ENVIRONMENTAL STUDIES ANNUAL REPORT 1980

SUBTASK 7.05 SOCIOECONOMIC ANALYSIS

MAY 1981

Terrestrial
Environmental
Specialists, Inc.

ALASKA POWER AUTHORITY

SUSITNA HYDROELECTRIC PROJECT

ENVIRONMENTAL STUDIES ANNUAL REPORT 1980

SUBTASK 7.05 SOCIOECONOMIC ANALYSIS

MAY 1981

by

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ERRATUM

Unofficial information was received by Frank Orth & Associates, Inc. and Terrestrial Environmental Specialists, Inc. from other project participants concerning the possibility that a fairly well-developed construction enclave would be provided, with a significant level of services and housing for mid- and upper-level management personnel and their families. This information was received in 1981, too late to consider in this 1980 Annual Report. It is possible that, with such an enclave, there potentially could be reduced magnitudes of impacts in certain socioeconomic categories. These would include ethnicity, culture, community, housing type and availability, and possibly public services. Although absolute impacts may decline somewhat in the aforementioned categories, relative magnitudes for each of the schemes likely would remain the same. This erratum applies to topics discussed on pages ix-x and 263-278.

SUMMARY

SUMMARY

Introduction

Frank Orth & Associates, Inc. is identifying and analyzing socioeconomic impacts that could result from hydroelectric development in the Upper Susitna Basin. The overall objectives of this analysis (Phases I and II), as well as Phase I and first year objectives for Subtask 7.05: Socioeconomic Analysis, are as follows:

Overall Objectives

- Determine which socioeconomic conditions are most likely to be impacted and to what extent these conditions are likely to change; and
- provide information that will aid in assessing the significance of potential changes in socioeconomic conditions

Phase I Objectives

- Review impacts resulting from energy-development projects and assess their applicability to proposed hydroelectric development in the Upper Susitna Basin;
- develop descriptors (categories of variables) for socioeconomic conditions and determine which variables are most likely to be influenced by hydroelectric development in the Upper Susitna Basin;
- geographically delineate impact areas;
- identify and describe important socioeconomic conditions in areas likely to be impacted by hydroelectric development in the Upper Susitna Basin;
- review forecasting models and assess their applicability to forecasting socioeconomic conditions in the impact areas;
- adopt, modify, and/or develop a methodology for forecasting socioeconomic conditions and conducting preliminary and final impact analyses;

- conduct preliminary socioeconomic impact analysis for hydroelectric development in the Upper Susitna Basin, including consideration of a one or two dam scheme, access routes, transmission facilities, and other areas, concerns and issues that may be appropriate to socioeconomic analysis; and
- forecast socioeconomic conditions in the impact areas under the assumption that there will be no hydroelectric development in the Upper Susitna Basin.

At the end of the first year, the first four Phase I objectives were accomplished; work relating to the next three objectives was in process; and work relating to the last objective had not yet begun.

Methodology

At the outset, a conceptual framework for the overall socioeconomic analysis (Phases I and II) was developed and interrelations among work packages (generally discrete work efforts) were defined. Particular emphasis was placed upon developing detailed work plans for each of the four work packages of Phase I and defining interrelations among them. The basic objectives and methodologies for each work package are:

Work Package 1: Literature Review

Impact studies of projects similar to the proposed Susitna Project were identified and evaluated. This evaluation provided guidance for the development of baseline socioeconomic profiles and considerable insight concerning types of impacts to expect from hydroelectric and other types of energy development.

Work Package 2: Socioeconomic Profile Development

Socioeconomic profiles covering the immediate vicinity of the proposed project, broader regions, and the State of Alaska were developed. In these profiles, socioeconomic conditions most likely to be impacted by the proposed project were identified and described in significant depth. The profiles included, where applicable and available, the following socioeconomic conditions and/or variables:

- Current population totals and distribution;
- Attitudes toward growth, lifestyle, and quality of life;
- Housing stock, by type of unit and price/rent levels;
- Tax rates and revenues by type of jurisdiction;
- Public facilities: availability and adequacy;
- Transportation facilities, by type;
- Education: enrollment, capacity, and costs;
- Business activity, level, and trends;
- Employment and income levels;
- Land use patterns and trends; and
- Fish and wildlife use patterns.

Work Package 3: Preliminary Socioeconomic Impact Studies

Preliminary impact analysis was conducted for alternative access corridors. The railbelt region was split into "west" and "east" sides. Impacts that could occur on either side as a result of constructing and utilizing alternative access corridors were identified and qualitatively assessed. Preliminary impact studies for alternative hydroelectric design plans and a selected plan are to be conducted during 1981.

Work Package 4: Forecast of Future Socioeconomic Conditions in the Absence of a Susitna Project

All relevant socioeconomic forecasting models and studies were identified and evaluated according to specific criteria. Based on this analysis one or a combination of model types is to be selected for utilization as a forecasting tool.

Results and Discussion of Baseline Study

Recent and current socioeconomic conditions in geographic areas (study areas) that could be impacted by hydroelectric development in the Upper Susitna Basin were identified and described. Literature and data reviews and analyses served to "lay the foundation" and structure for the socioeconomic baseline profiles. These included: 1) a review of recent energy-development impact studies; 2) a review of the process used to define socioeconomic conditions, variables and study areas; and 3) a preliminary analysis of conditions and variables most likely to be impacted in each study area. This analysis provided substantial guidance for selecting and emphasizing key socioeconomic conditions and variables in the baseline profiles.

The socioeconomic baseline includes descriptions of population distribution, housing, government structure and taxation, infrastructure, economic base, employment, land use, and recreation. Each of these categories of socioeconomic conditions was described for each study area to the extent appropriate. Information concerning places/communities in or near the Upper Susitna Basin was provided subject to the availability of secondary data.

Impact Assessment

Preliminary impact analysis and assessment in regard to alternative access routes was conducted. It was concluded that socioeconomic impacts will vary in both magnitude and area of concentration depending upon which access route or combination of access routes is selected.

The analysis was predicated on several assumptions, one of which was that there will not be an enclave with a broad range of services at the project site, and that labor commuting patterns will develop as a function of accessibility to the dam sites. It was also assumed that if the access is from the west, whether a road connecting with the Parks Highway or a rail spur off the existing railroad, the port of entry would be Anchorage; thus, impacts would be concentrated on the "west side". The west side was defined as Anchorage, Matanuska-Susitna, Seward, Kenai-Cook Inlet, and the southeast portion of Yukon-Koyukuk census divisions. The areas of greatest concentration of impacts will be the Parks Highway and railroad corridor. However, if the access corridor were from the Denali Highway, then it was assumed that the port of entry would be Valdez. In this scenario more impacts would occur on the "east side". The east side was defined as the City of Valdez and the Valdez-Chitina-Whittier census division, and the western portion of the Southeast Fairbanks census division, (primarily the Richardson Highway and eastern portion of the Denali Highway).

Potentially susceptible socioeconomic conditions and variables were examined for impact magnitude per each access route combination. This was done for each access route combination on both the east and west sides, as well as for an additional combination where the impacts are broadly dispersed over both the east and west sides. A numerical scale of 1 to 5 was used, with 5 representing a large impact and 1 a small or negligible impact. The numerical scale did not correspond to a quantitative measure, but rather was a ranking system used to delineate the relative magnitudes of impacts. Relative refers here to the socioeconomic base

NOTE: Please refer to the Erratum that precedes the Summary of this report.

upon which the impact could occur. Thus, for the east side, in general the impacts were rated fairly high because of its relatively less developed socioeconomic base.

Socioeconomic factors, issues and concerns relating to dam construction and operation, were also addressed. Factors that will substantially influence the geographic distribution and magnitude of socioeconomic impacts were identified. These factors give rise to several issues. Some of the key issues are:

- what access route or combination of access routes results in the most desirable distribution and magnitudes of socioeconomic impacts?
- what type and amount of public and private use of the project site(s) and access route and adjacent/nearby land provides for the desired impacts?
- is an enclave or construction camp desirable?
- can the timing of the demand for labor be changed and, if so, what is the most desirable labor schedule?
- what types and amounts of construction supplies and services will be purchased locally?

These issues are interdependent. They must be addressed and resolved as such.

Associated with each issue will be concerns, which will usually be expressed and voiced by persons who oppose or favor substantial changes in the status quo (i.e., substantial changes in baseline socio-economic variables and conditions). The issues must be resolved by considering any such concerns.

Mitigation

Mitigation planning to avoid or minimize potentially adverse socio-economic impacts (i.e., potentially large changes in the forecasted

baseline conditions resulting from construction and/or operation of hydroelectric and related facilities) should include consideration of the distribution and relative magnitudes of potential impacts associated with "west side" versus "east side" access to the project site(s). The location and relative magnitude of impacts in almost every socioeconomic impact category (set of socioeconomic variables) will vary considerably depending upon which "side" is chosen for access. In general, choosing "west side" access will result in minimizing large changes in impact categories. Further, choosing access from the west side, with a road from the Alaska Railroad to Devil Canyon and Watana, would result in the least overall change in impact categories.

Mitigation planning should also consider minimizing irreversible impacts on socioeconomic resources. Existing and potential mining claims and recreational fishing areas in the vicinity of the alternative impoundment zones should enter in the dam(s) siting and design decision processes.

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1-INTRODUCTION

1 - INTRODUCTION

Important elements of the feasibility of a hydroelectric development in the Upper Susitna Basin are the socioeconomic impacts created by its construction and operation. Such impacts are important not only in their own right, but also because of the intense socioeconomic concerns so prevalent in Alaska. The intensity of these concerns was recently voiced as the proposed Rampart Project on the Upper Yukon River was deferred indefinitely. This project was deferred in large part because the homelands of the Interior Natives, areas of habitat for caribou and other game animals, and upstream and downstream fisheries would have been impacted in a manner that was considered unacceptable at the time.

The socioeconomic analysis presented and discussed herein is designed to assess the important socioeconomic impacts that could result from hydroelectric development on the Susitna River. The overall objectives of the socioeconomic analysis are to: (1) determine which socioeconomic conditions are most likely to be impacted and to what extent these conditions are likely to change; and (2) provide information that will aid in assessing the significance of potential changes in socioeconomic conditions. The analysis has been divided into two phases. The first phase entails making preliminary determinations in (1). The second phase effort is devoted to providing for more rigorous determinations in (1) and to accomplishing (2). Phase I results are to be included in the license application to the Federal Energy Regulatory Commission (FERC) and Phase II is to be conducted while the license is under consideration.

The specific objectives of the Phase I effort are to:

1) review impacts resulting from energy-development projects and assess their applicability to proposed hydroelectric development in the Upper Susitna Basin;

2) develop descriptors (categories of variables and variables) for socioeconomic conditions and determine which variables are most

likely to be influenced by hydroelectric development in the Upper Susitna Basin;

3) delineate impact areas;

4) identify and describe important socioeconomic conditions in areas likely to be impacted by hydroelectric development in the Upper Susitna Basin;

5) review forecasting models and assess their applicability to forecasting socioeconomic conditions in the impact areas;

6) adopt, modify, and/or develop a methodology for forecasting socioeconomic conditions and conducting preliminary and final impact analyses;

7) conduct preliminary socioeconomic impact analysis for hydroelectric development in the Upper Susitna Basin, including consideration of a one or two dam scheme, access routes, transmission facilities, and other areas, concern and issues that may be appropriate to socioeconomic analysis; and

8) forecast socioeconomic conditions in the impact areas under the assumption that there will be no hydroelectric development in the Upper Susitna Basin.

At the end of the first year of Phase I, objectives 1 through 4 were accomplished; work relating to objectives 5 through 7 was in process; and work relating to objective 8 had not yet begun.

Methodologies for conducting work related to each of the first seven objectives are discussed in Section 2. Results of the first year effort are presented and discussed in Section 3. First year impact assessment work is presented in Section 4. Comments concerning mitigation are pre-

sented in Section 5 and references and authorities contacted during the first year are provided in Sections 6 and 7, respectively.

2-METHODOLOGY

2 - METHODOLOGY

2.1 - Introduction

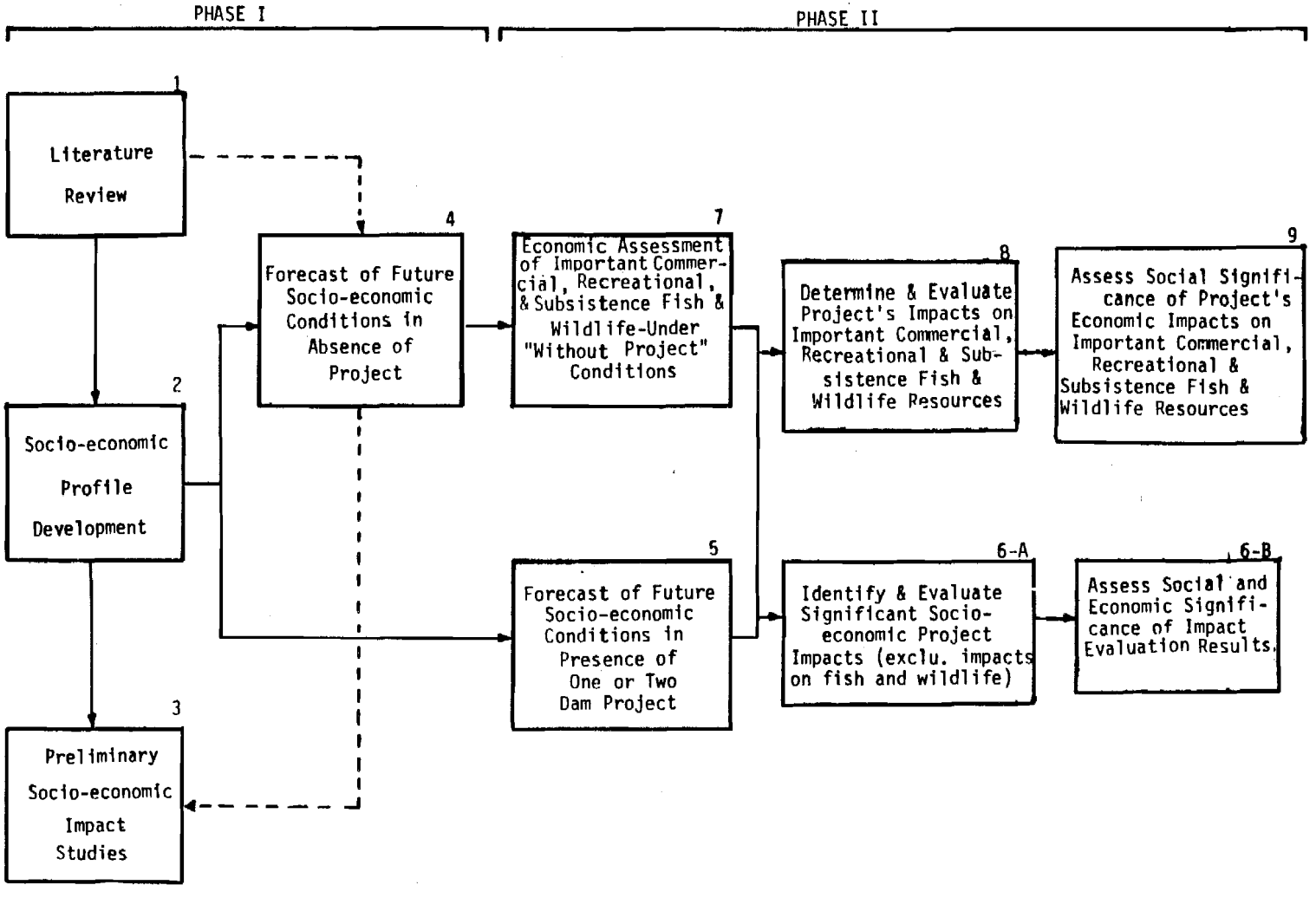
Work packages to attain the objectives of the socioeconomic analysis are divided into those that are scheduled to be completed prior to submission of the FERC license application (1 through 4 below) and those work packages that may be completed during a later time period (5 through 9 below). The work packages to be completed during Phases I and II are:

(1) Literature review;
(2) Socioeconomic profile development;
(3) Preliminary socioeconomic impact studies;
(4) Forecast of future socioeconomic conditions in the absence of a Susitna Project;
(5) Forecast of future socioeconomic conditions with a Susitna Project;
(6) Detailed analysis and assessment of significant socioeconomic project impacts (excluding those impacts associated with fish and wildlife);
(7) Assessment of economic aspects (values) of important commercial, recreational, and subsistence fish and wildlife resources without the project;
(8) Determination and evaluation of project impacts on important commercial, recreational, and subsistence fish and wildlife resources; and
(9) Assessment of social significance of the economic impacts of the project on important commercial, recreational, and subsistence fish and wildlife resources.

As can be seen in Figure 1, the first phase (pre-license submission) consists of work packages designed to identify important socioeconomic conditions that are likely to be impacted by the project and to do a preliminary assessment of these impacts. Based on the findings of Phase I, in-depth analyses and assessments of potential project impacts are performed in Phase II (post-license submission).

FIGURE 1

GENERAL FRAMEWORK FOR PLAN OF STUDY



In the first work package of Phase I, impact studies of projects similar to the proposed Susitna Project are identified and evaluated. This evaluation provides guidance for the development of detailed socioeconomic profiles.

Socioeconomic profiles covering the immediate vicinity of the proposed project, broader regions, and the State of Alaska are developed in the second work package. In these profiles, socioeconomic conditions most likely to be impacted by the proposed project are identified and described in significant depth. The profiles include, where applicable, the following socioeconomic conditions and/or variables:

- Population totals and distribution, current and projected;
- Housing stock, by type of unit and price/rent levels;
- Employment and income levels;
- Tax rates and revenues by type of jurisdiction;
- Public facilities, availability, adequacy, and cost;
- Land-use patterns and trends;
- Business activity, level, and trends;
- Education, enrollment trends, capacity, revenues, and costs;
- Transportation facilities, by type;
- Fish and wildlife use patterns;
- Attitudes toward life style and quality of life; and
- Attitudes toward growth.

Two preliminary socioeconomic impact studies are conducted in Work Package 3. The first preliminary impact study will consider several alternative project plans provided by Acres American, Inc. This preliminary assessment will be based in part upon the experiences reported in the literature review in Work Package 1. The second preliminary impact study will consider the plan selected by APA and Acres American, Inc. This impact study will be more in-depth than the first impact study because it will benefit from the use of projected baseline socioeconomic conditions. Potentially large, or significant changes in the projected baseline conditions due to the selected alternative are to be identified in this second preliminary

impact study. Work Package 4 is a forecast of the relevant socioeconomic conditions that were profiled in Work Package 2. This forecast is made assuming that no hydroelectric development occurs, and is an important input to the second preliminary impact study of Work Package 3.

In addition to the two preliminary impact studies above, additional preliminary impact studies may be conducted for alternative access routes and transmission corridors, and other issues and concerns, as appropriate. The need for these additional studies will become apparent during the course of Phase I.

The two-phase study is designed to make effective use of existing literature, studies, models, and highly qualified researchers with socioeconomic impact analysis and Alaska experience; the first three of these elements serve to provide basic information and relevant methodologies, and reduce the likelihood of duplicating effort; the last element contributes toward ensuring that the most appropriate data bases are accessed, the most suitable methodologies applied, and that the results are evaluated and applied in a manner which supports the objectives of the overall project. Close coordination and frequent information exchange with other disciplines of the study, specifically recreation, fisheries, wildlife, and land use, will further enhance the study effort.

Methodologies for each work package are provided in Subsections 2.2 - 2.5. Substantial detail is provided for each work package. However, if further detail is desired, the reader is referred to the Environmental Studies Procedures Manual for Subtask 7.05: Socioeconomic Analysis.

2.2 - Work Package 1: Literature Review

The objectives of this work package are to: 1) review impacts of other power projects and assess their potential relevance to a hydroelectric development in the Upper Susitna Basin; and 2) identify sources of social and economic data and determine the quality of and "gaps" in such data.

The first objective is to be accomplished by collecting and screening socioeconomic impact studies for hydroelectric projects similar to the range of potential hydroelectric developments in the Upper Susitna Basin and other types of electricity-generating projects with major socioeconomic impacts. Several studies are to be selected for detailed review according to criteria relating to the anticipated characteristics of a hydroelectric development in the Upper Susitna Basin. The criteria for selecting studies are shown in Table 1. At least two of the studies are to be other than hydroelectric. One is to be a large fossil fuel facility and the other is to involve a large scale nuclear power project.

Next, a format for compiling the impacts cited in each study is to be developed. Table 2 illustrates the basic format with headings. The headings refer to major impact areas which either directly, indirectly, or potentially affect socioeconomic variables.

Finally, study impacts are to be assessed for relevance to Alaska according to geographic area and degree. This assessment will yield a list of impacts, by type, geographic area, and degree, which could be relevant for the preliminary impact studies of Work Package 3. This assessment will not be exhaustive. It will serve primarily as a guide for further research in Work Packages 2, 3, and 4. The format for providing the results of the assessment is partially presented in Table 3; the remainder of the format is similar in structure to that shown and it covers additional types of impacts such as community attitudes, economy, etc. In this format, the impacts are listed in generalized form. They must be related to the specifics of a Susitna hydroelectric project and its environment. This process, to be conducted in Work Package 2, will permit refinement and further specification of potential impacts as to geographic area and degree.

The second objective, to identify sources of data and the apparent quality of and gaps in such data, is to be accomplished by developing and implementing data collection and interview guides. The end product will be: a) an extensive bibliography of data sources numbered in alphabetical order;

TABLE 1

CHARACTERISTICS OF SELECTED SOCIOECONOMIC IMPACT STUDIES

	SELECTION CRITERIA							DESCRIPTIVE ELEMENTS		
	Hydroelectric Power	Large scale Hydroelectric (Over 1000 MW Capacity)	Recent (From 1977 on)	In Alaska	Remoteness	Nuclear Power	Fossil Fuel Power	Involves Anadramous Fisheries	Foreign	Involves Native American Groups

TABLE 2

FORMATS FOR COMPILATION OF IMPACTS FROM
RELEVANT ENERGY IMPACT STUDIES

PROJECT: Title
Lead Agency
Date, Type of Study or Document
Applicant or Responsible Office

Descriptive Characteristics
- Generating Capacity
- Scope
- Cost

Land Use and Features

Wildlife

Aquatic Species and Water Quality

Socioeconomic Categories
- Population
- Housing
- Tax Base and Revenues
- Employment
- Public Services

Community Attitudes

Energy

Cultural Resources

Recreation

Aesthetics

COMMENTS: Pertaining to study format, scope, and quality.

TABLE 3

IMPACTS OF REPRESENTATIVE POWER DEVELOPMENT PROJECTS:
POTENTIAL RELEVANCE FOR THE PROPOSED SUSITNA PROJECT

DEGREE AND GEOGRAPHIC AREA OF IMPACT	TYPE OF IMPACT
	Land Use and Features
	Total acreage required by project facilities and right-of-ways.
	Total acreage of land indirectly impacted by project facilities and right-of-way.
	Short-term impacts may be less substantial than the long-term impacts.
+ L,R	Patterns of ownership and induced changes.
+ L	Changes in uses of land.
? L	Value of land and natural resources above and below ground lost/gained.
? L,R	Changes in potential uses of land (wilderness or roadless areas, National Scenic River, etc.)
+ L,R	Potential for seismic activity.
o L	Overall "productivity" of land could increase.
+ L	Increased accessibility will affect land and resource values.
? R	Opportunities for flood protection.

Degree of impact: + is relatively large;
o is relatively small.
? is uncertain.

Geographic area of impact: L is the Upper Susitna area (local)
R is the railbelt and the state (i.e., outside the upper Susitna area).

and b) a set of Economic Data Collection Matrix sheets that serve to organize the data sources by descriptive characteristics. The draft format for this Economic Data Collection Matrix is shown in Table 4. It is apparent from the matrix structure that it can be (and has been) continually updated.

2.3 - Work Package 2: Socioeconomic Profile Development

The purpose of this work package is to collect, compile and analyze data on socioeconomic conditions for the development of socioeconomic profiles that can then be utilized in the preliminary impact studies (Work Package 3) and the forecasting of socioeconomic conditions (Work Packages 4 and 5). For the purposes of this analysis, socioeconomic conditions are to be broken down into socioeconomic categories and variables. These categories and variables are to be qualitatively assessed for probability of being impacted by a hydroelectric development in the Upper Susitna Basin. The potential degree of impact on each variable is to be estimated in a qualitative manner. The end product will be a matrix showing the probability of a variable being impacted (either high or low) and the degree of impact (relatively large or small/negligible), by study area. Study areas, previously lacking clear geographic definition, are to be defined quite precisely. A discussion of the methods to be used for defining study areas and socioeconomic variables is provided in Appendix A.

Next, data collection guides are to be developed and implemented for each of the relevant variables. Compilation formats are to be developed for the variables. The final items in this work package will be to describe and begin to analyze the compiled baseline data and develop socioeconomic profiles. These will include some analysis of socioeconomic trends and factors of change in each of the study areas.

2.4 - Work Package 3: Preliminary Socioeconomic Impact Studies

TABLE 4

ECONOMIC DATA COLLECTION MATRIX

(Numbers in cells refer to attached bibliography)

TYPE OF DATA	AREA AND CURRENCY OF INFORMATION											
	FAIRBANKS			ANCHORAGE			MATANUSKA-SUSITNA			STATEWIDE		
	R.U.[1]	R.S.[2]	D.M.[3]	R.U.	R.S.	D.M.	R.U.	R.S.	D.M.	R.U.	R.S.	D.M.

[1]R.U. = regular updates of data issued. [2]R.S. = recent study. One time report with data within 1978-1980 period

[3]D.M. = dated material. Data for period 1977 and prior.

The objective of this work package is to identify and "red flag" potential socioeconomic impacts stemming from: (a) alternative hydroelectric development project plans in the Susitna Basin; (b) the selected hydroelectric development project plan; and (c) alternative access routes and transmission facilities, and other issues and concerns, as appropriate. It is anticipated that work will begin on part (a) during January, 1981. Specifically, for alternative hydroelectric development project plans in the Susitna Basin, FO&A, Inc. will contribute socioeconomic impact information to Acres American Inc. as requested or needed under Subtasks 6.06, 6.07, and 6.08 of the Plan of Study. FO&A, Inc. will determine the types of and relative magnitudes for potential socioeconomic impacts for each alternative project plan by study area. Socioeconomic variables (descriptors of socioeconomic conditions) that are most likely to be significantly impacted during operations and construction phases will be identified for each alternative. This will be a qualitative assessment. Next, categories of socioeconomic variables that are most likely to be impacted over the long term (operating phase) will be identified by study area. FO&A, Inc. plans to use a matrix as a means for presenting these impacts. The column headings will be alternative hydroelectric project plans and the rows will be impact categories (i.e., categories of socioeconomic variables). The alternative project plans will be grouped by study area. This will allow for comparison of project impacts among study areas as well as com parison of different project plan impacts within a study area. Additionally, sensitive or key socioeconomic categories such as government revenues, total labor demand, transportation, and unemployed labor, might be further analyzed and presented through appropriate variables; and highly qualified, gross quantitative estimates of changes in such variables could be forthcoming for each alternative project plan, as data and information permit.

A similar analysis and matrix will be developed for construction phase impacts for each alternative project, as available information permits. This depends in part upon engineering and economic data and information available from Acres American, Inc.

There will be a discussion of impacts that are common to each alternative project plan and impacts that are unique to one or more alternative project plans. Emphasis will be placed upon addressing: (1) the potential impacts created by the influx and efflux of construction and operations work forces; (2) the approximate proportion of jobs likely to be held by current Alaska residents and the characteristics of these jobs (e.g., seasonality, skill level, short-term, long-term, etc.); (3) potential changes in personal income; (4) apparent shortages of public services, facilities, and housing; (5) anticipated population changes/shifts and their potential effects on the existing communities; (6) potential financial impacts on boroughs and local government entities; (7) potential impacts on transportation systems; and (8) impacts on fish and wildlife use patterns.

Next, potential socioeconomic impacts of the selected project plan will be identified and assessed. Most or all of these impacts will have already been identified and qualitatively addressed in the preliminary impact analysis for alternative project plans. Any further potential impacts not identified in the previous analysis will be identified at this time; thus, an additional increment of impacts may be identified at this point.

The product of this part of Work Package 3 will be a qualitative assessment of potential impacts of the selected project plan on all socioeconomic categories and on sensitive or key variables within these categories. It will provide highly qualified, gross quantitative estimates of changes in these selected variables from the baseline forecasted values of Work Package 4. In contrast, the impact analysis of Work Package 6 will have the benefit of two quantitative forecasts, one with and the other without the selected alternative(s). It will provide for defensible quantitative estimates of changes in most variables from the baseline forecast values.

2.5 - Work Package 4: Forecast of Future Socioeconomic Conditions in the Absence of a Susitna Project

The objective of this work package is to develop a forecast of socioeconomic conditions under the assumption that no hydroelectric development

occurs in the Upper Susitna Basin. This work package will begin by identifying and collecting relevant socioeconomic models and studies. All relevant forecasting models used regularly or occassionally by Alaska institutions are to be identified and information on them collected. Other potentially relevant models and studies, whether specific to Alaska or not, are to be identified and collected. This literature search and collection should be coordinated with Work Package 1 to the extent feasible.

Next, criteria are to be developed to describe and evaluate the studies and models methodologies, including their levels of geographic disaggregation and quality of data used. Draft evaluation guides are shown in Figure 2. These guides are to be applied to each relevant study or model.

The next step to selecting a model type is to develop criteria to assist with screening the models and methods for use as forecasting tools. Criteria/factors to be considered will include:

- time and cost restraints (e.g., utilizing an existing Alaska-specific model would probably be more cost-effective than using a lower 48 model);
- need for a model that assesses both quantitative and qualitative factors in a theoretically rigorous manner and meets or exceeds
- generally acceptable standards for similar types of impact assessments;
- need for a model capable of assessing impacts at the "micro level" (Study Areas 1 and 2 in Figure 3) and the "macro level" (Study Areas 3 and 4 in Figure 3); and
- need for a model flexible with respect to data needs, both in terms of availability of data on a given topic and in terms of the availability of time-series data for a particular variable. (It will be very important to coordinate the application of this screening factor with the data identification, collection, and compilation efforts of Work Packages 1 and 2).

FIGURE 2

MODEL CATEGORIZATION AND EVALUATION CRITERIA

MODEL-SPECIFIC:

1. Name of Model/Issuing Agency:

2. Literature citation:

3. Contact person/phone:

4. Alaska or Lower 48 model? AK _____; Lower 48 ____ (Specify area) _____

5. Type of Analysis:

   Regression _____
   Trend _____
   Economic Base ____
   Input-Output _____
   Qualitative _____

6. Disaggregation by geographical area (zones): (Try to relate to Census Divisions

   Statewide _____
   Regional _____ (Specify, i.e. Railbelt, Southeast, etc.)
   Subregional _____ (Specify by individual census division or cities/towns/ villages)

7. Frequency of forecasting:

8. Time frame for forecast:

9. Input assumptions (Was a systematic approach used in developing assumptions? Were the assumptions varied to test the sensitivity results to changes in assumptions? Are the assumptions reasonable?)

10. Scenarios (if used): (Was a systematic approach used in scenaria development? Are the scenarios reasonable?)

11. Feedback effects: (Are there any? Were they accounted for?)

12. How often is model updated?

13. Can we access model? If so, what are costs and conditions?

Items 14-19 for Alaska models only.

VARIABLE-SPECIFIC:

14. Variables utilized: (These should be categorized to either directly or by association to correspond with Work Package 1 Alaska Socioeconomic Data Collection Guide categories. For each model reviewed, fill out a set of variable work sheet(s) (sample follows).

15. Data sources utilized are generally

    Primary _____

    Secondary _____

    (Variable work sheets used in item 14, above, and Work Package 1 give detailed information on data sources.)

16. Completeness of data -- were there gaps? How did this bias result? (Variable work sheets used in item 14, above, include this question.)

17. Currency of data (see variable work sheets from item 14, above).

18. Reliability (quality) of data: (see variable work sheets from item 14, above).

19. Geographical area.

VARIABLE WORK SHEET

For Alaska models only.
Reference item 14.

MODEL:

SUBSETS:

Data Sources: (specify if primary or secondary)

Completeness of data:

Geographical area:

Currency of data:

Reliability of data:

Data Sources: (specify if primary or secondary)

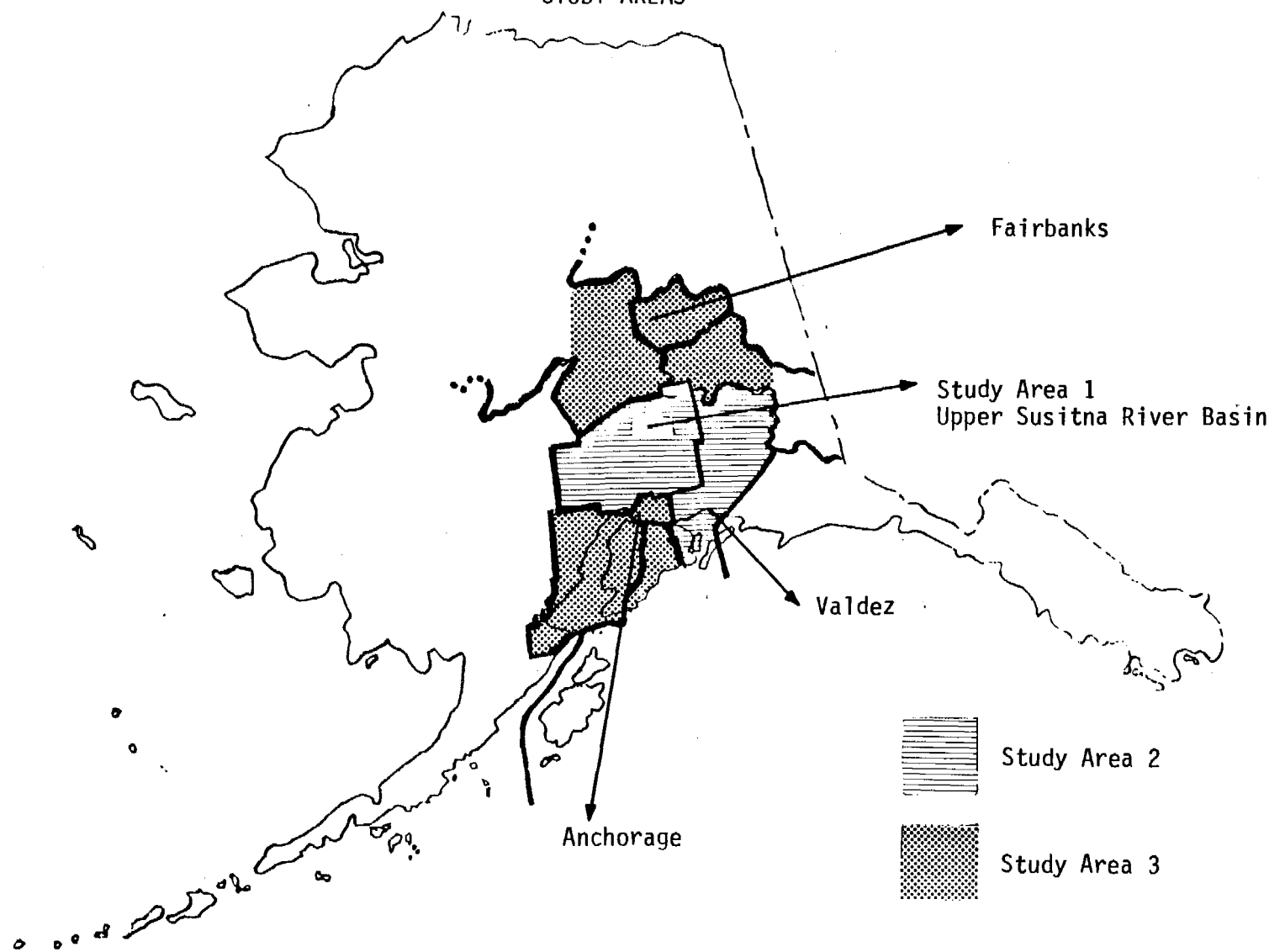
Completeness of data:

Geographical area:

Currency of data:

Reliability of data:

FIGURE 3
STUDY AREAS



These factors and criteria and any others that are subsequently identified, are to be applied to the models and methods reviewed. Based on this analysis, one or a combination of model types is to be selected. In addition, the models and methods are to be examined for direct utilization as forecasting tools in the forecast of socioeconomic conditions. The results of this examination are to be presented in a matrix format to facilitate comparison of models and methods.

3-RESULTS AND DISCUSSION OF BASELINE STUDY

3 - RESULTS AND DISCUSSION OF BASELINE STUDY

This section describes recent and current socioeconomic conditions in geographic areas that could be impacted by hydroelectric development in the Upper Susitna Basin. This socioeconomic profile will be utilized in the preliminary impact studies (Work Package 3) and the forecasting of socioeconomic conditions (Work Package 4). This section is organized in 10 subsections. The first subsection introduces the reader to reviews and analyses that serve to "lay the foundation" and structure for the socioeconomic baseline study. This introduction includes a brief summary of the literature review (Work Package 1); a review of the processes used to define: socioeconomic conditions and variables and study areas; and a preliminary analysis of conditions and variables most likely to be impacted in each study area. This analysis provides substantial guidance for selecting and emphasizing key socioeconomic conditions and variables in the baseline description. Subsections 3.2 through 3.9 provide the baseline description of socioeconomic conditions. Most of these sections are descriptive rather than analytical and do not look toward the future. Further analysis and identification of factors of change are treated as part of Work Package 4 during 1981. This section concludes with Subsection 3.10 which summarizes progress to date on methodological development in Work Package 4.

3.1 - Introduction

The construction and operation of a hydroelectric facility on the Susitna River could have an effect on the residents in the surrounding region by impacting socioeconomic conditions such as population, community structure, housing, supply and demand, public services, the economy, land use and recreation; essentially, the existing communities' fiber. To better understand what could happen to communities near the proposed hydroelectric development, Frank Orth & Associates, Inc. reviewed impacts of other energy projects and assessed their potential relevance to a hydroelectric development in the Upper Susitna Basin. This was accomplished by collecting and screening socioeconomic impact studies for hydroelectric

projects similar to the range of potential hydroelectric developments in the Upper Susitna Basin and other types of electricity-generating projects with major socioeconomic impacts. Several studies were selected for detailed review according to criteria relating to the anticipated characteristics of a hydroelectric development in the Upper Susitna Basin. The selected studies and criteria are shown in Table 5. All but two of these studies were concerned with hydroelectric dam projects. The Boardman study dealt with a large scale coal-fired generating facility and the Washington Public Power Supply System study dealt with a large scale nuclear power project. These latter two were identified and reviewed for purposes of comparison and supplementation.

Next, a format for compiling the impacts from each study was developed. Table 2 (see Subsection 2.2) illustrates the basic format with headings. The headings refer to major items or elements which either directly, indirectly, or potentially affect socioeconomic variables. Impacts cited in each study were compiled using this format.

Finally, study impacts were assessed for relevance to Alaska according to geographic area and degree. This assessment yielded a list of impacts, by type, geographic area, and degree, which could be relevant for the preliminary impact studies of Work Package 3. This assessment was by no means exhaustive. It served primarily as a guide for further research in Work Packages 2, 3, and 4. The results of the assessment are partially presented in Table 3; the remainder of the results are provided in Appendix B. In these exhibits, the impacts are listed in generalized form. They must be related to the specifics of a Susitna hydroelectric project and its environment. This process, conducted in Work Package 2, permitted refinement and further specification of potential impacts as to geographic area and degree.

Several of the types of impacts shown in Table 3 (see Subsection 2.3 and Appendix B) are not the primary responsibility of this socioeconomic analysis. Some examples are land use and features, cultural resources, and

TABLE 5

CHARACTERISTICS OF SELECTED SOCIOECONOMIC IMPACT STUDIES

PROJECT	SELECTION CRITERIA: Hydroelectric Power	Large scale Hydroelectric (Over 1000 MW Capacity)	Recent (From 1977 on)	In Alaska	Remoteness	Nuclear Power	Fossil Fuel Power	DESCRIPTIVE ELEMENTS: Involves Anadromous Fisheries	Foreign	Involves Native American Groups
1. Dickey-Lincoln School Lakes	◇	◆	◇		◇					
2. Boardman			◇		◇		◆			
3. Susitna	◆	◆	◆	◆	◆			◆		◆
4. Green Lake	◇		◇	◆	◇			◇		
5. Marysville Lake	◇	◆	◇					◇		
6. Swan Lake	◇		◇	◆	◇			◇		
7. Terror Lake	◇		◇	◆	◇			◇		◇
8. Tyee Lake	◇		◇	◆	◇					
9. Solomon Gulch	◇		◇	◆				◇		
10. N. Fork Stanislaus	◇		◆							
11. Bad Creek	◇	◆	◇							
12. WPPSS*						◆				

* Washington Public Power Supply System

◆ Determining characteristic

◇ Other characteristic

wildlife. These were included, however, because they do have implications relevant to this analysis.

The second objective, to identify sources of data and the apparent quality of and gaps in such data, was accomplished by developing and implementing data collection and interview guides. The end product was: a) an extensive bibliography of data sources numbered in alphabetical order; and b) a set of Economic Data Collection Matrix sheets that serve to organize the data sources of a) by descriptive characteristics. A sheet from this Economic Data Collection Matrix is shown in Table 6. It is apparent from the matrix structure that it can be (and has been) continually updated. This matrix also facilitated the identification and extraction of relevant data to be included in the socioeconomic baseline.

Work Package 2 began by further defining socioeconomic conditions, categories, and variables. The final list of categories and variables is shown in Appendix C.

Next, these categories and variables were qualitatively assessed for probability of being impacted by a hydroelectric development in the Upper Susitna Basin. The potential degree of impact on each variable was also estimated in a qualitative manner. The end product was a matrix showing the probability of a variable being impacted (either high or low) and the degree of impact (relatively large or small/ negligible), by study area. This product is provided in Appendix D.

Study areas were defined by applying the criteria presented in Subsection 2.3 and Appendix A. The areas are shown in Figure 3 and defined below.

3.1.1 - Study Area 1 - Immediate Impact Area

Includes the project site; portions of the transmission lines; access corridors; and some staging areas.

TABLE 6

ACRE WORKPACKAGE 1 ECONOMIC DATA COLLECTION MATRIX

(Numbers in cells refer to attached bibliography)

TYPE OF DATA : EMPLOY

AREA AND CURRENCY OF INFORMATION

	FAIRBANKS			ANCHORAGE			MATANUSKA-SUSITNA			STATEWIDE		
	R.U.[1]	R.S.[2]	D.M.[3]	R.U.	R.S.	D.M.	R.U.	R.S.	D.M.	R.U.	R.S.	D.M.
Employment/Unemployment Levels	5,9,10, 23		26	5,9 10, 36		21, 35	5,9 10	37	31	4,5, 9,10, 11	15	14
Type of Employment	5,9,10, 23		26	5,9 10, 36		21,35	5,9, 10	37		4,5, 6,9, 10	15	14
Income Levels (personal)	5,9,10, 23	16		5,9, 10	16	35	5,9, 10	37		4,5, 6,9, 10	16	
Projected Employment/Income	9,10			9,10			9,10			4,9, 10,13	15	14
Other									31[b]	13[a]		

[1] R.U. = regular updates of data issued. [2] R.S. = recent study. One time report with data within 1978-1980 period. [3] D.M. = dated material. Data for period 1977 and prior.

a = job openings; b = location of jobs.

3.1.2 - Study Area 2 - Mat-Su/Valdez Area

Includes all of the Matanuska-Susitna Borough (census division) and potentially the Valdez-Chitina-Whittier census division. Treatment of this area will be both in the aggregate and by selected communities (places). This study area represents the primary political units within which the project and, to a substantial degree, its impacts may occur. The Valdez census division may be included in this study area if access routes from the Denali Highway are utilized. In this case, it is felt that substantial impacts may occur along the Richardson Highway corridor from Valdez to the Denali Highway and on north to some extent. It is possible that Valdez could become a port of entry for a large volume of supplies for the project. This activity will create attendant impacts. Also, simply due to the corridor's proximity to the project, and relatively undeveloped socioeconomic base, substantial impacts could accrue to the area.

Census divisions were selected to represent Study Area 2 (as well as Study Area 3 below) because: (1) they are the smallest geographic areas in Alaska for which economic and social information (beyond the number of inhabitants by sex, age and race) are consistently available; and (2) many of the places within the Mat-Su and, particularly the Valdez-Chitina-Whittier census division, are not true communities but simply clusters of population with little or no economic or social structure. Further, in places where there is apparently some economic and/or social structure, little is known about this structure. More study is needed on this subject before places serve as the basic unit of analysis in a project of this dimension. Nevertheless, as indicated above, significant effort will be made to collect, compile, and analyze secondary information concerning places.

3.1.3 - Study Area 3 - Railbelt Region

This area will form the basis for most of the quantitative analysis regarding many of the economic variables. These variables include labor/employment, income distribution, and industry impacts. The region constitutes the Alaska area from which many of the inputs for the project will be drawn. It also represents the output or service area to which electricity generated by the project will be provided.

Analysis of the Alaska socioeconomic structure and distribution pattern led to the inclusion in this area of major census divisions of the southcentral and interior Alaska, including: Anchorage, Kenai-Cook Inlet, Seward, Valdez-Chitina-Whittier, Matanuska- Susitna, Southeast Fairbanks, and Yukon-Koyukuk. The latter will be subdivided into the most relevant parts (see Figure 4).

3.1.4 - Study Area 4 - State

This area will include data aggregated for the State of Alaska.

Finally, as a prerequisite to drafting the socioeconomic profiles, data collection guides were developed and implemented for relevant variables and associated study areas. Data compilation formats were then developed and implemented. The boundaries shown in Figure 3 provided the geographic guidelines for the development of the socioeconomic profiles, with individual places/communities not within these boundaries being treated where appropriate (e.g. Chulitna, Gold Creek, Denali, and Cantwell). The approach discusses each relevant category of variables separately; i.e., the first category was described in the context of each relevant study area, then the second category was described in the context of each relevant study area, and so forth. For Study Area 2, information was presented at the place/community level of detail where secondary data allowed. These places/communities included: Talkeetna, Willow, Wasilla, Palmer, Glennallen, Paxson, Copper Center, Gulkana and Gakona.

3.2 - Population/Community

3.2.1 - State Population

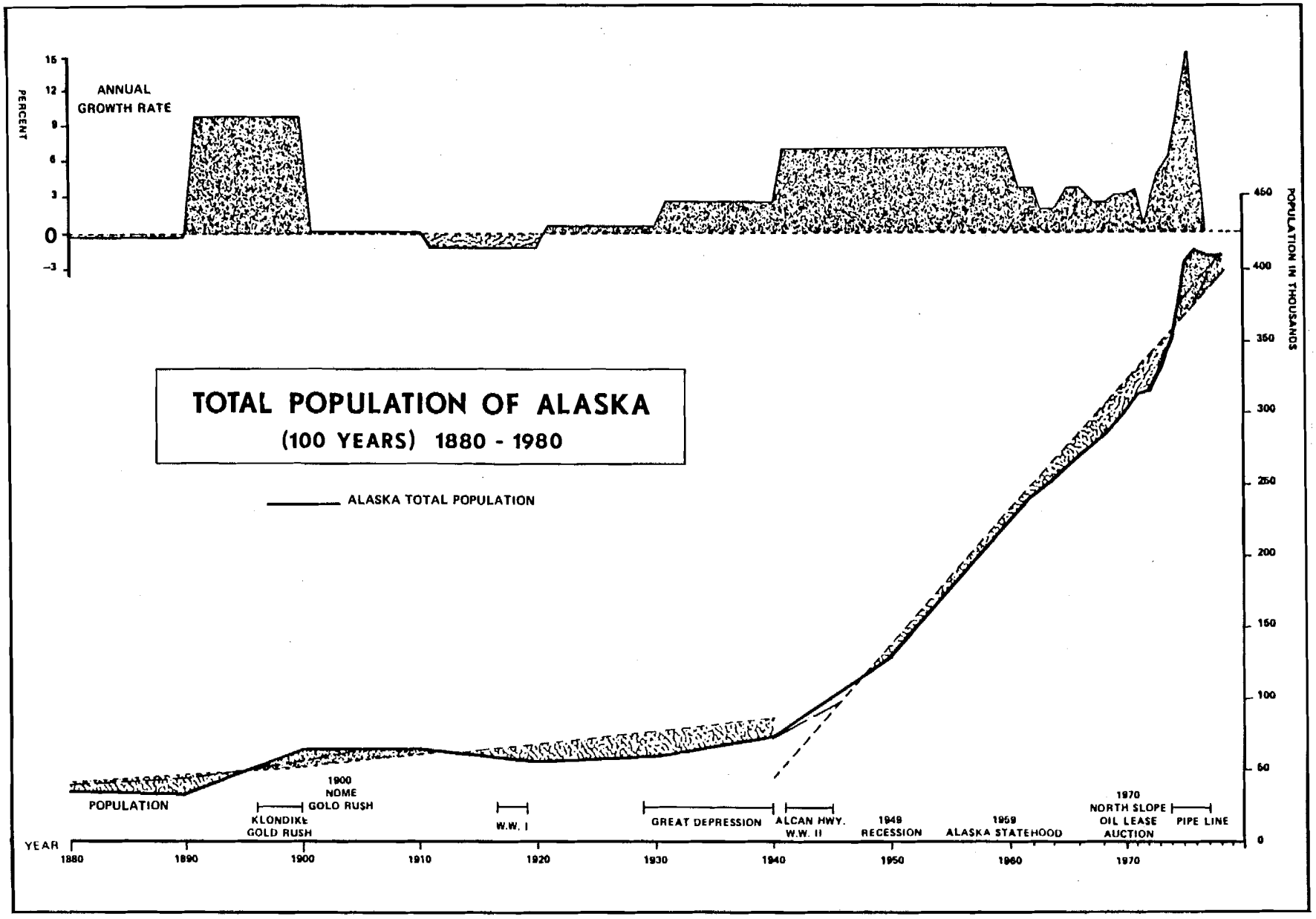
Alaska is characterized as a land of extremes, ranging from extremes in temperature and landmass to extremes in population, economy and lifestyles. It encompasses more land than any state in the United States, yet is the least populated, with approxi-mately half of the population residing in Anchorage. Current (1980) estimates of Alaska and Anchorage population are 400,331 and 173,992, respectively.

Alaska's history has been shaped by the existence of abundant natural resources and man's attempts to realize the benefits associated with these resources. The best indicator of these events is the fluctuation in the level of population over the years.

Non-native settlement first began with Russian fur trappers in pursuit of precious and valuable furs. The first period of rapid growth occurred between the years 1880 and 1890 with the discovery of gold and the beginning of what became known as the Klondike Gold Rush. This was followed by a period of relative inactivity, with first an efflux of population and then a slight influx during the depression in response to the increase in the price of gold. The second dramatic increase occurred in 1939 due to the military presence in preparation for World War II. The construction of the Al-Can Highway in 1942 established the first overland connection with Alaska and contributed to the increase in population. The most recent increase in population has been observed since 1970 with the discovery of oil in Prudhoe Bay and construction of the Trans-Alaska pipeline. The preliminary 1980 census figures reveal a 32.3 percent increase in total Alaska population in the 10 year period from 1970 to 1980. The population changes that have occurred over the past 100 years are displayed in Figure 4.

In 1900, the composition of the population was disproportionately 72 percent male dominated. However, with improvements in communication,

FIGURE 4



Source: Alaska Department of Labor. December 1979. Alaska Population Overview. Juneau, AK. p. 7.

transportation, and economic stability, and with the growth in government, the sex composition has stabilized to where the population is only slightly male dominated at 54 percent.

As mentioned previously, roughly 50% of the total Alaskan population resides in Anchorage and approximately 70 percent reside in the Southcentral and Fairbanks portion of the state. Because this region encompasses a large area geographically, is strategically located in relation to the lower 48 states, and provides a wide array of economic possibilities ranging from agriculture and fishing to petroleum, coal, and mineral extraction and development, it has observed a considerable increase in population in recent years. Table 7 reveals a 42 percent increase in population between 1970 and 1980, slightly higher than the 32 percent average for the state.

3.2.2 - Study Area 2

When the focus becomes the Matanuska-Susitna Borough and the Valdez-Chitina-Whittier census division, the recent increases in population are even more substantial. For the same period 1970-1980, the Matanuska-Susitna Borough witnessed an increase of 175 percent and the Valdez-Chitina-Whittier census division increased 71 percent.

The construction of the Trans-Alaska pipeline was the single greatest factor contributing to the increase in population in the Valdez-Chitina-Whittier census division. The Mat-Su Borough was also affected by the construction since it was a supplier of labor and services and a place of residence for workers; it felt an equal, if not greater, effect. The increasing size and importance of the municipality of Anchorage had an effect on the Borough in two distinct ways: 1) the Borough became an easily accessible recreational area for Anchorage residents; and 2) Anchorage became a supplier of jobs and economic opportunities for Borough residents. Indicative of the latter is the fact that 37 percent of the Mat-su Borough residents commute to

TABLE 7

TOTAL RESIDENT POPULATION AND COMPONENTS OF CHANGE
BY STUDY AREA: 1970 - 1980

	Study Area 2		Study Area 3*	Study Area 4
	Matanuska-Susitna Borough	Valdez-Cordova		
1980 Preliminary Census	17,938	8,546	285,011	400,331
1970 Census	6,509	5,000	200,023	302,361
Net Change	+11,429	+3,546	+84,988	+97,970
Percent Change	+175	+71	+42	+32
Change in Military Pop	+141	+58	-4,730	-8,102
Natural Increase (Births & Deaths)	+1,430	+844	+45,107	+61,142
Implied net Civilian Migration	9,858	2,644	40,111	44,930

*Fairbanks, S.E. Fairbanks Mat-Su, Anchorage, Kenai Peninsula, and Valdez-Cordova Census Divisions

Source: Alaska Department of Labor, Administrative Services Division. January 1, 1981. Alaska's 1980 Population: A Preliminary Overview. Juneau, AK. p. 26.

or through Anchorage on a daily basis, averaging 100 miles per day (Overall Economic Development Program, Inc., 1980; p. XV). What has transpired is a relationship where the Mat-Su Borough is a bedroom community to Anchorage.

3.2.3 - Matanuska-Susitna Borough

3.2.3.1 - Demography

The gold finds that brought so many miners to Alaska in the late 19th century paved the way for the farmers who settled in the Matanuska-Susitna Valley a few years later. The mines provided the needed market for the farmers until their closing in the 1940's. Homesteaders first appeared in 1911 and within five years there were approximately 500 established residents in the Knik, Wasilla and Palmer area. The completion of the railroad in 1923 and the federal project to relocate 200 families in the valley from the contiguous states during the depression spurred activity in the area. Initially, the land tracts were limited to 40 and 80 acres, however, it became uneconomical to farm such small tracts and consequently this limitation had a detrimental effect on the development of the valley as an agricultural region.

Historically, the Borough has been an area for cabins and recreational housing, catering predominately to Anchorage residents. In recent years, a large portion of the homesteading in the Borough has been in the interest of land speculation. One example is Big Lake a major recreation area in the Borough, where the majority of the houses are owned by Anchorage residents. Evidence of this is the fact that approximately 60 percent of the Borough's tax notices are sent to Anchorage addresses (1976). (Matanuska-Susitna Planning Department, 1978; p.38.)

The current (1980) estimate of the population in the Matanuska-Susitna Borough is 17,938, of which approximately 51 percent are male;

49 percent female; 81 percent married; 12 percent single; and 7 percent divorced. In 1970, 97 percent of the adult population were Caucasian; 2 percent were American Native; and 1 percent were black (see Table 8). The present composition of the population is unknown, but will be available when the 1980 census data is compiled. The average educational level for adults is 13 years with 20 percent having 16 or more years of education. (Matanuska Electric Association, Inc., September 1980; p.4). The mean household income for the Matanuska-Susitna Borough is $30,627, despite one of the highest unemployment rates in the state of approxi-mately 20 percent.

A better understanding is obtained of the Borough and its individual communities through examination of the transiency of its residents. The rapid increase in population of 175 percent in the last ten years gives empirical evidence of the growing attraction of the Borough as a place to reside. The housing study conducted by Policy Analysts, Limited in 1980 confronted this issue and provides comprehensive detail of the demographics and tenure of the Borough residents.

The most obvious indicator of the transiency and recent growth in the Borough is the fact that 56 percent of the residents surveyed have lived in the Borough for five years or less and only 27 percent have lived in the area over 10 years. The average length of residence in the Mat-Su Valley is 9.3 years while the median is only 5.0 years. While 45.9 percent of the residents have moved in the past three years, 26.4 percent have moved two or more times. The mean number of moves per household during the past three years is 1.07.

Palmer and Butte have the most stable populations with average lengths of residence of 13.0 and 12.4 years respectively. Wasilla with an average of 7.0 years, has the newest population. Only 3 percent of the residents were born in the Borough, with the majority, 44 percent, having moved from Anchorage, and an additional 15 percent coming from other areas of the state.

TABLE 8

RACE OF THE POPULATION BY STUDY AREA

- 1970 -

RACE	Study Area 2				Study Area 3		Study Area 4	
	Mat-Su	%	Valdez-Chitina-Whittier	%		%		%
Eskimo	91	1.4	110	3.5	3,509	1.7	27,797	9.2
Indian	138	2.1	413	13.3	4,359	2.1	16,276	5.4
Aleut	43	0.6	178	5.7	1,488	0.7	6,581	2.1
TOTAL NATIVE	272	4.1	701	22.6	9,356	4.6	50,654	16.8
White	6,189	95.0	2,378	76.7	180,997	90.0	236,767	78.8
Black	12	0.18	9	0.3	8,065	4.0	8,911	2.9
Filipino	1	0.01	0	0.0	1,158	0.5	1,498	0.5
Japanese	4	0.06	3	0.09	622	0.3	916	0.3
Other	31	0.47	7	0.22	1,159	0.5	1,636	0.5
TOTAL	6,509	100.0	3,098	100.0	200,778	100.0	300,382	100.0

Source: Alaska Department of Labor. 1980. Annual Planning Information, FY 1981. Juneau, AK; p. 6.

E4/F

When asked what the reasons were for moving to the Borough, there was no one reason that dominated, but rather a wide array of responses (Overall Economic Development Program, Inc., 1980; pp. 81-84). This is in many respects a reflection of the composition of the Borough. Of the 868 reasons, 17.2 percent are work and job related; 14.5 percent are negative comments of the Anchorage/urban lifestyle; 13.4 percent focus on the rural, country-style atmosphere; 6.3 percent point out the general Alaskan opportunities and lifestyle; and 9.0 percent want an affordable home or land.

The majority of Matanuska-Susitna Borough adults are employed in construction (17 percent) with the second and third largest employment sectors being retail trade (11 percent) and transportation, utilities, and communications (10 percent). Occupational staffing patterns reveal that across all employment sectors, professional/technical occupations form the single largest category at 20 percent.

3.2.3.2 - Population Distribution

The Matanuska-Susitna Borough is the second largest organized borough in the State of Alaska, covering a total of 23,000 square miles, which amounts to approximately 4 percent of the total area of the state. Yet despite this large geographic area, only about one quarter of the Borough is currently inhabited. The remainder of the Borough is more suitable for recreation, mining, and other forms of mineral development. Of the inhabited area, approximately 90 percent of the population lives within a 25 mile radius of Wasilla (Matanuska-Susitna Borough Planning Department. April 1978; p. 46). This area includes the two most populated communities; Palmer (2,143) and Wasilla (1,548).

The remainder of the population is distributed along the Parks Highway and Railroad corridor. Several hundred inhabitants are scattered throughout the wilderness regions accessible only by water or air.

3.2.3.3 - Communities

Communities are not necessarily defined by political incorporation; if this were the case, then Palmer, Wasilla, and Houston would be the only communities in the Borough.

The formation of communities is somewhat arbitrary and relies on the bond of common interest. The feeling of a community can be in response to living in an isolated area, such as Skwenta, where access is difficult and there is a great reliance on aircraft; to living on an isolated road such as in Petersville; to living along the railroad or near a railroad house such as Talkeetna; to living near a mine, or some natural or manmade feature; or to having similar economic goals. There are many such settlements in the Matanuska-Susitna Borough that share one or more mutual interests and have developed into communities. Communities range in size from several individuals to over 2,000.

Commercial development coincides with the community and the demands for local services. Ordinarily this results in the development of a gas station and general store. In other areas the development is much more extensive.

The major population centers in the Borough are: Palmer, Wasilla, Big Lake, Eska-Sutton, Willow, Houston, and Talkeetna. The growth and current populations of these and other communities in the Borough are shown in Table 9. Following are brief synopses of these major population centers:

- Palmer: The only home rule city in the Borough. It is the primary commercial center for the residents of Palmer, Butte, Matanuska and Eska-Sutton, and offers a wide variety of services. Together with Wasilla, this area of the Borough is classified as a sub-commercial regional center within the Anchorage trading area.

TABLE 9

COMMUNITY POPULATION:
MATANUSKA-SUSITNA BOROUGH CENSUS DATA
1939, 1950, 1960, 1970, 1976, 1980

Community	1939	1950	1960	1970	1976	1980*
Talkeeta	136	106	76	182	328	265
Willow	-	-	78	38	384	134
Wasilla	96	97	112	300	1566	1548
Palmer	150	890	1181	1140	1643	2143
Montana	-	-	39	33	76	40
Big Lake	-	-	74	36	721	412
Butte	-	-	559	448	2207	-
Chickaloon	11	-	43	22	62	20
Eska Sutton	14	54	215	89	496	-
Curry						2

COMMUNITY POPULATION:
OTHER COMMUNITIES NOT IN MATANUSKA-SUSITNA BOROUGH

Community	1950	1960	1970	1976	1980*
Nenana	242	286	382	493	471
Healy	-	-	79	503	333
Cantwell	-	85	62	-	95
Denali	-	-	-	-	3
Paxson	-	-	20	-	30
Glennallen	142	169	363	-	488
Copper Center	90	151	206	-	213
Gakona	50	33	88	-	85
Gulkana	65	51	53	-	111

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* Alaska Department of Labor, Administrative Services Division. January 1, 1981. Alaska 1980 Population: A Preliminary Overview. Juneau, AK; pp. 14-24.

Source: Matanuska-Susitna Borough Planning Department. April 1978. Phase I: Comprehensive Development Plan. Palmer, AK; p. 50.

- Wasilla: This community is strategically located along the Parks Highway, the Alaska Railroad, and the Palmer-Wasilla Road which leads to the Glenn Highway. Major commercial installations of all types can be found in Wasilla. The rapidly increasing population has intensified the need for municipal services.

- Talkeetna: Tourism, particularly for hunting and fishing trips and mountain climbing expenditions, provides the main basis of the present economy of Talkeetna. Talkeetna is the take-off point for climbing expeditions to Mt. McKinley, and in the summer there is a great influx of tourists. There are several lodges in town and the majority of all businesses are oriented toward transients and tourists. Government employment, particularly railroad employment, is an important factor in the economy. The 1980 preliminary census count is 265, showing a 45 percent increase over the past 10 years.

