

ALASKA POWER AUTHORITY
SUSITNA HYDROELECTRIC PROJECT

ENVIRONMENTAL STUDIES
PROCEDURES MANUAL

SUBTASK 7.08
RECREATION PLANNING

**Terrestrial
Environmental
Specialists, Inc.**

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Submitted by

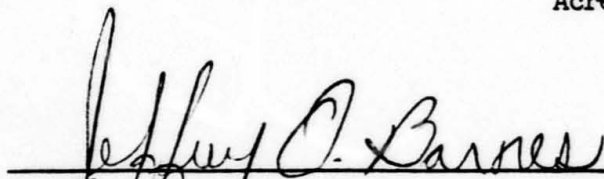
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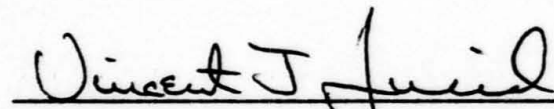
School of Agriculture and Land Resources Management
University of Alaska-Fairbanks

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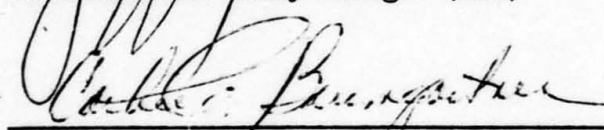
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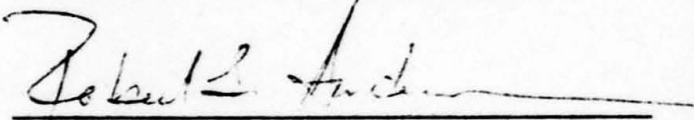
Environmental Study Manager (TES)



Environmental Study Director (TES)



Quality Assurance Coordinator (TES)



Group Leader (TES)

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TABLE OF CONTENTS

	<u>Page</u>
I. INTRODUCTION	1
A. Objectives	1
B. Approach	2
II. TECHNICAL PROCEDURES	2
A. Outline of Proposed Planning Procedure	2
B. Literature Review	7
C. Summarize Other Resource Data	7
D. Assessment of Recreation Resource Potential: Resource Suitability	8
E. Identification of Potential Management Structure	8
F. Initial Concept Plans	8
G. Concept Plan Survey	9
H. Selection of Best Concept Plan	9
I. Participation Survey	10
J. Detailed Site Feasibility Studies	10
K. Revised Concept Plan	10
L. Agency and Public Review	11
M. Recommended Concept Plan	11
N. Final Recreation Plan	11
III. DATA PROCEDURES	11
A. Concept Plan Survey Format	11
B. Participation Survey	12
C. Tabular Analysis	13
IV. QUALITY CONTROL	13
A. Routine Quality Control	13
B. Public Surveys	15
C. Data Storage and Control Procedures	15
V. SCHEDULE	15
VI. PERSONNEL	15
A. Descriptions of Qualifications	15
B. Key Personnel	18
VII. SELECTED LITERATURE	21

LIST OF TABLES

	<u>Page</u>
II-1. Planning Documents and Steps Involved with Estimated Completion Date.	4
III-1. Encampment River: Planning Unit Potential Effects by Selected Alternative as Compared to the Present Situation	14
V-1. Schedule of Subtask Activities	16

LIST OF FIGURES

II-1. Susitna Recreation Plan (Phase 1).	3
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I. INTRODUCTION

Portions of the Susitna River have been considered for hydropower development since the 1940s, and several preliminary plans for such development have been prepared. Proposals have included one to four reservoirs. Most of the proposals either have been overlooked, or simply have laid dormant. The present proposal is focused on a two-dam development: one at Devils Canyon and one near Watana Creek. These two structures would create elongated reservoirs, typically 1/2 to 3/4 miles in width, except the lower part of the Watana Reservoir.

The Alaska Power Authority sought detailed proposals in 1978. The overall planning and evaluation contract was awarded to Acres American, Inc. The environmental assessment portion was subcontracted to Terrestrial Environmental Specialists, Inc., who in turn contracted the University of Alaska to develop the plan for recreation development. There are no comparable hydroelectric projects in Alaska, and from the resource perspective it poses some unique recreation planning opportunities because of the steep, narrow canyon.

Most of the recreational planning decisions relate to the development of access to the area; consequently, the location of access roads, types of facilities, and level of development are critical decisions in encouraging specific types of recreation opportunities and desired levels of use. Thus, this planning effort is based on the concept that recreation planning, while controlling the general nature of development and minimizing undesirable impacts, is done for a more important reason -- controlling the type and quality of recreational experience to be offered. Planning and the resulting development are not ends in themselves, but a means of implementing a management program. Included in such a management program is the defining of specific experiences to be offered, the choice and location of site developments to achieve this with the fewest negative impacts, and the choice of management control to protect those experiences and reduce impacts not possible to eliminate through the planning effort.

