource (by weight) for Aniak. Positive (+). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 40% of the use area limits summer casual use to existing trails. There is no limit on casual winter use. Therefore, there is no access restriction for subsistence uses and some protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 40% of the use area is open to ROW location, 0.6% would be ROW avoidance, and virtually none of the use area would be ROW avoidance for linear realty actions. LLM are the second most heavily harvested resource category (by edible weight) for Aniak. This could have a potentially significant impact on subsistence uses and resources, but is less than Alternative A, which has no restrictions. This alternative has the most potential to result in significant impacts of all the action alternatives. Positive (+).
Hunting and Trapping (SLM)	SLM	3.2	LM: 3% of use area. Closest open area is located ~25 miles from the town. The open areas are concentrated in the Kolmakof River watershed and cross portions of Kolmakof River, Quinn Creek, and Getmuna Creek. Majority of SLM area is closer to the village and does not overlap with mineral decision areas. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: 2% of use area. Closest open area that overlaps with use polygon is over 20 miles from the village. The open areas are concentrated in the Kolmakof River watershed, but do not cross the Kolmakof River or Getmuna Creek. A small portion of Quinn Creek is open. Majority of SLM area is closer to the village and does not overlap with mineral decision areas. Less impacts as compared to Alternative A. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 32% of the use area limits summer casual use to existing trails. This same 32% is also limited to snowmobiles only for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 9% of use area would be open to ROW location, 23% would be ROW avoidance areas, and 0.5% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: 8% of use area. Closest open area that overlaps with use polygon is over 20 miles from the village. The open areas are concentrated in the Kolmakof River watershed and cross portions of Kolmakof River, Quinn Creek, and Getmuna Creek. Larger amount of land impacted than Alternative A. Positive (+). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 32% of the use area limits summer casual use to existing trails. This same 32% is also limited to snowmobiles only for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 15% of use area would be open to ROW location, 18% would be ROW avoidance areas, and close to 0% would be ROW avoidance areas for linear realty actions. This alternative would minimize habitat fragmentation and degradation in these areas as compared to Alternative A but may still have significant impacts. Positive (+).	LM: Same as Alternative C. Positive (+). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: 25% of use area would be open to ROW location and 7% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas as compared to Alternative A but may still have significant impacts. Positive (+).	LM: 8% of use area. Closest open area that overlaps with use polygon is over 20 miles from the village. The open areas are concentrated in the Kolmakof River watershed and cross portions of Kolmakof River, Quinn Creek, and Getmuna Creek. Larger amount of land impacted than Alternative A. Positive (+). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 32% of the use area limits summer casual use to existing trails. This same 32% is also limited to snowmobiles only for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 32% of use area would be open to ROW location, 0.4% would be ROW avoidance areas, and 0.1% would be ROW avoidance areas for linear realty actions. This alternative would minimize habitat fragmentation and degradation in these areas as compared to Alternative A but may still have significant impacts. This alternative has the most potential to result in significant impacts of all the action alternatives. Positive (+).

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Hunting (Birds)	Ducks Geese	2.0	LM: No overlap in open areas and use areas. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: 0.5% of use area. Open areas are along edges of use area along the Kuskokwim River and do not appear to block travel routes (i.e., there is area along the river shore and the river itself to travel farther into the use area). Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 19% of the use area limits summer casual use to existing trails. This same 19% is also limited to snowmobiles only for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 13% of use area would be open to ROW location, 4% would be ROW avoidance areas, and 3% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A, but is above the threshold for impacts. Positive (+).	LM: 0.06% of use area. Open areas are along edges of use area along the Kuskokwim River and do not appear to block travel routes (i.e., though a portion of the use area land upstream of the confluence of Seuter Creek is open, the river itself can be used to travel farther into the use area). Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 19% of the use area limits summer casual use to existing trails. Therefore, there is no access restriction for subsistence uses and greater protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 16% of use area would be open to ROW location and 4% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A, but is above the threshold for impacts. Positive (+).	LM: Same as Alternative C. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: 17% of use area would be open to ROW location and 2% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas as compared to Alternative A but is above the threshold for impacts. Positive (+).	LM: 0.06% of use area. Open areas are along edges of use area along the Kuskokwim River and do not appear to block travel routes (i.e., though a portion of the use area land upstream of the confluence of Seuter Creek is open, the river itself can be used to travel farther into the use area). Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 19% of the use area limits summer casual use to existing trails. Therefore, there is no access restriction for subsistence uses and greater protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 16% of use area would be open to ROW location, 2% would be ROW avoidance areas, and 1% would be ROW avoidance areas for linear realty actions. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A, but is above the threshold for impacts. Positive (+).
Fishing	Salmon Trout Whitefish	Salmon: 190.04 Non-Salmon Fish: 49.58	LM: Closest areas to high/med mineral potential areas are withdrawn from locatable mining. The closest open area to fishing locations is over 5 miles away. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: Areas open to locatable minerals with high/med potential are near (right along the shoreline) to fishing locations along the Kuskokwim River (near the confluence of Kolmakof River). Fishing resources are the majority of the subsistence resources harvested by this community (in edible lbs.) and made up 82% of the edible harvest in 2009. Positive (+). OHV: No limits to access for subsistence users. Casual summer use is limited to existing trails in several areas close to fishing locations, and winter casual use is limited to snowmobiles only in these same areas. Negative (-). ROW: Fish are the most heavily harvested resource (by edible weight) for Aniak. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A, but may still have a significant impact due to the prevalence of open and avoidance areas near fishing locations. Positive (+).	LM: Areas open to locatable minerals with high/med potential are near (right along the shoreline) to fishing locations along the Kuskokwim River (near the confluence of Kolmakof River). Fishing resources are the majority of the subsistence resources harvested by this community (in edible lbs.) and make up 82% of the edible harvest in 2009. Positive (+). OHV: No limits to access for subsistence users. Casual summer use is limited to existing trails in several areas close to fishing locations, but there are no limitations on winter casual use. Therefore, there is no access restriction for subsistence uses and greater protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: Fish are the most heavily harvested resource (by edible weight) for Aniak. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A, but may still have a significant impact due to the prevalence of open and avoidance areas near fishing locations. Positive (+).	LM: Areas open to locatable minerals with high/med potential are near (right along the shoreline) to fishing locations along the Kuskokwim River (near the confluence of Kolmakof River). Fishing resources are the majority of the subsistence resources harvested by this community (in edible lbs.) and make up 82% of the edible harvest in 2009. Positive (+). OHV: Summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Fish is the most harvested resources (by weight) in this community. Positive (+). ROW: Numerous areas open to ROW near fishing locations that could impede access and decrease availability of resources. Positive (+).	LM: Areas open to locatable minerals with high/med potential are near (right along the shoreline) to fishing locations along the Kuskokwim River (near the confluence of Kolmakof River). Fishing resources are the majority of the subsistence resources harvested by this community (in edible lbs.) and make up 82% of the edible harvest in 2009. Positive (+). OHV: No limits to access for subsistence users. Casual summer use is limited to existing trails in several areas close to fishing locations, but there are no limitations on winter casual use. Therefore, there is no access restriction for subsistence uses and greater protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: Fish are the most heavily harvested resource (by edible weight) for Aniak. All of the BLM-managed land surrounding the fishing locations for Aniak is open to ROW placement. The closest area that would be ROW avoidance is approximately 25 miles away. This alternative has the most potential to result in significant impacts of all the action alternatives. Positive (+).

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Gathering	Berries Plants	5.8	LM: No overlap in open areas and use areas. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: 0.6% of use area. Some open areas along the Kuskokwim River on both sides of the bank. However, does not appear to block travel routes as the river is still accessible, as are portions of the bank on either side. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 19% of the use area limits summer casual use to existing trails. This same 19% is also limited to snowmobiles only for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 8% of use area would be open to ROW location, 12% would be ROW avoidance areas, and 0% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: 0.09% of use area. Some open areas along the Kuskokwim River on both sides of the bank. However, does not appear to block travel routes as the river is still accessible, as are portions of the bank on either side. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 19% of the use area limits summer casual use to existing trails. 0% of the use area has limitations placed on winter casual use and therefore all winter OHVs are allowed. Gathering does not make up a substantial part of the harvesting in this community (in edible lbs.). Negative (-). ROW: 10% of use area would be open to ROW location and 9% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A, but is to a threshold that could be significant even though gathering does not make up a substantial part of the harvesting for this community (in edible lbs.). Positive (+).	LM: Same as Alternative C. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: 16% of use area would be open to ROW location and 3% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A, but is to a threshold that could be significant even though gathering does not make up a substantial part of the harvesting for this community (in edible lbs.). Positive (+).	LM: 0.09% of use area. Some open areas along the Kuskokwim River on both sides of the bank. However, does not appear to block travel routes as the river is still accessible, as are portions of the bank on either side. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 19% of the use area limits summer casual use to existing trails. 0% of the use area has limitations placed on winter casual use and therefore all winter OHVs are allowed. Gathering does not make up a substantial part of the harvesting in this community (in edible lbs.). Negative (-). ROW: 19% of use area would be open to ROW location This could have a potentially significant impact on subsistence uses and resources, but is less than Alternative A, which has no restrictions. This alternative has the most potential to result in significant impacts of all the action alternatives. Positive (+).

Notes:
LLM: large land mammal
LM: locatable minerals with med/high potential
OHV: travel decisions relating to OHV use
ROW: right-of-way decisions
SLM: small land mammal

Selected lands do not qualify as Federal Public Lands under ANILCA § 810; however, because of the planning-level resolution of this analysis, all BLM-managed lands were considered, regardless of land status. BLM land use decisions considered in this PRMP/FEIS would not apply to State of Alaska and ANCSA Native corporation–selected lands unless the selection by the State or ANCSA Native corporation was relinquished or rejected.

1) This column shows which species the BSWI EIS Team has GIS data for at the time of the FEIS release. Communities may have differing sets of data available or may be missing data completely for an aggregated category. In most instances where data sets for "Hunting and Trapping (SLM)" were available, the subsistence use area did not specify which species are included in the use area.

2) Per capita harvest by edible weight from calendar year 2009. Bird value includes birds and eggs. Data are from the ADF&G Community Subsistence Information System (CSIS), available at <http://www.adfg.alaska.gov/sb/CSIS/>, accessed in 2018.

Impact Analysis Results—Anvik

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Hunting and Trapping (LLM)	Moose	90.0	LM: No overlap in open areas and use areas. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: No overlap in open areas and use areas. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 8% is restricted for winter subsistence use. 36% of the use area limits summer casual use to existing trails. This same 36% is also limited to snowmobiles only for casual winter use. There would be some access restriction for subsistence uses in the 8% of the use area that limits winter subsistence use to snowmobiles only. This alternative provides the greatest protection against habitat degradation and competing uses, as compared to Alternative A. While the access restrictions do not meet the 10% threshold for impacts, this is one of the top harvested resources in the community (in edible lbs.). Positive (+). ROW: 3% of use area would be open to ROW location, 15% would be ROW avoidance areas, and 18% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: No overlap in open areas and use areas. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 8% is restricted for winter subsistence use. 36% of the use area limits summer casual use to existing trails. 8% is also limited to snowmobiles only for casual winter use. There would be some access restriction for subsistence uses in the 8% of the use area that limits winter subsistence use to snowmobiles only. This alternative provides the better protection against habitat degradation and competing uses, as compared to Alternative A. While the access restrictions do not meet the 10% threshold for impacts, this is one of the top harvested resources in the community (in edible lbs.). Positive (+). ROW: 4% of use area would be open to ROW location, 31% would be ROW avoidance areas, and 1% would be ROW avoidance areas for linear realty actions. This alternative would decrease the potential for habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: No overlap in open areas and use areas. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: 6% of use area would be open to ROW location, 30% would be ROW avoidance areas. This alternative would reduce the potential for habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: No overlap in open areas and use areas. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 8% is restricted for winter subsistence use. 36% of the use area limits summer casual use to existing trails. 8% is also limited to snowmobiles only for casual winter use. There would be some access restriction for subsistence uses in the 8% of the use area that limits winter subsistence use to snowmobiles only. This alternative provides the better protection against habitat degradation and competing uses, as compared to Alternative A. While the access restrictions do not meet the 10% threshold for impacts, this is one of the top harvested resources in the community (in edible lbs.). Positive (+). ROW: 18% of use area would be open to ROW location, 9% would be ROW avoidance areas, and 9% would be ROW avoidance areas for linear realty actions. This could have a potentially significant impact on subsistence uses and resources, but is less than Alternative A, which has no restrictions. This alternative has the most potential to result in significant impacts of all the action alternatives. Positive (+).
Hunting and Trapping (SLM)	Beaver SLM	19.3	LM: No overlap in open areas and use areas. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: No overlap in open areas and use areas. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 5% is restricted for winter subsistence use. 26% of the use area limits summer casual use to existing trails. This same 26% is also limited to snowmobiles only for casual winter use. There would be some access restriction for subsistence uses in the 5% of the use area that limits winter subsistence use to snowmobiles only. This alternative provides the greatest protection against habitat degradation and competing uses, as compared to Alternative A. The access restrictions do not hit 10% of the use area, and this is not one of the top harvested resources. Negative (-). ROW: 3% of use area would be open to ROW location, 4% would be ROW avoidance areas, and 19% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: No overlap in open areas and use areas. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 5% is restricted for winter subsistence use. 26% of the use area limits summer casual use to existing trails. There would be some access restriction for subsistence and casual uses in the 5% of the use area that limits winter OHV use to snowmobiles only. This alternative provides higher protection against habitat degradation and competing uses, as compared to Alternative A, though it provides some access restrictions to portions of the use area. Negative (-). ROW: 6% of use area would be open to ROW location, 6% would be ROW avoidance areas, and 14% would be ROW avoidance areas for linear realty actions. This alternative would decrease habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: No overlap in open areas and use areas. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: 25% of use area would be open to ROW location, 1% would be ROW avoidance areas. This alternative would decrease habitat fragmentation and degradation in these areas, as compared to Alternative A, but would rise to a level of significance because of the amount of land impacted. Positive (+).	LM: No overlap in open areas and use areas. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 5% is restricted for winter subsistence use. 26% of the use area limits summer casual use to existing trails. There would be some access restriction for subsistence and casual uses in the 5% of the use area that limits winter OHV use to snowmobiles only. This alternative provides higher protection against habitat degradation and competing uses, as compared to Alternative A, though it provides some access restrictions to portions of the use area. Negative (-). ROW: 7% of use area would be open to ROW location, nearly 0% would be ROW avoidance areas, and 19% would be ROW avoidance areas for linear realty actions. This alternative would decrease habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Hunting (Birds)	Ducks Geese Ptarmigan Grouse	12.8	LM: No overlap in open areas and use areas. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: No overlap in open areas and use areas. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 2% is restricted for winter subsistence use. 21% of the use area limits summer casual use to existing trails. This same 21% is also limited to snowmobiles only for casual winter use. There would be some access restriction for subsistence uses in the 2% of the use area that limits winter subsistence use to snowmobiles only. This alternative provides the greatest protection against habitat degradation and competing uses, as compared to Alternative A. While the access restrictions do not hit 10% of the use area, and this is not one of the top harvested resources. Negative (-). ROW: 3% of use area would be open to ROW location, 4% would be ROW avoidance areas, and 14% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: No overlap in open areas and use areas. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 2% is restricted for winter subsistence use. 21% of the use area limits summer casual use to existing trails. There would be some access restriction for subsistence and casual uses in the 2% of the use area that limits winter OHV use to snowmobiles only. This alternative provides higher protection against habitat degradation and competing uses, as compared to Alternative A, though it provides some access restrictions to portions of the use area. Negative (-). ROW: 4% of use area would be open to ROW location, 12% would be ROW avoidance areas, and 5% would be ROW avoidance areas for linear realty actions. This alternative would decrease habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: No overlap in open areas and use areas. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: 11% of use area would be open to ROW location, and 10% would be ROW avoidance areas. This alternative would decrease habitat fragmentation and degradation in these areas, as compared to Alternative A, but would rise to a level of significance because of the amount of land impacted. Positive (+).	LM: No overlap in open areas and use areas. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 2% is restricted for winter subsistence use. 21% of the use area limits summer casual use to existing trails. There would be some access restriction for subsistence and casual uses in the 2% of the use area that limits winter OHV use to snowmobiles only. This alternative provides higher protection against habitat degradation and competing uses, as compared to Alternative A, though it provides some access restrictions to portions of the use area. Negative (-). ROW: 7% of use area would be open to ROW location, 7% would be ROW avoidance areas, and 7% would be ROW avoidance areas for linear realty actions. This alternative would decrease habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).
Fishing	Burbot Chinook Chum Northern Pike Pike Salmon Sheefish Whitefish	Salmon: 231.8 Non-salmon Fish: 34.8	LM: No overlap in open areas and use areas. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: No overlap in open areas and use areas. Negative (-). OHV: Some areas limit winter subsistence use to snowmobiles only, but if these areas are accessed for any winter fishing, the access would not be impeded by these areas closed to larger winter OHVs as the river areas up to the fishing locations are open to all subsistence OHV use. Negative (-). ROW: None of the fishing locations would be covered by an area that is open to ROWs, though some spots are located close to areas that are ROW avoidance areas. Access would not be impeded by ROWs as the Yukon River is able to be used to access these fishing spots unimpeded. Negative (-).	LM: No overlap in open areas and use areas. Negative (-). OHV: Some areas limit winter subsistence use to snowmobiles only, but if these areas are accessed for any winter fishing, the access would not be impeded by these areas closed to larger winter OHVs as the river areas up to the fishing locations are open to all subsistence OHV use. Negative (-). ROW: None of the fishing locations would be covered by an area that is open to ROWs, though some spots are located close to areas that are ROW avoidance areas. Access would not be impeded by ROWs as the Yukon River is able to be used to access these fishing spots unimpeded. Negative (-).	LM: No overlap in open areas and use areas. Negative (-). OHV: Access to fishing areas will not be impacted by OHV use as the locations are mostly within a 10-mile radius from the community and directly accessible through the Yukon River and a tributary creek that is near the Anvik community. Negative (-). ROW: None of the fishing locations would be covered by an area that is open to ROWs, though some spots are located close to areas that are ROW avoidance areas. Access would not be impeded by ROWs as the Yukon River is able to be used to access these fishing spots unimpeded. Negative (-).	LM: No overlap in open areas and use areas. Negative (-). OHV: Some areas limit winter subsistence use to snowmobiles only, but if these areas are accessed for any winter fishing, the access would not be impeded by these areas closed to larger winter OHVs as the river areas up to the fishing locations are open to all subsistence OHV use. Negative (-). ROW: None of the fishing locations would be covered by an area that is open to ROWs, though some spots are located close to areas that are ROW avoidance areas. Large areas upstream of Anvik are open to ROW development, but areas near to the fishing locations are ROW avoidance or ROW avoidance for linear realty actions. Access would not be impeded by ROWs as the Yukon River is able to be used to access these fishing spots unimpeded. Negative (-).
Gathering	Berries Greens	2.2	LM: No overlap in open areas and use areas. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: No overlap in open areas and use areas. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. 31% of the use area limits summer casual use to existing trails. This same 31% is also limited to snowmobiles only for casual winter use. There would be no access restriction for subsistence uses. This alternative provides the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 3% of use area would be open to ROW location, 16% would be ROW avoidance areas, and 13% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: No overlap in open areas and use areas. Negative (-). OHV: OHV: 0% of use area is restricted for summer subsistence use and 5% is restricted for winter subsistence use. 26% of the use area limits summer casual use to existing trails. There would be some access restriction for subsistence and casual uses in the 5% of the use area that limits winter OHV use to snowmobiles only. This alternative provides higher protection against habitat degradation and competing uses, as compared to Alternative A, though it provides some access restrictions to portions of the use area. Negative (-). ROW: 3% of use area would be open to ROW location, 23% would be ROW avoidance areas, and 6% would be ROW avoidance areas for linear realty actions. This alternative would decrease habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: No overlap in open areas and use areas. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: 8% of use area would be open to ROW location, 23% would be ROW avoidance areas. This alternative would decrease habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: No overlap in open areas and use areas. Negative (-). OHV: OHV: 0% of use area is restricted for summer subsistence use and 5% is restricted for winter subsistence use. 26% of the use area limits summer casual use to existing trails. There would be some access restriction for subsistence and casual uses in the 5% of the use area that limits winter OHV use to snowmobiles only. This alternative provides higher protection against habitat degradation and competing uses, as compared to Alternative A, though it provides some access restrictions to portions of the use area. Negative (-). ROW: 18% of use area would be open to ROW location, 7% would be ROW avoidance areas, and 6% would be ROW avoidance areas for linear realty actions. This could have a potentially significant impact on subsistence uses and resources, but is less than Alternative A, which has no restrictions. This alternative has the most potential to result in significant impacts of all the action alternatives. Positive (+).

Notes:
LLM: large land mammal
LM: locatable minerals with med/high potential
OHV: travel decisions relating to OHV use
ROW: right-of-way decisions
SLM: small land mammal

- 1) This column shows which species the BSWI EIS Team has GIS data for at the time of the FEIS release. Communities may have differing sets of data available or may be missing data completely for an aggregated category. In most instances where data sets for "Hunting and Trapping (SLM)" were available, the subsistence use area did not specify which species are included in the use area.
- 2) Per capita harvest by edible weight from calendar year 2011. Data are from the ADF&G Community Subsistence Information System (CSIS), available at <http://www.adfg.alaska.gov/sb/CSIS/>, accessed in 2018.

Impact Analysis Results—Bethel

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Hunting and Trapping (LLM)	Black Bear Brown Bear Caribou	43.3	LM: Close to 0% of use area overlaps with LM with med/high potential. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: 0.3% of the use area would be open to locatable with high/med potential. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. 4% of the use area limits summer casual use to existing trails. This same 4% is also limited to snowmobiles only for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-) . ROW: 1% of use area would be open to ROW location, 3% would be ROW avoidance areas, and <0.1% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-) .	LM: 1% of use area overlaps with LM with med/high potential. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. 4% of the use area limits summer casual use to existing trails. 0% of the use area has limitations placed on winter casual use and therefore all winter OHVs are allowed. LLM does make up a substantial part of the harvesting in this community (in edible lbs.). Negative (-) . ROW: 2% of use area would be open to ROW location, 3% would be ROW avoidance areas, and nearly 0% would be ROW avoidance areas for linear realty actions. This alternative would reduce habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-) .	LM: Same as Alt C. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+) . ROW: 3% of use area would be open to ROW location, 1% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-) .	LM: 1% of use area overlaps with LM with med/high potential. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. 4% of the use area limits summer casual use to existing trails. 0% of the use area has limitations placed on winter casual use and therefore all winter OHVs are allowed. LLM does make up a substantial part of the harvesting in this community (in edible lbs.). Negative (-) . ROW: 4% of use area would be open to ROW location, and close to 0% would be ROW avoidance areas and ROW avoidance areas for linear realty actions. This alternative would reduce habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-) .
Hunting (marine mammals)	Beluga Seal Walrus	3.2	No overlap	No overlap	No overlap	No overlap	No overlap
Fishing	Salmon Sheefish Whitefish	Salmon: 68.8 Non-salmon Fish: 33.3	LM: There is no overlap between this use area and the areas with med/high LM potential. Additionally, only one fishing location is near land that is open to LM with med/high potential. Majority of locations are over 100 river miles downstream. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: There is no overlap between this use area and the areas with med/high LM potential. Additionally, only one fishing location is near land that is open to LM with med/high potential. Majority of locations are over 100 river miles downstream. Negative (-) . OHV: Majority of the fishing locations are not near BLM land. There is no restriction on access for subsistence users, and the limitations on casual summer and winter OHV use provide the highest degree of protection, as compared to Alternative A. Negative (-) . ROW: Two fishing locations on the Kuskokwim River are near areas open to ROW development. The majority of the fishing locations, however, lie near the village and would be unimpacted by ROW development. Negative (-) .	LM: There is no overlap between this use area and the areas with med/high LM potential. Additionally, only one fishing location is near land that is open to LM with med/high potential. Majority of locations are over 100 river miles downstream. Negative (-) . OHV: Majority of the fishing locations are not near BLM land. There is no restriction on access for subsistence users, and the limitations on casual summer and winter OHV use provide a higher degree of protection, as compared to Alternative A. Negative (-) . ROW: Two fishing locations on the Kuskokwim River are near areas open to ROW development. The majority of the fishing locations, however, lie near the village and would be unimpacted by ROW development. Negative (-) .	LM: Same as Alt C. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+) . ROW: Two fishing locations on the Kuskokwim River are near areas open to ROW development. The majority of the fishing locations, however, lie near the village and would be unimpacted by ROW development. Negative (-) .	LM: There is no overlap between this use area and the areas with med/high LM potential. Additionally, only one fishing location is near land that is open to LM with med/high potential. Majority of locations are over 100 river miles downstream. Negative (-) . OHV: Majority of the fishing locations are not near BLM land. There is no restriction on access for subsistence users, and the limitations on casual summer and winter OHV use provide a higher degree of protection, as compared to Alternative A. Negative (-) . ROW: Two fishing locations on the Kuskokwim River are near areas open to ROW development. The majority of the fishing locations, however, lie near the village and would be unimpacted by ROW development. Negative (-) .