- Big Lake: Big Lake originally consisted of recreational cabins and homes owned almost exclusively by Anchorage residents. Over the past few years a permanent resident community has started to develop and services no longer cater only to transients.

- Eska-Sutton: Originally an active coal mining community, it is now a community increasing in size with an economy based on the Palmer Correctional Center, and services to the Glenn Highway. Massive deposits of limestone located northeast of Eska-Sutton which could supply sufficient raw material for a cement company represent the greatest potential for new employment.

- Houston and Willow: Both Houston and Willow are located along the Richardson Highway. They are small communities, Houston 393 and Willow 134, with scattered populations.

  Houston became a second class city in 1973 and primarily provides services to tourists along the highway and to its residents.

Willow is an unincorporated community. Its community activities are centered around the Willow Civic Center. In 1976, when Willow was designated as the site of the new capital, there was much land speculation and development activity in anticipation of what was to transpire. Willow has observed a 252 percent increase in population in the past 10 years.

Many of the residents of Willow and Houston are construction workers who spend part of the year on homesteads and the rest of the year at construction sites in other parts of the state.

3.2.3.4 - Attitudes toward Economic Development

When the Matanuska-Susitna Borough is viewed in its entirety as a community, it is possible to determine the community concensus regarding future development. Highlights of a recent survey on this subject are discussed below. The survey was conducted by Policy Analysts, Limited and R. L. Endez in May 1980; the reader can refer directly to the document if more detail is desired.

In general, the residents of the Borough are much more in favor of greater economic development than they are opposed. When asked on a scale of 1 to 7 if they were in favor of a lot more development (7) or no more development (1), the median was 4.6 (Table 10).

Table 11 addresses the same question, but has disaggregated the results by community. While the general trend is still towards greater economic development, Willow and the communities to the north appear to be less in favor of development.

Another indicator of community response to economic development is exhibited in Table 12. Displayed in this Table are economic development priority rankings by community. Generally, the Borough residents are in agreement as to what would be most beneficial for economic

TABLE 10

ATTITUDE TOWARD DEVELOPMENT:
MATANUSKA-SUSITNA BOROUGH

On a seven-point scale, with #1 indicating no more development and #7 representing a lot more development, where do you place yourself?

%	(n)		
6.2	41	1	(No more development)
6.2	41	2	
10.7	71	3	
23.7	157	4	
23.4	155	5	
8.8	58	6	
21.0	139	7	(A lot more development)
-	2	8	(Don't know)
-	15	9	(Missing)
4.6			Median

Source: Policy Analyst, limited and Dr. Richard L. Ender. May 1980. Mat-Su Housing and Economic Development Study: Survey findings; p.40.

/K

TABLE 11

COMMUNITY ATTITUDES TOWARD ECONOMIC DEVELOPMENT

On a seven-point scale, with #1 indicating no more development and #7 representing a lot more development, where do you place yourself?

	North of Willow	Willow	Houston	Wasilla	Palmer
1-No more development	0	9.1	12.5	5.7	5.2
2	23.5	18.2	0	4.2	4.0
3	5.9	15.2	6.3	8.8	11.0
4	35.3	21.2	31.3	24.9	24.9
5	35.3	21.2	25.0	24.9	24.9
6	0	3.0	18.8	10.0	6.9
7-A lot more development	0	12.1	6.3	21.5	23.1

Source: Overall Economic Development Program, Inc. July 1980. Volume II: Economic Conditions, Development Options and Projections; p. 12.

/I

TABLE 12

COMMUNITY DEVELOPMENT PRIORITIES

Priority	North of Willow	%	Willow	%	Houston	%	Wasilla	%	Palmer	%
High 85-100%	Tour*	94	Agr	100	Agr	100	Med	92	Med	90
	Loan	88	Med	97	Mfg	94	Agr	89	Agr	89
	Meat	88	Fish	91	Med	94	Fish	89	Fish	89
	Fish	88	Ed/Res	91	Energy	94	Ed/Res	89	Energy	89
	Ret/Wh	88	Energy	91	Fish	93	Loan	88	Ed/Res	87
			Loan	88	Meat	88	Meat	86	Loan	86
					Timber	88	Capital	85		
					Loan	87	Energy	85		
					Dairy	87				
					Capital	87				
75-84%	Med	82	Diary	82	Tour	81	Dairy	84	Meat	83
	Mfg	82	Mfg	79	Ed/Res	81	Mfg	84	Dairy	82
	Agr	82	Ret/Wh	76	Ret/Wh	81	Ret/Wh	83	Mfg	82
	Dairy	77					Mining	77	Ret/Wh	82
	Energy	77					Tour	77	Capital	78
							Pt.Mac	75	Tour	77
									Pt.Mac	75
Favorable 60-74%	Knik C	71	Pt.Mac	72	Pt.Mac	73	Port	74	Timber	74
	Capital	71	Meat	70	Knik C	69	Timber	74	Mining	72
	Ed/Res	72	Rec	67	T&S	69	Knik C	72	Port	72
	Rec	65	Timber	67	Fin/RE	67	Petro	67	EII	68
			Knik C	64	Port	67	T&S	67	Petro	68
			Tour	64	Mining	63	EII	62	Rec	66
			Port	63			Rec	61	T&S	64
									Knik C	65
Lower 50-59%	Pt.Mac	59	Capital	59	Rec	55	Fin/RE	57	Fin/RE	51
	Port	59			EII	50				
	EII	59			Petro	50				
	Timber	53								
	Fin/RE	53								
No Priority, Less than 50%	Petro	47	T&S	49	H/C	44	H/C	49	H/C	47
	Mining	47	Fin/RE	46	Gvt	31	Gvt	47	Gvt	42
	T&S	47	Mining	42	Mil	13	Mil	24	Mil	26
	H/C	24	H/C	42						
	Mil	18	Petro	39						
	Gvt	0	EII	36						
			Gvt	27						
			Mil	21						

* See page following for categories key.

Source: Overall Economic Development Program, Inc. July 1980. Volume II: Economic Conditions, Development Options and Projections; pp. 14-16. /CDP

TABLE 12 (continued)

Key:

Industrial - Support Facilities

Pt.Mac - Point MacKenzie Site Development
Port - Deep Water Port at Point MacKenzie
Knik C - Knik Arm Surface Crossing
T&S - Transport and Storage Fcilities
Petro - Petrochemical (Oil and gas) Industries
EII - Encouragement of Energy Intensive Industries
H/C - Hovercraft and Port Facility to Connect Valleys with Anchorage

Government & Services

Gvt - Government Civilian Services (Federal, State, & Local)
Mil - Military Bases
Med - Medical and Health Facilities
Ed/Res - Educational and Research Facilities
Loan - Small Business Loan Support Program

Resources Development

Fish - Fishing Industry (Processing & Hatchery Development)
Agr - Increased Agricultural Development
Meat - Red Meat Industry Development
Dairy - Expanded Dairy Industry
Timber - Timber (Wood Products, Pulp, etc.)
Mining - Refining Hard Rock Minerals (Iron Ore, Copper, etc.)

Commerce

Mfg - Light Manufacturing (such as Printing or Furniture Making)
Ret/Wh - Retail and Wholesale Business
Fin/RE - Finance Banking, Real Estate

Tourism

Tour - Tourism
Rec - Recreational Site Development

Capital Site

Cap - Building New Capital at Willow

Alternate Energy

Energy - Alternate Energy Demonstration Projects (Wind, Solar, Peat, etc.)

prosperity, with the greatest variations observed once again between the Palmer/ Wasilla residents and the residents in the communities north of Willow. Where the communities north of Willow place highest priority on the development of Tourism (94 percent), Palmer and Wasilla rank it much lower (77 percent). The reverse is observed with the communities north of Willow placing a lower priority on medical facilities (82 percent), agriculture (82 percent), and educational and research facilities (71 percent). Wasilla ranks medical and agriculture developments as its number one and two priorities at 92 percent and 89 percent respectively. Educational and research facility development is priority ranked at 89 percent. A common thread throughout the Borough is the low priority placed on the development of military bases.

3.2.4 - Valdez-Chitina-Whittier

3.2.4.1 - Background

Valdez and the Copper River Region were originally settled by non-native explorers of Russian and European extraction in response to the gold discoveries, and the need for a route from the coast to the interior deposits. As a result, Valdez became the principal port to the interior and later flourished with the discovery and development of copper deposits and with the construction of the Copper River and Northwestern Railway in 1911. In the early 20th century, Copper Center and Gulkana were established as U.S. Army telegraph stations and Gakona became a trading post. This, in conjunction with the construction of the Al-Can Highway, the Richardson Highway, and the Trans-Alaska pipeline led to the genesis and development of many communities in this Region.

3.2.4.2 - Demography

As indicated in Table 7, the Valdez-Chitina-Whittier census division was, and is, sparsely populated relative to the Matanuska-Susitna

Borough. It did not experience as dramatic an increase in population from 1970 to 1980 as the Matanuska-Susitna Borough. However, it did witness a 71 percent increase, considerably greater than the state average of 32 percent.

In comparison to the Matanuska-Susitna Borough, the Valdez-Chitina-Whittier census division had a considerably greater native population in 1970, with native Americans constituting approxi-mately 22 percent of the total population. The majority of the residents were Caucasian (76.7 percent) with Blacks accounting for approximately 0.3 percent. This has in all likelihood changed somewhat as the population has increased from 3,098 to 6,225 for the Valdez-Cordova census area (excluding the Cordova census sub-area) during the 10 years period from 1970 to 1980.

It should be noted that all attempts have been made to present census figures consistently. Difficulty arises due to the fact that census boundaries changed from the 1970 designations of the Valdez-Chitina-Whittier census division and the Cordova census division to the incorporation of the two to produce the 1980 Valdez-Cordova census area. The 1980 Valdez-Cordova census area is divided into the census sub-areas of Prince William Sound, Cordova, and Copper River, however these sub-areas do not share common boundaries with the 1970 demarcations. To enable comparison between 1970 and 1980 figures, the Prince William Sound and Copper River census sub-areas are combined to closely approximate the boundaries of the 1970 Valdez-Chitina-Whittier census division. The elimination of the Cordova census sub-area eliminates 2,321 people from the total population count for the Valdez-Cordova census area.

The greatest influence on the area, and the composition of its population, was the introduction of the Trans-Alaska pipeline construction. The population in the area peaked during the height of the pipeline construction in 1976 and 1977 and has since tapered off. There are no

recent studies on the demographics of the area and until the 1980 census information becomes available, the most reliable sources of data are the Copper River Wrangell Socioeconomic Overview, prepared by Charles Logsdon, et al (Institute of Social and Economic Research and Agricultural Expermiment Station) in 1976; the Ahtna Region, Background for Regional and Community Planning, 1973, prepared by AEIDC; various other publications; and individual contacts. The City of Valdez is currently reviewing proposals for the development of an economic model for the City. This work will include the compiling and evaluation of primary socioeconomic data for the City and the immediate area. Access to the results of this study would enhance our ability to evaluate this region in greater detail.

The only incorporated city within the area that has been desig-nated Study Area 2 is Valdez, which is classified as a first class, home rule city. The rest of the Region consists of unincorporated communities located predominantly along the highways; the Richardson Highway, the Glenn Highway; and the the Tok cut-off leading from the Richardson Highway to the Al-Can Highway. These communities have developed in accordance with changes occurring on the coast and in the transportation corridors. This is evidenced by the relative decline in population and economic activity in the area following the opening of the Parks Highway in early 1970's. Prior to its completion, the principal route from Anchorage and Valdez to Fairbanks was along the Richardson Highway. The re-routing of traffic along the Parks Highway resulted in a decrease in activity along the Richardson Highway thereby decreasing the demand for services. The reverse occurred with the construction of the Trans-Alaska pipeline, however, which was a temporary situation.

3.3 - Housing

3.3.1 - Matanuska-Susitna Borough

The following section on housing in the Mat-Su Borough was extracted from the Overall Economic Development Program, Inc. 1980: pp. 72-86.

3.3.1.1 - Projection of Housing Stock

There are substantial differences in the public estimates of the current housing stock of the Mat-Su Borough. Table 13 describes a projection based on housing counts, employment data, and the 1979-80 housing survey prepared by Policy Analysts, Limited. At the end of 1979, there were an estimated 5,844 units in the Borough of which 5,546 are occupied. This produces a 5.1 percent vacancy rate (See Table 14).

The housing units in the Borough are disproportionately single family (83 percent), with only a small number of multi-family (5.3 percent), or mobile homes (11.3 percent). There are also an estimated 21 "other" units including residences in commercial structures, teepees, and others. Vacancies are projected to vary by type of structure with multi-familiy having the highest vacancy rates. As can be noted, the survey results (Policy Analysts, Limited) of housing type closely approximate the projected counts, reinforcing the estimates made. Mobile homes and multi-family are slightly higher (less than one percent) due to the concentration of the survey sample in the road access areas of the Borough.

Table 15 displays housing stock estimates for nine areas in the road access area of the Borough and a tenth roadless area. The subcommunity boundaries are not designed to represent political or service area demarcations, but merely to represent general areas for comparative purposes. The two largest concentrations of housing are found in the Wasilla (34.6 percent) and Palmer areas (25.7 percent). About three-

TABLE 13

HOUSING STOCK ESTIMATES, DECEMBER 1979

	Total Units		Occupied Units		Survey Sample
	n	%	n	%	%
Total Units	5,844	100.0	5,546	100.0	100.0
Single Family	4,850	83.0	4,621	83.3	81.6
Multi-Family	310	5.3	282	5.1	5.6
Mobile Home	663	11.3	623	11.2	12.4
Other	21	0.4	20	0.4	0.4

Source: Overall Economic Development Program, Inc. July 1980. Volume II: Economic Conditions, Development Options and Projections; p. 76.

TABLE 14

ESTIMATED HOUSING AND VACANCY RATES

AREA	TOTAL YEAR-ROUND HOUSING UNITS	OCCUPIED UNITS	VACANT UNITS	VACANCY RATES (%)
Anchorage[1]	56,823	51,054	5,769	10.2
Valdez[2]	979	948	31	3.1
Fairbanks[1]	11,809	10,737	1,072	9.1
Matanuska-Susitna[3]	5,844	5,546	298	5.1
Valdez-Chitina-Whittier	N/A	N/A	N/A	N/A

[1] Fairbanks North Star Borough, Community Research Center. Fall 1980. Community Research Quarterly, A Socioeconomic Review. Fairbanks, AK; p. 81

[2] U.S. Environmental Protection Agency, Region 10. December 1979. Alaska Petrochemical Company, Refinery and Petrochemical Facility: Environmental Impact Statement; Appendix Vol. II. Valdez, AK; p. II-93.

[3] Overall Economic Development Program, Inc. July 1980. Volume II: Economic Conditions, Development Options and Projections, Palmer, AK; pp. 76.

TABLE 15

HOUSING STOCK ESTIMATES BY AREAS OF THE BOROUGH

Areas	Total Year-Round Units		Estimated Recreational Units
	n	%	
1 Talkeetna, Montana Caswell	214	3.7	97
2 Willow	173	3.0	274
3 Houston	225	3.8	92
4 Big Lake	425	7.3	530
5 Goose Bay, Knik, MacKenzie	83	1.4	13
6 Wasilla	2,020	34.6	133
7 Sutton, Chickaloon Independence Mine	143	2.4	--
8 Palmer	1,502	25.7	2
9 Butte	519	8.9	--
10 Roadless Areas	540	9.2	Unknown
TOTAL	5,844	100.0%	1,141

Source: Overall Economic Development Program, Inc. July 1980. Volume II: Economic Conditions, Development Options and Projections; p. 76.

fifths of the stock is located in these two subcommunities of the Borough. Secondary concentrations are found in Butte and Big Lake with all other areas having less than four percent of the total stock. The roadless areas have an estimated 540 units.

Housing in all areas of the Borough is predominantly single family simply because it composes 83 percent of the total stock. The small number of multi-family units are primarily clustered in two areas - Palmer and Wasilla (52 and 37 percent of the stock respectively). Other multi-family units are scattered, with only Butte and Big Lake with any measurable number. Mobile homes are more scattered throughout the Borough (in the road access areas). This is due to the small number of mobile home parks (most are in the Palmer area). It is estimated that 72.5 percent of the mobile homes are on individually-owned lots which leads to miscounting of many mobile homes as single family structures.

In addition to an estimate of the year-round housing in the Mat-Su Borough, Table 15 notes the number of recreational units by area. A total of 1,141 of these units were estimated which is almost one-fifth of the total stock and emphasizes the importance of the recreational industry in the Valley. The greater Big Lake area has the highest concentration of these units, followed by Willow.

Reviewing the style of year-round housing in the Valley, the single family house varies considerably. The greatest percentage (28.3 percent) are one story on a slab or pilings, while 24.9 percent are one story with a basement; 23.4 percent are split level; and 15.5 percent are two story with or without a basement. In addition, 6.2 percent are log cabins and 1.7 percent, other cabins.

Multi-family units are primarily duplexes (58 percent), but include structures with up to 18 units. Most have exterior entrances to the individual unit (66.7 percent). The townhouse design (row style) has

yet to have a strong showing in the Borough (6.1 percent). Mobile homes are predominantly the usual single-wide of varying length (82.9 percent), though 12.2 percent are double-wide, and 4.9 percent live in travel trailers. Except for the mobile homes, wood is used almost exclusively as a surface material for buildings.

Other accommodations in the area are those that are referred to as transient facilities, i.e., lodges, motels, and campgrounds. Table 16 is an inventory of such facilities in Study Area 2.

3.3.1.2 - Ownership and Housing Payment

The dominant pattern in the Mat-Su is owning the residence one lives in. This is largely predicated by the emphasis on the single family house as the preferred type of dwelling. As noted in Table 17, only 16.5 percent rent or live in a unit they do not own. This ranges from 12.2 percent for single family to 65.8 percent for multi-family. For owners (83.4 percent), the majority are purchasing their homes (59.4 percent) with the remainder (40.6 percent) owning their homes outright. This high proportion of outright owners appears to be due to an established subgroup of long-time state residents as well as the prosperity of the area during the pipeline period. Looking at multi-family homeowners, the bulk (92.4 percent) own or are purchasing the entire building. This suggests that condominium arrangements are a very small part of the multi-family market (2.6 percent).

The high proportion of outright ownership produces a high percent of households who currently do not make any payment for their housing (36.8 percent). This tends to underemphasize current payments as the average for all households is $253 and the median is $200. The median payment for only those currently making payments is $400; the median payment for a single family home is $436; multi-family, $350; and mobile home, $255. While the mobile homes appear to be the least costly option, when land payments are added, the median cost is

TABLE 16

INVENTORY OF TRANSIENT ACCOMMODATIONS
IN STUDY AREA 2

Highway/Location	No. of Lodges/Motels	No. of Campgrounds
George Parks Highway		
Wasilla to Willow	-	5
Willow to Talkeetna	6	2
Talkeetna to Cantwell	2	-
Cantwell to Nenana	5	-
Denali Highway		
Paxson to Cantwell	6	3
Richardson Highway		
Valdez to Glennallen	4	1
Glennallen to Isabel Pass	4	-
Glenn Highway		
Anchorage to Glennallen	15	2

Source: Alaska Northwest Publishing Company. 1980. The Milepost. Anchorage, Alaska. pp. 498.

TABLE 17

OWNER-RENTER DISTRIBUTION BY HOUSING TYPE

Mode of Ownership	Total	Single Family	Multi-Family	Mobile Home
Rental	13.6	9.7	63.2	15.5
Rent free, not owning	2.9	2.5	2.6	4.8
Total Own	83.4	87.8	34.2	79.7
Purchasing	(49.5)	(54.2)	(23.7)	(32.1)
Own Outright	(33.9)	(33.6)	(10.5)	(47.6)

Source: Overall Economic Development Program, Inc. July 1980. Volume II: Economic Conditions Development Options and Projections; p. 79.

approximately $379, similar to multi-family. In summary, 45.7 percent of those making payments for a single family home pay in excess of $451. This compares to 78 percent of multi-family occupiers who pay less than $450; and 100 percent of mobile home occupiers who pay less than $450 for their units.

For those renting, only a minority have some or all their utilities covered by their rental payment. Water (42.4 percent) and sewer (43.5 percent) are most often covered, while electricity (19.6 percent), fuel oil (9.8 percent), and solid waste (22.8 percent) are seldom covered. For those purchasing their home, about half include their real estate taxes (57.0 percent) and insurance (48.1 percent) in their mortgage payment.

3.3.1.3 - Facility Characteristics of Housing

The average size of a housing unit in the Borough was 5.3 census rooms (excludes bathrooms, halls, unfinished rooms, open porches, etc.). These units include an average of 2.6 bedrooms and 1.4 bathrooms. There are significant differences by area in the Borough. On the average, the more rural areas, including Independence Mine, Sutton, North of Willow, Willow, Big Lake, and Knik, have smaller units.

Generally, household facilities usually assumed to be present in a modern dwelling are found in Mat-Su homes. For example, 92.0 percent have a kitchen sink with piped water, 98.4 percent have a range or stove; 96.0 percent, a refrigerator; 90.7 percent, hot and cold piped water; 90.4 percent, flush toilet; and 90.4 percent have a bath tub or shower. A unit with one deficiency is most likely to lack several facilities. Many of these units are log cabins with year-round occupancy. Deficiencies are most likely to occur in rural areas noted above, with Caswell, Montana, and Talkeetna having the greatest incidence.

Turning to heating systems, a variety of fuels and combinations are used. More households use wood (48.9 percent) than any other fuel, though only 15.2 percent rely on wood exclusively. Second is electricity with 21.9 percent using only electric, and 21.4 percent using electric and wood. Fuel oil only is used by 22.4 percent and with wood by 12.4 percent. A small proportion of households also use propane or coal. Of units with heating systems, 42.9 percent have built-in electric; 15.5 percent have central air; 15.1 percent have circulating water; and 37.4 percent have fireplaces or stoves. Fuel oil is used most often in Palmer and Butte, while electricity is found generally throughout all areas, though its use is greatest in the Wasilla-Houston areas. Wood is also used everywhere, though least in Palmer and most often in rural areas. Whatever the heating system used, most people (90.1 percent) feel their home is warm enough in winter.

3.3.1.4 - Selected Housing Problems

Seven housing conditions were mentioned to each respondent of the housing survey conducted by Policy Analysts, Limited and are shown in Table 18. The existence of a particular condition ranged from a 23 percent need for storm windows to a 7 percent estimate of rundown condition. For each group which perceived a condition, only a minority felt affected their wanting to move.

Many of the physical problems are somewhat more prevalent in the rural areas. The exception is remoteness, which is perceived less often in the more physically remote areas. This suggests that this conditon is more a state-of-mind than what can be measured in miles.

From an overall perspective, respondents tend to rate their present housing in positive terms. Excellent is the response of 42.4 percent; 42.8 percent answer good; 13.2 percent say fair; and only 1.6 percent perceive their housing as poor.

TABLE 18

THE PRESENCE OF SELECTED HOUSING CONDITIONS

Problem	% Yes	Effect on Moving
Overcrowded Housing	14.7	High
Too Expensive	16.8	High
Insufficient Hot Water	14.2	Low
Poor Insulation	19.6	Low
Rundown Condition	6.8	Moderate
Need for Storm Windows	22.7	Very Low
Too far from your job, shopping or friends	17.9	Moderate

Source: Overall Economic Development Program, Inc. July 1980. Volume II: Economic Conditions Development Options and Projections; p. 82.

/d

3.3.1.5 - Housing Preferences

Ninety-six percent of the people in the Mat-Su Borough would prefer to buy a single family house. Preferences for all other structural styles and rental situations are well below the existing proportion of alternative in housing units. The primary difference between actual and preferred housing is the maximum amount one is able to pay each month for housing. While the average is $419, similar to the present average payment, this is well below the actual cost of financing a new home. The increasing cost of building, inflation in the present stock, and the high cost of financing has pushed the monthly payments of newly-financed structures from $600 mininum to well over $1,000 a month. Presently, only 9.3 percent are paying over $600, and 15.8 percent say they could afford a payment above $600.

While the single family house is the first choice of most respondents, two alternative arrangements are presented for comment. The condominium has become an important ownership alternative to the single family house, while a planned mobile home park provides an inexpensive ownership model with amenities and services. Both are designed to reduce the cost to the consumer as the expense of housing continues to rise.

The majority opposes both options. For the condominium, 91.3 percent are negative or opposed to it for themselves, only 8.7 percent show some interest in it as an option they would consider. Reasons given include the crowded lifestyle of condos (21.4 percent), privacy problems (13.8 percent), and insufficient land (6.7 percent). Almost the same proportions are also opposed to mobile homes (91.0 percent). Even those who would consider a mobile home oppose the park concept and want the unit on a large lot, the current configuration of most units in the Valley. Again, respondents focus on the crowded conditions (18.0 percent); are generally negative (14.2 percent); and see the units as dangerous (7.0 percent), lacking privacy (7.1 percent), and

poorly constructed (5.5 percent). Based on the responses, it would appear that resistance to housing options other than the single family unit is substantial.

3.3.1.6 - Housing Problems/Needs

- The elderly, many on fixed incomes and with increased health problems, produce some unique housing problems. These range from the high cost of housing to difficulties with maintenance. It is estimated that 5.6 percent (1,040 individuals) of the Borough population is 60 years of age or more.

- The handicapped have both problems in obtaining affordable housing and special needs in the design of housing to facilitate use by them. Handicapped persons are estimated to be present in 288 households (5.2 percent). This includes 349 mentally or physically handicapped individuals: 167 adults and 182 children (1.9 percent of the population).

- The poor can be defined in a variety of ways. But whichever method is used, the difficulties the poor have in finding adequate, sound housing is not masked. One way to estimate those economically disadvantaged is the use of the HUD income guidelines for program eligibility. These ceilings vary by the size of the household from $14,000 for a single person household to $25,000 for a household with eight or more members. Using this approach 27.5 percent of Borough households are technically eligible for federal assistance. This is similar to Anchorage (25.5 percent). Poverty also hits certain groups harder than others. For example, 40.7 percent of the Mat-Su senior citizen households are eligible.

- Minorities are many times targeted for housing assistance because their economic base is often more limited than that of whites. While the

minority population is quite small in the Mat-Su Borough (3.5 percent), problems still exist. While it is difficult to make specific estimates, it appears that the largest minority - Alaska Natives - are most likely to have housing problems, both economicially and in terms of their present housing condition.

3.3.2 - Copper River Region

The surge in activity and population in the Copper River Region attributed to the pipeline construction put demands on housing that in most cases were unable to be met. The result was an increase in the number of temporary trailer parks located primarily along the Richardson Highway. These parks ordinarily did not provide any services, and since the completion of the pipeline many of the sites have been abandoned.

The more permanent structures that exist in the region are: 1) established trailer courts which include utilities; 2) permanent cabins and small homes, many of which are substantial with none or only some utilities; and 3) new houses equipped with all utilities (Institute of Social and Economic Research. 1976; pp. 2-3). There are no current enumerations of the number of houses in each group, or of their quality, vacancy rate, ownership, or cost.

In 1975, there was a housing study commissioned for the Ahtna Region by the Department of Community and Regional Affairs, Division of Community Planning. The results of the survey are outdated at this time in light of the developments associated with the pipeline, however, the salient points of the survey will serve as a benchmark. Of the native households surveyed, the average age of the residents in the area was 23 years. Electricity was available in 77 percent of the homes; piped water in 38 percent; and flush toilets in 38 percent (Copper River Native Association. 1975; p. 3-4).

Since that time, HUD has funded twenty (20) elderly low rent rental units, twelve (12) in the Native Village of Copper Center and eight (8) in Gulkana Village. This helped to relieve some of the need in the Copper River Basin, but there is still a strong demand.

Presently the Copper River Housing Authority is building twelve (12) HUD Mutual Help houses in Cantwell (conversation with Thea Smelcher, Copper River Housing Authority).

More recent pertinent information regarding housing in the Copper River Region is not available at this time unless primary data collection is undertaken.

3.4 - Government Structure and Taxation

3.4.1 - Government Structure

State statutes under Title 29 provide for the establishment of boroughs within the State of Alaska. The steps to becoming an organized borough include first the recognition and desire of the constituents of an area to organize; the submittal of a petition to the Department of Community and Regional Affairs signed by 15% of the voters; review of the petition by the Department of Community and Regional Affairs; a public hearing; and, finally an election. Even if an election meets with success, the area must conform to certain requirements relating to population, economy, transportation, and communication. Once the above steps are met and the area is deemed capable of functioning as an organized government, it then becomes an organized borough. As such, it automatically assumes certain mandatory obligations and has the power to assume others. The powers vested unto a borough and the ability to assume other responsibilities varies depending on whether a borough is classified as a First, Second, or Third class borough. The steps to becoming an incorporated city are similar to those of a borough except that the primary criterion is population. Formation of home rule muni-

cipalities is also provided for in the Municipal Code. A home rule municipality is a municipal corporation and political subdivision and is a borough of the first class, or a city of the first class, which has adopted a home rule charter. It has all legislative powers not prohibited by law or charter. The available powers and composition of governing bodies are explained below in greater detail for Anchorage, the Mat-Su Borough, Valdez, and individual communities.

3.4.1.1 - Municipality of Anchorage

Statehood in 1959 brought a home rule charter to the City of Anchorage and in 1963 the Greater Anchorage Area Borough (GAAB) was established. The Mandatory Borough Act gave the GAAB areawide powers for planning and zoning, education, property assessment, and tax collection. Additional powers including health, sewers, animal control, and transit, and service area provisions for fire, police libraries, roads and drainage were later added by voter approval. The term areawide refers to responsibilities throughout the total area of the Borough including those areas within incorporated cities.

The City of Anchorage offered a broad range of services including police, fire, public works, parks and recreation, library, water, and power, and operated a deep water port, a museum, a small airport, and a large telephone utility. Utility services were even extended beyond city limits. However, two years after the GAAB was formed, the concept of government unification was developed. After much conflict and several referendums, a unified Anchorage government was formed. At present Anchorage is considered a unified home rule municipality and operates as a mayor form of government with an eleven-member Municipal Assembly elected from multimember districts. A city manager handles the daily operational aspects of government and the Office of Management acts as the focal point for budget decision-making. (Ender, Richard L. et al. January 1980).

3.4.1.2 - Matanuska-Susitna Borough

The Matanuska-Susitna Borough was incorporated as a second class borough on January 1, 1964. As such, at the time of incorporation, the borough automatically assumed three areawide powers; taxation, education, and planning, platting and zoning. In 1966 the citizens of the borough voted to add parks and recreation as an areawide power.

In addition to the areawide powers listed above, each borough in Alaska has certain "non-areawide" powers that it can exercise outside of incorporated cities. As a second class borough, the non-areawide powers are limited to those powers which are granted by law to first class cities and specifically approved by citizens residing outside of incorporated cities and with the formation of service areas. The borough has non-area wide powers of solid waste disposal and libraries.

Areawide powers:

- Administration
- Taxation
- Planning and zoning
- Education
- Parks and Recreation

Non-areawide powers:

- Solid waste disposal
- Libraries

Service areas were created and are exercised primarily in the delivery of road maintenance and fire protection. There are presently six fire service areas and six road service areas as follows (Matanuska-Susitna Borough Planning Department. April 1978.):

Fire Service Areas	Road Service Areas
Houston	Garden Terrace Estates
Wasilla	Goddard Subdivision
Lakes	Woodside Estates
Palmer	Wilderness Valley
Butte	Valley Ranch
Sutton	Caswell Lakes

Other Service Areas

Talkeetna Water and Flood Control

3.4.1.2.1 - Organization

The Borough Government is organized much the same as the Municipality, with a part-time Mayor-Manager-Assembly form of government, with the executive function performed by the Mayor, the legislative function by the Assembly, and the administrative direction by a full-time Manager. The five members of the Assembly are elected by district with the Mayor elected at large.

The Borough administration, working under the direction of the Manager, is currently organized under the following departments:

- Finance
- Public Works
- Assessment
- Planning

The areawide school system is operated under the direction of the school district administration, which is distinct from the general government administration, but subserviant to the Borough Assembly.

3.4.1.2.2 - Borough Administration Facilities

The City of Palmer serves as the seat of the Borough Government. Borough General Government administrative offices, and school district administrative offices are housed in separate structures in the heart of the City. The Borough also operates a maintenance facility on the edge of town, which serves as the motor pool and major repair facility.

3.4.1.2.3 - Incorporated Places

There are three incorporated communities within the Matanuska-Susitna Borough:

- Palmer - a first-class, home-rule city
- Wasilla - a second-class city
- Houston - a second-class city

- Palmer

The City of Palmer is administratively under a Mayor-Manager-City Council form of government, with a part-time Mayor and a full-time City Manager. Administrative facilities are housed in the City Hall, which shares a location with the library and fire station. The City also operates a maintenance facility.

- Wasilla

The City of Wasilla has a part-time Mayor and a City Council with a full-time City Clerk. City offices are located in the new Wasilla library building, which provides meeting space in the lower level.

- Houston

The City of Houston has a part-time Mayor-City Council form of government, with a part-time City Clerk. The City Hall and fire department share a facility in the core area of the community. A meeting room is also included in the structure.

3.4.1.2.4 - Unincorporated Area

Within the 23,000 square miles of the borough, several unincorporated communities are recognized in addition to the three incorporated places mentioned above. Most of these communities are located within areas serviced by roads; however, the bush community of Skwentna is located on the Skwentna River approximately 40 miles from the nearest road. Much of the Borough is mountainous and very sparsely inhabited, and thus does not lend itself to the development of community organizations.

3.4.1.3 - Valdez and Copper River Region

With the exception of Cordova, the City of Valdez is the only organized municipality in the Copper River region and is classified as a first-class, home-rule city. The remainder of the communities along the Richardson highway are unincorporated and are provided services by the State. State provided services include police, justice, highways, and public health. The only organizations that resemble political entities are the school board and Ahtna Incorporated, the native corporation formulated under the Alaska Native Claims Settlement Act (ANCSA).

3.4.2 - Taxation

The power to tax is not inherent in the organization of the boroughs and cities, but rather a power granted by the Alaska State Constitution and Statutes. Contained in the Alaska State Constitution is the provision that "no tax shall be levied . . . except for a public purpose" (Article IX, Section 6). The following is a summary of the guidelines governing taxation in the State of Alaska extracted from: Alaska Department of Community and Regional Affairs, Division of Local Government Assistance, January 1980. Alaska Taxable 1979: Municipal Property Assessments and Equalized Full Value Determination. If greater detail is desired it is suggested that the reader refer directly to the source.

3.4.2.1 - Summary of Property Tax Provisions of the Alaska Statutes

3.4.2.1.1 - Power of Levy

(AS 29.53.010, AS 29.53.400, AS 29.53.410, AS 29.43.020)
Home rule and general law municipalities may levy tax on all real and personal property located throughout the municipality to support services provided throughout the muncipality, with the exception of second class cities (which have a tax levy limitation of one-half of one percent or five mills). The maximum rate of taxation is three percent (thirty mills) of the full and true value of the taxable property.

(AS 29.53.405)
Cities may levy a higher or lower rate of tax on the value of real and personal property located within "differential tax zones" that receive a higher or lower level of service than other areas of the city.

(AS 29.53)
If a city is located within an organized borough, the borough

remains responsible for assessment of property and collection of taxes levied by the city. Cities located in an unorganized borough are responsible for assessment and collection of local property taxes.

(AS 29.53 415-460)
Subject to voter appraisal, Alaska municipalities are authorized to levy and collect a sales tax equal to three percent of the volume of sales, rents, and other services provided within the municipality. Cities exercising this power within an organized borough also exercising the power must tax and/or exempt the same sales, units and other services that the borough does. There is no such limitation on a city in an unorganized borough or a city located within a borough which does not exercise the sales tax power.

Second Class City:

(AS 29.53.410)
A majority vote is required before a second class city may exercise the power of taxation.

Borough:

(AS 29.53.010)
Boroughs may levy a tax on the value of real and personal property located outside cities (non-area wide) to support services provided to that area only.

(AS 29.63.090)
Boroughs may levy a tax on the value of real and personal property located within special service areas to support a special service or a higher or lower level of service than that provided on an area wide or non-area wide basis.

3.4.2.1.2 - Tax Limitations

Municipalities:

(AS 29.53.050)
There is a general tax levy of 30 mills (three percent) for municipalities. This includes the combined mill levy of a municipality and a borough. However, in light of the Supreme Court decision numbered 1750, October 20, 1978, municipalities may exceed the 30 mills (three percent) ceiling if necessary to pay bonded debt. This interpretation does not require that bonds be in default or in a situation threatening default.

The combined mill levy of a city and a borough may not generate an amount of revenue greater than an amount equal to $1,000 multiplied by the number of residents of the municipalities; nor may a city and/or borough levy a tax upon that proportion of the municipal tax base that exceeds an amount equal to 225 percent of the average state assessed per capita valuation multipled by the number of residents of the municipality. (The state average does not include oil and gas property).

A general ceiling of three percent applies to municipal sales taxes. Home rule municipalities may, however, exceed this limitation. However, in a second opinion by the Supreme Court, number 1735, September 29, 1978, it became possible for a municipality to levy a general sales tax on selected sales activities as opposed to having to tax all sales activities.

Second Class Cities:

(AS 29.53.410)
Second class cities have a tax ceiling of 5 mills (one-half of one percent), however, they may exceed this limit if it is necessary to do so to avoid default on bonded or other indebtedness.

3.4.2.1.3 - Exemptions

The Alaska Statutes provide for a number of tax exemptions, some of which are listed below:

Title 29: Required Exemptions

Municipal, State, or Federally-owned property, except that private leaseholds, contracts, or other interest in the property is taxable.

Property used exclusively for non-profit, religious, charitable, cemetery, hospital, or educational purposes.

Household furniture of the head of a family or a householder not exceeding $500 in value.

Some non-business activities of veterans.

Money or deposit.

Real property owned by residents over 64 years of age in which they permanently reside.

Title 43: Required Exemptions
Oil and gas-related properties.

Title 10: Corporations and Associations: Required Exemptions

Title 29: Optional Exemptions and Exclusions

Home Rule or First or Second Class Boroughs: A home rule or first or second class borough may adopt an ordinance to bring its property tax structure into entire or partial accordance with the

property tax structure of a city within it, including--though not limited to--the exclusion of personal property from taxation, the establishment of exemptions, and the extension of the redemption period.

Home Rule or First Class Cities: A home rule or first class city has the same power of exempting or excluding property from borough taxes that already exist as city exemptions. However, the city exercising this power must return to the borough a sum equal to the revenues the borough would have received had the exclusions or exemptions not been adopted. The borough assembly will determine that amount annually.

Home Rule or General Law Cities: A home rule or general law city within an organized borough may adopt an ordinance to assimilate its property tax structure entirely or partially to that of the borough, including partial or total exemptions.

Alaska Native Claims Settlement Act

The constitution provides that "real property interests conveyed pursuant to this Act, to a native individual, native group, or village, or regional corporation which are not developed or leased to third parties, shall be exempt from State and local real property taxes for a period of twenty years after the date of enactment of this Act." (Public Law 92-203, 92nd Congress, First Session, Section 21).

Table 19 lists the property and sales taxes for Anchorage, Fairbanks, Valdez, and municipalities and service areas in the organized Borough of Matanuska-Susitna. Communities along the Richardson Highway that are unincorporated and unorganized do not levy taxes. Of the communities in the Matanuska-Susitna Borough, Palmer is the only municipality that levies a sales tax. The sales tax revenues for the FY 1978-1979 were $404,516 (Overall

TABLE 19

MUNICIPAL PROPERTY AND SALES TAX RATES

BOROUGH AND SERVICE AREA	CLASS[1]	TAX CODE AREA	PROPERTY TAX 1977	PROPERTY TAX 1978	PROPERTY TAX 1979	SALES TAX 1977	SALES TAX 1978	SALES TAX 1979
MUNICIPALITY OF ANCHORAGE (Unified Home Rule)								
Anchorage	(SA)	01		.10				
Administration			3.04	3.00	2.65			
Schools			6.98	5.87	4.64			
Sewer			.56	.53	.46			
Library			.52					
Roads				1.65	1.76			
Police			2.51	2.60	2.00			
Fire			1.65	1.79	1.59			
Parks and Recreation			.79	.68	.50			
Solid Waste			.13	.23	.19			
Area Bonds			1.00					
TOTAL			17.18	16.45	13.79			
FAIRBANKS NORTH STAR BOROUGH (Second Class)								
Fairbanks	(HR)	01	9.00	8.50	8.50	3.0	3.0	3.0
Administration			1.30	1.70	1.44	2.0	2.0	2.0
Schools			3.80	5.50	5.74			
TOTAL			14.10	15.70	15.68	5.0	5.0	5.0
VALDEZ	(HR)							
ZONE I								
Administration			7.249	4.1511	3.954			
Schools			1.711	1.9759	2.020			
TOTAL			8.960	6.1270	5.974			
ZONE II								
Administration			5.457	3.3445				
Schools			1.711	1.9759				
TOTAL			7.168	5.3204				
ZONE III								
Administration			4.561					
Schools			1.711					
TOTAL			6.272					

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TABLE 19 (page 2)

BOROUGH AND SERVICE AREA	CLASS[1]	TAX CODE AREA	PROPERTY TAX 1977	PROPERTY TAX 1978	PROPERTY TAX 1979	SALES TAX 1977	SALES TAX 1978	SALES TAX 1979
MATANUSKA-SUSITNA BOROUGH (Second Class)								
Wasilla Fire	(SA)	01	.90	.50	.60			
Administration			.54	1.15	1.35			
Schools			6.96	6.05	5.85			
Land Fill and Library				.10	.20			
TOTAL			11.60	7.80	8.00			
Palmer	(HR)	05	5.00		5.00	2.0	2.0	2.0
Administration			3.54	1.15	1.35			
Schools			6.96	6.05	5.85			
Land Fill				.10				
TOTAL			15.50	7.30	12.20			
Other Area		06						
Administration			3.54	1.15	1.35			
Schools			6.96	6.05	5.85			
Land Fill and Library			.20	.10[a]	.20			
TOTAL			10.70	7.30	7.40			
Talkeetna Flood Control	(SA)	07	2.00		1.40			
Administration			3.54	1.15	1.35			
Schools			6.96	6.05	5.85			
Land Fill and Library			.20	.10	.20			
Fire					.60			
TOTAL			12.70	7.30	9.40			
Houston	(2nd)	12						
Administration			3.54	1.15	1.35			
Schools			6.96	6.05	5.85			
Land Fill				.10				
TOTAL			11.50	7.30	7.20			
Wasilla	(2nd)	13	.90	.50	1.00			
Administration			3.54	1.15	1.35			
Schools			6.96	6.05	5.85			
Land Fill				.10				
Fire					.60			
TOTAL			11.40	7.30	8.80			
Talkeetna Fire Service	(SA)	24						
Administration					1.35			
Schools					5.85			
Land Fill and Library					.20			
Fire					.60			
TOTAL					8.00			

e4/tax.a1

TABLE 19 (page 3)

BOROUGH AND SERVICE AREA	CLASS[1]	TAX CODE AREA	PROPERTY TAX 1977	PROPERTY TAX 1978	PROPERTY TAX 1979	SALES TAX 1977	SALES TAX 1978	SALES TAX 1979
Nenana	1							
Administration			10.00	10.00	10.00			
Schools						2.0	3.0	2.0
Water and Sewer								1.0
TOTAL			10.00	10.00	10.00	2.0	3.0	3.0

[1] SA: Service Area; HR: Home Rule; 2nd: Second Class

[a] Land fill only

Source: Alaska Department of Community and Regional Affairs, Division of Local Government Assistance. January 1980. Alaska Taxable 1979. Juneau, AK; pp. 54 - 70.

e4/tax.a2

Economic Development Program, Inc. July, 1980. Volume III: Appendices). The real property tax of 6 mills in Valdez is one of the lowest in the state. Property taxes are reported in terms of mills and sales tax rates are reported as a percent.

Table 20 displays the real property valuation. The estimated population, and general obligation bonded debt for Anchorage, Fairbanks, Valdez, Palmer City and the Matanuska-Susitna Borough.

3.5 - Infrastructure

The ability of a community to respond adequately to increased demands is in most part, a function of the ability of the institutions and services to continue providing services to a larger constituency. The important considerations are therefore, current usage and capacity. This section describes the existing public services at the regional and local level, as appropriate to the degree of probable impact of the Susitna Project. The services addressed include: utilities, transportation, communication, power availability, police, fire, health services, libraries, and education. Information for this section was obtained from: Matanuska - Susitna Planning documents; the Overall Economic Development Program, Inc., July 1980; Development Options and Projections; and personal contacts.

3.5.1 - Utilities

3.5.1.1 - Matanuska-Susitna

3.5.1.1.1 - Solid Waste

The Borough has non-areawide solid waste management authority and currently operates a system of nine landfills. There is no collection system operated by the Borough, therefore it is the responsibility of individuals to transport their solid waste to the various landfill locations. Palmer operates a collection and

TABLE 20

VALUATION, POPULATION, AND G.O. BONDED DEBT

BOROUGH	FULL VALUE DETERMINATION 01/01/79	CIVILIAN POPULATION 07/01/79	G.O. BONDED DEBT 07/01/79	PER CAPITA DEBT	PER CAPITA VALUATION	DEBT % TO VALUATION
ANCHORAGE, MUNICIPALITY						
TOTAL	6,540,804,000	185,280	260,836,000	1,408	35,302	3.99
FAIRBANKS NORTH STAR	2,303,862,300	60,227	36,643,000	608	38,253	1.59
Fairbanks City	727,804,500	30,462	16,055,000	527	23,892	2.21
North Pole	64,264,000	823	350,000	425	75,85	.54
TOTAL	2,303,862,300	60,227	53,048,000	881	38,253	2.30
MATANUSKA-SUSITNA	928,420,000	23,177	52,455,000	2,263	40,058	5.65
Palmer City	57,824,900	2,056	2,315,278	1,126	28,125	4.00
TOTAL	928,420,000	23,177	54,770,278	2,363	40,058	5.90
Valdez	1,652,877,200	4,066	59,595,000	14,657	406,512	3.61

Source: Alaska Department of Community and Regional Affairs, Division of Local Government Assistance. January 1980. Alaska Taxable 1979. Juneau, AK; p. 50.

e4/tax.b

disposal system for city residents. They have a contract with the Borough and State for use of the landfills.

3.5.1.1.2 - Sanitary Sewage

Palmer is the only municipality in the Borough that has a community sewage and water facility. Presently there are plans for the construction of a sewage treatment facility and water supply system for Wasilla with construction to begin in the summer of 1981. All other residents in the Borough living outside of these city limits provide for themselves with wells and septic tanks.

There are 11 community sewage systems located in the Borough. These systems are not owned and operated, but are, however, rated by the Alaska Department of Enviornmental Conservation and classified according to the number of people served. There are: 44 Class "A" public sewage systems (located primarily in subdivisions and trailer parks); 77 Class "B" public sewage systems (mostly located at schools and businesses); and 95 Class "C" public sewage systems (mainly serving duplex and triplex structures).

3.5.1.1.3 - Water

Outside of the Palmer area water is provided for either on an individual basis, i.e. a well, or by a community water system. There are 22 community water systems within the Borough; 44 Class "A" public water systems (mainly serving subdivisions and trailer parks); 77 Class "B" public water systems (primarily serving schools and businesses); and 95 Class "C" public water systems (serving mainly duplexes and triplexes). The listing of community water and sewage systems can be found in: Overall Economic Development Program, Inc., July 1980. Volume III: Appendices.

TABLE 21

COMMUNITY FACILITIES SUMMARY

	Schools																								Government				
	Elementary	Secondary	Higher	Water	Sewer	Solid Waste Disposal	State Trooper Post	Local Police	Court System	Fire Hall	Health Center	Long Term Care Fac.	Mental Health Facility	General Hospital	Roads	Railroad	Public Transportation	Airstrip	Library	Community Building	Post Office	Park System	Power	Telephone Service	Communication/Media	Home Rule	First Class	Second Class	Unincorporated	Unified Home Rule
Nenana	*	*		*	*	*	*			*	*				*	*		*		*	*	*	*	*	*		*			
Cantwell	*					*	*				*				*	*		*		*	*		*	*	*				*	
Talkeetna	*					*	*			*					*	*		*	*	*	*	*	*	*	*				*	
Willow	*					*									*	*		*	*	*	*		*	*	*				*	
Palmer	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		*	*	*	*	*	*	*	*	*					
Wasilla	*	*	*			*				*	*		*		*	*		*	*	*	*	*	*	*	*				*	
Paxson						*									*			*					*	*	*				*	
Glennallen	*	*				*	*		*	*	*	*		*	*			*	*	*	*		*	*	*				*	
Copper Center	*		*			*				*	*				*			*		*	*		*	*	*				*	
Gakona						*									*			*		*	*		*	*	*				*	
Healy	*	*		*	*	*	*				*				*	*		*			*		*	*	*				*	
Gulkana				*	*	*					*				*					*			*	*	*				*	
Valdez	*	*		*	*	*	*	*	*	*	*	*	*	*	*			*	*	*	*	*	*	*	*	*					
Anchorage	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*						*
Fairbanks	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*					

3.5.1.2 - Copper River Region

3.5.1.2.1 - Solid Waste

As the communities in the Copper River Region are unincorporated and in an unorganized borough, it is the State's responsibility to maintain landfills. There are currently several landfills maintained. It is ordinarily the practice of the residents to haul their garbage to these locations. There is one commercial firm, the Copper Valley Construction Co., that provides a garbage collection service for a set monthly fee.

3.5.1.2.2 - Sanitary Sewage

Sewage in the Copper River Region is dealt with in several manners. Many residents have their own septic tanks which are emptied by the Copper Valley Construction Co. when necessary. There are also several lagoons or "holding tanks" in the region that clusters of houses can utilize. These, too, are emptied by the Copper Valley Construction Co. There are only two sewage treatment plants in the area, both maintained by the Central Alaskan Mission at the Faith Hospital and Alaska Bible College. There are approximately 20 to 25 houses tied directly into the mission treatment facility. The Copper Valley Construction Co. utilizes the treatment plants for the disposal of the sewage that it collects.

3.5.1.2.3 - Water

Water in the Copper River Region is supplied by one, or a combination of the following: private wells, State wells (of which there are three), or Bishop & Sons, Inc., a commercial water distributor. Bishop & Sons, Inc. has a 3,000 gallon tank truck used for delivering water to private residences. It is believed

that approximately 50 percent of the residences receive their water from Bishops & Sons, Inc. (conversation with Sheldon Spector, Magistrate, Glennallen, AK).

3.5.2 - Transportation

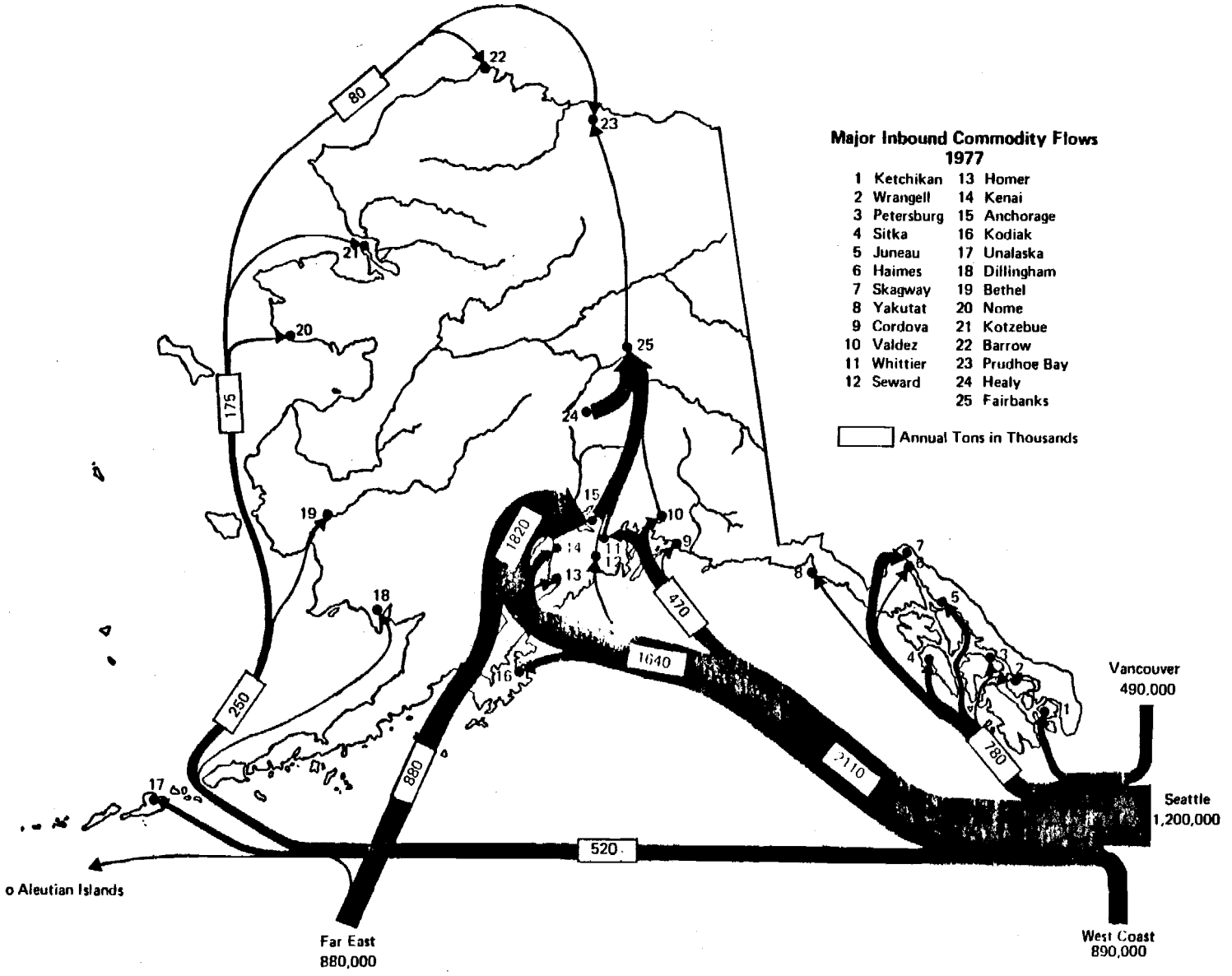
This section first describes the marine, highway, rail, and air transport networks for the three major cities in Study Area 3; Anchorage, Fairbanks, and Valdez, and then for particular communities in the vicinity of the proposed hydroelectric facility.

Alaska's transportation needs are unique compared to the contiguous states. Given a small population scattered over a large geographic area, in most cases impassable by road, there is a great reliance on marine and air transportation. Of the different regions in Alaska, the southcentral and interior regions have the most comprehensive transportation networks. Two reasons for this comprehensive and extensive transportation system are: 1) diverse economies relative to other areas in the state; and 2) greater concentrations of population. These factors make such a transportation system both feasible and affordable. The main source of information contained in this section on transportation was: Institute of Social and Economic Research, University of Alaska. June 1980. Alaska Review of Social and Economic Conditions: Alaska's Unique Transportation System. pp. 28.

3.5.2.1 - Marine

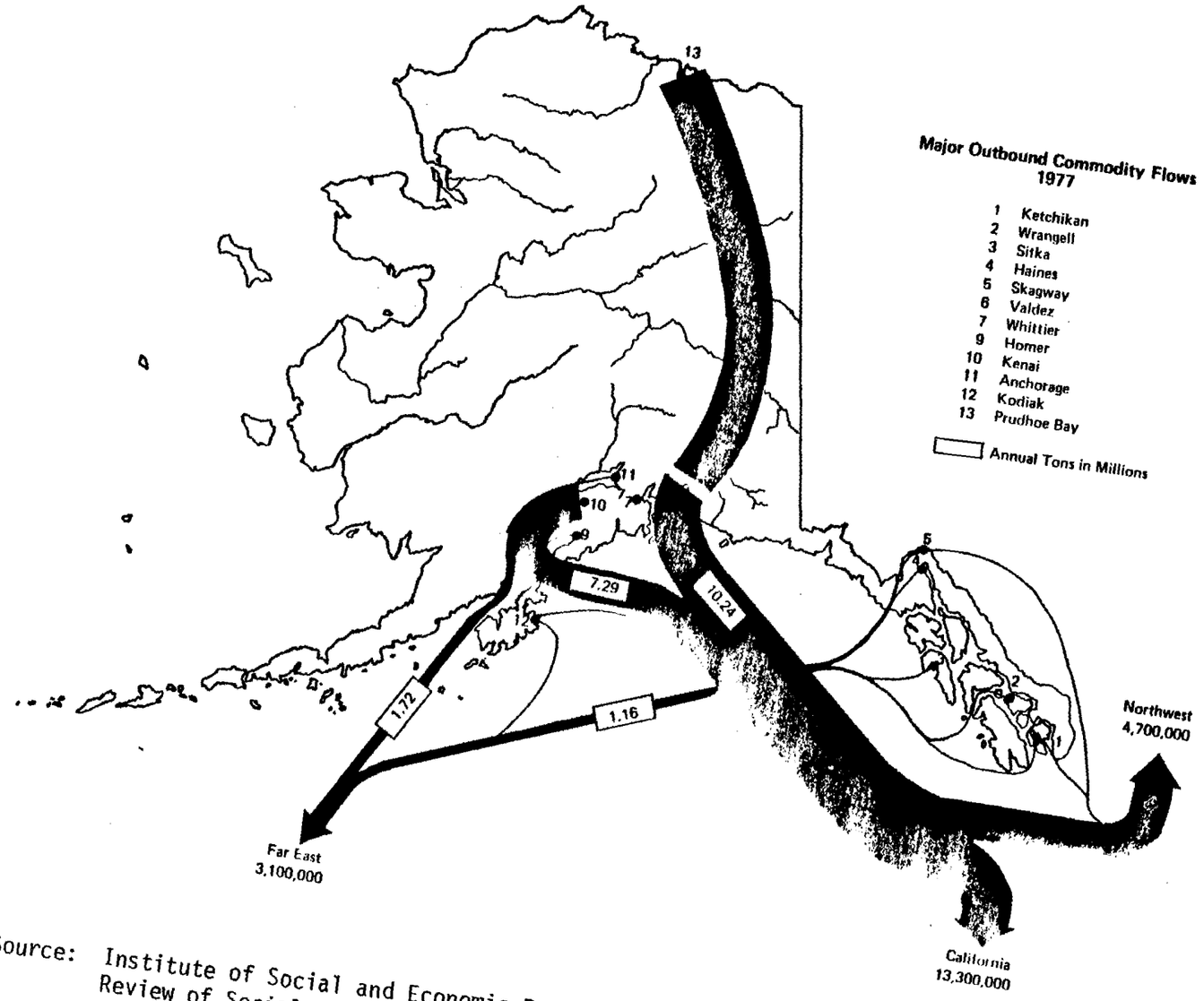
The dominant mode of transport in Alaska is marine. Practically every significant population center in Alaska is connected by marine transport, Fairbanks is an anomaly in this sense. Figures 5 and 6 show the major inbound and outbound commodity flows for the State of Alaska in 1977.

FIGURE 5



Source: Institute of Social and Economic Research, University of Alaska. June 1980. Alaska Review of Social and Economic Conditions. Alaska's Unique Transportation System. p.6.

FIGURE 6



Source: Institute of Social and Economic Research, University of Alaska. June 1980. Alaska Review of Social and Economic Conditions. Alaska's Unique Transportation System. p. 7.

3.5.2.1.1 - Valdez

Valdez is the state's largest port in terms of annual tonnage. (See Table 22). This is due almost exclusively (99 percent) to its being the terminus of the trans-Alaska pipeline and therefore the principal port for the shipment of crude petroleum. Currently estimated annual throughput is 60 million tons. The City of Valdez is nearing completion of a 750 foot container terminal, which will introduce container cargo shipping to Valdez. Presently there is no container cargo. The Port of Valdez has also just recently inaugurated monthly barge service between Valdez and Seattle with Pacific Western Lines. Table 23 lists the current carrier marine services now operating out of Anchorage and Valdez. Transshipment from the Valdez port is by truck.

3.5.2.1.2 - Anchorage

The Port of Anchorage handles approximately 90 percent of the container cargo for the Southcentral region and is second to Valdez in annual tonnage. It is Alaska's largest general cargo port. Current freight throughput is estimated at approximately 2 million tons. Of this, about 90 percent of the general cargo is inbound, with close to half being petroleum products. The remaining freight consists of bulk construction material delivered by barge from Seattle. Table 24 shows the trend in freight movement by commodity from 1965 to 1979. It is estimated that the Port of Anchorage is operating at approximately 50 percent of container handling capacity (PRC Harris, Inc. and Alaska Consultants, Inc. September 8, 1980).

Approximately 60 percent of the cargo moving into the Port of Anchorage is destined for the City of Anchorage with the remainder being dispersed throughout other areas in the region. Transshipment is by both truck and rail out of Anchorage.

TABLE 22

Total Traffic for Selected Alaska Ports:

Historical Trends
(in thousands of short tons)

Ports	1977	1976	1974	1972	1970	1968	1966
Ketchikan	2,168	1,559	2,162	2,186	1,868	1,881	1,542
Metlakatla	224	174	318	291	117	70	15
Wrangell	656	827	1,023	1,169	1,181	755	502
Petersburg	67	56	205	157	294	134	114
Sitka	553	998	970	1,243	916	1,009	1,072
Juneau	152	167	154	201	119	126	133
Skagway	1,026	833	1,514	1,388	1,273	575	297
Valdez	10,667	507	357	254	478	182	188
Cordova	36	66	35	42	34	44	57
Seward	115	237	72	62	29	117	49
Homer	126	31	12	170	190	17	14
Whittier	414	457	662	646	349	312	N/A
Anchorage	2,220	2,932	2,340	2,058	1,937	1,311	1,009
Kodiak	501	388	217	193	124	109	213
Unalaska	325	350	157	190	252	121	171
Bethel	96	110	41	N/A	N/A	N/A	N/A
Nome	64	30	32	43	21	41	47
Bristol Bay	71	59	12	34	169	26	61

Source: U.S. Army, Corps of Engineers, Waterborne Commerce of the United States, Part 4.

From: Institute of Social and Economic Research, University of Alaska. June 1980. Alaska Review of Social and Economic Conditions: Alaska's Unique Transportation System; p. 4.