A. OBJECTIVES

The primary objective of Subtask 7.08 is to undertake a recreation planning process and prepare a concept plan which will be the Recreational Plan for development of the total project lands and waters to meet Federal Energy Regulatory Commission (FERC) licensing requirements under Exhibit R, as amended, of Subchapter B, Regulations under the Federal Power Act. The Plan will provide for the most socially desirable mix of public recreation opportunities within the limits of the project resources, in a manner that will:

1. result in a variety of activities and levels of development that will be consistent with the quality of the recreational experiences to be offered; the perceptions of the potential user will be measured through surveys and public meetings to determine the desirable kinds of experiences and appropriate levels of development;
2. analyze the environmental setting and recommend developments (associated with the access transportation system, the water

impoundment, and other resource uses) that will be consistent with the environmental limitations of the area;

3. balance the development of facilities with the capacity of the natural resources to sustain the resultant use;
4. identify and incorporate unique natural features into the plan that will appropriately preserve, display, or interpret such features;
5. be consistent with planning guidelines and objectives of the agency ultimately responsible for managing the public use of the land and water resources, the Mat-Su Borough governmental requirements and, where feasible, the requirements of the other landowners; and
6. maximize the compatibility of the plan with the total hydroelectric operation and other public uses, including existing uses, of project resources.

B. APPROACH

The basic approach is to develop five concept plans that represent an array of alternative development schemes (access and facilities) yet represent the potential of the resources as determined through field studies. These five concept plans will go through a series of public reviews to arrive at a recommended plan which will constitute the basis for the Recreation Plan to be submitted to fulfill the requirements of Exhibit R.

The actual effort is divided into two phases:

1. Phase I, Pre-license application: Thorough analysis of the resource and public input in recommendation of a recreation plan (and discussion of possible impacts) for submission as Exhibit R, including identification of impacts, costs, mitigation strategies, and potential management structure.
2. Phase II, Post application: Expansion and detailing of the recreation plan, including detailed cost projections, assessment of impacts, mitigation strategies, and management structure.

The level of detail required for Phase II work is not included in the contracted Phase I scope of work due to the anticipated lack of a defined project scheme and associated information. This Procedures Manual, therefore, describes only the Phase I effort.

II. TECHNICAL PROCEDURES

A. OUTLINE OF PROPOSED PLANNING PROCEDURE:

The procedure for Phase I is diagrammed in Figure II-1 (years 1980 and 1981). The squares in the diagram represent tasks to be performed by the recreation planning team and the circles are tasks to be performed in the public review by Acres American, Inc. The tasks must be done in the proper sequence as most are interdependent steps. The detailed sequence giving the intermediate steps with dates is shown in Table II-1.

FIGURE II-1: Susitna Recreation Plan (Phase I)