Notes:
LLM: large land mammal
LM: locatable minerals with med/high potential
OHV: travel decisions relating to OHV use
ROW: right-of-way decisions
SLM: small land mammal

To provide a conservative analysis, State and ANCSA Native corporation–selected lands were included in the locatable mineral development portion of the analysis; however, these lands would not be open to locatable mineral development until the selection by the State or ANCSA Native corporation was relinquished or rejected. Available data for the Community of Bethel did not include hunting and trapping (small land mammals), hunting (birds), and gathering subsistence use areas.

1) This column shows which species the BSWI EIS Team has GIS data for at the time of the FEIS release. Communities may have differing sets of data available or may be missing data completely for an aggregated category. In most instances where data sets for "Hunting and Trapping (SLM)" were available, the subsistence use area did not specify which species are included in the use area.

2) Per capita harvest by edible weight from calendar year 2012. Data are from the ADF&G Community Subsistence Information System (CSIS), available at <http://www.adfg.alaska.gov/sb/CSIS/>, accessed in 2018.

Impact Analysis Results—Crooked Creek

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Hunting and Trapping (LLM)	Black Bear Moose	25.5	LM: 4% of use area. Closest open area is located ~25 miles from the village. Open areas are located towards the northern and eastern boundaries of the use polygon and leave most areas around waterways clear. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: Less than 1% of the use area would be open to locatable with high/med potential, and 6% would be withdrawn. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. 57% of the use area limits summer casual use to existing trails. This same 57% is also limited to snowmobiles only for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 3% of use area would be open to ROW location, 54% would be ROW avoidance areas, and 0% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: 6% of the use area would be open to locatable, with high/med potential. LLM are one of the most highly harvested resources for this community, and the impacts would be greater than Alternative A. Positive (+). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. 57% of the use area limits summer casual use to existing trails. 0% of the use area has limitations placed on winter casual use and therefore all winter OHVs are allowed. Negative (-). ROW: 20% of use area would be open to ROW location, 37% would be ROW avoidance areas. This alternative would decrease habitat fragmentation and degradation in avoidance areas, as compared to Alternative A, but is over the threshold for impacts for the areas open to ROWs. Positive (+).	LM: Same as Alternative C. Positive (+). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: 31% of use area would be open to ROW location, 26% would be ROW avoidance areas. This alternative would decrease habitat fragmentation and degradation in these areas, as compared to Alternative A, but is over the threshold for impacts for the areas open to ROWs. This could result in impacts to the availability of resources. Positive (+).	LM: 6% of the use area would be open to locatable, with high/med potential. LLM are one of the most highly harvested resources for this community, and the impacts would be greater than Alternative A. Positive (+). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. 57% of the use area limits summer casual use to existing trails. 0% of the use area has limitations placed on winter casual use and therefore all winter OHVs are allowed. Negative (-). ROW: 57% of use area would be open to ROW location. This could have a potentially significant impact on subsistence uses and resources, but is less than Alternative A, which has no restrictions. This alternative has the most potential to result in significant impacts of all the action alternatives. Positive (+).
Hunting and Trapping (SLM)	SLM	6.8	LM: No land within the use area would be open. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: Less than 1% of the use area would be open to locatable with high/med potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. 37% of the use area limits summer casual use to existing trails. This same 37% is also limited to snowmobiles only for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 0.1% of use area would be open to ROW location, 37% would be ROW avoidance areas, and 0% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: Same as Alternative B. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. 37% of the use area limits summer casual use to existing trails. 0% of the use area has limitations placed on winter casual use and therefore all winter OHVs are allowed. SLM does not make up a substantial part of the harvesting in this community (in edible lbs.). Negative (-). ROW: 3% of use area would be open to ROW location and 35% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: Same as Alternative B. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: 7% of use area would be open to ROW location and 31% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: Same as Alternative B. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. 37% of the use area limits summer casual use to existing trails. 0% of the use area has limitations placed on winter casual use and therefore all winter OHVs are allowed. SLM does not make up a substantial part of the harvesting in this community (in edible lbs.). Negative (-). ROW: 37% of use area would be open to ROW location. This could have a potentially significant impact on subsistence uses and resources, but is less than Alternative A, which has no restrictions. This alternative has the most potential to result in significant impacts of all the action alternatives. Positive (+).
Hunting (Birds)	Ducks Geese	1.8	LM: Less than 1% of the use area would be open to locatable with high/med potential. An estimated 2 edible lbs per capita of birds and eggs were harvested by Crooked Creek residents in 2009. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: 1% of the use area would be open to locatable with high/med potential. An estimated 2 edible lbs per capita of birds and eggs were harvested by Crooked Creek residents in 2009. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. 3% of the use area limits summer casual use to existing trails. This same 3% is also limited to snowmobiles only for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. An estimated 2 edible lbs per capita of birds and eggs were harvested by Crooked Creek residents in 2009. Negative (-). ROW: 1% of use area would be open to ROW location, 1% would be ROW avoidance areas, and 0% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: Same as Alternative A. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. 3% of the use area limits summer casual use to existing trails. 0% of the use area has limitations placed on winter casual use and therefore all winter OHVs are allowed. Negative (-). ROW: 1% of use area would be open to ROW location and 1% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: Same as Alternative A. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: 2% of use area would be open to ROW location, 1% would be ROW avoidance areas, and 0% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: Same as Alternative A. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. 3% of the use area limits summer casual use to existing trails. 0% of the use area has limitations placed on winter casual use and therefore all winter OHVs are allowed. Negative (-). ROW: 3% of use area would be open to ROW location. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Fishing	Salmon Trout Whitefish	Salmon: 171.1 Non-salmon Fish: 29.2	LM: No fishing locations would be near areas with med/high potential for locatable mineral development and the majority of the uses would be easily accessible from the village. The closest area is approximately 11 river miles from the furthest upstream fishing site. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive .	LM: There are a few portions of locatable mineral sites directly upstream of fishing sports along Crooked Creek. 82% of the harvested resources in 2009 (by edible lbs.) was fish. While most of the areas on the shorelines are withdrawn from mineral actions, areas within the water basin are open and are situated approximately 3.5 river miles from the closest fishing location. This is a greater impact than Alternative A. Positive (+) . OHV: There are no restrictions to OHV use for subsistence users. Some restrictions for casual winter and summer use would provide protections to the habitat and resource, as compared to Alternative A. Negative (-) . ROW: Numerous areas around known fishing locations for the community are open to ROW development. This could cause habitat degradation and introduce new competing users to the area. Fishing is the most heavily harvested resource (by edible weight) for the community. Positive (+) .	LM: There are a few portions of locatable mineral sites directly upstream of fishing sports along Crooked Creek. 82% of the harvested resources in 2009 (by edible lbs.) was fish. This is also greater impacts than Alternative A. Positive (+) . OHV: There are no restrictions to OHV use for subsistence users. Some restrictions for casual winter and summer use would provide protections to the habitat and resource, as compared to Alternative A. Negative (-) . ROW: Numerous areas around known fishing locations for the community are open to ROW development. This could cause habitat degradation and introduce new competing users to the area. Fishing is the most heavily harvested resource (by edible weight) for the community. Positive (+) .	LM: Same as Alternative C. Positive (+) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+) . ROW: Numerous areas around known fishing locations for the community are open to ROW development. This could cause habitat degradation and introduce new competing users to the area. Fishing is the most heavily harvested resource (by edible weight) for the community. Positive (+) .	LM: There are a few portions of locatable mineral sites directly upstream of fishing sports along Crooked Creek. 82% of the harvested resources in 2009 (by edible lbs.) was fish. This is also greater impacts than Alternative A. Positive (+) . OHV: There are no restrictions to OHV use for subsistence users. Some restrictions for casual winter and summer use would provide protections to the habitat and resource, as compared to Alternative A. Negative (-) . ROW: Numerous areas around known fishing locations for the community are open to ROW development. This could cause habitat degradation and introduce new competing users to the area. Fishing is the most heavily harvested resource (by edible weight) for the community. Positive (+) .
Gathering	Berries Plants	10.9	LM: 0% of the use area would be open to locatable with high/med potential. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: 2% of the use area would be open to locatable with high/med potential. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. 20% of the use area limits summer casual use to existing trails. This same 20% is also limited to snowmobiles only for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-) . ROW: 7% of use area would be open to ROW location, 13% would be ROW avoidance areas, and close to 0% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Gathering is not one of the top harvesting activities by volume for the community. Negative (-) .	LM: Less than 1% of the use area would be open to locatable with high/med potential. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. 20% of the use area limits summer casual use to existing trails. 0% of the use area has limitations placed on winter casual use and therefore all winter OHVs are allowed. Negative (-) . ROW: 9% of use area would be open to ROW location and 12% would be ROW avoidance areas. This alternative would decrease habitat fragmentation and degradation in these areas, as compared to Alternative A. Gathering is not one of the top harvesting activities by volume for the community. Negative (-) .	LM: Same as Alternative C. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+) . ROW: 18% of use area would be open to ROW location and 3% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. This is above the impacts threshold. Positive (+) .	LM: Less than 1% of the use area would be open to locatable with high/med potential. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. 20% of the use area limits summer casual use to existing trails. 0% of the use area has limitations placed on winter casual use and therefore all winter OHVs are allowed. Negative (-) . ROW: 20% of use area would be open to ROW location This could have a potentially significant impact on subsistence uses and resources, but is less than Alternative A, which has no restrictions. This alternative has the most potential to result in significant impacts of all the action alternatives. Positive (+) .

Notes:
LLM: large land mammal
LM: locatable minerals with med/high potential
OHV: travel decisions relating to OHV use
ROW: right-of-way decisions
SLM: small land mammal

To provide a conservative analysis, State and ANCSA Native corporation–selected lands were included in the locatable mineral development portion of the analysis; however, these lands would not be open to locatable mineral development until the selection by the State or ANCSA Native corporation was relinquished or rejected.

1) This column shows which species the BSWI EIS Team has GIS data for at the time of the FEIS release. Communities may have differing sets of data available or may be missing data completely for an aggregated category. In most instances where data sets for "Hunting and Trapping (SLM)" were available, the subsistence use area did not specify which species are included in the use area.

2) Per capita harvest by edible weight from calendar year 2009. Data are from the ADF&G Community Subsistence Information System (CSIS), available at <http://www.adfg.alaska.gov/sb/CSIS/>, accessed in 2018.

Impact Analysis Results—Chuathbaluk

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Hunting and Trapping (LLM)	Black Bear Caribou Moose	40.9	LM: 0% of the use area would be open to locatable with high/med potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: 1% of the use area would be open to locatable with high/med potential. This is below the significance threshold but is for a resource that is the second-most harvested resource category (in edible lbs.) for the community (17% of edible harvested lbs. in 2009). This is also a larger impact than Alternative A. Positive (+). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. 16% of the use area limits summer casual use to existing trails. This same 16% is also limited to snowmobiles only for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 2% of use area would be open to ROW location, 14% would be ROW avoidance areas, and 0% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: 4% of the use area would be open to locatable with high/med potential. This is below the significance threshold but is for a resource that is the second-most harvested resource (in edible lbs.) for the community (17% of edible harvested lbs. in 2009). This is also a larger impact than Alternative A. Positive (+). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. 16% of the use area limits summer casual use to existing trails. 0% of the use area has limitations placed on winter casual use and therefore all winter OHVs are allowed. LLM does make up a substantial part of the harvesting in this community (in edible lbs.) and is the second most harvest resource. Negative (-). ROW: 6% of use area would be open to ROW location and 10% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: Same as Alternative C. Positive (+). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: 10% of use area would be open to ROW location and 6% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. This is over the threshold for impacts and could result in impacts to access and availability of resources. Positive (+).	LM: 4% of the use area would be open to locatable with high/med potential. This is below the significance threshold but is for a resource that is the second-most harvested resource (in edible lbs.) for the community (17% of edible harvested lbs. in 2009). This is also a larger impact than Alternative A. Positive (+). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. 16% of the use area limits summer casual use to existing trails. 0% of the use area has limitations placed on winter casual use and therefore all winter OHVs are allowed. LLM does make up a substantial part of the harvesting in this community (in edible lbs.) and is the second most harvest resource. Negative (-). ROW: 16% of use area would be open to ROW location. This could have a potentially significant impact on subsistence uses and resources, but is less than Alternative A, which has no restrictions. This alternative has the most potential to result in significant impacts of all the action alternatives. Positive (+).
Hunting and Trapping (SLM)	SLM	8.0	LM: There is no overlap between SLM and LM areas with med/high potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: There is no overlap between SLM and LM areas with med/high potential. Negative (-). OHV: There is no overlap between SLM and OHV decisions. Negative (-). ROW: There is no overlap between SLM and ROW decisions. Negative (-).	LM: There is no overlap between SLM and LM areas with med/high potential. Negative (-). OHV: There is no overlap between SLM and OHV decisions. Negative (-). ROW: There is no overlap between SLM and ROW decisions. Negative (-).	LM: There is no overlap between SLM and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: There is no overlap between SLM and ROW decisions. Negative (-).	LM: There is no overlap between SLM and LM areas with med/high potential. Negative (-). OHV: There is no overlap between SLM and OHV decisions. Negative (-). ROW: There is no overlap between SLM and ROW decisions. Negative (-).
Hunting (Birds)	Ducks Geese	2.5	LM: Less than 1% of the use area overlaps with LM areas with med/high potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: Less than 1% would be open to locatable with high/med potential. Negative (-). OHV: There is almost no (close to 0%) overlap between bird hunting areas and OHV decisions. Negative (-). ROW: Less than 1% of bird hunting areas overlap ROW decisions. Negative (-).	LM: Same as Alternative A. Negative (-). OHV: There is almost no (close to 0%) overlap between bird hunting areas and OHV decisions. Negative (-). ROW: Less than 1% of bird hunting areas overlap ROW decisions. Negative (-).	LM: Same as Alternative A. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: <1% of use area would be open to ROW location, and almost 0% would be ROW avoidance areas. Negative (-).	LM: Same as Alternative A. Negative (-). OHV: There is almost no (close to 0%) overlap between bird hunting areas and OHV decisions. Negative (-). ROW: Less than 1% of bird hunting areas overlap ROW decisions. Negative (-).

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Fishing	Salmon Trout Whitefish	Salmon: 159.0 Non-salmon Fish: 20.0	LM: Some med/high potential LM areas are located in a basin ~15 miles from numerous fishing locations. This has the potential to degrade habitat. Fishing is the most harvested resource (by weight). Positive (+) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: Some med/high potential LM areas are located in a basin ~15 miles from numerous fishing locations. This has the potential to degrade habitat. Fishing is the most harvested resource (by weight). Positive (+) . OHV: There are no restrictions to OHV use for subsistence users. Some restrictions for casual winter and summer use would provide protections to the habitat and resource, as compared to Alternative A. Negative (-) . ROW: Areas close to known fishing locations are mostly ROW avoidance areas. There are some areas open to ROW development, though these do not appear to block access to the fishing locations. Negative (-) .	LM: Some med/high potential LM areas are located in a basin ~15 miles from numerous fishing locations. This has the potential to degrade habitat. Fishing is the most harvested resource (by weight). Positive (+) . OHV: There are no restrictions to OHV use for subsistence users. Some restrictions for casual winter and summer use would provide protections to the habitat and resource, as compared to Alternative A. Negative (-) . ROW: Areas close to known fishing locations are mostly ROW avoidance areas. There are some areas open to ROW development, though these do not appear to block access to the fishing locations. Negative (-) .	LM: Some med/high potential LM areas are located in a basin ~15 miles from numerous fishing locations. This has the potential to degrade habitat. Fishing is the most harvested resource (by weight). Positive (+) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+) . ROW: Numerous areas around known fishing locations for the community are open to ROW development. This could cause habitat degradation and introduce new competing users to the area. Fishing is the most heavily harvested resource (by weight) for the community. Positive (+) .	LM: Some med/high potential LM areas are located in a basin ~15 miles from numerous fishing locations. This has the potential to degrade habitat. Fishing is the most harvested resource (by weight). Positive (+) . OHV: There are no restrictions to OHV use for subsistence users. Some restrictions for casual winter and summer use would provide protections to the habitat and resource, as compared to Alternative A. Negative (-) . ROW: Numerous areas around known fishing locations for the community are open to ROW development. This could cause habitat degradation and introduce new competing users to the area. Fishing is the most heavily harvested resource (by weight) for the community. Positive (+) .
Gathering	Berries Plants	13.7	LM: 2% of the use area would be open to locatable with high/med potential. This resource is not one of the most highly harvested resources (in edible lbs.) and the open area does not seem to block access routes. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: 161 acres (0.06%) of the use area would be open to locatable with high/med potential. This resource is not one of the most highly harvested resources (in edible lbs.) and the open area does not seem to block access routes. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. 17% of the use area limits summer casual use to existing trails. This same 17% is also limited to snowmobiles only for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-) . ROW: 1% of use area would be open to ROW location, 16% would be ROW avoidance areas, and 0% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-) .	LM: Same as Alternative A. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. 17% of the use area limits summer casual use to existing trails. 0% of the use area has limitations placed on winter casual use and therefore all winter OHVs are allowed. Negative (-) . ROW: 9% of use area would be open to ROW location and 9% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-) .	LM: Same as Alternative A. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+) . ROW: 10% of use area would be open to ROW location and 7% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. This is over the threshold for impacts and could result in impacts to access and availability of resources. Positive (+) .	LM: Same as Alternative A. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. 17% of the use area limits summer casual use to existing trails. 0% of the use area has limitations placed on winter casual use and therefore all winter OHVs are allowed. Negative (-) . ROW: 17% of use area would be open to ROW location. This could have a potentially significant impact on subsistence uses and resources, but is less than Alternative A, which has no restrictions. This alternative has the most potential to result in significant impacts of all the action alternatives. Positive (+) .

Notes:
LLM: large land mammal
LM: locatable minerals with med/high potential
OHV: travel decisions relating to OHV use
ROW: right-of-way decisions
SLM: small land mammal

To provide a conservative analysis, State and ANCSA Native corporation–selected lands were included in the locatable mineral development portion of the analysis; however, these lands would not be open to locatable mineral development until the selection by the State or ANCSA Native corporation was relinquished or rejected.

1) This column shows which species the BSWI EIS Team has GIS data for at the time of the FEIS release. Communities may have differing sets of data available or may be missing data completely for an aggregated category. In most instances where data sets for "Hunting and Trapping (SLM)" were available, the subsistence use area did not specify which species are included in the use area.

2) Per capita harvest by edible weight from calendar year 2009. Data are from the ADF&G Community Subsistence Information System (CSIS), available at <http://www.adfg.alaska.gov/sb/CSIS/>, accessed in 2018.

Impact Analysis Results—Grayling

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Hunting and Trapping (LLM)	Moose	58.7	LM: No overlap in open areas and use areas. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: No overlap between use areas and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 10% of the use area limits summer casual use to existing trails. This same 10% is also limited to snowmobiles only for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 1% of use area would be open to ROW location, 1% would be ROW avoidance areas, and 9% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: No overlap in open areas and use areas. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 10% of the use area limits summer casual use to existing trails. There is no limit for OHV use for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 1% of use area would be open to ROW location, 8% would be ROW avoidance areas, and 1% would be ROW avoidance areas for linear realty. This alternative would decrease habitat fragmentation and degradation in these areas, as compared to Alternative A. The realty avoidance area would cross a portion of the LLM use area that could impede access to the remaining portions of the use area, and also cause impacts to availability. LLM is one of the most highly harvested resources in the community. Positive (+).	LM: No overlap in open areas and use areas. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: 3% of use area would be open to ROW location, 7% would be ROW avoidance areas. This alternative would decrease habitat fragmentation and degradation in these areas, as compared to Alternative A. These areas could potentially cross a portion of the LLM use area that could impede access to the remaining portions of the use area, and also cause impacts to availability. LLM is one of the most highly harvested resources in the community. Positive (+).	LM: No overlap in open areas and use areas. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 10% of the use area limits summer casual use to existing trails. There is no limit for OHV use for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 2% of use area would be open to ROW location, 7% would be ROW avoidance areas, and 1% would be ROW avoidance areas for linear realty. This alternative would decrease habitat fragmentation and degradation in these areas, as compared to Alternative A. The realty avoidance area would cross a portion of the LLM use area that could impede access to the remaining portions of the use area, and also cause impacts to availability. LLM is one of the most highly harvested resources in the community. Positive (+).
Hunting and Trapping (SLM)	SLM Beaver	15.4	LM: No overlap in open areas and use areas. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: No overlap between use areas and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 1% of the use area limits summer casual use to existing trails. This same 1% is also limited to snowmobiles only for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: BLM-managed lands account for 1% of the use area and virtually all of it would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: No overlap in open areas and use areas. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: BLM-managed lands account for 1% of the use area and virtually all of it would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: No overlap in open areas and use areas. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: Same as Alternative C. Negative (-).	LM: No overlap in open areas and use areas. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: Same as Alternative C. Negative (-).
Hunting (Birds)	Ducks Geese Ptarmigan Grouse	7.9	LM: No overlap in open areas and use areas. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: No overlap between use areas and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, nearly 0% of summer casual use is restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only except for 26 acres, so nearly the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: Almost none of the lands in the use area are managed by BLM and none of those lands would be open to ROW location. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: No overlap in open areas and use areas. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, nearly 0% of summer casual use is restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only except for 26 acres, so nearly the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: Almost none of the lands in the use area are managed by BLM and it would be ROW avoidance areas for linear realty actions. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: No overlap in open areas and use areas. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: Close to 0% of the lands in the use area are managed by BLM and they would be open to ROW location. Bird harvesting is a relatively small portion of the resources harvested by this community. Negative (-).	LM: No overlap in open areas and use areas. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, nearly 0% of summer casual use is restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only except for 26 acres, so nearly the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: Same as Alternative C. Negative (-).