TABLE 23

PRINCIPAL SCHEDULED COMMON CARRIER MARINE SERVICES

TO SELECTED ALASKA PORTS

Between		Carrier	
Anchorage	Valdez	A.M.H.S	Five times weekly (mid-May--mid-September)
Anchorage	Seattle	S.L.S	Twice weekly container ship
		T.O.T.E.	Twice weekly Roll-on-Roll-off ship
		P.W.L.	Barge every two weeks (mid-March --mid-November)
		C.B.L.	Barge monthly (April-November)

Abbreviations

A.M.H.S.	Alaska Marine Highway System
S.L.S.	Sea-Land Service
T.O.T.E.	Totem Ocean Trailer Express
P.W.L.	Pacific Western Lines
C.B.L.	Coastal Barge Line

Source: Institute of Social and Economic Research, University of Alaska. June 1980. Alaska Review of Social and Economic Conditions: Alaska's Unique Transportation System; p. 3.

TABLE 24

PORT OF ANCHORAGE FREIGHT MOVEMENTS IN TONS[a]
BY COMMODITY: 1965, 1970, 1972 - 1979

	1965	1970	1972	1973	1974
Freight N.O.S.[b]	17,046	1,258	1,805	1,845	8,005
Cement, Drilling Mud, etc.	569	24,510	7,459	14,994	18,225
Iron & Steel Articles	10,816	3,459	6,828	3,336	14,787
Lumber	9,532	197	393	539	13,921
Oil Field & Equipment Supplies	228	2,279	—	—	—
Petroleum Bulk	675,052	1,320,960	1,501,184	1,507,994	1,595,667
Petroleum N.O.S.	865	2,169	639	1,008	2,220
Vans, Flats, Containers	192,777	478,234	462,546	476,883	590,474
Vehicles	15,323	4,543	4,271	5,739	11,846
Plastic Material, Insulation	—	—	—	—	—
Total	922,208	1,837,609	1,985,125	2,012,338	2,255,175

	1975	1976	1977	1978	1979
Freight N.O.S.	7,564	6,147	3,073	5,784	2,324
Cement, Drilling Mud, etc.	44,384	40,360	37,943	21,879	21,423
Iron & Steel Articles	8,823	7,421	13,680	14,184	5,751
Lumber	8,315	266	2,748	272	34
Oil Field & Equipment Supplies	—	—	—	0	0
Petroleum Bulk	1,290,065	1,695,000	1,130,986	977,600	678,008
Petroleum N.O.S.	2,084	1,395	851	604	1,427
Vans, Flats, Containers	838,676	978,610	978,584	1,013,427	934,125
Vehicles	21,518	36,677	40,360	39,746	28,626
Plastic Material, Insulation	391	1,273	0	0	0
Total	2,851,820	2,767,149	2,208,225	2,073,495	1,671,720

a/ Includes both inbound and outbound traffic from local, domestic and foreign ports.

b/ N.O.S. = Not Otherwise Specified.

Source: Port of Anchorage.

From Alaska Department of Commerce and Economic Development, Division of Economic Enterprise. June 1980. Alaska Statistical Review 1980. p. J-5.

Two physical phenomena hamper activity in the port. The first is the fact that the harbor is not ice free, however, the tidal action does keep the ice broken. A second problem arises from the need to dredge the channel on an annual basis in order to maintain a sufficient depth for ocean-going vessels.

3.5.2.2 - Marine Highway

The Alaska Marine Highway primarily serves southeastern Alaska connecting the numerous islands and communities with each other and Seattle. Another section of the Marine Highway connects Valdez, Cordova, and Whittier. Part of this system connects cities on the Kenai Peninsula with various communities out on the Alaska peninsula and Aleutian Islands. Total traffic on this system during 1978 was 47,000 passengers and 13,000 vehicles. Valdez was among the busiest ports. There is no service to Anchorage.

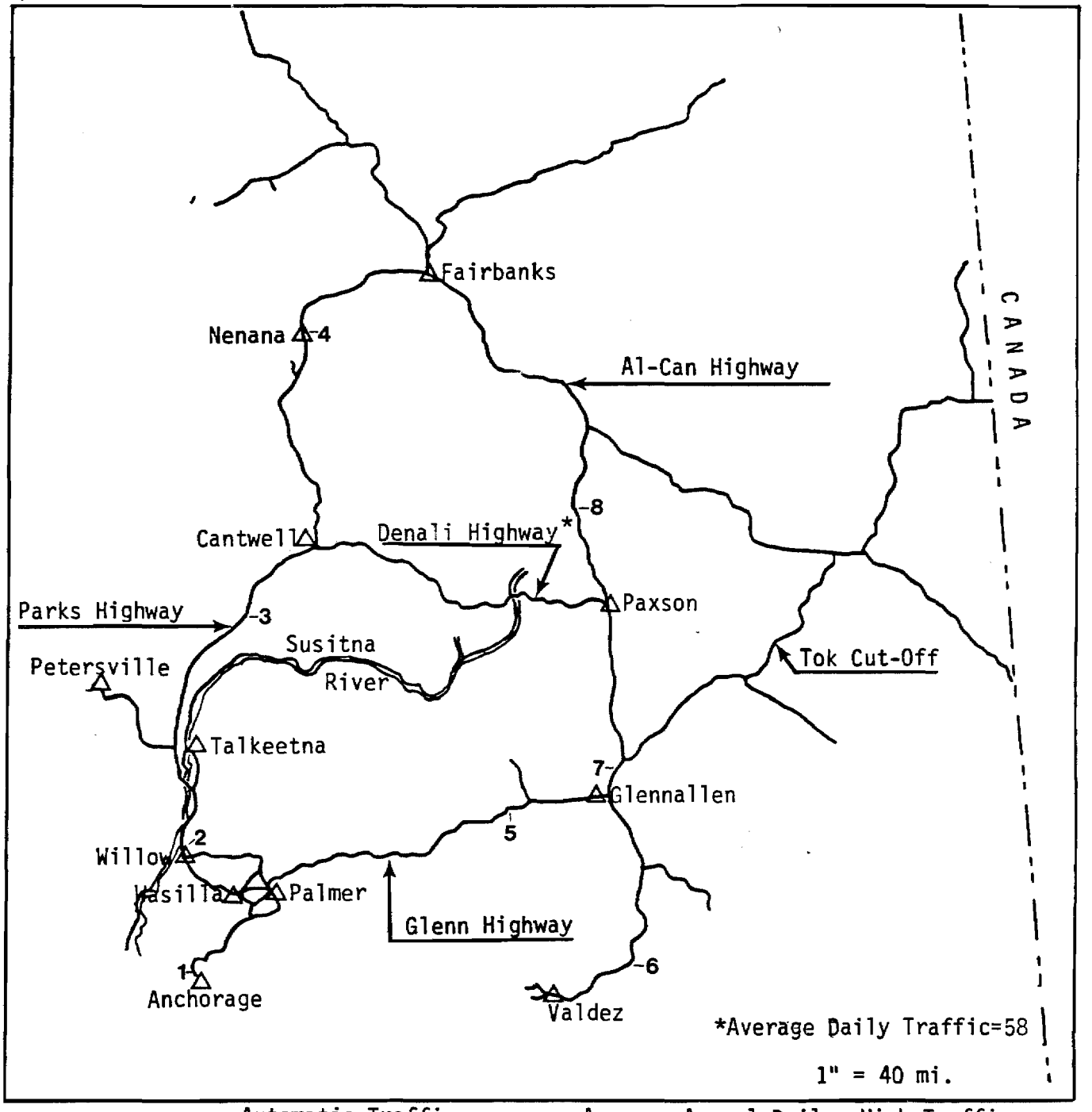
3.5.2.3 - Road and Highway

The road and highway system in Alaska consists of roughly 11,000 miles of paved and unpaved surfaces. The principal roads connect Anchorage and Valdez with Fairbanks and connect these points to the Alaska Highway. The Alaska Highway is the only overland route connecting the Lower-48 with Alaska. The Al-Can Highway consists of approximately 1,520 miles of gravel road and runs from Dawson Creek, British Columbia to Fairbanks. Figure 7 presents a schematic of the major highways and traffic volumes for selected points in Study Area 3.

The Parks Highway is the principal route within the Matanuska-Susitna Borough, connecting what were previously remote sites with both Fairbanks and Anchorage. Of the highways in this region, the Parks is the newest and most heavily used. A wide variety of commodities are transported along the Parks Highway including about 75,000 tons for local delivery and approximately 150,000 tons of items bound for

FIGURE 7

PRINCIPAL HIGHWAYS AND TRAFFIC VOLUMES
FOR SELECTED POINTS IN STUDY AREA 3



	Highway Name	Automatic Traffic Recorder Number	Mile	Average Annual Daily Traffic - 1979	High Traffic Month - Count
1 -	Glenn	F-1-42	138.50	17,328	Aug. 22,241
2 -	Parks	F-2-35	35.95	1,248	Aug. 2,442
3 -	Parks	F-3-35	150.58	442	Aug. 842
4 -	Parks	F-4-35	268.91	914	Aug. 1,398
5 -	Glenn	F-4-42	262.89	425	July 739
6 -	Richardson	F-3-71	66.71	197	July 433
7 -	Richardson	F-1-71	122.66	638	July 810
8 -	Richardson	F-2-71	223.61	202	July 371

Source: Alaska Department of Transportation and Public Facilities, Transportation Planning Division. 1979. Alaska Highways and Annual Traffic Volume Report. Vol. I, p. 44.

Fairbanks and other interior points (Institute of Social and Economic Research. June 1980. p. 19) The Borough is also connected with Valdez and the Al-Can Highway via the Glenn and Richardson Highways. During the summer months, the Denali Highway, a 160-mile dirt road, connects the Parks Highway with the Richardson Highway. The Denali Highway is not plowed in the winter, and therefore closed to traffic.

The construction and maintenance of roads in the Matanuska-Susitna Borough are performed under the auspices of a number of agencies and includes: federally assisted state projects; State bonded projects; state assisted borough projects (including the Local Service Roads and Trails Program, and the State Revenue Sharing Programs for roads administered through road service areas at the rate of $2,500 per mile of dedicated public road); and privately developed public roads (the Borough requires local roads and collectors to be built to minimum standards in accordance with its subdivision regulations). (Overall Economic Development Program, Inc. July 1980).

The Richardson Highway, the State's oldest road, is the main arterial route connecting Valdez with Anchorage and Fairbanks. The 370 miles of this highway from Fairbanks to Valdez was used quite heavily during construction of the trans-Alaska pipeline, which has left several sections of the road in particularly poor condition. The section from Gulkana to Delta Junction is perhaps the worst. The highway is four lanes from Fairbanks to Eielson and two lanes the remainder of its length. (Institute of Social and Economic Research. June 1980).

3.5.2.4 - Rail

The 470-mile corridor from Seward to Fairbanks is connected, in addition to the Parks Highway, by the only federally-owned and operated railroad in the United States. Physically, the system is well-maintained. Major renovations and upgrading of the track and structures during the 1975-1977 period accounts for its excellent conditon.

Annual traffic volume varies between 1.8 and 2.3 million tons, with coal and gravel accounting for 75 percent of this. It is estimated that the system is working at only 20 percent of its capacity at present (conversation with Fred Hoefler, Alaska Railroad). About half the total volume is transported during the summer months in transporting gravel, from Palmer to Anchorage. Coal from Healy mines, amounting to approximately 500,000 to 600,000 tons annually, is transported to Fairbanks and Eielson Air Force Base. (Institute of Social and Economic Research. June 1980; p. 21).

Freight service operates three times weekly between Anchorage and Fairbanks, with overnight delivery to Fairbanks of goods arriving in Anchorage by ship. In addition, coal trains operate twice weekly from Healy to Fairbanks; there is service once or twice weekly from Anchorage to meet barges in Whittier; once weekly to Seward, mostly for log movements; and five or six times weekly for summer gravel trains from Palmer to Anchorage. Freight rates are calculated on a per volume basis and therefore no set rate exists.

Daily Anchorage-Fairbanks and Anchorage-Whittier passenger service is provided during the summer months with service being reduced to twice and three times weekly, respectively, during the winter. The passenger train will stop at any location for embarking or disembarking passengers.

3.5.2.5 - Air

Because of the long distances between populated centers and the lack of roads in Alaska, air transportation is the major form of transportation in moving passengers throughout the state. If it were not for air transportation, many coastal and bush communities would be inaccessible. The airport facilities at Anchorage and Fairbanks are of international classification and there are two airlines that schedule daily flights to Valdez; Valdez Airlines and Alaska Aeronautical

Industries. Also available is commercial weekly service to Glennallen, Tok, and Delta Junction.

Anchorage is the air traffic hub, not only of the region and the state, but also for the Northern Pacific Rim. It is also a major refueling point for air traffic between the Far East and Europe. Both Fairbanks and Anchorage serve this function as a refueling stop, however, Fairbanks is becoming increasingly more important in this role because of the new jet fuel refining capabilities at Earth Resources North Pole refinery outside of Fairbanks.

Figure 8 is a schematic of international, interstate, and intra-regional scheduled air services.

Private air transportation, is a primary form of transportation to communities that do not offer commercial scheduled service. For many areas in Alaska this may be the only link to populated centers. This is not necessarily the case in the Matanuska-Susitna Borough and the Valdez-Cordova census division because of the comprehensive highway system, nonetheless, many communities have active airstrips. The largest airport in the Matanuska-Susitna Borough is the Palmer Municipal Airport, with a 5,000 foot runway. As displayed in Table 21 and Figure 9, community airstrips are abundant in Study Area 2.

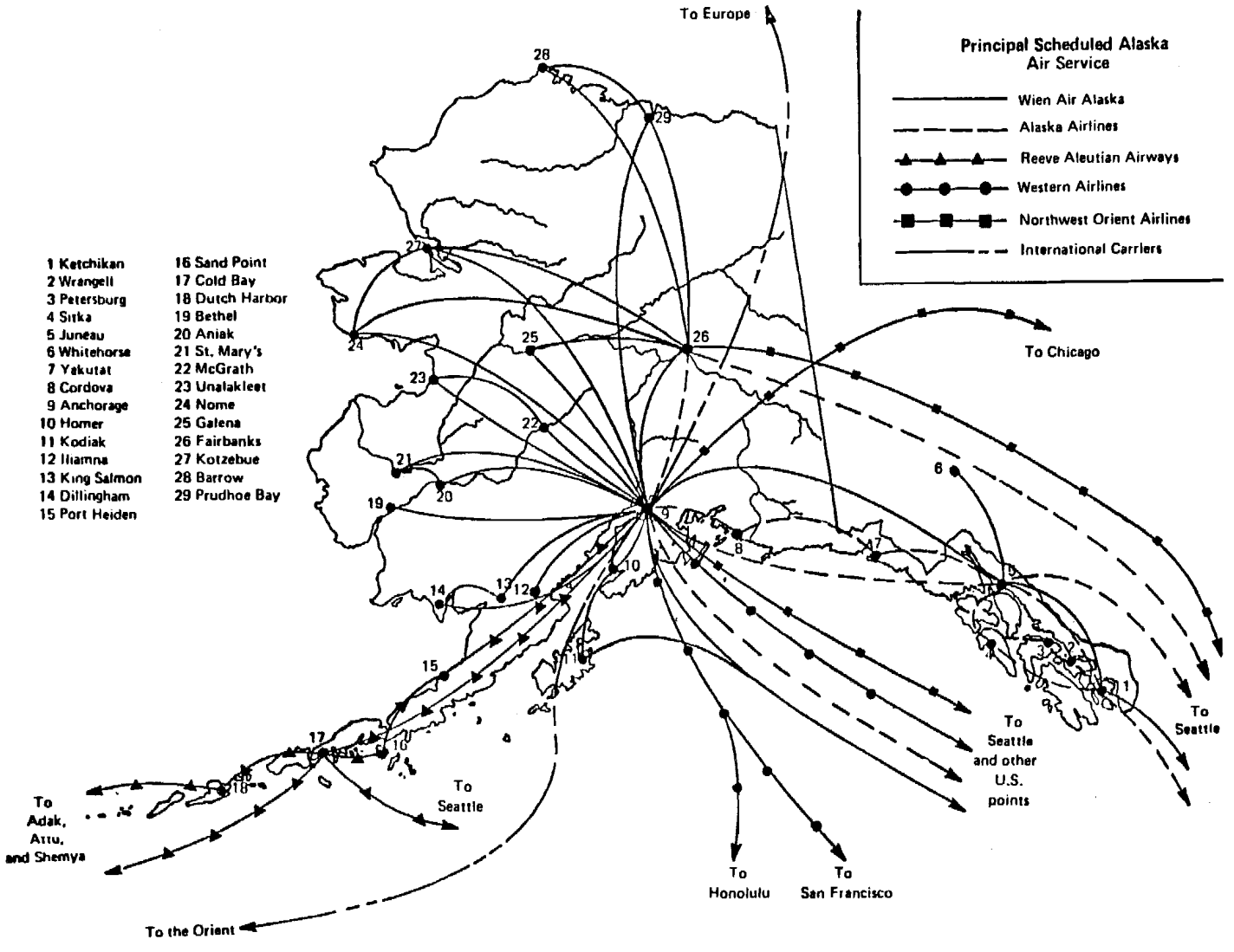
3.5.3 - Communications

3.5.3.1 - Matanuska-Susitna Borough

3.5.3.1.1 - Telephone

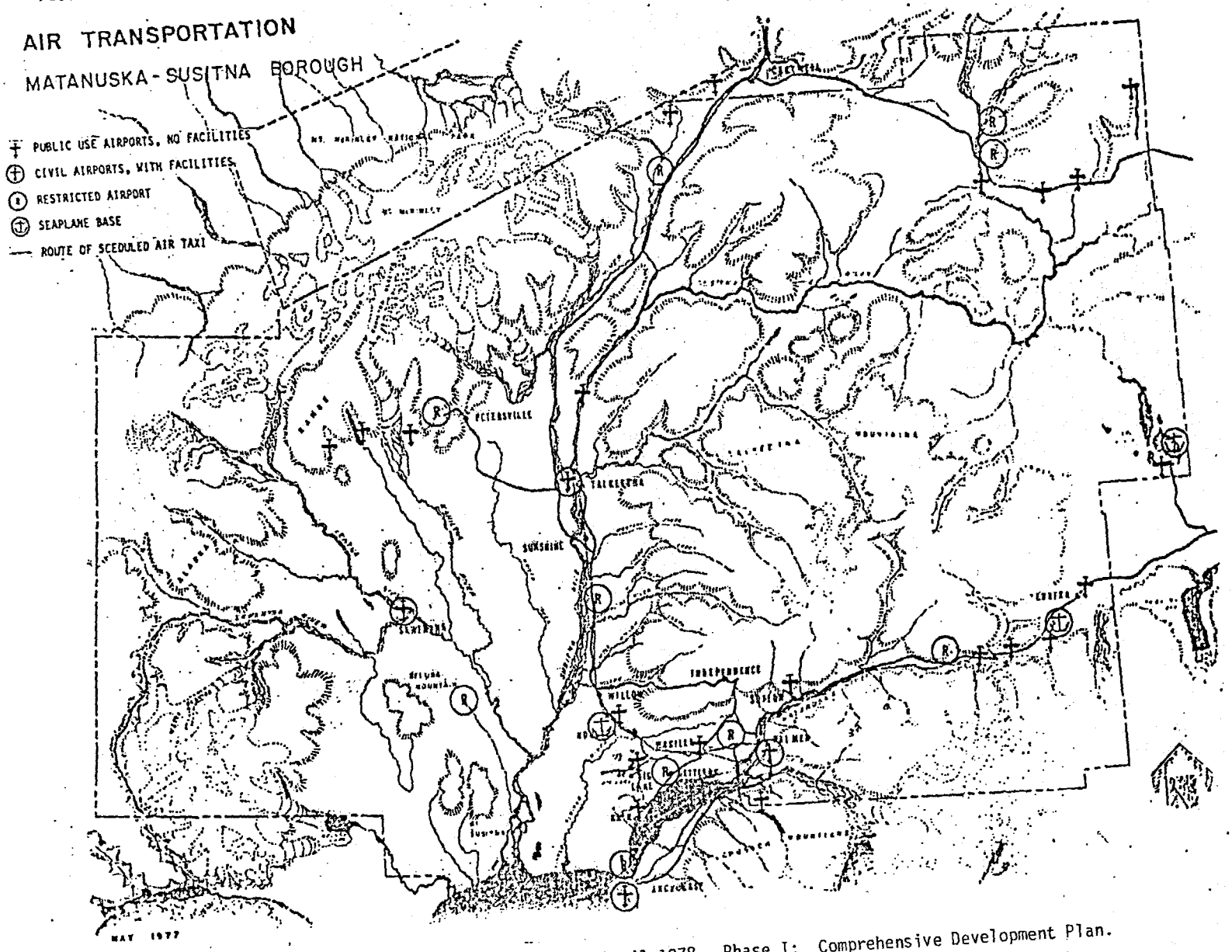
The Matanuska Telephone Association (MTA) was incorporated in 1953 and originally provided services to four exchanges in the Matanuska Valley; Chugiak, Palmer, Wasilla, and Sutton. It was not until 1965 that the Susitna Valley first received service.

FIGURE 8



Source: Institute of Social and Economic Research, University of Alaska. June 1980. Alaska Review of Social and Economic Conditions. Alaska's Unique Transportation System. p. 23.

FIGURE 9



Source: Matanuska-Susitna Borough Planning Department. April 1978. Phase I: Comprehensive Development Plan. Palmer, AK. 245 pp.

MTA currently operates nine exchanges, the majority of which are in the Matanuska-Susitna Borough. Three exceptions are the Healy and Cantwell exchanges which are located directly north of the Borough along the Parks Highway, and the Tyonek exchange located on the north shore of Cook Inlet. At the end of 1979, the MTA was serving 10,881 telephones in nine exchanges (conversation and correspondence with Don Taylor, Matanuska Telephone Association, Palmer).

Overall station growth slowed in 1979 to about eight percent, which allowed greater emphasis on service improvements and expansions. MTA's service area recently expanded to incorporate the area along the Glenn Highway which was previously served by the Copper Valley Telephone Association. Among other plans for extending service is one, which pending state utilities Commission approval, will extend lines in the summer of 1981 to include the Pt. McKenzie agricultural development project. It is anticipated that there will be approximately 75 to 80 new services when the development is completed (Frontiersman, January 15-21, 1981). There are also plans for the completion of a new digital switching system office in Wasilla in 1982. The existing Wasilla Central Office Equipment will be available for re-use for required additions in the future. MTA is also proceeding this year with its plans to implement a backbone microwave system.

Other plans include the implementation of a mobile radio telephone and radio paging service for the Palmer and Wasilla area, and later to other areas as demand dictates. This project is currently in the budget for 1981. Approval for the provision of cable television to selected areas in the Borough has been granted by the Alaska Public Utilities Commission, and is awaiting FCC approval. Rural radio systems provide service to isolated individual subscribers in the Cantwell-Talkeetna area (Matanuska Telephone Association, Inc. 1978).

MTA is a member of the Rural Electrification Association Cooperative and as such must submit loan proposals for the necessary capital for expansions and improvements. The proposals are based upon subscriber data, population forecasts, and historical trends in the service area. The 1978 -1983 supplemental loan proposal which amounted to $41,011,390 was in anticipation of the capital needs for the above listed expansions and improvements. As of January 14, 1980, Talkeetna had 232 total lines and telphone numbers in service for single and multi-line customers and it was forecasted that there would be a need for 672 in 1990. At the same time, Palmer and Wasilla had 2,725 and 2,500 respectively, with an anticipated increase to 8,841 in 1990 for Palmer and 12,164 for Wasilla. At the end of 1979 Cantwell had 45 with an expected increase to 95 in 1990 and Healy had 230 with a prediction for a need of 779 in 1990. (Fill Report, December 1980).

In the immediate future there are plans for the addition of 100 lines and 100 terminals in Healy; 200 lines and 200 terminals in Willow; and 200 lines and 100 terminals in Talkeetna (conversation with Don Taylor, Matanuska Telephone Association, Inc.).

Table 25 displays the "capacities" or numbers of installed services of all classes in the various exchanges in the Borough; the number presently assigned; and the available spare. This does not take into consideration the above mentioned additions.

3.5.3.1.2 - Radio

While many of the Anchorage radio stations can be received in the Borough, the Borough is now served by its own station. Formed in 1972 by a group of Valley residents, Valley Radio Corporation went on the air in September, 1979. KABN's Big Lake studio broadcasts approximately 138 hours per week on 1150 AM, with a power of 5,000 watts. The transmitter and other equipment are engineered for

TABLE 25

MATANUSKA TELEPHONE ASSOCIATION, INC.
TOTAL NUMBER OF INSTALLED, ASSIGNED, AND
SPARE TERMINALS AND 1990 ESTIMATE

-DECEMBER 1980-

Exchange	Installed	Assigned	Spare	Estimated 1990
Big Lake	900	686	214	2,151
Healy	400	274	126	779
Palmer	3,300	2,881	419	8,841
Talkeetna	400	257	143	672
Tyonek & Cantwell	90	47	23	80 95
Wasilla	5,500	2,614	2,886	12,164
Willow	300	246	54	701

Source: Matanuska Telephone Association, Inc. December 1980. Fill Report. Palmer, AK; 12 pp.

E5/P

stereo transmission, although broadcasting is currently in mono. Its light rock format includes numerous special interest programs giving special attention to Valley activities (Markle, June 19, 1980).

3.5.3.1.3 - Television

Valley residents presently receive the four Anchorage television stations. The MTA is studying the feasibility of expanding its services to include Cable TV for both rural and core area subscribers. Following the analysis of the market and construction costs, rates will be set and the application to the Alaska Public Utilities Commission will begin (Matanuska Telephone Association, 1980).

3.5.3.1.4 - Newspapers

The area is served by two weekly newspapers; the Valley Sun which is distributed to all of the Borough's 7,400 postal patrons, and the Frontiersman, founded in 1947, which is distributed to 2,500 paid subscribers.

3.5.3.2 - Valdez and Copper River Region

Prior to the implementation of the RCA-Alascom communication system in the Valdez and Glennallen region, television, telephone, and telex services were either non-existent or of debatable quality in most communities. Now service is provided to nearly all settled communities in the area and distributed by several franchises.

3.5.3.2.1 - Telephone

Telephone service is provided by Copper Valley Telephone Cooperative (CTV) to both Valdez and the Glennallen Region. The Copper Valley Telephone Cooperative currently provides over 3,900 phones for a population of 4,100, and the Glennallen region is up to 1,200 phones from the 700 reported in 1976. It is reported that there were more phones installed in Valdez in 1979 than any year since the 1973-76 pipeline era boom. (Alaska Journal of Commerce, January 26, 1981).

3.5.3.2.2 - Radio

There are no local Valdez radio stations. However, the residents of the city are able to receive a station from Anchorage, KBYR.

The residents of Glennallen and surrounding communities are served by KCAM, which is broadcast by the Central Alaska Mission in Copper Center.

3.5.3.2.3 - Television

At the present time, television is brought into Valdez by the State Satellite Television Project, which provides a series of prerecorded television programs. Cable television is also available through the Valdez Cable Company.

Glennallen and surrounding communities just recently started receiving programs provided through the State Satellite Television Program. Television from Fairbanks (KFAR) can also be received in some portions of the region by a booster station.

3.5.3.2.4 - Newspaper

Currently only one newspaper is published in Valdez, The Valdez Vanguard. It is a weekly and has an estimated circulation of 1,500 in the city and immediate area.

Published in Kenny Lake is The Copper Valley Views. It serves the area from Paxson to Valdez along the Richardson Highway and has an estimated circulation of 750. The newspaper is moving from Kenny Lake to Mile 182 on the Richardson Highway in the summer of 1981.

3.5.4 - Power Availability

3.5.4.1 - Matanuska-Susitna Borough

The Matanuska-Susitna Borough and northern portion of the Muncipality of Anchorage are currently serviced by the Matanuska Electric Association, Inc. (MEA), located in Palmer. As of August 31, 1980, MEA served 12,969 meters in 3,360 square miles of southcentral Alaska. Just as Copper Valley Electric Association was impacted by the construction of the pipeline, MEA witnessed an increase in power requirements primarily as a result of workers moving into the service area. A second occurrence that spurred residential and commercial activity in MEA's service area, therefore increasing power demands, was the vote to move the State Capital from Juneau to Willow. Table 26 illustrates the growth in the region with a steadily increasing number of consumers from 1975 to 1980.

Wholesale power is purchased primarily from Chugach Electric Association's natural gas-fired turbines at Beluga and Bernice Lake, as well as from the Alaska Power Administration's Eklutna hydroplant and a small hydroelectric operation at Cooper Lake located on the Kenai Peninsula.

TABLE 26

NUMBER OF ELECTRICAL CONSUMERS:
MATANUSKA, VALDEZ, AND GLENNALLEN DIVISIONS
1975 - 1980

MATANUSKA DIVISION

CONSUMER	1975	1976	1977	1978	1979	1980
Residential[1]	6,729	7,681	8,991	10,830	11,287	11,957
Small Commercial	896	1,056	1,183	1,214	1,255	1,254
Large Commercial	62	72	82	93	100	99

VALDEZ DIVISION

CONSUMER	1975	1976	1977	1978	1979	1980
Residential[1]	533	1,052	1,040	892	959	1,053
Small Commercial	164	207	190	196	194	195
Large Commercial	21	24	32	33	33	32
Other	14	14	14	19	23	30

GLENNALLEN DIVISION

CONSUMER	1975	1976	1977	1978	1979	1980
Residential[1]	418	621	651	666	629	644
Small Commercial	115	138	163	173	200	209
Large Commercial	24	33	40	21	18	17
Other	26	31	33	34	35	35

[1] Full time residential and seasonal are combined. For the Mat-Su Division, seasonal consumers account for 638; 645; 670; 678; and 660 of the total consumers for the period 1975 to 1979, inclusive (approximately 9 percent of the total residential).

Sources: Copper Valley Electric Association, Inc.

Overall Economic Development Program, Inc. July 1980. Volume II: Economic Conditions, Development Options and Projections, p. 90.

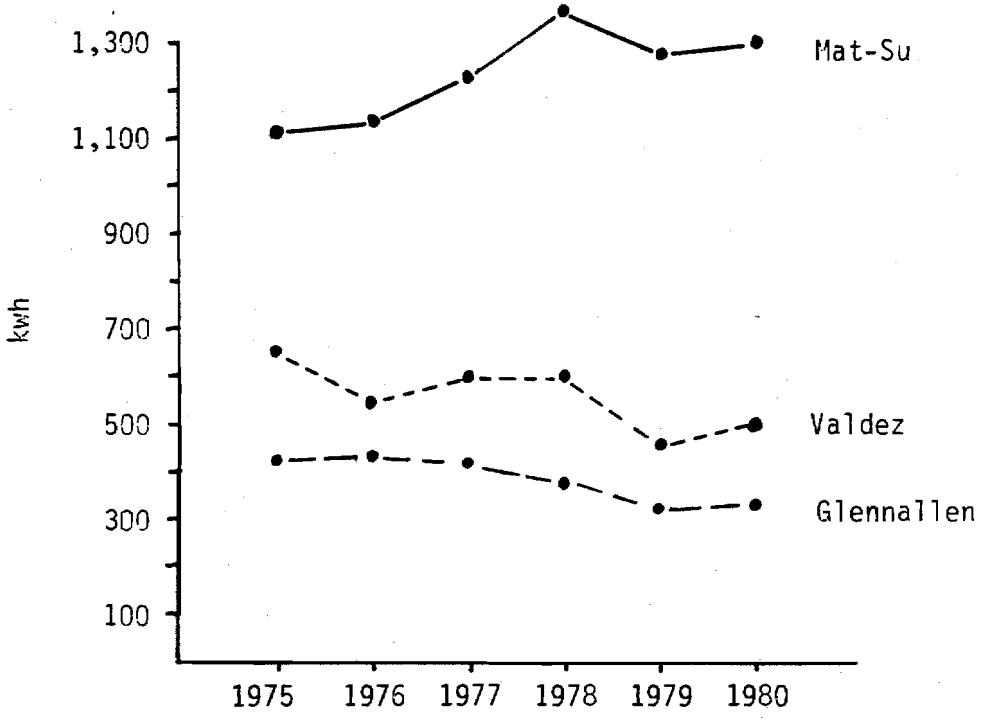
Over the years, MEA has followed an aggressive expansion program to keep pace with the rapidly increasing population of the Borough. However, as people have become more energy conservative, the average energy usage has actually declined since 1978. Energy awareness is exhibited by the upgrading of the quality of insulation in houses and the utilization of wood burning stoves as a back-up source of heat. The downturn in the economy has also been a contributing factor to a lesser power demand. Figures 10, 11, and 12 show the trends in kilowatt hrs./month/ consumer for residential, small commercial, and large commercial.

Currently 95 percent of new houses being constructed in the Matanuska-Susitna portion of the service area are equipped with electric heat. This figure is much lower in the southern portion of the service area where less than 5 percent have electric heat because of the readily available low cost gas in the area.

Table 27 provides MEA and Copper Valley Electric Association Residential consumer rates and Table 28 shows consumer cost relative to other areas in the state and country. Similar information for small commercial and large commercial is also available. Since the cooperative purchases all of its electricity, its rates are largely dependent upon its wholesale purchase price. The price of hydroelectric power purchased from the Alaska Power Administration can be expected to remain relatively stable. However, power from Chugach Electric Association will probably increase in price due to increases in the price of natural gas. Beluga Field natural gas used for power may take an immediate leap from 13.3¢/mcf to 84.7¢/mcf when Pacific-Alaska LNG purchases gas from the same field. There has also been a move by the federal government to limit the use of natural gas by electric utilities. However, even if limitations are not imposed, the price is expected to increase. (Overall Economic Development Program, Inc., July 1980; pp. 86-87).

FIGURE 10

RESIDENTIAL ELECTRIC CONSUMERS
MAT-SU, VALDEZ, AND GLENNALLEN DISTRICTS
(kwh/month/consumer)

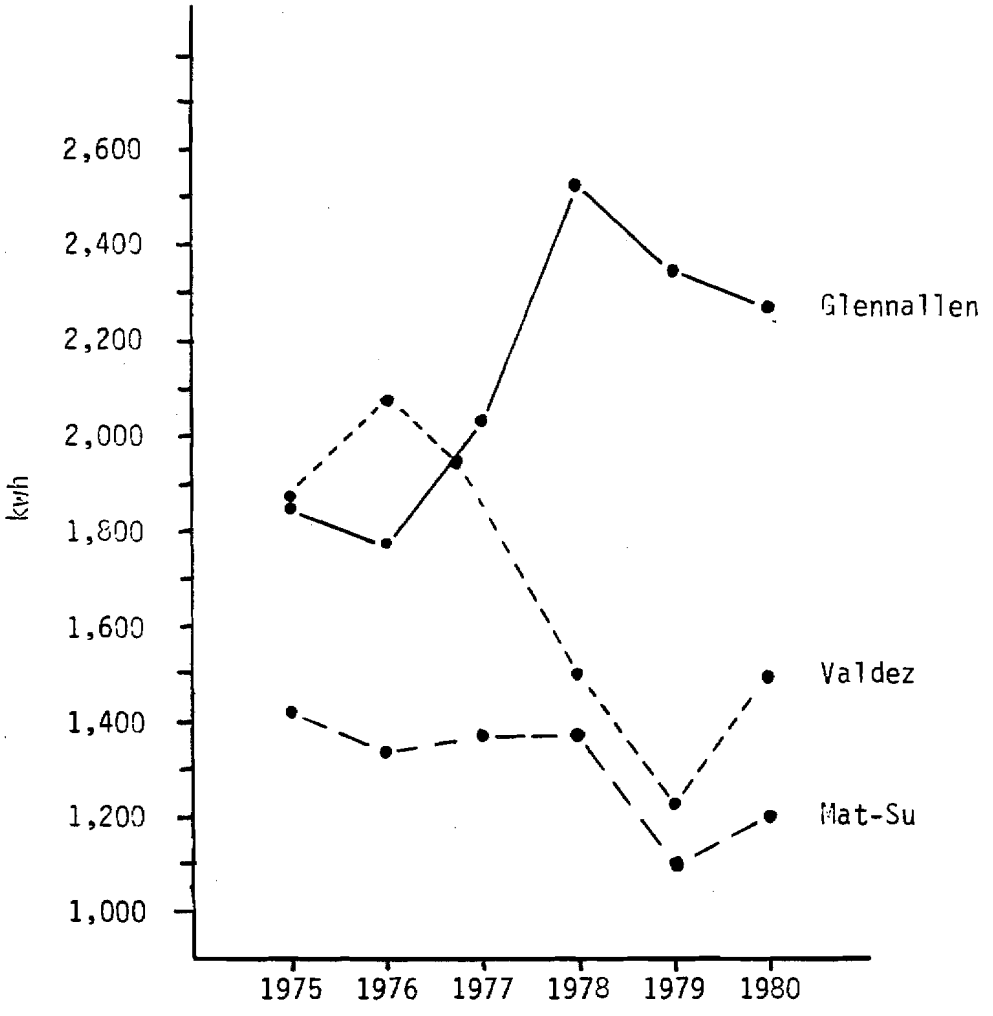


Source: Conversation with Dan Teggler, Copper Valley Electric Association.

Conversation with Ken Ritchey, Matanuska Electric Association.

FIGURE 11

SMALL COMMERCIAL ELECTRICAL CONSUMERS
MAT-SU, VALDEZ, AND GLENNALLEN DISTRICTS
(kwh/month/consumer)

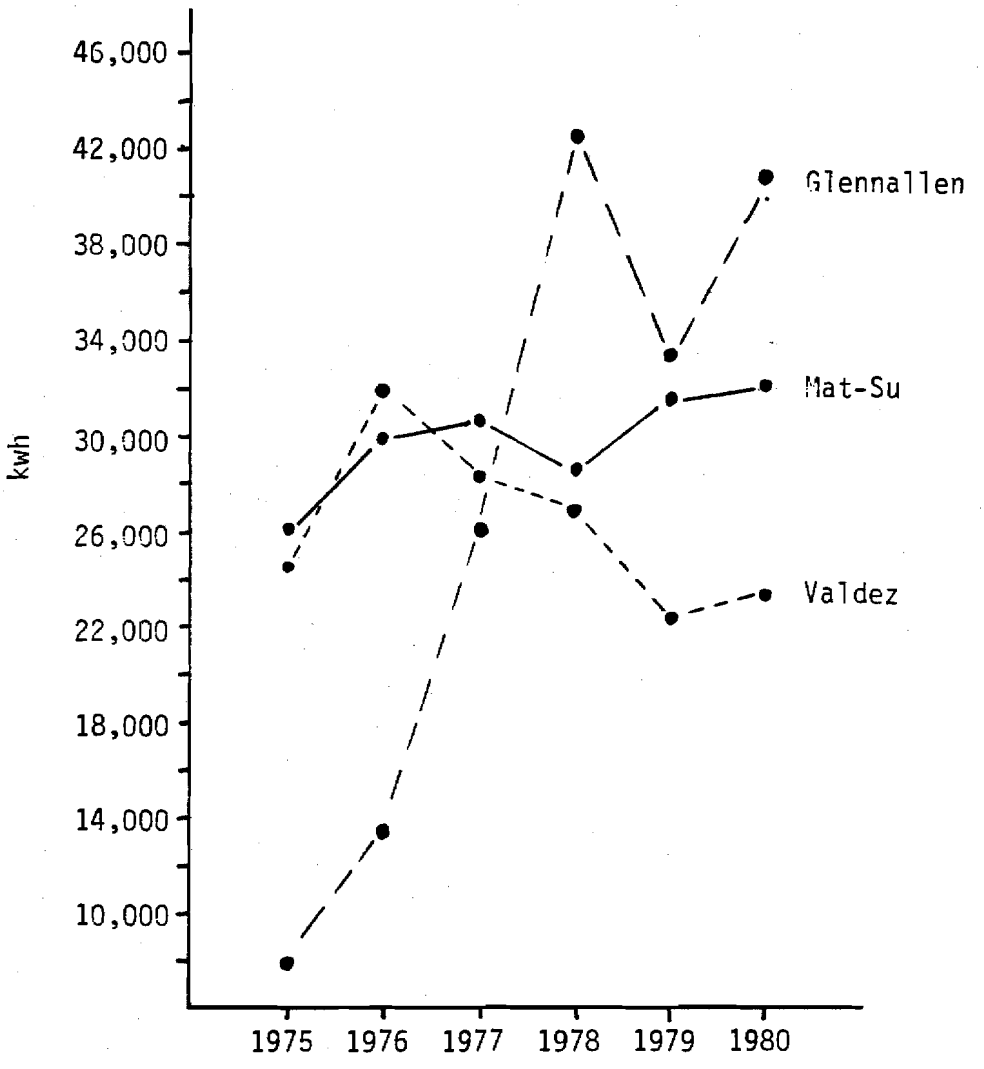


Source: Conversation with Dan Teggler, Copper Valley Electric Association.

Conversation with Ken Ritchey, Matanuska Electric Association.

FIGURE 12

LARGE COMMERCIAL ELECTRICAL CONSUMERS
MAT-SU, VALDEZ, AND GLENNALLEN DISTRICTS
(kwh/month/consumer)



Source: Conversation with Dan Teggler, Copper Valley Electric Assocation.

Conversation with Ken Ritchey, Matanuska Electric Assosication.

TABLE 27

RESIDENTIAL CONSUMER RATES

MATANUSKA ELECTRIC ASSOCIATION[1]

First 100 kwh @ 11.6¢ per kwh

Next 150 kwh @ 7.7¢ per kwh

Next 250 kwh @ 5.8¢ per kwh

Next 700 kwh @ 3.2¢ per kwh

Over 1,200 kwh @ 2.6¢ per kwh

COPPER VALLEY ELECTRIC ASSOCIATION[2]

First 100 kwh @ 24.0¢ per kwh

Next 100 kwh @ 20.5¢ per kwh

Next 400 kwh @ 17.0¢ per kwh

Over 600 kwh @ 13.0¢ per kwh

VALDEZ DISTRICT

First 200 kwh @ 20.0¢ per kwh

Next 400 kwh @ 12.0¢ per kwh

Over 600 kwh @ 10.0¢ per kwh

---

[1] Source: Overall Economic Development Program, Inc.

[2] Source: Conversation with Dan Teggler, Copper Valley Electric Association.

TABLE 28

CONSUMER COST OF ELECTRIC ENERGY
FOR SPECIFIED USAGES AND SUPPLIERS
(Residential Rate Analysis - Dollars per Month Billed)

Kilowatt-hours	Seattle City Light	CEA Urban Rate	Anch. ML&P Rate	CEA SubUrban Rate	Dallas,TX Power & Light	MEA	CEA Rural Rate	**HEA (N.of Kachemak Bay)	Los. Ang. Water & Power	GVEA	N.Yk.City Consol. Edison	CVEA Valdez	CVEA Glenn-allen
500	5.84	19.90	19.79	25.15	27.76	37.65	43.71	35.25	32.05	48.59	49.03	62.40	64.90
1300*	-	39.85	45.31	48.25	-	62.65	73.96	74.25	-	114.91	-	135.40	154.10
3000	38.80	74.65	99.54	83.05	147.33	106.85	107.96	135.25	192.27	228.99	277.52	279.90	322.40
4500	-	104.65	157.39	113.05	-	145.85	137.96	180.25	-	326.49	-	407.40	470.90
CENTS PER KWH (same usages and suppliers)													
500	1.17	3.98	3.96	5.08	5.55	7.53	8.74	7.05	6.41	9.72	9.81	12.48	12.98
1300*	-	3.07	3.49	3.71	-	4.82	5.69	5.71	-	8.83	-	10.41	11.85
3000	1.29	2.49	3.32	2.77	4.91	3.56	3.60	4.51	6.41	7.63	9.25	9.33	10.74
4500	-	2.33	3.28	2.51	-	3.24	3.07	4.01	-	7.26	-	9.05	10.46

* MEA approximate average usage; figure used to determine ranking: left to right is low to high.
** From rate request submitted to APUC, May 19, 1980.

CEA - Chugach Electric Association, Inc.
MEA - Matanuska Electric Association, Inc.
HEA - Homer Electric Association, Inc.
GVEA - Golden Valley Electric Association, Inc.
CVEA - Copper Valley Electric Association, Inc.

Prepared by Public Information Office
Matanuska Electric Association, Inc.
Palmer, Alaska
June, 1980

Source: Overall Economic Development Program Inc. July 1980. Volume II: Economic Conditions, Development Options and Projections. Palmer, AK. p. 91.

MEA assumes, as indicated in the 1979 Power Requirements study, that the downturn in the economy is nearing its end, and will gradually recover over a two-year period. The 1979 Power Requirements study has a less optimistic outlook than the 1978, but MEA estimates that at the end of five years, total requirements will be 324 million kwh/yr., and at the end of 10 years, total requirements will be 413 million kwh/hr. (Matanuska Electric Association, Inc., September 1980). Given the vicissitudes of growth in the Borough in the past, and the uncertainty of developments in the future, it is difficult to predict the future power requirements.

3.5.4.1.1 - Coal

There are significant coal deposits in the Matanuska-Susitna Borough. The community of Eska-Sutton was composed mostly of employees of the Jonesville mine. Over 80 percent of the local coal market was represented by the Anchorage military bases. The mines were closed in the winter of 1968 after the bases completed their plant conversion from coal to gas. Coal mining activity today is limited to providing fuel for a few households.

3.5.4.1.2 - Natural Gas

None of the area has natural gas service.

3.5.4.2 - Valdez and Copper River Region

The area from Valdez to Paxson is supplied with electricity by the Copper Valley Electric Association, a non-profit Rural Electrification Administration electric utility. This service area is divided into two districts: the Glennallen district and the Valdez district.

The Glennallen service district encompasses the area north to Paxson and South to Thompson Pass along the Richardson Highway and west to

Chickaloon on the Glenn Highway. The eastern boundary extends to Slana on the Tok cut-off. The boundaries of the Valdez service area extend from the Valdez port to the Keystone Canyon area leading to Thompson Pass. At present, an intertie between the two districts does not exist, but construction of a intertie is scheduled for completion in the fall of 1981 when the Solomon Gulch hydroelectric facility is on line. The Solomon Gulch facility will produce 12 megawatts (MW). A second supplemental source of power in the future would be the installation of a 9.0 MW pressure-reducing turbine in the Trans-Alaska pipeline near Valdez. This plan would utilize the oil flowing through the pipeline to power a turbine (U.S. Environmental Protection Agency. December 1979). Currently, all power is supplied by diesel generators.

As illustrated in Table 26, the number of residential consumers doubled in the Valdez district from 1975 to 1976 reflecting the peak pipeline construction period. There was a slight decrease immediately following 1977, but the level has remained at almost double that of the pre-pipeline period. Small commercial and large commercial did not show any dramatic changes in the Valdez district, nor did any of the consumer classes in the Glennallen division.

In terms of average kilowatt hours/month/consumer, as Tables 10, 11, and 12 illustrate, there has actually been a reduction in the average use in all classes of consumers in both the Valdez and Glennallen district except for small and large commercial consumers in the Glennallen district. Whereas the number of large commercial consumers has actually decreased since 1975 in the Glennallen district, the average kwh/mo./consumer in 1980 is over five times that of the 1975 level. This increase in requirements is directly related to the pipeline, and specifically, the installation of two pumping stations, three mechanical refrigeration sites, and a series of thirteen block valve sites in the Glennallen area (Institute of Social and Economic Research. 1976. pp. 3-7).

3.5.5 - Police

3.5.5.1 - Matanuska-Susitna Borough

Police protection in the Matanuska-Susitna Borough is provided by the Alaska State Troopers, of which there are a total of 14 in the Borough, with the largest detachment of seven in Palmer. The remaining seven are dispersed throughout the Borough with two in Wasilla, one at Big Lake, one at Trapper Creek, and three in Talkeetna. Four additional troopers have the responsibility of fish and wildlife protection and enforcement.

The City of Palmer is the only first class, home rule city in the Borough and therefore has police powers of seven officers and five civilian support personnel. The most common crime is vandalism in an otherwise low crime rate district.

There are three detention and correctional facilities in the Borough: a temporary detention facility in Palmer maintained by the Palmer Police Department; McLaughlin Youth Center in Wasilla providing long and short term correctional facilities for juveniles, and the Adult Correctional Facility located near Sutton providing long and short term correctional facilities for adults.

The Hilstrom Building in Palmer houses the one court in the Borough. (Overall Economic Development Program, Inc. July 1980).

3.5.5.2 - Valdez

As would be expected, the City of Valdez experienced a dramatic rate of increase in criminal activity during the pipeline construction period. In fact, crime increased at a rate that far surpassed the rate of increase in population. Steady increases were observed in larcenies and alcohol related disturbances. Consequently, the Valdez Police

Department has expanded from a staff of two, prior to the commencement of the pipeline, to its present size of 13 full time officers and five full-time dispatchers. Out of the 13 officers, one is an investigator, and one is a juvenile officer.

The Valdez Police Department occupies a recently completed wing in the City Hall and has a contract with the state for use of the seven cell detention facility with a total of 12 beds.

There is a state trooper post in Valdez that is staffed by two troopers and one scale operator. (U.S. Environmental Protection Agency. December 1979; p. II-64).

3.5.5.3 - Glennallen

The only state trooper post between Valdez and Fairbanks along the Richardson highway is in Glennallen. This facility maintains seven troopers, four dispatchers, and one motor vehicle clerk. One additional trooper is located in Paxson assigned to fish and wildlife enforcement.

Also located in Glennallen is a court building which contains two holding facilities and a court room for the one full time magistrate.

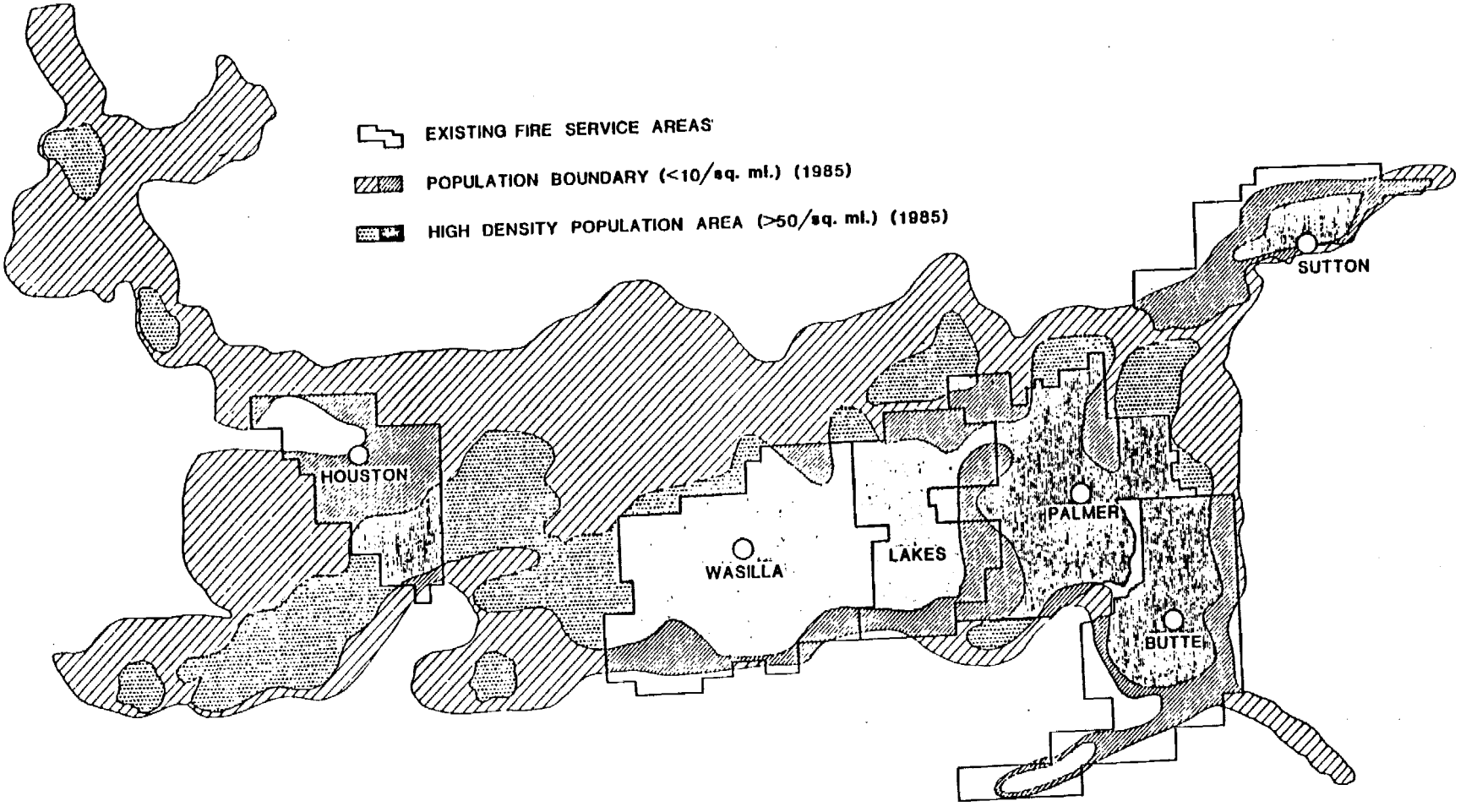
3.5.6 - Fire Protection

3.5.6.1 - Matanuska-Susitna Borough

The existing fire service areas of Houston, Wasilla, Palmer, Butte, and Sutton are displayed in Figure 13. Figure 14 represents the recent work of the Mission Research Corporation in establishing and proposing fire service areas that would provide fire protection for up to 95 percent of the Matanuska-Susitna Valley population. The large circles correspond to existing fire stations and the small circles represent

FIGURE 13

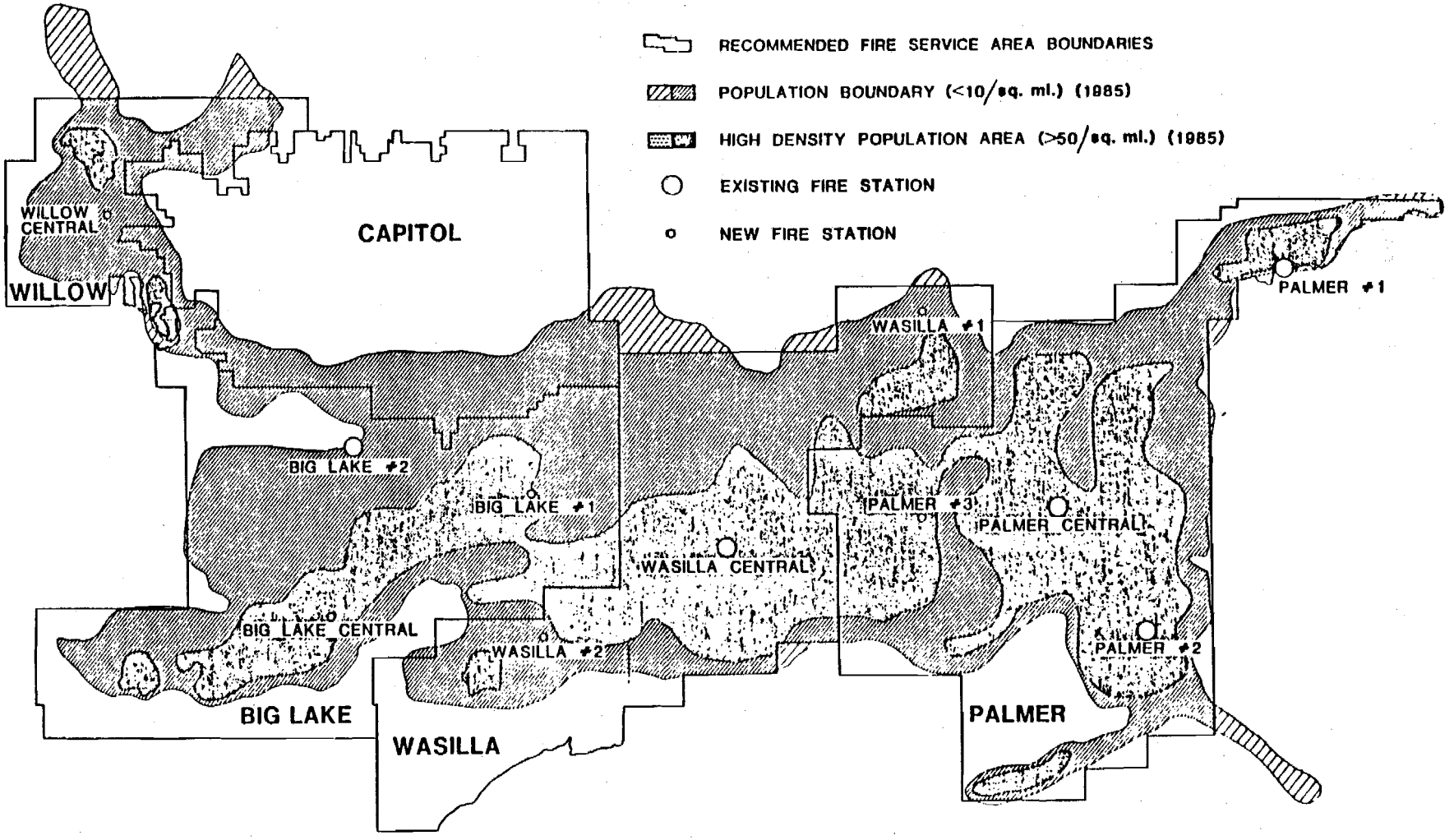
EXISTING FIRE SERVICE AREAS



Source: Mission Research Corporation, Fire Protection Plan for the Matanuska-Susitna Borough - Alaska, Interim Report, April 1980.

FIGURE 14

PROPOSED FIRE SERVICE AREAS



Source: Mission Research Corporation, Fire Protection Plan For The Matanuska-Susitna Borough - Alaska, Interim Report, April 1980.

proposed stations. The need for a redefinition of service areas and the addition of six fire stations is in response to the increased population in the Borough. Mission Research Corporation based its proposed boundaries on response time, road conditions, and the need for a balance between area and population. The cost of fire protection in these areas is funded by a special village rate on the assessed valuation within the service areas.

The expansion of the boundaries in addition to providing more comprehensive service in the Palmer and Wasilla area, includes the addition of service in the vicinity of Willow and Big Lake. Population is perceived to increase in Willow whether or not the capital move materializes. There are a few other fire protection facilities in the Borough, namely the Talkeetna Fire Hall with three pieces of equipment and the inactive Trapper Creek facility. There are no changes recommended in the boundaries of these areas. Areas of the Borough not within the boundaries of a fire service area must rely on their own resources and volunteer assistance of their neighbors.

The fire stations in Palmer and Houston are the only two city-maintained stations in the Borough and have three full time employees, two in Palmer and one in Houston. All other fire stations are maintained by the Borough and rely on volunteer service.

3.5.6.2 - Copper River Region

Fire Protection in the Copper River region is carried out by volunteer forces. There are presently two fire stations in the region: one in Glennallen with five pieces of equipment and one in Copper Center with two pieces of equipment. The fire stations are maintained primarily by state revenue sharing.

3.5.7 - Health Services

The Municipality of Anchorage, being the predominant metropolitan area and transportation center in the state, has developed a comprehensive acute and long-term health care system in keeping with the needs of the state, and therefore provides the main medical care for the residents of southcentral Alaska. The communities in the outlying areas are not without medical facilities; but it is not uncommon for patients to be airlifted to Anchorage when necessary.

Table 29 should suffice in providing the necessary information for evaluating the capabilities of the various medical facilities in Anchorage, the Matanuska-Susitna Borough, Valdez, and the communities along the Richardson Highway. The best indicators of performance and capacity are the occupancy rates and average day per patient figures. The low average day per patient figure for Valdez reflects the young, healthy composition of the residents. Even during the peak of the pipeline construction, the occupancy of Valdez Community Hospital never exceeded 50 percent. (Conversation with supervising nurse, Valdez Community Hospital, Valdez, AK).

3.5.7.1 - Anchorage

Anchorage provides a wide spectrum of health services to its residents in addition to the acute care mentioned above. The following section briefly describes the long term care, ambulatory service, and other health services offered. This information on health facilities in Anchorage is extracted from Ender, Richard L., et al. January 1980. Volume I: Gulf of Alaska and Lower Cook Inlet Development Scenarios Anchorage Socioeconomic and Physical Baseline. Anchorage, AK. p. 363.

TABLE 29

MEDICAL FACILITIES/SERVICES AND INPATIENT UTILIZATION DATA

-1980-

Hospital	FAITH[1]	VALDEZ COMMUNITY[1]	VALLEY[1]	ALASKA[1]	PROVIDENCE[2]	ALASKA NATIVE MEDICAL CENTER[2]
Location	Glennallen	Valdez	Palmer	Anchorage	Anchorage	Anchorage
Type	Emergency and short-term facility	Emergency and minor surgery	Acute and long-term cure	Acute	Acute	Acute
Service Area	Approx. Paxson to Gulkana on Richardson Highway & 100 miles west on Glenn Highway.	Valdez	Matanuska-Susitna Borough	Anchorage and vicinity	Anchorage and vicinity	Anchorage & vicinity
No. of Beds	5 adult 1 pediatric	15	23	199	268	170
No. of Doctors	2 hospital-based	3	8	214	N/A	N/A
Cost per day	$100/day semi-private $200/day CCU or ICU	$210/day semi-private $230/day private	$185/day semi-private $190/day private	$220/day semi-private $225/day private	N/A	N/A
Occupancy Rate	30%	13.4%	49%	56%	82.4%	72.3%
Admissions	271	301	1,289	7,926	11,356	4,629
Average Day/ Patient	2.43	2.45	10.3	4.6	5.7	9.7
Patient Days Per Year	661	737	13,276	36,459	69,729	44,901
Outpatients Served	9,900	3,725	11,965	N/A	N/A	N/A
No. of Ambulances	2	2	EMT out of Palmer Fire Hall	N/A	N/A	N/A
Patients Evacuated To	Anchorage	Anchorage	Anchorage	Seattle	Seattle	N/A

[1] Source: Conversations with personnel at hospital.

[2] Source: Ender, Richard L., et al. January 1980. Volume I: Gulf of Alaska and Lower Cook Inlet Petroleum Development Scenarios. Anchorage Socioeconomic and Physical Baseline. Anchorage, AK. (1978 data)

3.5.7.1.1 - Long-Term Care

Convalescent and long term care is provided by the following:

a. Skilled nursing facilities. There are 101 skilled nursing beds for 24-hour professional restorative care.

b. Intermediate care facilities. The role of the intermediate care facilities is to provide limited nursing and personal care to long-term patients with chronic medical problems. There are currently 217 intermediate care beds available in Anchorage.

c. Residential and custodial care facilities. Constraints involved in securing licensing and adequate funding have precluded the development of needed residential and custodial facilities. There are currently 100 beds in the Anchorage Pioneer Home for 65-year old Alaskan residents (of at least 15 years). There are approximately 14 residential facilities for youth, drug, alcohol, and other rehabilitative clients. Because of federal government reimbursement requirements, custodial care is more costly to the state than intermediate care and therefore, this element of a comprehensive health care system has not developed in relation to the needs indicated within the community.

3.5.7.1.2 - Ambulatory Care

As an alternative to institutionalized care, ambulatory care through outpatient services, private clinics, practices, etc. is designated to facilitate at-home convalescence.

