ALASKA POWER AUTHORITY
SUSITNA HYDROELECTRIC PROJECT

ENVIRONMENTAL STUDIES PROCEDURES MANUAL

SUBTASK 7.05: SOCIOECONOMIC ANALYSIS

Terrestrial Environmental Specialists, Inc.

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SUSITNA HYDROELECTRIC PROJECT

ENVIRONMENTAL STUDIES
PROCEDURES MANUAL

SUBTASK 7.05:
SOCIOECONOMIC ANALYSIS

Submitted by

Terrestrial Environmental Specialists, Inc.

and

Frank Orth & Associates, Inc.

to

Acres American, Inc.

Environmental Study Manager (TES)	Environmental Study Director (TES)
Quality Assurance Coordinator (TES)	Group Leader (TES)

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I. INTRODUCTION

An important element of the feasibility of the Susitna Hydroelectric Project is the socioeconomic impacts[1] 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 purpose of Phase I of the socioeconomic analysis is to identify and describe the existing socioeconomic conditions[2] and to determine which are most likely to be impacted by the Susitna Hydroelectric Project, as required under the Federal Energy Regulatory Commission (FERC) regulations. Subsequent to the submission of the FERC license application, detailed analysis and assessment of the socioeconomic impacts related to the Susitna Project will be conducted (Phase II).

Completion of both phases of the socioeconomic analysis is not a prerequisite to submission of the FERC license application. Thus, the work packages to be completed have been divided into those that are scheduled to be completed prior to application submission (1 - 4 below) and those work packages that may be completed during a later time period. 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 the Susitna Project;
(5) Forecast of future socioeconomic conditions with the Susitna Project;
(6) Detailed analysis and assessment of significant socioeconomic project impacts (excluding those impacts associated with fish and wildlife);
(7) Baseline economic valuations 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 Exhibit 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 preliminarily assess 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). The phased approach ensures that only the most relevant impacts are addressed in detail. The effort saved from not studying

irrelevant impacts may, therefore, be allocated to providing in-depth analysis and assessment of important impacts.

Phase I is composed of four work packages. In the first work package, 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 will 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.

Preliminary socioeconomic impact studies are conducted in Work Package 3. The first preliminary impact study will consider several alternative projects 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 and final preliminary impact study will consider a final alternative provided by 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 it is an important input to Work Package 3.

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.

The two-phase study is also designed to ensure that current FERC license application requirements are adequately addressed. Work Packages 1-9 of Exhibit 1 will address all of the FERC requirements in Sections 2.3, 3.1.3, 3.2.3, and 7.3 (Socioeconomic Considerations), and 5.1 (Human Resources Impacted) of Exhibit W.[3]

The methods, employed in the work packages and items, develop most fully those socioeconomic considerations which are relevant for the proposed project and its potential impact on the Alaskan environment. Utilization of this approach will produce results which are responsive to current FERC license application requirements as well as to the needs of the citizens of Alaska.