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Fishing	Burbot Chinook Chum Norther Pike Salmon Sheefish Whitefish	Salmon: 121.9 Non-salmon Fish: 37.4	LM: LM areas with med/high potential are not near any fishing spots for Grayling. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: LM areas with med/high potential are not near any fishing spots for Grayling. Negative (-) . OHV: Several portions of the areas near fishing spots have summer OHV restrictions for casual use that would limit OHV use to existing trails and winter casual use to snowmobiles only. This would be more protective to habitats and subsistence resources than Alternative A. Additionally, there is no access restrictions for subsistence uses. There are areas where subsistence winter use is limited to snowmobiles only to the west and north of the community, but none of these portions would impede access to the fishing locations. Negative (-) . ROW: Areas close to fishing spots are ROW exclusion areas and will not impact access or availability. Negative (-) .	LM: LM areas with med/high potential are not near any fishing spots for Grayling. Negative (-) . OHV: Several portions of the areas near fishing spots have summer OHV restrictions for casual use that would limit OHV use to existing trails. This would be more protective to habitats and subsistence resources than Alternative A. Additionally, there is no access restrictions for subsistence uses. There are areas where both casual and subsistence winter use is limited to snowmobiles only to the west and north of the community, but none of these portions would impede access to the fishing locations. Negative (-) . ROW: Fishing spots north of the village would be located close to ROW avoidance areas for linear realty. While this area is small, it is close to several fishing locations for the community, and fish are the most heavily harvested subsistence resource for this community (65% of edible lbs. harvested in 2011). Positive (+) .	LM: LM areas with med/high potential are not near any fishing spots for Grayling. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+) . ROW: Fishing spots north of the village would be located close to ROW open areas. While this area is small, it is close to several fishing locations for the community, and fish are the most heavily harvested subsistence resource for this community. Positive (+) .	LM: LM areas with med/high potential are not near any fishing spots for Grayling. Negative (-) . OHV: Several portions of the areas near fishing spots have summer OHV restrictions for casual use that would limit OHV use to existing trails. This would be more protective to habitats and subsistence resources than Alternative A. Additionally, there is no access restrictions for subsistence uses. There are areas where both casual and subsistence winter use is limited to snowmobiles only to the west and north of the community, but none of these portions would impede access to the fishing locations. Negative (-) . ROW: Fishing spots north of the village would be located close to land that is open to ROW and ROW avoidance areas for linear realty. While this area is small, it is close to several fishing locations for the community, and fish are the most heavily harvested subsistence resource for this community (65% of edible lbs. harvested in 2011). Positive (+) .
Gathering	Berries Greens	4.6	LM: 0% of the use area would be open to locatable with high/med potential. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: No overlap between use areas and LM areas with med/high potential. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. 20% of the use area limits summer casual use to existing trails. This same 20% is also limited to snowmobiles only for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-) . ROW: 3% of use area would be open to ROW location, 1% would be ROW avoidance areas, and 9% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-) .	LM: Less than 1% of the use area would be open to locatable with high/med potential. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. 20% of the use area limits summer casual use to existing trails. 0% of the use area has limitations placed on winter casual use and therefore all winter OHVs are allowed. Negative (-) . ROW: 3% of use area would be open to ROW location, 5% would be ROW avoidance areas, and 5% would be ROW avoidance areas for linear realty. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-) .	LM: Same as Alternative C. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+) . ROW: 8% of use area would be open to ROW location, and 5% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-) .	LM: Less than 1% of the use area would be open to locatable with high/med potential. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. 20% of the use area limits summer casual use to existing trails. 0% of the use area has limitations placed on winter casual use and therefore all winter OHVs are allowed. Negative (-) . ROW: 4% of use area would be open to ROW location, 4% would be ROW avoidance areas, and 5% would be ROW avoidance areas for linear realty. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-) .

Notes:
LLM: large land mammal
LM: locatable minerals with med/high potential
OHV: travel decisions relating to OHV use
ROW: right-of-way decisions
SLM: small land mammal

1) This column shows which species the BSWI EIS Team has GIS data for at the time of the FEIS release. Communities may have differing sets of data available or may be missing data completely for an aggregated category. In most instances where data sets for "Hunting and Trapping (SLM)" were available, the subsistence use area did not specify which species are included in the use area.

2) Per capita harvest by edible weight from calendar year 2011. Data are from the ADF&G Community Subsistence Information System (CSIS), available at <http://www.adfg.alaska.gov/sb/CSIS/>, accessed in 2018.

Impact Analysis Results—Holy Cross

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Hunting and Trapping (LLM)	Moose	322	LM: Close to 0% of the use area is designated as high/med potential for LM decisions. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: 25 acres (a negligible percentage) of the use area would be open to locatable with high/med potential. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 1% is restricted for winter subsistence use. 44% of the use area limits summer casual use to existing trails. This same 44% is also limited to snowmobiles only for casual winter use. There would be some access restriction for subsistence uses in the 1% of the use area that limits winter subsistence use to snowmobiles only. This alternative provides the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Data for harvests is limited, but 1990 totals list 322 edible lbs of LLM harvested per capita. Negative (-) . ROW: 14% of use area would be open to ROW location, 15% would be ROW avoidance areas, and 15% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A, but is over the threshold for impacts. Positive (+) .	LM: Close to 0% of the use area is designated as high/med potential for LM decisions. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 1% is restricted for winter subsistence use. 44% of the use area limits summer casual use to existing trails. 1% is limited to snowmobiles only for casual and subsistence winter use. This alternative provides the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Data for harvests is limited, but 1990 totals list 322 edible lbs of LLM harvested per capita. Negative (-) . ROW: 19% of use area would be open to ROW location, 24% would be ROW avoidance areas, and <1% would be ROW avoidance areas for linear realty actions. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A, but is over the threshold for impacts. Positive (+) .	LM: Close to 0% of the use area is designated as high/med potential for LM decisions. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+) . ROW: 30% of use area would be open to ROW location, 14% would be ROW avoidance areas, and 0% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A, but is over the threshold for impacts. Positive (+) .	LM: Close to 0% of the use area is designated as high/med potential for LM decisions. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 1% is restricted for winter subsistence use. 44% of the use area limits summer casual use to existing trails. 1% is limited to snowmobiles only for casual and subsistence winter use. This alternative provides the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Data for harvests is limited, but 1990 totals list 322 edible lbs of LLM harvested per capita. Negative (-) . ROW: 29% of use area would be open to ROW location, 10% would be ROW avoidance areas, and 5% would be ROW avoidance areas for linear realty actions. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A, but is over the threshold for impacts. Positive (+) .
Hunting and Trapping (SLM) (ANVIK DATA)		68.6	LM: Same as Anvik. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: Same as Anvik. Negative (-) . OHV: Same as Anvik. Negative (-) . ROW: Same as Anvik. Negative (-) .	LM: Same as Anvik. Negative (-) . OHV: Same as Anvik. Negative (-) . ROW: Same as Anvik. Negative (-) .	LM: Same as Anvik. Negative (-) . OHV: Same as Anvik. Positive (+) . ROW: Same as Anvik. Positive (+) .	LM: Same as Anvik. Negative (-) . OHV: Same as Anvik. Negative (-) . ROW: Same as Anvik. Negative (-) .
Hunting (Birds) (ANVIK DATA)		28.5	LM: Same as Anvik. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: Same as Anvik. Negative (-) . OHV: Same as Anvik. Negative (-) . ROW: Same as Anvik. Negative (-) .	LM: Same as Anvik. Negative (-) . OHV: Same as Anvik. Negative (-) . ROW: Same as Anvik. Negative (-) .	LM: Same as Anvik. Negative (-) . OHV: Same as Anvik. Positive . ROW: Same as Anvik. Positive .	LM: Same as Anvik. Negative (-) . OHV: Same as Anvik. Negative (-) . ROW: Same as Anvik. Negative (-) .
Fishing (ANVIK DATA)	Salmon Burbot Whitefish Lamprey Dolly Varden Arctic Grayling Arctic Char	Salmon: 121.2 Non-salmon Fish: 80.9	LM: Same as Anvik. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: Same as Anvik. Negative (-) . OHV: Same as Anvik. Negative (-) . ROW: Same as Anvik. Negative (-) .	LM: Same as Anvik. Negative (-) . OHV: Same as Anvik. Negative (-) . ROW: Same as Anvik. Negative (-) .	LM: Same as Anvik. Negative (-) . OHV: Same as Anvik. Negative (-) . ROW: Same as Anvik. Negative (-) .	LM: Same as Anvik. Negative (-) . OHV: Same as Anvik. Negative (-) . ROW: Same as Anvik. Negative (-) .
Gathering (ANVIK DATA)		12.7	LM: Same as Anvik. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: Same as Anvik. Negative (-) . OHV: Same as Anvik. Negative (-) . ROW: Same as Anvik. Negative (-) .	LM: Same as Anvik. Negative (-) . OHV: Same as Anvik. Negative (-) . ROW: Same as Anvik. Negative (-) .	LM: Same as Anvik. Negative (-) . OHV: Same as Anvik. Positive (+) . ROW: Same as Anvik. Negative (-) .	LM: Same as Anvik. Negative (-) . OHV: Same as Anvik. Negative (-) . ROW: Same as Anvik. Positive (+)

Notes:
LLM: large land mammal
LM: locatable minerals with med/high potential
OHV: travel decisions relating to OHV use
ROW: right-of-way decisions
SLM: small land mammal

To provide a conservative analysis, State and ANCSA Native corporation–selected lands were included in the locatable mineral development portion of the analysis; however, these lands would not be open to locatable mineral development until the selection by the State or ANCSA Native corporation was relinquished or rejected.

- 1) This column shows which species the BSWI EIS Team has GIS data for at the time of the FEIS release. Communities may have differing sets of data available or may be missing data completely for an aggregated category. In most instances where data sets for "Hunting and Trapping (SLM)" were available, the subsistence use area did not specify which species are included in the use area.
- 2) Per capita harvest by edible weight from calendar year 2004. Data are from the ADF&G Community Subsistence Information System (CSIS), available at <http://www.adfg.alaska.gov/sb/CSIS/>, accessed in 2018.

Impact Analysis Results—Kaltag

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Hunting and Trapping (LLM) (UNALAKLEET DATA)		No data.	LM: Same as Unalakleet. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: Same as Unalakleet. Negative (-) . OHV: Same as Unalakleet. Positive (+) . ROW: Same as Unalakleet. Negative (-) .	LM: Same as Unalakleet. Negative (-) . OHV: Same as Unalakleet. Positive (+) . ROW: Same as Unalakleet. Negative (-) .	LM: Same as Unalakleet. Negative (-) . OHV: Same as Unalakleet. Positive (+) . ROW: Same as Unalakleet. Positive (+) .	LM: Same as Unalakleet. Negative (-) . OHV: Same as Unalakleet. Positive (+) . ROW: Same as Unalakleet. Positive (+) .
Hunting and Trapping (SLM) (UNALAKLEET DATA)		No data.	LM: Same as Unalakleet. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: Same as Unalakleet. Negative (-) . OHV: Same as Unalakleet. Positive (+) . ROW: Same as Unalakleet. Negative (-) .	LM: Same as Unalakleet. Negative (-) . OHV: Same as Unalakleet. Positive (+) . ROW: Same as Unalakleet. Positive (+) .	LM: Same as Unalakleet. Negative (-) . OHV: Same as Unalakleet. Positive (+) . ROW: Same as Unalakleet. Positive (+) .	LM: Same as Unalakleet. Negative (-) . OHV: Same as Unalakleet. Positive (+) . ROW: Same as Unalakleet. Positive (+) .
Fishing (UNALAKLEET DATA)		No data.	LM: Same as Unalakleet. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: Same as Unalakleet. Negative (-) . OHV: Same as Unalakleet. Positive (+) . ROW: Same as Unalakleet. Positive (+) .	LM: Same as Unalakleet. Negative (-) . OHV: Same as Unalakleet. Positive (+) . ROW: Same as Unalakleet. Positive (+) .	LM: Same as Unalakleet. Negative (-) . OHV: Same as Unalakleet. Positive (+) . ROW: Same as Unalakleet. Positive (+) .	LM: Same as Unalakleet. Negative (-) . OHV: Same as Unalakleet. Positive (+) . ROW: Same as Unalakleet. Positive (+) .
Gathering (UNALAKLEET DATA)		No data.	LM: No overlap in use area and areas with med/high LM potential. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: Same as Unalakleet. Negative (-) . OHV: Same as Unalakleet. Negative (-) . ROW: Same as Unalakleet. Negative (-) .	LM: Same as Unalakleet. Negative (-) . OHV: Same as Unalakleet. Negative (-) . ROW: Same as Unalakleet. Negative (-) .	LM: Same as Unalakleet. Negative (-) . OHV: Same as Unalakleet. Positive (+) . ROW: Same as Unalakleet. Negative (-) .	LM: Same as Unalakleet. Negative (-) . OHV: Same as Unalakleet. Negative (-) . ROW: Same as Unalakleet. Negative (-) .

Notes:
LLM: large land mammal
LM: locatable minerals with med/high potential
OHV: travel decisions relating to OHV use
ROW: right-of-way decisions
SLM: small land mammal

Available data for the Community of Kaltag did not include gathering subsistence use areas.

1) This column shows which species the BSWI EIS Team has GIS data for at the time of the FEIS release. Communities may have differing sets of data available or may be missing data completely for an aggregated category. In most instances where data sets for "Hunting and Trapping (SLM)" were available, the subsistence use area did not specify which species are included in the use area.

Impact Analysis Results—Lime Village

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Hunting and Trapping (LLM)	Black Bear Caribou Moose	260.0	LM: There is no overlap between use area and LM areas with med/high potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: There is no overlap between use area and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 3% is restricted for winter use. 38% of the use area limits summer casual use to existing trails. This same 38% is also limited to snowmobiles only for casual winter use. There is some access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. LLM are one of the most heavily harvested resources for the community. Positive (+). ROW: 14% of use area would be open to ROW location, 23% would be ROW avoidance areas, and 0% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. LLM are one of the top resources harvested in the community. Access may be impacted by the open ROW areas as they are located throughout the LLM use area. Habitat may be degraded, and the ROWs may allow for competing uses for the subsistence resources. Positive (+).	LM: There is no overlap between use area and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 3% is restricted for winter use. 38% of the use area limits summer casual use to existing trails. 3% of both casual and subsistence use is limited to snowmobiles only for winter use. There is some access restriction for subsistence uses and greater protection against habitat degradation and competing uses, as compared to Alternative A. LLM are one of the most heavily harvested resources for the community. Positive (+). ROW: 29% of use area would be open to ROW location, 9% would be ROW avoidance areas. This alternative would decrease habitat fragmentation and degradation in these areas, as compared to Alternative A. LLM are one of the top resources harvested in the community. Access may be impacted by the open ROW areas as they are located throughout the LLM use area. Habitat may be degraded, and the ROWs may allow for competing uses for the subsistence resources. Positive (+).	LM: There is no overlap between use area and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: 33% of use area would be open to ROW location, 5% would be ROW avoidance areas. This alternative would decrease habitat fragmentation and degradation in the avoidance areas, as compared to Alternative A. LLM are one of the top resources harvested in the community. Access may be impacted by the open ROW areas as they are located throughout the LLM use area. Habitat may be degraded, and the ROWs may allow for competing uses for the subsistence resources. Positive (+).	LM: There is no overlap between use area and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 3% is restricted for winter use. 38% of the use area limits summer casual use to existing trails. 3% of both casual and subsistence use is limited to snowmobiles only for winter use. There is some access restriction for subsistence uses and greater protection against habitat degradation and competing uses, as compared to Alternative A. LLM are one of the most heavily harvested resources for the community. Positive (+). ROW: 37% of use area would be open to ROW location. LLM are one of the top resources harvested in the community. Access may be impacted by the open ROW areas as they are located throughout the LLM use area. Habitat may be degraded, and the ROWs may allow for competing uses for the subsistence resources. This could have a potentially significant impact on subsistence uses and resources, but is less than Alternative A, which has no restrictions. This alternative has the most potential to result in significant impacts of all the action alternatives. Positive (+).
Hunting and Trapping (SLM)	SLM	17.2	LM: There is no overlap between use area and LM areas with med/high potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: There is no overlap between use area and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 3% is restricted for winter use. 15% of the use area limits summer casual use to existing trails. This same 15% is also limited to snowmobiles only for casual winter use. There is some access restriction for subsistence uses along the upper northern boundary of the use area along the Swift River, and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. SLM is not one of the top harvested resources for the community, and access restrictions would not be significant. Negative (-). ROW: 6% of use area would be open to ROW location, 9% would be ROW avoidance areas, and 0% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: There is no overlap between use area and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 3% is restricted for winter use. 15% of the use area limits summer casual use to existing trails. 3% is also limited to snowmobiles only for casual winter use. There is some access restriction for subsistence uses along the upper northern boundary of the use area along the Swift River, and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. SLM is not one of the top harvested resources for the community, and access restrictions would not be significant. Negative (-). ROW: 9% of use area would be open to ROW location, 6% would be ROW avoidance areas. This alternative would limit habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: There is no overlap between use area and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: Same as Alternative C. Negative (-).	LM: There is no overlap between use area and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 3% is restricted for winter use. 15% of the use area limits summer casual use to existing trails. 3% is also limited to snowmobiles only for casual winter use. There is some access restriction for subsistence uses along the upper northern boundary of the use area along the Swift River, and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. SLM is not one of the top harvested resources for the community, and access restrictions would not be significant. Negative (-). ROW: 15% of use area would be open to ROW location. This could have a potentially significant impact on subsistence uses and resources, but is less than Alternative A, which has no restrictions. This alternative has the most potential to result in significant impacts of all the action alternatives. Positive (+).

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Hunting (Birds)	Waterfowl	21.6	LM: There is no overlap between use area and LM areas with med/high potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: There is no overlap between use area and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 29% of the use area limits summer casual use to existing trails. This same 29% is also limited to snowmobiles only for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 24% of use area would be open to ROW location, 5% would be ROW avoidance areas. This alternative would limit habitat fragmentation and degradation in these areas, as compared to Alternative A, but is above the threshold for impacts. Positive (+).	LM: There is no overlap between use area and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 29% of the use area limits summer casual use to existing trails. There is no limit for OHV use for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 27% of use area would be open to ROW location, 2% would be ROW avoidance areas. This alternative would limit habitat fragmentation and degradation in these areas, as compared to Alternative A, but is above the threshold for impacts. Positive (+).	LM: There is no overlap between use area and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: 28% of use area would be open to ROW location, 1% would be ROW avoidance areas. This alternative would limit habitat fragmentation and degradation in these areas, as compared to Alternative A, but is above the threshold for impacts. Positive (+).	LM: There is no overlap between use area and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 29% of the use area limits summer casual use to existing trails. There is no limit for OHV use for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 29% of use area would be open to ROW location. This could have a potentially significant impact on subsistence uses and resources, but is less than Alternative A, which has no restrictions. This alternative has the most potential to result in significant impacts of all the action alternatives. Positive (+).
Fishing	Salmon Whitefish Lease cisco Humpback whitefish Grayling Northern Pike	Salmon: 555.8 Non-salmon Fish: 49.9	LM: There is no overlap between use area and LM areas with med/high potential. No LM areas with med/high potential are nearby or within the basin for the fishing locations. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: There is no overlap between use area and LM areas with med/high potential. No LM areas with med/high potential are nearby or within the basin for the fishing locations. Negative (-). OHV: There is no overlap between areas that limit winter subsistence uses and the fishing locations for the community. Surrounding BLM land has limits on casual summer and winter use, which provides protection against habitat degradation and competing uses. Negative (-). ROW: Access does not appear to be impeded by areas open to ROWs. However, a large portion of the upstream basins for the fishing locations are open to ROW development. These open areas could degrade habitat and bring new users to the area that would compete for resources. Fish are the top harvested resource for the community. Positive (+).	LM: There is no overlap between use area and LM areas with med/high potential. No LM areas with med/high potential are nearby or within the basin for the fishing locations. Negative (-). OHV: There is no overlap between areas that limit winter subsistence uses and the fishing locations for the community. Surrounding BLM land has limits on casual summer use, which provides protection against habitat degradation and competing uses. Negative (-). ROW: Access does not appear to be impeded by areas open to ROWs. However, a large portion of the upstream basins for the fishing locations are open to ROW development. These open areas could degrade habitat and bring new users to the area that would compete for resources. Fish are the top harvested resource for the community. Positive (+).	LM: There is no overlap between use area and LM areas with med/high potential. No LM areas with med/high potential are nearby or within the basin for the fishing locations. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: Access does not appear to be impeded by areas open to ROWs. However, a large portion of the upstream basins for the fishing locations are open to ROW development. These open areas could degrade habitat and bring new users to the area that would compete for resources. Fish are the top harvested resource for the community. Positive (+).	LM: There is no overlap between use area and LM areas with med/high potential. No LM areas with med/high potential are nearby or within the basin for the fishing locations. Negative (-). OHV: There is no overlap between areas that limit winter subsistence uses and the fishing locations for the community. Surrounding BLM land has limits on casual summer use, which provides protection against habitat degradation and competing uses. Negative (-). ROW: Access does not appear to be impeded by areas open to ROWs. However, a large portion of the upstream basins for the fishing locations are open to ROW development. These open areas could degrade habitat and bring new users to the area that would compete for resources. Fish are the top harvested resource for the community. Positive (+).
Gathering	Plants Wood Berries	48.2	LM: There is no overlap between use area and LM areas with med/high potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: There is no overlap between use area and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 4% of the use area limits summer casual use to existing trails. This same 4% is also limited to snowmobiles only for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 3% of use area would be open to ROW location, 1% would be ROW avoidance areas, and 0% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: There is no overlap between use area and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 4% of the use area limits summer casual use to existing trails. There is no limit for OHV use for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 4% of use area would be open to ROW location. This is less than the threshold for impacts and does not appear to interfere with travel routes. Negative (-).	LM: There is no overlap between use area and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: Same as Alternative C. Negative (-).	LM: There is no overlap between use area and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 4% of the use area limits summer casual use to existing trails. There is no limit for OHV use for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 4% of use area would be open to ROW location. This is less than the threshold for impacts and does not appear to interfere with travel routes. Negative (-).

Notes:
LLM: large land mammal
LM: locatable minerals with med/high potential
OHV: travel decisions relating to OHV use
ROW: right-of-way decisions

SLM: small land mammal

- 1) This column shows which species the BSWI EIS Team has GIS data for at the time of the FEIS release. Communities may have differing sets of data available or may be missing data completely for an aggregated category. In most instances where data sets for "Hunting and Trapping (SLM)" were available, the subsistence use area did not specify which species are included in the use area.
- 2) Per capita harvest by edible weight from calendar year 2007. Bird value includes birds and eggs. Data are from the ADF&G Community Subsistence Information System (CSIS), available at <http://www.adfg.alaska.gov/sb/CSIS/>, accessed in 2018.