3.5.7.1.3 - Emergency Care

Trained medics with the Muncipality of Anchorage Emergency Medical Services provide on-site aid in emergency situations. The Emergency Medical Division has five medic units with 36 personnel on staff including administration.

3.5.7.1.4 - Specialty Services

In addition to standard medical facilities and services available, the local delivery system also provides: full burn and debriding room; hypothermia expertise; comprehensive or orthopedic surgical and therapy unit; neurosurgery and neurology expertise; two comprehensive critical care units; two comprehensive neo-natal intensive care units; open-heart I.C. surgical expertise; renal dialysis; cardiovascular catheterization; and nuclear medicine.

3.5.7.1.5 - Mental Health

Mental health care is provided by both the private and public sector. Types of services that presently exist in Anchorage are:

- psychiatric inpatient (200 beds at Alaska Psychiatric Institute);
- outpatient therapy and counseling;
- crisis lines;
- rape and assault counseling;
- battered women and children's services;
- group homes;
- facilities for developmental and emotional disabilities; and
- pastoral counseling.

In addition, each acute care facility provides inpatient psychiatric services, as well as many of the services listed above.

3.5.7.1.6 - Social Services

The Alaska Department of Health and Social Services, Division of Social Services is the principal provider of social services in the Municipality of Anchorage. Additional services, to a limited degree, are also provided by the local municipal and select private organizations.

Local social services available in the Anchorage area fall into six categories:

1. children's services;
2. senior citizens' assistance;
3. employment assistance;
4. income assistance;
5. housing assistance; and
6. youth services.

For greater detail and a more comprehensive understanding of the medical and social services provided in the Anchorage area, it is suggested that the reader consult directly to the source: Ender, Richard L. et al., January 1980.

3.5.7.2 - Matanuska-Susitna Borough

3.5.7.2.1 - Acute Care

The Valley Hospital in Palmer currently provides acute and some long-term care with a total of 23 beds; 19 for acute and 4 for long-term. There are a total of 8 doctors, consisting of a pediatrician, surgeon, OB/GYN specialist, and five family practictioners.

One explanation for the relatively high average day per patient figure is (Table 29) due to the fact that surgery is performed at the Valley Hospital, therefore requiring a longer period of time in the hospital.

The 11,965 outpatients served in 1980 is a combination of emergency care and X-ray/lab patients in both the Valley Hospital and the Wasilla satellite X-ray lab facility.

The Valley Hospital, which was built in 1954, was once more than adequate to serve the residents of the Matanuska-Susitna Borough. However, it is now beginning to reach its limits. An independent consultant recently completed a cost study of several alternatives for expanding hospital services in the Borough. The recommendation was that a new hospital be built in Palmer rather than Wasilla due to the extra costs of sewage, road access, wells and power extension associated with the Wasilla site evaluated. The recommendation was unanimously accepted by the Board of Directors of the Valley Hospital Association, and they will now continue efforts to secure funding for the project. Both traditional sources of finance and a State grant are being explored, however, the board has found existing loan programs to be too costly and a State grant seems most immenent (Frontiersman, April 9-15, 1981, pp 1).

3.5.7.2.2 - Long-Term Care

The Palmer Pioneer Home provides long-term nursing and non-nursing care for the elderly.

3.5.7.2.3 - Emergency Medical Services

Ambulance service in the Borough is dispatched through the Palmer Fire Center on a 24-hour basis. There are presently 10 ambulances

located throughout the Borough with one back-up at the Borough office in Palmer. Ambulances are distributed as follows: one ambulance in Sutton; two in Palmer; two in Wasilla; one in Houston; one in Willow; one in Trapper's Creek; one in Talkeetna; and one at Matanuska Glacier.

The 911 emergency service number is connected directly to the ambulance dispatch center at the Palmer Fire Station and the Valley Hospital.

3.5.7.2.4 - Public Health Centers

Three public health centers are located in the Borough: Palmer Health Care Center; Wasilla Health Care Center; and Cook Inlet Native Association Health Care Center (Wasilla).

These centers provide the following services: well child assessment, immunizations, pap screening, pregnancy tests, glaucoma screening, TB skin tests, VD tests and treatment, and educational material on health.

3.5.7.2.5 - Mental Health

There are two mental health facilities located in the Borough: Langdon (Wasilla) and the Mat-Su Mental Health Center (Wasilla). Both facilities provide are: individual and group therapy; family and marital counseling; and alcohol and drug consultation.

3.5.7.3 - Valdez

The extensive health service facilities available to the residents of Valdez include the 15-bed Valdez Community Hospital; the Valdez Mental Health Center; and the Harborview Developmental Center, a state facility for the mentally and physically handicapped.

Additional service is provided by a public health nurse. Services include childhood services, communicable disease surveillance, immunizations, school health services, maternity care, and women's clinics. Three physicians, a dentist, and an optometrist provide the medical expertise for the community which is supplemented by regular visits by specialists from other areas of the State.

3.5.7.3.1 - Mental Health

The Valdez Mental Health Center began full-time operations in 1979. In its first year, the director recognized the need for an alcohol counseling program and has since implemented one.

Sources of the Center's budget include state and city contributions, client payments, and third party payments.

3.5.7.3.2 - Emergency Medical Service

The 25-to-30 person volunteer emergency medical team operates two ambulances on a 24-hour basis. The voluntary team works in cooperation with the Valdez Fire Department.

3.5.7.3.3 - Social Services

The following state programs and services are offered in the City of Valdez through the Alaska State Department of Health and Social Services and coordinated by the one part-time social worker:

1) adoption services;
2) child protection services;
3) counseling;
4) early and periodic screening;
5) diagnosis and treatment for health problems;
6) foster care; and
7) homemaker service

3.5.7.4 - Copper River Region

The Faith Hospital, located in Glennallen, and the State Public Health Nurses, located in various communities provide the framework for the medical and health services in the Copper River Region. The Faith Hospital is owned and maintained by the Central Alaskan Mission and depends on outside mission support. It is a 6-bed facility providing emergency and short term treatment for residents in the immediate vicinity. (see Table 29).

A State Public Health nurse located in Glennallen provides itinerant, preventative care including well baby clinics, prenatal care, TB surveillance, school testing, and health teaching to the residents of the Copper River basin area. The residents of Cantwell receive similar service from a health nurse located in Fairbanks.

Dental services are provided for one week every month by a visiting dentist from Wasilla. The Copper River Native Association is currently utilizing a fully equipped mobile dental facility. All of the communities and villages in the region are accessible by road, and therefore receive the services of the mobile dental unit.

The Copper River Native Association maintains six health clinics which are supported by the Indian Health Services and staffed by health aides. The clinics are located in Cantwell, Chistochina, Chitina, Copper Center, Gulkana, and Mentasa. The health aides provide immediate emergency care to the residents of the surrounding area.

Other services and programs available to the residents of the Copper River region include a nutrition program; an out-reach program; a mental health program; an alcohol program; an Indian child welfare act program; and homemaker services. Funding is provided through a combination of federal, state, and local organizations. (conversations with Ms. Billy Peters, Copper River Native Association).

3.5.8 - Libraries

3.5.8.1 - Matanuska-Susitna Borough

The Matanuska-Susitna Borough has non-areawide library powers meaning that libraries within incorporated cities must be maintained by city residents and all other libraries are the responsibility of the Borough. Funds for the libraries are administered by the Matanuska-Susitna Library Association, an organization established for this such purpose. The Borough currently maintains the following libraries:

- Palmer District Court Library: contains law library with current reference books on Alaska State laws and Alaska Supreme Court decisions
- Talkeetna Library
- Glenn Highway Rural Community Library in the glacier view area
- Matanuska-Susitna Community College Library, available to the public
- Willow Library, for the greater Willow Community
- Sutton Community Library, for the Sutton Community

Palmer and Wasilla each have a library which is city maintained. The Palmer City Library contains general reading material, audio-visual films, and records. The Wasilla Library contains general reading material with an emphasis on children's material. In addition to Borough and City libraries, libraries are located in various Borough schools.

3.5.8.2 - Copper River Region

The Copper River Region currently maintains two State grant-supported public libraries which are located in Glennallen and Kenny Lake. The libraries were originally housed in donated space and maintained by

volunteers. Several small libraries are also located in some of the public schools. There are also several small libraries at some of the public schools.

3.5.9 - Education

Education in the State of Alaska is directed by a nine member State Board appointed by the Governor. The State Board in turn appoints the commissioner who holds responsibility for the management of the Department of Education.

There are 52 school districts in Alaska with approximately 450 public schools. About one-half of the state's 88,000 plus students and one-half of its 5,000 teachers are found in the Anchorage School District. The remainder of the school districts are, in comparison, very small in student enrollment, but extremely large in area. Individual school enrollments range from one room schools with less than 10 students to 2,000-3,000 student schools in Anchorage.

Roughly 75 percent of the operating funds for local schools is provided by the state. Local governments, where they exist, pay about 20 percent, and federal government about 5 percent. (Alaska Department of Education. December 1980).

SCHOOL BOARD
EXPENDITURE PER PUPIL

School District	$/Pupil
Matanuska-Susitna	$ 3,491
North Slope Borough	11,311
Anchorage	2,864
Copper River	N/A
National Average	2,800

3.5.9.1 - Matanuska-Susitna Borough

The Matanuska-Susitna Borough presently operates 17 schools: 12 elementary schools, two junior high schools, and three high schools.

Communities	High School	Junior High School	Elementary School
Trapper Creek			X
Talkeetna			X
Montana Creek	X		X
Willow			X
Wasilla	X	X	X
Big Lake			X
Palmer	X	X	X
Glacier View			X
Skwentna			X
Butte			X

At the end of the 1979-80 school year there were approximately 4,330 students enrolled in the school system. The 1982 projection for total enrollment is 4,457, representing an increase of only 72 students from the current 1980 enrollment figure (Frontiersman, Jan. 15-21, 1981). The capacities and 1980 enrollments for the schools are displayed in

Table 30. Also illustrated are plans for the expansion of existing facilities. The Borough schools are equipped to provide education and training for mentally retarded and physically handicapped children.

There is a great demand for vocational training in the Borough school system for programs such as auto mechanics, welding, electronics, surveying, home economics, office accounting, small engines, and carpentry. The vocational training facilities are tied directly into the regular school facilities and are, at present, able to keep pace with the demand. There are plans for the expansion of certain areas pending an authorization and funding. Besides serving the needs of the immediate community, the schools also provide education by correspondence to any resident in the State of Alaska.

Situated between Wasilla and Palmer is the Matanuska-Susitna Community College, a branch of the University of Alaska, which provides academic and vocational courses to residents in the region. The college has shown steady and healthy growth increasing from an enrollment of 512 in 1969 to 1,177 in 1980.

3.5.9.2 - Copper River Region

The School Board for the Copper River School District is the only autonomous political unit in the Copper River Region. The school board is responsible for operating the school system, including the disposition of state funds, which cover all of local education costs. The size of the school district is comparable to the size of the State of West Virginia, encompassing an area north to Isabelle Pass (in the vicinity of the Denali and Richardson highway junction), south to Thompson Pass, west to the east side of Cantwell, and east to Mentasta Lake. Buses are the principal means of transportation to and from school, covering a total of 1,300 miles per day.

TABLE 30

CHARACTERISTICS OF PUBLIC SCHOOLS:
MATANUSKA-SUSITNA SCHOOL DISTRICT
-1980-

School	School[1]		Capacity[2]	Enrollment[1]	Condition/ Plans for Expansion
	Type	Grade			
Big Lake	E	1-6	280	132	No plans.
Butte	E	1-6	500	280	No plans.
Glacier View	E/J	1-8	70	55	Currently consists of portables. Plan to build two classrooms.
Iditarod	E	Pre-6	450	438	Recently burned down. Plan to have back in operation by 10/81.
Sherrod	E	Pre, 3-6	450	433	No plans.
Skwentna	E/J/S	4-12	15	11	No plans.
Snowshoe	E	1-6	500	345	New facility.
Swanson	E	1,2	350	205	No plans.
Talkeetna	E	1-6	120	47	No plans.
Trappers Creek	E	1-6	70	38	Presently four portable facilities. Have submitted a grant proposal for a multi-purpose facility.

TABLE 30
(cont.)

School	School[1] Type	School[1] Grade	Capacity[2]	Enrollment[1]	Condition/ Plans for Expansion
Wasilla Elem.	E	1	125	87	Very old facility with half of building condemned. Have plans for a new facility in 1984.
Willow Elem.	E	1-6	120	97	Expansion considered in the five year building plan.
Palmer	J	7-8	420	287	No plans.
Wasilla	J	7-8	600	333	Recently completed addition to facility.
Palmer	S	9-12	900	594	No plans.
Susitna Valley	J/S	7-12	180	130	Plans for additions for the band and vocational studies.
Wasilla	S	9-12	1,200	673	Recently completed addition to the facility.
Matanuska-Susitan Community College	CC	N/A	N/A	1,177	N/A

E = Elementary; J = Junior; S = Senior; CC = Community College

[1] Alaska Department of Education. December 1980. 1980-81. Alaska Education Directory; pp. 36, 37.
[2] Conversation with Mr. Hotchkiss; Business Manager of Mat-Su School District.

E4/X1

There are a total of seven schools in the area (including the Nabesna school) as well as a branch of the Prince William Sound Community College located in Copper Center, and the Alaska Bible School. School enrollments range from 9 to 312 for a total of less than 600 students. The characteristics of the various schools and plans for expansion are summarized in Table 31.

School enrollments during the pipeline construction period were the highest ever witnessed, and in some instances surpassed the capacities of the facilities. Enrollments have lowered since the pipeline, but increases are anticipated in the future and there are several bills presently before the State legislature concerning the expansion, improvement, and/or addition of facilities in the region. An active capital improvement program includes the construction of four new instructional areas and a multipurpose facility in Copper Center; a multipurpose facility in Gakona; and remodeling at Kenny Lake School. In the past there was a "per head" school tax, however, it was rescinded in the last legislative session.

The school facilities play a vital role in these communities which are sparsely populated and scattered over a large area. They are relied heavily upon as a place of convergence for community meetings, sporting events, and adult education meetings.

3.6 Economic Base

3.6.1 - State Economic Base

3.6.1.1 - Introduction

This section will present general descriptions of the major components of the Alaska economy. It is organized by general industry groups. Industry groups are loosely grouped together into a productive sector and service/support sector. This approach approximates a

TABLE 31

CHARACTERISTICS OF PUBLIC SCHOOLS:
COPPER RIVER SCHOOL DISTRICT
-1980-

Location of School	School Type	School Grade	Capacity	Enrollment	Plans for Expansion
Copper Center	E	1-6	100	40	Building four new instructional areas and multi-purpose facility for Fall 1981. 100 student capacity.
Gakona	E/J	1-8	60	35	Building multi-purpose facility.
Paxson	E/J/S	1-12	30	11	No plans.
Chistochina	E/J	1-8	40	9	Bill presently before legislature for construction of a new building for 1982.
Glenallen	E/J/S	1-12	345	312	Bill before legislature for construction of a new senior high school in 1985.
Kenny Lake	E/J/S	1-12	150	110	Remodel elementary school.
Copper Center	CC				Branch of Prince William Sound Community College.

E = Elementary; J = Junior High; S = Senior High; CC = Community College

Source: Conversation with Dr. Keinke, Superintendent of Copper River School District

basic/non-basic classification which will be utilized in the forecast and impact analysis sections of the study where use of an economic base model is contemplated.

The rationale for an economic base model, and distinguishing between basic and non-basic industries, is the premise that growth in a region's economy occurs in response to basic or exogenously determined demands. The region can be defined at any level where it is feasible to make the required distinctions. Individual industries can also be further allocated to basic and non-basic sectors.

When appropriate these characteristics will be mentioned below. Still the purpose here is to present an overview and not a detailed analysis of linkages between industries and other dynamic elements of the economy such as income or employment multipliers.

Detailed analysis will be performed later through utilization of previous work on the subject for Alaska, analysis of interconnections of industries, analyzing exports, employing location quotients, or other methods.

3.6.1.2 - Mining

3.6.1.2.1 - Oil and Gas

The sector which provides the greatest impetus for the contemporary Alaskan economy is the mining sector. Within this sector the major industry is oil and gas. Table 32 shows the historical trends of output for various mineral products. Based on preliminary figures for 1979, crude petroleum and natural gas comprise 97 percent of the total value of mineral production in the state. This trend is expected to continue as the federal leasing program progresses through 1985.

TABLE 32

VALUE OF ALASKA'S MINERAL PRODUCTS: 1959 - 1979
(thousands of dollars)

Year	Crude Petroleum[a]	Natural Gas[b]	Sand & Gravel	Gold	Other Minerals[c]	Total
1959	$ 295	$ 16	$ 5,265	$ 6,262	$ 8,673	$ 20,511
1960	1,230	30	5,483	5,887	9,230	21,860
1961	17,652	129	4,185	3,998	8,789	34,753
1962	31,187	467	5,355	5,784	11,399	54,192
1963	32,650	1,111	22,005	3,485	8,589	67,840
1964	33,627	1,719	18,488	2,045	10,068	65,947
1965	34,073	1,799	34,467	1,479	11,637	83,455
1966	44,083	6,335	21,793	956	13,133	86,300
1967	88,187	7,268	27,683	910	13,099	137,147
1968	186,695	4,388	20,366	835	9,416	221,700
1969	214,464	12,665	18,615	881	11,018	257,643
1970	232,829	18,164	41,092	1,265	16,782	310,132
1971	234,337	17,972	32,806	537	14,044	299,696
1972	221,747	17,989	15,214	506	16,293	271,749
1973	239,574	19,482	19,913	695	26,821	306,485
1974	347,408	22,505	52,788	1,461	14,861	439,023
1975	364,626	42,786	25,780	2,419	39,514	475,125
1976	318,788	60,455	204,738	2,868	34,191	621,040
1977	988,874	66,605	134,251	2,812	33,443	1,225,985
1978	2,701,522	89,626	145,300	3,610	14,752	2,954,810
1979[P]	5,493,596	91,533	150,000	W	17,543	5,752,672

a/ Value figures for Prudhoe Bay oil are values at the point where the oil enters the trans-Alaska pipeline. Consequently, value figures shown above do not include pipeline transportation charges.

b/ All natural gas values shown above include values of both dry and liquid gas, including casing head gas.

c/ Included are values symbolized by a W (withheld).

Source: Bureau of Mines, U.S. Department of the Interior; Alaska Oil and Gas Conservation Commission, Office of the Governor.

From: Alaska Department of Commerce and Economic Development, Division of Economic Enterprise. June 1980. The Alaska Statistical Review. 1980. Juneau, AK. p. B-3.

The impact of the oil and gas industry pervades all areas of Alaska's economy. In fiscal year 1980, it was estimated that the industry would contribute $1,233 million to the state's coffers. According to the State Department of Revenue, the industry actually paid approximately $2.5 billion in various taxes to the state in 1980. This constituted about 86 percent of gross revenues to the state. In 1981, the Department estimates the industry will provide $3.28 billion (90 percent) in unrestricted revenue. The advent of this revenue directly led to abolition of the state income tax in 1980. Table 33 summarizes the trend in petroleum revenues since 1971. In addition to revenue impacts, the industry employs substantial numbers of workers and creates employment and output in virtually all other sectors of the Alaskan economy. Oil companies plan to spend approximately $15 billion on field development in Prudhoe Bay alone in the future to maintain production at close to 1.5 million barrels per day.

The overwhelming majority of crude oil production is shipped out of state to Northwest and California refineries. In Alaska, primary production of oil and gas has spawned several major projects which are or may serve as support facilities or purchasers/ processors of oil and gas products. The Trans-Alaska Oil Pipeline is the largest of this type of project. Constructed between 1974 and 1977, the pipeline employed thousands of workers during its peak period and cost approximately $12 billion. The growth-inducing impacts from the project were ubiquitous, but especially dramatic in Fairbanks and Valdez, the terminus of the pipeline. Anchorage experienced substantial economic growth as well.

Several major projects are currently in the planning stages. The largest of these is the Northwest Alaska Gas Pipeline which would run from Prudhoe Bay to the midwestern United States. The 1979 estimates set the tag for the Alaskan portion at $6 to $8 billion. Another project associated with the oil industry is the Alaska Oil

TABLE 33

GROSS UNRESTRICTED* AND PETROLEUM REVENUES
(In Millions of Dollars)
Alaska
Fiscal Years 1971-1982**

Fiscal Year	Gross Unrestricted Revenues	--Gross Petroleum Revenues- Amount	% of Unrestricted Revenues
1971	$ 220.4	$ 46.2	21%
1972	219.2	47.1	21%
1973	208.1	49.3	24%
1974	255.1	79.3	31%
1975	333.3	87.6	26%
1976	709.7	386.1	54%
1977	874.1	472.5	54%
1978	787.4	430.3	55%
1979	1,178.5	819.0	69%
1980***	2,632.0	2,253.5	86%
1981****	3,641.5	3,279.6	90%
1982****	4,936.4	4,572.4	93%

* Incoming revenue which has not been designated for a specific purpose (excludes federal grants).
** The state's fiscal year runs from July 1 of the preceding year through June 30 of the year listed.
*** Preliminary.
**** Estimated.

Source: Revenue Sources FY1980-1982, Alaska Department of Revenue; compiled by the CRC.

From: Fairbanks North Star Borough, Community Research Center. Winter 1980, Vol. III, No. 4. Community Research Quarterly, A Socio-Economic Review. Fairbanks, AK. p. 31.

Company's oil refinery in Valdez. Originally envisioned as a $1.5 billion petrochemical complex, the project has been pared down to a refinery only. Construction is scheduled to begin in 1980.

Another project on the boards is a liquified natural gas plant located on the Kenai Peninsula. The Pacific Alaska Company predicts the plant would handle up to 430 million cubic feet of gas per day for shipment to California. A more general project is being studied by a consortium of major businesses including Dow Chemical and Shell Oil. The Dow-Shell Group is performing feasibility studies concerning development of a petrochemical industry in Alaska. Potential sites which are under consideration include: Fairbanks, Seward, Valdez, the Kenai Peninsula, and Point McKenzie in the Matanuska-Susitna Borough.

3.6.1.2.2 - Hard Minerals

The history of hard mineral production in Alaska is characterized by "rushes" and "retreats." Overall, the potential for a growing mineral extraction industry is bright, based on rising world prices and the uncertainties and risks inherent in reliance on foreign supplies. Geologically, Alaska's potential is enormous; economically, however, constraints exist which will require substantial investment to overcome.

The primary hard minerals mined in Alaska are gold, sand and gravel, coal, stone, and tin. Also mined are small quantities of copper, silver, lead, gemstones, molybdenum, and barite. The value of all non-petroleum minerals in 1979 was roughly $170 million.

This component of the mining industry is different in that most output is consumed in Alaska. Table 32 indicates that the value of sand and gravel production is second only to petroleum. This

commodity has been used almost exclusively for local construction. Similarly coal, until quite recently, was used entirely for local energy production.

The hard mineral industry is characterized by few large scale operations and numerous small ones. Mining employment plays an important role in rural Alaska. Most mining activity in Alaska occurs in the Yukon region, Cook Inlet/Mat-Su area, and on the Seward Peninsula, in that order. Based on output, the Yukon region leads, followed by Kuskokwim, Seward Peninsula, and then Cook Inlet/Mat-Su area.

The mining industry in Alaska is constrained by several major factors. Access to areas of mineral potential are restricted by ownership and/or land status. Access and development is also difficult due to lack of surface transportation routes. Each of these factors as well as Alaska's climate, topography, and location relative to other markets contribute to the high cost of mineral exploration and extraction. In addition environmental regulations add to the costs associated with developing mineral resources.

In general, with the Alaska National Interest Lands Conservation Act, which resolved the status of the D-2 lands, and continued high prices for various minerals, Alaska will likely experience a boom of sorts in the near future. Alaska's extensive coal deposits may encourage development of an export industry at some point. Currently, there is only one operating coal mine which is near Healy and supplies coal for the generation of heat and electricity for the Fairbanks area. Supplies recoverable with current coal technology, are estimated to exceed 100 billion tons. Substantial deposits are also located in the Beluga coal fields near Cook Inlet.

3.6.1.3 - Construction

Apart from the seafood industry, the construction industry is the most seasonal industry in Alaska. As elsewhere it is also a highly cyclical industry depending upon general economic conditions. More importantly, the industry in Alaska is extremely dependent upon impetus in the form of major projects, usually related to natural resource and energy developments.

Construction is both a basic and non-basic industry in that it is determined in part by demand generated externally and in part by internally generated demand. Table 34 presents the trends in construction activity during the 1974 - 1979 period for the major urban areas. The impact of the Trans-Alaska pipeline is apparent in both residential and non-residential categories. Dramatic increases occurred in Anchorage and Fairbanks beginning in 1975. However, in both Anchorage and Fairbanks 1979 permit valuation is actually lower than in 1974. These figures accurately reflect the boom/bust cycle created by the pipeline construction.

The construction industry appears on the verge of rebound. Numerous public projects are being spawned by the wealth accruing to the state government. These projects include highway, airport, harbor, school, public works, and cultural facilities throughout the state. Coupled with planned major private sector projects, primarily relating to oil and gas, a new wave of construction activity appears likely.

3.6.1.4 - Manufacturing

The manufacturing industry in Alaska consists of two major components; food processing (mainly seafood) and forest products. These two components accounted for 72 percent of average manufacturing employment in 1979. Each of these are discussed below, although seafood processing is subsumed under the general category "Fishing".

TABLE 34

VALUATION OF RESIDENTIAL, NONRESIDENTIAL AND TOTAL BUILDING INCLUDED IN BUILDING PERMITS ISSUED IN SELECTED AREAS OF ALASKA: 1974 - 1979

(in thousands of dollars)

	Annual					
	1974	1975	1976	1977	1978	1979
Anchorage:						
Residential	$ 88,171.3	$125,022.5	$101,094.0	$156,852.5	$145,691.5	$ 73,565.8
Nonresidential	72,467.3	117,744.5	117,269.7	204,299.6	69,435.7	45,190.6
Total	$160,638.6	$242,767.0	$218,363.7	$361,152.1	$215,127.3	$118,756.4
Fairbanks:						
Residential	$ 20,515.0	$ 44,043.4	$ 44,624.8	$ 52,279.9	$ 33,139.7	$ 22,800.1
Nonresidential	26,293.8	93,734.0	94,336.7	31,379.4	17,448.2	17,356.7
Total	$ 46,808.8	$137,777.4	$138,961.5	$ 83,659.3	$50,587.9	$ 40,156.8
Juneau:						
Residential	$ 4,330.3	$ 7,468.4	$ 15,311.9	$ 22,293.1	$ 18,066.3	$ 17,774.4
Nonresidential	10,818.3	3,469.9	7,834.2	8,261.2	13,019.4	15,622.3
Total	$ 15,148.6	$ 10,938.3	$ 23,146.1	$ 30,554.3	$ 31,085.7	$ 33,396.7
Total All Areas:						
Residential	$113,016.6	$176,534.3	$161,030.7	$231,425.5	$196,897.5	$114,140.3
Nonresidential	109,579.4	214,948.4	219,440.6	243,940.2	99,903.3	78,169.6
Total	$222,596.0	$391,482.7	$380,471.3	$475,365.7	$296,800.9	$192,309.9

Source: City and Borough Building Officials.

From: Alaska Department of Commerce and Economic Development, Division of Economic Enterprise. June 1980. The Alaska Statistical Review. 1980. Juneau, AK. p. G-1.

3.6.1.4.1 - Seafood Processing

Since the passage of the Fishing Conservation and Management Act of 1976 commonly referred to as the "200-mile limit", the Alaskan fishing industry has been in a state of flux. Fortunately, the overall impact from the law has been quite favorable to the industry. The trend in terms of both volume and value of the catch has been steadily increasing. Tables 35 and 36 show this trend for both domestic and foreign fisheries. Underlying these figures is a transferring of catch in high valued species such as salmon and crab from the foreign to the domestic fleet. The fishing effort of the foreign fleet has adjusted to this by targeting other species such as groundfish. Regardless of who catches the product, practically all of it is exported out of the state, principally to Japan.

The domestic industry is characterized by numerous private participants in the harvesting sector and relatively fewer processing companies with large domestic and foreign corporate involvement. Different species are concentrated upon in different regions of Alaska. The processing industry employs close to 15,000 during the height of the season in July. Average monthly employment was about 7,000 during 1979.

Opportunities for growth in the industry exist in fisheries for groundfish and other underutilized species. It has been estimated that only eight percent of the total allowable domestic catch is being utilized. However, major economic problems impede development, including transportation costs, high input costs, and low margins.

TABLE 35

DOMESTIC FISHERIES OF ALASKA
Catch Landed in Alaska, Payments to Fishermen, and Wholesale (Processed) Value

		1974	1975	1976	1977	1978	1979
SALMON	Catch (000 000 lbs)	132	140	246	307	408[P]	459[P]
	Payments to Fishermen ($000 000)	66	56	118	171	238[P]	317[P]
	Wholesale Value ($000 000)	137	134	245	380[P]	528[P]	704[P]
OTHER FIN FISH	Catch (000 000 lbs)	60	58	54	45	64[P]	89[P]
	Payments to Fishermen ($000 000)	16	19	24	21	33[P]	58[P]
	Wholesale Value ($000 000)	22	27	29	27[P]	43[P]	75[P]
SHELLFISH	Catch (000 000 lbs)	272	247	317	312	334[P]	341[P]
	Payments to Fishermen ($000 000)	66	55	97	157	272[P]	231[P]
	Wholesale Value ($000 000)	95	132	179	316[P]	547[P]	464[P]
GRAND TOTALS	Catch (000 000 lbs)	464	445	617	664	806[P]	889[P]
	Payments to Fishermen ($000 000)	148	130	240	349	543[P]	606[P]
	Wholesale Value ($000 000)	254	293	452	723[P]	1,118[P]	1,243[P]
WHOLESALE VALUE INDEX (Dollar Value in 1974 = 1.00)		1.00	1.15	1.78	2.85	4.40	4.89
REAL VALUE INDEX (Wholesale Dollar Value Adjusted by Changes in U.S. Consumer Price Index: 1974 = 1.00)		1.00	1.06	1.54	2.32	3.33	3.32

P Preliminary.

SOURCE: Alaska Department of Fish and Game, National Marine Fisheries Service, and Alaska Department of Commerce and Economic Development.

From: Alaska Department of Commerce and Economic Development, Division of Economic Enterprise. June 1980. The Alaska Statistical Review. 1980. Juneau, AK. p. B-16.

TABLE 36

CATCH & VALUE FROM ALASKA'S DOMESTIC & FOREIGN FISHERIES

	1977	1978	1979
CATCH LANDED IN ALASKA (DOMESTIC FISHERIES CATCH)[1]			
Catch (000 000 lbs)	664	806[P]	889[P]
Ex Vessel Values ($000 000)	349[P]	543[P]	606[P]
Wholesale Values ($000 000)	723[P]	1,118[P]	1,243[P]
FOREIGN CATCH FROM ALASKA FCZ[2]			
Catch (000 000 lbs)	3,033	3,457	3,177[P]
Ex Vessel Values ($000 000)[3]	178[P]	352[P]	330[P]
Wholesale Values ($000 000)[4]	979[P]	1,936[P]	1,815[P]
ALL FISHERIES COMBINED			
Catch (000 000 lbs)	3,697	4,263[P]	4,066[P]
Ex Vessel Values ($000 000)	527[P]	895[P]	936[P]
Wholesale Values ($000 000)	1,702[P]	3,054[P]	3,058[P]

P Preliminary.

1/ The domestic catch (fish caught by U.S. citizens) very nearly coincides with amounts landed and processed in Alaska.

2/ FCZ = U.S. Fishery Conservation Zone (Area between 3 and 200 miles from shore).

3/ Ex Vessel values indicated for foreign catch are pounds of fish, per specie, multiplied by prices paid to fishermen in U.S. ports.

4/ Wholesale values for foreign catch are estimates of what the values would have been if these fish had been landed by U.S. fishermen.

SOURCE: Alaska Department of Fish and Game, National Marine Fisheries Service, and Alaska Department of Commerce and Economic Development.

From: Alaska Department of Commerce and Economic Development, Division of Economic Enterprise. June 1980. The Alaska Statistical Review. 1980. Juneau, AK p. B-16.

3.6.1.4.2 - Forest Products

The Alaskan forest products industry centers around the resources of two national forests, the Chugach in Southcentral Alaska and the Tongass in Southeastern Alaska. These two forests are the largest in the United States and account for roughly 93 percent of the annual Alaskan timber harvest. Table 37 presents the historical timber harvest from public lands by ownership. From the table it can be seen that the Tongass National Forest accounts for about 90 percent of the Alaskan timber harvest. The industry is concentrated in the Southeast, and the principal products of the industry are pulp, cant lumber (cut on at least two sides), and round logs. Over 50 percent of Alaska's forest products are exported to foreign countries, principally Japan. Most of the remainder is shipped to the Lower-48.

The transfer of lands to native corporations is expected to increase the availability of timber resources, especially round logs. In general, the industry is quite cyclical depending upon housing construction patterns in the United States and abroad.

3.6.1.5 - Agriculture

Agriculture represents an emerging industry in Alaska. The USDA's Soil Conservation Service identified approximately 19 million acres of tillable land climatologically suitable for growing crops. Of this area, only 20,000 acres are currently cultivated.

The Matanuska-Susitna area is the major agricultural region in the state both in terms of value of production and acres under cultivation. Figure 15 and Table 38 list the value of production by area for the years 1977-1979. Based on these figures the Matanuska Valley accounts for 69 percent of Alaska crop production, 76 percent of livestock and poultry production, and 72 percent of combined total agriculture production.

TABLE 37

Alaska Timber Harvest (in thousand board feet, Scribner scale) on Public Lands, By Ownership, 1959-1979

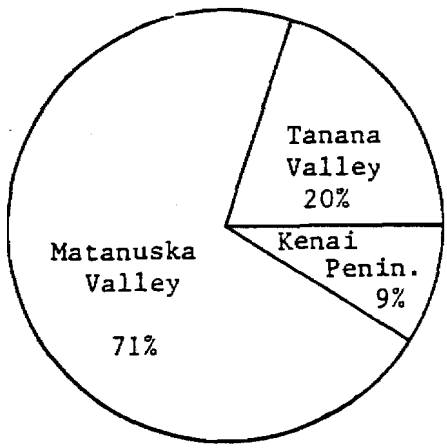
			Bureau of Land Management			National Forest			
Year	State	Bureau of Indian Affairs	Free Use	Cut	Total	Tongass	Chugach	Total	Total
1959	0	0	2,499	8,666	11,165	266,591	7,596	274,187	285,352
1960	210	0	1,588	14,289	15,877	347,496	3,613	351,109	367,196
1961	1,987	0	4,683	11,342	16,025	338,206	7,117	345,323	363,335
1962	6,872	0	8,049	5,936	13,985	366,275	7,157	373,432	394,289
1963	10,633	0	7,535	3,620	11,155	395,143	3,847	398,990	420,778
1964	18,144	0	5,524	5,666	11,190	443,736	1,373	445,109	474,443
1965	24,161	2,990	5,045	3,263	8,308	397,610	6,888	404,498	439,957
1966	31,220	1,650	5,349	848	6,197	474,277	1,217	475,494	514,561
1967	45,816	9,067	2,587	572	3,159	474,337	2,479	476,816	534,858
1968	47,974	8,192	612	491	1,103	529,496	3,807	533,303	590,572
1969	49,018	8,684	79	280	359	519,344	3,997	523,341	581,402
1970	53,568	12,855	81	493	574	560,081	895	560,976	627,973
1971	43,190	1,870	113	346	459	527,740	1,680	529,420	574,939
1972	50,591	5,070	17	28	45	547,500	3,021	550,521	606,227
1973	35,356	28,795	11	145	156	588,491	3,109	591,600	655,907
1974	51,241	12,083	39	114	153	544,025	5,608	549,633	613,110
1975	33,540	52	50	930	980	408,371	4,683	413,054	447,626
1976	41,714	1,011	844	295	1,139	462,776	9,402	472,178	516,042
1977	60,251	7,835	325	29	354	NA	NA	455,700	524,140
1978	30,301	1,799	1,862	149	2,011	398,701	9,873	408,574	442,685
1979	32,381	480	159	121	280	NA	NA	459,507	492,648

Source: Respective agencies. For the Bureau of Land Management, the 1979 figures are for the fiscal year ended September 30. For the Bureau of Indian Affairs, figures for 1977, 1978, and 1979 are for the fiscal years ended September 30. Other figures are for the calendar years.

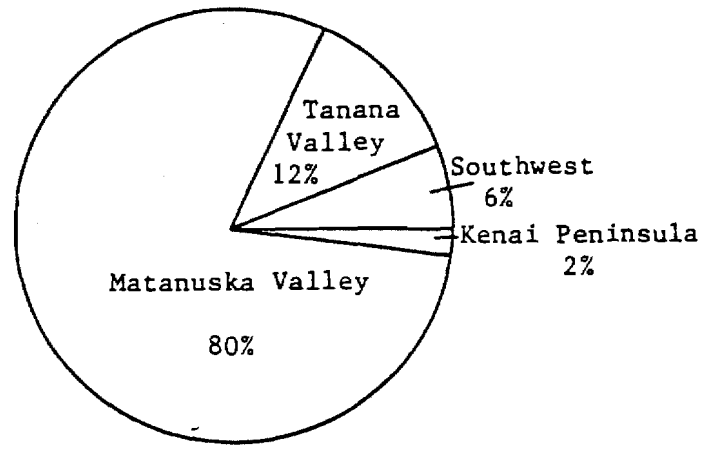
From: Alaska Department of Commerce and Economic Development, Division of Economic Enterprise. June 1980. The Alaska Statistical Review. 1980. Juneau, AK. p.B-8.

FIGURE 15 - TABLE 38

DOLLAR VALUE OF AGRICULTURAL PRODUCTION
By Agricultural Area
Alaska
1977-1979



% of Total Crops
1979



% of Total Livestock
1979

	1977	1978	1979
Tanana Valley	$1,602,300	$1,871,900	$1,724,500
Crops	1,109,500	1,404,500	1,269,000
Livestock & Poultry	492,800	467,400	455,500
% of State Total	16%	20%	19%
Matanuska Valley	$7,303,900	$6,570,000	$6,541,900
Crops	3,883,500	3,433,500	3,491,000
Livestock & Poultry	3,420,400	3,136,500	3,050,900
% of State Total	75%	71%	72%
Kenai Peninsula	$ 601,200	$ 492,900	$ 466,600
Crops	499,000	377,000	386,000
Livestock & Poultry	102,200	115,900	180,600
% of State Total	6%	6%	5%
Southeast	$ 12,200	$ 16,500	$ 21,600
Crops	0	0	0
Livestock & Poultry	12,200	16,500	21,600
% of State Total	*	*	*
Southwest	$ 269,400	$ 297,700	$ 314,400
Crops	14,000	14,000	22,000
Livestock & Poultry	255,400	283,700	292,400
% of State Total	3%	3%	4%
State Total	$9,789,000	$9,249,000	$9,069,000
Crops	5,506,000	5,229,000	5,068,000
Livestock & Poultry	4,283,000	4,020,000	4,001,000
% of State Total	100%	100%	100%

* Less than one half of 1%.

Source: Compiled by the Community Information Center from Alaska Agricultural Statistics, Alaska Crop and Livestock Reporting Service.

From: Fairbanks North Star Borough, Community Research Center. Winter 1980, Vol. III, No. 4. Community Research Quarterly, A Socioeconomic Review. Fairbanks, AK. p. 45.

The Tanana Valley, or Big Delta region, is the second most important area. It accounts for 25 percent of the state's crop production, 11 percent of its livestock and poulty production, and 19 percent of all agricultural production.

Based on the 1978 U.S. Census of Agriculture, there were 383 farms in the state of which 184 were in the Anchorage/Mat-Su area, 75 in the Kenai/Cook Inlet region, 90 in the Fairbanks/Tanana region, 24 in the Aleutian Islands, and 10 in the Angoon/Juneau region.

Figure 16 and Table 39 list the number of acres cultivated by crop and area. The Matanuska Valley accounts for 54.3 percent of all cropland in Alaska. The Tanana Valley constitutes 37.5 percent of such land. Except for barley and rapeseed, the Matanuska Valley produces more of every crop. It also produces more milk, eggs, pork, and beef. (See Table 40). The 1978 Census of Agriculture reported over 95 percent of the state's dairy products were sold in the Anchorage/Mat-Su area and that 82 percent of the state's milk cows were located in this area.

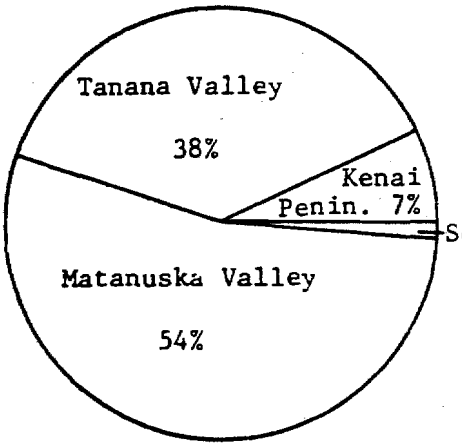
Alaska's agriculture industry may have great potential but it faces several hurdles before the potential can be realized. Alaska imports most of its food. Even with the high costs of transporting food from the Lower-48, most imported products can still be sold for less than Alaskan products. The reasons for this can be attributed to high input costs (labor, capital, and supplies) and the inability to realize economies of scale due to the relative size of the Alaskan market.

3.6.1.6 - Tourism

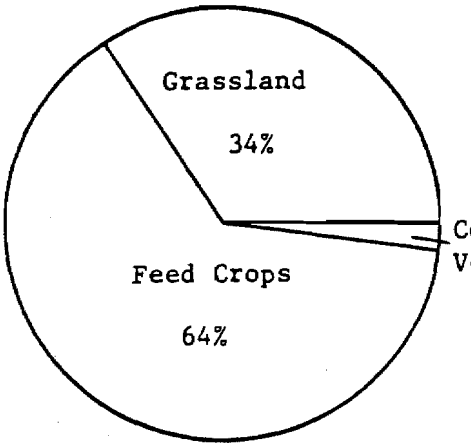
Tourism is not an industry in itself, but is usually described and analyzed in terms of those sectors affected by travel expenditures. Tourism mainly affects the support and service sectors of the economy, although the resources upon which it is based are primarily the natural resources of Alaska. In some ways, tourism

FIGURE 16 - TABLE 39

CROPLAND UTILIZATION
By Agricultural Area
Alaska
1979



% of State's Planted Area



Tanana Valley Planted Area

	Tanana Valley	Matanuska Valley	Kenai Peninsula	Southwest	State Total
Planted Area (in acres)	7,671	11,091	1,470	200	20,432
Commercial Vegetables	171	541	20	0	732
Potatoes	120	340	20	0	480
Lettuce	17	93	0	0	110
Cabbage	8	25	0	0	33
Carrots	6	22	0	0	28
Other Vegetables	20	61	0	0	81
Feed Crops	4,900	2,950	350	0	8,200
All Oats	400	500	300	0	1,200
All Barley	4,400	2,050	50	0	6,500
Grain Mixtures	100	400	0	0	500
Grassland Harvested	2,600	7,600	1,100	200	11,500
Grass	2,600	7,600	1,100	200	11,500
% of Total Planted Area	38%	54%	7%	1%	100%
Harvested Area (in acres)	7,382	10,928	1,470	200	19,980
Commercial Vegetables	152	508	20	0	680
Potatoes	110	330	20	0	460
Lettuce	13	77	0	0	90
Cabbage	7	23	0	0	30
Carrots	5	20	0	0	25
Other Vegetables	17	58	0	0	75
Feed Crops	7,230	10,420	1,450	200	19,300
Oats	350	450	300	0	1,100
Barley	4,180	1,970	50	0	6,200
Grain Mixtures	100	400	0	0	500
Grass	2,600	7,600	1,100	200	11,500
% of Total Harvested Area	37%	55%	7%	1%	100%

Source: Compiled by the Community Information Center from Alaska Agricultural Statistics, Alaska Crop and Livestock Reporting Service.

From: Fairbanks North Star Borough, Community Research Center. Winter 1980, Vol. III, No. 4. Community Research Quarterly, A Socioeconoic Review. Fairbanks, AK. p. 46.

TABLE 40

LIVESTOCK ON FARMS
By Agricultural Area
Alaska
1979-1980

	Tanana Valley	Matanuska Valley	Kenai Peninsula	Southwest	State Total
Cattle (January 1, 1980)	370	2,330	560	5,140	8,400
Steers	30	60	20	290	400
Bulls	20	50	40	1,190	1,300
Calves	50	570	180	1,100	1,900
Beef Cows that have Calved	150	100	200	1,950	2,400
Milk Cows that have Calved	40	1,020	30	10	1,100
Beef Replacement Heifers	60	60	80	600	800
Dairy Replacement Heifers	20	470	10	0	500
% of State Total	4%	28%	7%	61%	100%
Hogs (December 1, 1979)	570	430	30	10	1,100*
% of State Total	52%	39%	3%	1%	100%*
Chickens (December 1, 1979)	900	23,200	400	100	25,000**
% of State Total	3%	93%	2%	***	100%**

* Total includes 60 hogs (5% of state total) raised in the Southeast.
** Total includes 400 chickens (2% of state total) raised in the Southeast.
*** Less than one half of 1%.

Source: Compiled by the Community Information Center from Alaska Agricultural Statistics, Alaska Crop and Livestock Reporting Service.

From: Fairbanks North Star Borough, Community Research Center. Winter 1980, Vol. III, No. 4. Community Research Quarterly, A Socioeconomic Review. Fairbanks, AK. p. 44.

represents a "basic component" of the Alaskan economy in that there is externally generated demand for Alaskan products and services.

The most recent detailed studies of the Alaska visitor industry were performed during the 1975 - 1977 period. The following information is extracted from these reports which were prepared for the Division of Economic Enterprise of the Alaska Department of Commerce and Economic Development.

During the winter and summer (1976 - 1977) 505,189 individuals were projected to have visited Alaska. Table 41 summarizes the reasons given for visiting Alaska and estimated expenditures for the winter, summer, and combined periods. Not surprisingly, the table illustrates the seasonal nature of visitor trips to Alaska, especially regarding pleasure trips. On the other hand, it is interesting to note that fewer business trips are made in the summer than in the winter, the reasons for which are unclear.

Visitor expenditures by type are presented in Table 42 on a per capita basis and as a percentage of all visitor expenditures. Cities and areas visited are presented in Table 43. Anchorage by far, receives more visitors than any other city in Alaska. This points to the fact that Anchorage is the business center of Alaska as well as the "gateway" to the state. Table 44 presents information concerning visitor-related firms' sales. The table shows the substantial contribution made to the Alaskan economy by the visitor-related industry. The numbers presented are for 1975 and therefore are probably somewhat low.

Tourism is a growth "industry" in Alaska. However, the importance of the tourism industry to the Alaskan economy is probably less now than before due to dramatic growth in other sectors. Nonetheless, tourism is an important component of the economy of various areas.

TABLE 41

VISITOR AND EXPENDITURE PROJECTIONS

Purpose of Trip	Winter, 1976-1977			Summer, 1977			Combined Winter/Summer		
	Total Number of Visitors	Per Capita Expenditure	Total Dollar Projections (000)	Total Number of Visitors	Per Capita Expenditure	Total Dollar Projections (000)	Total Number of Visitors	Per Capita Expenditure	Total Dollar Projections (000)
Pleasure only	56,579	$ 432.	24,442.1	221,476	$ 760.	168,321.8	278,055	$ 693.	$192,763.9
Mostly pleasure/ some business	10,082	513.	5,172.1	16,049	741.	11,892.3	26,131	653.	17,064.4
Half pleasure/half business	11,925	583.	6,952.3	16,049	675.	10,833.1	27,974	636.	17,785.4
Mostly business/some pleasure	30,894	1004.	31,017.6	25,678	938.	24,086.0	56,572	974.	55,103.6
Business only	74,548	792.	59,042.0	41,727	764.	31,879.4	116,275	782.	90,921.4

Source: State of Alaska, Division of Economic Enterprise, Department of Commerce and Economic Development. Visitor Census & Expenditure Survey, Summer 1977. March 1978; p. 12.

TABLE 42

VISITOR EXPENDITURES

	Winter Total		Summer Total	
	Per Capita Expenditures	Share Of All Visitors Expenditures	Per Capita Expenditures	Share Of All Visitors Expenditures
	$	%	$	%
Transportation to and from Alaska	331.	50	177.	29
Air	299.	45	131.	22
Ship	9.	1	25.	4
Automobile	22.	3	18.	3
Bus	1.	*	1.	*
Railroad	-	-	2.	*
Organized tours	8.	1	266.	45
Food/meals	70.	10	35.	6
Lodging	83.	13	27.	5
Retail purchases	53.	8	27.	5
Entertainment/recreation	49.	7	18.	3
Auto expense (within the State)	35.	5	14.	2
Other transportation (within the State)	15.	2	13.	2
Miscellaneous/other	20.	3	12.	2
TOTALS	$664.	100%	$589.	100%

*Less than 0.5%

Source: State of Alaska, Division of Economic Enterprise, Department of Commerce and Economic Development. Visitor Census & Expenditure Survey, Summer 1977. March 1978; p. 43.

TABLE 43

CITIES/AREAS VISITED

	Winter Total*	Summer Total	June	July	August	Sept.
	%	%	%	%	%	%
Anchorage	76	68	65	67	66	76
Fairbanks	23	41	41	51	39	34
Juneau	15	38	46	36	39	27
Ketchikan	10	29	41	22	29	24
Kenai	8	12	11	14	13	11
Sitka	7	21	25	23	23	9
Soldotna	6	9	9	9	9	8
Mt. McKinley Nat'l. Park	6	34	36	41	34	26
Haines	4	9	13	5	12	6
Valdez	4	6	6	6	6	7
Kodiak	4	2	2	2	3	3
Homer/Seldovia	3	5	5	6	5	5
Prudhoe Bay	3	2	1	2	2	3
Nome	3	8	9	9	8	8
Skagway	2	33	43	33	30	26
Glacier Bay	2	25	29	27	23	20
Kotzebue	2	9	9	9	9	8
Seward	2	4	4	5	4	4
Barrow	2	3	3	4	3	2

* Columns refer to percentage of total visitors in the time period who visited that city. Figures include multiple city visits.

Source: State of Alaska, Division of Economic Enteprise, Department of Commerce and Economic Development. Visitor Census & Expenditure Survey, Summer 1977. March 1978, p. 19.

TABLE 44

TOTAL SALES OF VISITOR INDUSTRY FIRMS IN ALASKA AND TOTAL SALLES TO VISITORS
for the year 1975

	Total Sales	Sales to Visitors	% Sales to Visitors
Hotels, motels and lodges	$ 92,233,498	$ 54,606,135	59.2%
Gift, souvenir and jewelry shops	128,377,694	2,626,480	2.0
Travel agencies	24,298,150	963,250	4.0
Air taxis and air charters	39,169,272	8,438,536	21.5
Bus Co. (tour and airport)	3,800,656	3,545,339	93.3
Railroads	48,055,908	1,561,596	3.2
Tour wholesalers and operators	505,509	505,509	100.0
Restaurants	39,178,071	10,953,684	28.0
Guides	2,489,825	2,405,490	96.6
Car rentals	5,223,382	3,760,835	82.0
Hunting and fishing camps	666,550	595,850	89.4
Boat charters	975,430	864,290	88.6
Airlines	187,677,308	38,173,643	20.3
Cruise ships	169,060	169,060	100.0
General stores	14,666,640	1,395,147	9.5
Marine Highway System	15,164,782	7,885,687	52.0
Department of Fish & Game*	1,682,711	1,682,711	100.0
Other	5,450,604	431,454	7.9
TOTALS	$609,785,050	$140,564,696	23.1%

* To non-residents

Source: State of Alaska, Division of Economic Enterprise, Department of Commerce and Economic Development. Impact of Visitor Expenditures upon Alaska's Economy, For the Year 1975. February 1978; p. 23.

3.6.1.7 - Service and Support Components

This sector of the Alaskan economy has experienced substantial growth and diversification in the past decade. The growth in this sector is in part attributable to the demand created by expansion of the basic sector of the economy, and in part by the maturation process of the Alaskan economy in general. The growth in the non-basic sector parallels the general trend of the nation, yet reflects as well the fact that Alaska has passed the threshold level of economic activity at which substantial demand for goods and services is generated locally or internally.

Table 45 shows employment growth rates for selected industries over various periods. The total support group has consistently grown faster than that of the total economy. Dramatic growth has occurred in many of the more service oriented categories, i.e., finance, insurance, real estate, and services. Growth in wholesale trade reflects the demand for goods and services generated from other sector activity which is being met by local Alaskan firms.

The figures shown in Table 45 tend to mask the effects of the post-pipeline economic slowdown. Recent employment figures however, indicate some contractions in many categories occurred. This trend is apparent upon visual inspection of many of the communities in the railbelt area, especially in the Anchorage Mat-Su and Fairbanks areas. Numerous vacant stores and half completed developments are scattered throughout these areas.

The dip in economic activity after the pipeline boom is an expected occurence. More surprising is the apparent resilience of certain sectors or industries. The slowdown as recorded by employment figures did not occur until several years after the pipeline construction period ended. Reasons for this are indeterminate and may be related to economic behavior or perhaps measurement techniques. Nonetheless the overall trend is for continued expansion of the non-basic sector.

TABLE 45

EMPLOYMENT GROWTH
ANNUAL AVERAGE RATES
SELECTED ALASKA INDUSTRIES

(Percent)

	1960 to 1963	1964 to 1969	1969 to 1973	1973 to 1978
Wholesale Trade	3.6	11.4	3.9	11.7
Retail Trade	3.6	9.1	7.8	8.6
Services	4.4	8.8	9.7	12.5
Transportation	-3.6	6.9	1.7	9.3
Communications	11.3	-0.7	11.0	7.1
Public Utilities	12.0	5.6	14.7	5.0
Finance Ins., Real Estate	8.1	6.1	12.4	14.2
Total Support	3.3	7.9	7.6	11.0
Total Nonagricultural	1.1	5.8	6.1	8.0

Note: Prior to 1964, only jobs covered by unemployment insurance were included in the reported data. Thus, the pre-1964 period is not strictly comparable with the period beginning in 1964.

Source: Compiled from data in "Statistical Quarterly," (Alaska Department of Labor).

From State of Alaska, Division of Economic Enterprise, Department of Commerce and Economic Development. The Performance Report of the Alaska Economy in 1979. Vol. Eight. p. 25.

Another emerging characteristic of these sectors is seasonal variation. The trend is discernible comparing the ratio of first quarter employment to third quarter employment. Table 46 presents this series. Only the services and public utilities sections did not show decreasing seasonality.

Brief discussions of most service and support industries are presented below. These categories are also treated in Subsection 3.7.

3.6.1.7.1 - Wholesale Trade

According to the 1977 Industry Census, there were 649 firms engaged in wholesale trade in Alaska with sales of $1.563 billion. The largest component of sales was petroleum and related products constituting $532 million or 34.1 percent of total wholesale sales. Groceries and related products accounted for $270 million or 17.3% of the total. Machinery equipment and supplies accounted for $262 million or 16.8 percent of the total.

Wholesale trade could be considered non-basic now because with recent rapid population growth, especially in the Anchorage area, and the expansion of the oil and gas industry, it has become cost-effective for local, as opposed to Seattle-based wholesalers, to serve the growing local retail trade.

3.6.1.7.2 - Retail Trade

According to the 1977 Industry Census, there were 3,781 retail establishments in Alaska with sales of $1.831 billion. Grocery stores accounted for the largest share of sales, $410 or 22.4 percent. Eating and drinking establishments accounted for $254 million or 13.9 percent of total retail sales. Automotive dealers accounted for $241 million or 13.2 percent of the total, and general merchandise stores had $227 million or 12.4 percent.

TABLE 46

STATE OF ALASKA INDEX OF EMPLOYMENT SEASONALITY, SELECTED INDUSTRIES*

	1960	1970	1978
Trade	.826	.869	.899
Services	.770	.937	.874
Transportation	.784	.854	.871
Communications	.876	.899	.939
Public Utilities	.835	.885	.847
Finance, Insurance, Real Estate	.888	.793	1.012
Total Support	.810	.881	.898

* Ratio of-January, February and March nonagricultural employment to July, August and September nonagricultural employment.

Source: Compiled from data published by the Alaska Department of Labor in the "Statistical Quarterly."

From State of Alaska, Division of Economic Enterprise, Department of Commerce and Economic Development. The Performance Report of the Alaska Economy in 1979. Vol. Eight. p.26.

Retail trade has grown as a function of other local changes which reflect expansion of demand in the state. Economies of scale resulting from a larger market apparently have assisted development of retail outlets.

3.6.1.7.3 - Finance, Insurance, and Real Estate

Recent trends and activity in this sector of the economy in Alaska are comparable to what has occurred in the U.S. in general. High, widely fluctuating interest rates and restricted credit have created an air of uncertainty and business caution. Consequentially, lending activity has slacked off. This impact is presented in Table 47 which shows combined indicators for financial institutions. A noteworthy distinction between Alaska and most of the U.S. in general is that the state can offset the restrictive policies of the Federal Reserve Board by depositing large funds in state financial institutions. Thus the outlook and financial climate may be more favorable in Alaska than elsewhere.

Real estate activity in Alaska has ridden a seesaw over the past decade corresponding to the boom/bust cycle of the pipeline project. In addition recent record high interest rates have limited existing activity. Excess capacity, mainly in retail space and housing stocks left over from the pipeline period is slowly being filled. This has been the case in Anchorage and Fairbanks especially. Certain communities have fared better than the state in general. Demand for commercial office, industrial, and warehouse space fared better, than non-commercial real estate but has been relatively flat since the pipeline period.

Table 48 shows housing permits issued in various cities. The table shows a slowdown beginning in 1978. It also shows clearly the fact that Anchorage accounts for roughly half of all home construction activity.

TABLE 47

COMBINED INDICATORS FOR BANKING,
SAVINGS & LOAN ASSOCIATIONS,
FEDERAL CREDIT UNIONS, AND
SMALL LOAN LICENSEE ACTIVITY: 1976-1979

(in millions of dollars)

End of Year	Total Number of Institutions	Combined Value of All Loans	Combined Total Assets
1976	65	$ 1,455	$ 2,357
1977	64	1.784	2,674
1978	60	1,935	2,912
1979	60	1,833	3,013

Source: Division of Banking, Securities, Small Loans and Corporations, and the Division of Economic Enterprise, Alaska Department of Commerce and Economic Development.

From State of Alaska, Department of Commerce and Economic Development, Division of Economic Enterprise. Alaska Statistical Review and General Information. June 1980; p. L-1.

TABLE 48

TOTAL NUMBER OF FAMILY DWELLING UNITS INCLUDED IN BUILDING PERMITS ISSUED IN SELECTED URBAN AREAS OF ALASKA, 1970 - 1979

Year	Anchorage	Fairbanks	Homer	Kenai	Palmer	Seldovia	Seward	Soldotna	Valdez	Total
1970	3,000	444	6	17	19	1	8	11	1	3,507
1971	3,050	348	12	23	15	3	8	4	0	3,463
1972	2,951	439	11	22	9	1	39	16	6	3,494
1973	2,086	446	17	13	2	8	1	11	6	2,590
1974	2,822	594	35	25	7	7	4	37	161	3,692
1975	4,010	1,051	13	100	8	5	3	87	85	5,362
1976	3,938	998	60	161	72	13	11	138	39	5,430
1977	4,877	1,561	117	267	75	8	39	177	33	7,154
1978	3,289	806	92	160	125	9	36	69	14	4,600
1979	1,469	431	130	47	68	22	50	40	29	2,286

Source: City and Borough building officials, and the U.S. Department of Housing and Urban Development.

From: Alaska Department of Commerce and Economic Development, Division of Economic Enterprise. June 1980. The Alaska Statistical Review. 1980. Juneau, AK. pp. G-2, G-3.

Activity in the insurance industry usually follows the general trend set by other sectors. Table 49 shows the value of total insurance premiums written from 1959-1979. Since 1966, the total value has steadily increased. This reflects the general economic growth occurring in Alaska over the time period, and also the effects of inflation on the industry. Adjusted for increases due to inflation the total would show a downward trend from 1977-1979.

3.6.1.7.4 - Services

The services industry has experienced significant growth over the past decade as measured by employment figures, (See Subsection 3.7). As is the case for the United States, the service industry is characterized by numerous small establishments. This category includes such professional services as doctors, lawyers, accountants, and economists. Due to the expanding economy this group is experiencing substantial growth. The industry serves almost exclusively locally generated demand.

3.6.1.8 - Government

The role of the public sector has been an important one throughout Alaska's history. The trend over the past decade has been one of a declining share for government bodies in terms of total wages paid especially during the pipeline period. This has been the result of significant expansion in the private sectors of the economy. Nonetheless, government in Alaska accounted for 41 percent of all jobs, and the Federal government including military personnel remains the single largest employer in the state. Table 50 presents data for total wages paid for the government sectors and shows government wages as a percentage of total wages paid in the state. The most striking trend is the growth in the state and local component. Also noteworthy is the relatively small increase in military wages. This is due to the fact that military employment has consistently decreased over the past

TABLE 49

ALASKA INSURANCE BUSINESS
Total Insurance Premiums Written: 1959 - 1979
(in millions of dollars)

Year	Total Insurance
1959	$ 30.0
1960	34.2
1961	36.9
1962	40.1
1963	42.9
1964	74.6
1965	58.6
1966	64.7
1967	70.2
1968	79.8
1969	93.9
1970	113.2
1971	131.5
1972	146.0
1973	155.8
1974	189.6
1975	206.2
1976	356.5
1977	452.5
1978	473.7
1979	488.7

Source: Alaska Department of Commerce and Economic Development, Division of Insurance.

From: Alaska Department of Commerce and Economic Development, Division of Economic Enterprise. June 1980. The Alaska Statistical Review. 1980. Juneau, AK. p. M-1.

TABLE 50

Alaska Public Sector Wages*
Compared to All Wages Received
in Selected Years
(in Millions of Dollars)

	1960	1965	1970	1975	1976
Total Wages	$586	$772	$1251	$2860	$3294
Government	287	376	594	973	1054
Federal Civilian	108	138	195	295	318
Federal Military	138	144	226	261	268
State and Local	42	94	173	417	467
Government Wages as Percentage of Total					
Alaska	49.0	48.7	47.5	34.0	32.0
U.S.	14.8	16.0	18.3	19.2	19.0

***Total Labor and Proprietor's Income by Place of Residence – BEA Personal Income Series.**

Source: Alaska Department of Commerce and Economic Development. July 1978. Jobs and Power for Alaskans, A Program for Power and Economic Development. Juneau, AK. p. 33.

decade, although total wages paid has generally increased. Table 51 presents government expenditures broken down by federal, state, and local components. In 1979 the federal government spent about $1.5 billion in Alaska. The state spent nearly one billion, and local governments spent an estimated $662 million. Total government expenditures in Alaska are estimated at over $3 billion. Federal government spending and employment should be considered a basic component because it is exogenously determined for the most part. State and local government, on the other hand, should be considered non-basic. Growth in this sector is largely attributable to the increases in state revenues and expenditures. Eventually its growth will be constrained by demands for services of Alaska residents and Alaska's overall population growth rate.