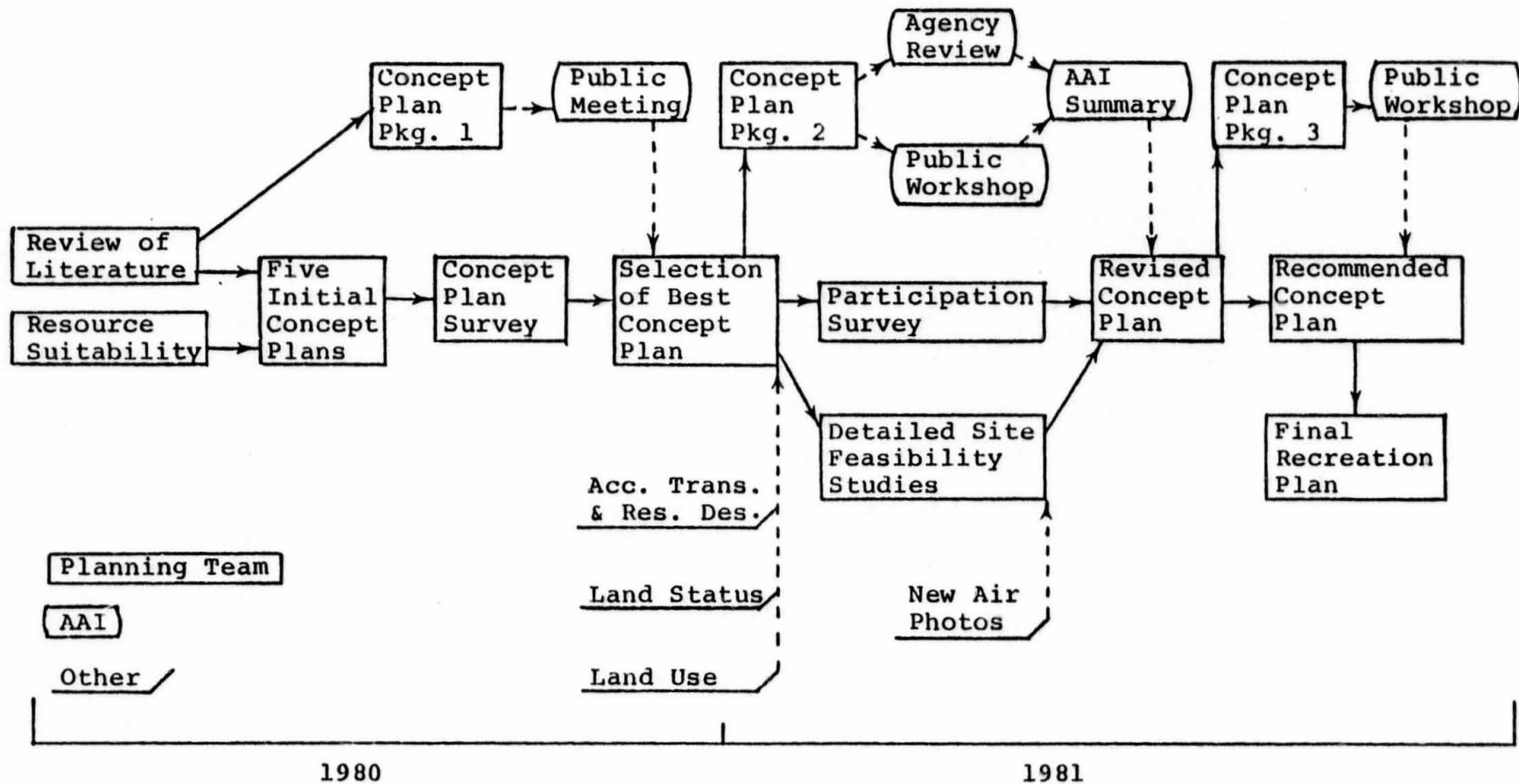


TABLE II-1: PLANNING DOCUMENTS AND STEPS INVOLVED WITH ESTIMATED COMPLETION DATES

Product	Intermediate Steps	Person Responsible	Completion Date	Remarks
1. Develop Initial Concept Plans	a. Review of literature	Feyhl	August 15, 1980	An ongoing function
	b. Suitability study		August 15, 1980	
	c. Unique scenic-natural features	Feyhl	August 15, 1980	
	d. Summary of resource data		August 15, 1980	An ongoing function
	e. Draft concept plans; Submit to TES	Feyhl	August 22, 1980	Develop 5 plans representing a continuum
	f. Review plans in field		August 25-27, 1980	Review field with Chubb
	g. Finalize concept plans	Feyhl	September 8, 1980	Prepare for cartographer
	h. Return from cartographer		October 6, 1980	Review by Chubb
	i. Review by team	Jubenville	October 20, 1980	
	j. Submit to TES		October 31, 1980	Concept plan package 1
2. Select Best Concept Plan	a. Develop questionnaire format	Jubenville	August 7, 1980	Send to Chubb as soon as possible
	b. Insert draft concept plans	Feyhl	August 22, 1980	Submit to TES
	c. Review with Chubb	Jubenville	September 9, 1980	
	d. Revise and pretest	Jubenville	September 26, 1980	
	e. Insert cartographic concept plans and finalize	Jubenville	October 8, 1980	
	f. Send questionnaire to printer	Jubenville	October 13, 1980	Return by October 27, 1980
	g. Draw sample	Feyhl	October 13, 1980	Ask: ISER (Kruse); need typed list of names and addresses and xerox these

TABLE II-1
CONTINUED

Product	Intermediate Steps	Person Responsible	Completion Date	Remarks
3. Revised Concept Plan	h. First mailing	Jubenville	October 31, 1980	
	i. First followup	Jubenville	November 11, 1980	Maintain control forms
	j. Second followup	Jubenville	November 21, 1980	Maintain control forms
	k. Code and first run	Feyhl	December 21, 1980	Debug program
	l. Feedback (AAI)	AAI	February 10, 1981	Public input
	m. Analysis of results	Feyhl	March 1, 1981	
	n. Review of items la-d	Jubenville		
	o. Select best concept plan; send draft to TES	Jubenville	March 15, 1981	Develop justifications. Review by Chubb and development of Package No. 2
	p. Concept plan package No. 2		April 15, 1981	To TES
	a. Develop and pretest participation questionnaire	Jubenville	April 1, 1981	Use "proxy" concept plan. Review by Chubb. Develop "dummy" data and make first run of analysis.
	b. Substitute selected concept plan into questionnaire	Jubenville	April 15, 1981	
	c. Send to printers	Jubenville	April 15, 1981	Return by May 15, 1981
	d. Select sample and type labels	Jubenville	May 1, 1981	See ISER about sampling
	e. Send out survey	Jubenville	May 10, 1981	Maintain control forms
	f. First followup	Jubenville	May 20, 1981	Maintain control forms
	g. Second followup	Jubenville	May 31, 1981	Maintain control forms
	h. Code and run data analysis	Feyhl	July 10, 1981	
	i. Interpret data in terms of revising concept plan to realize maximum participation	Jubenville	July 25, 1981	The actual projection of total participation by visitor days per major activity will be accomplished by November 15, 1981
	j. Develop detailed feasibility study, including field data forms	Jubenville		Review literature for such studies. Print forms. Review by M. Chubb. Returned by July 3.

TABLE II-1
CONTINUED

Product	Intermediate Steps	Person Responsible	Completion Date	Remarks
	k. Obtain new air photos of reservoirs	Jubenville	June 20, 1981	
	l. Evaluate each site location from selected concept plan plus possible alternative	Jubenville	July 25, 1981	Input into 3.i. above
	m. Receive agency and public comments on concept plan package No. 2		June 30, 1981	From AAI
	n. Revised concept plan		August 1, 1981	Finalize revised concept plan, based on participation survey; Submit to TES
4. Recommended Concept Plan	a. Agency and public review		August 25, 1981	Return by August 20, 1981
	b. Concept plan Package No. 3		August 25, 1981	To TES. Return comments by October 1, 1981
	c. Appraisal of potential impacts		October 1, 1981	Team approach
	d. Recommended concept plan; Submit to TES		October 30, 1981	Based on 3.n.p.q. (within Exhibit R requirements). Review by Chubb and TES. Return by November 21, 1981
5. Final Recreation Plan	a. Final review and rewrite		November 30, 1981	
	b. Submit to printers		December 1, 1981	
	c. Submit Exhibit R document	Jubenville	December 31, 1981	To TES

B. LITERATURE REVIEW

An extensive literature review will be conducted to identify and make use of existing pertinent sources of recreation and other information. This literature search will include a complete review of appropriate periodicals, texts, management reports, and agency publications related to Alaska or other areas having similar conditions.