Impact Analysis Results—Lower Kalskag

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Hunting and Trapping (LLM)	Black Bear Caribou Moose	35.4	LM: There is no overlap between LLM and LM areas with med/high potential. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: There is no overlap between LLM and LM areas with med/high potential. Negative (-) . OHV: Close to 0% of the use area has OHV decisions. Negative (-) . ROW: <1%% of the use area has ROW decisions. Negative (-) .	LM: There is no overlap between LLM and LM areas with med/high potential. Negative (-) . OHV: Close to 0% of the use area has OHV decisions. Negative (-) . ROW: <1% of the use area has ROW decisions. Negative (-) .	LM: There is no overlap between LLM and LM areas with med/high potential. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+) . ROW: <1% of the use area is managed by BLM and would be open to ROW locations. Negative (-) .	LM: There is no overlap between LLM and LM areas with med/high potential. Negative (-) . OHV: Close to 0% of the use area has OHV decisions. Negative (-) . ROW: <1% of the use area has ROW decisions. Negative (-) .
Hunting and Trapping (SLM)	SLM	3.3	LM: There is no overlap between SLM and LM areas with med/high potential. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: There is no overlap between SLM and LM areas with med/high potential. Negative (-) . OHV: There is no overlap between SLM and OHV decisions. Negative (-) . ROW: There is no overlap between SLM and ROW decisions. Negative (-) .	LM: There is no overlap between SLM and LM areas with med/high potential. Negative (-) . OHV: There is no overlap between SLM and OHV decisions. Negative (-) . ROW: There is no overlap between SLM and ROW decisions. Negative (-) .	LM: There is no overlap between SLM and LM areas with med/high potential. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+) . ROW: There is no overlap between SLM and ROW decisions. Negative (-) .	LM: There is no overlap between SLM and LM areas with med/high potential. Negative (-) . OHV: There is no overlap between SLM and OHV decisions. Negative (-) . ROW: There is no overlap between SLM and ROW decisions. Negative (-) .
Hunting (Birds)	Ducks Geese	4.6	LM: There is no overlap between bird hunting and LM areas with med/high potential. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: There is no overlap between bird hunting and LM areas with med/high potential. Negative (-) . OHV: Close to 0% of the use area has OHV decisions. Negative (-) . ROW: <1%% of the use area has ROW decisions. Negative (-) .	LM: There is no overlap between bird hunting and LM areas with med/high potential. Negative (-) . OHV: Close to 0% of the use area has OHV decisions. Negative (-) . ROW: <1% of the use area has ROW decisions. Negative (-) .	LM: There is no overlap between bird hunting and LM areas with med/high potential. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+) . ROW: <1% of the use area is managed by BLM and would be open to ROW locations. Negative (-) .	LM: There is no overlap between bird hunting and LM areas with med/high potential. Negative (-) . OHV: Close to 0% of the use area has OHV decisions. Negative (-) . ROW: <1% of the use area is managed by BLM and would be open to ROW locations. Negative (-) .

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Fishing	Salmon Whitefish	Salmon: 98.6 Non-salmon Fish: 0	LM: Med/high areas open to LM mining are located approximately 6 river miles upstream on Ophir Creek of numerous fishing locations in Whitefish Lake. Fish make up approximately half of the harvested subsistence resources for the community (in edible lbs.) based on 2009 data. Access is not likely to be impacted, but mining could result in degradation of resources and increased competition. Positive (+) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: Med/high areas open to LM mining are located approximately 6 river miles upstream on Ophir Creek of numerous fishing locations in Whitefish Lake. Additionally, more open areas are located approximately 17 river miles upstream on the Kuskokwim River. Fish made up approximately 70% of the harvested subsistence resources for the community (in edible lbs.) in 2009. Access is not likely to be impacted, but mining could result in degradation of resources and increased competition. The impacts would be greater than Alternative A as more areas are open. Positive (+) . OHV: None of the surrounding area would have limitations to winter or summer subsistence OHV use, so no impacts to access. This alternative also has the greatest limitations to casual summer and winter OHV use (limited to existing trails for summer use, and limited to only snowmobiles in winter), so it is more protective of resources than Alternative A. Negative (-) . ROW: Some areas open to ROW placement around the Crooked Creek area, which has a few fishing locations for the community. However, the majority of fishing locations are not near areas open to ROW placement and do not appear to block access. Negative (-) .	LM: Med/high areas open to LM mining are located approximately 6 river miles upstream on Ophir Creek of numerous fishing locations in Whitefish Lake. Additionally, more open areas are located approximately 17 river miles upstream on the Kuskokwim River. Fish made up approximately 70% of the harvested subsistence resources for the community (in edible lbs.) in 2009. Access is not likely to be impacted, but mining could result in degradation of resources and increased competition. The impacts would be greater than Alternative A as more areas are open. Positive (+) . OHV: None of the surrounding area would have limitations to winter or summer subsistence OHV use, so no impacts to access. This alternative also has limitations to casual summer OHV use (limited to existing trails for summer use) but no limitations on casual winter OHV use. It is more protective of resources than Alternative A. Negative (-) . ROW: Some areas open to ROW placement around the Crooked Creek area, which has a few fishing locations for the community. There are more open areas upstream of Ophir Creek, which flows into Whitefish Lake, which is a heavily used area for fishing. These areas could lead to resource and habitat degradation, as well as increased competition for resources. Fish is the most heavily harvested subsistence resource for the community. Positive (+) .	LM: Same as Alternative C. Positive (+) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+) . ROW: Same as Alternative C. Positive (+) .	LM: Med/high areas open to LM mining are located approximately 6 river miles upstream on Ophir Creek of numerous fishing locations in Whitefish Lake. Additionally, more open areas are located approximately 17 river miles upstream on the Kuskokwim River. Fish made up approximately 70% of the harvested subsistence resources for the community (in edible lbs.) in 2009. Access is not likely to be impacted, but mining could result in degradation of resources and increased competition. The impacts would be greater than Alternative A as more areas are open. Positive (+) . OHV: None of the surrounding area would have limitations to winter or summer subsistence OHV use, so no impacts to access. This alternative also has limitations to casual summer OHV use (limited to existing trails for summer use) but no limitations on casual winter OHV use. It is more protective of resources than Alternative A. Negative (-) . ROW: Some areas open to ROW placement around the Crooked Creek area, which has a few fishing locations for the community. There are more open areas upstream of Ophir Creek, which flows into Whitefish Lake, which is a heavily used area for fishing. These areas could lead to resource and habitat degradation, as well as increased competition for resources. Fish is the most heavily harvested subsistence resource for the community. Positive (+) .
Gathering	Berries Plants	12.6	LM: There is no overlap between Gathering and LM areas with med/high potential. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: There is no overlap between Gathering and LM areas with med/high potential. Negative (-) . OHV: There is no overlap between Gathering and OHV decisions. Negative (-) . ROW: There is no overlap between Gathering and ROW decisions. Negative (-) .	LM: There is no overlap between Gathering and LM areas with med/high potential. Negative (-) . OHV: There is no overlap between Gathering and OHV decisions. Negative (-) . ROW: There is no overlap between Gathering and ROW decisions. Negative (-) .	LM: There is no overlap between Gathering and LM areas with med/high potential. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+) . ROW: There is no overlap between Gathering and ROW decisions. Negative (-) .	LM: There is no overlap between Gathering and LM areas with med/high potential. Negative (-) . OHV: There is no overlap between Gathering and OHV decisions. Negative (-) . ROW: There is no overlap between Gathering and ROW decisions. Negative (-) .

Notes:
LLM: large land mammal
LM: locatable minerals with med/high potential
OHV: travel decisions relating to OHV use
ROW: right-of-way decisions
SLM: small land mammal

To provide a conservative analysis, State and ANCSA Native corporation selected lands were included in the locatable mineral development portion of the analysis; however, these lands would not be open to locatable mineral development until the selection by the State or ANCSA Native corporation was relinquished or rejected.

1) This column shows which species the BSWI EIS Team has GIS data for at the time of the FEIS release. Communities may have differing sets of data available or may be missing data completely for an aggregated category. In most instances where data sets for "Hunting and Trapping (SLM)" were available, the subsistence use area did not specify which species are included in the use area.

2) Per capita harvest by edible weight from calendar year 2009. Bird value includes birds and eggs. Data are from the ADF&G Community Subsistence Information System (CSIS), available at <http://www.adfg.alaska.gov/sb/CSIS/>, accessed in 2018.

Impact Analysis Results—Marshall

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Hunting and Trapping (LLM)	LLM	72.0	LM: Close to 0% of the use area would overlap with LM decisions with med/high potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: 892 acres (0.05%) of the use area has med/high potential would be withdrawn from locatable development. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 25% of the use area limits summer casual use to existing trails. This same 25% is also limited to snowmobiles only for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 8% of use area would be open to ROW location, 15% would be ROW avoidance areas, and 2% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. LLM are one of the top resources harvested in the community. Access does not appear to be impacted by the open ROW areas, though habitat may be degraded ROWs in open and avoidance areas. Positive (+).	LM: Close to 0% of the use area would overlap with LM decisions with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 25% of the use area limits summer casual use to existing trails. There is no limit for OHV use for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 14% of use area would be open to ROW location, 11% would be ROW avoidance areas, and a negligible percentage would be ROW avoidance areas for linear realty. This alternative would decrease habitat fragmentation and degradation in these areas, as compared to Alternative A, though the areas impacted are above the threshold. LLM is one of the most highly harvested resources in the community. Positive (+).	LM: Close to 0% of the use area would overlap with LM decisions with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: 21% of use area would be open to ROW location, 4% would be ROW avoidance areas. This alternative would decrease habitat fragmentation and degradation in these areas, as compared to Alternative A. LLM is one of the most highly harvested resources in the community. Positive (+).	LM: Close to 0% of the use area would overlap with LM decisions with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 25% of the use area limits summer casual use to existing trails. There is no limit for OHV use for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 23% of use area would be open to ROW location, 2% would be ROW avoidance areas, and <1% would be ROW avoidance areas for linear realty. This could have a potentially significant impact on subsistence uses and resources, but is less than Alternative A, which has no restrictions. This alternative has the most potential to result in significant impacts of all the action alternatives. LLM is one of the most highly harvested resources in the community. Positive (+).
Hunting and Trapping (SLM)	SLM	5.8	LM: Close to 0% of the use area would overlap with LM decisions with med/high potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: <1% of the use area has med/high potential and would be open for locatable development. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 48% of the use area limits summer casual use to existing trails. This same 48% is also limited to snowmobiles only for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 4% of use area would be open to ROW location and 45% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: Close to 0% of the use area would overlap with LM decisions with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 48% of the use area limits summer casual use to existing trails. There is no limit for OHV use for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 9% of use area would be open to ROW location and 39% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: Close to 0% of the use area would overlap with LM decisions with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: 28% of use area would be open to ROW location and 20% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A, but is over the threshold. Positive (+).	LM: Close to 0% of the use area would overlap with LM decisions with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 48% of the use area limits summer casual use to existing trails. There is no limit for OHV use for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 48% of use area would be open to ROW location. This could have a potentially significant impact on subsistence uses and resources, but is less than Alternative A, which has no restrictions. This alternative has the most potential to result in significant impacts of all the action alternatives. Positive (+).
Hunting (Birds)	Birds	13.7	LM: No overlap in open areas and use areas. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: No overlap in open areas and use areas. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 1% of the use area limits summer casual use to existing trails. This same 1% is also limited to snowmobiles only for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 1% of use area would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: No overlap in open areas and use areas. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 1% of the use area limits summer casual use to existing trails. There is no limit for OHV use for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 1% of use area overlaps ROW decisions. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: No overlap in open areas and use areas. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: 1% would be open to ROWs at the edge of the use area. Bird harvesting is a relatively small portion of the resources harvested by this community. Negative (-).	LM: No overlap in open areas and use areas. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 1% of the use area limits summer casual use to existing trails. There is no limit for OHV use for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 1% of use area would be open to ROW location. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Fishing	Salmon	Salmon: 393.2 Non-salmon Fish: 194.3	LM: No overlap in open areas and use areas. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: No overlap in open areas and use areas. Negative (-) . OHV: Only a small portion of BLM land lies near the fishing locations for the community. These areas limit casual summer use to existing trails and casual winter use to snowmobiles only. There would be no access restrictions for subsistence uses. Negative (-) . ROW: <1% of the use area would be open and 1% would be ROW avoidance areas. These portions of land are towards the edges of the fishing locations and would not impede access. Negative (-) .	LM: No overlap in open areas and use areas. Negative (-) . OHV: Only a small portion of BLM land lies near the fishing locations for the community. These areas limit casual summer use to existing trails. There would be no access restrictions for subsistence uses. Negative (-) . ROW: 1% of the use area would be open to ROW location. These portions of land are towards the edges of the fishing locations and would not impede access. Negative (-) .	LM: No overlap in open areas and use areas. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+) . ROW: Same as Alternative C. Negative (-) .	LM: No overlap in open areas and use areas. Negative (-) . OHV: Only a small portion of BLM land lies near the fishing locations for the community. These areas limit casual summer use to existing trails. There would be no access restrictions for subsistence uses. Negative (-) . ROW: 1% of the use area would be open to ROWs. These portions of land are towards the edges of the fishing locations and would not impede access. Negative (-) .
Gathering	Vegetation	8.2	LM: Close to 0% of the use area would overlap with LM decisions with med/high potential. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: Very little (0.05%) of the use area would overlap with lands of med/high potential open for locatable development. 0.02% would be withdrawn. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 24% of the use area limits summer casual use to existing trails. This same 24% is also limited to snowmobiles only for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-) . ROW: 5% of use area would be open to ROW location, 17% would be ROW avoidance areas, and 2% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-) .	LM: Close to 0% of the use area would overlap with LM decisions with med/high potential. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. 24% of the use area limits summer casual use to existing trails. 0% of the use area has limitations placed on winter casual use and therefore all winter OHVs are allowed. Negative (-) . ROW: 22% of use area would be open to ROW location, 1% would be ROW avoidance areas, and <1% would be ROW avoidance areas for linear realty. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A, but is above the threshold. Positive (+) .	LM: Close to 0% of the use area would overlap with LM decisions with med/high potential. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+) . ROW: 18% of use area would be open to ROW location, 6% would be ROW avoidance areas. This alternative would decrease habitat fragmentation and degradation in these areas, as compared to Alternative A. Positive (+) .	LM: Close to 0% of the use area would overlap with LM decisions with med/high potential. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. 24% of the use area limits summer casual use to existing trails. 0% of the use area has limitations placed on winter casual use and therefore all winter OHVs are allowed. Negative (-) . ROW: 22% of use area would be open to ROW location, 1% would be ROW avoidance areas, and <1% would be ROW avoidance areas for linear realty. This could have a potentially significant impact on subsistence uses and resources, but is less than Alternative A, which has no restrictions. This alternative has the most potential to result in significant impacts of all the action alternatives. Positive (+) .

Notes:
LLM: large land mammal
LM: locatable minerals with med/high potential
OHV: travel decisions relating to OHV use
ROW: right-of-way decisions
SLM: small land mammal

To provide a conservative analysis, State and ANCSA Native corporation–selected lands were included in the locatable mineral development portion of the analysis; however, these lands would not be open to locatable mineral development until the selection by the State or ANCSA Native corporation was relinquished or rejected.1) This column shows which species the BSWI EIS Team has GIS data for at the time of the FEIS release. Communities may have differing sets of data available or may be missing data completely for an aggregated category. In most instances where data sets for "Hunting and Trapping (SLM)" were available, the subsistence use area did not specify which species are included in the use area.

2) Per capita harvest by edible weight from calendar year 2015. Data are from the ADF&G Community Subsistence Information System (CSIS), available at <http://www.adfg.alaska.gov/sb/CSIS/>, accessed in 2018.

Impact Analysis Results—McGrath

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Hunting and Trapping (LLM)	Black Bear Brown Bear Caribou Moose	115.0	LM: Nearly 0% of the use area is open to LM and have med/high potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: 0.5% of the use area is BLM-managed lands with med/high potential for LM. The vast majority of that land would be withdrawn from locatable mineral development. LLM is the most harvested resource (by weight). The area of open LM is located on a tributary of the Kuskokwim. It covers a portion of the use area that leads to farther upstream areas for LLM harvest, but it appears that access could still be achieved in portions of the surrounding land. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 7% of the use area limits summer casual use to existing trails. This same 7% is also limited to snowmobiles only for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 1% of use area would be open to ROW location, 5% would be ROW avoidance areas, and 0.1% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: Same as Alternative B. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 7% of the use area limits summer casual use to existing trails. There is no OHV limitation for casual winter use. Therefore, there is no access restriction for subsistence uses and the greater protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 4% of use area would be open to ROW location and 2% would be ROW avoidance areas. This alternative would limit habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: Same as Alternative B. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: 6% of use area would be open to ROW location and 1% would be ROW avoidance areas. This alternative would limit habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: Same as Alternative B. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 7% of the use area limits summer casual use to existing trails. There is no OHV limitation for casual winter use. Therefore, there is no access restriction for subsistence uses and the greater protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 7% of use area would be open to ROW location. This alternative would limit habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).
Hunting and Trapping (SLM)	SLM Beaver Wolf	11.3	LM: Nearly 0% of the use area is open to LM and have med/high potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: A very small percentage (0.05%) of the use area is open to LM and has med/high potential. Negative (-). OHV: 1% of use area is prohibited for summer subsistence use (in the INHT) and 15% is restricted for winter subsistence use to snowmobiles only. 23% of the use area limits summer casual use to existing trails and 1% is prohibited to casual OHV use. 24% is limited to snowmobiles only for casual winter use. There would be access restriction for subsistence uses in the 1% of the use area that prohibits OHV use in the summer, and the 15% that limits winter subsistence OHV use to snowmobiles only. This alternative provides the greatest protection against habitat degradation and competing uses, as compared to Alternative A, but the access impacts would be significant. Positive (+). ROW: 8% of use area would be open to ROW location, 12% would be ROW avoidance areas, and 4% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: Nearly 0% of the use area is open to LM and have med/high potential. Negative (-). OHV: 1% of use area is prohibited for summer subsistence use (in the INHT) and 4% is restricted for winter subsistence use to snowmobiles only. 23% of the use area limits summer casual use to existing trails and 1% is prohibited to casual OHV use. 4% of casual winter OHV use is limited to snowmobiles only. The access impacts to subsistence users does not meet the threshold, and this alternative provides greater protection to resources than Alternative A. Negative (-). ROW: 14% of use area would be open to ROW location and 10% would be ROW avoidance areas. This alternative would limit habitat fragmentation and degradation in these areas, as compared to Alternative A, but is above the threshold for impacts. Positive (+).	LM: Nearly 0% of the use area is open to LM and have med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: 15% of use area would be open to ROW location and 9% would be ROW avoidance areas. This alternative would limit habitat fragmentation and degradation in these areas, as compared to Alternative A, but is above the threshold for impacts. Positive (+).	LM: Nearly 0% of the use area is open to LM and have med/high potential. Negative (-). OHV: 1% of use area is prohibited for summer subsistence use (in the INHT) and 4% is restricted for winter subsistence use to snowmobiles only. 23% of the use area limits summer casual use to existing trails and 1% is prohibited to casual OHV use. 4% of casual winter OHV use is limited to snowmobiles only. The access impacts to subsistence users does not meet the threshold, and this alternative provides greater protection to resources than Alternative A. Negative (-). ROW: 23% of use area would be open to ROW location and 1% would be ROW avoidance areas. This could have a potentially significant impact on subsistence uses and resources, but is less than Alternative A, which has no restrictions. This alternative has the most potential to result in significant impacts of all the action alternatives. Positive (+).

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Hunting (Birds)	Ducks Geese Ptarmigan Grouse	9.1	LM: Nearly 0% of the use area is open to LM and have med/high potential. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: 0.1% of the use area is open to LM and has med/high potential. This does not meet the threshold and birds are not one of the top harvested resources. It covers a portion of the use area that leads to farther upstream areas for bird harvest, but it appears that access could still be achieved in portions of the surrounding land. Negative (-) OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. 8% of the use area limits summer casual use to existing trails. 8% is limited to snowmobiles only for casual winter use. This alternative provides the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-) . ROW: 2% of use area would be open to ROW location, 6% would be ROW avoidance areas, and 0.1% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-) .	LM: Same as Alternative B. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. 8% of the use area limits summer casual use to existing trails. There are no restrictions for casual winter use. This alternative provides the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-) . ROW: 6% of use area would be open to ROW location and 2% would be ROW avoidance areas. This alternative would limit habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-) .	LM: Same as Alternative B. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+) . ROW: 7% of use area would be open to ROW location and 1% would be ROW avoidance areas. This alternative would limit habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-) .	LM: Same as Alternative B. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. 8% of the use area limits summer casual use to existing trails. There are no restrictions for casual winter use. This alternative provides the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-) . ROW: 8% of use area would be open to ROW location. This alternative would limit habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-) .
Fishing	Burbot Chinook Chum Pike Salmon Sheefish Whitefish	Salmon: 66.0 Non-salmon Fish: 25.6	LM: Fishing locations for the community are upstream of LM decisions with med/high potential. Fish is one of the largest portions of harvested resources for the community, but access will not be impeded by LM areas, nor will habitat or resources be degraded based on the location of the LM areas. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: Some open areas are positioned upstream of numerous fish harvesting areas. This has the potential to degrade habitat and increase competition for the resource. Fish are one of the most harvested resources in the community (by weight). Positive (+) . OHV: Access to fishing locations is not impacted by the areas closed to subsistence OHV summer use or limitations to winter OHV use for subsistence users. Negative (-) . ROW: Some areas that are open to ROW placement are upstream of or close to known fishing locations for the community. Because fish is one of the most harvested resources (by weight), this could cause habitat degradation and increase competition for resources. Positive (+) .	LM: Some open areas are positioned upstream of numerous fish harvesting areas. This has the potential to degrade habitat and increase competition for the resource. Fish are one of the most harvested resources in the community (by weight). Positive (+) . OHV: Access to fishing locations is not impacted by the areas closed to subsistence OHV summer use or limitations to winter OHV use for subsistence users. Negative (-) . ROW: Some areas that are open to ROW placement are upstream of or close to known fishing locations for the community. Because fish is one of the most harvested resources (by weight), this could cause habitat degradation and increase competition for resources. Positive (+) .	LM: Some open areas are positioned upstream of numerous fish harvesting areas. This has the potential to degrade habitat and increase competition for the resource. Fish are one of the most harvested resources in the community (by weight). Positive (+) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+) . ROW: Some areas that are open to ROW placement are upstream of or close to known fishing locations for the community. Because fish is one of the most harvested resources (by weight), this could cause habitat degradation and increase competition for resources. Positive (+) .	LM: Some open areas are positioned upstream of numerous fish harvesting areas. This has the potential to degrade habitat and increase competition for the resource. Fish are one of the most harvested resources in the community (by weight). Positive (+) . OHV: Access to fishing locations is not impacted by the areas closed to subsistence OHV summer use or limitations to winter OHV use for subsistence users. Negative (-) . ROW: Some areas that are open to ROW placement are upstream of or close to known fishing locations for the community. Because fish is one of the most harvested resources (by weight), this could cause habitat degradation and increase competition for resources. Positive (+) .
Gathering	Berries Greens	14.2	LM: There is no overlap between Gathering and LM areas with med/high potential. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: There is no overlap between Gathering and LM areas with med/high potential. Negative (-) . OHV: There is no overlap between Gathering and OHV decisions. Negative (-) . ROW: There is no overlap between Gathering and ROW decisions. Negative (-) .	LM: There is no overlap between Gathering and LM areas with med/high potential. Negative (-) . OHV: There is no overlap between Gathering and OHV decisions. Negative (-) . ROW: There is no overlap between Gathering and ROW decisions. Negative (-) .	LM: There is no overlap between Gathering and LM areas with med/high potential. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+) . ROW: There is no overlap between Gathering and ROW decisions. Negative (-) .	LM: There is no overlap between Gathering and LM areas with med/high potential. Negative (-) . OHV: There is no overlap between Gathering and OHV decisions. Negative (-) . ROW: There is no overlap between Gathering and ROW decisions. Negative (-) .

Notes:
LM: Locatable minerals with med/high potential
OHV: travel decisions relating to OHV use
ROW: Right-of-way decisions
To provide a conservative analysis, State and ANCSA Native corporation–selected lands were included in the locatable mineral development portion of the analysis; however, these lands would not be open to locatable mineral development until the selection by the State or ANCSA Native corporation was relinquished or rejected.
1) This column shows which species the BSWI EIS Team has GIS data for at the time of the FEIS release. Communities may have differing sets of data available or may be missing data completely for an aggregated category. In most instances where data sets for "Hunting and Trapping (SLM)" were available, the subsistence use area did not specify which species are included in the use area.
2) Per capita harvest by edible weight from the calendar year 2011. Data are from the ADF&G Community Subsistence Information System (CSIS), available at <http://www.adfg.alaska.gov/sb/CSIS/>, accessed in 2018.