Table 52 breaks down state government expenditures by function including amounts awarded to local governments. Table 53 presents revenues by source for the state government. These figures only go up to 1979 and therefore do not show the fact that the income tax was abolished in 1980. In addition, revenues from oil and gas taxes have risen substantially.

Table 54 presents similar information for local governments.

3.6.2 - Regional Economic Bases

This section will briefly describe the major components of the economic base for the areas included in Study Areas #2 and #3. These areas include: Anchorage; the Kenai Peninsula, including Seward; Fairbanks and Southeast Fairbanks; Matanuska-Susitna Borough; and the Valdez-Chitina-Whittier census division.

TABLE 51

TOTAL FEDERAL GOVERNMENT OBLIGATIONS IN ALASKA[a]
PLUS STATE AND LOCAL GOVERNMENT GENERAL EXPENDITURES[b]
AND NET DOLLAR EXCHANGES AMONG LEVELS OF GOVERNMENT
(in millions of dollars)

Fiscal Year Ending June 30	FEDERAL OBLIGATIONS		STATE OF ALASKA GENERAL EXPENDITURES					LOCAL GOVT GENERAL EXPENDITURES				TOTAL GOVERNMENT SPENDING IN ALASKA
				By Source of Funds		By Type of Expenditure						
	Total	Total Minus State-Local Govt Grants	Total	From Own Sources	Federal Funds	Direct Expenditures	Awarded to Local Govt Units	Total	From Own Sources	From State	From Federal Govt	
1973	1,011	807	622	433	189	499	123	286	148	123	15	1,592
1974	1,107	887	662	474	188	519	143	324	149	143	32	1,730
1975	1,279	1,021	786	552	234	619	167	360	169	167	24	2,000
1976	1,358	1,050	956	675	281	750	206	426	193	206	27	2,226
1977	1,501	1,190	1,029	756	273	794	234	539	267	234	38	2,524
1978	1,701	1,356	1,157	863	294	893	264	596	281	264	51	2,845
1979	1,887	1,506[E]	1,279[E]	964[E]	315[E]	979[E]	300[E]	662[E]	296[E]	300[E]	66[E]	3,147[E]

E Estimated by the Division of Economic Enterprise, Alaska Department of Commerce and Economic Development.

a/ Total Federal government obligations include all amounts set aside for direct spending by Federal agencies and also include grants and loans to the State of Alaska, to local government units, or to other organizations or individuals in Alaska. Figures for fiscal years ending June 30 are interpolated from published figures for Federal fiscal years ending September 30.

b/ General expenditures of State and local governments include all expenditures except those from trust funds (including retirement funds and the unemployment insurance benefit fund) and expenditures by publicly owned utilities supported by service fees.

Source: Community Services Administration, U.S. Department of Health, Education, and Welfare; Bureau of the Census, U.S. Department of Commerce; and the Division of Economic Enterprise, Alaska Department of Commerce and Economic Development.

From: Alaska Department of Commerce and Economic Development, Division of Economic Enterprise. June 1980. The Alaska Statistical REview. 1980. Juneau, AK. p. E-1.

TABLE 52

ALASKA STATE GOVERNMENT

EXPENDITURES BY FUNCTION
(thousands of dollars)

Fiscal Years Ending June 30	Education	Social Services	Health	Natural Resources & Environmental Conservation	Public Protection	Administration of Justice	Development	Transportation	General Government	Total All Functions
1970	$ 98,592	$ 15,262	$11,114	$16,330	$ 3,967	$14,914	$ 13,514	$ 97,391	$ 25,293	$ 296,377
1971	150,393	25,525	17,841	19,776	5,547	19,573	22,480	106,621	38,491	406,247
1972	177,509	31,855	19,714	22,104	5,284	23,529	225,904	119,797	47,206	672,902
1973	172,255	49,689	23,929	24,305	7,028	31,281	24,414	145,735	64,398	543,034
1974	184,637	51,887	29,611	27,233	7,925	35,341	30,623	166,376	63,113	596,746
1975	251,653	65,192	31,101	35,362	12,953	43,669	42,237	194,964	74,762	751,893
1976	307,800	79,872	39,198	49,764	18,383	54,579	46,995	235,755	89,202	921,548
1977	358,790	91,736	53,823	81,792	20,430	67,989	54,657	253,121	104,412	1,086,750
1978	378,816	102,084	64,000	86,046	24,453	70,641	50,168	265,922	106,144	1,148,274
1979	422,087	118,371	74,585	96,592	28,221	81,189	68,383	249,483	140,443	1,279,354
% of FY 1979 Expenditures By Function	33.0%	9.3%	5.8%	7.6%	2.2%	6.3%	5.3%	19.5%	11.0%	100.0%

Note: Included in the above figures are State funds awarded to local units of government for the functions indicated. Not included in the above figures are expenditures from trust funds, including retirement funds and the unemployment insurance benefit fund.

Source: Division of Finance, Alaska Department of Administration.

From: Alaska Department of Commerce and Economic Development, Division of Economic Enterprise. June 1980. The Alaska Statistical Review. 1980. Juneau, AK. p. E-3.

TABLE 53

STATE OF ALASKA
REVENUES BY SOURCE
LAST TEN FISCAL YEARS
(thousands of dollars)

Fiscal Year	Taxes	Licenses & Permits	Intergovernmental Revenue	Charges For Services	Fines & Forfeitures	Miscellaneous Revenue
1970	$ 76,265	$10,015	$ 93,579	$12,293	$ 574	$964,232[a]
1971	85,546	10,551	133,099	12,165	662	110,142
1972	91,154	10,794	145,874	14,677	708	106,366
1973	98,465	11,420	167,440	19,090	814	80,038
1974	109,401	11,113	173,708	33,399	953	95,250
1975	187,980	24,052	205,297	28,493	3,956	102,803
1976	578,023	16,641	319,908	19,343	3,353	80,566
1977	751,703	17,897	312,210	21,805	2,132	80,794
1978	541,549	19,099	312,794	21,258	2,307	179,224
1979	798,680	19,772	313,373	24,925	2,177	266,652

a/ $900,041,605 was Oil Lease Sale.

TAX REVENUES BY SOURCE
LAST TEN FISCAL YEARS
(thousands of dollars)

Fiscal Year	Income Tax	Business & License Tax	Fuel Tax	Disaster Tax School Tax	Conservation Tax Oil-Gas Production Tax & Severance Tax	Cigarette Tax	Property Tax	Other Taxes
1970	$ 37,294	$14,912	$10,372	$2,097	$ 8,249	$2,711	$	$
1971	41,718	17,909	10,958	1,466	10,527	2,967		
1972	45,724	17,909	11,402	1,493	11,401	3,224		
1973	50,400	18,813	12,404	1,576	12,028	3,224		
1974	57,617	20,353	13,743	1,643	14,760	3,430		
1975	104,320	29,724	25,214	2,151	29,424	3,311	6,480	263
1976	177,328	19,071	24,403	2,637	31,189	4,617	306,429	15,232
1977	246,243	23,252	20,418	2,589	30,189	4,851	409,768	17,426
1978	179,332	21,675	23,287	2,401	116,143	4,627	177,031	19,939
1979	374,731	28,158	22,323	2,530	185,823	4,410	163,448	20,013

Source: Alaska Department of Administration, Division of Finance. (Table first published in **State of Alaska Annual Financial Report Year Ending June 30, 1979.**)

From: Alaska Department of Commerce and Economic Development, Division of Economic Enterprise. June 1980. The Alaska Statistical Review. 1980. Juneau, AK. p. E-4.

TABLE 54

LOCAL GOVERNMENT GENERAL REVENUE AND DIRECT GENERAL EXPENDITURES IN ALASKA: FY 1972 - FY 1978
(in millions of dollars)

	FY 1972	FY 1973	FY 1974	FY 1975	FY 1976	FY 1977	FY 1978
Total General Revenue	$194.9	$215.7	$311.3	$350.4	$430.5	$499.6	$602.0
From Federal Government	6.2	15.1	32.0	24.1	26.9	38.1	51.0
From State Government	93.3	94.5	132.5	154.6	193.8	201.5	216.0
Own Sources	95.4	106.1	146.8	171.7	209.8	260.0	335.0
Charges and Miscellaneous	48.3	52.1	65.1	78.2	84.4	99.2	144.6
Taxes	47.1	54.0	81.7	93.5	125.4	160.9	190.5
Property	34.8	41.5	63.5	69.3	94.0	126.6	152.3
General Sales	12.3	11.1	16.6	22.1	28.9	31.4	34.8
Total Direct General Expenditures	$244.6	$285.5	$324.0	$360.0	$425.7	$539.2	$595.6
Education	111.8	151.9	156.5	161.3	196.7	253.4	253.6
Highways	12.1	13.9	13.7	17.3	21.0	29.1	21.5
Public Welfare	0.3	0.4	0.5	0.4	0.4	0.9	.1
Health and Hospitals	3.8	5.6	9.6	11.4	16.2	15.4	17.9
Police Protection	6.4	7.4	9.0	12.3	14.8	19.6	21.1
Fire Protection	6.1	6.5	7.8	11.5	12.1	16.1	20.9
Sewerage	13.7	16.2	20.3	23.2	26.5	34.0	32.6
Financial Administration	4.4	5.4	8.4	9.5	11.3	16.4	16.5
Interest on Debt	13.8	16.5	18.1	21.5	24.8	17.6	62.9
Other Programs	52.2	61.7	80.1	91.6	101.9	136.7	148.5

Source: U.S. Bureau of the Census.

From: Alaska Department of Commerce and Economic Development, Division of Economic Enterprise. June 1980. The Alaska Statistical REview. 1980. Juneau, AK. p. E-5.

3.6.2.1 - Anchorage

As the major population center in Alaska, Anchorage is the hub of the state's economy. The metropolis provides many of the support services required by development in other parts of the state with the possible exception of Southeastern Alaska. Most major industries have their state headquarters in Anchorage. In addition, the sheer size of the city creates internal demand for a wide range of goods and services. Anchorage is virtually all service or support oriented, except for some fish processing and construction-related manufacturing.

The city has been characterized as a "maturing teenager entering the post-adolescent life, experiencing an unsettling slowdown of its growth rate". Indeed, growth over the past decade has been dramatic even though the rate of growth in economic activity has slowed since the pipeline days. Unlike Fairbanks, Anchorage's economy did not suffer a precipitous drop in activity after the pipeline, but tended to level off at a higher economic plateau. Indications at present suggest that resumed growth at a moderate rate will materialize, especially as much of the excess capacity created by the pipeline surge is filled.

The slowdown in Anchorage's economy was most pronounced in the trade and construction sectors. This, in turn, affected the real estate industry. Table 55 shows the value of construction authorized for Anchorage by quarter for 1975 through 1980. Deflated figures are presented also. The slowdown in activity is readily apparent in comparing current dollar figures for the first quarter of 1980 with the first quarter of 1975.

Anchorage is unique in Alaska in that activity almost anywhere else in the state stimulates its economy. Thus, if any of the major projects mentioned in the state economic base section occur, the effects will be noticed in Anchorage. Even without major resource development projects occurring, Anchorage's economy will be boosted by the many public pro-

TABLE 55

TOTAL VALUE OF PERMITS ISSUED FOR RESIDENTIAL AND NON-RESIDENTIAL IN ANCHORAGE

(expressed in current and 1967 dollars)

	1975				1976			
	1	2	3	4	1	2	3	4
CONSTRUCTION								
Total Construction (in 000 current $)	3,632	49,214	48,010	22,302	22,323	38,842	77,692	40,797
Residential (in 000 current $)	1,227	38,126	38,065	11,137	6,369	29,795	36,876	21,481
Non-residential (in 000 current $)	2,405	11,088	9,945	11,165	15,954	9,047	40,816	19,316
Total Construction (in 000 1967 $)[a]	2,542	32,809	31,216	14,169	14,058	24,021	47,115	24,298
Residential (in 000 1967 $)	859	25,417	24,750	7,076	4,011	18,426	22,363	12,794
Non-residential (in 000 1967 $)	1,683	7,392	6,466	7,093	10,047	5,595	24,752	11,504

	1977				1978			
	1	2	3	4	1	2	3	4
CONSTRUCTION								
Total Construction (in 000 current $)	18,563	131,747	134,961	56,064	23,711	56,828	77,853	38,081
Residential (in 000 current $)	10,042	49,584	81,605	23,383	16,196	47,100	54,999	23,440
Non-residential (in 000 current $)	8,519	82,163	53,356	32,681	7,515	9,728	22,854	14,641
Total Construction (in 000 1967 $)[a]	10,957	76,331	76,078	31,621	13,232	30,952	41,301	19,629
Residential (in 000 1967 $)	5,928	28,728	46,001	13,188	9,038	25,654	29,177	12,082
Non-residential (in 000 1967 $)	5,029	47,603	30,077	18,433	4,194	5,298	12,124	7,547

	1979				1980		
	1	2	3	4	1	2	3
CONSTRUCTION							
Total Construction (in 000 current $)	11,813	49,367	28,295	11,359	5,399	34,838	60,162
Residential (in 000 current $)	7,054	37,695	17,682	6,947	1,826	20,615	48,024
Non-residential (in 000 current $)	4,759	11,672	10,613	4,412	3,573	14,223	12,138
Total Construction (in 000 1967 $)[a]	5,963	24,403	13,643	5,320	2,474	15,484	26,340
Residential (in 000 1967 $)	3,561	18,633	8,526	3,254	837	9,162	21,026
Non-residential (in 000 1967 $)	2,402	5,770	5,117	2,067	1,637	6,322	5,314

[a] Reflects all current dollars using Anchorage CPI.

Source: Municipality of Anchorage. First Quarterly 1980. Quarterly Economic Indicators. Anchorage, AK. pp. 4-5.

jects planned for the area. Most important of these is "Projects 80's," a large scale civic improvement and construction program. The major elements of this program are described below.

Civic/Convention Center - A $20 million project of 50,000 square feet, capable of seating 4,500 people, and sized to handle 85 percent of the conventions held in the U.S.

Performing Visual Arts Center - To be built in phases, Phase One will be a $15.5 million project consisting of a 2,700-seat concert hall and 300-seat drama center. Ultimately it will include an 1,800-seat opera house and 800-seat playhouse.

F Street Mall - To be built in phases. Phase One will be a $5.4 million project. The mall will serve as a pedestrian-only connection between the previously two projects.

Sports Arena - A $25 million enclosed sports facility which will seat up to 10,000 people.

In addition to the $68 million authorized for "Projects 80's," a variety of state-financed civil projects are planned. An estimated $97.4 million in capital works projects was budgeted by the state government for projects in Anchorage in addition to the "Projects 80s" monies. These projects included an airport satellite building; various roads, highways, sewer, and sanitation facilities; and new educational, institutional, and public use buildings.

Completion, continuation, and implementation of these and other projects wil help sustain Anchorage's construction industry and economy in general through the mid-1980's.

3.6.2.2 - Kenai Peninsula

The economic base of the Kenai Peninsula is based primarily on the oil and gas industry, fishing and fish processing, and the tourism and recreation-related industries. These industries have greatly expanded over the past decade and generally broadened the economic base. Employment distribution in the region is concentrated in the Kenai-Nikiski industrial area.

The Kenai-Cook Inlet area is uncommonly dependent upon manufacturing and extractive industries. Alaska's largest petrochemical plant, Union Oil Company's Collier Carbon and Chemical Corporation's ammonia-urea plant, is located in the Kenai-Nikiski area. Tesoro-Alaska's refinery, Phillips Marathon LNG plant, and SOCAL's refinery also operate in the Western Kenai area. Nikiski was also chosen as the site for Pacific-Alaska's LNG plant which has been delayed due to legal conflicts concerning the California receiving facility.

Eastern Kenai Peninsula is dominated by Seward. The principal economic activity used to be related to the port and the Alaska railroad. This activity, though, has been reduced as Anchorage and Valdez have become the major ports of entry for cargo. Presently, 50,000 to 150,000 tons per year are handled through Seward. The port now serves as a shipping point for log and wood chip exports to Japan. Approximately 40,000 tons are shipped per year. Future economic activity in the area will likely develop around the fishing, forest products, and oil and gas industries.

3.6.2.3 - Fairbanks

As the major city closest to the Trans-Alaska pipeline, Fairbanks enjoyed the greatest stimulus and the sharpest declines resulting from its construction. By almost all indicators, Fairbanks economy suffered a substational "bust" from which it is still recovering.

Figure 17 and Table 56 presents sales and property tax revenue since 1969 for the Fairbanks North Star Borough. The rise and fall of sales as reflected by revenues during the pipeline is apparent. If the figures were discounted to account for inflation impacts, the decrease would be even more dramatic. The trend in property tax revenues reflects the impact of pipeline-related property, an oil refinery, and general inflation.

Fairbanks is similar to other cities in Alaska in that it is characterized by few manufacturing and many service or support firms. As the regional center for interior Alaska, the recent upswing in mining activity is a favorable event. Figure 18 and Table 57 present data concerning new mining claims received. During the first eight months of 1980, 32 percent of all new claims were filed in Fairbanks.

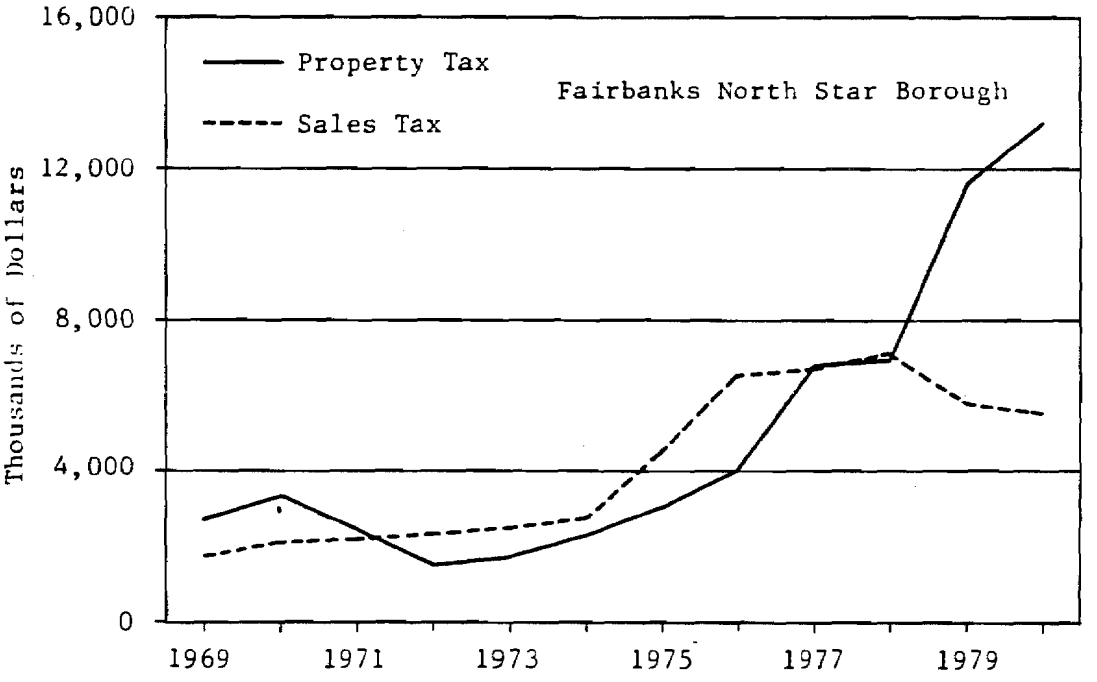
Table 58 presents a list of businesses in the borough classified by S.I.C. categories. The table illustrates the service/support orientation of the area. Of particular note is the number of construction firms. An important element of the Borough economy which does not show up in the table is the military presence. Eielson Air Force Base and Fort Wainwright, together account for approximately 7,000 military and related civilian employees.

A major basic industry has emerged in the Borough. This is the 30,000 barrels per day North Pole Refinery of Earth Resources Company. The company recently expanded its capacity to produce more jet fuel and diesel/heating oil. The refinery supplies all the jet fuel sold at the Fairbanks airport, including the 66 flights per week attributable to foreign carrier refueling stops. Besides assuring a supply of fuels for the interior, the refinery generates substantial revenues to the borough. Its assessed value was $33,058,125 in 1980.

Total Borough assessment is presented for 1977-1980 in Table 59 along with related pipeline assessments. From the Table it is apparent that

FIGURE 17 - TABLE 56

TAX REVENUE BY SOURCE
City of Fairbanks and Fairbanks North Star Borough
Fiscal Years 1969-1980*



Fiscal Year*	-----City of Fairbanks----- Sales Tax	Property Tax	Fairbanks North Star Borough** Sales Tax	Property Tax
1969	$2,166,000	$1,137,000	$1,679,000	$ 2,747,000
1970	2,526,000	1,254,000	2,087,000	3,331,000
1971	2,757,000	1,650,000	2,188,000	2,448,000
1972	2,949,000	2,123,000	2,360,000	1,504,000
1973	3,111.000	2,354,000	2,497,000	1,786,000
1974	3,878,000	2,360,000	2,780,000	2,290,000
1975	6,324,000	3,148,000	4,518,000	3,035,000
1976	7,489,000	3,697,000	6,596,000	4,034,000
1977	7,385,000	3,761,000	6,744,000	6,820,000
1978	6,257,000	4,076,000	7,100,000	6,977,000
1979	5,645,000	4,004,000	5,819,644	11,621,219***
1980	5,707,136****	4,278,210****	5,586,641	13,206,637***

* The city's fiscal year runs from January 1 through December 31 of the year listed. The borough's fiscal year runs from July 1 of the previous year through June 30 of the year listed.

** Fairbanks North Star Borough figures in years after 1975 reflect the modified accrual basis for revenue.

*** Does not include the partial residential property tax exemption.

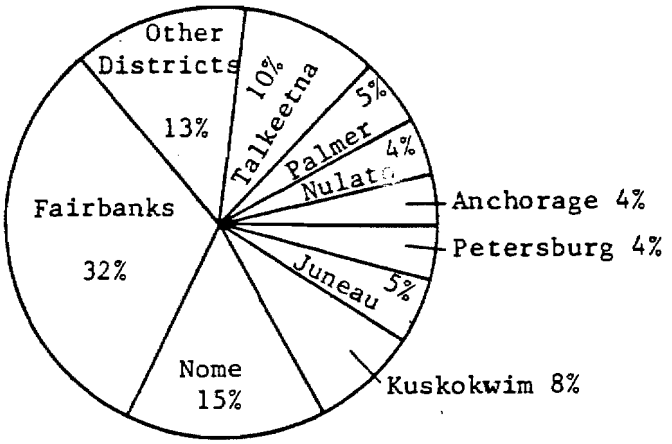
**** The 1980 tax figures are preliminary subject to audit.

Source: Fairbanks North Star Borough, Finance Department; compiled by the Community Information Center.

From: Fairbanks North Star Borough, Community Research Center. Fall 1980. Community Research Quarterly, A Socioeconomic Review. Fairbanks, AK. p. 38.

FIGURE 18 - TABLE 57

NEW MINING CLAIMS RECEIVED
Alaska
1979-1980, First Eight Months Comparisons



Total Filings for First Eight Months of 1980

	1980								1979	
	January	February	March	April	May	June	July	August	8 Month Total	8 Month Total	% Change 1979-80
Fairbanks	65	158	165	293	600	361	1,240	998	3,880	1,110	250%
Barrow	0	0	0	0	362	0	0	0	362	150	141%
Manley Hot Springs	19	0	0	0	7	73	4	42	145	32	353%
Nulato	5	19	2	0	452	31	14	23	546	17	3,112%
Mt. McKinley	6	1	28	128	110	0	2	0	275	47	485%
Nenana	0	5	15	17	4	8	15	6	70	67	4%
Rampart	0	0	12	0	0	0	6	0	18	3	500%
Ft. Gibbon	12	0	0	0	0	9	2	0	23	68	-66%
Kotzebue	0	0	0	0	0	4	0	0	4	840	-100%
Talkeetna	26	266	122	58	227	28	152	334	1,213	694	75%
Palmer	12	61	93	98	108	14	72	95	553	226	145%
Nome	141	125	0	137	1,281	42	100	65	1,891	984	92%
Seward	5	0	0	12	0	0	0	0	17	137	-88%
Juneau	0	50	102	105	206	125	37	6	631	177	256%
Haines	0	4	0	3	4	18	5	7	41	4	925%
Skagway	0	0	0	0	0	0	1	0	1	0	*
Petersburg	0	47	335	0	0	45	30	30	487	197	147%
Wrangell	0	0	0	0	0	0	0	0	0	0	*
Ketchikan	2	0	0	0	0	3	58	17	80	208	-62%
Sitka	0	0	0	0	0	0	0	0	0	51	*
Anchorage	311	0	46	98	0	13	0	16	484	39	1,141%
Iliamna	0	16	0	0	0	0	0	0	16	0	*
Aleutian Islands	1	0	0	12	0	0	0	0	13	0	*
Bristol Bay	0	0	0	0	0	0	0	0	0	0	*
Seldovia	0	0	0	0	0	0	0	0	0	0	*
Cordova	0	0	1	12	0	1	0	14	28	4	600%
Chitina**	69	4	104	32	164	20	8	2	403	21	1,819%
Valdez	0	0	0	0	4	0	0	0	4	5	-20%
Bethel	0	0	0	0	0	0	0	59	59	62	-5%
Kuskokwim	0	0	162	45	2	720	0	5	934	0	*
Kodiak	0	0	0	27	0	30	0	2	59	6	883%
Homer	0	0	0	0	0	0	0	0	0	0	*
Kenai	0	0	0	0	0	0	0	0	0	0	*
TOTAL	674	756	1,187	1,077	3,531	1,545	1,746	1,721	12,237	5,419	126%

* Number of units is too small to make a valid percentage comparison.
** Includes both the former districts of Chitina and Glenallen.

Source: Alaska Department of Natural Resources, Division of Geological and Geophysical Surveys; compiled by the Community Information Center.

From: Fairbanks North Star Borough, Community Research Center. Fall 1980. Community Research Quarterly, A Socioeconomic Review. Fairbanks, AK. p. 48.

TABLE 58

CLASSIFICATION AND NUMBER OF BUSINESSES
Fairbanks North Star Borough
March and September, 1980

Type of Business	Number of Businesses March 1980	Number of Businesses September 1980	% Change March - Sept. 1980
Agriculture, Forestry and Fishing	65	60	-8%
Agricultural Production - Crops	16	17	6%
Agricultural Production - Livestock	16	15	-6%
Agricultural Services	32	27	-16%
Forestry	1	1	0%
Mining	7	10	43%
Metal Mining	4	5	25%
Bituminous Coal and Lignite Mining	0	1	*
Oil and Gas Extraction	1	1	0%
Nonmetallic Minerals, Except Fuels	2	3	50%
Construction	343	350	2%
General Building Contractors	94	96	2%
Heavy Construction Contractors	50	49	-2%
Plumbing, Heating, Air Conditioning	60	61	2%
Painting, Paper Hanging, Decorating	12	11	-8%
Electrical Work	33	31	-6%
Masonry, Stonework and Plastering	17	16	-6%
Carpentry and Flooring	19	18	-5%
Roofing and Sheet Metal Work	4	6	50%
Concrete Work	3	4	33%
Water Well Drilling	9	11	22%
Miscellaneous Special Trade Contractors	42	47	12%
Manufacturing	80	93	16%
Apparel and Other Textile Products	4	6	50%
Lumber and Wood Products	11	13	18%
Furniture and Fixtures	1	3	200%
Printing and Publishing	14	16	14%
Petroleum and Coal Products	2	2	0%
Rubber and Miscellaneous Plastics Products	2	2	0%
Leather and Leather Products	0	1	*
Stone, Clay and Glass Products	16	16	0%
Primary Metal Industries	1	1	0%
Fabricated Metal Products	5	8	60%
Machinery, Except Electrical	7	6	-14%
Electrical and Electronic Equipment	3	3	0%
Instruments and Related Products	0	1	*
Miscellaneous Manufacturing Industries	14	15	7%
Transportation and Public Utilities	106	107	1%
Local and Interurban Passenger Transit	7	8	14%
Trucking and Warehousing	28	25	-11%
Water Transportation	1	1	0%
Air Transportation	25	30	20%
Pipelines, Except Natural Gas	1	1	0%
Transportation Services	4	2	-50%
Communication	11	13	18%
Electric, Gas and Sanitary Services	29	27	-7%
Wholesale Trade	17	23	35%
Wholesale Trade-Durable Goods	10	12	20%
Wholesale Trade-Nondurable Goods	7	11	57%
Retail Trade	1,050	1,177	12%
Building Materials and Garden Supplies	41	42	2%
General Merchandise Stores	22	28	27%
Food Stores	43	40	-7%
Automotive Dealers and Service Stations	76	75	-1%
Apparel and Accessories Stores	42	44	5%
Furniture and Home Furnishings Stores	56	48	-14%
Eating and Drinking Places	126	135	7%
Drug and Proprietary Stores	6	5	-17%
Liquor Stores	13	13	0%
Used Merchandise Stores	27	28	4%
Miscellaneous Shopping Goods Stores	177	185	5%
Nonstore Retailers	261	364	39%
Fuel Oil Dealers	30	28	-7%
Miscellaneous Retail Stores	130	142	9%
Finance, Insurance and Real Estate	52	55	6%
Credit Agencies Other Than Banks	3	2	-33%
Securities/Commodities Brokers and Services	2	2	0%
Insurance Carriers	3	4	33%
Insurance Agents, Brokers and Services	5	5	0%
Real Estate	38	42	11%
Holding and Other Investment Offices	1	0	*
Services	861	905	5%
Hotels and Other Lodging Places	25	24	-4%
Personal Services	102	110	8%
Advertising	7	6	-14%
Credit Reporting and Collection	5	5	0%
Mailing, Reproduction, Steno	44	43	-2%
Services to Buildings	46	46	0%
Personnel Supply Services	2	2	0%
Computer and Data Processing Services	16	15	-6%
Miscellaneous Business Services	131	143	9%
Auto Repair, Services and Garages	141	146	4%
Miscellaneous Repair Services	111	117	5%
Motion Pictures	2	2	0%
Amusement and Recreation Services	38	44	16%
Health Services	4	3	-25%
Legal Services	38	44	16%
Educational Services	18	26	44%
Social Services	2	2	0%
Museums, Botanical, Zoological Gardens	1	1	0%
Membership Organizations	6	8	33%
Miscellaneous Services	122	118	-3%
Public Administration	3	5	67%
TOTAL	2,584	2,785	8%

* Number of units is too small to make a valid percentage comparison.

Note: The Sales Tax Office uses the Standard Industrial Classification Code List to classify businesses that have registered with the Fairbanks North Star Borough.

Source: Fairbanks North Star Borough, Sales Tax Office; compiled by the Community Information Center.

TABLE 59

BOROUGH AND PIPELINE RELATED ASSESSMENTS
Fairbanks North Star Borough
1977-1980

Year	Borough Assessment	% Change From Previous Year	Pipeline Related Assessment *	% Change From Previous Year	Total Assessment	% Change From Previous Year
1977	$ 856,118,575	NA	$505,32o,780	NA	$1,361,445,355	29%
1978	1,039,003,025	21%	595,071,640	18%	1,634,074,665	20%
1979	1,158,310,825	11%	795,252,410	34%	1,950,563,235	19%
1980	1,271,671,200	10%	638,848,930	-20%	1,910,520,130	-2%

NA Not available.
* Assessed by the State.

Source: Fairbanks North Star Borough, Assessing Department; compiled by the Community Information Center.

From: Fairbanks North Star Borough, Community Research Center. Fall 1980. Community Research Quarterly, A Socioeconomic Review. Fairbanks, AK. p. 40.

pipeline assessments constitute about a third of the borough's total assessments.

3.6.2.4 - Southeast Fairbanks

The Southeast Fairbanks Borough is unincorporated and consists primarily of communities spread out along the Alaska Highway. The economic base of the area is dependent upon highway-related services and businesses, Fort Greely, and agriculture. Government bodies including the military accounted for 82 percent of total employment in 1978. The military-related entities employed about 63 percent of the total. Roughly half of the non-government related employment was in the services category. Retail trade accounted for over a quarter of non-government employment.

Because government plays such a dominant role in the economy, seasonal variations in total employment are minor. Highway-related businesses, however, have a definite seasonal cycle.

Agriculture activities in the Tanana River Valley, especially in the Delta area near the intersection of the Richardson and Alaska Highways, have been expanding in recent years. In 1978, 58,000 acres of undeveloped land was sold by lottery. Loans were made available through the state for agricultural development. Tracts ranged in size from 2,000 to 3,600 acres. An additional 16,000 acres has been offered for agricultural development since that time.

The Tanana River Valley activity, known as the Delta Agricultural Project, has emphasized barley and rapeseed production for both domestic and export markets. A test marketing program in 1979 indicated that Delta barley was equal to or better than export quality. Rapeseed is also getting more attention as an export crop, and fits in well with barley cultivation on a rotation basis.

Several native villages are in the Southeast Fairbanks Borough. Employment in these communities is, in general, the same as for the Borough. Many natives, however, also pursue traditional hunting and gathering activities. Trapping is also a winter occupation for some. During the summer, some natives work for the BLM.

3.6.2.5 - Valdez-Chitina-Whitter

This region can be divided into two sections; Valdez and the interior communities along the Richardson Highway. Each section is addressed separately below.

3.6.2.5.1 - Valdez

Historically Valdez served as an important point of entry into interior Alaska. Although in the past Valdez's prominence was usurped by Anchorage, the construction of the pipeline and terminal in Valdez ensured the City's role as a major transshipment point to the Interior. Oil shipments account for the overwhelming majority of gross tonnage moving through the port. Under construction, however, is a $40 million containerized cargo facility which will expand the port's capacity to handle cargo other than oil.

State and local government is the largest employer in Valdez accounting for about 25 percent of the entire workforce. Transportation-communications-utilities sector also employs about a quarter of the employed labor force. Retail trade and construction follow as the next largest employers.

Growth in the local government sector can be attributed to the explosion in assessed value of land incorporated by Valdez. The pipeline terminal is the major piece of property within the city limits, but the Alaska Oil Company's planned refinery will add a substantial amount when completed.

The City of Valdez currently has the second largest per capita assessed value, trailing only the North Slope Borough. Table 60 presents an overall fiscal comparison with Anchorage. The per capital projects expenditures figure shows the large capital construction effort undertaken. Footnote (6) refers to the cargo facility which is being financed through general obligation bonds.

Valdez is likely to become one of Alaska's few manufacturing-oriented cities. The City is actively promoting diversification of the local economy. Efforts are underway to promote the fishing industry which include the development of harbor facilities and a processing plant.

3.6.2.5.2 - Interior Communities

The economy of the interior communities is based largely upon tourism-related and transportation activities. The latter category includes maintenance and operation activities relating to the trans-Alaska pipeline as well as the highways.

The region has experienced a substantial increase in mining activity recently as Table 57 in Section 3.6.2.3 illustrates. Important minerals in the area include copper, gold, silver, lead, iron, molybdenum, and chromite. Sand and gravel deposits are abundant in the area as well. Most mining operations at this time are small, placer-type mines. Although many minerals occur in commercial quantities, development problems remain, similar to those mentioned earlier for the state in general.

Government constitutes the most important economic sector for the Valdez-Chitina-Whittier area employing about 40 percent of the work force. The next largest sector in terms of employment is transportation-communication-utilities followed by services and retail trade. A large part of the latter two is probably attribu-

TABLE 60

Comparison of Selected Public Fiscal Measures,
City of Valdez and Municipality of Anchorage 1978

	Valdez	Anchorage
Per capita[1] general government expenditures	$963[2]	$539[2]
Per capita capital projects expenditures	$1,130	$357
City employees per thousand population	13	10
Property tax levy (area wide average) (in mills)	5.7[3]	14[4]
Real and personal property valuation (full value) (in billions)	$1.67[5]	$5.27
Per capita real and personal property valuation (full value)	$372,589[5]	$28,517
Per capita bonded debt	$2,752[6]	$1,248
Bonded debt as percentage of full value	.74[6]	4.38

Notes

(1) 1978 per capita calculations made on the basis of official population estimates (State of Alaska) of 184,775 for Anchorage; 4,481 for Valdez.
(2) Excludes local support of schools; Source: City of Valdez Budget, 1979 - 1980; Municipality of Anchorage. The 1978 Budget in Brief.
(3) There were two tax zones in Valdez in 1978 with millage rates of 6.127 and 5.3204 respectively.
(4) There were 14 tax zones in the Municipality with millage rates from 17.67 (Anchorage) to 10.42 (Borough outside Bowl).
(5) Valdez does not have a personal property tax; Anchorage does.
(6) In 1979 Valdez increased its bonded debt four fold with the sale of $48 million in General Obligation Bonds for construction of a new port.

Source: Alaska Petrochemical Company, Refinery and Petrochemical Facility. December 1979. Environmental Impact Statement. Valdez, AK. p. II-59.

table to seasonal tourist-related activities. The region offers extensive natural resources conducive to climbing, hunting, fishing, and camping.

Employment opportunities in the interior communities is generally limited. Seasonal jobs occur in construction and fire-fighting. Some natives are employed by AHTNA, Inc. and other Native corporations. Some natives either rely on or supplement their livelihood through traditional hunting, trapping, and gathering activities.

3.6.2.6 - Matanuska-Susitna Borough

Much of the information in this section is derived from two sources. One is the report prepared by the Overall Economic Development Program, Inc. (OEDP), July, 1980, consisting of Annual Report (Volume I), Economic Conditions, Development Options and Projections (Volume II), and Appendices (Volume III). The other principal source is the Background Report, Phase I: Comprehensive Development Plan, April 1978, prepared by the Matanuska-Susitna Borough Planning Department. It should be noted that the plan, of which this document is a part, was not adopted by the Borough.

The reader is referred to both of the above documents for extensive discussions of the economic base of the Borough. The OEDP study is especially pertinent. Chapter 2 of Volume I "Changes in the Economy," has been included in this report as Appendix E because it provides a brief synopsis of the economic conditions and problems facing the Borough today.

Because the Borough is the area which will be most impacted from the Susitna hydroelectric project if constructed, a more extensive discussion is presented than was for other areas.

The economy of the Matanuska-Susitna Borough is dominated by forces emanating from Anchorage. Development as a result has occurred within close proximity to Anchorage concentrated along the Parks Highway except for the City of Palmer. Approximately 37 percent of the Borough residents work outside the Borough. (Policy Analysts, 1980) Thus, the Borough, to a large degree, is a bedroom community. Moreover, many of the recreational homes in the area are owned by Anchorage residents. The Big Lake area is perhaps a prime example. The Borough's most recent planning document notes: "Indicative of the link between the Borough and Anchorage is the fact that approximately 55 percent of the Borough's tax notices are mailed to Anchorage addresses." (Borough, April 1978, p. 172)

The dominant sectors of the Borough's economy reflect the large influence of the tourism, recreation and residential elements present there. Table 61 presents an estimate for the types and locations of businesses in the major communities. Figure 19 presents the aggregated data graphically. From the table it can be seen that the largest number of businesses are in the support and service sectors. Services, retail trade, and finance-insurance-real estate firms comprise the majority of businesses in these com-munities. Construction is also a major category of businesses in the Borough. This reflects the growth and development conditions present there.

Next to Palmer, Wasilla has the greatest number of businesses. Dramatic growth in the community occurred during the pipeline years. Most of all the businesses in Wasilla are service or construction--oriented.

Manufacturing businesses are concentrated in the Palmer area. In 1972, the city created the Palmer Industrial Park to encourage economic development. The park is zoned for light to medium industry. Half the sites have been filled.

TABLE 61

BUSINESS LOCATION AND TYPE

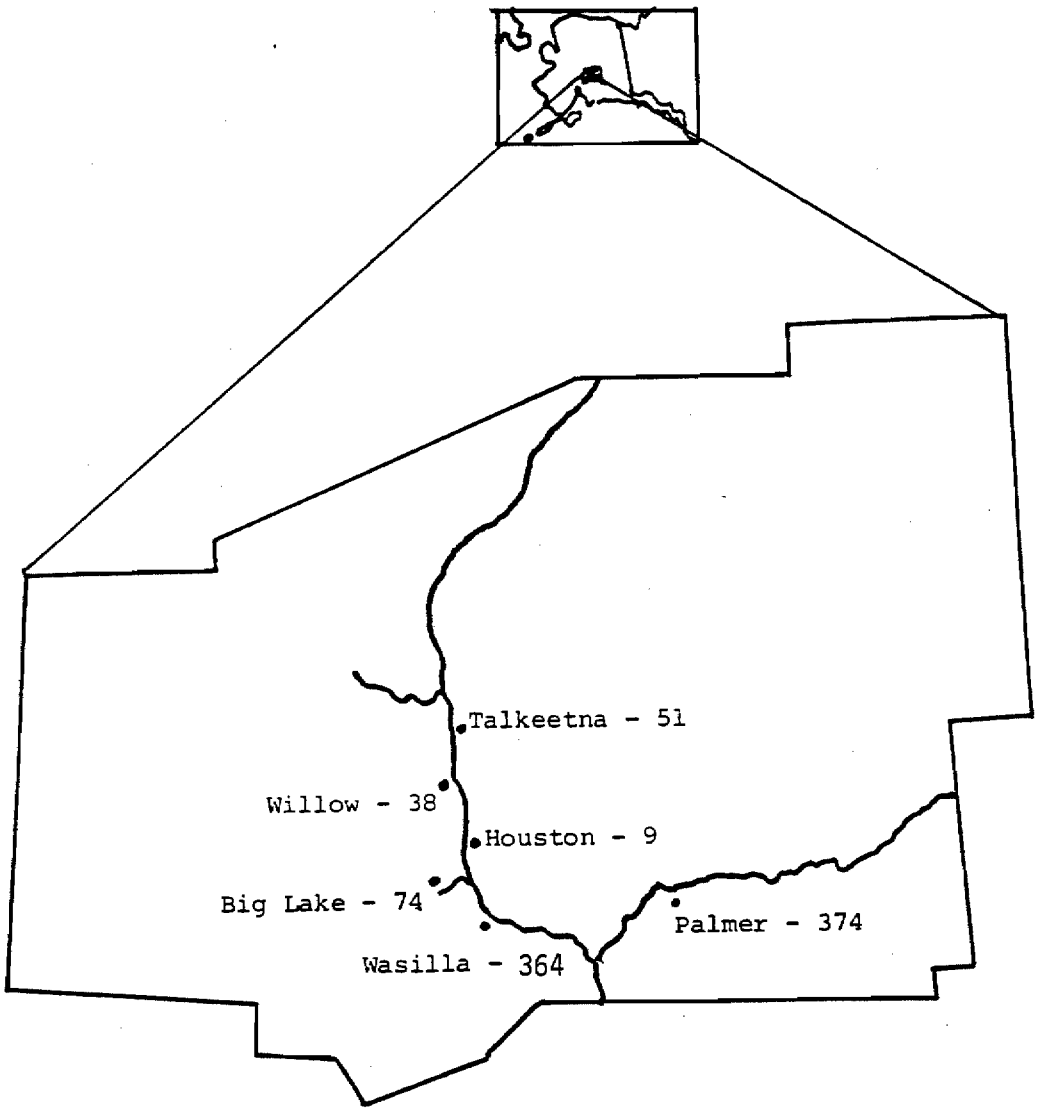
Standard Industrial Classification	Number in Community*					
	Big Lake	Houston	Palmer	Talkeetna	Wasilla	Willow
Agriculture, Forestry, Fisheries	3	-	22	-	-	-
Mining	-	-	2	-	-	-
Construction	19	3	50	3	91	4
Manufacturing	3	-	21	2	4	3
Transportation & Public Utilities	2	-	20	8	-	6
Wholesale Trade	-	-	11	-	-	-
Retail Trade	24	3	80	19	-	18
Finance, Insurance, Real Estate	-	1	22	2	37	3
Services	17	1	115	13	129	4
Public Administration	-	1	12	3	5	-
Nonclassifiable Establishments	6	-	19	1	98	-
Total	74	9	374	51	364	38

* SIC classifications were assigned by the OEDP staff for use in this table, and number of establishments must be considered approximations.

Source: Overall Economic Development Program Inc. July 1980. Volume II: Economic Conditions, Development Options and Projections. Palmer, AK. pp. 19-21.

FIGURE 19

MATANUSKA-SUSITNA BUSINESS DISPERSION



Source: Overall Economic Development Program Inc. July 1980. Volume II: Economic Conditions, Development Options and Projections. Palmer, AK. p. 24.

The Borough is encouraging economic development and is concentrating on promoting the Point MacKenzie area which is situated across the Knik Arm from Anchorage. The foci of the development plan are dairy farming and an industrial complex.

Other indicators of the economy show that the Borough's base is oriented towards the service sectors. Table 62 presents gross business receipts for 1977 for Palmer and the Borough. Overall, Palmer accounted for 35 percent of total sales in 1977. Notable categories in the table include construction, retail and services especially real estate. Sales in these sectors relate to the tourism, recreation and residential-oriented components of the economy. Real estate sales account for the majority of sales in the finance, insurance, and real estate sector. Most likely this includes a large speculative element associated with the potential capital move to the Willow area.

Examination of employment data for the Borough provides a different view of the major components of the economy, although the view that emerges conforms with that of the state in general. The largest employer is the government sector. State and local bodies account for about 90 percent of total government employment. Retail trade is the next largest, followed by services, transportation-communications-utilities, and construction. (See section 3.7 for data).

Employment figures used in the preceding paragraph are based on place of work. Utilizing survey data dealing with employment by place of residence, the Borough's profile can be presented as in Table 63. The major difference is in the construction category. This is probably attributable to the fact that construction workers who maintain residences there are employed in other parts of Alaska. Table 64 presents occupational information for the Borough's residents. The large professional/technical and manager/official categories are in keeping with the services and bedroom community orientations of the population and economy.

TABLE 62

GROSS BUSINESS RECEIPTS

January 1, 1977, to December 31, 1977

Standard Industrial Classification	Gross Business Receipts ($)		
	Palmer	Mat-Su Borough Excluding Palmer	Mat-Su Borough
Agriculture, Forestry, Fisheries	79,938	441,859	521,797
Mining	-	644,188	644,188
Construction	3,505,346	22,313,229	25,818,575
Manufacturing	1,363,967	899,123	2,263,090
Transportation & Public Utilities	1,679,365	1,134,058	2,813,423
Wholesale Trade	1,463,515	3,383,748	4,847,263
Retail Goods	16,980,898	15,104,553	32,085,451
Finance, Insurance, Real Estate	954,292	2,952,816	3,907,108
Services	2,792,649	5,589,364	8,382,013
Nonclassifiable Establishments	-	799,689	799,689
Total	28,819,970	52,618,439	81,438,409

Source: Alaska Department of Revenue

From: Overall Economic Development Program Inc. July 1980. Volume II: Economic Conditions, Development Options and Projections. Palmer, AK. pp. 30-32.

TABLE 63

EMPLOYMENT BY INDUSTRY FOR ADULT RESIDENTS
OF MATANUSKA-SUSITNA BOROUGH

(percent of total adults)

Industry	Percent of Adults
Agriculture-Fishing	2.9
Mining	5.5
Construction	16.6
Manufacturing	2.5
Transportation, Utilities, Communications	10.5
Wholesale Trade	2.8
Retail Trade	11.4
Finance, Insurance, Real Estate	4.5
Professional Services	9.4
Other Services	9.4
Education	9.1
Federal Government	6.3
State Government	5.4
Local Government	3.6

Source: Policy Analysts, Limited, and Dr. Richard L. Ender. May 1980. Mat-Su Housing and Economic Development Study: Survey Findings. p. 72.

TABLE 64

OCCUPATION OF MATANUSKA-SUSITNA BOROUGH ADULT RESIDENTS
(percent of total adults)

Occupation	Percent of Adults
Professional/Technical	20.2
Manager, Official	13.8
Clerical, Sales	16.0
Craftsmen	14.6
Operatives	12.2
Service Workers	10.6
Laborers	9.7
Farmers	1.2
Armed Forces	0.9
Others (Trappers, Self Employed, etc.)	1.0

Source: Policy Analysts, Limited, and Dr. Richard L. Ender. May 1980. Mat-Su Housing and Economic Development Study: Survey Findings. p. 73.

Table 64 presents occupational information for the Borough's residents. The large professional/technical and manager/official categories are in keeping with the services and bedroom community orientations of the population and economy.

Outside of the major communities in the Borough, economic activity is related to mining, agriculture, timber products, or in providing recreational services. Figure 20 shows locations of some of the known mineral deposits in the Borough. Many of the mining sites in the Borough are placer mines which work alluvial deposits for minerals. Figures 21 shows locations of mining districts in the Borough. In addition, the central area from the Talkeetna Mountains north to the Alaska Range has been designated a multiple use area which will permit mining activity. Virtually all mining historically has occurred in these districts and this pattern is expected to continue (OEDP 1980, p. 139). Of particular relevance to the proposed Susitna dams are the following areas:

- The Susitna-Chulitna portion of the Yentna Mining District where molybdenum, gold, copper, lead, silver, and antimony are scattered over a distance of several tens of miles.

- The Upper Susitna River area where the Denali prospect, a copper deposit, has been discovered but has not yet been developed into a mine.

The major mineral resource in the Borough is coal. Extensive deposits of varying quality occur in the river valleys. Figure 22 shows locations of known fields. Also present in the Borough are peat bogs which may become an important energy source.

The U.S. Forest Service has classified 1,295,000 acres in the Borough as commercial forest land. This acreage is located primarily in the lowlands, since elevations above 1,500 feet in

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The U.S. Forest Service has classified 1,295,000 acres in the Borough as commercial forest land. This acreage is located primarily in the lowlands, since elevations above 1,500 feet in Alaska are not conducive to timber growth. (There are no commercially valuable timber stands in Study Area 1 due to the elevation.) Most of the Borough's timber is suitable only for pulp and chip production. Some lumber is produced for the local market. Louisiana-Pacific Corporation signed a 10-year contract with Japanese concerns for wood chips, much of which is being produced in the Borough.

FIGURE 20

MINERAL RESOURCES

MATANUSKA - SUSITNA BOROUGH

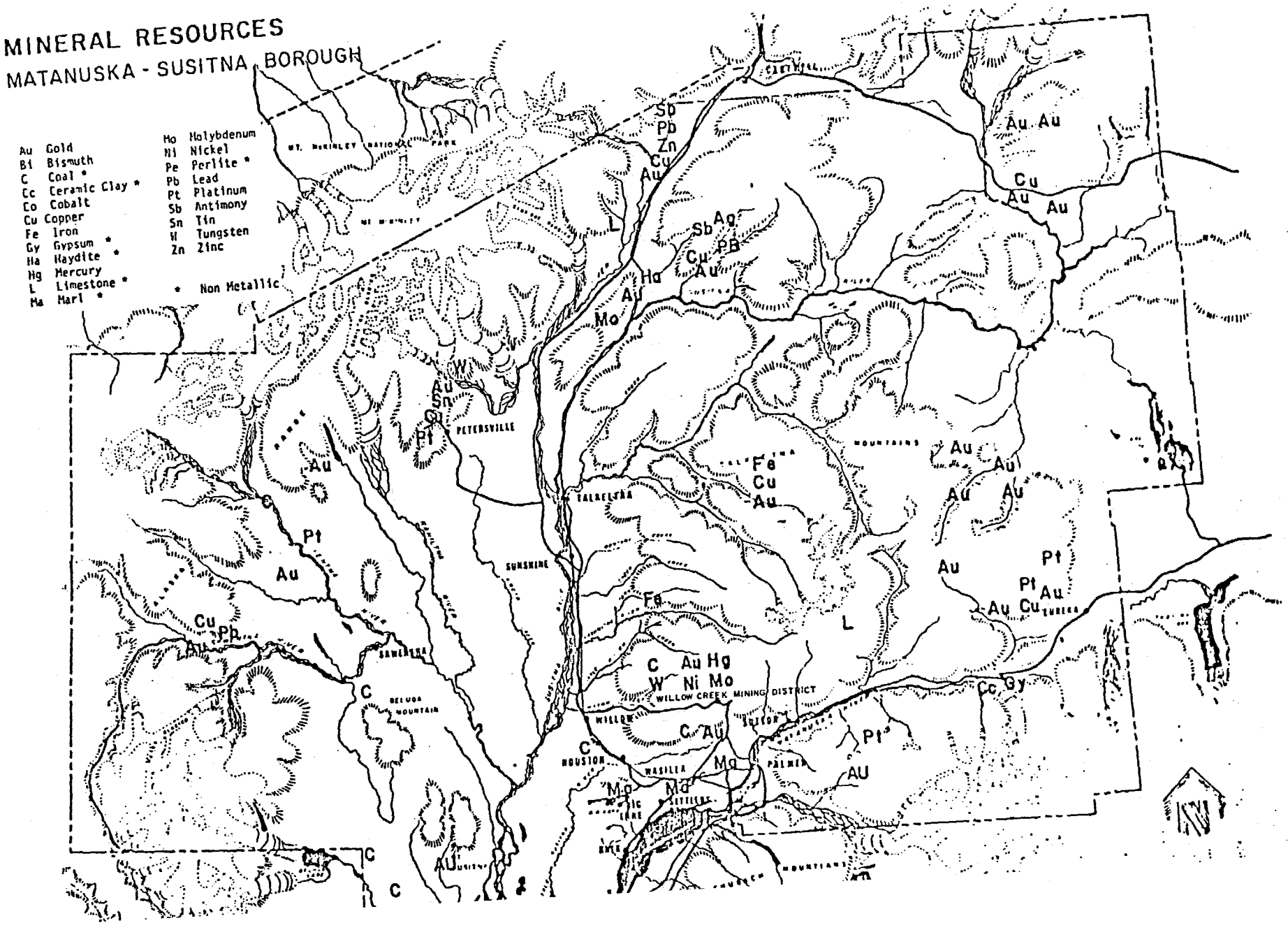
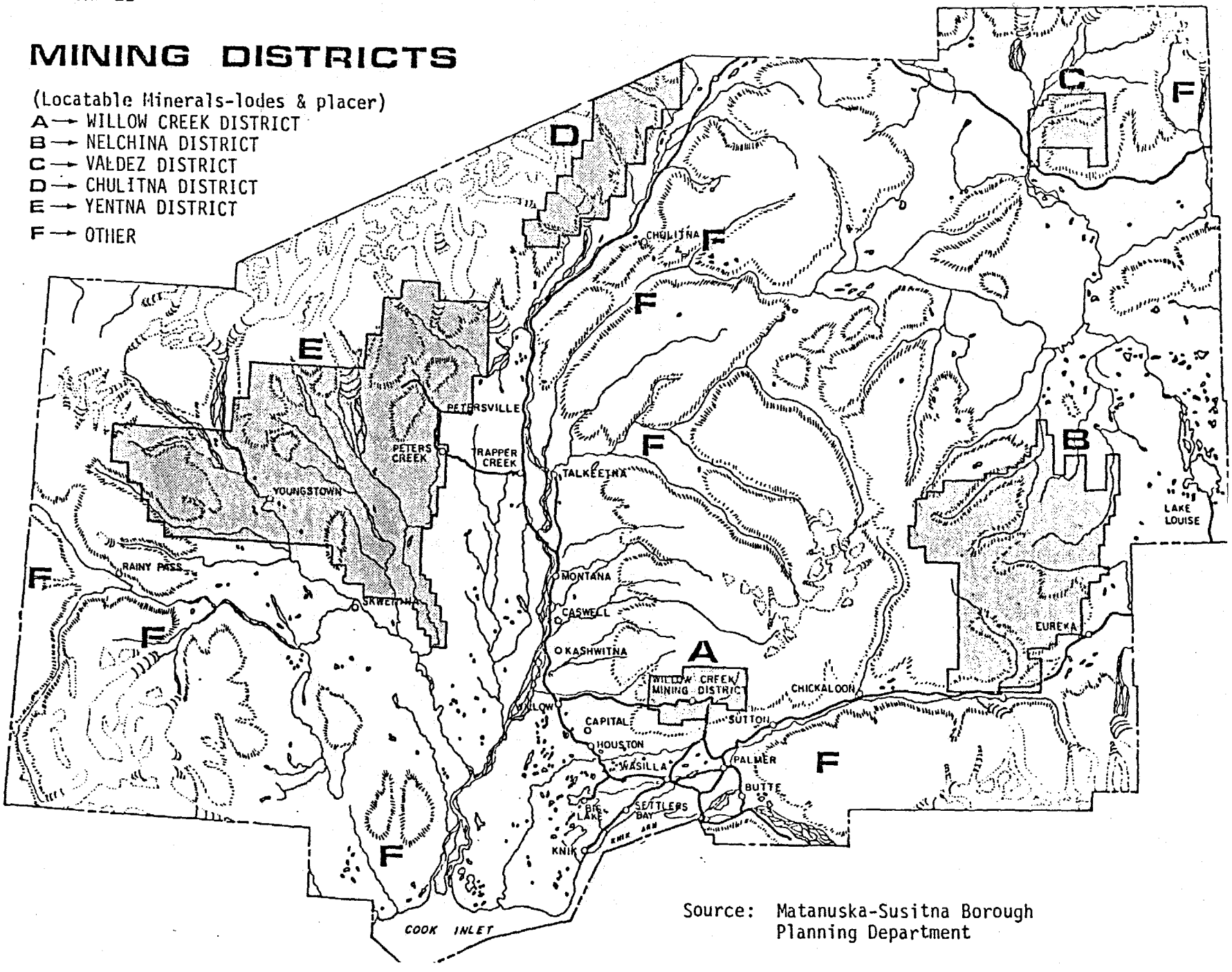


FIGURE 21

MINING DISTRICTS

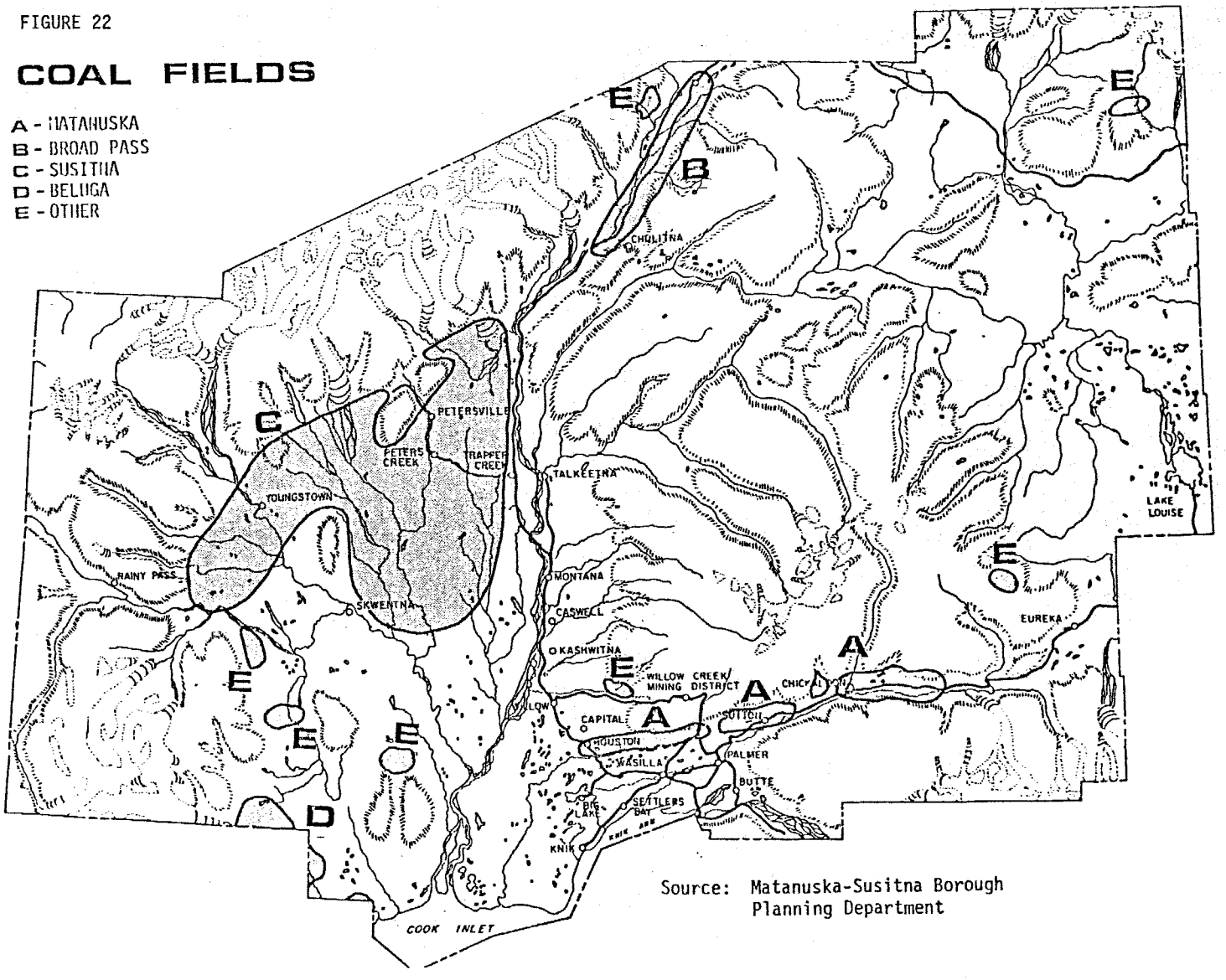
(Locatable Minerals-lodes & placer)

A → WILLOW CREEK DISTRICT
B → NELCHINA DISTRICT
C → VALDEZ DISTRICT
D → CHULITNA DISTRICT
E → YENTNA DISTRICT
F → OTHER



Source: Matanuska-Susitna Borough
Planning Department

FIGURE 22



Source: Matanuska-Susitna Borough
Planning Department

From: Overall Economic Development Program Inc. July 1980. Volume II: Economic Conditions, Development Options and Projections. p. 134.

Agriculture has played an important part in the historical development of the Borough. Up until the early 1960's commercial agriculture production continued to increase. Since then the number of farms and volume of production has declined. This condition is due to changes in economic activity within the Borough. "The focus of public attention has turned to land speculation, residential subdivisions, service and construction businesses to meet the needs of the Valley's suburban population and public services for people whose employment is not related to agriculture in any manner." (Borough, 1978, p. 104). The Borough government is attempting to reverse the decline through various means including the Point MacKenzie Project.