C. SUMMARIZE OTHER RESOURCE DATA

Other resource data will be collected and analyzed concurrent with the literature review. Information on the following resources will be summarized:

1. water (other than the reservoir)
2. vegetation
3. land forms
4. geology and soils
5. wildlife
6. fisheries
7. climate and weather
8. resource ownership, existing use, and management objectives for project lands
9. access
10. mineral and mining resources

To the extent possible, existing or readily obtainable data will be collected and analyzed. Refined and more detailed data will be incorporated as it becomes available from other specialists and investigators, including other TES subcontractors, ADF&G, CIRI/H&N, and Acres. This will be especially true of the following types of information:

1. slope stability after reservoir development
2. ice conditions along shoreline and effects of spring breakup
3. permafrost locations
4. seasonal fluctuations of water level of reservoirs
5. soil drainage
6. estimate of reservoir fishery
7. transmission line locations
8. location of proposed gravel pits
9. information on hydroelectric operations
10. location of permanent facilities for operation of dams
11. refined topographic information:
 - a. reservoir: 1" = 400'
 - b. dams: 1" = 200'

The availability of all the information is desirable at the time of formulation of the concept plans. As it becomes available, it will be utilized in the concept plan development and revision process.

D. ASSESSMENT OF RECREATION RESOURCE POTENTIAL: RESOURCE SUITABILITY

An analysis of resource suitability will be conducted to determine potential for recreational uses. The methodology employed in this analysis will include:

1. review of pertinent literature
2. preliminary field observations of site area
3. development of a list of possible factors influencing site choice
4. assessment of identified factors to eliminate irrelevant ones
5. review of remaining factors in the field to isolate the most important ones to enable assessment of slope, soil drainage, erosion natural hazards, visual qualities, water fluctuation, potential management problems, and other concerns
6. establishment of a rating system for these factors based upon general evaluative criteria developed by the U.S. Forest Service (Region 9), modified to more appropriately fit Alaska site conditions
7. application of factor ratings to assess potential sites in the lab, using topographic maps, air photographs, and data from preliminary field observations
8. application of rating forms to assess each potential site in terms of suitability for specific developments; this will be conducted for water and land-based sites and possible access transportation system
9. ranking of resultant list of sites according to types of feature, estimate of level of significance, and development potential to determine sites that have the greatest suitability for recreational development and use
10. final field evaluation of sites.

E. IDENTIFICATION OF POTENTIAL MANAGEMENT STRUCTURE

An analysis will be conducted to relate proposed developments to requirements of potential managing agencies and the institutional constraints under which they operate. Staff of agencies will be interviewed from time to time throughout the study effort to determine their primary management goals, legal mandate to operate such areas, experience in such operations, probable funding, and specific site/facility requirements. This analysis will result in identification of a potential agency or agencies capable of operating recreational facilities at the site, and the constraints/requirements for development and operation of facilities within that agency.

Contact will be established initially and coordination of the recreational planning effort will continue throughout with appropriate agencies (e.g., ADNR-Parks, HCRS, Mat-Su Borough, etc.).

F. INITIAL CONCEPT PLANS

Five concept plans will be developed to reflect a continuum of development opportunities, considering levels of access and facilities. These will be developed in accordance with existing project design specifications and modified as new or more detailed information becomes available from other members of the project feasibility team.

The five concept plans will range from the purposeful avoidance of public facilities in combination with restricted access, to the maximum intensive development of most of the identified potential sites. Three intermediate concept plans will offer a mix of day use and overnight facilities at those geographical points most suitable for their location. Resource suitability information will provide the basis for much of this procedure.

Concept plans will include a narrative description detailing resource factors and site characteristics, level and type of proposed development, access system, proposed operation, and proposed activities. Plan maps will be prepared to enable visual assessment of proposed spatial arrangements and location of facilities relative to the site and area.

Each of the plans will include an indication of potential facilities as outlined in FERC Exhibit R regulations such as roads and trails, camping, picnicking, bathing, boating, fishing, hunting, sanitation, and waste disposal facilities and areas.

In addition to preparation of the concept plans, a means for comparison of the plans will be prepared, involving appropriate maps and tabular summaries (an example is indicated in Table III-1). This will constitute the initial concept plan package to enable public review and technical comparative analyses.

G. CONCEPT PLAN SURVEY

A survey of potential users will be conducted on a sample of Fairbanks-Anchorage residents to determine the preferred concept and how various types of users respond to access and facility development. This is an essential underpinning of the total planning process because succeeding decisions are dependent on the selected concept.