Impact Analysis Results—Nikolai

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Hunting and Trapping (LLM)	Black Bear Brown Bear Caribou Moose	247.2	LM: There is no overlap between LLM and LM areas with med/high potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: There is no overlap between LLM and LM areas with med/high potential. Negative (-). OHV: Less than 1% of use area is prohibited for summer subsistence use (in the INHT) and 17% is restricted for winter subsistence use to snowmobiles only. 18% of the use area limits summer casual use to existing trails and less than 1% is prohibited to casual OHV use. 18% is limited to snowmobiles only for casual winter use. There would be access restriction for subsistence uses in the 1% of the use area that prohibits OHV use in the summer, and the 17% that limits winter subsistence OHV use to snowmobiles only. This alternative provides the greatest protection against habitat degradation and competing uses, as compared to Alternative A, but the access impacts would be significant. LLM is the most highly harvest resource in the community. Positive (+). ROW: <1% of use area would be open to ROW location, 17% would be ROW avoidance areas, and 1% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: There is no overlap between LLM and LM areas with med/high potential. Negative (-). OHV: Less than 1% of use area is prohibited for summer subsistence use (in the INHT) and 6% is restricted for winter subsistence use to snowmobiles only. 6% of the use area limits summer casual use to existing trails and less than 1% is prohibited to casual OHV use. There are no restrictions to casual winter use outside of the INHT area. There would be access restriction for subsistence uses in the 1% of the use area that prohibits OHV use in the summer, and the 6% that limits winter subsistence OHV use to snowmobiles only. This alternative provides more protection against habitat degradation and competing uses, as compared to Alternative A, but the access impacts would be significant for LLM, which is the most highly harvest resource in the community. Positive (+). ROW: 8% of use area would be open to ROW location and 10% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: There is no overlap between LLM and LM areas with med/high potential. Negative (-). OHV: Less than 1% of use area is restricted for summer subsistence use and less than 1% is restricted for winter subsistence use. However, summer casual use is restricted to existing trails for that same portion of land, which could lead to degradation of habitat and conflict from competing uses. Winter casual and subsistence use is restricted to snowmobiles only for this 1%, and the rest of the BLM land in the use area is open to all winter OHV uses. This is similar impact as Alternative A. Positive (+). ROW: 8% of use area would be open to ROW location and 10% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: There is no overlap between LLM and LM areas with med/high potential. Negative (-). OHV: Less than 1% of use area is prohibited for summer subsistence use (in the INHT) and 6% is restricted for winter subsistence use to snowmobiles only. 6% of the use area limits summer casual use to existing trails and less than 1% is prohibited to casual OHV use. There are no restrictions to casual winter use outside of the INHT area. There would be access restriction for subsistence uses in the 1% of the use area that prohibits OHV use in the summer, and the 6% that limits winter subsistence OHV use to snowmobiles only. This alternative provides more protection against habitat degradation and competing uses, as compared to Alternative A, but the access impacts would be significant for LLM, which is the most highly harvest resource in the community. Positive (+). ROW: 18% of use area would be open to ROW location and <1% would be ROW avoidance areas. This could have a potentially significant impact on subsistence uses and resources, but is less than Alternative A, which has no restrictions. This alternative has the most potential to result in significant impacts of all the action alternatives. Positive (+).
Hunting and Trapping (SLM)	SLM	14.6	LM: There is no overlap between SLM and LM areas with med/high potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: There is no overlap between SLM and LM areas with med/high potential. Negative (-). OHV: 1% of use area is prohibited for summer subsistence use (in the INHT) and 7% is restricted for winter subsistence use to snowmobiles only. 10% of the use area limits summer casual use to existing trails and less than 1% is prohibited to casual OHV use. 10% is limited to snowmobiles only for casual winter use. There would be access restriction for subsistence uses in the 1% of the use area that prohibits OHV use in the summer, and the 7% that limits winter subsistence OHV use to snowmobiles only. This alternative provides the greatest protection against habitat degradation and competing uses, as compared to Alternative A. The area where casual and subsistence OHV use is prohibited would cut off a portion of the use area, which could be a significant impact. Positive (+). ROW: <1% of use area would be open to ROW location, 9% would be ROW avoidance areas, and 1% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: There is no overlap between SLM and LM areas with med/high potential. Negative (-). OHV: Less than 1% of use area is prohibited for summer subsistence use (in the INHT) and 9% is restricted for winter subsistence use to snowmobiles only. 30% of the use area limits summer casual use to existing trails and less than 1% is prohibited to casual OHV use. There are no restrictions to casual winter use outside of the INHT area. There would be access restriction for subsistence uses in the 1% of the use area that prohibits OHV use in the summer, and the 9% that limits winter subsistence OHV use to snowmobiles only. This alternative provides more protection against habitat degradation and competing uses, as compared to Alternative A. The area where casual and subsistence OHV use is prohibited would cut off a portion of the use area, which could be a significant impact. Positive (+). ROW: 3% of use area would be open to ROW location and 7% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Some SLM routes are crossed by open areas, but this resource was not one of the top harvested resources based on 2011 data. Negative (-).	LM: There is no overlap between SLM and LM areas with med/high potential. Negative (-). OHV: 1% of use area is restricted for summer subsistence use and 1% is restricted for winter subsistence use. However, summer casual use is restricted to existing trails for that same portion of land, which could lead to degradation of habitat and conflict from competing uses. Winter casual and subsistence use is restricted to snowmobiles only for this 1%, and the rest of the BLM land in the use area is open to all winter OHV uses. This is similar impact as Alternative A. Positive (+). ROW: Same as Alternative C. Negative (-).	LM: There is no overlap between SLM and LM areas with med/high potential. Negative (-). OHV: Less than 1% of use area is prohibited for summer subsistence use (in the INHT) and 9% is restricted for winter subsistence use to snowmobiles only. 30% of the use area limits summer casual use to existing trails and less than 1% is prohibited to casual OHV use. There are no restrictions to casual winter use outside of the INHT area. There would be access restriction for subsistence uses in the 1% of the use area that prohibits OHV use in the summer, and the 9% that limits winter subsistence OHV use to snowmobiles only. This alternative provides more protection against habitat degradation and competing uses, as compared to Alternative A. The area where casual and subsistence OHV use is prohibited would cut off a portion of the use area, which could be a significant impact. Positive (+). ROW: 10% of use area would be open to ROW location and 1% would be ROW avoidance areas. This could have a potentially significant impact on subsistence uses and resources, but is less than Alternative A, which has no restrictions. This alternative has the most potential to result in significant impacts of all the action alternatives. Positive (+).

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Hunting (Birds)	Ducks Geese Ptarmigan Grouse	24.4	LM: There is no overlap between birds and LM areas with med/high potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: There is no overlap between birds and LM areas with med/high potential. Negative (-). OHV: Less than 1% of use area is prohibited for summer subsistence use (in the INHT) and 27% is restricted for winter subsistence use to snowmobiles only. 30% of the use area limits summer casual use to existing trails and less than 1% is prohibited to casual OHV use. 10% is limited to snowmobiles only for casual winter use. There would be access restriction for subsistence uses in the 1% of the use area that prohibits OHV use in the summer, and the 27% that limits winter subsistence OHV use to snowmobiles only. This alternative provides the greatest protection against habitat degradation and competing uses, as compared to Alternative A. The area where casual and subsistence OHV use is prohibited would cut off a portion of the use area, which could be a significant impact. Positive (+). ROW: 1% of use area would be open to ROW location, 28% would be ROW avoidance areas, and 2% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: There is no overlap between birds and LM areas with med/high potential. Negative (-). OHV: Less than 1% of use area is prohibited for summer subsistence use (in the INHT) and 9% is restricted for winter subsistence use to snowmobiles only. 30% of the use area limits summer casual use to existing trails and less than 1% is prohibited to casual OHV use. 9% is limited to snowmobiles only for casual winter use. There would be access restriction for subsistence uses in the 1% of the use area that prohibits OHV use in the summer, and the 30% that limits winter subsistence OHV use to snowmobiles only. This alternative provides the greatest protection against habitat degradation and competing uses, as compared to Alternative A. The area where casual and subsistence OHV use is prohibited would cut off a portion of the use area, which could be a significant impact. Positive (+). ROW: 12% of use area would be open to ROW location and 18% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A, but the open areas are over the threshold. Positive (+).	LM: There is no overlap between birds and LM areas with med/high potential. Negative (-). OHV: Less than 1% of use area is restricted for summer subsistence use and less than 1% is restricted for winter subsistence use. However, summer casual use is restricted to existing trails for that same portion of land, which could lead to degradation of habitat and conflict from competing uses. Winter casual and subsistence use is restricted to snowmobiles only for this 1%, and the rest of the BLM land in the use area is open to all winter OHV uses. This is similar impact as Alternative A. Positive (+). ROW: 13% of use area would be open to ROW location and 17% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A, but the open areas are over the threshold. Positive (+).	LM: There is no overlap between birds and LM areas with med/high potential. Negative (-). OHV: Less than 1% of use area is prohibited for summer subsistence use (in the INHT) and 9% is restricted for winter subsistence use to snowmobiles only. 30% of the use area limits summer casual use to existing trails and less than 1% is prohibited to casual OHV use. 9% is limited to snowmobiles only for casual winter use. There would be access restriction for subsistence uses in the 1% of the use area that prohibits OHV use in the summer, and the 30% that limits winter subsistence OHV use to snowmobiles only. This alternative provides the greatest protection against habitat degradation and competing uses, as compared to Alternative A. The area where casual and subsistence OHV use is prohibited would cut off a portion of the use area, which could be a significant impact. Positive (+). ROW: 30% of use area would be open to ROW location and <1% would be ROW avoidance areas. This could have a potentially significant impact on subsistence uses and resources, but is less than Alternative A, which has no restrictions. This alternative has the most potential to result in significant impacts of all the action alternatives. Positive (+).
Fishing	Pike Salmon Sheefish Whitefish	Salmon: 131.0 Non-salmon Fish: 75.9	LM: There is no overlap between fish and LM areas with med/high potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: There is no overlap between fish and LM areas with med/high potential. Negative (-). OHV: A portion of the INHT that prohibits subsistence OHV use in the summer and limits OHV use in the winter would cover known fishing locations for the community. This would be an impact to access. Positive (+). ROW: Areas open to ROWs exist close to fishing locations and make up a large portion of the upstream basins of the Salmon River and other tributaries to the Kuskokwim, which could contribute to degradation of habitat and increased competition for resources. Fish are one of the top harvested resource for the community. Positive (+).	LM: There is no overlap between fish and LM areas with med/high potential. Negative (-). OHV: A portion of the INHT that prohibits subsistence OHV use in the summer and limits OHV use in the winter would cover known fishing locations for the community. This would be an impact to access. Positive (+). ROW: Areas open to ROWs exist close to fishing locations and make up a large portion of the upstream basins of the Salmon River and other tributaries to the Kuskokwim, which could contribute to degradation of habitat and increased competition for resources. Fish are one of the top harvested resource for the community. Positive (+).	LM: There is no overlap between fish and LM areas with med/high potential. Negative (-). OHV: A portion of the INHT that prohibits subsistence OHV use in the summer and limits OHV use in the winter would cover known fishing locations for the community. This would be an impact to access. Positive. This is the same impact as Alternative A. Positive (+). ROW: Areas open to ROWs exist close to fishing locations and make up a large portion of the upstream basins of the Salmon River and other tributaries to the Kuskokwim, which could contribute to degradation of habitat and increased competition for resources. Fish are one of the top harvested resource for the community. Positive (+).	LM: There is no overlap between fish and LM areas with med/high potential. Negative (-). OHV: A portion of the INHT that prohibits subsistence OHV use in the summer and limits OHV use in the winter would cover known fishing locations for the community. This would be an impact to access. Positive (+). ROW: Areas open to ROWs exist close to fishing locations and make up a large portion of the upstream basins of the Salmon River and other tributaries to the Kuskokwim, which could contribute to degradation of habitat and increased competition for resources. Fish are one of the top harvested resource for the community. Positive (+).

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Gathering	Berries Greens	9.8	LM: There is no overlap between gathering and LM areas with med/high potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: There is no overlap between gathering and LM areas with med/high potential. Negative (-). OHV: 0% of use area is prohibited for summer subsistence use and 56% is restricted for winter subsistence use to snowmobiles only. 58% of the use area limits summer casual use to existing trails and 58% is limited to snowmobiles only for casual winter use. There would be access restriction for subsistence uses in the 56% that limits winter subsistence OHV use to snowmobiles only. This alternative provides the greatest protection against habitat degradation and competing uses, as compared to Alternative A, but the access impacts would be significant for any winter gathering. Positive (+). ROW: <1% of use area would be open to ROW location, 55% would be ROW avoidance areas, and 3% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: There is no overlap between gathering and LM areas with med/high potential. Negative (-). OHV: 0% of use area is prohibited for summer subsistence use and 17% is restricted for winter subsistence use to snowmobiles only. 58% of the use area limits summer casual use to existing trails and 17% is limited to snowmobiles only for casual winter use. There would be access restriction for subsistence uses in the 17% that limits winter subsistence OHV use to snowmobiles only. This alternative provides greater protection against habitat degradation and competing uses, as compared to Alternative A, but the access impacts would be significant for any winter gathering. Positive (+). ROW: 26% of use area would be open to ROW location and 32% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A, but the open areas are over the threshold of the assumptions of the analysis. Positive (+).	LM: There is no overlap between gathering and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: 27% of use area would be open to ROW location and 31% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A, but the open areas are over the threshold of the assumptions of the analysis Positive (+).	LM: There is no overlap between gathering and LM areas with med/high potential. Negative (-). OHV: 0% of use area is prohibited for summer subsistence use and 17% is restricted for winter subsistence use to snowmobiles only. 58% of the use area limits summer casual use to existing trails and 17% is limited to snowmobiles only for casual winter use. There would be access restriction for subsistence uses in the 17% that limits winter subsistence OHV use to snowmobiles only. This alternative provides greater protection against habitat degradation and competing uses, as compared to Alternative A, but the access impacts would be significant for any winter gathering. Positive (+). ROW: 58% of use area would be open to ROW location. This could have a potentially significant impact on subsistence uses and resources, but is less than Alternative A, which has no restrictions. This alternative has the most potential to result in significant impacts of all the action alternatives. Positive (+).

Notes:

LM: Locatable minerals with med/high potential

OHV: travel decisions relating to OHV use

ROW: Right-of-way decisions

1) This column shows which species the BSWI EIS Team has GIS data for at the time of the FEIS release. Communities may have differing sets of data available or may be missing data completely for an aggregated category. In most instances where data sets for "Hunting and Trapping (SLM)" were available, the subsistence use area did not specify which species are included in the use area.

2) Per capita harvest by edible weight for calendar year 2012. Data are from the ADF&G Community Subsistence Information System (CSIS), available at <http://www.adfg.alaska.gov/sb/CSIS/>, accessed in 2018.

Impact Analysis Results—Nulato

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Hunting and Trapping (LLM)		85.5	LM: There is no overlap between LLM and LM areas with med/high potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: There is no overlap between LLM and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for subsistence winter use to snowmobiles. 3% of the use area limits summer casual use to existing trails. This same 3% is also limited to snowmobiles only for casual winter use. Therefore, there are no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 2% of use area would be open to ROW location, 1% would be ROW avoidance areas, and <1% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: There is no overlap between LLM and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 3% of the use area limits summer casual use to existing trails. There is no OHV limitation for casual winter use. Therefore, there is no access restriction for subsistence uses and greater protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 3% of use area would be open to ROW location and <1% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: There is no overlap between LLM and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: 3% of use area would be open to ROW location and a very small percentage would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: There is no overlap between LLM and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 3% of the use area limits summer casual use to existing trails. There is no OHV limitation for casual winter use. Therefore, there is no access restriction for subsistence uses and greater protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 3% of use area would be open to ROW location. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).
Hunting and Trapping (SLM)		9.3	LM: There is no overlap between SLM and LM areas with med/high potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: There is no overlap between SLM and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and close to 0% is restricted for subsistence winter use to snowmobiles. 1% of the use area limits summer casual use to existing trails. This same 1% is also limited to snowmobiles only for casual winter use. Therefore, there is limited access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 1% of use area would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: There is no overlap between SLM and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and close to 0% is restricted for winter use. 1% of the use area limits summer casual use to existing trails. Close to 0% of the use area restricts casual winter OHV use to snowmobiles only. Therefore, there is limited access restriction for subsistence uses and greater protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: Same as Alternative B. Negative (-).	LM: There is no overlap between SLM and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: Same as Alternative B. Negative (-).	LM: There is no overlap between SLM and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and close to 0% is restricted for winter use. 1% of the use area limits summer casual use to existing trails. Close to 0% of the use area restricts casual winter OHV use to snowmobiles only. Therefore, there is limited access restriction for subsistence uses and greater protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: Same as Alternative B. Negative (-).
Hunting (Birds)		2.4	LM: There is no overlap between bird hunting and LM areas with med/high potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: There is no overlap between bird hunting and LM areas with med/high potential. Negative (-). OHV: There is no overlap between bird hunting and OHV decisions. Negative (-). ROW: There is no overlap between bird hunting and ROW decisions. Negative (-).	LM: There is no overlap between bird hunting and LM areas with med/high potential. Negative (-). OHV: There is no overlap between bird hunting and OHV decisions. Negative (-). ROW: There is no overlap between bird hunting and ROW decisions. Negative (-).	LM: There is no overlap between bird hunting and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: There is no overlap between bird hunting and ROW decisions. Negative (-).	LM: There is no overlap between bird hunting and LM areas with med/high potential. Negative (-). OHV: There is no overlap between bird hunting and OHV decisions. Negative (-). ROW: There is no overlap between bird hunting and ROW decisions. Negative (-).

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Fishing		Salmon: 108.4 Non-salmon Fish: 25.7	LM: There is no overlap between fishing and LM areas with med/high potential. No LM areas in upstream portions of the basin. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: There is no overlap between fishing and LM areas with med/high potential. No LM areas in upstream portions of the basin. Negative (-) . OHV: There is no overlap between fishing and OHV decisions. Negative (-) . ROW: There is no overlap between fishing and ROW decisions. Negative (-) .	LM: There is no overlap between fishing and LM areas with med/high potential. No LM areas in upstream portions of the basin. Negative (-) . OHV: There is no overlap between fishing and OHV decisions. Negative (-) . ROW: There is no overlap between fishing and ROW decisions. Negative (-) .	LM: There is no overlap between fishing and LM areas with med/high potential. No LM areas in upstream portions of the basin. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+) . ROW: There is no overlap between fishing and ROW decisions. Negative (-) .	LM: There is no overlap between fishing and LM areas with med/high potential. No LM areas in upstream portions of the basin. Negative (-) . OHV: There is no overlap between fishing and OHV decisions. Negative (-) . ROW: There is no overlap between fishing and ROW decisions. However, larger portions of the watershed that feed into the fishing locations along the Yukon River are open to ROW development, as compared to Alternatives B, C, and D. Development in the watershed could lead to water quality impacts that could affect fish populations and could bring non-subsistence users into the area to compete for resources. Positive (+) .
Gathering		7.3	LM: There is no overlap between Gathering and LM areas with med/high potential. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: There is no overlap between Gathering and LM areas with med/high potential. Negative (-) . OHV: There is no overlap between Gathering and OHV decisions. Negative (-) . ROW: There is no overlap between Gathering and ROW decisions. Negative (-) .	LM: There is no overlap between Gathering and LM areas with med/high potential. Negative (-) . OHV: There is no overlap between Gathering and OHV decisions. Negative (-) . ROW: There is no overlap between Gathering and ROW decisions. Negative (-) .	LM: There is no overlap between Gathering and LM areas with med/high potential. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+) . ROW: There is no overlap between Gathering and ROW decisions. Negative (-) .	LM: There is no overlap between Gathering and LM areas with med/high potential. Negative (-) . OHV: There is no overlap between Gathering and OHV decisions. Negative (-) . ROW: There is no overlap between Gathering and ROW decisions. Negative (-) .

Notes:
LLM: large land mammal
LM: locatable minerals with med/high potential
OHV: travel decisions relating to OHV use
ROW: right-of-way decisions
SLM: small land mammal

1) This column shows which species the BSWI EIS Team has GIS data for at the time of the FEIS release. Communities may have differing sets of data available or may be missing data completely for an aggregated category. In most instances where data sets for "Hunting and Trapping (SLM)" were available, the subsistence use area did not specify which species are included in the use area.

2) Per capita harvest by edible weight from calendar year 2010. Data are from the ADF&G Community Subsistence Information System (CSIS), available at <http://www.adfg.alaska.gov/sb/CSIS/>, accessed in 2018.