3.7 - Employment

3.7.1 - Introduction

The best indicator for levels of economic activity and changes in economic activity in Alaska is employment data. Income (wage and salary) data could also be used as an indicator, but this data is not as reliable as employment data. Thus, employment data from several years is presented and analyzed in this subsection to provide a better understanding of the state economy, the economy of Study Area 3, the component local economies and interrelations among these economies. Data from 1970, 1975, and 1979 was chosen so as to provide an understanding of the economies before, during, and after the trans-Alaska pipeline. Data from 1979 is the most current available. Extensive and detailed analysis of this and other employment data is deferred until the forecasting methodology is finalized (See Subsection 3.10).

Unemployment, total civilian workforce, and occupational data are also presented in this subsection. This data helps describe economic activity and structure. As with employment, extensive and detailed analysis of this and other unemployment and occupational data is deferred

until the forecasting methodology is finalized. Additionally, income data will be presented in the future as a supplement to the employment data.

3.7.2 - Employment by Sector

3.7.2.1 - State Trends

Alaska's economy has been historically dependent upon development of its natural resources, primarily fisheries, minerals, and timber. Employment as a result has been oriented towards these extractive industries. In addition, the military has played a major role since World War II. In 1965 approximately 37 percent of Alaska's work force were military employees.

Beginning in the 1960's significant shifts in employment began, paralleling the trends for the nation in general. Table 65 presents Alaska's nonagricultural wage and salary employment, categorized by major industry sector, for the years 1970, 1975, and 1979. The Table presents both levels and percent of total for each industry group. The most notable shift occurred in federal government employment. From 1970 to 1979, total civilian federal employment grew slightly while state total employment rose 80 percent. Thus, the proportion of federal government employment fell from 18.5 percent of total employment in 1970 to 10.8 percent in 1979.

The sector with the largest absolute gain is state and local government employment. From 1970 to 1979, this sector employed an additional 18,000 persons. The sector's share increased slightly over the period to 22 percent of total employment. This trend reflects the increasing role of state and local governments in providing services to residents. As petroleum-based revenues accrue to the state and if these are are passed on to state and local governments, then this trend will probably continue.

TABLE 65

STATE ANNUAL NONAGRICULTURAL EMPLOYMENT BY SECTOR

	1970		1975		1979	
	Total	%	Total	%	Total	%
TOTAL[1] - Nonagricultural Industries	92,400	100.0	161,689	100.0	166,406	100.0
Mining	3,000	3.2	3,790	2.3	5,773	3.5
Construction	6,900	7.5	25,735	15.9	10,092	6.1
Manufacturing	7,800	8.4	9,639	6.0	12,818	7.7
Transportation - Communication & Utilities	9,100	9.8	16,473	10.2	16,704	10.0
Wholesale Trade	3,200	3.5	5,908	3.7	5,511	3.3
Retail Trade	12,100	13.1	20,300	12.6	23,877	14.3
Finance-Insurance and Real Estate	3,100	3.3	6,030	3.7	8,035	4.8
Services	11,400	12.3	25,136	15.5	28,345	17.0
Federal Government	17,100	18.5	18,288	11.3	17,915	10.8
State and Local Government	18,500	20.0	29,247	18.1	36,617	22.0
Miscellaneous	200	.2	1,143	.7	720	.4

[1] Figures may not total correctly because of averaging.

Source: Alaska Department of Labor. Statistical Quarterly. Juneau, AK. (various issues)

Total government employment in the state accounted for 32.8 percent of total employment. This represents a decline from 1970 when government employed 38.5 percent of the total. Nevertheless, government still accounts for more employment in Alaska than any other sector.

Another discernible trend over the period is the growth in the service and support sectors. The industry share for services rose by 4.7 percent over the period. This was the largest increase in percentage terms of any sector. Transportation, communications, and utilities (TCU); retail trade; and finance, insurance, and real estate (FIRE) all showed increases in industry share. This reflects the "maturation" of the Alaskan economy as it becomes large enough to support these sectors.

Ironically, perhaps, the role of the "producing" sectors which provide the economic base of the state's economy, is not as important in terms of overall direct employment. With the exception of mining, the producing sectors show a decline in industry share of employment during 1970 to 1979.

Another pattern which is apparent is the aberrations in the overall trend from 1970 to 1979. Construction employment almost quadrupled from 1970 to 1975. Wholesale trade as well as construction reached higher levels of employment in 1975 than in 1979. These figures reflect the impact created by construction of the Trans-Alaska pipeline. The project employed thousands of construction workers between 1974 and 1977. Wholesale trade employment surged during the same period as large quantities of sand, gravel, and machinery were required.

The impact of the pipeline is evident in the total employment figures. The state experienced a majority of growth in employment over the period tabulated between 1970 and 1975 when employment increased 75 percent to 161,689. From 1975 to 1979 total employment increased only

3 percent. Figure 23 presents employment data graphically from 1974 to August 1980. The sharp increase prior to the beginning of 1976 as well as the "leveling off" from 1976 onward are evident.

3.7.2.2 - Study Area 3

Table 66 presents non-agricultural employment data for Study Area 3. This area is comprised of the following census divisions: Anchorage, Fairbanks, Southeast Fairbanks, Matanuska-Susitna, Valdez-Chitina-Whittier, Kenai, and Seward. The data was obtained by summing over these divisions. Included in Table 66 are figures showing each sector as a percent of total state employment in the sector. These figures provide estimates of Study Area 3's (regional) share of total state employment in each sector.

In general, the same trends are apparent here as for the state figures. Notable differences are the relatively higher share of the service and support sectors and relatively lower shares for producing sectors with the exception of construction. These differences are to be expected considering that seafood processing and wood products firms (main components of manfucturing) are dispersed along the coasts and in Southeast Alaska, and many mining operations occur outside of Study Area 3. This structure is highlighted in the regional share figures.

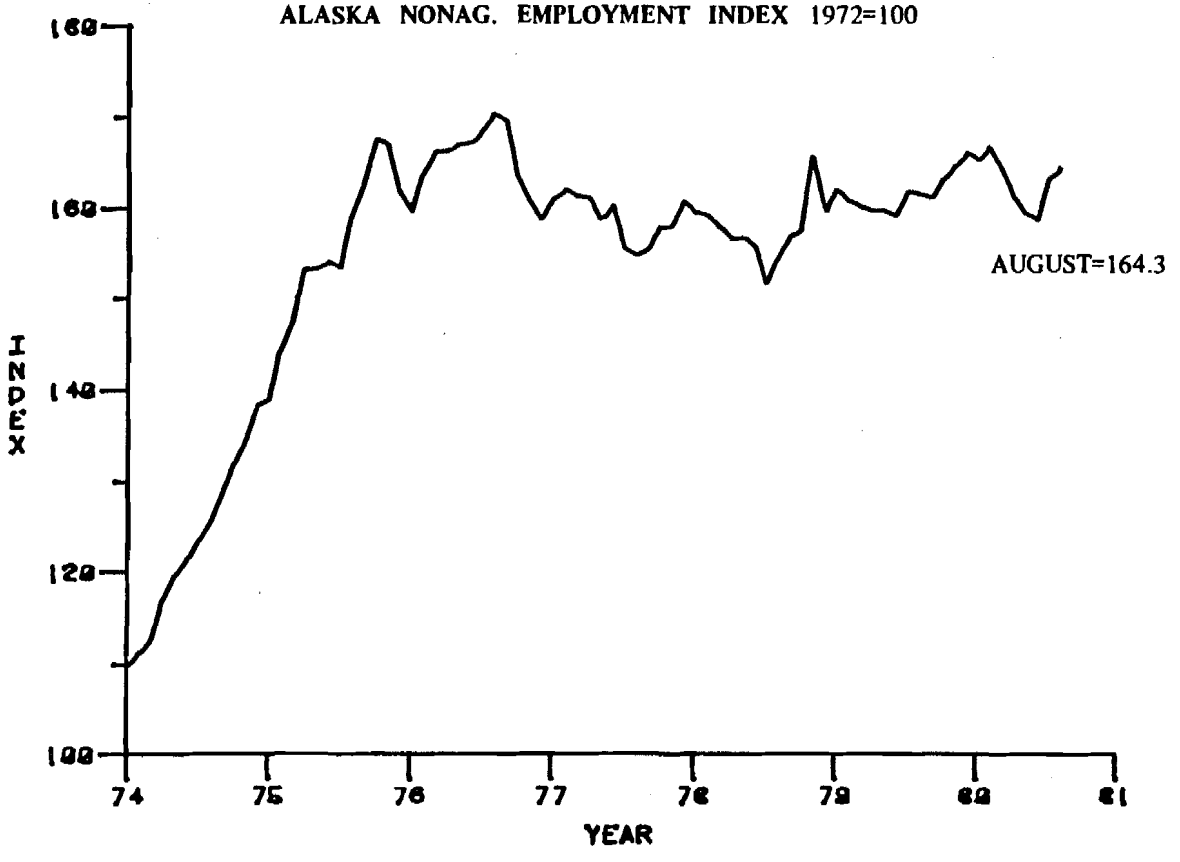
Table 67 presents employment data for Anchorage including regional share figures relative to Study Area 3 and the state. The figures clearly illustrate Anchorage's dominance relative to Study Area 3 and the state. Not surprisingly then, general trends for Anchorage are similar to those for the region and state.

3.7.2.3 - Study Area 2

Table 68 presents employment data for the Matanuska-Susitna Borough including the Borough's share relative to Study Area 3. Most striking

FIGURE 23

ALASKA NONAG. EMPLOYMENT INDEX 1972=100



Source: Alaska Department of Labor. October 1980. Alaska Economic Trends. Juneau, AK. p.5.

TABLE 66

STUDY AREA 3 ANNUAL NONAGRICULTURAL EMPLOYMENT BY SECTOR

	1970		1975		1979		PERCENT OF STATE		
	Total	%	Total	%	Total	%	1970 %	1975 %	1979 %
TOTAL[1] - Nonagricultural Industries	62,690	100.0	113,818	100.0	113,204	100.0	67.8	70.4	68.0
Mining	1,610	2.6	2,243	2.0	2,822	2.5	53.7	59.2	48.9
Construction	5,264	8.4	16,359	14.4	8,257	7.3	76.3	63.6	81.8
Manufacturing	1,850	3.0	2,596	2.3	3,705	3.3	23.7	26.9	28.9
Transportation - Communication & Utilities	6,021	9.6	12,094	10.6	12,062	10.7	66.2	73.4	72.2
Wholesale Trade	12,111	19.3	5,366	4.7	5,083	4.5	79.2	90.8	92.2
Retail Trade			15,965	14.0	18,309	16.2		78.6	76.7
Finance-Insurance and Real Estate	2,520	4.0	4,696	4.1	6,139	5.4	81.3	77.9	76.4
Services	8,868	14.1	20,995	18.4	19,674	17.4	77.8	83.5	69.4
Federal Government	12,372	19.7	13,022	11.4	12,728	11.2	72.4	71.2	71.0
State and Local Government	11,585	18.5	17,799	15.6	21,130	18.7	62.6	60.9	57.7
Miscellaneous	52	.1	217	.2	712	.6	26	19.0	98.9

[1] Figures may not total correctly because of averaging and disclosure limitations on data.

Source: Alaska Department of Labor. Statistical Quarterly. Juneau, AK. (various issues)

TABLE 67

ANCHORAGE ANNUAL NONAGRICULTURAL EMPLOYMENT BY SECTOR

	1970		1975		1979		PERCENT OF STUDY AREA 3			PERCENT OF STATE		
	Total	%	Total	%	Total	%	1970 %	1975 %	1979 %	1970 %	1975 %	1979 %
TOTAL[1] - Nonagricultural Industries	41,995	100.0	69,561	100.0	77,569	100.0	67.0	61.1	68.5	45.4	43.0	46.6
Mining	958	2.3	1,300	1.9	1,984	2.6	59.5	58.0	70.3	31.9	34.3	34.4
Construction	3,514	8.4	6,913	9.9	5,735	7.6	66.8	42.3	69.5	50.9	26.9	56.8
Manufacturing	1,018	2.4	1,572	2.3	1,735	2.3	55.0	60.6	46.8	13.0	16.3	13.5
Transportation - Communication & Utilities	3,907	9.3	7,343	10.6	7,998	10.6	64.9	60.7	66.3	42.9	44.6	47.9
Wholesale Trade	8,617		4,076	5.9	4,012	5.3	71.2	76.0	78.9	56.3	69.0	72.8
Retail Trade		20.5	10,852	15.6	13,130	17.4		68.0	71.7		53.5	55.0
Finance-Insurance and Real Estate	1,980	4.7	3,615	5.2	4,894	6.5	78.6	77.0	79.7	63.9	60.0	60.9
Services	6,403	15.2	13,188	19.0	13,306	17.6	72.2	62.8	67.6	56.2	52.5	49.9
Federal Government	9,509	22.6	10,176	14.6	9,758	12.9	76.9	80.0	76.7	55.6	55.6	54.5
State and Local Government	6,037	14.4	10,416	15.0	12,403	16.4	52.1	58.5	58.7	32.6	35.6	33.9
Miscellaneous	52	.1	110	.2	614	.8	100	50.7	51.9	26	9.6	61.0

[1] Figures may not total correctly because of averaging.

Source: Alaska Department of Labor. Statistical Quarterly. Juneau, AK. (various issues)

TABLE 68

MATANUSKA-SUSITNA BOROUGH ANNUAL NONAGRICULTURAL EMPLOYMENT BY SECTOR

	1970		1975		1979		PERCENT OF STUDY AREA 3 1970	1975	1979
	Total	%	Total	%	Total	%	%	%	%
TOTAL[1] - Nonagricultural Industries	1,145	100.0	2,020	100.0	3,078	100.0	1.8	1.8	2.7
Mining	*	-	*	-	11	.3	*	*	.0
Construction	120	10.5	188	9.3	184	6.0	2.3	1.1	2.2
Manufacturing	*	-	30	1.5	40	1.3	*	1.2	1.1
Transportation - Communication & Utilities	114	9.6	218	10.8	316	10.2	1.9	1.8	2.6
Wholesale Trade	174	15.2	44	2.2	49	1.6	1.4	.8	1.0
Retail Trade			271	13.4	696	22.6		1.7	3.8
Finance-Insurance and Real Estate	22	1.9	62	3.1	129	4.2	.8	1.3	2.1
Services	179	15.6	288	14.3	447	14.5	2.0	1.4	2.3
Federal Government	106	9.3	124	6.1	97	3.1	.9	1.0	.8
State and Local Government	376	32.8	758	37.5	1,101	35.8	3.2	4.3	5.2
Miscellaneous	*	-	*	-	21	.7	*	*	1.8

* Data unavailable due to disclosure policy.

[1] Figures may not total correctly because of averaging and disclosure limitations on data.

Source: Alaska Department of Labor. Statistical Quarterly. Juneau, AK. (various issues)

is the 35.8 percent industry share for the state and local government sector, (The regional share figures are quite similar). Borough accounts for only 2.7 percent of total employment in Study Area 3 yet accounts for 5.2 percent of state and government employment.

A similar pattern is found in the retail sector. The sector's share within the Borough is 22.6 percent and the regional share is 3.8 percent. In general, the Borough's employment is virtually all government, service, and support sector-oriented.

An interesting comparison is made possible by using the regional share figures. By comparing the percentage share of total employment with that of each sector a relative concentration "coefficient" can be derived. This is basically a modified location quotient method which may indicate if the area is providing (exporting) or demanding services to the rest of the region. This is a rough estimation procedure and the results may indicate that a given area's population has a different demand pattern for services. Still, results obtained from this may be enlightening.

For Anchorage, most regional shares are higher than the regional share of total employment indicating that Anchorage "exports" services. Mat-Su, on the other hand, shows the opposite pattern indicating it "imports" many services. These results are not surprising based on the relative size of each economy. However, as mentioned above, this also reflects the different structures of the economies.

Table 69 presents employment data for Valdez-Chitina-Whittier. As with Mat-Su, state and local government employs substantially more persons than any other sector. The transportation, communications, and utilities sector is the next largest component. This is due to the fact that employment associated with the pipeline is classified as transportation.

TABLE 69

VALDEZ-CHITINA-WHITTIER ANNUAL NONAGRICULTURAL EMPLOYMENT BY SECTOR

	1970		1975		1979		PERCENT OF STUDY AREA 3		
	Total	%	Total	%	Total	%	1970 %	1975 %	1979 %
TOTAL[1] - Nonagricultural Industries	831	100.0	4,763	100.0	2,180	100.0	1.3	4.2	1.9
Mining	*	-	*	-	*	-	*	*	*
Construction	21	2.5	2,518	52.9	86	3.9	.4	15.4	1.0
Manufacturing	*	-	14	.3	19	.9	*	.5	.5
Transportation - Communication & Utilities	61	7.3	389	8.2	472	21.7	1.0	3.2	3.9
Wholesale Trade	95	11.4	62	1.3	18	.8	.8	1.2	.4
Retail Trade			321	6.7	181	8.3		2.0	1.0
Finance-Insurance and Real Estate	*	-	73	1.5	70	3.2	*	1.6	1.1
Services	99	11.9	709	14.9	445	20.4	1.1	3.8	2.3
Federal Government	63	7.6	58	1.2	46	2.1	.5	.4	.4
State and Local Government	464	55.8	613	12.9	840	38.5	4.0	3.4	4.0
Miscellaneous	0	0.0	*	-	*	-	0.0	*	*

* Data unavailable due to disclosure policy.

[1] Figures may not total correctly because of averaging and disclosure limitations on data.

Source: Alaska Department of Labor. Statistical Quarterly. Juneau, AK. (various issues)

3.7.3 - Unemployment and Total Civilian Workforce

Historically the unemployment rate for Alaska has been higher than rates for states in the Lower-48. In 1970, unemployment in Alaska was 10.3 percent. The rate dropped as the pipeline was constructed. In 1975, a pipeline year, the rate was 6.9 percent. In 1979 the average unemployment was 8.9 percent.

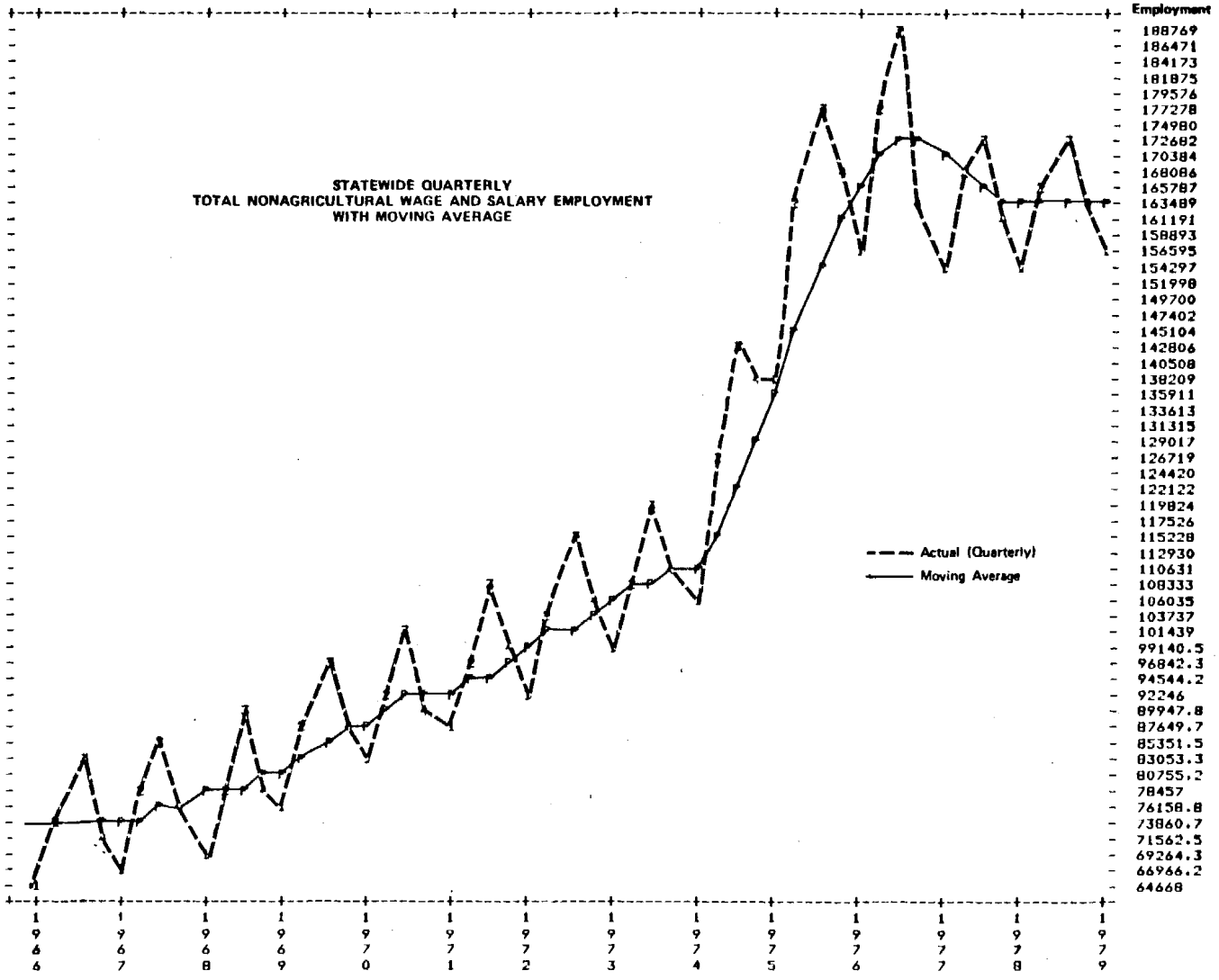
The usually higher unemployment rate for Alaska compared with other states is due to several factors. One is that Alaska's population growth has been historically spurred by "boom" type periods. Many in-migrants are attracted - many of whom do not have the appropriate skills. Ironically, because Alaska's workforce is relatively small, workers with special skills are often recruited from the Lower-48 states. The influx of workers, both skilled and unskilled, can tend to offset the demand created. Therefore, the unemployment rate may not drop as dramatically as one would expect.

The boom-oriented workforce also may not fit into the economy once the particular project is completed. The resulting out-migration can be significant as occurred in the post-pipeline years.

Apart from boom periods, Alaska's economy is highly cyclical, especially in the resource-oriented sectors such as fisheries and forest products. Alaska's climate also creates cyclical employment (and unemployment) patterns in the construction sector and tourism-related industries. This pattern is evident in Figure 24 which shows employment by quarter and as a moving average since 1966. These swings are even more noticeable in Figure 25 which plots the unemployment rate since 1975.

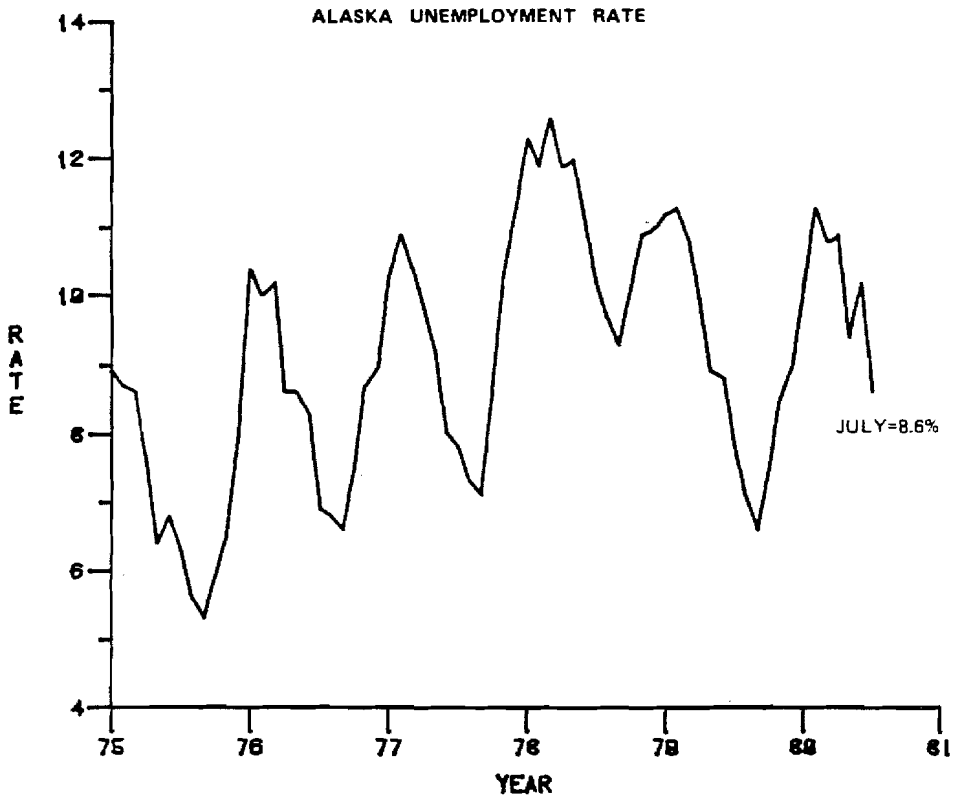
An additional factor affecting the unemployment figures is the native population which tends to have a high unemployment rate. The reasons for this are both cultural and structural. Many natives are outside the money economy and many have low educational and skill levels.

FIGURE 24



Source: Alaska Department of Labor. 1980. Annual Planning Information, FY 1981. Juneau, AK. p. 9.

FIGURE 25



Source: Alaska Department of Labor. September 1980. Alaska Economic Trends. Juneau, AK. p.7.

Table 70 presents data on unemployment rates and total workforce for the state and census divisions included in Study Area 3 for the years 1970, 1975, and 1979.

Most individual divisions follow the trend shown for the state, i.e., a relatively high rate in 1970, dropping in 1975 due to pipeline impacts, and increasing to a rate in 1979 slighly lower than the 1970 figure. The only exception to this is Fairbanks. Fairbanks experienced the greatest growth-inducing impacts from construction of the pipeline, yet unlike the state and Anchorage, Fairbanks employment subsequently dropped precipitously. This comparison is graphically presented in Figure 26. As out-migration of the workforce occurred, the unemployment rate began to fall.

The highest unemployment rate in each year was for the Matanuska-Susitna Borough. Comparing total civilian labor force to total nonagricultural employment figures, the wide discrepancy is apparent. One reason for this is that the nonagricultural statistics do not include agricultural, self-employed, domestic household, unpaid family, striking workers, or unemployed workers. Another reason is that a substantial number of workers commute to Anchorage. The OEDP study estimated this at 37 percent of the Borough's total population.

3.7.4 - Occupational Distribution

Occupational distribution patterns in Alaska have changed over time reflecting the changing structure of the economy. As the service and support sectors have grown, occupations associated with these sectors have expanded. Figure 27 illustrates the distribution of total state employment by major occupational group for 1979. Table 71 presents cross-industry employment by major occupational group for 1978.

TABLE 70

CIVILIAN LABOR FORCE DATA[1] AND
PERCENT UNEMPLOYED FOR SELECTED AREAS

Area	1970		1975		1979	
	Labor Force	Percent Unemployed	Labor Force	Percent Unemployed	Labor Force	Percent Unemployed
State	116,800	10.3	155,104	6.9	180,000	8.9
Study Area 3	79,347	9.9	110,283	6.1	126,110	9.0
Anchorage	51,398	8.3	65,938	5.9	78,822	7.1
Fairbanks	18,003	10.4	24,989	4.8	20,537	12.3
Kenai-Cook Inlet	5,727	17.1	8,576	8.7	10,971	12.1
Seward	938	17.1	1,255	9.2	1,494	10.9
Southeast Fairbanks	(included in Fairbanks)		2,041	3.8	2,052	10.7
Matanuska-Susitna	2,130	20.3	4,784	11.1	9,018	13.8
Valdez-Chitina-Whittier	1,151	11.5	2,700	5.3	3,216	9.5

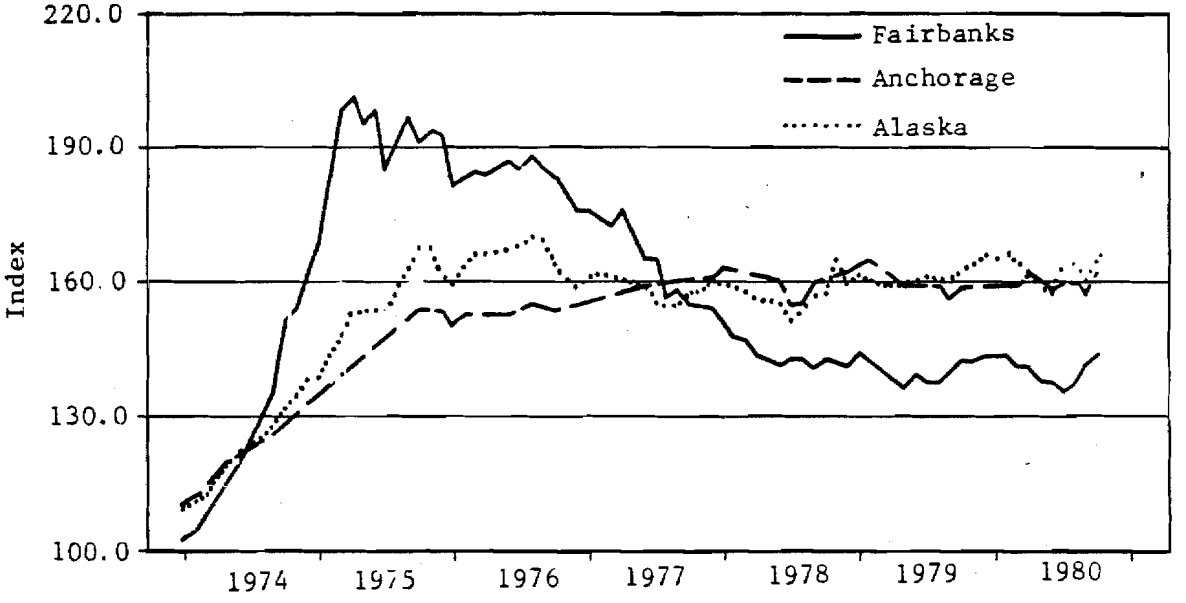
[1] By Place of Residence

Source: 1970 data - Alaska Department of Commerce and Economic Development, Division of Economic Enterprise. 1979. Numbers. Juneau, AK. 127 pp.

1975 and 1979 data - Alaska Department of Labor, Research and Analysis Section.

FIGURE 26

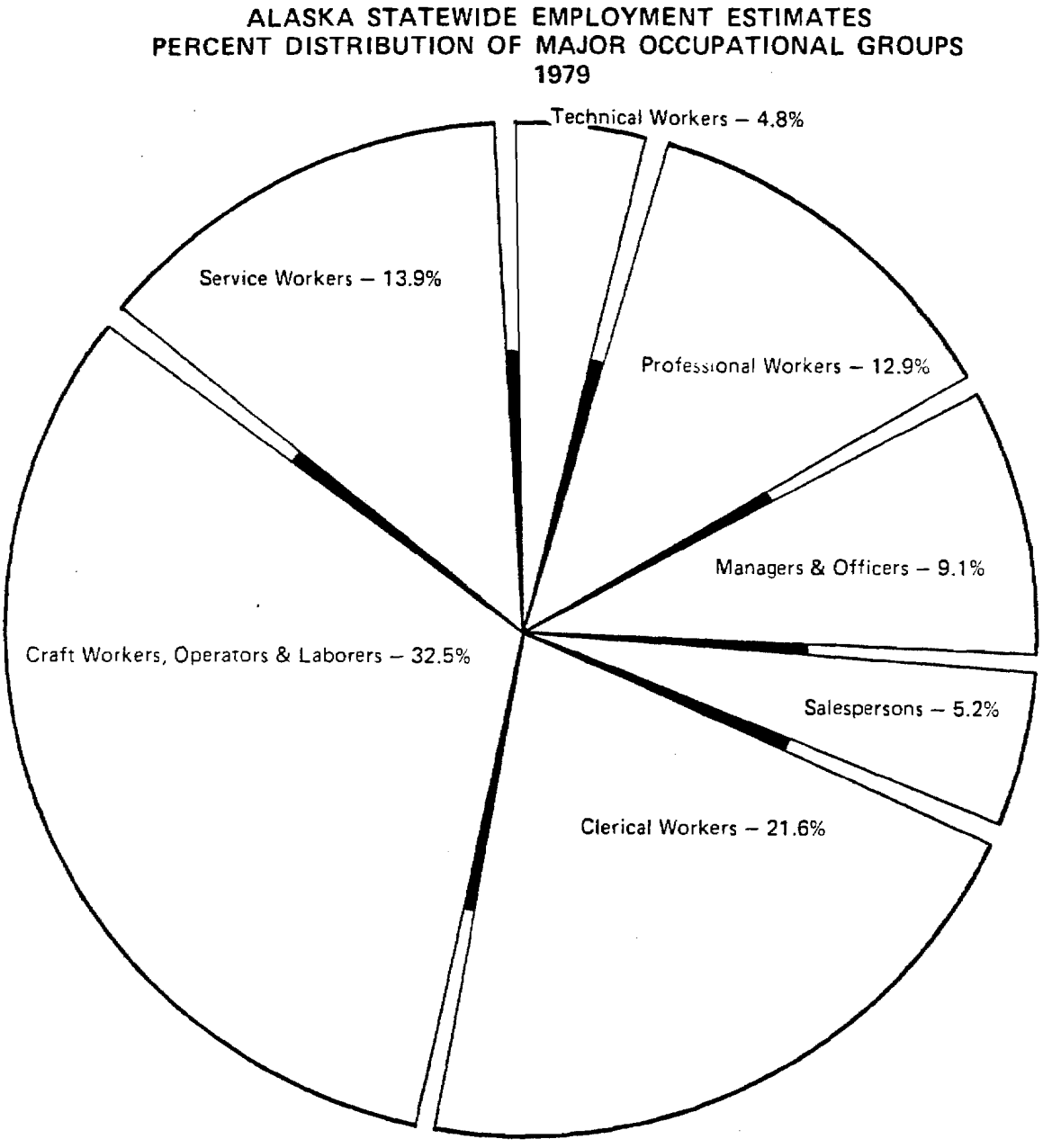
NONAGRICULTURAL WAGE AND SALARY EMPLOYMENT INDEX
(1972 = 100)
Fairbanks, Anchorage and Alaska
1974-1980



Source: Community Research Center.

From: Fairbanks North Star Borough, Community Research Center. Community Research Quarterly, A Socioeconomic Review. Fairbanks, AK. p. 46.

FIGURE 27



Source: Alaska Department of Labor. August 1979. Occupational Employment Forecast. Juneau, AK. p. 4.

TABLE 71

CROSS INDUSTRY EMPLOYMENT BY MAJOR OCCUPATIONAL GROUP
ALASKA STATEWIDE 1978

	(SIC 10, 12, and 14) Mining	(SIC 13) Oil and Gas Extraction	(SIC 15) General Building Construction	(SIC 16) General Contractors-Construction	(SIC 17 except 171 and 173) Special Trade Contractors	(SIC 171) Plumbing, Heating and Air Conditioning	(SIC 173) Electrical Contractors	(SIC 60 and 61) Banking and Credit Agencies	(SIC 62 and 67) Security, Commodity Brokers & Services	(SIC 65) Real Estate	(SIC 63, 64, and 66) Insurance Carriers, Agents, and Brokers	(SIC 70) Hotels and Lodging Places	(SIC 72) Laundry, Hairdressing & Other Personal Services	(SIC 73 except 734) Business Services	(SIC 734) Services to Buildings	(SIC 75 and 76) Automotive Renting, Leasing, & Other Repairing	(SIC 78 and 79) Motion Picture and Recreational Services	(SIC 80) Health Services	(SIC 81) Legal Services	(SIC 83) Social Services	(SIC 86) Membership Organizations	(SIC 84 and 89) Miscellaneous Services	Total All Industries
Managers and Officers	26	270	431	332	404	121	114	765	213	282	294	197	75	424	57	204	82	218	136	426	370	227	5,668
Professional	32	712	119	160	53	40	55	221	87	99	220	46	55	545	2	12	42	799	491	796	426	898	5,910
Technical	1	690	9	20	11	17	68	21	22	15	5	0	0	210	0	57	0	532	0	41	14	427	2,160
Service	30	81	51	154	12	16	14	18	94	270	3	2,307	383	1,316	895	27	237	559	16	737	544	31	7,795
Maintenance and Production	275	3,029	3,064	3,422	2,617	717	1,086	12	157	330	2	276	402	582	56	680	82	83	1	280	358	215	17,726
Clerical	30	653	309	282	332	142	122	3,007	323	347	976	470	231	1,122	25	270	109	889	628	511	805	458	12,041
Sales	2	33	9	15	81	30	4	4	60	109	281	43	20	136	2	71	55	4	0	6	51	0	1,016
Total All Occupations	396	5,468	3,992	4,385	3,510	1,083	1,463	4,048	956	1,452	1,781	3,339	1,166	4,335	1,037	1,321	607	3,084	1,272	2,797	2,568	2,256	52,316

Source: Alaska Department of Labor. September 1979. Occupational Employment Statistics -- Nonmanufacturing Industries 1978. Juneau, AK. p. 5.

3.8 - Land Use

3.8.1 - Introduction

This section is included in the socioeconomic baseline profile because of the fundamental role land use issues play in determining economic activities in a given area. Relative to potential Susitna hydroelectric development projects, the most important land use considerations involve the area in close proximity to the dams, impoundments, access routes, and transmission corridors. Land use issues in the area are being analyzed under Subtask 7.07. As such, discussions concerning Study Area 1 are deferred to this 1980 Annual Report. Land use considerations out side of Study Area 1 but within Study Area 2 are briefly addressed below.

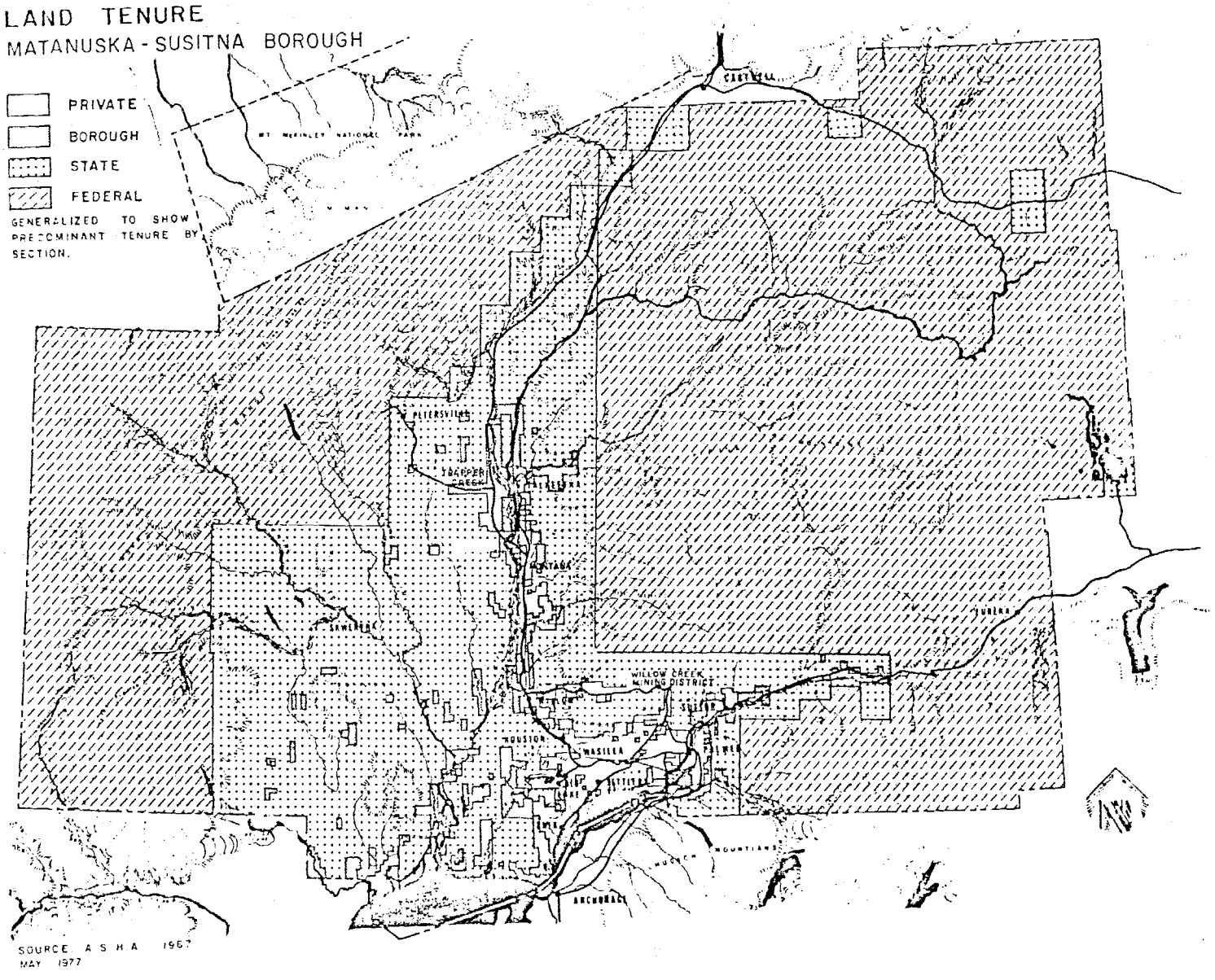
3.8.2 - Land Use Issues within Study Area 2

3.8.2.1 - Land Use Issues in Matanuska-Susitna Borough

The status of land in the Borough is an on-going issue. The topic is complicated and made more important due to the fact the Borough is experiencing substantial growth concentrated in the southern portion. Both land use and land tenure are topics of debate.

Figure 28 shows the land tenure in the Borough as of May 1967. Changes have occurred since that time due to state and federal land disposal policies, especially the Alaska Native Claims Settlement Act. The former is currently a major issue in the Borough. The Alaska Department of Natural Resources was mandated in 1978 to dispose throughout the state of 100,000 acres per year for five years to private ownership. The program did not achieve the mandated level in FY 1979 or FY 1980. "The problem is..," a state official noted, "...that we're offering lands, but not the type of lands people really want." (Frontiersman, November 20, 1980).

FIGURE 28



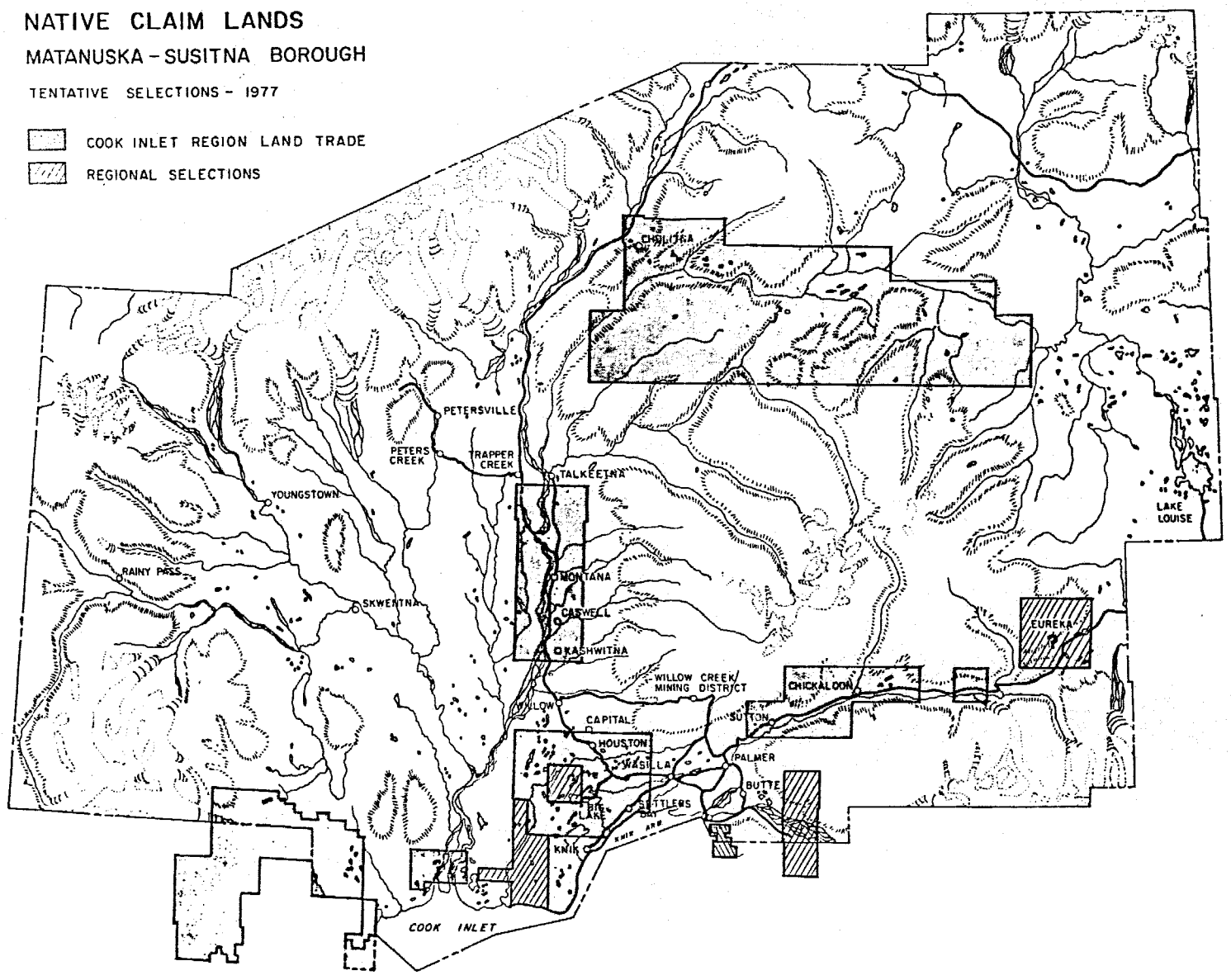
From: Matanuska-Susitna Borough Planning Department. April 1978. Phase I: Comprehensive Development Plan. Palmer, AK. p. 43.

Conflict apparently is inevitable due to the procedures for land disposal. Native claims were granted first priority, then boroughs and municipalities. State agencies were then allowed to pick out areas of "statewide interest such as parks and recreation lands, wildlife habitats, and state forests." (ibid) What remained went into the land bank for disposal.

Problems in the Borough stem mainly from incompatible uses and/or tenure. Protection of wildlife habitat precludes most forms of development, for example. In addition, after lands are designated for disposal and platted by the state, servicing them becomes the responsibility of the Borough. Many of the parcels offered are in remote areas without adequate access. Problems also arise because of restrictions on access to other public lands created by converting certain public lands to private ownership.

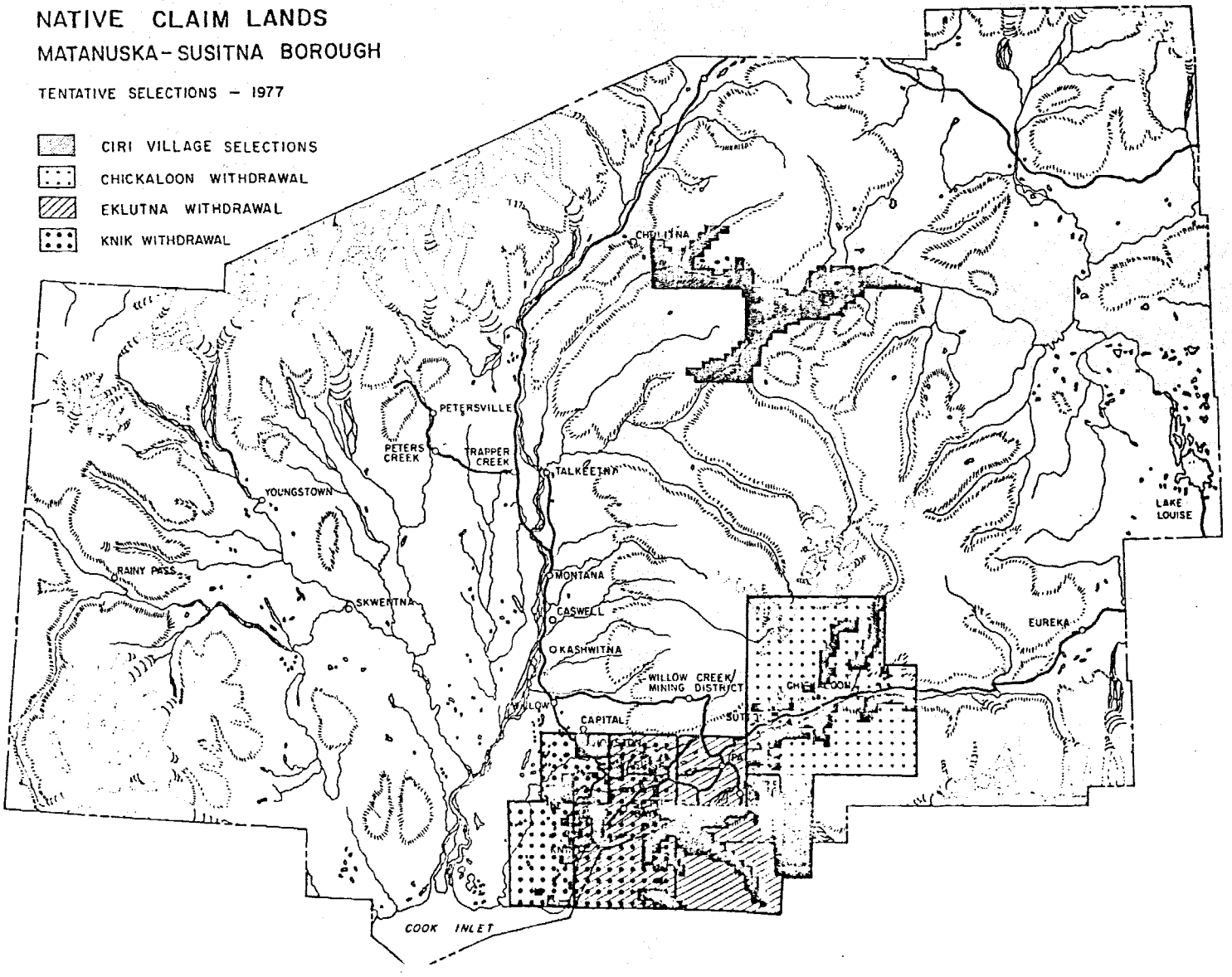
Intensive land use activities are concentrated in the southern part of the Borough and along the principal highways. The majority of land in the Borough, however, is used for more dispersed activities, principally recreation and mining. For a current detailed description of land use activities in the Borough, the reader is referred to the Susitna Basin Land Use/ Recreation Atlas. (Alaska Department of Natural Resources, 1980).

Selections and withdrawals of land in the Borough by Cook Inlet Region, Inc. (CIRI) and its member village corporations have encountered obstacles. (See the Borough's Phase I Comprehensive Plan, April 1978, Appendix C, for a detailed discussion of ANCSA's implications for CIRI and the Borough.) These obstacles are predominately legal in nature. One important characteristic of the Native land selections relative to the Susitna project is that much of the project site has been selected by CIRI. Figures 29 and 30 show tentative land selections in the Borough. Figure 29 shows regional corporation selections and Figure 30 shows village corporation selections. Future use of this area will



From: Matanuska-Susitna Borough Planning Department. April 1978. Phase I: Comprehensive Development Plan. Palmer, AK. p. 239.

FIGURE 30



From: Matanuska-Susitna Borough Planning Department. April 1978. Phase I: Comprehensive Development Plan. Palmer, AK. p. 240.

depend largely on the Native corporations policies. For a summary of land management activities and issues in the project area, see Subtask 7.07 1980 Annual Report.

Land use planning powers in the Borough reside with the various land owners for the most part. The Borough, however, does exercise overall planning authority for all lands within its boundaries. Roughly half of the Borough is designated as a special use district. This area includes all of the Talkeetna Mountains north to the Alaska Range and project site. The designation permits multiple use of the lands within the district. The ordinance (79-35) states:

> "It is further the purpose to conserve the unspoiled beauty of the mountains and the alpine region, to be consistent with its historic and continued use as a mining district, and to aid wildlife habitat while permitting resource development, recreation, grazing and related activities where appropriate."

Passage of the Alaska National Interest Lands Conservation Act ANILCA) in December, 1980, had little impact on land within the Borough. The only Borough land affected was that near Mount McKinley National Park. Figure 31 shows the location for the proposed hydroelectric project, Borough boundaries and lands withdrawn in January 1979, as part of the ANILCA process.

3.8.2.2 - Land Uses in the Valdez-Chitina-Whittier Census Division

There are no organized boroughs and only a few incorporated cities (Valdez, Cordova, and Whittier) in this region. As such land use planning authority resides with the various land owners for much of the area. Private ownership of land is limited to mining claims, remote home sites, and portions of communities along the highways.

Ahtna, Inc., the regional native corporation and its affiliated village corporations, will eventually hold title to roughly 2 million acres in the region. As in the Mat-Su Borough, land use and tenure issues are controversial matters. Access to and use of lands is perhaps the issue of greatest concern in the area.

ANILCA established the Wrangell-Saint Elias National Park and Preserve in the region (See Figure 31), and classified the Middle Fork, Gulkana River, and parts of the Delta River as National Wild and Scenic Rivers. The passage of the ANILCA legislation is considered by many to be a positive step forward, primarily because it resolves (or begins to resolve) various issues which were uncertain before. Regulations concerning use of some of the lands remain to be formulated.

Overall, the region is similar to the rural/remote areas of the Mat-Su Borough in that land use outside of the federal lands is primarily oriented toward dispersed activities, i.e, mining and recreation. Future use will be determined largely by Ahtna, Inc., the native village corporations, and the State.

3.9 - Recreation

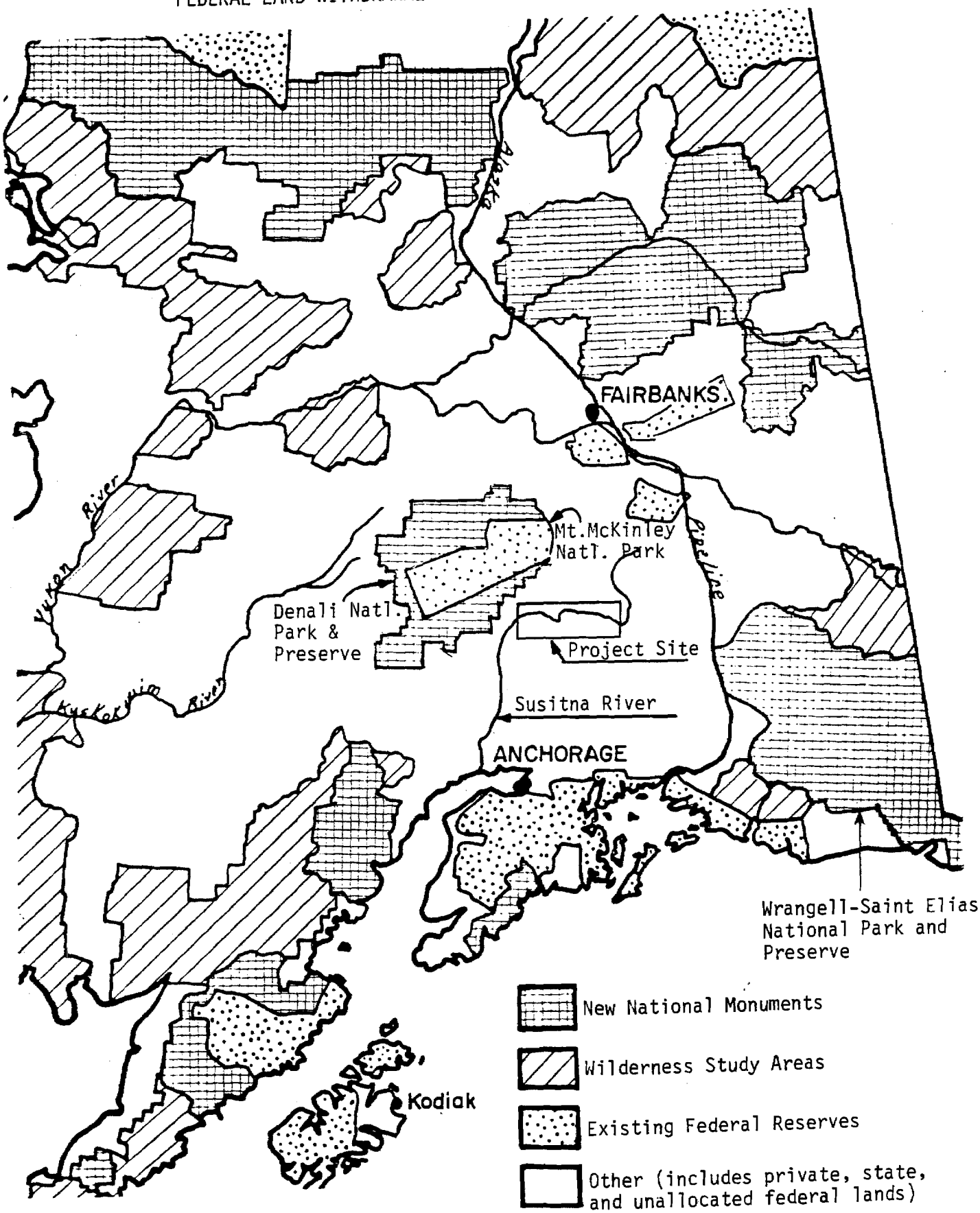
This section will focus upon the recreation resources and degrees of utilization which occur in Study Area 2, focusing on the Upper Susitna River basin. Study Area 2 includes Study Area 1 and, in a few instances, this section will deal with it specifically.

3.9.1 - Introduction

Situated between the major population centers of Anchorage and Fairbanks, the Mat-Su Borough and Copper River-Wrangell Mountains area provides a wide range of recreational opportunities. As is true of Alaska in general, many of the recreation experiences available are unique in the nation. Endowed with vast natural resources supporting

FIGURE 31

FEDERAL LAND WITHDRAWALS IN SOUTHCENTRAL ALASKA



many varieties and species of wildlife, Alaska offers numerous opportunities for recreational activities. These activities are generally characterized by low intensity, low impact, resource-oriented uses. Hunting and fishing are the principal "consumptive" recreational activities while sightseeing, backpacking, and climbing are examples of basically "non-consumptive" activities. In addition to these kinds of activities, recreation within the various communities includes more socially oriented activities, e.g., baseball, ice skating, swimming, and basic socializing.

3.9.2 - Regional Recreation Areas

The "largest" attraction in the region is Mount McKinley National Park and the surrounding Denali National Park and Preserve. The road entrance to the park is off the Parks Highway north of the Borough where a variety of services and accommodations are available. For climbing expeditions in the Park, Talkeetna serves as a primary take-off point.

Chugach State Park, located 10 miles east of Anchorage, is a major recreation area for the metropolis. The park consists of 495,000 acres and offers camping, canoeing, fishing, hiking, and a variety of winter uses.

The Denali State Park is the largest state park within the Borough. Consisting of 282,000 acres, the park is located west of the project site (Study Area 1). The Denali Master Plan calls for development of a range of recreational facilities. Winter sports, including cross country skiing, dog mushing, ice skating, ice fishing, sledding, and snowmobiling are planned or presently available. Campgrounds, boat launches, picnic areas, and a visitor center are also provided or planned.

Nancy Lake Recreation Area, located just south of Willow, is a 23,000 acre area of numerous lakes. The State Division of Parks plans to

develop the area into a major recreation area with extensive facilities including cabins, horse trails, camping, picnicing sites, and swimming beaches. The plan ultimately calls for a total of 1,760 camping units.

The Lake Louise area in the southeastern part of the Borough is a major fishing, boating, and hunting area. The area is predominately in private ownership. Lake Louise feeds the Tyone River which is a tributary of the Upper Susitna.

The Big Lake area between Wasilla and Willow has developed into a recreation area mainly catering to persons from Anchorage who maintain summer cabins on the shores.

Other pubic and private recreational developments in the Borough include roadside campgrounds and lodges, scenic pullouts, and hunting lodges in remote areas.

Road transportation is the primary means of access to the aforementioned areas. For more remote areas, boats, float planes and light aircraft are often used. All-terrain-vehicles (ATVs) and snowmobiles have also become major modes of transportation, especially for hunting. Use of these vehicles is becoming more restricted, however, as hunting pressure increases and herds decrease. ATVs can also be very detrimental to the fragile ecosystems of the area.

3.9.3 - Sport Fishing

Many of the developed recreation areas in the Borough occur around bodies of water. This is due to the inherent aesthetic values as well as the activities available, i.e., fishing and boating.

Throughout southcentral Alaska, sport fishing is a major recreational activity. Perhaps the most reknowned area is the Kenai Peninsula. Fishing pressure there has recently become so intense that fishermen

are practically elbow to elbow during the season. One result of this has been an increase in the use of alternative areas in the region.

The Alaska Department of Fish & Game (ADF&G) estimates that 71 percent of the 1,285,063 angler days fished in Alaska in 1978 were spent in the Southcentral region. The Cook Inlet area (Anchorage, Knik Arm Drainage, East Susitna Drainage, West Cook Inlet - West Susitna Drainage, and the Kenai Peninsula) accounted for 752,966 angler days or 59 percent of the total State effort in 1978. The Kenai Penninsula itself had 521,498 or 41 percent of total angler days fished. (Mills, 1980.)

Data for four subareas of the Southcentral region which incorporate Study Areas 1 and 2 are presented in Tables 72 through 76. These subareas are East Susitna Drainage, West Cook Inlet - West Susitna Drainage, Knik Arm Drainage, and Glenallen. Table 72 presents aggregated statistics for these areas by species. In terms of number of fish harvested, pink salmon, rainbow trout, and arctic grayling are the three most popular species for the combined area. A total of 244,887 angle days were expended in the area which constitutes 19 percent of the State total and 27 percent of the Southcentral effort. From 1977 to 1978, angler days spent in the area increased ten percent (ibid.).

Fishing is a major recreational activity for both Alaska residents and non-residents. Approximately three-quarters of the estimated 206,185 anglers who fished in 1978 were residents. Thus, roughly 50,000 sport fishermen were visitors, i.e., nonresidents. More than half of all sport fishermen in 1978 who were Alaska residents were from the Anchorage and Mat-Su Borough area (ibid.).

It should be noted that the data presented here was gathered by means of a postal survey to random samples of Alaska sport fishing license holders. This data was corroborated using on-site creel surveys of random samples of fishermen. The data was then statistically adjusted

TABLE 72

SPORT FISH HARVEST BY SPECIES[1]

RANK	SPECIES	SYMBOL[2]	ESTIMATED NUMBER OF FISH HARVESTED
1	Pink Salmon	PS	58,808
2	Rainbow Trout	RT	46,453
3	Arctic Grayling	GR	42,226
4	Coho Salmon	SS	27,154
5	Land locked Coho Salmon	LL	24,071
6	Dolly Varden, Artic Char	DV AC	18,034
7	Chum Salmon	CS	17,970
8	Burbot	BB	8,099
9	Lake Trout	LT	7,413
10	Sockeye Salmon	RS	4,746
11	Chinook Salmon	KS	4,184
12	Whitefish	WF	3,634
13	Other	-	1,345
14	Northern Pike	NP	316
15	Steelhead	SH	45

[1]For the following areas: East Susitna Drainage, East Cook Inlet - West Susitna Drainage, Knik Arm Drainage, and Glenallen.