This survey is intended to maximize public input into the selection process. This procedure is supportive of the effort to determine the interests and desires of the public regarding recreational use. The survey is intended to identify the portion of the continuum in which the majority of the public would prefer to operate, and will provide the conceptual limits within which the plan will be developed. Data procedures relating to the survey are provided in Part III.

H. SELECTION OF BEST CONCEPT PLAN

Based on the survey, public meetings, resource suitability analysis, and summary of other data, as well as additional information provided by other feasibility study team members as it becomes available, a single concept plan, possibly a composite, will be chosen. At this stage, the concept plan survey will have the greatest effect on determining the plan chosen; however, all testimony and the rationale therefor will be scrutinized carefully. As a check, a contingency and chi-square analysis will be performed to determine if there is a significant difference between choices indicated in the survey and public meetings (if) conducted by APA relative to the recreation plan. The selected concept plan will be prepared as a package containing a narrative description of the plan, appropriate scale maps (in 30" x 48" and 8-1/2" x 14" formats), and schematics of major developments.

It is anticipated that Acres will use the package in its agency/landowner review and public workshops.

I. PARTICIPATION SURVEY

A survey will be conducted to predict levels of recreational use of the facilities proposed in the "best" concept plan. Information derived from the survey will be used to determine the types and numbers of facilities to be provided and the appropriate level of management.

A self-administered questionnaire will be mailed to a sample of Anchorage-Fairbanks residents to assess their perceptions of the appropriate levels of recreational development at the reservoir site and their willingness to participate at those levels of development. The questionnaire will be designed considering the selected "best" concept plan to determine the combination of access and facilities (using descriptions thereof) that people would be most willing to participate in. The survey will provide three alternative development schemes within limits established by the selected concept plan to determine which minor variations produce a greater attractiveness to the area. This will yield an aggregate estimation of participation in various activities, based on various levels of recreational development.

The design of the questionnaire will be critically reviewed and be pretested prior to distribution. The number of questionnaires to be distributed will be determined based on a desired level of accuracy and an assumed rate of response. The mailing will be divided between Anchorage and Fairbanks in proportion to population. Two follow-ups are planned.

J. DETAILED SITE FEASIBILITY STUDIES

A detailed feasibility analysis will be performed on each proposed site in the selected concept plan. This effort will be undertaken approximately concurrent with the survey and will be used in detailing the revised concept plan.

Site feasibility studies will involve considerable field time during this phase. Recreational factors addressed in the suitability study will receive additional review and will be directed toward specific site development possibilities. Based upon proposed site developments, costs will be estimated and socioeconomic and environmental impacts assessed, realizing that obvious impacts will be reduced or eliminated during site selection and development planning.

K. REVISED CONCEPT PLAN

A revised concept plan will be prepared considering the latest available inputs at this stage. These inputs include:

1. participation survey
2. site feasibility studies
3. results from any public participation activities
4. access
5. other information from the project feasibility team

L. AGENCY AND PUBLIC REVIEW

Following revision described above, the concept plan will be made available for agency review and public comment at community meetings to be conducted by APA in conjunction with the Task 12 public participation process. This is the final review prior to assembly of Exhibit R.

M. RECOMMENDED CONCEPT PLAN

Following agency and public review, the draft final recommended concept plan will be assembled, reviewed, and drafted by the University of Alaska for final review by TES, Acres, and APA. This draft plan will include an analysis of stages of development if staged recreation development is recommended.

N. FINAL RECREATION PLAN

The final plan will be available from the printer, in a format and containing information designed to meet the requirements of Exhibit R at the time of license application. It will include appropriate maps for the plan, including delineation of project boundaries for recreational lands; appraisal of potential impacts; an estimation of capital and operating costs; identification of potential management structure; and other information as necessary.

The University of Alaska will perform the final drafting of illustrations for presentations at public meetings and for incorporation into Exhibit R of the FERC application with coordination concerning format to be provided by Acres. Printing of this artwork will be the responsibility of Acres.

III. DATA PROCEDURES

This section describes the data procedures to be utilized in carrying out technical procedures identified in the previous section. Pertinent information is included here by reference to the appropriate subsection listed in Technical Procedures.

In some cases, information on data procedures is not yet available, as it will be developed in the recreation planning process. As these inputs are completed, they will be added to the Procedures Manual in the form of amendments.

A. CONCEPT PLAN SURVEY FORMAT

The survey of potential users is intended to maximize public input into the selection process to overcome some of the concern of having representative public input into the actual decision as expressed in the POS. However, public opinion is an expression of personal goals; thus, the survey is intended to identify the portion of the continuum in which the majority of the public would prefer to operate. In sum, it will place boundaries within which the final plan should be developed. The steps involved in conducting the concept plan survey are as follows:

1. Establish questionnaire
 - a. Format
 - (1) Cover letter explaining project
 - (2) Graphic concept plans (five) with descriptions
 - (3) Questions on plan preference with each concept plan
 - (4) Set of questions on preferred levels of facility and access development
 - (5) Set of questions on previous boating experience and equipment owned
 - b. Pretest in Fairbanks
2. Select a representative sample of the greater Fairbanks-Anchorage areas for the survey, using Table 20, Sample Sizes, in Statistical Tables by Barnes and Noble. ISER will also be consulted.
3. Maintain control lists and send out up to two follow-ups at two-week intervals.
4. Analyze results
 - a. (1) Type of equipment owned
 - (2) Previous boating experience
 - (3) Anticipated style/pattern of participation
 - (4) Location of residence
 - b. Frequency count on plan choice
 - c. Frequency count on plan modification
 - d. Correlation of plan choice with preferred levels of facility and access development, type of equipment owned, and previous boating experience