Impact Analysis Results—Russian Mission

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Hunting and Trapping (LLM)	Black Bear Caribou Moose	107.5	LM: There is no overlap between LLM and LM areas with med/high potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: There is no overlap between LLM and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 10% of the use area limits summer casual use to existing trails. This same 10% is also limited to snowmobiles only for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: <1% of use area would be open to ROW location, 7% would be ROW avoidance areas, and 3% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: There is no overlap between LLM and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 10% of the use area limits summer casual use to existing trails. There is no OHV limitation for casual winter use. Therefore, there is no access restriction for subsistence uses and the greater protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 3% of use area would be open to ROW location, 6% would be ROW avoidance areas, and nearly 0% would be ROW avoidance areas for linear realty. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: There is no overlap between LLM and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: 7% of use area would be open to ROW location and 2% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A and does not surpass the threshold. Open areas do not appear to block travel routes. Negative (-).	LM: There is no overlap between LLM and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 10% of the use area limits summer casual use to existing trails. There is no OHV limitation for casual winter use. Therefore, there is no access restriction for subsistence uses and the greater protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 7% of use area would be open to ROW location, 2% would be ROW avoidance areas, and <1% would be ROW avoidance areas for linear realty. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A and does not surpass the threshold. Negative (-).
Hunting and Trapping (SLM)	SLM	4.4	LM: There is no overlap between SLM and LM areas with med/high potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: There is no overlap between SLM and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. Close to 0% of the use area limits summer casual use to existing trails. This nearly 0% is also limited to snowmobiles only for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. SLM was not one of the top harvested resources according to data from 2011 (by weight). Negative (-). ROW: 60 acres (close to 0%) of use area would be ROW avoidance areas. Negative (-).	LM: There is no overlap between SLM and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. Close to 0% of the use area limits summer casual use to existing trails. There is no OHV limitation for casual winter use. Therefore, there is no access restriction for subsistence uses and more protection against habitat degradation and competing uses for the 3% within the use area, as compared to Alternative A. Negative (-). ROW: Same as Alternative B. Negative (-).	LM: There is no overlap between SLM and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: 5960 acres (close to 0%) of use area would be open to ROW location. Negative (-).	LM: There is no overlap between SLM and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. Close to 0% of the use area limits summer casual use to existing trails. There is no OHV limitation for casual winter use. Therefore, there is no access restriction for subsistence uses and more protection against habitat degradation and competing uses for the 3% within the use area, as compared to Alternative A. Negative (-). ROW: Same as Alternative D. Negative (-).
Hunting (Birds)	Ducks Geese Ptarmigan Grouse	9.5	LM: There is no overlap between birds and LM areas with med/high potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: There is no overlap between birds and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 3% of the use area limits summer casual use to existing trails. This 3% is also limited to snowmobiles only for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Birds were not one of the top harvested resources according to data from 2011 (by weight). Negative (-). ROW: 3% of use area would be a ROW avoidance area. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: There is no overlap between birds and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 3% of the use area limits summer casual use to existing trails. There is no OHV limitation for casual winter use. Therefore, there is no access restriction for subsistence uses and more protection against habitat degradation and competing uses for the 59 acres within the use area, as compared to Alternative A. Negative (-). ROW: 2% of use area would be open to ROW location and 1% would be ROW avoidance areas. This alternative would limit habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: There is no overlap between birds and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: 3% of use area would be open to ROW location and <1% would be ROW avoidance areas. This alternative would limit habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: There is no overlap between birds and LM areas with med/high potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 3% of the use area limits summer casual use to existing trails. There is no OHV limitation for casual winter use. Therefore, there is no access restriction for subsistence uses and more protection against habitat degradation and competing uses for the 59 acres within the use area, as compared to Alternative A. Negative (-). ROW: 3% of use area would be open to ROW location. This alternative would limit habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Fishing	Burbot Pike Salmon Sheefish Whitefish	Salmon: 110.4 Non-salmon Fish: 89.4	LM: There are no open areas with med/high potential in the vicinity of the fishing locations for the community. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: One small area of open land with med/high potential in the vicinity of the fishing locations but does not appear to be upstream of the locations or in spot that would impede access. Negative (-) . OHV: No limit to subsistence access for areas surrounding fishing locations. Summer casual OHV use is limited to existing trails, and winter casual use is limited to snowmobiles only. Negative (-) . ROW: There are a few spots of land open to ROW placement that are close to the village, but they do not appear to be in a basin that is upstream of the fishing locations. These areas also do not appear to block access to these locations. Negative (-) .	LM: Two small area of open land with med/high potential in the vicinity of the fishing locations but does not appear to be upstream of the locations or in spot that would impede access. Negative (-) . OHV: No limit to subsistence access for areas surrounding fishing locations. Summer casual OHV use is limited to existing trails. Negative (-) . ROW: More land that is open to ROWs is closer to fishing locations for the community. These areas could bring in competing uses for fish resources and also degrade the surrounding habitat. Fish is the most highly harvest resource (by weight) for the community, based on 2011 data. Positive (+) .	LM: Same as Alternative C. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+) . ROW: Same as Alternative C. Positive (+) .	LM: Two small area of open land with med/high potential in the vicinity of the fishing locations but does not appear to be upstream of the locations or in spot that would impede access. Negative (-) . OHV: No limit to subsistence access for areas surrounding fishing locations. Summer casual OHV use is limited to existing trails. Negative (-) . ROW: More land that is open to ROWs is closer to fishing locations for the community. These areas could bring in competing uses for fish resources and also degrade the surrounding habitat. Fish is the most highly harvest resource (by weight) for the community, based on 2011 data. Positive (+) .
Gathering	Berries Greens	4.7	LM: There is no overlap between gathering and LM areas with med/high potential. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: There is no overlap between gathering and LM areas with med/high potential. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 24% of the use area limits summer casual use to existing trails. This 24% is also limited to snowmobiles only for casual winter use. Therefore, there is no access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Gathering was not one of the top harvested resources according to data from 2011 (by weight). Negative (-) . ROW: <1% of use area would be open to ROW location, 22% would be ROW avoidance areas, and 1% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-) .	LM: There is no overlap between gathering and LM areas with med/high potential. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 24% of the use area limits summer casual use to existing trails. There is no OHV limitation for casual winter use. Therefore, there is no access restriction for subsistence uses and the greater protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-) . ROW: 11% of use area would be open to ROW location, 13% would be ROW avoidance areas, and a very small percentage would be ROW avoidance areas for linear realty. This alternative would limit habitat fragmentation and degradation in these areas, as compared to Alternative A, but is above the threshold for impacts. Positive (+) .	LM: There is no overlap between gathering and LM areas with med/high potential. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+) . ROW: 22% of use area would be open to ROW location and 2% would be ROW avoidance areas. This alternative would limit habitat fragmentation and degradation in these areas, as compared to Alternative A, but is above the threshold for impacts. Positive (+) .	LM: There is no overlap between gathering and LM areas with med/high potential. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 24% of the use area limits summer casual use to existing trails. There is no OHV limitation for casual winter use. Therefore, there is no access restriction for subsistence uses and the greater protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-) . ROW: 23% of use area would be open to ROW location, almost none of the use area would be ROW avoidance areas, and 1% would be ROW avoidance areas for linear realty. This could have a potentially significant impact on subsistence uses and resources, but is less than Alternative A, which has no restrictions. This alternative has the most potential to result in significant impacts of all the action alternatives. Positive (+) .

Notes:
LLM: large land mammal
LM: locatable minerals with med/high potential
OHV: travel decisions relating to OHV use
ROW: right-of-way decisions
SLM: small land mammal

To provide a conservative analysis, State and ANCSA Native corporation–selected lands were included in the locatable mineral development portion of the analysis; however, these lands would not be open to locatable mineral development until the selection by the State or ANCSA Native corporation was relinquished or rejected.

1) This column shows which species the BSWI EIS Team has GIS data for at the time of the FEIS release. Communities may have differing sets of data available or may be missing data completely for an aggregated category. In most instances where data sets for "Hunting and Trapping (SLM)" were available, the subsistence use area did not specify which species are included in the use area.

2) Per capita harvest by edible weight from calendar year 2011. Data are from the ADF&G Community Subsistence Information System (CSIS), available at <http://www.adfg.alaska.gov/sb/CSIS/>, accessed in 2018.

Impact Analysis Results—Shageluk

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Hunting and Trapping (LLM)	Moose	126.1	LM: No overlap in use areas. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: No overlap in open areas and use areas. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and close to 0% is restricted for subsistence winter use to snowmobiles. 31% of the use area limits summer casual use to existing trails. This same 31% is also limited to snowmobiles only for casual winter use. Therefore, there is limited access restriction for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-) . ROW: 4% of use area would be open to ROW location, 7% would be ROW avoidance areas, and 20% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-) .	LM: No overlap in use areas. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and close to 0% is restricted for subsistence winter use. 31% of the use area limits summer casual use to existing trails. Close to 0% is also limited to snowmobiles only for casual winter use. Therefore, there is limited access restriction for subsistence uses and greater protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-) . ROW: 4% of use area would be open to ROW location, 25% would be ROW avoidance areas, and 1% would be ROW avoidance areas for linear realty. This alternative would decrease habitat fragmentation and degradation in these areas, as compared to Alternative A, but may have significant impacts due to the amount of LLM that is harvested by the community. While the open areas are the same percentage as Alternative B, this alternative lacks exclusion areas and has a high percentage of avoidance areas. The avoidance and open areas could affect access and availability. LLM is the second largest subsistence resource category harvested (by edible weight). Positive (+) .	LM: No overlap in use areas. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+) . ROW: 12% of use area would be open to ROW location and 18% would be ROW avoidance areas. This alternative would decrease habitat fragmentation and degradation in these areas, as compared to Alternative A, but may have significant impacts due to the amount of LLM that is harvested in the community. The avoidance and open areas could affect access and availability. LLM is the second highest subsistence resource harvested (by weight). Positive (+) .	LM: No overlap in use areas. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and close to 0% is restricted for subsistence winter use. 31% of the use area limits summer casual use to existing trails. Close to 0% is also limited to snowmobiles only for casual winter use. Therefore, there is limited access restriction for subsistence uses and greater protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-) . ROW: 11% of use area would be open to ROW location, 10% would be ROW avoidance areas, and 10% would be ROW avoidance areas for linear realty. This alternative would decrease habitat fragmentation and degradation in these areas, as compared to Alternative A, but may have significant impacts due to the amount of LLM that is harvested in the community. The avoidance and open areas could affect access and availability. LLM is the second highest subsistence resource harvested (by weight). Positive (+) .
Hunting and Trapping (SLM) (GRAYLING DATA)		8.2	LM: Same as Grayling. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: No overlap in open areas and use areas. Negative (-) . OHV: Same as Grayling. Negative (-) . ROW: Same as Grayling. Negative (-) .	LM: No overlap in open areas and use areas. Negative (-) . OHV: Same as Grayling. Positive (+) . ROW: Same as Grayling. Negative (-) .	LM: Same as Grayling. Negative (-) . OHV: Same as Grayling. Positive (+) . ROW: Same as Grayling. Negative (-) .	LM: No overlap in open areas and use areas. Negative (-) . OHV: Same as Grayling. Positive (+) . ROW: Same as Grayling. Negative (-) .
Hunting (Birds) (GRAYLING DATA)		9.1	LM: Same as Grayling. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: No overlap in open areas and use areas. Negative (-) . OHV: Same as Grayling. Positive (+) . ROW: Same as Grayling. Negative (-) .	LM: No overlap in open areas and use areas. Negative (-) . OHV: Same as Grayling. Positive (+) . ROW: Same as Grayling. Negative (-) .	LM: Same as Grayling. Negative (-) . OHV: Same as Grayling. Positive (+) . ROW: Same as Grayling. Negative (-) .	LM: No overlap in open areas and use areas. Negative (-) . OHV: Same as Grayling. Positive (+) . ROW: Same as Grayling. Negative (-) .

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Fishing	Fish	Salmon: 157.9 Non-salmon Fish: 141.4	LM: No overlap in open areas and use areas. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: No overlap in open areas and use areas. Negative (-) . OHV: There are no areas close to fishing use areas that limit subsistence access in the summer or winter. Also, several portions of the surrounding land have summer and winter limitations for casual use. Negative (-) . ROW: 3% of use area would be open to ROW location, 8% would be ROW avoidance areas, and 10% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-) .	LM: No overlap in open areas and use areas. Negative (-) . OHV: There are no areas close to fishing use areas that limit subsistence access in the summer or winter. Also, several portions of the surrounding land have summer (but no winter) limitations for casual use. Negative (-) . ROW: 8% of use area would be open to ROW location and 14% would be ROW avoidance areas. This alternative would decrease habitat fragmentation and degradation in these areas, as compared to Alternative A, but may have significant impacts due to the amount of fish that is harvested in the community. The avoidance and open areas could affect access and availability. Fish is the number one subsistence resource harvested (by weight). Positive (+) .	LM: No overlap in open areas and use areas. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+) . ROW: 12% of use area would be open to ROW location and 9% would be ROW avoidance areas. This alternative would decrease habitat fragmentation and degradation in these areas, as compared to Alternative A, but may have significant impacts due to the amount of fish that is harvested in the community. The avoidance and open areas could affect access and availability. Fish is the number one subsistence resource harvested (by weight). Positive (+) .	LM: No overlap in open areas and use areas. Negative (-) . OHV: There are no areas close to fishing use areas that limit subsistence access in the summer or winter. Also, several portions of the surrounding land have summer (but no winter) limitations for casual use. Negative (-) . ROW: 11% of use area would be open to ROW location, 9% would be ROW avoidance areas, and 2% would be ROW avoidance areas for linear realty. This alternative would decrease habitat fragmentation and degradation in these areas, as compared to Alternative A, but may have significant impacts due to the amount of fish that is harvested in the community. The avoidance and open areas could affect access and availability. Fish is the number one subsistence resource harvested (by weight). Positive (+) .
Gathering (GRAYLING DATA)		2.6	LM: Same as Grayling. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: No overlap in open areas and use areas. Negative (-) . OHV: Same as Grayling. Negative (-) . ROW: Same as Grayling. Negative (-) .	LM: No overlap in open areas and use areas. Negative (-) . OHV: Same as Grayling. Negative (-) . ROW: Same as Grayling. Negative (-) .	LM: Same as Grayling. Negative (-) . OHV: Same as Grayling. Positive (+) . ROW: Same as Grayling. Negative (-) .	LM: No overlap in open areas and use areas. Negative (-) . OHV: Same as Grayling. Negative (-) . ROW: Same as Grayling. Negative (-) .

Notes:
LLM: large land mammal
LM: locatable minerals with med/high potential
OHV: travel decisions relating to OHV use
ROW: right-of-way decisions
SLM: small land mammal

1) This column shows which species the BSWI EIS Team has GIS data for at the time of the FEIS release. Communities may have differing sets of data available or may be missing data completely for an aggregated category. In most instances where data sets for "Hunting and Trapping (SLM)" were available, the subsistence use area did not specify which species are included in the use area.

2) Per capita harvest by edible weight from calendar year 2013. Data are from the ADF&G Community Subsistence Information System (CSIS), available at <http://www.adfg.alaska.gov/sb/CSIS/>, accessed in 2018.

Impact Analysis Results—Sleetmute

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Hunting and Trapping (LLM)	Black Bear Caribou Moose	43.9	LM: Close to 0% of the use area is withdrawn from LM with med/high potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: <1% of the use area is open to LM and have med/high potential. There is a potential chokepoint that could occur along the Kuskokwim River near the confluence of Kolmakof River, though travel could still take place on the Kuskokwim River itself. Additionally, there is a route along a valley area that may serve as a travel route. Negative. Negative (-). OHV: 0% of use area is prohibited for summer subsistence use and 6% is restricted for winter subsistence use to snowmobiles only. 8% of the use area limits summer casual use to existing trails. 8% is limited to snowmobiles only for casual winter use. There would be access restriction for subsistence uses in the 6% that limits winter subsistence OHV use to snowmobiles only. This alternative provides the greatest protection against habitat degradation and competing uses, as compared to Alternative A, but the access impacts would be significant. LLM is the most highly harvested resource in the community. Positive (+). ROW: <1% of use area would be open to ROW location, 8% would be ROW avoidance areas, and a very small percentage would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: Same as Alternative B. Negative (-). OHV: 0% of use area is prohibited for summer subsistence use and 6% is restricted for winter subsistence use to snowmobiles only. 8% of the use area limits summer casual use to existing trails. 6% is limited to snowmobiles only for casual winter use. There would be access restriction for subsistence uses in the 6% that limits winter subsistence OHV use to snowmobiles only. This alternative provides the greatest protection against habitat degradation and competing uses, as compared to Alternative A, but the access impacts would be significant. LLM is the most highly harvested resource in the community. Positive (+). ROW: 1% of use area would be open to ROW location and 7% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: Same as Alternative B. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: 5% of use area would be open to ROW location and 4% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: Same as Alternative B. Negative (-). OHV: 0% of use area is prohibited for summer subsistence use and 6% is restricted for winter subsistence use to snowmobiles only. 8% of the use area limits summer casual use to existing trails. 6% is limited to snowmobiles only for casual winter use. There would be access restriction for subsistence uses in the 6% that limits winter subsistence OHV use to snowmobiles only. This alternative provides the greatest protection against habitat degradation and competing uses, as compared to Alternative A, but the access impacts would be significant. LLM is the most highly harvested resource in the community. Positive (+). ROW: 8% of use area would be open to ROW location. All of the BLM-managed land within and surrounding the portion of the use area along the Swift River, however, is open to ROW development. This is the second most heavily harvested resource for the community, and therefore the impacts could be significant. Positive (+).
Hunting and Trapping (SLM)	SLM	15.1	LM: 1% of the use area is withdrawn from LM with med/high potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: <1% of the use area is open to LM and have med/high potential. There is a potential chokepoint that could occur along the Kuskokwim River near the confluence of Kolmakof River, though travel could still take place on the Kuskokwim River itself. Additionally, there is a route along a valley area that may serve as a travel route. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for subsistence winter use to snowmobiles. 2% of the use area limits summer casual use to existing trails. This same 2% is also limited to snowmobiles only for casual winter use. Therefore, there are no access restrictions for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 1% of use area would be open to ROW location, 1% would be ROW avoidance areas, and 0% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: Same as Alternative B. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and close to 0% is restricted for subsistence winter use. 2% of the use area limits summer casual use to existing trails. There is no OHV limitation for casual winter use. Therefore, there is no access restriction for subsistence uses and greater protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 1% of use area would be open to ROW location and 2% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: Same as Alternative B. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: 1% of use area would be open to ROW location and 1% would be ROW avoidance areas, and 0% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: Same as Alternative B. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and close to 0% is restricted for subsistence winter use. 2% of the use area limits summer casual use to existing trails. There is no OHV limitation for casual winter use. Therefore, there is no access restriction for subsistence uses and greater protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 2% of use area would be open to ROW location. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Hunting (Birds)	Ducks Geese	5.6	LM: 2% of the use area is withdrawn from LM with med/high potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: 1% of the use area is open to LM and have med/high potential. There is a potential chokepoint that could occur along the Kuskokwim River near the confluence of Kolmakof River, though travel could still take place on the Kuskokwim River itself. Additionally, there is a route along a valley area that may serve as a travel route. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for subsistence winter use to snowmobiles. 3% of the use area limits summer casual use to existing trails. This same 3% is also limited to snowmobiles only for casual winter use. Therefore, there are no access restrictions for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 1% of use area would be open to ROW location, 2% would be ROW avoidance areas, and 0% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: Same as Alternative B. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and close to 0% is restricted for subsistence winter use. 3% of the use area limits summer casual use to existing trails. There is no OHV limitation for casual winter use. Therefore, there is no access restriction for subsistence uses and greater protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 1% of use area would be open to ROW location and 2% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: Same as Alternative B. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: 2% of use area would be open to ROW location and 1% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: Same as Alternative B. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and close to 0% is restricted for subsistence winter use. 3% of the use area limits summer casual use to existing trails. There is no OHV limitation for casual winter use. Therefore, there is no access restriction for subsistence uses and greater protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 3% of use area would be open to ROW location. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).
Fishing	Salmon Trout Whitefish	Salmon: 277.1 Non-salmon Fish: 53.9	LM: Some BLM land near known fishing locations for the community is withdrawn from LM with med/high potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: Some BLM land close to known fishing locations for the community are open for LM and have high/med potential. This could cause access impacts and degradation of habitat, in addition to potentially bringing in new users to the area that could increase competition for resources. Fish make up the largest portion of harvested resources for the community. Positive (+). OHV: Some fishing locations on the Stony River are near areas where subsistence OHV use is limited to snowmobiles in the winter, but the access to these spots would not be impacted. Additionally, limitations places on casual summer and winter OHV use provide some protection to the habitat and decrease conflict between competing users. This impact is less than Alternative A. Negative (-). ROW: Land that is open to ROWs is close to fishing locations for the community. These areas could bring in competing uses for fish resources and also degrade the surrounding habitat. Fish is the most highly harvest resource (by weight) for the community, based on 2009 data. Positive (+).	LM: Same as Alternative B. Positive (+). OHV: Some fishing locations on the Stony River are near areas where subsistence OHV use is limited to snowmobiles in the winter, but the access to these spots would not be impacted. Additionally, limitations places on casual summer and winter OHV use provide some protection to the habitat and decrease conflict between competing users. This impact is less than Alternative A. Negative (-). ROW: Land that is open to ROWs is close to fishing locations for the community. These areas could bring in competing uses for fish resources and also degrade the surrounding habitat. Fish is the most highly harvest resource (by weight) for the community, based on 2009 data. Positive (+).	LM: Same as Alternative B. Positive (+). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: Land that is open to ROWs is close to fishing locations for the community. These areas could bring in competing uses for fish resources and also degrade the surrounding habitat. Fish is the most highly harvest resource (by weight) for the community, based on 2009 data. Positive (+).	LM: Same as Alternative B. Positive (+). OHV: Some fishing locations on the Stony River are near areas where subsistence OHV use is limited to snowmobiles in the winter, but the access to these spots would not be impacted. Additionally, limitations places on casual summer and winter OHV use provide some protection to the habitat and decrease conflict between competing users. This impact is less than Alternative A. Negative (-). ROW: Land that is open to ROWs is close to fishing locations for the community. These areas could bring in competing uses for fish resources and also degrade the surrounding habitat. Fish is the most highly harvest resource (by weight) for the community, based on 2009 data. Positive (+).

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Gathering	Berries Plants	10.5	LM: 2% of the use area is withdrawn from LM with med/high potential. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: <1% of the use area is open to LM and have med/high potential. There is a potential chokepoint that could occur along the Kuskokwim River near the confluence of Kolmakof River, though travel could still take place on the Kuskokwim River itself. Additionally, there is a route along a valley area that may serve as a travel route. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for subsistence winter use to snowmobiles. 4% of the use area limits summer casual use to existing trails. This same 4% is also limited to snowmobiles only for casual winter use. Therefore, there are no access restrictions for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-) . ROW: 1% of use area would be open to ROW location, 3% would be ROW avoidance areas, and 0% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-) .	LM: Same as Alternative B. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and close to 0% is restricted for subsistence winter use. 4% of the use area limits summer casual use to existing trails. There is no OHV limitation for casual winter use. Therefore, there is no access restriction for subsistence uses and greater protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-) . ROW: Same as Alternative B. Negative (-) .	LM: Same as Alternative B. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+) . ROW: 2% of use area would be open to ROW location and 2% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-) .	LM: Same as Alternative B. Negative (-) . OHV: 0% of use area is restricted for summer subsistence use and close to 0% is restricted for subsistence winter use. 4% of the use area limits summer casual use to existing trails. There is no OHV limitation for casual winter use. Therefore, there is no access restriction for subsistence uses and greater protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-) . ROW: 4% of use area would be open to ROW location. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-) .

Notes:
LLM: large land mammal
LM: locatable minerals with med/high potential
OHV: travel decisions relating to OHV use
ROW: right-of-way decisions
SLM: small land mammal

To provide a conservative analysis, State and ANCSA Native corporation–selected lands were included in the locatable mineral development portion of the analysis; however, these lands would not be open to locatable mineral development until the selection by the State or ANCSA Native corporation was relinquished or rejected.

1) This column shows which species the BSWI EIS Team has GIS data for at the time of the FEIS release. Communities may have differing sets of data available or may be missing data completely for an aggregated category. In most instances where data sets for "Hunting and Trapping (SLM)" were available, the subsistence use area did not specify which species are included in the use area.

2) Per capita harvest by edible weight from calendar year 2009. Bird value includes birds and eggs. Data are from the ADF&G Community Subsistence Information System (CSIS), available at <http://www.adfg.alaska.gov/sb/CSIS/>, accessed in 2018.