[2]Symbols are used to identify species in the following tables.

TABLE 73

EAST SIDE SUSITNA DRAINAGE* SPORT FISH HARVESTS AND EFFORT BY FISHERY AND SPECIES, 1978

	Days Fished	KS	SS	LL	RS	PS	CS	RT	DV AC	LT	GR	BB	Other
Willow Creek	22,682	47	905	0	56	18,901	2,458	913	280	0	208	9	27
Montana Creek	25,762	408	2,451	0	85	15,619	4,429	1,193	633	0	958	9	27
Clear (Chunilna) Creek	5,040	12	2,200	0	28	2,074	1,912	1,501	1,817	0	859	27	0
Sheep Creek	11,869	256	478	0	14	6,981	1,697	470	108	0	461	18	9
Little Willow Creek	5,687	0	151	0	28	3,142	1,015	334	63	0	334	0	0
Others	14,970	163	2,388	2,368	56	3,994	2,692	1,519	2,739	877	3,770	208	90
GRAND TOTAL	86,010	886	8,573	2,368	267	50,711	14,203	5,930	5,640	877	6,600	271	153

*East Side Susitna Drainage (Area H): All East side drainages of the Susitna River below its confluence with the Oshetna River. Fish taken while fishing from the East bank of the Susitna River are included in this area.

Source: Mills, Michael J. July 1, 1979 - June 30, 1980. Annual Performance Report for Alaska Statewide Sport Fish Harvest Studies, Vol. 21. Alaska Department of Fish and Game, Sport Fish Division. Juneau, AK. p. 44.

TABLE 74

WEST SIDE COOK INLET-WEST SIDE SUSITNA RIVER DRAINAGE* SPORT FISH HARVESTS AND EFFORT BY FISHERY AND SPECIES, 1978.

	Days Fished	KS**	SS	RS	PS	CS	RT	DV AC	LT	GR	NP	BB	Other
Deshka River	9,111	850	1,798	0	697	0	3,634	0	0	579	0	0	72
Lake Creek	8,767	326	2,212	254	2,833	1,015	2,721	154	36	2,115	9	45	18
Alexander Creek	6,914	769	2,401	183	1,146	215	2,640	136	0	1,871	0	0	181
Talachulitna River	732	12	88	141	31	234	0	235	0	99	0	0	0
Chuit River	1,185	408	277	0	155	0	443	461	0	0	0	0	0
Theodore River	905	58	101	0	449	0	226	353	0	0	0	0	0
Lewis River	172	12	0	0	46	0	54	27	0	0	0	0	0
Other Rivers	6,011	82	3,683	662	898	1,171	1,528	1,220	0	1,953	0	72	63
Shell Lake	302	0	0	28	0	0	27	0	45	0	0	0	0
Whiskey Lake	129	0	0	28	0	0	0	0	0	0	0	0	0
Hewitt Lake	172	0	0	0	0	0	127	0	0	0	0	0	0
Judd Lake	151	0	0	70	0	0	0	371	0	0	0	0	0
Other Lakes	3,420	0	0	268	0	0	1,618	551	515	108	307	36	36
GRAND TOTAL	38,771	2,517	10,560	1,634	6,255	2,635	13,018	3,508	596	6,725	316	153	370

Razor Clams Total Digging Days: 800 Total Clams Taken: 39,175

*West Side Cook Inlet-West Side Susitna River Drainage (Area N): All West side Susitna River drainages and all West side Cook Inlet waters Southward to Cape Douglas. Fish taken while fishing from the West bank of the Susitna River are included in this area.

**Kings less than 20 inches.

Source: Mills, Michael J. July 1, 1979 - June 30, 1980. Annual Performance Report for Alaska Statewide Sport Fish Harvest Studies, Vol. 21. Alaska Department of Fish and Game, Sport Fish Division. Juneau, AK. p. 45.

TABLE 75

KNIK ARM DRAINAGE* SPORT FISH HARVESTS AND EFFORT BY FISHERY AND SPECIES, 1978

	Days Fished	KS	SS	LL	RS	PS	CS	RT	DV AC	LT	GR	BB	Other
Little Susitna River	12,127	93	4,865	0	859	1,517	956	886	570	0	54	9	759
Wasilla Creek (Rabbit Slough)	3,446	47	2,112	0	0	279	59	45	325	0	0	0	0
Finger Lake	11,502	0	0	8,588	0	0	0	0	0	0	0	0	0
Kepler Lake Complex	5,730	0	0	298	0	0	0	5,180	0	0	985	0	0
Lucille Lake	4,803	0	0	4,963	0	0	0	0	0	0	0	0	0
Big Lake	9,865	0	0	226	0	0	0	4,845	5,433	0	0	18	0
Nancy Lake Recreation Area, including Nancy Lake	7,647	0	0	262	14	0	0	1,853	18	127	0	145	0
Others	20,420	0	918	4,547	366	46	117	10,330	1,636	380	1,374	280	36
GRAND TOTAL	75,540	140	7,895	18,884	1,239	1,842	1,132	23,139	7,982	507	2,413	452	795

*Knik Arm Drainage (Area K): All waters inside the area bounded by the Little Susitna River on the North and West and the Knik Arm on the South, including all drainages of the Matanuska and Knik Rivers. (Boundary streams included in the area).

Source: Mills, Michael J. July 1, 1979 - June 30, 1980. Annual Performance Report for Alaska Statewide Sport Fish Harvest Studies, Vol. 21. Alaska Department of Fish and Game, Sport Fish Division. Juneau, AK. p. 42.

TABLE 76

GLENNALLEN* SPORT FISH HARVESTS AND EFFORT BY FISHERY AND SPECIES, 1978

	Days Fished	KS	SS	LL	RS	PS	CS	RT	LT	SH	DV AC	GR	WF	BB	Other
Gulkana River	6,570	606	0	0	662	0	0	940	18	0	0	7,494	361	9	0
Lake Louise, Lake Susitna, Tyone Lake	13,161	0	0	0	0	0	0	0	2,522	0	0	2,278	672	2,947	0
Van (Silver) Lake	1,335	0	0	1,074	0	0	0	461	0	0	0	0	0	0	0
Paxson Lake Summit Lake	6,117	0	0	0	0	0	0	316	1,085	0	0	1,474	174	307	18
Strelna Lake	495	0	0	1,058	0	0	0	190	0	0	0	0	0	0	0
Sculpin Lake	754	0	0	0	0	0	0	1,790	0	0	0	0	0	0	0
Crosswind Lake	2,800	0	0	0	0	0	0	0	714	0	0	651	2,004	868	0
Other Waters	13,334	35	126	687	944	0	0	669	1,094	45	904	14,591	423	3,092	9
GRAND TOTAL	44,566	641	126	2,819	1,606	0	0	4,366	5,433	45	904	26,488	3,634	7,223	27

*Glennallen (Area I): All waters and drainages of the Oshetna River and the Copper River upstream from a line between the South bank of Haley Creek and the South bank of Canyon Creek in Woods Canyon, and including the Upper Susitna River drainage from its confluence with the Oshetna River.

Source: Mills, Michael J. July 1, 1979 - June 30, 1980. Annual Performance Report for Alaska Statewide Sport Fish Harvest Studies, Vol. 21. Alaska Department of Fish and Game, Sport Fish Division. Juneau, AK. p. 40.

to provide estimates of overall harvest levels and effort. This data regarded by sport fish biologists as in providing effective estimates of sport fishing activity. (ibid.)

3.9.4 - Hunting

Hunting is the major recreational activity in the region between the Talkeetna Mountains and the Alaska Range. The major species hunted are caribou, moose, and bear. Each of these species is briefly addressed below. For the purposes of this study, ADF&G's Game Management Unit 13 will be used as the source of hunting data. When available, Subunit 13E, which corresponds more closely to Study Area 1, will be used as the rlevent data area.

3.9.4.1 - Caribou

The caribou in the region near the project site are part of the Nelchina herd. This herd reached a peak population of about 70,000 in 1962 and a low of about 8,000 in 1972. Reasons for the decline include natural factors as well as intensive hunting. Current population estimates put the size of the herd at about 19,000.

The following information is taken from the Alaska Wildlife Management Plans (Draft, 1980) page 81, published by the Alaska Department of Fish and Game.

> The Nelchina herd has been the most heavily sports-hunted caribou herd in Alaska since 1950. Harvests exceeded 4,000 caribou in most years from 1959 to 1971. Sharp restrictions in hunting seasons and bag limits in 1972, from an eight-month season to a six-week season, and a

three caribou bag limit to one caribou, reduced the kill to about 600. The harvest increased to 800 in 1973 and to 1,200 in 1974. In 1975, a further reduction in season length to three weeks reduced the kill to about 800 caribou. Large harvests in the period 1967-1971 and proportionally large kills on a reduced population since 1972 can be attributed to increased access, greater use of all-terrain vehicles, and increased hunting pressure.

Table 77 presents data on harvest totals, hunting effort and other variables for the Nelchina herd hunting effort since 1972. Since 1977 the number of permits has been substantially reduced and, correspondingly, the size of the herd has increased dramatically. (The population was estimated at 7,842 caribou in 1972 and 18,981 caribou in 1978). ADF&G received 5,600 permit applications and issued 1,300 permits to harvest Nelchina caribou during the 1980 season. Hunters harvested 630 caribou. (See Table 78; note that this includes parts of GMU 14)). ADF&G intends to allow the herd to increase to 20,000 animals which will support an estimated 2,000 annual harvest.

3.9.4.2 - Moose

Data for moose harvests, and hunting pressure are presented in Table 78 and 79 for game management Unit 13. This unit includes a large part of Study Area 2 including the project site.

Since 1972, the moose harvest (as well as population) has remained fairly constant, accounting for approximately 20 percent of annual state harvests. Since the early 1970's, increasingly restrictive regu-

TABLE 77

NELCHINA HERD

Reported Unit 13 caribou harvest by sex, residency of hunter, success ratios, and total extrapolated harvest, 1972-1978.

Year	Total reported harvest	Total extr. harvest	Number reported hunters	Success ratio	Number males	(Percent)	Number females	(Percent)	Resident harvest		Nonresident harvest	
									No.	%	No.	%
1972	555	N/A	1,586	34%	388	(72%)	153	(28%)	301	(56%)	237	(44%)
1973	629	810	1,982	32%	411	(67%)	203	(33%)	401	(68%)	187	(32%)
1974	1,036	1,192	2,550	41%	656	(66%)	343	(34%)	820	(82%)	181	(18%)
1975	669	806	1,991	34%	441	(69%)	201	(31%)	515	(80%)	126	(20%)
1976	776	822	1,807	43%	560	(74%)	201	(26%)	642	(85%)	117	(15%)
1977	360	--	580	62%	275	(78%)	77	(22%)	--	--	--	--
1978	539	--	747	72%	416	(79%)	111	(21%)	510	(95%)	25	(4%)

PREPARED BY: Sterling Eide, Game Biologist III

Source: Alaska Department of Fish and Game, Division of Game. March 1980. Annual Report of Survey-Inventory Activities, Part II, Bison, Caribou, Moose and Muskoxen. Juneau, AK. p. 33.

TABLE 78

FALL 1979 DRAWING PERMIT APPLICATIONS

Species	Hunt #	Season Dates	Area & Game Management Unit1/	# Permits to be Issued	Total # Applications Received	Total # Harvested	Percent Successful Hunts
Caribou (either sex)	503	Aug. 20 - Sept. 20	Units 13 & 14, except 14C	1,300	5,600	630	48
Moose (antlerless)	910	Sept. 1 - Sept. 20	Matanuska Valley - 14A	200	2,740	97	48
	911	Sept. 1 - Sept. 20	Willow to Talkeetna - 14B	100	667	22	22
	913	Jan. 23 - Feb. 6	Willow to Talkeetna	50	6,011	43	86

Source: ADF&G records.

1/ The Willow Subbasin encompasses southwest portion of 14B and western half of 14A.

From: Soil Conservation Service, et. al., December 1980. Susitna River Basin Study. Draft Report. p. 4-86.

TABLE 79

MOOSE - GMU 13 Nelchina Basin

A comparison of Annual Moose Harvest and Hunting Pressure, 1963-1978

Year	Season	Male	Female	Unknown	Total	Hunters	Percent Success
1963	Total	1385	343	7	1735		
1964	Total	1213	394	0	1607		
1965	Total	1318	3	10	1331		
1966	Total	1336	181	36	1553	4163	37
1967	1st	1009	319				
	2nd	112	0				
	Total	1217*	319	16	1552	4027	28
1968	1st	1013	243				
	2nd	171	0				
	Total	1240*	243	29	1512	4476	34
1969	1st	817	0				
	2nd	87	7	8			
	Total	1204*	7	8	1219	2553	48
1970	1st	746	56	14			
	2nd	271	58	8			
	Total	1141*,**	220	30*	1391	3535	39
1971	1st	703	333				
	2nd	205	338				
	Total	1126*	670***	18	1814	4881	37
1972	1st	559	5	7			
	2nd	39	2	1			
	Total	689*	7*	16*	712	3199	22
1973	Total	604	4	10	618	2513	24
1974	Total	768	3	23	794	2770	29
1975	Total	690	2	23	715	2978	24
1976	Total	708	1	23	732	3122	23
1977	Total	684	1	13	698	2299	30
(1977)****	Total	855	-	--	855****	3698****	23
1978	Total	846	1	16	863	3034	28

* Moose whose date of kill is unknown are included in the total.
** Adult, antlerless bulls killed during the late antlerless season are included.
*** Data from antlerless permit returns. Harvest ticket returns indicated a female kill of 614.
**** Extrapolated results to correct for absence of reminder letters in 1977. (Total = 855 $\pm$ 133, p = .05; hunters = 3698 $\pm$ 1,080, p = .05).

PREPARED BY: Sterling Eide, Game Biologist III

Source: Alaska Department of Fish and Game, Division of Game. March 1980. Annual Report of Survey-Inventory Activities, Part II, Bison, Caribou, Moose and Muskoxen. Juneau, AK. p. 105.

lations have been adopted in an attempt to limit the harvest in the face of increasing effort. Currently, the bag limit reads, "One bull having an antler spread of at least 36 inches or at least 3 brow tines on one antler."

In light of the demand for permits (to hunt antlerless moose) in 1979, as evidenced from data for the Willow subbasin where more than ten times the number of available permits were applied for, the moose resource in Southcentral Alaska is being fully utilized and cannot meet existing demand. (See Table 78).

As with caribou, practically all hunters are residents of Alaska.

3.9.4.3 - Bear

The two species of bear hunted in Unit 13 are brown and black bear. Brown bears are the targeted species, while black bears are most often taken incidentally. Tables 80 and 81 present harvest data for each species.

Several characteristics of bear hunting activities are noteworthy. Foremost is the fact that many fewer bear are taken and fewer hunters involved than for either caribou or moose. Of the hunters many are non-residents. It is likely that this is a result of the fact that fewer non-residents can participate in hunting other species and that brown bear are often hunted as trophies. Bear are also often taken incidentally by hunters after caribou or moose.

3.9.4.4 - Other Species

In the 1978 - 1979 season 69 wolves, 59 wolverines, 68 lynx, and 17 otter were taken in Unit 13. With the possible exception of wolves, these species are primarily utilized for commercial purposes and primarily taken by trapping methods.

TABLE 80

BLACK BEAR HARVEST DATA, GAME MANAGEMENT UNIT 13, 1973-1978

Regulatory year	Total kill	No. males	Percent males	No. kills by nonres.	Mean skull size males(mm)	Percent incidental kill	Percent salvaging meat	Season and bag limit
1973	69	42	61	34	411	--	--	3 bears; provided that the taking of cubs or females accompanied by cubs is prohibited. No closed season.
1974	50	32	64	10	413	--	--	Same
1975	71	47	66	15	429	--	--	Same
1976	60	38	63	13	425	48	55	Same
1977	58	37	64	10	421	41	52	Same
1978	64	41	68	11	419	39	64	Same

PREPARED BY: Robert Tobey, Game Biologist II

Source: Alaska Department of Fish and Game, Division of Game. December 1979. Annual Report of Survey-Inventory Activities, Part I, Black Bear, Brown Bear, and Polar Bear. Juneau, AK. p. 36.

TABLE 81

UNIT 13

Brown bear sport harvest summary by year, sex of bear, residency of hunter, and length of season.

Calendar Year	Total Kill**	No. of Males	No. of Females	% of Males*	% of Females*	No. of Unknown	No. by Nonres.	% by Nonres.	Length of season
1961	0041	020	020	050%	050%	001	025	061%	30 days
1962	0034	021	013	062%	038%	000	019	056%	30 days
1963	0041	021	019	053%	048%	001	026	063%	30 days
1964	0036	015	020	043%	057%	001	023	064%	30 days
1965	0044	025	018	058%	042%	001	021	048%	30 days
1966	0063	033	026	056%	044%	004	041	065%	30 days
1967	0031	016	014	053%	047%	001	014	045%	30 days
1968	0038	018	019	049%	051%	001	018	047%	21 days
1969	0017	015	002	088%	012%	000	008	047%	31 days
1970	0027	018	008	069%	031%	001	015	056%	21 days
1971	0072	032	035	048%	052%	005	044	061%	35 days
1972	0048	028	020	058%	042%	000	025	052%	31 days
1973	0044	026	017	060%	040%	001	026	059%	31 days
1974	0072	040	031	056%	044%	001	034	047%	40 days
1975	0080	043	031	058%	042%	006	037	046%	40 days
1976	0059	028	025	053%	047%	006	023	039%	40 days
1977	0038	031	007	082%	018%	000	012	032%	40 days
1978	0063	036	025	059%	041%	002	028	044%	40 days
TOTALS	0848	0466	0350	0057%	0043%	0032	0439	052%	

* All percentages are based on total known sex bears.
** Harvest totals for previous years may change as late sealing certificates are added.

PREPARED BY: Lee Miller, Game Technician V

Source: Alaska Department of Fish and Game, Division of Game. December 1979. Annual Report of Survey-Inventory Activities, Part I, Black Bear, Brown Bear, and Polar Bear. Juneau, AK. p. 95.

In the 1978 - 1979 season, 77 sheep were harvested from Units 13 and 14. The majority of the sheep came from the Talkeetna Mountains area. Hunting pressure has been fairly constant over the past decade averaging about 300 hunters per year.

3.9.5 - Boating and Kayaking

Much of the boating activity occurring in the waterways of the region is associated with fishing or hunting, i.e., a means of transportation. Some pleasure boating occurs in the more developed recreation areas.

Kayaking, canoeing, and rafting occur throughout the region where feasible. All levels of difficulty can be found, the pinnacle of which is the Devil Canyon run. Few individuals have dared the whitewater. Cole in his History of the Use of Upper Susitna River; Indian River to the Headwaters (Cole, 1979), recounts the various expeditions which attempted to pass through the canyon. Most did not succeed though they escaped with few serious injuries.

The following paragraph describing the whitewater resource in the region is taken from the study done for the Army Corps of Engineers by Jones & Jones in 1975.

> Not only does much of the Upper Susitna River occupy a stream-cut valley, but the rapids in Devil's Canyon are so exceptionally violent and spectacular as to constitute a nearly unique aethestic and recreational resource. Most Alaskan rivers occupy broad glacially scoured valleys, and whitewater beyond class III is rare (conversations with members of the U.S.D.I. Alaska Task Force responsible for recommendations on additions to

> the National Wild and Scenic Rivers System, 1974). Only three major whitewater rivers are known in Alaska: the Susitna and the Bremner in the Southcentral Region, and the Alsek in the Southeast. All are class VI rivers (I.A.C. rating), at the limit of navigability, and cannot be attempted without risk of life. All three are glacial rivers; the near-freezing water and its opacity further add to the danger posed by the turbulence of their rapids. The Susitna and Alsek were recently both successfully kayaked by Dr. Walt Blackadar for the first time. It is not known if anyone has yet attempted the Bremner, a tributary of the Copper. According to whitewater boaters, the characteristics of the three are quite different, although equally violent. The Bremner is a small, steep river in an exceptionally narrow slot-like gorge; the Alsek is a short, very steep, turbulent river; the Susitna has a relatively flat gradient and owes its violence to its great volume, the constriction of its channel in Devil's Canyon, and the rocky obstructions in its bed. Blackadar has described Devil's Canyon as much more difficult than the Grand Canyon and as the "Mount Everest" of kayaking (Anchorage Daily Times, March 28, 1973).

Dr. Blackadar also wrote a letter to the Corps responding to the draft environmental impact statement concerning the Susitna hydroelectric

project describing in detail his trip through the canyon. Apparently there are certain sections which have never been traversed by anyone.

3.9.6 - Miscellaneous Recreational Activities

As referred to in other parts of this section numerous recreational activities occur in the region. Readers are referred to the Susitna Basin Land Use/Recreation Atlas for de-tailed locations and types of these activities. Activities not previously mentioned include berry picking, bird watching, hang gliding, rock hunting, and off-road driving. Suffice it is to say that the interior southcentral region of Alaska offers a variety of recreational activities, albeit many are highly seasonal.

3.9.7 - Related Businesses

Air taxi services, lodges, and guides comprise the businesses which directly service remote hunting and fishing activities. Air taxi services operate out of many of the communities within the region. Lodges can be divided into two groups; remote and non-remote. The latter would be readily accessible by road, whereas the former would require ATV's or planes for access. Lodges usually cater to visitors and provide package trips.

There are 49 guides for Unit 13, each of which has an exclusive area. Additionally, about 250 other guides are registered to conduct trips in the unit although they must receive permission from those who have exclusive areas. These figures give the impression that many guided hunting trips occur when in fact they are a small percentage of total trips. As noted previously, most moose and caribou hunting is conducted by residents. Residents in general do not use guides.

In addition to those mentioned above, numerous other businesses in the Borough are involved with recreation/tourism related activities. These

range from real estate to grocery stores. In the Mat-Su Borough the overall impact on the economy is substantial. This relative dependence on recreation and tourism is a major cause for the seasonal nature of employment in the Borough and helps explain why the service sector is relatively large.

3.10 - Methodology Development

During 1980, all relevant forecasting models used regularly or occasionally by Alaska institutions and other potentially relevant models and studies, whether specific to the Alaska economy or not, were identified and information concerning them was collected. Next, the following evaluation criteria were developed:

- time and cost restraints (e.g., utilizing an existing Alaska-specific model would probably be more cost-effective than using a lower 48 model);
- need for a model that assesses both quantitative and qualitative factors in a theoretically rigorous manner and meets or exceeds
- generally acceptable standards for similar types of impact assessments;
- need for a model capable of assessing impacts at the "micro level" (Study Areas 1 and 2 in Figure 3) and the "macro level" (Study Areas 3 and 4 in Figure 3); and
- need for a model flexible with respect to data needs, both in terms of availability of data on a given topic and in terms of the availability of time-series data for a particular variable. (It will be very important to coordinate the application of this screening factor with the data identification, collection, and compilation efforts of Work Packages 1 and 2).

These criteria were applied to each relevant or potentially relevant model or study. A matrix was developed to facilitate comparison of models and methods. Based on this analysis, it was concluded that the primary

approach to forecasting would be causal (i.e., where the level of one variable, the "causal variable," determines the level of another variable, the "forecasted variable"). It was further determined that time series or trend analysis, and qualitative (judgemental) analysis would serve as supporting approaches, where appropriate.

With respect to a type of causal model, two types remained under consideration at the close of 1980. These were economic base and econometric models. Several methodological structures for an economic base model are being developed. The advantages and disadvantages of each alternative structure are to be weighed against the advantages and disadvantages associated with the existing, or a modified, Man in the Arctic Program (econometric) model.

4-IMPACT ASSESSMENT

4 - IMPACT ASSESSMENT

During the first year of Phase I, the only preliminary impact assessment that was conducted was in regard to alternative access routes. A discussion of this assessment is provided in Subsection 4.1. In addition, some issues and concerns relating to construction and operation impacts of hydroelectric development in the Upper Susitna Basin are discussed in Subsection 4.2.

4.1 - Preliminary Socioeconomic Impact Assessment for Alternative Access Routes

In the fall of 1980, Frank Orth & Associates, Inc. was requested to address and analyze the issue of potential socioeconomic impacts in connection with three access corridors proposed by R&M Consultants, Inc. The following is a preliminary analysis of this issue.

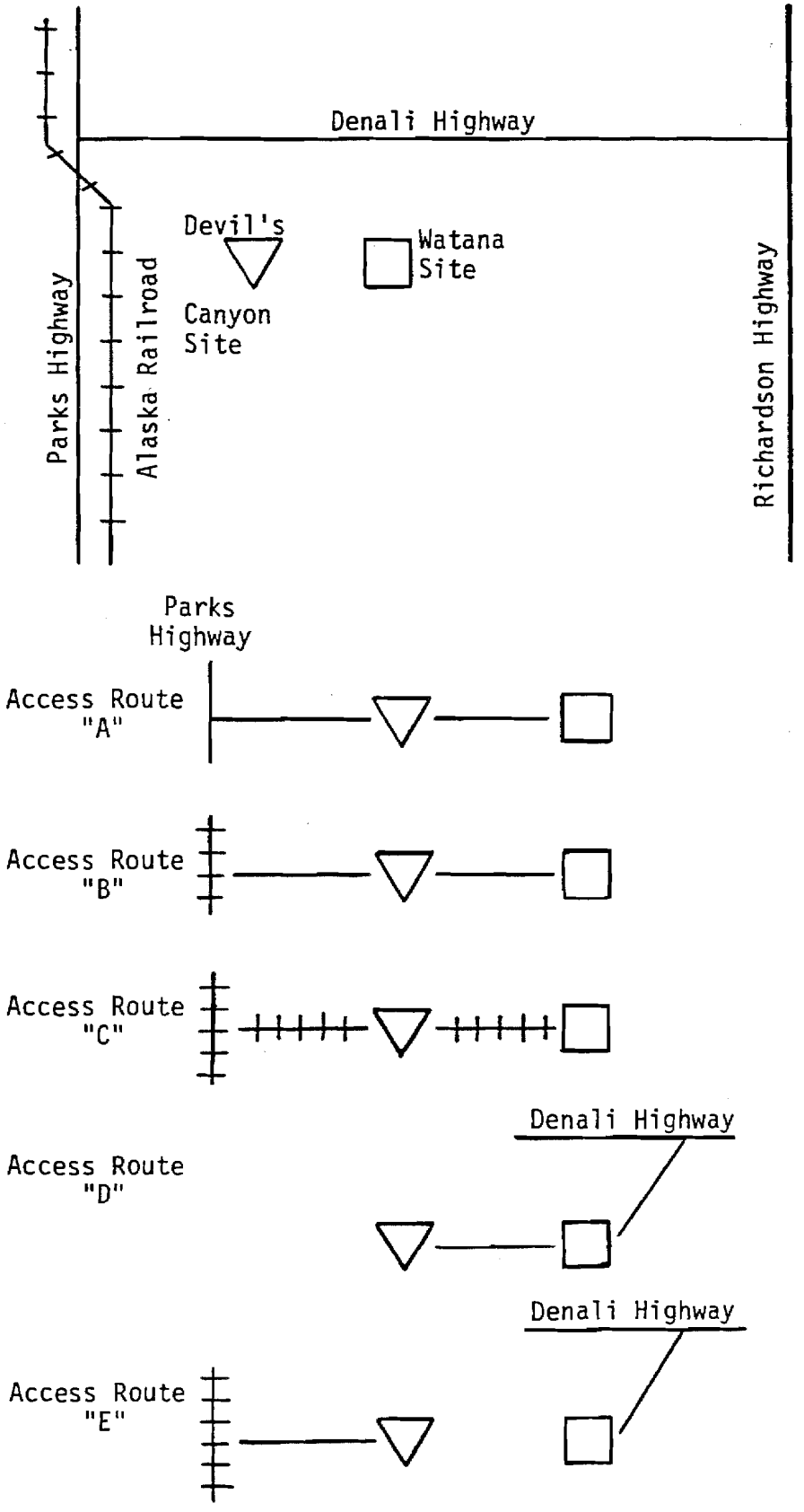
It is FO&A, Inc.'s professional judgment that the impacts will vary in both magnitude and area of concentration depending on which corridor or combination of corridors is chosen. To facilitate a better understanding of the access corridors 1, 2, and 3, they have been defined in terms of "access route combinations". The analysis is based on the impacts which would arise from the entire project, and not solely on a particular access route regarded in isolation. Therefore, it was deemed necessary to develop access route combinations based on the mode of transportation to be used and its connection with existing transportation facilities. It is understood that there would be differences in the very local socioeconomic impacts associated with the different access routes and corridors. These, however, are either obvious (e.g., the road would pass in close proximity to one of the lodges in the area or by an existing mining claim) and/or are too small to be considered in a cost effective manner. The different access route combinations are illustrated in Figure 32 and are defined as:

(a) Access routes by a new road from the west; (corridor 1) Chulitna north of Susitna River to Devil Canyon and north of Susitna River

NOTE: Please refer to the Erratum that precedes the Summary of this report.

FIGURE 32

ACCESS ROUTE SCHEMATIC FOR SUSITNA HYDROELECTRIC PROJECT



to Watana, or (corridor 2) Chulitna, south of Susitna River to Devil Canyon, and south of Susitna River to Watana.

(b) Access route utilizing existing railroad connecting with a new road to Devil Canyon and Watana (corridor 2).

(c) Access route utilizing existing railroad connecting with a new railroad to Devil Canyon and Watana (corridor 2).

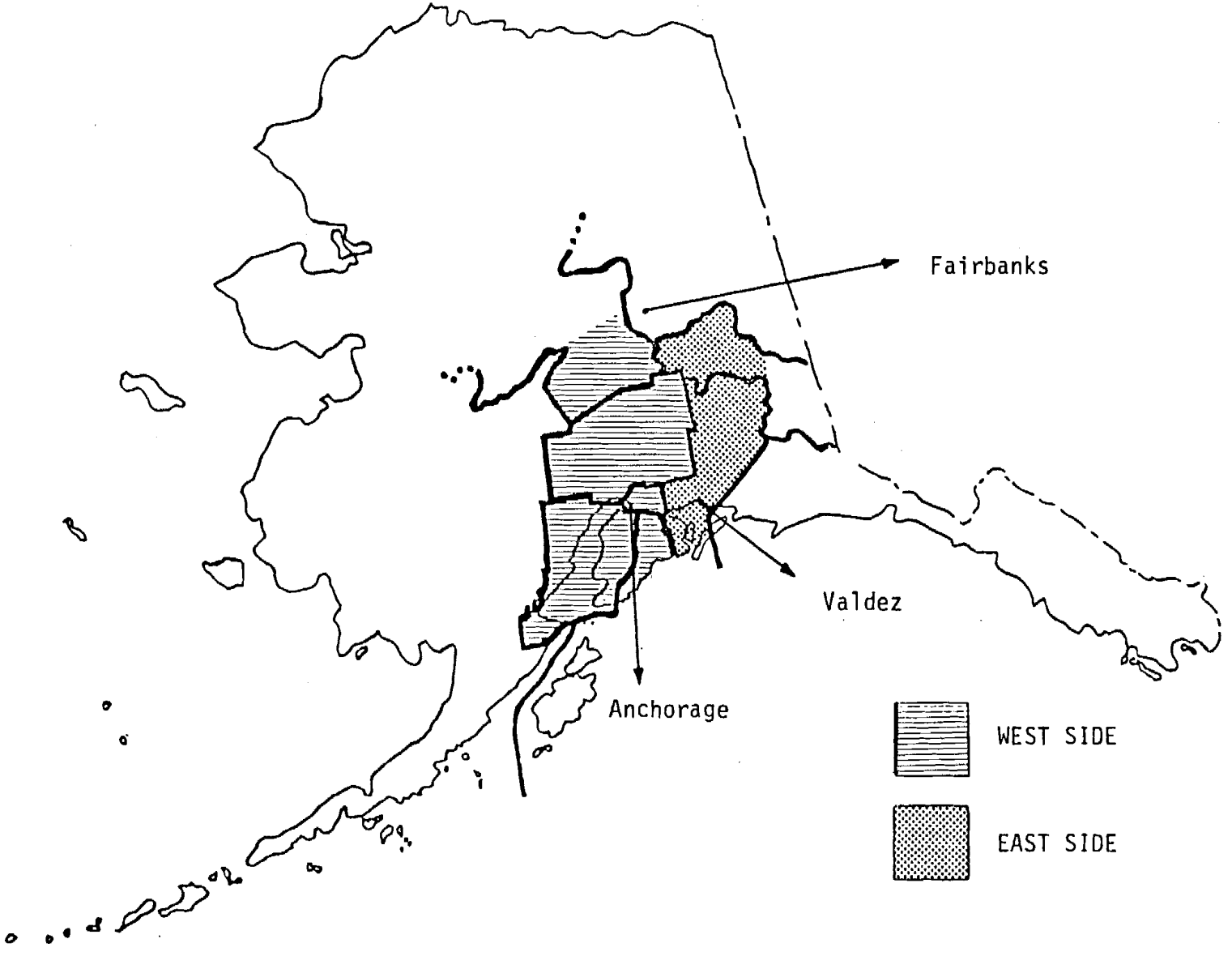
(d) Access route by a new road from the North, Denali Highway, to Watana and possibly Devil Canyon (corridor 3).

(e) Access routes by existing railroad connecting with a new road from the west to Devil Canyon (corridor 2) and by a new road from the north to Watana (corridor 3).

The analysis is predicated on several assumptions, one of which is that there will not be an enclave with a broad range of services at the project site, and that labor commuting patterns will develop as a function of accessibility to the dam sites. It is also assumed that if the access is from the west, whether a road connecting with the Parks Highway or a rail spur off the existing railroad, the port of entry would be Anchorage, and impacts would be concentrated on the "west side". The west side is defined as Anchorage, Matanuska-Susitna, Seward, Kenai-Cook Inlet, and the southeast portion of Yukon-Koyukuk census divisions. The areas of greatest concentration are the Parks highway and Railroad corridor. However, if the access corridor were from the Denali Highway, then it is assumed that the port of entry would be Valdez. In this scenario more impacts would occur on the "east side". The east side is defined as the City of Valdez and the Valdez-Chitina-Whittier Census Division, and the western portion of the Southeast Fairbanks Census division, (primarily the Richardson Highway and eastern portion of the Denali Highway). (See Figure 33).

FIGURE 33

CENSUS DIVISIONS BY EAST AND WEST DEFINITION



Based on the above premises, an extensive literature review, and professional judgment, the susceptible socioeconomic conditions and variables were examined for impact magnitude per each access route combination. This was done for the east and west sides, as well as for the fifth combination "E" where the impacts are dispersed over both the east and west sides. A subjective numerical scale of 1 to 5 was used, with 5 representing a great impact and 1 a small or negligible impact. The numerical scale does not correspond to a quantitative measure, but rather is a scoring system used to delineate the relative magnitudes of impacts. Relative refers here to the socioeconomic base upon which the impact will occur. Thus, for the east side, in general the impacts are rated fairly high because of its relatively less developed socioeconomic base. This analysis is a process by which to examine the direct and indirect impacts on existing facilities and demands on those facilities, not induced impacts. For instance, the attractiveness of an increased and, perhaps, a less expensive power supply for industry, and the impacts associated with such changes have not been considered in our impact analysis.

Examination of Table 82 reveals certain patterns that have developed as a result of the socioeconomic variables being analyzed in this manner. Generally, if access corridor "A" is chosen, then the impacts will be concentrated on the west side, and few impacts of any significant magnitude will occur on the east side. This is viewed as the result of an easily accessible corridor, a road connection to the Parks Highway, for construction materials, equipment, and labor sources, and for post-construction alternative uses of the Susitna Basin.

The impacts to the west associated with access combination "B" are generally less than those of "A" because of the more restrictive nature of rail, rather than road, as the initial link. The fact that there is a roadhead at the railroad as opposed to the Parks Highway will limit access, and thereby reduce the impacts. As with combination "A", the impacts upon the east side with combination "B" are assumed to be minor.

TABLE 82

POTENTIAL SOCIOECONOMIC IMPACTS OF ALTERNATIVE ACCESS ROUTE COMBINATIONS, BY SOCIOECONOMIC IMPACT CATEGORY[1]

	West Side				East Side				East/West
IMPACT CATEGORY	A	B	C	D	A	B	C	D	E
Population Levels	5	4	5	2	1	1	1	5	4
Ethnicity, Religion	1	1	1	1	1	1	1	3	2
Culture/Way of Life	2	2	2	1	1	1	1	4	3
Community, Social, and Political Organizations/Facilities	5	4	4	2	1	1	1	5	4
Housing - Type	3	2	2	1	1	1	1	5	3
Housing - Availability	5	4	4	2	1	1	1	5	4
Public Services	5	3	3	2	1	1	1	5	4
Government Revenues	5	4	4	2	1	1	1	5	4
Total Labor Demand	5	4	5	2	2	2	2	5	4
Unemployed Labor	5	4	4	2	2	2	2	5	4
Economic Base:									
Construction	5	4	5	3	2	2	2	5	3
Mining	3	2	2	1	1	1	1	3	2
Agriculture	1	1	1	1	1	1	1	1	1
Forestry	3	2	2	1	1	1	1	3	2
Manufacturing	3	3	3	2	1	1	1	3	3
Fisheries (Commercial)	1	1	1	1	1	1	1	1	1
Oil and Gas	1	1	1	1	1	1	1	1	1
Transportation-Motor	4	2	2	1	1	1	1	4	4
-Rail	2	4	5	1	1	1	1	1	3
Public Utilities	4	3	3	1	1	1	1	5	4
Communications	2	2	2	2	2	2	2	3	2
Wholesale Trade	5	4	4	2	1	1	1	5	4
Retail Trade	5	3	3	2	1	1	1	5	4
Services	5	3	3	2	1	1	1	5	4
Tourism/Recreation	5	3	2	2	1	1	1	5	5

[1] Socioeconomic conditions are described by socioeconomic categories. Each category is further described by socioeconomic variables. Socioeconomic categories and variables are shown in Appendix C. NOTE: A subjective numerical scale is used in which 5 represents a great impact and 1 a small or negligible impact.

Combination "C" represents an access route that is essentially the same as "B" from a socioeconomic standpoint. The major differences appear to be engineering and physical/biological/chemical in nature. There are deviations from this pattern, however, which are illustrated by the categories, total labor demand and rail transportation. Since the construction of a railroad is assumed to be more labor intensive than the construction of a road, these categories witness an increase in impact. A decrease in impact magnitude is exhibited in mining, due to the more restrictive access associated with rail.

Access combination "D" shifts the impacts from the west side to the east side, which is displayed by a substantial decrease in relative magnitudes under column D on the west side, and a dramatic increase in relative magnitudes on the east side. As aforementioned, this is due to the assumption that marine, and perhaps, air access will be through Valdez and that the Richardson Highway will be the haul road. Even with such a shift, impacts are still witnessed on the west side because it is believed that industry and labor pools along the Parks Highway will continue to be utilized.

Access combination "E" appears to have the greatest impacts associated with it, due to the fact that they will be dispersed over a greater area, as opposed to being concentrated in any one area.

Not all categories conform to these generalities. Some categories will be impacted, or not impacted regardless of which access corridor is chosen, and are essentially composed of "independent" variables. For example, categories such as housing availability, total labor demand, unemployed labor, construction, wholesale and retail trade, and services will all be greatly impacted on the west side, independent of which access corridor is chosen. Whereas categories such as agriculture, fisheries (commercial) and oil and gas, on the other hand, will be impacted negligibly regardless of the access route.

It was FO&A, Inc.'s intention to delineate the impacts most likely to occur with the implementation of any one access route combination, and to exhibit their relative magnitudes. These goals were realized and are displayed in Table 82. However, since it was necessary to examine the large quadrangle from Anchorage and Valdez north to Fairbanks, the focus was very broad and the more localized categories such as land ownership, sport and subsistence fishing, and mining claims were not addressed in this analysis.

The analysis is not as rigorous as had previously been envisioned due primarily to the limitations imposed by unanswered questions. Those hurdles were partially overcome by making assumptions. Before a more concrete analysis can be undertaken attempts should be made to address questions such as:

- Will there be an enclave where all services are provided? Or will workers commute and seek services in existing communities? Or some other combination?

- Would the port at Valdez be utilized as opposed to Anchorage if the access route were from the Denali Highway?

- What are the goals for the project site during and after construction? Should access be restrictive during construction? After construction?

- What is the intent of the project? What relative weights will be placed on economic and social benefits/costs? (End of memorandum)

Finally, some of the impact analysis for alternative access corridors is relevant, by gross inference, to the impact analysis for a selected hydroelectric plan. The reader is referred to the last column in Table 81. By looking down this column, one can compare relative socioeconomic impact magnitudes for each of the various socioeconomic categories. Those categories with higher values will be substantially impacted while those with

lower values will be impacted only slightly, if at all, by the selected hydroelectric project plan. Since engineering and engineering-economic information was not used by Frank Orth & Associates, Inc. in the access corridor analysis, nor in this inference method used to approximate impacts for a selected hydroelectric project plan, these results are highly preliminary. Preliminary impacts for the alternative as well as selected hydroelectric project plans will be developed during 1981.

4.2 - Issues and Concerns Relating to Dam Construction and Operation

As indicated above, certain factors will substantially influence the geographic distribution and magnitude of socioeconomic impacts. Some of the more important factors are the following:

- the type of access route;
- the type and amount of public and private uses intended for the project site(s) and access routes and adjacent/nearby land;
- the existence of an enclave with a broad range of services at or very near the construction site(s) or the existence of a construction camp with minimal services (i.e., some workers would commute to thesite and many workers would seek services in nearby communities);
- the amount and timing of in-migration into Study Area 2 and communities in Study Area 2 resulting from project-generated demand for labor;
- the values of in-migrants relative to residents;
- the number of persons (relatives) that accompany in-migrants;
- The propensity of in-migrants to reside in Study Area 2 after their project jobs terminate; and
- the amount and timing of the project's demand for locally-produced goods and services.

A very preliminary impact analysis was conducted at the outset of Work Package 2. While the primary purpose of this analysis was to serve as a

guide for choosing variables to include in the baseline socioeconomic profiles, it also indicates which variables are most susceptible to change as a result of dam construction and/or operation. A description and the results of this analysis are presented in Appendix B. The important point to remember in reviewing these results is that assumptions were explicitly or implicitly made concerning each of the above factors. These assumptions had a definite influence on the geographic distribution and relative degree of impacts.

The factors give rise to issues, and the issues can create concerns. To illustrate this, consider the following example. Suppose that:

- the access route is a road from the Parks Highway to the Devil Canyon and Watana sites;
- a large amount of public and private use of the project sites and access road and adjacent/nearby land is permitted;
  there are small construction camps at each project site;
- in-migration to the Mat-Su Borough (particularly Talkeetna) is substantial: the values of the in-migrants differ substantially from those of the residents of Talkeetna and the Mat-Su Borough in general; and each worker brings two relatives (immediate family);
  -there is a low propensity for workers to remain in the Borough after the project jobs end.

Given these assumptions, the following could occur in Talkeetna:

- population could double, triple, or even quadruple;
- great demands could be placed on community facilities and public services, housing, the existing employed and unemployed labor pool, etc.;
- sectors of the economic base such as construction, wholesale and retail trade, services and tourism/recreation could change significantly or face substantial pressures to change; and
- ethnicity, religion, and the culture/way of life could be significantly altered.

These same impacts would accrue, albeit to a lesser extent, to other communities along or near the Parks Highway.

The above list of exemplary impacts is not comprehensive nor is it supported by substantial analysis. The reason for listing these potential impacts is to show that the factors give rise to issues. Some of the key issues are:

- what access route or combination of access routes results in the most desirable distribution and magnitudes of socioeconomic impacts?
- what type and amount of public and private use of the project site(s) and access route and adjacent/nearby land provides for the desired impacts?
- is an enclave or construction camp desirable?
- can the timing of the demand for labor be changed and, if so, what is the most desirable labor schedule?
- what types and amounts of construction supplies and services will be purchased locally?

These issues are interdependent. They must be addressed and resolved as such.

Associated with each issue will be concerns. These concerns will usually be expressed and voiced by persons who oppose or favor substantial changes in the status quo (i.e., substantial changes in socio-economic variables and conditions). The issues must be resolved by considering concerns that arise and this also needs to be done in an interdependent manner.

5-MITIGATION

5 - MITIGATION

The location and magnitude of potential socioeconomic impacts associated with construction and operation of an access route(s), a dam(s), and transmission facilities will be influenced by the decisions made with respect to each of the issues presented in Subsection 4.2. At present, mitigation planning to avoid or minimize potentially adverse socioeconomic impacts (i.e., potentially large changes in the forecasted baseline conditions resulting from construction and/or operation of hydroelectric and related facilities) should include consideration of the preliminary impacts, factors and issues presented in Subsection 4.2.

In particular, one should consider the different locations and relative magnitudes of potential impacts associated with "west side" versus "east side" access. It should be apparent from Table 81 that the location and relative magnitudes for almost every impact category vary considerably depending upon which "side" is chosen for access. It should also be apparent from the Table that choosing "west side" access (instead of "east side" access) will result in minimizing large changes in impact categories (See Figure 32 for descriptions of "west" and "east" side accesses). Thus, choosing "west side" access could be considered a mitigation measure in itself. Further, choosing access combination B on the west side would result in the least change in impact categories. Access combination C (west side) would result in slightly larger changes in impact categories than access combination B (west side). These larger changes could be considered "positive" because they involve hiring more labor, particularly for railroad construction. It should be recalled that the impact analysis for alternative access routes was preliminary. It was preliminary because two essential ingredients, detailed engineering and engineering-economic information, and the forecasts of socioeconomic conditions with and without hydroelectric development in the Upper Susitna Basin, were not available for utilization in the analysis.

At present, mitigation planning should also consider minimizing irreversible effects on socioeconomic resources. Two examples are existing and

potential mining claims and recreational fishing areas in the vicinity of the alternative impoundment zones. The dam(s) should be sited and designed with these resources in mind.

6-REFERENCES

6 - REFERENCES

6.1 - Introduction

The following is a list of sources examined and utilized in the development of the Susitna hydroelectric project socioeconomic profile. They are arranged into three sections: 6.2 - Energy Development Impact Studies; 6.3 - Data; and 6.4 - Methodologies. Sources that have been cited in the text are denoted by an asterisk in the left column.

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7-AUTHORITIES CONTACTED

7 - AUTHORITIES CONTACTED

7.1 - Introduction

Contained in this section is a comprehensive list of government agencies organizations, institutions, and individuals contacted to assist in the development of this socioeconomic profile. The section is divided into four distinct categories: 7.2-Federal Institutions; 7.3-State Institutions; 7.4-Local Institutions; and 7.5-Other Institutions, Organizations, and Individuals.

7.2 - Federal Institutions

U.S DEPARTMENT OF INTERIOR

Bureau of Land Management
Anchorage, AK

Michael Brown
- Phone discussion with Peter Rogers; January 30, 1981; discussed type, quality, and quantity of data available regarding the historic use of Alaska's inland waters for travel, trade or commerce.

Bureau of Land Management, Outer Continental Shelf (SESP)

Gary Hennigh; Charlie Smythe
- Meeting with Andy Woolford; January 9, 1981; discussed OCS, SESP Studies and Enclave Development Study (Louis Berger & Associates).

Charlie Smythe, Socioeconomic Specialist
- Meeting with David Davies; September 24, 1980; identify sources of socioeconomic data and information.

Bureau of Mines

- Meeting with Andy Woolford; January 8, 1981; obtained information and map on mining claim locations in Upper Susitna River Basin.

Joanne Gidlund, Public Affairs Office
- Phone discussion with David Davies; February 10, 1981; regarding information on D-2 legislation.

HOUSING AND URBAN DEVELOPMENT
Anchorage, AK

E.R. Robinson, Director
- Phone discussion with Andy Woolford; February 12, 1981; information on housing data for Copper River Region.

U.S. DEPARTMENT OF AGRICULTURE

Delon Brown, Chief Researcher
- Meeting with Irene Gendron; June 5, 1980; identify forecasting models and socioeconomic data and information.

U.S. Soil Conservation Service
Anchorage, AK

Sterling E. Powell, P.E., River Basin Planning Staff
- Meeting with Peter Rogers; January 29, 1981; discussed goals, objectives and status of river basin planning project.

ECONOMICS, AND STATISTICS SERVICE

Natural Resource Economics Division
Anchorage, AK

Paul Fuglestad, Agricultural Economist
- Meeting with Peter Rogers; January 29, 1981; discussed methods and results of agriculture and timber potential studies for the Willow subbasin; discussed plan of study for other subbasins; discussed population projects for the river basin.

U.S. DEPARTMENT OF TRANSPORTATION

Federal Railroad Administration
Alaska Railroad

Fred Hoefler, Traffic Officer
- Meeting with Andy Woolford; January 9, 1981; discussed freight schedules, capacity, upgrading, employment, and payroll.

7.3 - State Institutions

ALASKA DEPARTMENT OF EDUCATION
Juneau, AK

Lee Hays
- Phone discussion with Andy Woolford; February 3, 1981; regarding information on school districts in the Mat-Su Borough and Valdez-Chitina-Whittier census division. Will be sending pertinent information.

ALASKA DEPARTMENT OF TRANSPORTATION
Valdez, AK

Rick Quiroz, Planner
- Phone discussion with Andy Woolford; January 27, 1981; regarding Environmental Assessments for portions of Richardson Highway. Sending EA's for Copper Center and Glennallen (will send EA for Mile 125 to Paxson in Spring when complete).

ALASKA DEPARTMENT OF TRANSPORTATION
Anchorage, AK

Reed Gibby, Transportation Planner
- Phone discussion with Andy Woolford; November 5, 1980; regarding Mat-Su Borough Transportation Study. Presently no formal study exists. Recommends contacting individual town offices for specific questions. Study just commencing.

- Meeting with Andy Woolford; January 7, 1981; discussed and obtained data on highway and bridge conditions, road capacities and plans for upgrading for Parks, Glenn, Denali, and Richardson Highways.

Bill Humphrey, Transportation Planner I
- Phone discussion with Andy Woolford; November 5, 1980; regarding Mat-Su Borough Transportation Study (no such study completed at this time).

ALASKA DEPARTMENT OF COMMUNITY AND REGIONAL AFFAIRS (CRA)

Richard Spitler, Planner
- Meeting with Peter Rogers; November 21, 1980; discussed CRA's activities in the Valdez-Chitina-Whittier census division and obtained studies on communities in this division.

Mark Stephens, Planner VI
- Meeting with Andy Woolford; January 6, 1981; discussed activities in Valdez-Chitina-Whittier census division (Richardson Highway corridor) and existing community profiles.

- Phone discussion with David Davies; September 25, 1980; identify sources of socioeconomic data and information.

ALASKA DEPARTMENT OF FISH AND GAME
Anchorage, AK

Sterling Eide, Regional Supervisor for Game Division
- Meeting with David Davies; September 23, 1980; establish communication and obtain data.

- Meeting with Peter Rogers; August 19, 1980; establish communication and obtain data on harvest.

Sterling Miller, Game Biologist III
- Meeting with David Davies; September 23, 1980; establish communication and obtain data.

Larry Heckart, Fisheries Biologist IV
- Meeting with David Davies; September 23, 1980; establish communication and obtain data.

Michael Mills, Fishery Biometrician III
- Meeting with David Davies; September 23, 1980; establish communication and obtain data.

- Meeting with Peter Rogers; October 14, 1980; request for answers to questions of ADF&G's Final Preliminary Plan of Study; determine status of ADF&G's Susitna effort; determine and establish optimal communications channels and methods of coordination with ADF&G; obtain socioeconomic data and information on recreational fisheries for Areas 2 and 5 from ADF&G; establish timetables for data and information outputs and sharing with ADF&G.

Christopher Estes, Fisheries Biologist III
- Meeting with David Davies; September 23, 1980; establish communication.

Ron Stanek, Resource Specialist II
- Meeting with David Davies; September 23, 1980; establish communication.

Dennis Haanpaa, Fisheries Biologist IV, Commercial Fisheries
- Meeting with David Davies; September 23, 1980; establish communication.

Jerry Sexton, Game Biologist II
- Meeting with Peter Rogers; August 19, 1980; establish communication and obtain gain harvest data.

Lee Miller, Fish and Game Technician V
- Meeting with Peter Rogers; August 19, 1980; establish communication and obtain game harvest data.

Greg Bos, Game Biologist IV
- Phone discussion with David Davies; February 10, 1981; regarding obtaining a copy of the Alaska Wildlife Management Plans.

ALASKA DEPARTMENT OF PUBLIC SAFETY

Division of Fish and Wildlife Protection

Rodney Mills, Detachment Commander
- Meeting with David Davies; September 23, 1980; establish communication.

ALASKA DEPARTMENT OF NATURAL RESOURCES

Division of Research and Development, Land and Resources Planning

Carol Larsen, Public Information Officer
- Meeting with David Davies; September 25, 1980; identify sources of socioeconomic data and information.

Bob Loeffler, Associate Planner
- Meeting with David Davies; September 25, 1980; identify sources of socioeconomic data and information.

- Meeting with Peter Rogers; November 19, 1980; discussed land use planning methods, status of Willow subbasin area land use planning, and socioeconomic implications of land use zoning.

Steve Reeves, Chief, Land Resourcer Planner; Randy Cowart, Planner
- Meeting with Andy Woolford; January 9, 1981; discussed time schedules and collaboration regarding Regional Plan for the Upper Susitna.

Division of Pipeline Surveillance
Fairbanks, AK

Elstun Lausen, Socioeconomic Officer
- Phone discussion with Andy Woolford; January 7, 1981; regarding community profiles and studies of Southeast Fairbanks and Valdez-Chitina-Whittier census divisions.

ALASKA DEPARTMENT OF REVENUE
Juneau, AK

Linda Lockridge, Records and Licensing Supervisor, Fish & Game Licensing Division
- Meeting with Peter Rogers; August 20, 1980; obtain information on game harvest

Bill Yankee, Economist II
- Meeting with Peter Rogers; November 21, 1980; discussed structure on non-petro revenue model and revenues from hydro projects.

- Phone discussion with David Davies; February 6, 1981; regarding data on gross sales by census division.

Hazel Nowlin, Administrative Assistant I
- Phone discussion with David Davies; February 20, 1981; regarding Gross Business Receipts by Borough - North Start, Mat-Su, Anchorage, 1970 - 77.

ALASKA DEPARTMENT OF ENERGY
Anchorage, AK

Heinz Noonon, Energy Economist
- Meeting with Irene Gendron; June 3, 1980; identify sources of socioeconomic data and information.

ALASKA DEPARTMENT OF LABOR

Division of Research and Analysis

Steve Harrison, Labor Economist
- Meeting with Peter Rogers; November 20, 1980; discussed population data and LABMOD (short-run labor projections model).

Chuck Caldwell, Chief of Research and Analysis
- Meeting with Peter Rogers; November 20, 1980; discussed levels of disaggregation of employment data and employment estimates.

Chris Miller, Labor Economist
- Meeting with Peter Rogers; November 20, 1980; discussed structure of LABMOD and income and employment multipliers.

Rod Brown, Supervisor of Research
- Meeting with Peter Rogers; November 20, 1980; discussed income and employment multipliers and economic base analysis.

Neil Fried, Labor Economist
- Meeting with Peter Rogers; January 30, 1981; discussed employment data, multipliers, labor supply data, location quotients and the availability of commuting and labor migration studies.

Cal Dauel, Administrative Officer
- Meeting with Andy Woolford; January 8, 1981; discussed income and employment multipliers; industry linkages; and consumer price index for Matanuska-Susitna Borough.

ALASKA DEPARTMENT OF LABOR
Juneau, AK

Sally Saddler, Labor Economist
- Phone discussion with David Davies; February 23 and 25; request for labor data information.

ALASKA DEPARTMENT OF COMMERCE AND ECONOMIC DEVELOPMENT

Division of Energy and Power Development

Secretary
- Phone discussion with David Davies; September 25, 1980; identify sources of socioeconomic data and information.

David Reume, Economist
- Meeting with Irene Gendron; June 6, 1980; identify forecasting models.

- Phone discussion with Peter Rogers; January 30,1981; discussed availability of State's Long-Term Energy Plan.

UNIVERSITY OF ALASKA

Institute of Social and Economic Research

Lee Huskey, Economist
- Meeting with Andy Woolford; January 6, 1981; discussed employment and population multipliers and Valdez-Chitina-Whittier community studies.

Scott Goldsmith, Assistant Professor of Economics
- Meeting with Irene Gendron; June 4, 1980; identify forecasting models.

- Meeting with Peter Rogers; July 8, 1980; determine relevance of ISER demographic and economic models for Work Package 4.

ARCTIC ENVIRONMENTAL INFORMATION AND DATA CENTER (AEIDC)

Barbara Sokolov, Director, Information Services
- Meeting with Andy Woolford; January 6, 1981; apprised of AEIDC data cataloging and retrieval, especially as it pertains to Richardson Highway corridor.

HOUSE POWER ALTERNATIVES STUDY COMMITTEE
Juneau, AK

Hugh Malone
- Meeting with Irene Gendron; June 6, 1980; establish communication channels.

GLENNALLEN STATE TROOPER POST
Glennallen, AK

Bob Cockrell, State Trooper
- Phone discussion with Andy Woolford; February 4, 1981; regarding trooper facilities and personnel in the Valdez-Chitina-Whittier census divisions.

ALASKA STATE HOUSING AUTHORITY

Bill Foster, Housing Director
- Meeting with Andy Woolford; January 9, 1981; discussed housing studies/surveys in Matanuska and Valdez-Chitina-Whittier census divisions.

7.4 - Local Institutions

MUNICIPALITY OF ANCHORAGE
Anchorage, AK

Mike Meehan, Director of Planning
- Meeting with Irene Gendron; June 4, 1980; establish contact and identify sources of socioeconomic data and information.

Shawn Hemme, Assistant Planner
- Meeting with Irene Gendron; June 4, 1980; establish contact and identify sources of socioeconomic data and information.

Barbara Withers, Regional Economist
- Meeting with David Davies; September 23, 1980; discussion of socioeconomic information and studies.

Chuck Becker, Economic Development Director
- Meeting with David Davies; September 23, 1980; discussion of socioeconomic information and studies.

MATANUSKA-SUSITNA BOROUGH OFFICE
Palmer, AK

Rodney Schulling, Planning Director
- Phone discussion with Andy Woolford; February 6, 1981; regarding Borough areawide and non-areawide services, with particular attention to Talkeetna and vicinity.

Alan Tesche, In-house Authority
- Meeting with David Davies; September 26, 1980; general discussion of Borough.

Lee Wyatt, Acting Borough Manager
- Meeting with David Davies; September 26, 1980; discuss Borough development objectives.

MATANUSKA-SUSITNA SCHOOL DISTRICT
Palmer

Mr. Hotchkiss, Business Manager
- Phone discussion with Andy Woolford; February 13, 1981; capacities and plans for expansion of public school facilities in the Mat-Su Borough.

FAIRBANKS BOROUGH
Fairbanks, AK

Philip Berrian, Planning Director
- Meeting with Irene Gendron; June 2, 1980; identify sources of socioeconomic data and information.

VALDEZ POLICE DEPARTMENT
Valdez, AK

Police Officer
- Phone discussion with Andy Woolford; February 5, 1981; regarding community and judicial facilities in the Valdez-Chitina-Whittier census divisions.

MAGISTRATE
Glennallen, AK

Sheldon Spector, Magistrate
- Phone discussion with Andy Woolford; February 5, 1981; regarding community and judicial facilities in the Valdez-Chitina-Whittier census divisions.

COPPER RIVER SCHOOL DISTRICT
Glennallen, AK

Dr. Krinke, Superintendent
- Phone discussion with Andy Woolford; February 5, 1981; regarding school facilities and enrollment for the Copper River region.

7.5 - Other Institutions, Organizations, and Individuals

AHTNA, INC.
Copper Center, Ak

Lee Adler, Director
- Phone discussion with Andy Woolford; February 5, 1981; regarding community facilities/infrastructure for the Ahtna region.

- Phone discussion with David Davies; February 20, 1981; to determine status of Ahtna, Inc. lands in Susitna area.

ALASKA HOSPITAL
Anchorage, AK

Head Nurse
- Phone discussion with Andy Woolford; February 4, 1981; regarding data on facilities and capacity.

ALASKA MINER'S ASSOCIATION

- Meeting with Andy Woolford; January 7, 1981; discussed location and number of mining claims in the Upper Susitna Basin; discussed implications of access routes to mining activity.

COOK INLET REGION, INC.
Anchorage, AK

Marge Sagerser, Land Manager
- Meeting with Irene Gendron; June 3, 1980; establish communications channels and identify sources of socioeconomic data and information.

COPPER RIVER HOUSING AUTHORITY
Copper Center, AK

Thea Smelcher, Housing Director
- Phone discussion with Andy Woolford; February 11, 1981; housing information in Copper River Region.

COPPER RIVER NATIVE ASSOCIATION
Copper Center, AK

- Phone discussion with Andy Woolford; February 4, 1981; regarding community facilities in the Ahtna region.

Ms. Billy Peters, Health Director
- Phone discussion with Andy Woolford; February 20, 1981; information on health services in Copper River Region.

COPPER VALLEY ELECTRIC ASSOCIATION
Valdez, AK

Dan Teggler
- Phone discussion with Andy Woolford; February 2, 1981; regarding Copper Valley Electric Association rates, capacities, power requirements. Will be sending pertinent information.

COPPER VALLEY VIEWS
Kenny Lake, AK

Reporter
- Phone discussion with Andy Woolford; February 2, 1981; regarding circulation and information on other media in the immediate vicinity.

DARBYSHIRE AND ASSOCIATES
Anchorage, AK

Ralph Darbyshire
- Phone discussion with Andy Woolford; January 7, 1981; regarding socioeconomic profiles.

DOYON CORPORATION
Fairbanks, AK

Doug Williams, Land Planner
- Meeting with Irene Gendron; June 3, 1980; establish communication channel and identify sources of socioeconomic data and information.

FAIRBANKS TOWN AND VILLAGE ASSOCIATION FOR DEVELOPMENT, INC.

Art Patterson
- Phone discussion with Andy Woolford; January 9, 1981; discussed community profiles and other studies they have prepared for Interior District.

GUIDE LICENSE REVIEW BOARD

- Phone discussion with David Davies; September 25, 1980; information on guide services in Susitna River Basin area.

HIGH LAKE LODGE

John Wilson, Resident Manager
- Meeting with Peter Rogers; July 7, 1980; obtain socioeconomic data from along the Upper Susitna River.

FAIRBANKS CHAMBER OF COMMERCE
Fairbanks, AK

Bob Dempsey, Business Analyst
- Meeting with Irene Gendron; June 2, 1980; identify sources of socioeconomic data and information.

FAIRBANKS BOROUGH COMMUNITY INFORMATION CENTER
Fairbanks, AK

Karen Fox, Research Analyst
- Meeting with Irene Gendron; June 2, 1980; identify sources of socioeconomic data and information.