Based on the survey, the summary of the public meetings, resource suitability study, and summary of other resource data, a single concept plan (possibly a composite) will be chosen. Obviously the survey, because of its greater representation, will have the greatest effect on the final decision; however, all testimony and the rationale will be carefully scrutinized. A contingency and chi-square analysis will be done to determine if there is a significant difference between the choices from the survey and the public meetings.

B. PARTICIPATION SURVEY

It will be necessary to predict the levels of recreational use of the facilities that are provided as a part of this project. Forecasting is at best a hazardous enterprise, but predicting the levels of participation in various recreational activities is an essential ingredient in recreation planning. The types and number of facilities to be provided and the appropriate level of management must be based upon some estimate of predicted use.

The projections of participation are made more difficult in this case by the size of the area, limited possibilities for comparison to similar opportunities within the region, and minimal past-use data. The uniqueness of the area and lack of available data preclude the use of many methods of projecting participation and suggest the use of the "judgement" method (Clawson and Knetsch 1966).

As discussed under Technical Procedures, the self-administered questionnaire will be mailed to a sample of Anchorage-Fairbanks residents to assess their perceptions of the appropriate levels of recreational development at the proposed reservoirs and their willingness to participate at those levels of development. A Canonical correlation will be performed on the results of the questionnaire to isolate those socioeconomic variables which are significantly related to participation choice (Tatsuoka 1971). Using those isolated socioeconomic variables, choice patterns will be predicted for the general population by expanding them to reflect current census levels. The schematic process is:

1. Choice correlated to age/income.
2. Sample breakdown (all respondents will reflect their willingness to participate for each of the three alternatives selected) for each category. This then would be totaled to reflect the estimated total recreation participation under Concept Plan 1.
 - a. Repeat for Concept Plans 2 and 3.
 - b. Direct comparison of total participation for 1, 2, and 3; the choice would be the one with the greatest level of participation.
 - c. The sample results would then be expanded to reflect total population.
 - d. Finally, an expansion factor will be estimated from previous regional tourism studies to expand the resident use total to include non-resident. Confidence bands will be shown to reflect the possible variation in the final use estimate.

C. TABULAR ANALYSIS

Table III-1 provides an example of the method for analyzing the range of initial concept plans with varying degrees of development.

IV. QUALITY CONTROL

A. ROUTINE QUALITY CONTROL

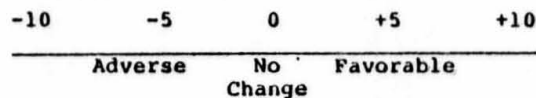
General quality control will be sought through the following routine procedures:

1. Critical review of project outputs by an external reviewer (see VI. Personnel)
2. Periodic internal project team meetings and communications
3. Thorough public review
4. Cross-training of project personnel; project team members will be kept informed of each others' activities and procedures.

TABLE III-1: ENCAMPMENT RIVER PLANNING UNIT POTENTIAL EFFECTS BY SELECTED ALTERNATIVE AS COMPARED TO THE PRESENT SITUATION

Resource	Specific Elements	A	B	C	D	E	Present Situation
Wildlands	Wilderness Acres Available	28,930	35,820	41,200	39,470	41,300	7,490 ^{1/}
	Back Country Acres Available	21,440	38,950	41,350	44,120	62,000	12,450 ^{2/}
	Scenic Rivers Acres Available	0	10,620	7,640	12,120	8,190	6,760 ^{3/}
	Recreation River Acres Available	-	-	-	960	-	0
Recreation	Potential for Developed Area Use	7	7	7	7	7	7
	High Density (Class I) (Ski Area)	0	+2	+2	+3	0	0
	Intermediate Density (Class II)	+5	+3	+4	+2	+1	0
	Low Density (Class III)	+5	+6	+5	+3	+1	0
	Potential for Undeveloped Area Use	+2	+4	+5	+6	+8	0
	Dispersed (Class IV) (Motor Vehicles Allowed)	+3	+1	-1	-1	-2	0
	Back Country (Class V) (Motor Vehicles Not Allowed)	-2	+1	+2	+1	+4	0
Esthetics	Wilderness (Class VI) (Motor Vehicles Not Allowed)	0	0	0	0	0	0
	Quality	-1	-1	-1	-1	0	0
Wildlife	Big Game	+2	+2	+1	+1	0	0
	Small Game Animals and Birds	+2	+2	+1	+1	0	0
	Small Animals and Birds	+1	+1	+1	+1	0	0
	Fishery	+1	+1	+1	+1	+1	0
Range	Usable Range Acres	12,995	11,980	12,965	10,535	10,370	12,995
	Livestock Carrying Capacity (Cattle)	4,445	3,530	4,095	2,970	2,820	4,105
Fire	Risk (Chance of Fire Starting)	-3	-2	-1	-1	-1	0
	Hazard (Chance of Fire Buildup after Started)	+4	+3	+2	+2	-2	0
Insect & Disease	Epidemic Potential	+5	+4	+4	+3	0	0
Soils	On-Site Erosion (Natural Conditions)	-3	-2	-2	-2	-1	0
	Mass Movement Risk	0	0	0	0	0	0
Water	Quality	-3	-3	-2	-2	-1	0
	Average Annual Yield (Acre-Feet) ^{4/}	165,180	165,060	165,050	164,950	164,290	165,060
	Increase Due to Timber Harvest (Acre-Feet) ^{4/}	2,580	2,460	2,450	2,350	1,690	2,460
Timber	Total Available Volume (MMBF/MMCF)	506/171	433/150	409/144	398/138	291/99	447/152
	Potential Annual Sustained Yield (MMBF/MMCF)	7.1/2.4	5.8/2.0	5.2/1/8	5.3/1.8	3.3/1.1	5.7/2
	Estimated Harvest Next 20 Years (MMBF/MMCF)	142/48	116/40	104/36	106/36	66/22	114/40
Transportation	Potential Additional Roads (Miles)	115	96	111	100	60	0(132)
	Potential Additional Trails (Miles)	5	22	30	35	25	0(199)