Impact Analysis Results—Stony River

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Hunting and Trapping (LLM)	Black Bear Caribou Moose	20.3	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 7% is restricted for subsistence winter use to snowmobiles. 37% of the use area limits summer casual use to existing trails. This same 37% is also limited to snowmobiles only for casual winter use. This alternative offers the greatest protection against habitat degradation and competing uses, as compared to Alternative A, but may result in access impacts for subsistence users. LLM is one of the most heavily harvested resources for this community. Positive (+). ROW: 5% of use area would be open to ROW location, 32% would be ROW avoidance areas, and <1% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 7% is restricted for subsistence winter use to snowmobiles. 37% of the use area limits summer casual use to existing trails. 7% is also limited to snowmobiles only for casual winter use. This alternative offers greater protection against habitat degradation and competing uses, as compared to Alternative A, but may result in access impacts for subsistence users. LLM is one of the most heavily harvested resources for this community. Positive (+). ROW: 12% of use area would be open to ROW location and 25% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. The area of land open to new ROWs is above the threshold for impacts. Additionally, LLM is one of the most heavily harvested resources for the community. Positive (+).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: 27% of use area would be open to ROW location and 11% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. The area of land open to new ROWs is above the threshold for impacts. Additionally, LLM is one of the most heavily harvested resources for the community. Positive (+).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 7% is restricted for subsistence winter use to snowmobiles. 37% of the use area limits summer casual use to existing trails. 7% is also limited to snowmobiles only for casual winter use. This alternative offers greater protection against habitat degradation and competing uses, as compared to Alternative A, but may result in access impacts for subsistence users. LLM is one of the most heavily harvested resources for this community. Positive (+). ROW: 37% of use area would be open to ROW location. This could have a potentially significant impact on subsistence uses and resources, but is less than Alternative A, which has no restrictions. This alternative has the most potential to result in significant impacts of all the action alternatives. LLM is one of the most heavily harvested resources for the community. Positive (+).
Hunting and Trapping (SLM)	SLM	38.7	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and close to 0% is restricted for subsistence winter use to snowmobiles. 74% of the use area limits summer casual use to existing trails. This same 74% is also limited to snowmobiles only for casual winter use. Therefore, there are no access restrictions for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: <1% of use area would be open to ROW location, 74% would be ROW avoidance areas, and 0% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and close to 0% is restricted for subsistence winter use. 74% of the use area limits summer casual use to existing trails. There is no OHV limitation for casual winter use. Therefore, there is no access restriction for subsistence uses and greater protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 48% of use area would be open to ROW location and 26% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. The area of land open to new ROWs is above the threshold for impacts. Additionally, SLM is one of the most heavily harvested resources for the community. Positive (+).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: 60% of use area would be open to ROW location and 15% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. The area of land open to new ROWs is above the threshold for impacts. Additionally, SLM is one of the most heavily harvested resources for the community. Positive (+).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and close to 0% is restricted for subsistence winter use. 74% of the use area limits summer casual use to existing trails. There is no OHV limitation for casual winter use. Therefore, there is no access restriction for subsistence uses and greater protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 74% of use area would be open to ROW location. This could have a potentially significant impact on subsistence uses and resources, but is less than Alternative A, which has no restrictions. This alternative has the most potential to result in significant impacts of all the action alternatives. SLM is one of the most heavily harvested resources for the community. Positive (+).
Hunting (Birds)	Ducks Geese	5.3	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and close to 0% is restricted for subsistence winter use to snowmobiles. 12% of the use area limits summer casual use to existing trails. This same 12% is also limited to snowmobiles only for casual winter use. Therefore, there are no access restrictions for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 1% of use area would be open to ROW location, 9% would be ROW avoidance areas, and 2% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and close to 0% is restricted for subsistence winter use. 12% of the use area limits summer casual use to existing trails. There is no OHV limitation for casual winter use. Therefore, there is no access restriction for subsistence uses and greater protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 2% of use area would be open to ROW location and 10% would be ROW avoidance areas. This alternative would decrease habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: 4% of use area would be open to ROW location and 8% would be ROW avoidance areas. This alternative would decrease habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and close to 0% is restricted for subsistence winter use. 12% of the use area limits summer casual use to existing trails. There is no OHV limitation for casual winter use. Therefore, there is no access restriction for subsistence uses and greater protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 12% of use area would be open to ROW location. This could have a potentially significant impact on subsistence uses and resources, but is less than Alternative A, which has no restrictions. This alternative has the most potential to result in significant impacts of all the action alternatives. Positive (+).

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Fishing	Salmon Trout Whitefish	Salmon: 366.0 Non-salmon Fish: 92.4	LM: The majority of the fishing locations are within a few river miles of the village and located on the Kuskokwim River. The closest area that is upstream and open to LM with med/high potential is approximately 40 river miles upstream on the Cheeneetnuk River. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: The majority of the fishing locations are within a few river miles of the village and located on the Kuskokwim River. The closest area is open to LM with med/high potential is downstream of the fishing locations (around the Red Devil mine). The closest area that is upstream and open to LM with med/high potential is approximately 50 river miles upstream of the Cheeneetnuk River, and within the Cheeneetnuk basin (not on the river itself). Negative (-). OHV: None of the land surrounding the fishing locations is restricted for subsistence summer or winter use, though there are limits placed on casual summer and winter uses. There is a portion of land located upstream in the basins of the Cheeneetnuk, Gagaryah, and Swift Rivers that limits subsistence winter use to snowmobiles only, but there are no mapped fishing locations for this community in that portion of the planning area. ROW: There are some portions of land near the village fishing locations that would be open to ROWs, though they do not appear to block access as the surrounding land is either undesignated or is a ROW avoidance area. Additionally, the majority of the fishing locations are located near the village and would not have access impeded by new ROWs. Habitat degradation and competition for resources would be minimal as most of the BLM land that is nearest to the fishing locations would be ROW avoidance areas. Negative (-).	LM: Same as Alternative A. Negative (-). OHV: None of the land surrounding the fishing locations is restricted for subsistence summer or winter use, though there are limits placed on casual summer use. There is a portion of land located upstream in the basins of the Cheeneetnuk, Gagaryah, and Swift Rivers that limits subsistence winter use to snowmobiles only, but there are no mapped fishing locations for this community in that portion of the planning area. Therefore, there are no access restrictions for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: Large portions of the areas upstream of the fishing locations for the community would be open to new ROWs. Though this would not impede access to these locations, the new ROWs could degrade the habitat and increase competition to the resource. Fish was the most harvested resource for the community. Positive (+).	LM: Same as Alternative A. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: Large portions of the areas upstream of the fishing locations for the community would be open to new ROWs. Though this would not impede access to these locations, the new ROWs could degrade the habitat and increase competition to the resource. Fish was the most harvested resource for the community. Positive (+).	LM: Same as Alternative A. Negative (-). OHV: None of the land surrounding the fishing locations is restricted for subsistence summer or winter use, though there are limits placed on casual summer use. There is a portion of land located upstream in the basins of the Cheeneetnuk, Gagaryah, and Swift Rivers that limits subsistence winter use to snowmobiles only, but there are no mapped fishing locations for this community in that portion of the planning area. Therefore, there are no access restrictions for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: Large portions of the areas upstream of the fishing locations for the community would be open to new ROWs. Though this would not impede access to these locations, the new ROWs could degrade the habitat and increase competition to the resource. Fish was the most harvested resource for the community. Positive (+).
Gathering	Berries Plants	9.8	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and close to 0% is restricted for subsistence winter use to snowmobiles. 9% of the use area limits summer casual use to existing trails. This same 9% is also limited to snowmobiles only for casual winter use. Therefore, there are no access restrictions for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 1% of use area would be open to ROW location, 8% would be ROW avoidance areas, and 0% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and close to 0% is restricted for subsistence winter use. 12% of the use area limits summer casual use to existing trails. There is no OHV limitation for casual winter use. Therefore, there is no access restriction for subsistence uses and greater protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 8% of use area would be open to ROW location and 1% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: 9% of use area would be open to ROW location. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and close to 0% is restricted for subsistence winter use. 12% of the use area limits summer casual use to existing trails. There is no OHV limitation for casual winter use. Therefore, there is no access restriction for subsistence uses and greater protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 9% of use area would be open to ROW location. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).

Notes:
LLM: large land mammal
LM: locatable minerals with med/high potential
OHV: travel decisions relating to OHV use
ROW: right-of-way decisions
SLM: small land mammal

To provide a conservative analysis, State and ANCSA Native corporation–selected lands were included in the locatable mineral development portion of the analysis; however, these lands would not be open to locatable mineral development until the selection by the State or ANCSA Native corporation was relinquished or rejected.

1) This column shows which species the BSWI EIS Team has GIS data for at the time of the FEIS release. Communities may have differing sets of data available or may be missing data completely for an aggregated category. In most instances where data sets for "Hunting and Trapping (SLM)" were available, the subsistence use area did not specify which species are included in the use area.

2) Per capita harvest by edible weight from calendar year 2009. Bird value includes birds and eggs. Data are from the ADF&G Community Subsistence Information System (CSIS), available at <http://www.adfg.alaska.gov/sb/CSIS/>, accessed in 2018.

Impact Analysis Results—Unalakleet

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Hunting and Trapping (LLM)	Moose Caribou	110.66	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: 1% of use area is restricted to existing trails for summer subsistence use and 23% is restricted for subsistence winter use to snowmobiles. Additionally, summer subsistence OHV use is prohibited in 4% of the use area. For casual use, 31% is limited to existing trails in summer and 35% is limited to snowmobiles only for winter use. Summer casual OHV access is prohibited in 5% of the use area. Therefore, there are access restrictions for subsistence uses, though this use area also has the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Positive (+). ROW: 3% of use area would be open to ROW location, 25% would be ROW avoidance areas, and 7% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: 0% of use area is restricted to existing trails for summer subsistence use and 21% is restricted for subsistence winter use to snowmobiles. Additionally, summer subsistence OHV use is prohibited in 5% of the use area. For casual use, 31% is limited to existing trails in summer and 21% is limited to snowmobiles only for winter use. Therefore, there are access restrictions for subsistence uses, though this use area also has the greater protection against habitat degradation and competing uses, as compared to Alternative A. Positive (+). ROW: 9% of use area would be open to ROW location and 26% would be ROW avoidance areas. This alternative would decrease habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: 4% of use area is restricted for summer subsistence use and 4% is restricted for winter subsistence use. 4% of summer casual use is restricted to existing trails and 4% of winter casual use is restricted to snowmobiles only. This is the same impact as Alternative A. Therefore, there are access restrictions for subsistence uses, though this use area also has the greater protection against habitat degradation and competing uses, as compared to Alternative A. Positive (+). ROW: 16% of use area would be open to ROW location and 20% would be ROW avoidance areas. This alternative has areas open to ROWs that exceed the threshold for impacts. Positive (+).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: 0% of use area is restricted to existing trails for summer subsistence use and 21% is restricted for subsistence winter use to snowmobiles. Additionally, summer subsistence OHV use is prohibited in 5% of the use area. For casual use, 31% is limited to existing trails in summer and 21% is limited to snowmobiles only for winter use. Therefore, there are access restrictions for subsistence uses, though this use area also has the greater protection against habitat degradation and competing uses, as compared to Alternative A. Positive (+). ROW: 31% of use area would be open to ROW location and 5% would be ROW avoidance areas. This could have a potentially significant impact on subsistence uses and resources, but is less than Alternative A, which has no restrictions. This alternative has the most potential to result in significant impacts of all the action alternatives. Positive (+).
Hunting and Trapping (SLM)	No data	1.11	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: 0% of use area is restricted to existing trails for summer subsistence use and 44% is restricted for subsistence winter use to snowmobiles. Additionally, summer subsistence OHV use is prohibited in 1% of the use area. For casual use, 62% is limited to existing trails in summer and 62% is limited to snowmobiles only for winter use. Summer casual OHV access is prohibited in 1% of the use area. Therefore, there are access restrictions for subsistence uses, though this use area also has the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Positive (+). ROW: 2% of use area would be open to ROW location, 44% would be ROW avoidance areas, and 16% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: 0% of use area is restricted to existing trails for summer subsistence use and 44% is restricted for subsistence winter use to snowmobiles. Additionally, summer subsistence OHV use is prohibited in 1% of the use area. For casual use, 62% is limited to existing trails in summer and 44% is limited to snowmobiles only for winter use. Therefore, there are access restrictions for subsistence uses, though this use area also has the greater protection against habitat degradation and competing uses, as compared to Alternative A. Positive (+). ROW: 12% of use area would be open to ROW location and 50% would be ROW avoidance areas. This alternative would decrease habitat fragmentation and degradation in these areas, as compared to Alternative A, but is over the threshold for impacts. Positive (+).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: 1% of use area is restricted for summer subsistence use and 1% is restricted for winter subsistence use. 1% of summer casual use is restricted to existing trails and 1% of winter casual use is restricted to snowmobiles only. This is the same impact as Alternative A. Therefore, there are access restrictions for subsistence uses, though this use area also has the greater protection against habitat degradation and competing uses, as compared to Alternative A. Positive (+). ROW: 22% of use area would be open to ROW location and 40% would be ROW avoidance areas. This alternative has areas open to ROWs that exceed the threshold for impacts. Positive (+).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: 0% of use area is restricted to existing trails for summer subsistence use and 44% is restricted for subsistence winter use to snowmobiles. Additionally, summer subsistence OHV use is prohibited in 1% of the use area. For casual use, 62% is limited to existing trails in summer and 44% is limited to snowmobiles only for winter use. Therefore, there are access restrictions for subsistence uses, though this use area also has the greater protection against habitat degradation and competing uses, as compared to Alternative A. Positive (+). ROW: 62% of use area would be open to ROW location and 1% would be ROW avoidance areas. This could have a potentially significant impact on subsistence uses and resources, but is less than Alternative A, which has no restrictions. This alternative has the most potential to result in significant impacts of all the action alternatives. Positive (+).

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Fishing	No data	Salmon: 264.07 Non-salmon Fish: 108.48	LM: No overlap in use area and areas with med/high LM potential. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: No overlap in use area and areas with med/high LM potential. Negative (-) . OHV: Subsistence OHV restrictions and prohibitions would limit access for subsistence uses in the community. Positive (+) . ROW: Areas open to ROW development (0.2% of use area) lie close to known fishing locations near Norton Sound and the Unalakleet and North Rivers. 4% of the use area would be ROW avoidance areas and 29% would be ROW exclusion areas. This could cause habitat degradation and introduce competing users into the area. Positive (+) .	LM: No overlap in use area and areas with med/high LM potential. Negative (-) . OHV: Subsistence OHV restrictions and prohibitions would limit access for subsistence uses in the community. Positive (+) . ROW: Areas open to ROW development (5% of use area) lie close to known fishing locations near Norton Sound and the Unalakleet and North Rivers. 28% of the use area would be ROW avoidance areas. This could cause habitat degradation and introduce competing users into the area. Positive (+) .	LM: No overlap in use area and areas with med/high LM potential. Negative (-) . OHV: OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+) . ROW: Areas open to ROW development (11% of use area) lie close to known fishing locations near Norton Sound and the Unalakleet and North Rivers. 21% of the use area would be ROW avoidance areas. This could cause habitat degradation and introduce competing users into the area. Positive (+) .	LM: No overlap in use area and areas with med/high LM potential. Negative (-) . OHV: Subsistence OHV restrictions and prohibitions would limit access for subsistence uses in the community. Positive (+) . ROW: Areas open to ROW development (5% of use area) lie close to known fishing locations near Norton Sound and the Unalakleet and North Rivers. 28% of the use area would be ROW avoidance areas. This could cause habitat degradation and introduce competing users into the area. Positive (+) .
Gathering	No data	6.38	LM: No overlap in use area and areas with med/high LM potential. Negative (-) . OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+) . ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+) .	LM: No overlap in use area and areas with med/high LM potential. Negative (-) . OHV: No overlap in the use area and areas with OHV decisions. Negative (-) . ROW: No overlap in the use area and areas with ROW decisions. Negative (-) .	LM: No overlap in use area and areas with med/high LM potential. Negative (-) . OHV: No overlap in the use area and areas with OHV decisions. Negative (-) . ROW: No overlap in the use area and areas with ROW decisions. Negative (-) .	LM: No overlap in use area and areas with med/high LM potential. Negative (-) . OHV: OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+) . ROW: No overlap in the use area and areas with ROW decisions. Negative (-) .	LM: No overlap in use area and areas with med/high LM potential. Negative (-) . OHV: No overlap in the use area and areas with OHV decisions. Negative (-) . ROW: No overlap in the use area and areas with ROW decisions. Negative (-) .

Notes:
LLM: large land mammal
LM: locatable minerals with med/high potential
OHV: travel decisions relating to OHV use
ROW: right-of-way decisions
SLM: small land mammal

Available data for the Community of Unalakleet did not include hunting (birds) subsistence use areas.

1) This column shows which species the BSWI EIS Team has GIS data for at the time of the FEIS release. Communities may have differing sets of data available or may be missing data completely for an aggregated category. In most instances where data sets for "Hunting and Trapping (SLM)" were available, the subsistence use area did not specify which species are included in the use area.

2) Per capita harvest by edible weight from calendar year 2006. Data are from the ADF&G Community Subsistence Information System (CSIS), available at <http://www.adfg.alaska.gov/sb/CSIS/>, accessed in 2018.

Impact Analysis Results—Upper Kalskag

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Hunting and Trapping (LLM)	Black Bear Caribou Moose	46.4	LM: Close to 0% of the use area overlaps with areas with med/high LM potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: Almost none of the use area overlaps with areas with med/high LM potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and close to 0% is restricted for subsistence winter use to snowmobiles. 11% of the use area limits summer casual use to existing trails. This same 11% is also limited to snowmobiles only for casual winter use. Therefore, there are no access restrictions for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 2% of use area would be open to ROW location, 9% would be ROW avoidance areas, and 1% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: Close to 0% of the use area overlaps with areas with med/high LM potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 11% of the use area limits summer casual use to existing trails. There is no OHV limitation for casual winter use. Therefore, there is no access restriction for subsistence uses and the greater protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 7% of use area would be open to ROW location, 4% would be ROW avoidance areas, and a negligible percentage would be ROW avoidance areas for linear realty. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A. Negative (-).	LM: Close to 0% of the use area overlaps with areas with med/high LM potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: 11% of use area would be open to ROW location and <1% would be ROW avoidance areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A, but is above the threshold for impacts. Additionally, LLM is one of the most heavily harvested resources in the community. Positive (+).	LM: Close to 0% of the use area overlaps with areas with med/high LM potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 11% of the use area limits summer casual use to existing trails. There is no OHV limitation for casual winter use. Therefore, there is no access restriction for subsistence uses and the greater protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 11% of use area would be open to ROW location, <1% would be ROW avoidance areas, and <1% would be ROW avoidance areas for linear realty. This could have a potentially significant impact on subsistence uses and resources, but is less than Alternative A, which has no restrictions. This alternative has the most potential to result in significant impacts of all the action alternatives. Positive (+).
Hunting and Trapping (SLM)	SLM	7.9	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: No overlap in use area and OHV decisions. Negative (-). ROW: No overlap in use area and areas with ROW decisions. Negative (-).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: No overlap in use area and OHV decisions. Negative (-). ROW: No overlap in use area and areas with ROW decisions. Negative (-).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: No overlap in use area and areas with ROW decisions. Negative (-).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: No overlap in use area and OHV decisions. Negative (-). ROW: No overlap in use area and areas with ROW decisions. Negative (-).
Hunting (Birds)	Ducks Geese	7.5	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and close to 0% is restricted for subsistence winter use to snowmobiles. Close to 0% of the use area limits summer casual use to existing trails. This same close to 0% is also limited to snowmobiles only for casual winter use. Therefore, there are no access restrictions for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: <1% of the use area overlaps with ROW decisions. Negative (-).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. Close to 0% of the use area limits summer casual use to existing trails. There is no OHV limitation for casual winter use. Therefore, there is no access restriction for subsistence uses and the greater protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: <1% of the use area overlaps with ROW decisions. Negative (-).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: <1% of the use area overlaps with ROW decisions. Negative (-).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. Close to 0% of the use area limits summer casual use to existing trails. There is no OHV limitation for casual winter use. Therefore, there is no access restriction for subsistence uses and the greater protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: <1% of the use area overlaps with ROW decisions. Negative (-).

Aggregated Subsistence Use Category	Species Included in Aggregated Category ¹	Annual Pounds of Resource Harvested Per Capita ²	Alternative A Significant Impact? [POSITIVE FINDING?]	Alternative B Significant Impact? [POSITIVE FINDING?]	Alternative C Significant Impact? [POSITIVE FINDING?]	Alternative D Significant Impact? [POSITIVE FINDING?]	Alternative E Significant Impact? [POSITIVE FINDING?]
Fishing	Salmon Trout Whitefish	Salmon: 198.8 Non-salmon Fish: 48.3	LM: Med/high areas open to LM mining are located approximately 6 river miles upstream on Ophir Creek of numerous fishing locations in Whitefish Lake. Fish made up approximately 72% of the harvested subsistence resources for the community (in edible lbs.) in 2009. Access is not likely to be impacted, but mining could result in degradation of resources and increased competition. Positive (+). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: Med/high areas open to LM mining are located approximately 6 river miles upstream on Ophir Creek of numerous fishing locations in Whitefish Lake. Additionally, more open areas are located upstream on the Kuskokwim River. Fish made up approximately 72% of the harvested subsistence resources for the community (in edible lbs.) in 2009. Access is not likely to be impacted, but mining could result in degradation of resources and increased competition. The impacts would be greater than Alternative A as more areas are open. Positive (+). OHV: None of the surrounding area would have limitations to winter or summer subsistence OHV use, so no impacts to access. This alternative also has the greatest limitations to casual summer and winter OHV use (limited to existing trails for summer use, and limited to only snowmobiles in winter), so it is more protective of resources than Alternative A. Negative (-). ROW: Some areas open to ROW placement around the Crooked Creek area, which has a few fishing locations for the community. However, the majority of fishing locations are not near areas open to ROW placement and do not appear to block access. Negative (-).	LM: Med/high areas open to LM mining are located approximately 6 river miles upstream on Ophir Creek of numerous fishing locations in Whitefish Lake. Additionally, more open areas are located upstream on the Kuskokwim River. Fish made up approximately 72% of the harvested subsistence resources for the community (in edible lbs.) in 2009. Access is not likely to be impacted, but mining could result in degradation of resources and increased competition. The impacts would be greater than Alternative A as more areas are open. Positive (+). OHV: None of the surrounding area would have limitations to winter or summer subsistence OHV use, so no impacts to access. This alternative also has limitations to casual summer OHV use (limited to existing trails for summer use) but no limitations on casual winter OHV use. It is more protective of resources than Alternative A. Negative (-). ROW: Some areas open to ROW placement around the Crooked Creek area, which has a few fishing locations for the community. There are more open areas upstream of Ophir Creek, which flows into Whitefish Lake, which is a heavily used area for fishing. Open areas near Kuskokwim River are near fishing locations upstream of the community. These areas could lead to resource and habitat degradation, as well as increased competition for resources. Fish is the most heavily harvested subsistence resource for the community. Positive (+).	LM: Same as Alternative C. Positive (+). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: Same as Alternative C. Positive (+).	LM: Med/high areas open to LM mining are located approximately 6 river miles upstream on Ophir Creek of numerous fishing locations in Whitefish Lake. Additionally, more open areas are located upstream on the Kuskokwim River. Fish made up approximately 72% of the harvested subsistence resources for the community (in edible lbs.) in 2009. Access is not likely to be impacted, but mining could result in degradation of resources and increased competition. The impacts would be greater than Alternative A as more areas are open. Positive (+). OHV: None of the surrounding area would have limitations to winter or summer subsistence OHV use, so no impacts to access. This alternative also has limitations to casual summer OHV use (limited to existing trails for summer use) but no limitations on casual winter OHV use. It is more protective of resources than Alternative A. Negative (-). ROW: Some areas open to ROW placement around the Crooked Creek area, which has a few fishing locations for the community. There are more open areas upstream of Ophir Creek, which flows into Whitefish Lake, which is a heavily used area for fishing. Open areas near Kuskokwim River are near fishing locations upstream of the community. These areas could lead to resource and habitat degradation, as well as increased competition for resources. Fish is the most heavily harvested subsistence resource for the community. Positive (+).
Gathering	Berries Plants	36.2	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: No access impacts to resources. Potential impact to resources from competing uses and degradation of habitat because OHV use is unrestricted. Positive (+). ROW: No ROW exclusion areas, and all BLM-managed lands are open to ROW placement. This has the potential to fragment habitats and degrade subsistence resources. Positive (+).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and close to 0% is restricted for subsistence winter use to snowmobiles. 22% of the use area limits summer casual use to existing trails. This same 22% is also limited to snowmobiles only for casual winter use. Therefore, there are no access restrictions for subsistence uses and the greatest protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 20% of use area would be open to ROW location and 2% would be ROW avoidance areas, and 0% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A, but is above the threshold for impacts. Gathering resources is also one of the most heavily harvested resources for the community. Positive (+).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 22% of the use area limits summer casual use to existing trails. There is no OHV limitation for casual winter use. Therefore, there is no access restriction for subsistence uses and the greater protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 20% of use area would be open to ROW location and 2% would be ROW avoidance areas, and 0% would be ROW exclusion areas. This alternative would minimize habitat fragmentation and degradation in these areas, as compared to Alternative A, but is above the threshold for impacts. Gathering resources is also one of the most heavily harvested resources for the community. Positive (+).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter subsistence use. However, summer casual use is not restricted to existing trails, which could lead to degradation of habitat and conflict from competing uses. Winter casual use is not restricted to snowmobiles only, so the entire use area is open to all winter OHV uses. This is the same impact as Alternative A. Positive (+). ROW: 22% of use area would be open to ROW location. This alternative could impact gathering resources by degrading habitat and allowing for new users to compete for resources. It is above the threshold for impacts. Gathering resources is also one of the most heavily harvested resources for the community. Positive (+).	LM: No overlap in use area and areas with med/high LM potential. Negative (-). OHV: 0% of use area is restricted for summer subsistence use and 0% is restricted for winter use. 22% of the use area limits summer casual use to existing trails. There is no OHV limitation for casual winter use. Therefore, there is no access restriction for subsistence uses and the greater protection against habitat degradation and competing uses, as compared to Alternative A. Negative (-). ROW: 22% of use area would be open to ROW location. This could have a potentially significant impact on subsistence uses and resources, but is less than Alternative A, which has no restrictions. This alternative has the most potential to result in significant impacts of all the action alternatives. Positive (+).