MATANUSKA ELECTRIC ASSOCIATION, INC.
Palmer, AK

Ken Ritchey, Engineeering Services
- Phone discussion with Andy Woolford; November 5, 1980; requesting Power Requirements study. Will be sending pertinent information.

- Phone discussion with Andy Woolford; February 19, 1981; information on average electricity consumption from 1975 - 1980.

Bud Goodyear, Public Information Officer
- Meeting with David Davies; September 26, 1980; obtain information on electrical supply and demand and future projections.

- Meeting with Irene Gendron; June 6, 1980; obtain information regarding power requirements study.

MATANUSKA TELEPHONE ASSOCIATION
Palmer, AK

Don Taylor
- Phone discussion with Andy Woolford; February 10, 1981; information on telephone service in Mat-Su Borough.

Graham Rolstad, Chief Engineer
- Meeting with David Davies; September 26, 1980; obtain information on telephone service and projections.

N.W. ALASKAN PIPELINE COMPANY

Sue Fisson, Socioeconomic Coordinator
- Phone discussion with David Davies; January 8, 1981; discussed gas pipeline corridor community profiles; obtained copies.

- Meeting with Frank Orth; June 16, 1980; determine Northwest Alaskan Pipeline Company's recent and current activities in socioeconomics.

Virginia Manna
- Meeting with Irene Gendron; June 3, 1980; identify sources of socioeconomic data and information.

OVERALL ECONOMIC DEVELOPMENT PROGRAM, INC.
Wasilla, AK

Don Lyon, Director
- Meeting with Irene Gendron; June 5, 1980; identify sources of socioeconomic data and information.

- Meeting with David Davies; September 26, 1980; discuss socioeconomic data and information and obtain recent study.

- Meeting with Peter Rogers; November 19, 1980; discussed results of Economic Program for the Matanuska-Susitna Borough.

PALMER FIRE HALL
Palmer, AK

Dan Conteeni, Fire Chief
- Phone discussion with Andy Woolford; February 4, 1981; regarding data on EMT (ambulance) and fire facilities in the Borough.

PALMER VALLEY HOSPITAL
Palmer, AK

Ann Demmings, Nurse
- Phone discussion with Andy Woolford; February 4, 1981; regarding data on facilities and capacity.

VALDEZ COMMUNITY HOSPITAL
Valdez, AK

Nurse
- Phone discussion with Andy Woolford; February 4, 1981; regarding data on facilities and capacity.

VALDEZ VANGUARD
Valdez, AK

Reporter
- Phone discussion with Andy Woolford; February 2, 1981; regarding circulation, service area, and existence of other publications in the area.

APPENDIX A

A - PROCESS FOR DEFINING SOCIOECONOMIC VARIABLES AND STUDY AREAS

A.1 - Introduction

The results of Work Package 1 will provide the groundwork for defining the socioeconomic variables and delineating the study areas. This work package will include the compilation of impacts from alternative socioeconomic studies with particular emphasis on hydroelectric studies, and a review of socioeconomic data bases and relevant literature. In addition, preliminary work on Work Package 4 will yield relevant information concerning potential variables. Also, the first stages of actual data collection will provide information that will be used in defining variables and study areas.

The approach in defining the variables and the study areas is both theoretical and pragmatic. Based on pertinent literature and in-house expertise, the variables and areas are to be partially defined. In conjunction with this "a priori" approach, actual variables and areas utilized in other studies or for which data definitely exists are then to be examined and synthesized.

A.2 - Socioeconomic Variables

Essentially four major sources will be utilized to determine the socioeconomic categories and variables. These are: 1) other socioeconomic impact studies; 2) literature concerning socioeconomic impact assessment; 3) socioeconomic data especially in terms of Susitna project specific material; and 4) in-house expertise.

A preliminary list of socioeconomic variables will be gleaned from various environmental impact statements including Federal Energy Regulatory Commission Exhibit W's and other socioeconomic reports and studies. In addition, this process will yield the major categories for

the variables. These categories essentially will be subject titles or headings under which specific variables dealing with details will fall.

One example of a Susitna project-specific category and variable is recreation. Because of the unique and important role the natural resources of Alaska play in the socioeconomic structure, it will be necessary to treat it separately. This treatment is especially warranted in terms of the fish and wildlife resources. These considerations suggest that recreation be treated discretely and that it should be broken into two major areas; recreation utilizing fish or wildlife resources and recreation not dependent upon these resources.

As part of this work, an economic data collection matrix is to be developed and revised as necessary. The purpose of the matrix is to classify data by socioeconomic categories and geographical area. The latter function is employed to facilitate the allocation of data to the study areas as these become defined. Data is also classified in the matrix according to its currency and periodicity. This consideration insures that the most up-to-date information will be utilized in the development of socioeconomic profiles.

Next, from the preliminary list of categories and variables and data collection matrix, a "wish list" of variables for our study will be prepared. Due to the large volume of data it is necessary to begin with such a "wish list" and reduce it as more is learned from the data collection matrix concerning data availability. This ensures that few variables, if any, will be overlooked in the process. This list is subject to further refinement as more input is received. Moreover, since the scope of the Susitna socioeconomic study is limited to secondary data, data availability and quality will determine which variables will be quantitatively handled, which qualitatively regarded, and which will not be dealt with at all. Another factor which will influence the ultimate inclusion of variables is the degree of importance each will have relative to Susitna. This selection process will occur throughout the

course of the study. Also, during the course of the study, the list will be pared down in efforts to minimize variable redundancy. The criteria for this will be quality of the data base and relevance to the forecasting methodology.

The final list of socioeconomic variables, to be called "Comprehensive List of Socioeconomic Categories and Variables," will represent the culmination of the selection of variables. This list will be further defined relative to the study areas (discussed below). This process will be similar to the process of refinement in general, i.e., variables will be assigned to study areas based on importance, relevance, and availabiity of data.

A.3 - Definition of Study Areas

In the event that hydroelectric development occurs in the Upper Susitna Basin, the socioeconomic impacts will be felt or occur in varying degrees over a considerable distance. Ideally, the impacts could be traced by drawing a series of concentric circles emanating from the dam site(s) which would represent a lessening degree of impact as one progressed outward. (In general, the project impacts can be expected to be more intense the closer they are to the project site and staging areas). However, demographic, social, and economic activity patterns do not follow such a precise configuration. Human activity is most pronounced along transportation corridors and population centers. More importantly, each socioeconomic category as it relates to an activity may have a unique pattern. Nevertheless, for the sake of organization and to facilitate analysis, it is appropriate to delineate study areas.

The process of defining the study areas for each socioeconomic category involves analyzing sources and availability of data, socioeconomic studies and literature, other team member's study areas, plans of study and reports, and input from various state agencies. As before with the

socioeconomic variables, the nature of the study requires a system which is flexible and can accommodate a certain degree of change. For this reason, there is a propensity to have very small as well as very large study areas. This is warranted for two reasons. One is that substantial impacts relative to the existing socioeconomic conditions will occur at the local or "micro" level. In general, it is at this level that secondary information is hardest to find and thus it deserves to be focused upon. The other reason for such delineation is that it makes it possible to aggregate data across study areas. This will facilitate analysis at the "macro" level and comparison between "micro" and "macro" levels.

In recognition of the above considerations, the following criteria are to be applied in defining study areas:

(1) the smallest study area shall conform as closely as possible to those of closely-related disciplines (e.g., recreation; land use; cultural resources, etc.);

(2) the next smallest study area shall be at the community level (i.e., the smallest statistical area for which relevant time-series economic and social data are available; and the area must be large enough to contain a population sufficient in size to allow for the organization of social life for the pursuit of one or several common interests and the necessary support systems;

(3) the next larger study area shall be composed of two or more communities (as defined above) that are most likely to be impacted directly by hydroelectric development in the Upper Susitna Basin. What is commonly referred to as the communities that comprise the "railbelt region" may be a good first approximation; and

(4) the largest study area shall be the State of Alaska.

In defining the study areas, the following factors are to be taken into consideration:

(1) proximity to project site, access routes, and staging areas;

(2) population distribution and density patterns; and

(3) political units and boundaries, especially in terms of census divisions and municipality boundaries.

APPENDIX B

APPENDIX B

The results of Work Package 1, Work Item D, are summarized in the following table. These impacts or areas of concern have been extracted from profiles of various environmental impact studies of other energy development projects. The assessment of the profiles yielded this list of impacts or areas of concern which could be relevant to the proposed Susitna Project. The list is by no means exhaustive but is intended to serve as a guide for further research and analysis. Specific items were evaluated as regards their potential relevance to the Susitna Project in terms of degree and geographical area of impact.

APPENDIX B

IMPACTS OF REPRESENTATIVE POWER DEVELOPMENT PROJECTS:
POTENTIAL RELEVANCE FOR THE PROPOSED SUSITNA PROJECT

POTENTIAL DEGREE AND GEOGRAPHIC AREA OF IMPACT	TYPE OF IMPACT
	Land Use and Features
	Total acreage required by project facilities and right-of-ways.
	Total acreage of land indirectly impacted by project facilities and right-of-way.
	Short-term impacts may be less substantial than the long-term impacts.
+ L,R	Patterns of ownership and induced changes.
+ L	Changes in uses of land.
+ L	Value of land and natural resources above and below ground lost/gained.
? L, R	Changes in potential uses of land (wilderness or roadless areas, National Scenic River, etc.)
? L, R	Potential for seismic activity.
o L	Overall "productivity" of land could increase.
+ L	Increased accessibility will affect land and resource values.
? L	Opportunities for flood protection.

Degree of impact: + is relatively large;
o is relatively small.
? is uncertain.

Geographic area of impact: L is the Upper Susitna area (Study Area 1 and 2)
R is the railbelt and the state (Study Area 3 and 4)

POTENTIAL DEGREE AND GEOGRAPHIC AREA OF IMPACT	TYPE OF IMPACT
	Socioeconomic Categories
	1. Population
	Temporary versus permanent impacts.
+ L	Number of workers, families, and other inhabitants expected to relocate.
+ R	Population may grow with or without project, and coupled with other projects (e.g. the gas pipeline.)
+ L	Project may induce secondary population growth.
	2. Housing
	Impacts to region may depend on percentage of workers recruited from outside region.
+ L	Availability or tightness of housing market determines scale of impact.
	Demand for housing many be determined independently of project and in part by other major construction projects.
? L	Most workers will be housed in temporary construction camps; commuting is unlikely.
+ L, o R	Rents and market values in the closer residential areas may rise.
	3. Tax Base and Revenues
	Taxes on construction property may accrue to certain government entities.
+ L, R	Depending on workers' spending habits, various communities may experience an increase in revenues from sales tax.
+ L	Appreciated land values may lead to an increase in tax base.
+ L	Participants and/or governments may agree to offset certain costs incurred by various governments.
o R	Revenues will accrue to the Federal government via income taxes on construction and operating personnel income.

POTENTIAL DEGREE AND GEOGRAPHIC AREA OF IMPACT	TYPE OF IMPACT
+ L	Revenues may increase over time due to appreciation of land values relating to increased opportunities for development (secondary impact).
+ L	Changes in land use will alter value of tax base.
	4. Employment
	Number of employees required during operation and maintenance.
	Income figures for workers (total annual, average per worker, timing, etc.)
+ L, R	Secondary employment may occur in economic infrastructure due to multiplier effects.
+ L	Number of construction workers and timing of work force loading.
+ L, R	Percentage of work force hired locally and regionally.
+ L	Seasonal variations in employment.
o L	Number of workers employed by transmission line construction.
+ L, o R	Effect on other industries and sectors of economy created by project's demand for labor.
+ R	Impacts of laws related to number of state residents required to be employed.
	Breakdown of work force by trade and function.
	5. Economy
+ L	Increased accessibility to area could encourage development associated with recreational opportunities.
+ L, o R	Multiplier effect on local and regional economy.
? L, R	Incentives for industrial development created by stable energy availability.
+ L, o R	Impacts on communities from increased economic activity associated with project.

POTENTIAL DEGREE AND GEOGRAPHIC AREA OF IMPACT	TYPE OF IMPACT
- ? L, R	Percentage of work force income spent locally or in region.
+ L	Impact on personal income of area residents.
+ L	Various sectors of the economy would benefit.
	6. Public Services
+ L	Demand for educational services.
+ L	Demand for police and fire protection services.
+ L, R	Effects on existing services and transportation facilities.
+ L	Demand for sewer and water facilities.
+ L	How costs for public services will be incurred and funded.
+ L	Demand for judicial and health services.
+ L, R	Need for planning at various levels.
	Energy
	Hydropower is a relatively pollution-free, renewable resource. Its use prevents impacts of alternatives.
+ L, R	Project could reduce and/or replace dependence on fossil-fuel based power.
+ R	Project may add over 1000 MW of generating capacity to region.
+ R	Large shortages of electrical energy could have a serious economic and social impact.
+ L, R	Could provide a stable, long-term, lower-price supply of electricity.
	Community Attitudes
+ L, o R	Tensions could exist between residents and immigrants project may attract.
+ L	Lack of recreation, social isolation, and close quarters may place stress on workers.

POTENTIAL DEGREE AND GEOGRAPHIC AREA OF IMPACT	TYPE OF IMPACT
? L, R	Percentage of work force income spent locally or in region.
+ L	Impact on personal income of area residents.
+ L	Various sectors of the economy would benefit.
	6. Public Services
+ L	Demand for educational services.
+ L	Demand for police and fire protection services.
+ L, R	Effects on existing services and transportation facilities.
+ L	Demand for sewer and water facilities.
+ L	How costs for public services will be incurred and funded.
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	Energy
	Hydropower is a relatively pollution-free, renewable resource. Its use prevents impacts of alternatives.
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+ L, R	Could provide a stable, long-term, lower-price supply of electricity.
	Community Attitudes
+ L, o R	Tensions could exist between residents and immigrants project may attract.
+ L	Lack of recreation, social isolation, and close quarters may place stress on workers.

APPENDIX C

APPENDIX C

COMPREHENSIVE LIST OF
SOCIOECONOMIC CATEGORIES AND VARIABLES[1]

I. POPULATION

A. Population levels

1. Historical
2. Present
3. Projected
4. Component of Change (births, deaths, in-out migration)

B. Ethnicity, Culture, Religion

C. Population Distribution (city, borough, state) by:

1. Age
2. Sex
3. Race
4. Occupation (general)
5. Education
   a. Retired, wage, salary
   b. Sector, activity
   c. Employment

D. Population Density

E. Family/Household Characteristics
1. Extent
2. Marital Status
3. Migration patterns
   a. mobility/stability
   b. point of origin
   c. out/in migration
4. Length of Residence
   a. in house
   b. in community
   c. in state
5. Place of work (commuting distance)

F. Attitudes Toward Change/Economic Development

G. Projections

[1] Each of these categories and variables will be addressed to the extent that data and information allow and to the extent that they are relevant for the purposes of this analysis.

II. COMMUNITY

A. General Description/Facilities

B. Organizations (clubs, churches, veteran groups)

C. Political Involvement

D. Information/Media

E. Social Interaction

F. Entertainment

G. Projections

III. HOUSING

A. Historical Info (growth rate)

B. Type
   1. Single family
   2. Multi-family
   3. Mobile home
   4. Recreation Facilities
   5. Transient Facilities

   * Variables to be considered for above

      a. number of units
      b. quality
      c. cost/prices
      d. vacancy rate

C. Vacancy Rate

D. Status
   1. Renting
   2. Buying
   3. Own
   4. Other

E. Land availability

F. Zoning/Building Regulations (& patterns)

G. Financial Climate (incentives/disincentives)

H. Real Estate Activity
   1. Sales
   2. Construction
   3. Plans

   Projections

IV. PUBLIC SERVICES & GOVERNMENT REVENUE

A. Government Structure/Organization
   1. Towns
   2. Cities
   3. Boroughs

B. Government Services
   1. Water Supply and Treatment
   2. Waste Water Treatment
   3. Solid Waste Disposal
   4. Police Protection
   5. Legal System (courts, retention facilities)
   6. Fire Protection
   7. Health Care (including Social Services)
   8. Parks and Recreation
   9. Libraries
   10. Education (day care, vocational, others)
   11. Public Transportation
   12. Roads and Highway System
   13. Telephone Service/Communication
   14. Electric Power Service

   * Variables to be considered for above

      a. Service area
      b. Usage figures
      c. Deployment patterns (distances/response times)
      d. Capacity figures
      e. Condition/quality
      f. Relevant standards
      g. Occurrence rates
      h. Plans for expansion
      i. Government expenditures

C. Tax Base and Revenues

   1. Taxes
      a. personal
         i. rates
         ii. base

      b. industry
         i. rates
         ii. base

      c. Sales
         i. rates
         ii. base

      d. other

IV. C. (cont.)

2. Other revenue sources
3. Government debt (borrowing capacity)

D. Projections

V. ECONOMIC BASE

A. General Description (History and Area Trends)

B. Total Work Force

C. Employment Multiplier

D. Output Multiplier

E. Major Basic Industry Description
1. Construction
2. Mining
3. Agriculture
4. Timber and related products
5. Manufacturing
6. Fishery
7. Oil and gas
8. Transportation
   i. Rail
   ii. Air
   iii. Motor transport
   iv. Marine
9. Public Utilities
10. Communications
11. Wholesale trade
12. Retail trade
13. Finance, insurance, real estate
14. Services
15. Public Administration (Federal, State, Local)
16. Tourism

* Variables to be considered for above

a. history
b. statistics (present sales, prod., etc.)
c. employment
   1. labor force
   2. percent of total work force
   3. payroll
   4. average wage rate
d. resource base (land use)
e. service area
f. usage figures
g. capacity
h. condition/quality
i. product value
j. marketing patterns
k. relative to state and U.S.
l. future outlook

V. (cont.)

F. Conclusions

G. Projections

VI. HUMAN RESOURCES (Labor & Income)

A. Historical Labor Changes

B. Employment
   1. Present Profile (employment by sector)
      a. absolute
      b. percentage

   2. Multipliers
      a. basic industry to non-basic industry
      b. export trade sector
      c. services

   3. Length of work week

   4. Seasonality

C. Occupational Staffing Patterns by

   1. Sector/Industry
   2. Ethnicity
   3. Sex
   4. Unemployment
   5. Percentage of work force
   6. Wages (selected occupations)

D. Working Conditions and Absenteeism

E. Union Presence

F. Unemployment for Area
   1. Age
   2. Sex
   3. Race

G. Income
   1. History
   2. Per Capita Income
      a. General
      b. Sex
      c. Ethnicity
   3. Source
      a. Wages/salaries
      b. Social Security
   4. Subsistence income (moderate standard of living)
   5. Consumer Price Index (CPI)

H. Projections

VII. LAND USE

A. Historical/General

B. Land Tenure (ownership)

C. Existing
1. Forestry
2. Agriculture
3. Mining
4. Timber
5. Native Lands
6. Federal
7. State
8. Parks
9. Oil and Gas
10. Unexploited Natural Resources
11. Industry/Commercial
12. Urban
13. Rural
14. Residential
15. Military
16. Transportation

* Variables to be considered for above

a. acres
b. value
c. ownership
d. management plans
e. historical trends
f. percentage of total

D. Population Density

E. Land Use Plans and Control
1. Public
2. Private
3. Municipalities
4. Borough
5. Flood plains

F. Projections

VIII. RECREATION

A. Utilizing Fish & Wildlife Resources
   1. Sport Fishery

      a. All species
   2. Wildlife
      a. Caribou
      b. Moose
      c. Black Bear
      d. Brown Bear
      e. Mountain Goats
      f. Sheep
      g. Wolverine
      i. Waterfowl, Birds
      j. Other Furbearers

   * Variables to be considered for above
      1. Historical
      2. Present
         a. area (acres and location)
         b. effort (visitor days/# of visitors)
         c. Success (harvest)
         d. Resident (pt. of origin/% of total)
         e. Non-Resident (gen. geo. pt. of origin/ % of total)
         f. Species (stats relative to State)
         g. Subsistence (personal consumption/ business)
         h. Trophy
         i. Management Plans
            i. Regulations
            ii. Revenues (total/relative to state/flow of money)
            iii. Enforcement (ways/numbers/capacity)

B. Not Related to Fish & Wildlife Reserves

   1. Water Sports (canoe, kayak, rafting)

      a. Historical
      b. Area
         1. effort
         2. resident/non-resident pt. of origin
   2. Land Sports (hiking, picnicing, climbing)
      a. Historical
      b. Area
         1. effort
         2. resident/non-resident pt. of origin

C. Other

VIII. (cont.)

D. Related Business
   1. Guides (#/$)
   2. Air Taxi Operators (#/$)
   3. Lodge Owners (#/$)
   4. Land Owners (#)

E. Projections

APPENDIX D

D - PROBABILITY AND DEGREE OF IMPACT FOR POTENTIALLY IMPACTED VARIABLES BY STUDY AREA

The purpose of Work Package 2 is to collect and compile data on the socioeconomic conditions for the development of a socioeconomic profile that can then be utilized in the preliminary impact studies (Work Package 3), and the forecasting of socioeconomic conditions (Work Package 4). For the purposes of this project, socioeconomic conditions have been broken down into socioeconomic variables. To this point, the selection criteria for the variables have been described in general or generic terms, and their relevance to the study areas have been explicated. Table D is both a refinement of this process in that it lists the various components of the selection criteria, paying particular attention to the needs of the Susitna Project, and is an initial assessment of the probability and degree of impact for those variables likely to be impacted. The format of the table is such that it is divided into four major groupings: categories and variables; selection criteria; study areas; and disqualifying factors. The function of the table is to illustrate the following:

(1) selection criteria relevant to individual variables;
(2) socioeconomic conditions, described by variables, that are considered to be susceptible to change as a result of construction and/or operation of a Susitna Project;
(3) the probability of a variable being impacted (either high or low) and the degree of impact, if an impact were to occur as a result of construction and/or operation, for each of the four study areas; and
(4) variables that will not be examined, regardless of merited worth, due to either contractual constraints or unavailability of data.

A more detailed explanation and discussion of the major groupings follows.

D.1 - Selection Criteria

As discussed in previous sections, the categories and variables listed in Table D were initially selected from: (1) other socioeconomic impact studies; (2) literature concerning socioeconomic impact assessment; (3) socioeconomic data pertinent to the Susitna Project; and (4) in-house expertise. The various components of the selection criteria listed in the table delineate the specific reason(s) whay a variable will be addressed. For example, present population figures (Table D, Item IA_2) are of importance because: (1) such information is required for the implementation of the forecasting methodology (the criteria for the selection of a methodology are discussed in Subsection 2.5); (2) it is necessary for the development of a comprehensive socioeconomic profile; and (3) it is a variable that could potentially be impacted due to the construction and/or operation of the Susitna dam. These are all indicated by an "X" in their respective columns. A variable that has been identified as being potentially impacted has been deemed so based on: (1) an extensive literature reveiw of other hydroelectric projects in Alaska and the Lower-48 (Work Package 1, Work Items a, b, and d); (2) interviews and discussions with knowledgeable officials and personnel; and (3) in-house expertise.

The remaining two columns, "Project Specific" and "Expressed Public Concern" are not pertinent to the variable, "present population levels," but are so for other variables. For definition purposes, "Project Specific" is a term used to identify those variables that warrant consideration because of their unique and important role in Alaska, and to the Susitna Project in particular. This selection criteria is especially pertinent to variables related to fish, wildlife, natural resources, and land ownership. Such variables are ordinarily not the primary responsibility of a socioeconomic assessment, but due to the potential social and economic implications, they are included. An example of such a variable is a phenomenon unique to Alaska, and therefore is an issue that merits consideration.

Variables that reflect public concerns expressed through either APA public participation meetings or newspapers have been indicated as such in the last column "Expressed Public Concern".

Every effort has been made to ensure that all variables pertinent to the Susitna project will be addressed, without being over inclusive.

D.2 - Study Areas

Based on the same criteria used to determine if a variable will be potentially impacted, FO&A, Inc. has completed a preliminary assessment of impact probability and degree for each of the variables likely to be impacted in relation to the four study areas. If and when an impact occurs, it will have differing effects in each of the study areas. For this reason, the probability and degree vary from one study area to the next. Table D illustrates our knowledge to date of both probability and degree. "H" and "L" refer to probability of impact, with "H" meaning that a particular variable has a high probability of being impacted as a result of the Susitna Project, and "L" meaning a low probability. It should be understood that probability of impact is in no way an attempt at making value judgments, impacts could have either a positive or negative implications depending on one's outlook.

Degree of impact refers to the magnitude, with a "+" signifying relatively large, and a "0" relatively small. Again, the positiveness or negativeness associated with a large or small magnitude is left to the discretion of the individual.

D.3 - Disqualifying Factors

Disqualifying factors are those factors that would eliminate a variable from inclusion in the socioeconomic profile either because it is not

within the scope of our work (designated by a "x"), or because data appears to be unavailable for particular study areas (designated numerically according to study area).

TABLE D

PROBABILITY AND DEGREE OF IMPACT FOR POTENTIALLY IMPACTED VARIABLES, BY STUDY AREA

CATEGORIES VARIABLES	SELECTION CRITERIA						STUDY AREAS				DISQUALIFYING FACTORS		
							Local		Regional				
	Potentially Impacted	Projections Methodology[1]	Descriptive Variable	Project Specific	Expressed Public Concern[2]		Study Area #1	Study Area #2	Study Area #3	Study Area #4	Scope of Work	Availability of Data[3]	
I. POPULATION													
A. Population levels													
1. Historical		X	X										
2. Present	X	X	X				HO	H+	HO	HO			
3. Projected		X											
4. Component of Change (births, deaths, in-out migration)	X	X	X				HO	H+	HO	HO			
B. Ethnicity, Culture, Religion	X		X				HO	HO	LO	LO		1,2	
C. Population Distribution (city, borough, state) by:													
1. Age	X		X				HO	H+	HO	HO			
2. Sex	X		X				HO	H+	HO	HO			
3. Race	X		X				HO	H+	HO	HO			
4. Occupation (general)	X		X				HO	H+	HO	HO			
5. Education	X		X				HO	H+	HO	HO			
D. Population Density													
E. Family/Household Characteristics													
1. Extent	X		X				H	H	LO	LO		1,4	

	SELECTION CRITERIA						STUDY AREAS				DISQUALIFYING FACTORS		
							Local		Regional				
	Potentially Impacted	Projections Methodology[1]	Descriptive Variable	Project Specific	Expressed Public Concern[2]		Study Area #1	Study Area #2	Study Area #3	Study Area #4	Scope of Work	Availability of Data[3]	
2. Marital Status	X		X				H	H	LO	LO			
3. Migration patterns													
a. mobility/stability	X	X	X		X		HO	H+	HO	LO			
b. point of origin			X										
4. Length of Residence													
a. in house		X	X										
b. in community		X	X										
c. in state		X	X										
5. Place of work (commuting distance)	X	X	X	X			HO	H+	HO	LO			
F. Attitudes Toward Change/Economic Development			X		X								
II. COMMUNITY													
A. Community Facilities	X	X	X				HO	H+	LO	LO			
B. Organizations (clubs, churches, veteran groups)	X		X				HO	L+	LO	LO	X		
C. Political Involvement			X								X		
D. Information/Media			X								X		

	SELECTION CRITERIA						STUDY AREAS				DISQUALIFYING FACTORS		
							Local		Regional				
	Potentially Impacted	Projections Methodology[1]	Descriptive Variable	Project Specific	Expressed Public Concern[2]		Study Area #1	Study Area #2	Study Area #3	Study Area #4	Scope of Work	Availability of Data[3]	
E. Social Interaction	X		X				HO	H+	LO	LO			
F. Entertainment	X		X				HO	H+	LO	LO			
III. HOUSING													
A. Historical Info (growth rate)			X										
B. Type													
1. Single family	X		X				LO	H+	HO	LO			
2. Multi-family	X		X				LO	H+	HO	LO			
3. Mobile home	X		X				LO	H+	HO	LO			
4. Recreation Facilities	X		X				H+	H+	HO	LO			
5. Transient Facilities	X		X				LO	H+	HO	LO			
* Variables to be considered for above													
a. number of units													
b. quality													
c. cost/prices													
d. vacancy rate													
C. Status													
1. Renting	X		X				LO	H+	HO	LO			
2. Buying	X		X				LO	H+	HO	LO			

	SELECTION CRITERIA						STUDY AREAS				DISQUALIFYING FACTORS		
							Local		Regional				
	Potentially Impacted	Projections Methodology[1]	Descriptive Variable	Project Specific	Expressed Public Concern[2]		Study Area #1	Study Area #2	Study Area #3	Study Area #4	Scope of Work	Availability of Data[3]	
3. Own			X										
D. Land availability	X		X	X			H+	HO	LO	LO			
E. Zoning/Building Regulations (& patterns)			X						LO	LO			
F. Financial Climate (incentives/ disincentives)	X		X				L+	H+	LO	LO			
G. Real Estate Activity													
1. Sales	X		X				LO	H+	LO	LO			
2. Construction	X		X				LO	H+	LO	LO			
3. Plans	X		X				H+	H+	LO	LO			
IV. PUBLIC SERVICES & GOVERNMENT REVENUE													
A. Government Structure/Organization													
1. Towns			X										
2. Cities			X										
3. Boroughs			X										
B. Government Services													
1. Water Supply and Treatment	X	X	X				L+	H+	LO	LO			
2. Waste Water Treatment	X	X	X				L+	H+	LO	LO			
3. Solid Waste Disposal	X	X	X				L+	H+	LO	LO			

	SELECTION CRITERIA						STUDY AREAS				DISQUALIFYING FACTORS		
							Local		Regional				
	Potentially Impacted	Projections Methodology[1]	Descriptive Variable	Project Specific	Expressed Public Concern[2]		Study Area #1	Study Area #2	Study Area #3	Study Area #4	Scope of Work	Availability of Data[3]	
4. Police Protection	X	X	X				L+	H+	HO	LO			
5. Legal System (courts, retention facilities	X	X	X				LO	LO	H+	LO			
6. Fire Protection	X	X	X				H+	H+	LO	LO			
7. Health Care (including Social Services	X	X	X				LO	H+	LO	LO			
8. Parks and Recreation	X	X	X				H+	H+	HO	LO			
9. Libraries	X	X	X				LO	HO	LO	LO			
10. Education (day care, vocational, others)	X	X	X				LO	H+	HO	LO			
11. Public Transportation	X	X	X				LO	HO	LO	LO			
12. Roads and Highway System	X	X	X				H+	H+	HO	LO			
13. Telephone Service/Communication	X	X	X				LO	H+	LO	LO			
14. Electric Power Service	X	X	X				H+	H+	H+	H+			
* Variables to be considered for above a. Service area b. Usage figures													

	SELECTION CRITERIA						STUDY AREAS				DISQUALIFYING FACTORS		
							Local		Regional				
	Potentially Impacted	Projections Methodology[1]	Descriptive Variable	Project Specific	Expressed Public Concern[2]		Study Area #1	Study Area #2	Study Area #3	Study Area #4	Scope of Work	Availability of Data[3]	
c. Deployment patterns (distances/response times)													
d. Capacity figures													
e. Condition/quality													
f. Relevant standards													
g. Occurrence rates													
h. Plans for expansion													
i. Government expenditures													
C. Tax Base and Revenues													
1. Taxes													
a. personal	X	X	X				LO	H+	LO	LO			
b. industry	X	X	X				LO	H+	LO	LO			
c. sales	X	X	X				LO	H+	LO	LO			
d. property	X	X	X				LO	H+	LO	LO			
e. other	X	X	X				LO	H+	LO	LO			
2. Other revenue sources	X	X	X				LO	H+	LO	LO			
3. Government Debt (borrowing capacity)			X										

	SELECTION CRITERIA						STUDY AREAS				DISQUALIFYING FACTORS		
							Local		Regional				
	Potentially Impacted	Projections Methodology[1]	Descriptive Variable	Project Specific	Expressed Public Concern[2]		Study Area #1	Study Area #2	Study Area #3	Study Area #4	Scope of Work	Availability of Data[3]	
V. ECONOMIC BASE													
A. General Description (History and Area Trends)			X										
B. Total Work Force	X	X	X		X		LO	H+	HO	LO			
C. Employment Multiplier	X	X	X					H+	HO	LO			
D. Output Multiplier	X	X	X					H+	HO	LO			
E. Major Basic Industry Description													
1. Construction	X	X	X		X		LO	H+	H+	LO			
2. Mining	X	X	X		X		LO	H+	HO	LO			
3. Agriculture	X	X	X		X		LO	H+	HO	LO			
4. Timber and related products	X	X	X		X		LO	H+	HO	LO			
5. Manufacturing	X	X	X		X		LO	H+	HO	LO			
6. Fishery	X	X	X	X	X		LO	LO	LO	LO			
7. Oil and gas	X	X	X		X		LO	LO	HO	LO			
8. Transportation													
i. Rail	X	X	X		X		H+	H+	HO	LO			
ii. Air	X	X	X		X		H+	H+	HO	LO			
iii. Motor transport	X	X	X		X		H+	H+	HO	LO			
iv. Marine	X	X	X		X		LO	H+	HO	LO			

	SELECTION CRITERIA						STUDY AREAS				DISQUALIFYING FACTORS		
							Local		Regional				
	Potentially Impacted	Projections Methodology[1]	Descriptive Variable	Project Specific	Expressed Public Concern[2]		Study Area #1	Study Area #2	Study Area #3	Study Area #4	Scope of Work	Availability of Data[3]	
9. Public Utilities	X	X	X		X		LO	H+	HO	LO			
10. Communications	X	X	X		X		H+	H+	HO	LO			
11. Wholesale trade	X	X	X		X		LO	H+	HO	LO			
12. Retail trade	X	X	X		X		LO	H+	HO	LO			
13. Finance, insurance, real estate	X	X	X		X		HO	H+	HO	LO			
14. Services	X	X	X		X		LO	H+	HO	LO			
15. Public Administration (Federal, State, Local)	X	X	X		X		LO	LO	LO	LO			
16. Tourism	X	X	X		X		H+	H+	HO	HO			
* Variables to be considered for above a. history b. statistics (present sales, prod., etc.) c. employment 1. labor force 2. percent of total work force 3. payroll													

	SELECTION CRITERIA						STUDY AREAS				DISQUALIFYING FACTORS		
							Local		Regional				
	Potentially Impacted	Projections Methodology[1]	Descriptive Variable	Project Specific	Expressed Public Concern[2]		Study Area #1	Study Area #2	Study Area #3	Study Area #4	Scope of Work	Availability of Data[3]	
4. average wage rate													
d. resource base (land use)													
e. service area													
f. usage figures													
g. capacity													
h. condition/quality													
i. product value													
j. marketing patterns													
k. relative to state and U.S.													
l. future outlook													
VI. HUMAN RESOURCES (Labor & Income)													
A. Historical Labor Changes		X	X										
B. Employment													
1. Present Profile (employment by sector)	X	X	X		X		LO	H+	HO	LO			
a. absolute													
b. percentage													
2. Multipliers													
a. basic industry	X	X	X	X			LO	H+	HO	LO			

	SELECTION CRITERIA						STUDY AREAS				DISQUALIFYING FACTORS		
							Local		Regional				
	Potentially Impacted	Projections Methodology[1]	Descriptive Variable	Project Specific	Expressed Public Concern[2]		Study Area #1	Study Area #2	Study Area #3	Study Area #4	Scope of Work	Availability of Data[3]	
b. export trade sector	X	X	X	X			LO	H+	HO	LO			
c. services	X	X	X	X			LO	H+	HO	LO			
3. Length of work week		X	X	X									
4. Seasonality		X	X	X									
C. Occupational Staffing Patterns by													
1. Sector/Industry	X	X	X		X		LO	H+	LO	LO			
2. Ethnicity	X	X	X		X		LO	H+	LO	LO			
3. Sex	X	X	X		X		LO	H+	LO	LO			
4. Unemployment	X	X	X		X		LO	H+	LO	LO			
5. Percentage of work force		X	X										
6. Wages (selected occupations)	X	X	X		X		LO	H+	LO	LO			
D. Working Conditions and Absenteeism			X										
E. Union Presence	X	X	X				LO	H+	LO	LO			
F. Unemployment for Area													
1. Age	X		X		X		LO	H+	HO	LO			
2. Sex	X		X		X		LO	H+	HO	LO			
3. Race	X		X		X		LO	H+	HO	LO			
G. Income													
1. History		X	X										

	SELECTION CRITERIA						STUDY AREAS				DISQUALIFYING FACTORS		
							Local		Regional				
	Potentially Impacted	Projections Methodology[1]	Descriptive Variable	Project Specific	Expressed Public Concern[2]		Study Area #1	Study Area #2	Study Area #3	Study Area #4	Scope of Work	Availability of Data[3]	
2. Per Capita Income													
a. General	X	X					LO	H+	LO	LO			
b. Sex	X	X					LO	H+	LO	LO			
c. Ethnicity	X	X					LO	H+	LO	LO			
3. Source													
a. Wages/salaries		X											
b. Social Security		X											
4. Subsistence income (moderate standard of living)	X		X	X			LO	H+	HO	LO			
5. Consumer Price Index (CPI)			X					H+	LO	LO			
VII. LAND USE													
A. Historical/General		X	X										
B. Land Tenure (ownership)	X		X	X	X		H+	H+	LO	LO			
C. Existing													
1. Forestry	X		X				L+	L+	LO	LO			
2. Agriculture	X		X				LO	H+	LO	LO			
3. Mining	X		X				H+	HO	LO	LO			
4. Timber	X		X				L+	L+	LO	LO			

	SELECTION CRITERIA						STUDY AREAS				DISQUALIFYING FACTORS		
							Local		Regional				
	Potentially Impacted	Projections Methodology[1]	Descriptive Variable	Project Specific	Expressed Public Concern[2]		Study Area #1	Study Area #2	Study Area #3	Study Area #4	Scope of Work	Availability of Data[3]	
5. Native Lands	X	X	X				H+	H+	LO	LO			
6. Federal	X	X	X				H+	H+	LO	LO			
7. State	X	X	X				H+	H+	LO	LO			
8. Parks		X	X										
9. Oil and Gas	X	X					LO	LO	LO	LO			
10. Unexploited Natural Resources	X	X					H+	H+	HO	LO			
11. Industry/Commercial	X	X					LO	H+	HO	LO			
12. Urban	X	X					LO	LO	LO	LO			
13. Rural	X	X					LO	HO	LO	LO			
14. Residential	X	X					LO	LO	LO	LO			
15. Military	X	X					LO	LO	LO	LO			
16. Transportation	X	X	X				L+	H+	LO	LO			
* Variables to be considered for above a. acres b. value c. ownership d. management plans e. historical trends f. percentage of total													

	SELECTION CRITERIA						STUDY AREAS				DISQUALIFYING FACTORS		
							Local		Regional				
	Potentially Impacted	Projections Methodology[1]	Descriptive Variable	Project Specific	Expressed Public Concern[2]		Study Area #1	Study Area #2	Study Area #3	Study Area #4	Scope of Work	Availability of Data[3]	
D. Population Density	X		X				L+	HO	LO	LO			
E. Land Use Plans and Control													
1. Public	X						H+	H+	LO	LO			
2. Private	X						H+	H+	LO	LO			
3. Municipalities	X						LO	HO	LO	LO			
4. Borough	X						LO	H+	LO	LO			
5. Flood plains	X						LO	H+	LO	LO			
VIII. RECREATION													
A. Utilizing Fish & Wildlife Resources													
1. Sport Fishery													
a. All species	X			X	X		H+	H+	LO	LO			
2. Wildlife													
a. Caribou	X			X	X		H+	H+	LO	LO			
b. Moose	X			X	X		H+	H+	LO	LO			
c. Black Bear	X			X	X		H+	H+	LO	LO			
d. Brown Bear	X			X	X		H+	H+	LO	LO			
e. Mountain Goats													
f. Sheep	X			X	X		H+	H+	LO	LO			

	SELECTION CRITERIA						STUDY AREAS				DISQUALIFYING FACTORS		
							Local		Regional				
	Potentially Impacted	Projections Methodology[1]	Descriptive Variable	Project Specific	Expressed Public Concern[2]		Study Area #1	Study Area #2	Study Area #3	Study Area #4	Scope of Work	Availability of Data[3]	
g. Wolverine	X			X	X		H+	H+	LO	LO			
i. Waterfowl, Birds	X			X	X		HO	HO	LO	LO			
j. Other Furbearers	X			X	X		H+	H+	LO	LO			
* Variables to be considered for above 1. Historical 2. Present a. area (acres and location) b. effort (visitor days/# of visitors) c. Success (harvest) d. Resident (point of origin/% of total) e. Non-Resident (gen. geo. pt. of origin/ % of total) f. Species (stats relative to State)													

	SELECTION CRITERIA						STUDY AREAS				DISQUALIFYING FACTORS		
							Local		Regional				
	Potentially Impacted	Projections Methodology[1]	Descriptive Variable	Project Specific	Expressed Public Concern[2]		Study Area #1	Study Area #2	Study Area #3	Study Area #4	Scope of Work	Availability of Data[3]	
g. Subsistence (personal consumption/business)													
h. Trophy													
i. Management Plans													
i. Regulations													
ii. Revenues (total relative to state)													
iii. Enforcement (effort/costs)													
B. Not Related to Fish & Wildlife Reserves													
1. Water Sports (canoe, kayak, rafting)	X		X	X	X		H+	HO	LO	LO			
a. Historical													
b. Area													
1. effort													
2. resident/non-resident pt. of origin													

	SELECTION CRITERIA						STUDY AREAS				DISQUALIFYING FACTORS		
							Local		Regional				
	Potentially Impacted	Projections Methodology[1]	Descriptive Variable	Project Specific	Expressed Public Concern[2]		Study Area #1	Study Area #2	Study Area #3	Study Area #4	Scope of Work	Availability of Data[3]	
2. Land Sports (hiking, picnicing, climbing)	X		X	X	X		H+	HO	LO	LO			
a. Historical													
b. Area													
1. effort													
2. resident/non-resident pt. of origin													
C. Other													
D. Related Business													
1. Guides (#/$)	X		X	X			H+	H+	LO	LO			
2. Air Taxi Operators (#/$)	X		X	X			H+	H+	LO	LO			
3. Lodge Owners (#/$)	X		X	X			H+	H+	LO	LO			
4. Land Owners (#)	X		X	X			H+	H+	LO	LO			

Probability of Impact
H = High L = Low

Degree of Impact
+ = relatively large
0 = relatively small

[1] Necessary for projections methodology

[2] As expressed through APA Public Participation Program

[3] Numbers correspond to study areas where data may be dificult to obtain at disaggregated level

APPENDIX E

APPENDIX E

This appendix presents a chapter of a report prepared by the Overall Economic Development Programs, Inc. This is a nonprofit corporation "whose purpose is to develop and strengthen the Matanuska-Susitna Borough economy." The report from which this chapter is extracted was prepard as an account of work sponsored by the Farmers Home Administration and the Matanuska-Susitna Borough. Published in July, 1980, the report consists of three volumes: Annual Report (Volume I), Economic Conditions, Development Options, and Projections (Volume II), and Appendices (Volume III).

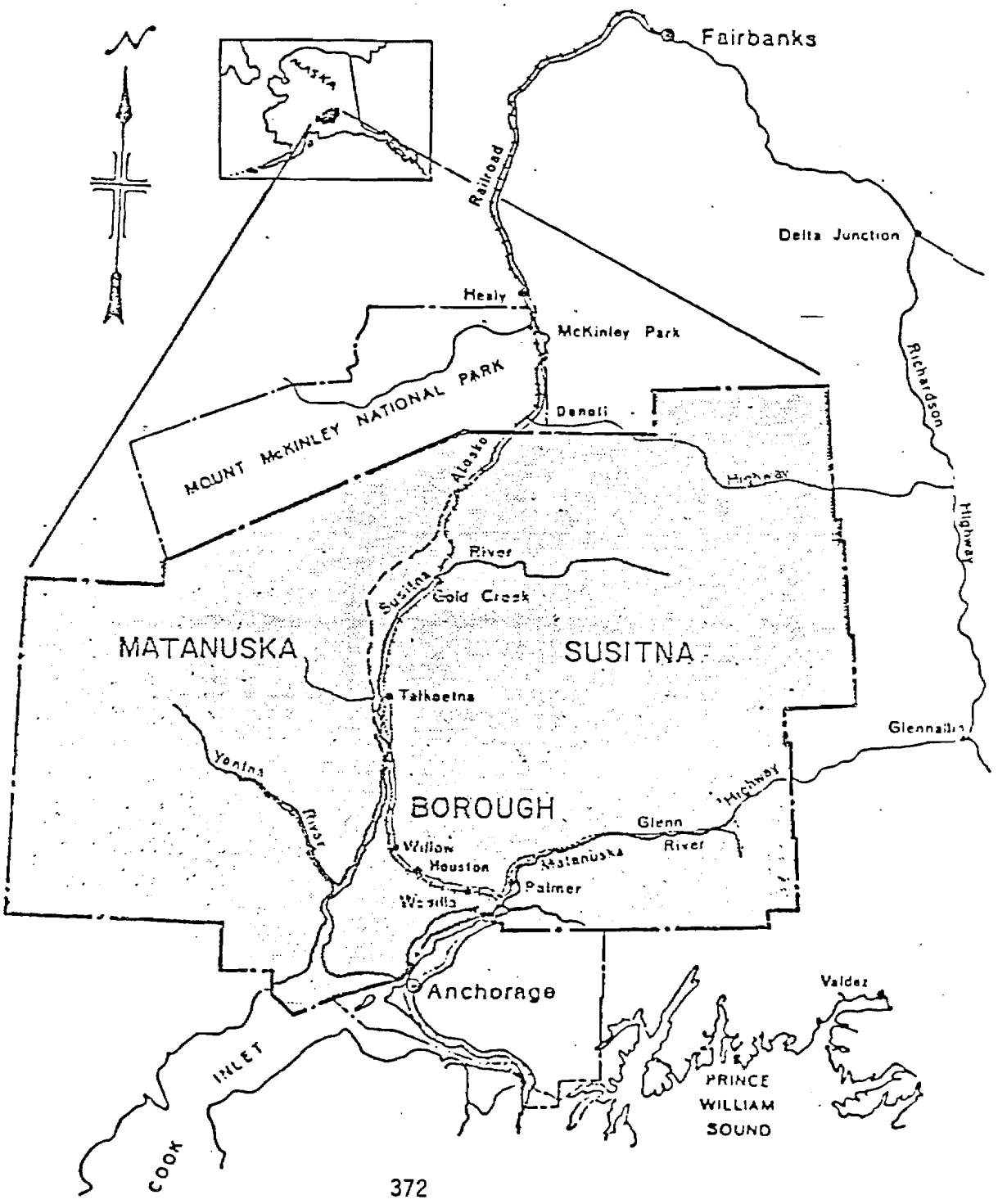
Chapter 2 of Volume I, "Changes in the Economy", has been included in this report because it provides a good synopsis of the economic conditions and problems facing the Borough today.

CHANGES IN THE ECONOMY

LOCATION

The Matanuska-Susitna Borough is located in Southcentral Alaska. It covers a 23,000 square-mile area, approximately the same size as the combined New England States of Vermont, New Hampshire and Connecticut.

Palmer, the seat of Matanuska-Susitna Borough government, is about 40 miles north of the City of Anchorage.



HISTORICAL BRIEF

AGRICULTURAL DOMINANT ECONOMIC FORCE UP TO THE 1960's.

In 1935, two hundred families relocated here from the depression and drought-stricken Midwest. The purpose of the Matanuska Valley Colonization was not to develop commercial agriculture, but to determine the feasibility of settling potentially self-sustaining regions of Alaska. The highly structured community has a colorful history as the "Matanuska Valley Colony," replete with picturesque farms worked by hardy families of Scandinavian stock. At the time of colonization, each of the 200 families was awarded a 40 to 80 acre tract of land in the Federal Government sponsored program. Most of these 40 or 80 acre parcels were turned into individual farms.

A farmers cooperative was formed at the time of colonization, and served as a central political, social, and economic enterprise until the 1960's, when it gradually faded out of existence. During the first 20 years, the "co-op" operated a creamery, grocery store, dry goods store, feed and garden supply store, service station, auto parts house, farm equipment sales, and a bureaucracy of several well-staffed offices.

In 1949, the Alaska Agricultural Experiment Station was established at Palmer. The advent of World War II and the consequent military build up in the Anchorage area created a market for commercial agriculture. With the technical expertise offered by the University of Alaska Experiment Station to the local farmers, commercial agriculture grew and reached a peak in 1961-1962, with 47 dairy farms and 22 vegetable-potato farms in operation within the Matanuska Valley.

In the late 1960's, commercial agriculture fell steadily to a few operating farms. Today, less than a dozen farms are in operation, and commercial farming is relatively unimportant from an economic point of view. The important qualities of prime farm land now are speculation and subdivision development potential.

In 1964, the Matanuska-Susitna Borough was incorporated, forming a second-class Borough. The primary functions being education,. planning and zoning, and assessment and tax collection.

The military complex in Anchorage purchased coal mined north of Palmer until the 1960's, when they converted from coal to natural gas from Kenai. This produced a sharp decline of employment in the Valley and an exodus of many miners, and adding to the general economic lull of the late 1960's.

RAPID SUBURBAN GROWTH DURING MOST OF THE 1970's - THEN DECLINE.

During the pipeline boom of the 70's, real estate and construction became a major industry in the Matanuska Valley. Growth was doubling every five years - the highest in the State. In this period, many new small businesses were started though many only lasted a few years. In the last year-and-a-half, over 100 businesses in the Valley have collapsed.

Statistics released by the Department of Labor show that by the winter of 1979-1980, unemployment in Alaska was around 10 percent; Fairbanks was the

second highest with around 13%, and the Matanuska-Susitna Borough was first in the State with an official unemployment rate of around 20%.

State officials concede that the actual unemployment rate in the Matanuska-Susitna Borough is much higher because the Department of Labor statistics represent only those people who are currently receiving unemployment insurance benefits. Not included in the Department of Labor figures are those persons with expired eligibility for unemployment insurance and those persons who are not actively seeking employment. These individuals are described as "discouraged job seekers," all of whom remain as Borough residents (some unable to leave because of the poor home sale market).

The Matanuska-Susitna Borough business community has been hard hit by the slump in economic conditions, blamed chiefly on the high unemployment rate among the Borough's some 20,000 residents.

ACTIONS TO COUNTER ECONOMIC DECLINE.

Early in March 1980, Matanuska-Susitna Borough officials and executives of utility cooperatives joined a group of local business people in an organized effort to solicit emergency State economic assistance for the Matanuska-Susitna Borough. Approximately 60 members of the organized group flew to Juneau to lobby for recognition of the Matanuska-Susitna area as an economic disaster area by the Legislature. The delegation presented some suggestions they felt the State could take (these were an extension of unemployment benefits, retirement of debts accumulated by the local government for school construction, increased revenue sharing by the State, and the deferment of some business loan payments. Little real relief has come to the Valley as the summer of 1980 begins.

Prospects of Point MacKenzie development, Willow Capital Site development, Susitna Dam Project, and natural resource development in the area remain only as prospects and no longer produce major speculative development in anticipation of their occurrence.

MATANUSKA-SUSITNA BOROUGH NEEDS/PROBLEMS

The problems are complex and based upon a number of forces impacting the Borough. The Matanuska-Susitna Borough has enormous recreational and industrial potential, but has serious problems; residents of the Valley are engulfed in what may be the most serious economic recession in the State.

THE BOROUGH'S PROXIMITY TO ANCHORAGE PRESENTS A UNIQUE PROBLEM.

With a population of 200,000, Anchorage is not only Alaska's largest city by far (Fairbanks is next at 45,000, the capital, Juneau, is third at 30,000), but also the third fastest growing area in the United States. The region around Anchorage contains about 75% of the State's entire population. Anchorage's ability to expand is hindered by its combined geographic location and building limitations, therefore, much of its excess growth is overflowing into the Matanuska-Susitna Borough. Any additional growth, which is requisite to the economic viability of the southcentral region, will further impact the Valley, whether from Anchorage or specific industrial or commercial activity within the Borough.

Land speculation in the Borough caused by the prospect of moving the present capital from Juneau to a 100-square-mile site near the Borough community of Willow is one important factor lending to the economic instability of the Matanuska-Susitna Valley. Many Valley businessmen mortgaged their homes to expand their businesses in anticipation of bustling commercial activity, after voters chose in 1974 to move the State Capital.

Equally disconcerting is the high rate of business failures, particularly in Wasilla, with a commercial vacancy rate of 40%, and other areas close to Willow. The anticipated demand in housing construction and retail trade created many new capital project and retail trade establishments with low dollar business volumes. Demand was not there. This situation has led to many businesses closing their doors or only maintaining minimum staffing, resulting in a mass transfer of residents who must work outside the Borough. Sixty businesses have failed in Wasilla alone in the past 18 months, and 15 firms in Houston.

THE MAJORITY OF ECONOMIC PROBLEMS FACING THE BOROUGH ARE CAUSED BY THE PARTICULAR KIND OF POPULATION GROWTH WHICH IS TAKING PLACE.

Despite the absence of employment, the population of the area has continued the growth pattern that started briskly in the early 1970's. Between 1970 and 1976, the population expanded 138%. The annual growth rate has been 20% since 1970. While this has leveled off in 1979, it is anticipated to rise again now that the state-wide economy is beginning to improve.

Realtors and developers report that the Borough's available housing is slowly being filled by newcomers, and they speculate that new home construction--at a virtual standstill the past two years--will start up modestly again in the spring. Anchorage residents and others continue to move to the Valley in search of "a different style of living."

PRESENT GROWTH DOES NOT PAY FOR ITSELF.

The Borough growth is anticipated to continue at a moderately high rate. This residential increase will continue to strain the ability of the Borough to provide such basic services as education, fire protection and road maintenance. As the demand for services increases with population, the Borough's tax base continues to run a deficit. Normally, the local property tax is the major source of local revenue; however, in terms of income, the Borough is unusually dependent upon the Federal and State funds to pay for services:

- Federal and State Government provides nearly 2/3 of the revenue (State 58%, Federal 5%)
- Property tax 27%
- Miscellaneous local revenue 9%
- Service areas 1%

Approximate Borough expenditures are:

- Schools 80%
- General government 15%
- Non-areawide services 3%
- Service areas 2%

Ordinarily, "lower 48" schools absorb about 60% of the local budget. The widespread nature of the Borough's school population and other factors unique to Alaska result in higher education costs. The net result is that there are less funds for other services. The very high service costs are due to the widely spread residential nature of the growth.

The great majority of expansion in the Borough continues to be generally of the type which does not pay for itself, since it is mostly residential. There is little industry to provide a diversified tax base. Approximately 90% of the growth is residential; only 10% is commercial or business related.

The average home does not pay taxes in an amount equal to the services it receives. For example, using the one predominant service, schools:

- It costs about $1,500 on the average to send one child to school each tax year.
- Taxes from an average home costing about $60,000 amounts to approximately $570.
- The average home has about 1.0 to 1.5 children. Therefore, it costs about $1,000 to $1,500 more per year to provide education than the average home returns in taxes.

THE BOROUGH HAS CHRONIC UNEMPLOYMENT; IT FLUCTUATES MONTHLY BETWEEN THE FIRST AND THIRD HIGHEST AREA IN THE STATE, AVERAGING ANNUALLY ABOUT 15%.

In January 1980, it had the highest rate of unemployment among all the Boroughs, at 19.9% (Fairbanks was second at 13.5%). Research by State Representative Pat Carney estimates the true total unemployment rate is between 46 and 51%. OEDP figures indicate a 26% unemployment rate. Whatever the rate, the shortage of work is clearly one of the most pressing problems; the Borough doubtlessly has one of the highest rates of unemployment in the nation.

The rate of unemployment would be even higher if an increasing number of Borough residents did not commute at great expense to Anchorage for work. In 1970, about 20% of the Borough work force drove to Anchorage; by 1976, the number had risen to 32%. OEDP estimates, derived from the recently completed housing and eocnomic study, indicate that the current percentage is 36% (24% work in Anchorage, 12% use Anchorage as a transportation hub). Additionally, data indicates that less than 1.1 adults per family are employed as compared to the 1.5 Anchorage figure; in other words, because of location and other factors, only one adult family member is able to find employment. A greater variety and number of jobs must be created in the Borough.

The State Division of Economic Enterprise figures indicate that the ratio of 1978 Matanuska-Susitna Census Divison per capita personal income to U.S. per capita income is only 1.13. The State total is 1.39 and Anchorage ratio is 1.56. Further, the family budget required in the Matanuska-Susitna Census Division (1978) for a moderate standard of living is $27,374 compared with the average U.S. family budget of $18,622. This indicates it costs approximately 47% more than the average U.S. family of four for the same standard of living. The Alaska and Anchorage family budget required for a moderate standard of living (1978) is $28,942 and $26,329, respectively. The Anchorage Census Division costs are 41% more than the national average.

The average monthly wage per worker in 1978 for the Matanuska-Susitna Census Divison was $1,377, as compared to the State average of $1,595 and Anchorage's average of $1,599. The average unemployment rate (1978) for the Matanuska-Susitna was 18.2%, compared to the State annual average total of 11.1% and Anchorage's average total of 8.3%.

Matanuska-Susitna per capita income comparison to Anchorage indicate that the family budget requirements for a moderate standard of living are 4% higher in the Matanuska-Susitna. Data compiled by Economic Enterprise indicate the purchasing power of persons living within the Matanuska-Susitna Borough is 31% less than those persons living in Anchorage. The cost for maintaining a moderate standard of living in the Matanuska-Susitna Borough are high, income levels are low, and employment opportunities in the Valley remain poor.

While the rate of growth is very high, having risen from a Matanuska-Susitna Borough population of 6,500 in 1970 to an estimated 18,536 in 1980, the Borough is basically rural, open, and the population is dispersed. None of its three municipalities has a population over 3,000. Wasilla, the population of which has doubled every two years for the past six years, had an estimated 1979 population of 2,148. Palmer, the only city with zoning, had a 1979 estimated population of 2,056. Houston is the smallest incorporated city at about 440 persons in 1979.

Much of the population is spread out, living on one acre or larger unzoned lots. Past subdivision activity has been rampant. Between January, 1977, and November, 1977, a total of 460 subdivision plats had been either recorded or filed with the Borough. The average size of the plats is 2 acres. Thus, some 25,521 acres, comprising 12,824 separate parcels, have been subdivided in less than a four-year time frame. Although subdivision activity has stabilized, there are enough unoccupied parcels to satisfy the population growth for the next four to six years.

It is this widely dispersed population which is endangering, not only the rural qualities of the Matanuska-Susitna Borough, but the natural resources and natural beauty, which are fundamental to its economic vitality. The loss of farm land and fish and wildlife habitat continues.

Another issue is the rapid loss of some of Alaska's finest agricultural land. Most of the State's produce farms are located in the Matanuska-Susitna Borough. In 1979 the Borough produced approximately 70% of the State's crops, 79% of the livestock and poultry, and 50% of the State's milk.

Agricultural activity has been declining, however, because of increasing costs, limited markets, price competition, aging farmers and rising taxes. In spite of State efforts to help through a differential farmland assessment rate, the number of full-time Matanuska-Susitna farmers has dropped from 70 in 1965 to 30-40 in 1979.

For some of the farmers and homesteaders, speculative land purchasers and subdividers have offered a financially attractive "retirement fund" in place of their land. A number of these farms had been uneconomic in size and rising land prices in the area prohibited expansion.

The most suitable areas for agriculture are around Palmer and the Matanuska River Valley, and to the west along the Susitna River, the Kahiltna River, and the Yentna River. Within the Palmer-Butte area, approximately 30 farms have been subdivided within the last four years. Much of the good farm land abutting the Parks Highway between Willow and Talkeetna is in the path of subdivision growth.

Other problems continue to persist. Welfare rolls have shown a marked increase, property tax delinquencies are up over last year, and office buildings and shopping centers are reporting higher vacancy rates. Stores are offering closeout sales, and the local newspapers are filled with foreclosure notices.

A recently completed report by Northern Consultants, "A Study of The Economic Needs of the Matanuska-Susitna Borough", March 1980, supported OEDP findings and, although implied in the above text, several facts are worthwhile mentioning.

- Many businesses are construction related. Housing construction virtually halted when availability of funds for housing from State Veteran's Administration and Alaska Housing Finance Corporation was ended.

- There is a mismatch in the supply and demand for labor skill between Anchorage and the Matanuska-Susitna Borough.

- Work in Anchorage is not an option for many persons because of the distance (time, economics, safety, etc.).

- Bank credit has tightened up, interest rates have gone up and accounts receivable have soared.

- Businesses have the lack of operating capital even if jobs become available or demand increases.

- The Matanuska-Susitna Borough's tax revenues are not increasing because of the public's inability to meet its tax obligations.

RECAP

A key economic factor causing hardship to the Borough remains the particular kind of growth with its unbalanced residential emphasis.

Residences do not fully repay in taxes for the services that they require. The Borough's consistently high rate of unemployment, partly a result of growth in response to the cyclical construction industry, is further complicated by the large work force having to seek employment outside the Borough. Wages in the Borough are lower than for Anchorage or Juneau.

With the population doubling nearly every five years; coupled with business instability, lack of employment opportunities, lower family incomes, and a lower standard of living, much information needs to be collected and analyzed to adequately understand this complicated situation. Sound economic decisions on how to approach these problems in a limited time frame cannot be made without adequate and appropriate information.

The economic program's thrust is to remedy these problems by diversifying the economic base. At the moment, business comprises just 10% of the tax base, with residences filling the remaining 90%. One objective of the program is to increase the percentage and variety of businesses in the Borough. Through these measures, it is hoped that employment will increase and that the tax base will become more sound.

To help accomplish the strengthening and diversification of the Borough's economic base, the first of a multi-year program was established in 1979. The coordinated Matanuska-Susitna Borough/OEDP, Inc. program has begun to build a data bank of important planning information which will be used in the comprehensive planning efforts. This is an important step in the efforts of meeting program needs designed specifically to gather complete and accurate economic data to be used in job-creating projects.

The efforts of the Overall Economic Development Program provide the Matanuska-Susitna Borough new information to answer many important questions necessary to promote economic development. The data gaps are being identified. Information from the Housing Study conducted this year may result in communities being eligible to seek Farmers Home Administration grant assistance, HUD Block Grant assistance, or other aid. Several million dollars could easily be brought into the community. Although the amount of public funds which might be expected to be invested in the Borough is difficult to define, an estimated 7.7 year-round jobs would be created for every $1,000,000 worth of single-family dwelling investments. Since construction is seasonal, this would equate to approximately 15.4 six-month jobs. These figures were based upon calculations done by Jim Sullivan, Divison of Economic Enterprise, using 1969 data.

The second-year program, in concert with the first year's development strategy, will continue to emphasize economic revitalization strategies, update inventories, fill data gaps, strengthen community participation, institute promotion programs, complete economic profiles, and add specific projects to achieve the goals and objectives.