Explanation Graph of Effect Ratings

^{1/} Mount Zirkel^{2/} Present Multiple Use Zones I-7 (Encampment River) and I-17 and C-2 (Houston Park)^{3/} Present Multiple Use Zone I-7 (Encampment River)^{4/} One Acre-Foot equals 325,900 Gallons

Sample Summary Sheet, showing trade-off of effects for various management options. Taken from the Preliminary Plan for the Encampment River Unit, Medicine Bow National Forest, Wyoming.

B. PUBLIC SURVEYS

1. The questionnaires will be reviewed by Dr. Chubb and pretested using a small sample of local residents.
2. The sample sizes will be determined from the Barnes and Noble Table 20, and the actual sample selection will be done in consultation with the Institute of Social and Economic Research, University of Alaska. Sufficient follow-ups will be done to ensure an adequate final sample.
3. The data will be coded, keypunched and verified, and stored on tape.

C. DATA STORAGE AND CONTROL PROCEDURES

Primary and secondary data collected in the course of the planning study investigation will be stored in office files or by other appropriate means in the offices of the Principal Investigator.

V. SCHEDULE

Table V-1 indicates the general schedule of activities for Subtask 7.08. Table II-1 provides detail for each of the activities, with specific completion dates.

VI. PERSONNEL

Descriptions of qualifications required to perform Phase I of the Recreation Planning effort are provided here, along with the names of key personnel and their experience in recreation planning and related work. Table II-1 indicates personnel who will be working on the various portions of this subtask.

A. DESCRIPTIONS OF QUALIFICATIONS

This study requires that personnel be able to: (1) gather and analyze primary data; (2) gather and interpret secondary data from other project investigators and other sources; (3) effectively analyze and assess resource suitabilities and potentials; and (4) develop and successfully implement a recreation planning methodology.

Additionally, the study requires that a project manager (i.e. principal investigator) be able to manage and coordinate personnel efforts in a manner consistent with budget and time constraints. This includes ensuring that: (1) the best data are available for use in the study; (2) these data are collected in a cost-effective manner (i.e. properly sequenced in time and place); and (3) the study products meet objectives and contractual requirements specified in the Scope of Work.

Development of Planning Procedures and Methodology

This subtask requires personnel who are: (1) familiar with comprehensive resource planning procedures and techniques; (2) familiar with methodologies for development of recreation plans and programs; (3) knowledgeable with regard to wilderness recreational experiences and development of supportive facilities; and (4) able to assess

TABLE V-1: SCHEDULE OF SUBTASK - 7.08

	1980								1981											
	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Site Suitablility Study	X	X	X	X																
Five Concept Plans			X	X	X															
Concept Plans Package 1						X														
Public Survey (concept plans)				X	X	X	X	X	X	X	X									
Selected Concept Plan											X									
Concept Plan Package 2												X								
Participation Survey												X	X	X	X					
Revised Concept Plan																X				
Concept Plan Package 3																X				
Appraisal of Impacts																	X	X		
Recommended Concept Plan																		X	X	
Exhibit R																		X	X	X

resource suitabilities and capability to support varying degrees of recreational development and usage. It also requires the ability to define and promulgate a methodology consistent with financial, personnel, and time constraints related to the overall plan of study.

Literature Review

The literature review requires personnel who are: (1) familiar with recreational planning and wilderness recreation literature; (2) experienced in literature search techniques; and (3) able to synthesize information from many sources into useful format.

Summarize Other Resource Data

This task requires personnel who are (1) knowledgeable of the types and application of data pertaining to a variety of resource factors; (2) able to gather and interpret both primary and secondary data obtained from a variety of sources including other project feasibility study members; and (3) able to integrate new data (as they become available) into the planning methodology.

Assessment of Recreation Resource Potential: Resource Suitability; and Detailed Site Feasibility Studies

Resource analysis requires persons who (1) are familiar with and experienced in the application of methods to assess the suitability of environmental resources to support various types of development and activities; (2) have broad backgrounds in a number of resource disciplines; and (3) are able to assess the relative attributes of disparate sites to support various degrees of recreational development and activity.