Notes:
LLM: large land mammal
LM: locatable minerals with med/high potential
OHV: travel decisions relating to OHV use
ROW: right-of-way decisions
SLM: small land mammal

To provide a conservative analysis, State and ANCSA Native corporation–selected lands were included in the locatable mineral development portion of the analysis; however, these lands would not be open to locatable mineral development until the selection by the State or ANCSA Native corporation was relinquished or rejected.

1) This column shows which species the BSWI EIS Team has GIS data for at the time of the FEIS release. Communities may have differing sets of data available or may be missing data completely for an aggregated category. In most instances where data sets for "Hunting and Trapping (SLM)" were available, the subsistence use area did not specify which species are included in the use area.

2) Per capita harvest by edible weight from calendar year 2009. Bird value includes birds and eggs. Data are from the ADF&G Community Subsistence Information System (CSIS), available at <http://www.adfg.alaska.gov/sb/CSIS/>, accessed in 2018.

Appendix R-2: Socioeconomic and Environmental Justice Supplemental Information

Social and Economic Conditions

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations, requires that federal agencies identify and address any disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations.

Council on Environmental Quality guidelines for evaluating the potential environmental effects of projects require specific identification of minority populations when either (1) a minority population exceeds 50 percent of the population of the affected area; or (2) a minority population represents a meaningfully greater increment of the affected population than of the population of some other appropriate geographic unit as a whole. Black/African American, Hispanic, Asian and Pacific Islander, American Indian, Alaska Native, Aleut, and other non-White persons are defined as minority populations.

This appendix describes associated social and economic conditions, first at a broader Census Area scale and then at the community scale. Alaska does not have counties but is divided into boroughs. Where there are no boroughs, data are referenced from federally designated Census Areas. The planning area contains portions of five Census Areas: Bethel, Nome, Kusilvak (formerly Wade Hampton), Yukon-Koyukuk, and Dillingham. For the purposes of this analysis, the Dillingham Census Area is excluded; the northern portion of the Dillingham Census Area overlaps with the planning area, but there are no communities or BLM-managed lands in that overlap area. While BLM-managed public lands are often located relatively far from communities, they provide resources, travel corridors, and subsistence and livelihood opportunities for nearly all the main villages.

The four Census Areas contain many communities that are well outside the planning area and not connected to BLM-managed lands. For example, the Yukon-Koyukuk Census Area extends to the Canadian border. For that reason, it is important to focus on the communities that are more directly tied to the Bering Sea–Western Interior Resource Management Plan planning area. Of the approximately 60 rural communities within the planning area, 25 villages and census-designated places are in the vicinity of BLM-managed public land within or near the planning area, grouping them into six regions: Bering Sea, Yukon Delta, Lower Yukon, Lower Kuskokwim, Upper Kuskokwim, and Western Interior. These areas also correspond well with Game Management Units designated by the Alaska Department of Fish and Game. To describe socioeconomic conditions in communities, Bethel is added because it is a major hub within the planning area, and Lime Village is added because it is adjacent to BLM-managed lands in the southwestern part of the planning area.

Fifteen of these 27 communities are in the area served by the Calista Corporation, one of the 13 regional corporations established under the Alaska Native Claims Settlement Act in 1971. Four are served by Bering Straits Native Corporation, and eight by Doyon, Ltd.

Select demographic and social characteristics of the 27 communities, the number of people employed in each community, and the number of people who filed for unemployment insurance are shown in the tables below.

Social Conditions in Planning Area Communities

Region ¹	City/Village	Type ²	Census Area ²	Population 1990 ²	Population 2000 ²	Population 2010 ²	Percent Alaska Native ²	Percent of People 25 and over High School Graduate ³	Percent of People 25 and Over with Bachelor's Degree or Higher ³	Housing Units ²	Number Housing Units Vacant ²	Percent Occupied Housing Units with Complete Plumbing Facilities ⁴	Municipal Facilities and Utilities ²	Schools, Number of Students ²
Bering Sea	Kaltag	2nd class city	Yukon-Koyukuk	240	230	190	92	87	12	87	17	65	Piped Water, Piped Sewer, Washeteria, Electric (AVEC), Landfill, Health Clinic, Volunteer Fire, Fire Hall, Takathlee Tondin Kuskino Community Hall, Roads, Boat Haul, Sawmill, Gravel Sales, Equipment Rental	P-12, 28
	Shaktoolik	2nd class city	Nome	178	230	251	96	88	6	70	6	88	Piped Water (summer), Watering Points (winter), Piped Sewer, Washeteria, Electric (AVEC), Landfill/Incinerator, Health Clinic, Police, Volunteer Fire, Teen Center, Roads, Building Rental, Equipment Rental	P-12, 83
	Stebbins	2nd class city	Nome	400	547	556	95	76	8	153	19	12	Washeteria, Electric (AVEC), Refuse Plywood Bins, Landfill, Health Clinic, Police, Airport (State Contract), City Hall, Roads, Pull Tabs, Building Rentals, Equipment Rentals, Honeybucket Bins, Watering Point at the Washeteria	P-12, 195
	Unalakleet	2nd class city	Nome	714	747	681	77	84	17	268	43	98	Piped Water, Piped Sewer, Refuse Collection, Baler, Landfill, Police and State-funded Public Safety Officer (VPSO), Volunteer Fire, Dock, Boat Haul-out, Ticasuk Library, Bingo/Pull Tabs, Alcohol/Drug Hotline	P-12, 175
	Saint Michael	2nd class city	Nome	295	368	401	92	91	11	117	21	84	Piped Water, Piped Sewer, Honeybucket Hauling, Washeteria, Electric (AVEC), Health Clinic, Police, Volunteer Fire, Search and Rescue, Roads, Bingo, Dock, Equipment and Truck Rentals	P-12, 179
Lower Kuskokwim	Aniak	2nd class city	Bethel	540	572	501	69	91	10	214	48	84	Piped Sewer, Landfill, Library, Aniak Volunteer Fire Dept., Animal Control, Roads, Bingo, Pull Tabs, State-funded Public Safety Officer (VPSO), Search and Rescue	P-6, 96; 7-12, 59
	Lower Kalskag	2nd class city	Bethel	291	267	282	92	74	15	82	7	55	Piped Water and Sewer, Volunteer Fire, Community Hall, Roads, Bingo, Landfill	1-8, 33; 6-12, 62
	Kalskag	2nd class city	Bethel	172	230	210	81	83	8	74	14	80	Watering Point, Piped Sewer, (YKHC RUC), Electric (AVEC), Health Clinic, Public Safety Office (Currently not funded), Dock, Roads (Currently not funded), Bulk Fuel Facility and Operation, AVEC Operators.	Elementary, 46
	Bethel	2nd class city	Bethel	4,674	5,471	6,080	65	90	23	2,364	468	96	Piped Water, Water Delivery, Piped Sewer, Tank Haul, Refuse Collection, Landfill, Recycling Center, Dock/Port, Police, Fire/EMS/Ambulance, Roads, Ice Roads, Teen/Youth Center, Senior Center (Adult Day Care), Senior Transportation, Library, Bingo/Gaming, Parks and Recreation, Planning, Animal Control, Business Licenses, Braund Building, Job Training, Motor Vehicle Registration (State DMV contract), Cultural Center with an Art Guild, Regional Dispatch Center, Cemetery, Skate Park, Baseball Fields, Harbor/Port, Transit; Remove: Recycling, Senior Center, Bingo/Gaming, Animal Control, Job Training, Motor Vehicle Registration	6 schools, 1,383

Region ¹	City/ Village	Type ²	Census Area ²	Population 1990 ²	Population 2000 ²	Population 2010 ²	Percent Alaska Native ²	Percent of People 25 and over High School Graduate ³	Percent of People 25 and Over with Bachelor's Degree or Higher ³	Housing Units ²	Number Housing Units Vacant ²	Percent Occupied Housing Units with Complete Plumbing Facilities ⁴	Municipal Facilities and Utilities ²	Schools, Number of Students ²
Yukon Delta	Marshall	2nd class city	Kusilvak	273	349	414	95	74	9	108	8	76	Piped Water, Watering Point, Piped Sewer, Electric (AVEC), Health Clinic, Refuse Collection, Landfill, Police and State-funded Public Safety Officer (VPSO), Volunteer Fire, Public Safety Building, Post Office (federal contract), Roads, Bingo/Pull Tabs, Head Start, Equipment Rental	P-12, 144
	Mountain Village	2nd class city	Kusilvak	674	755	815	92	71	9	211	27	77	Water/Sewer, Bingo/Pull Tabs, Community Hall, Equipment Rental, AVEC, Teen Center, ATCO Unit - Nightly Rental Unit	P-12, 253
	Pilot Station	2nd class city	Kusilvak	463	550	568	98	75	5	137	16	83	Piped Water, Piped Sewer, Refuse Collection, Landfill, Electric (AVEC), Dock, Volunteer Fire, Public Safety Facility, Library, Fuel Sales and Delivery, Gravel Sales, Cable TV, Bingo	P-12, 177
	Pitkas Point	Unincorporated	Kusilvak	135	125	109	97	71	4	37	6	8	N/A	P-12 (inactive), 10
	Russian Mission	2nd class city	Kusilvak	246	296	312	96	80	8	74	1	81	Piped Water, Piped Sewer, Electric, Health Clinic, Public Safety Building, Volunteer Fire, Bingo, and Dock.	P-12, 117
	Saint Mary's	1st class city	Kusilvak	441	500	507	92	85	20	209	58	88	Piped Water, Watering Point, Piped Sewer, Honeybucket Hauling, Electric (AVEC), Refuse Collection, Landfill, Police, Volunteer Fire, Search and Rescue, Port/Dock, Gravel Sales, Roads, Parks and Recreation, Kumeluvik Building, Equipment Rental, Schools	P-12, 196
Upper Kuskokwim	Crooked Creek	Unincorporated	Bethel	136	107	105	84	58	0	47	9	19%	N/A	P-12, 19
	Red Devil	Unincorporated	Bethel	53	48	23	43 (58 in combination with one or more other races)	64	0	23	11	50%	N/A	P-12 (inactive)
	Sleetmute	Unincorporated	Bethel	106	100	86	77	65	16	49	13	61	N/A	P-12, 22
	Stony River	Unincorporated	Bethel	51	61	54	83	69	0	26	6	23	N/A	K-12, 9
Lower Yukon	Anvik	2nd class city	Yukon-Koyukuk	82	104	85	93	70	6	46	13	92	Watering Point, Piped Sewage, Washeteria, Electric (AVEC), Landfill, Health Clinic, Volunteer Fire Department, Fire Station, Roads, Equipment Rental, Building Rental.	P-12, 24
	Grayling	2nd class city	Yukon-Koyukuk	208	194	194	87	57	3	63	8	72	Piped Water, Piped Sewer, Washeteria, Electric (AVEC), Landfill, Health Clinic, Post Office (federal contract), Volunteer Fire, Dock, Bingo, Roads	P-12, 38
	Holy Cross	2nd class city	Yukon-Koyukuk	277	227	178	92	80	0	86	22	74	Piped Water, Watering Point, Piped Sewer, Washeteria, Electric (AVEC), Landfill, Health Clinic, Volunteer Fire, Dock, Community Hall, Roads, Bingo/Pull Tabs	P-12, 43
	Shageluk	2nd class city	Yukon-Koyukuk	139	129	83	90	75	5	53	17	0	Watering Point, Washeteria, Electric (AVEC), Landfill, Volunteer Fire, Post Office (federal contract), City Hall, Clinic, City Housing	P-12, 13

Region ¹	City/ Village	Type ²	Census Area ²	Population 1990 ²	Population 2000 ²	Population 2010 ²	Percent Alaska Native ²	Percent of People 25 and over High School Graduate ³	Percent of People 25 and Over with Bachelor's Degree or Higher ³	Housing Units ²	Number Housing Units Vacant ²	Percent Occupied Housing Units with Complete Plumbing Facilities ⁴	Municipal Facilities and Utilities ²	Schools, Number of Students ²
Western Interior	McGrath	2nd class city	Yukon-Koyukuk	528	401	346	37 (46 in combination with one or more other races)	97	27	195	48	87	Piped Water, Piped Sewer, Washeteria, Public Showers and Rest Facility, Landfill, Volunteer Fire, Roads, Log Haul-Out, Boat Launch, Captain Snow Center, UAF Interior Aleutians/McGrath Center, State-funded Public Safety Officer (VPSO), Fish and Wildlife Protection Officer (State Troopers), Anderson Park, Volunteer Ambulance, and Search and Rescue.	Correspondence K-12, 33; P-12, 49
	Nikolai	2nd class city	Yukon-Koyukuk	109	100	94	81	73	11	48	11	48	Sewer, Landfill, Fuel Sales, Electric	P-12, 16
	Takotna	Unincorporated	Yukon-Koyukuk	38	50	52	23 (38 in combination with one or more other races)	79	0	41	19	62	N/A	P-12, 11
	Lime Village	Unincorporated	Bethel	42	46	29	93	47	13	27	16	0	N/A	P-12 (inactive)

Sources:
1 Lingle et al. 2011 (Bethel and Lime Village added)
2 ADCCED 2012
3 Headwaters Economics 2013
4 ADLWD 2011a

Notes:
For data reported as percentages, consider the total number of people included; for example, in a small village, 4 percent of the employed workers could be just one person.

Economic Characteristics in Planning Area Communities

Region 1	City/Village	Population (2010)	Per Capita Income 2	Median Household Income 2	Percent Households with Public Assistance Income 3	Percent Persons in Poverty 2	Effective Residential Electrical Rate Per Kwh 8	2013 Retail Price/Gallon, Heating Oil #1 7	2013 Retail Price/Gallon Gasoline 7	Number of Residents Employed 5	Unemployment Insurance Claimants 5	Ratio Of # Residents with Unemployment Claims to # Employed	Percent Employed in Natural Resources and Mining 5	Percent Employed in Construction 5	Percent Employed in Trade, Transportation and Utilities 5	Percent Employed in Professional and Business Services 5	Percent Employed in Educational and Health Services 5	Percent Employed in Leisure and Hospitality 5	Percent Employed in State Government 5	Percent Employed in Local Government 5	Percent Employed in Other 5	Number with Commercial Fishing Permits, Crew Licenses in 2010 6	Community Development Quota Participant 2
Bering Sea	Kaltag	190	14,103	23,000	60	25	0.22	5.74	6	99	31	0.31	3	5	12	1	11	1		66	1	9,12	No
	Shaktoolik	250	12,803	26,667	43	28	0.22	NA	NA	108	38	0.35	2	2	14	2	14	NA	1	66	NA	42,32	Yes
	Stebbins	556	8,938	33,462	100	28	0.22	7.22	7.47	244	88	0.36	NA	3	6	2 (financial activities)	9	1	NA	64	15	20,9	Yes
	Unalakleet	681	19,919	47,500	33	15	0.2	6.3	6.3	383	86	0.36	1	3	26	2 (includes financial	6	NA	3	58	0.5	101,62	Yes
	Saint Michael	401	13,348	34,821	55	29	0.22	6.95	5.81	179	66	0.37	0	3 (plus 2 in manufacturing)	10	1 (financial)	14	2	1	68	NA	14,9	Yes
Lower Kuskokwim	Aniak	501	22,010	60,673	38	12	0.28	NA	NA	280	82	0.29	1	3 (plus 1 in manufacturing)	23	7 (plus 5 in financial and 5 in information)	11	NA	5	34	5	9,1	No
	Lower Kalskag	282	11,637	44,643	74	17	0.22	NA	NA	130	46	0.35	2	NA	2	3 (plus 2 in financial)	5	1	NA	70	13	0,1	No
	Kalskag	210	15,655	45,938	76	22	0.22	6.75	6.75	98	43	0.44	1	4 (plus 1 in manufacturing)	3	2 (plus 2 information and 13 financial)	7	1	NA	54	11	1,0	No
	Bethel	6,080	29,261	91,302	22	8	0.17	6.02	6.85	2,718	466	0.17	1	1 (plus 1 in manufacturing)	19	2 (plus 7 in financial and 1 in information)	29	2	10	20	6	189,127	No
Yukon Delta	Marshall	414	12,183	38,333	98	12	0.22	5.74	6.94	177	84	0.47	NA	3 (plus 1 manufacturing)	9	6 financial, 1 information	3	NA	6	65	7	39,45	No
	Mountain Village	815	12,650	47,000	95	21	0.22	7.31	6.21	380	150	0.39	1	3 (plus 9 in manufacturing)	12	1 in and information financial	7	1	1	62	4	76,71	Yes
	Pilot Station	568	13,762	41,250	75	18	0.22	7.32	8.03	258	98	0.38	1	1 (manufacturing)	10	2 (plus 6 in financial)	5	1	1	64	9	54,62	No
	Pitkas Point	109	10,671	41,563	85	33	0.22	NA	NA	44	19	0.43	NA	4 (manufacturing)	11	2 (financial)	1	1	NA	73	4	0,0	No
	Russian Mission	312	11,225	43,750	100	30	0.22	5.75	6.2	173	60	0.35	1	1	13	5 (plus 13 financial and 1 information)	6	12	1	44	5	15,17	No
	Saint Mary's	507	15,307	38,162	50	15	0.22	NA	NA	285	119	0.42	1	1 (plus 3 in manufacturing)	19	1 (plus 16 in financial and 1 information)	8	4	3	39	6	72,81	No
Upper Kuskokwim	Crooked Creek	105	11,540	29,688	100	20	0.48	NA	NA	72	21	0.29	NA	NA	4	11 (plus 12 in financial)	7	NA	NA	64	1	0,3	No
	Red Devil	23	36,000	28,333	0	10	0.48	NA	NA	8	0	NA	NA	12 (manufacturing)	62	25 (financial)	NA	NA	NA	NA	NA	0,0	No
	Sleetmute	86	22,259	24,750	65	19	0.48	7.25	7.9	47	27	0.57	NA	NA	17	4 (2 financial)	6	4	NA	66	NA	1,0	No
	Stony River	54	4,320	17,679	38	80	0.48	NA	NA	24	2	0.08	NA	2 (manufacturing)	4	12 (plus 4 financial)	4	NA	NA	58	8	0,0	No
Lower Yukon	Anvik	85	10,981	14,643	69	29	0.22	6	6.5	49	13	0.27	6	NA	14	1 (information)	18	2	NA	57	NA	11,0	No
	Grayling	194	8,619	27,500	100	24	0.22	5	6	90	33	0.37	1	2 (manufacturing)	9	1 (financial)	22	NA	1	56	8 (unknown)	31,1	Yes

Region 1	City/Village	Population (2010)	Per Capita Income 2	Median Household Income 2	Percent Households with Public Assistance Income 3	Percent Persons in Poverty 2	Effective Residential Electrical Rate Per Kwh 8	2013 Retail Price/Gallon, Heating Oil #1 7	2013 Retail Price/Gallon Gasoline 7	Number of Residents Employed 5	Unemployment Insurance Claimants 5	Ratio Of # Residents with Unemployment Claims to # Employed	Percent Employed in Natural Resources and Mining 5	Percent Employed in Construction 5	Percent Employed in Trade, Transportation and Utilities 5	Percent Employed in Professional and Business Services 5	Percent Employed in Educational and Health Services 5	Percent Employed in Leisure and Hospitality 5	Percent Employed in State Government 5	Percent Employed in Local Government 5	Percent Employed in Other 5	Number with Commercial Fishing Permits, Crew Licenses in 2010 6	Community Development Quota Participant 2
	Holy Cross	178	16,014	35,500	86	32	0.22	7.15	7.35	94	27	0.29	6	1 (plus 1 manufacturing)	4	3 (financial)	33	3	NA	47	1	9,0	No
	Shageluk	83	12,415	31,250	77	14	0.22	NA	NA	39	12	0.31	5	NA	5	3 (plus 10 financial)	15	NA	NA	61	NA	1,1	No
Western Interior	McGrath	346	33,671	69,821	12	13	0.17	7.46	7.45	176	34	0.19	6	4	13	3 (plus 1 financial and 1 information)	10	10	14	37	1	1,0	No
	Nikolai	94	6,798	17,708	86	81	0.25	NA	NA	44	14	0.32	14	2	4	2 (information)	18	NA	NA	57	2 (unknown)	0,0	No
	Takotna	52	8,765	60,833	75	58	0.44	NA	NA	26	12	0.46	NA	23	31	4 (plus 8 information)	8	4	NA	23	NA	0,0	No
	Lime Village	29	21,214	72,500	0	32	0.9	NA	NA	10	2	0.2	NA	NA	10	10 (plus 10 financial)	NA	NA	NA	70	NA	0,0	No

Sources:

1 Lingle et al. 2011 (Bethel and Lime Village added)

2 ADCCED 2012

3 Headwaters Economics 2013

4 ADLWD 2011a

5 ADLWD 2011b

6 ACFEC 2010

7 ADCCED 2013

8 AEA 2016

Notes:

For data reported as percentages, consider the total number of people included; for example, in a small village, 4 percent of the employed workers could be just one person.

References

- ACFEC (Alaska Commercial Fisheries Entry Commission). 2010. Permit database for 2010. Available at <http://www.cfec.state.ak.us/cpbycen/2010/Mnu.htm>.
- ADCCED (Alaska Department of Commerce, Community, and Economic Development). 2012. Community and Regional Alaska Community Database Online (CDO). Data <https://www.commerce.alaska.gov/web/dcra/ResearchAnalysis.aspx>.
- ADCCED. 2013. Alaska Fuel Price Report: Current community conditions, July 2013.
- ADLWD (Alaska Department of Labor and Workforce Development). 2011a. American Community Survey 2007-2011. Available at: <http://live.laborstats.alaska.gov/cen/acsarea.cfm> (accessed October 16, 2018).
- ADLWD. 2011b. Alaska Local and Regional Information database, 2011. Available at: <http://live.laborstats.alaska.gov/alari/> (accessed October 16, 2018).
- AEA (Alaska Energy Authority). 2016. Power Cost Equalization Program. Statistical Data by Community, Reporting Period July 1, 2011-June 30, 2012. Available at: <http://www.akenergyauthority.org/Programs/PCE> (accessed November 8, 2016).
- Headwaters Economics. 2013. Economic Profile System – Human Dimensions Toolkit. Available at <http://headwaterseconomics.org/tools/eps-hdt>.
- Lingle, E.G, P.J. Fix, and A.M. Harrington. 2011. Bering Sea and Western Interior Land Use Study. Final Report for USDI Bureau of Land Management. #MP2011-03. Fairbanks, Alaska: Department of Humans and the Environment, School of Natural Resources and Agricultural Sciences, University of Alaska Fairbanks.