Identification of Potential Management Structure

This work item requires personnel who are (1) able to assess the management conditions necessary to operate a large scale recreational facility successfully and efficiently; (2) generally knowledgeable of recreational management agencies and institutional structures; and (3) able to critically assess and compare various existing recreational operating agencies relative to recreation site and use management requirements.

Concept Plan Survey and Participation Survey

These tasks require personnel who are (1) familiar with survey and questionnaire design techniques and methodologies; (2) familiar with procedures for properly determining sample size; (3) familiar with survey pre-test methods; and (4) able to summarize and synthesize survey results in useful formats to be incorporated into the planning process.

Agency and Public Review

This activity is outside the purview of the Recreation Planning contractor.

Development of Initial Concept Plans, Best Concept Plan, Revised Concept Plan, Recommended Concept Plan, and Final Recreation Plan

These tasks represent a continual refinement process in developing, ultimately at the conclusion of the Phase I Recreation Planning effort, the Recreation Plan as promulgated by FERC Exhibit R requirements. The qualifications described heretofore apply essentially to a process which will result in the plan. The five steps identified above, therefore, embrace the effort required, and qualifications already have been indicated in the tasks leading to the development of the plan.

B. KEY PERSONNEL

Robert L. Anderson, Group Leader (TES)

Mr. Anderson is responsible for coordination of the recreation planning effort with that of related disciplines, and for ensuring consistency of this effort with overall project objectives and procedures. Mr. Anderson's background includes formal training in land use, environmental, and social policies planning. He has extensive experience in directing project studies involving varied disciplines, and conducting land use and recreational planning activities. Examples of previous experience relevant to this project include:

- . Directed planning and coordination of multi-service recreation programs involving approximately 160,000 visitor days per year. For an area recreation center, 1979-80.
- . Principal Investigator on study to assess recreational potentials, access, design policies, and impacts in coastal communities. For Coastal Consultants, Ltd., 1980.
- . Project Manager of program to develop methodology for determining primary and consequent environmental impacts of land and water recreational uses in coastal area. For St. Lawrence-Eastern Ontario Commission, 1977.
- . Principal Investigator in development and implementation of methodology to determine areas of concern, including significant recreation areas, based on environmental, economic, and cultural factors, in coastal area. For St. Lawrence-Eastern Ontario Commission, 1976.
- . Coordinated and directed environmental and comprehensive planning programs for five-county area. For a regional planning and economic development board, 1973-76.
- . Principal reviewer of proposed recreational plans and programs of public and private sponsors; assessed compatibility and consistency with area development and environmental policies. For a regional planning and economic development board, 1973-76.

Alan Jubenville, Ph.D., Principal Investigator

Dr. Jubenville is responsible for management of the recreation planning effort being conducted by the University of Alaska. He has a resource management background emphasizing recreation use of wildlands. Examples of previous experience relevant to this project include:

- . Project Investigator on study to assess river recreation research needs in interior Alaska. For the U.S. Forest Service, present.
- . Project Investigator on study to develop model to determine campers' choice of campsites. For the University of Wyoming, 1978.
- . Project Investigator on study to develop a master plan for the Encampment Unit of the Continental Divide Trail in Wyoming, 1977.
- . Developed composite plan for the Continental Divide Area of Medicine Bow National Forest in Wyoming, 1977.
- . Co-authored a report on the perceptions and management preferences of users as a result of floating experience on the Snake River in Grand Teton National Park. For National Park Service, 1976.
- . Project Investigator on Snake River Corridor Study. For National Park Service, 1974 and 1977.
- . Team member on development of a master plan for South Pass Historic Mining District, 1976.
- . Co-developed County Recreation Plan. For Albany County, Wyoming, 1975.
- . Project Investigator on study to evaluate wilderness potential for the Roadless Areas in Medicine Bow National Forest. For the Environmental Protection Agency and the Wilderness Society, 1972.

Jo Feyhl, Project Investigator

Currently, Ms. Feyhl is a graduate student in recreation management, and has a background which includes anthropology, engineering, and resource management. Ms. Feyhl will perform various tasks and assist in the development and evaluation of the concept plan. Examples of previous experience relevant to this project include:

- . Performed research on water resources in Montana. 1976.
- . Has held several positions performing site survey and research work related to archeological investigations. 1972-1977.

David Densmore, Project Technician

Mr. Densmore will assist in the development of concept plans and site suitability studies, particularly in evaluating the limitations of potential development sites. He has a background in site impact studies and forest-

tundra vegetation transition. Experience relevant to this project includes the design and initiation of a study of the vegetation and forest dynamics of the proposed Dietrich River Ecological Reserve in the Brooks Range. This study involved the assessment of site stability related to oil pipeline construction and post-construction activities. For U.S. Forest Service, 1977 to present.

Michael Chubb, Ph.D., Consultant

Dr. Chubb is a special consultant for reviewing each stage of the Recreation Planning effort, and assisting in the development of questionnaires. His role is that of a critical reviewer of the various intermediate and final study products. Dr. Chubb has an extensive background in natural resource analysis and recreation development planning. He is affiliated with Michigan State University and has considerable experience in consulting and performing recreation research.

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