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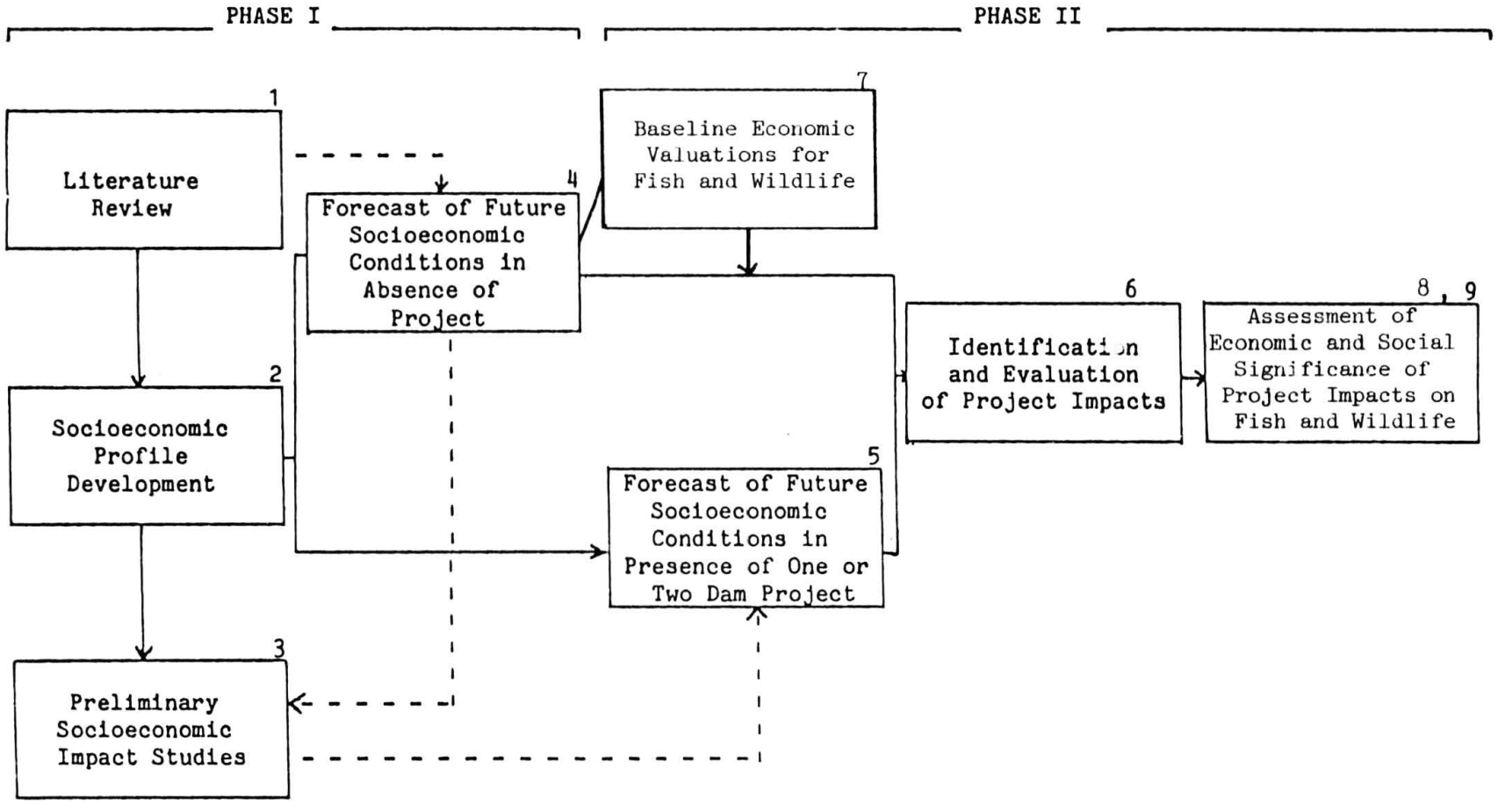
[1]Those impacts which are attributable to both the structure of society as well as the allocation and use of society's resources.

[2]A state of being or situation resulting from a certain allocation and use of society's resources within a particular societal structure (see pages 2 and 8 for examples).

[3]FERC Order No. 415, Docket No. R-398, as amended by Order No. 415-C, Docket No. R-398, and FERC Order No. 485, Docket No. R473.

EXHIBIT 1

GENERAL FRAMEWORK FOR PLAN OF STUDY



NOTE: Numbers above boxes correspond to work packages.

II. TECHNICAL PROCEDURES

Technical procedures, or detailed work plans, are provided for each of the four work packages of Phase I. These plans include a description of, and rationale for, each work package. Further, for clarity and convenience, work packages are divided into work items. Methods to be used in the conduct of each work item are provided to facilitate plan implementation and to provide for traceability of work package results.

A. WORK PACKAGE 1: LITERATURE REVIEW

Description

Socioeconomic impact studies for hydroelectric projects similar to the range of proposed Susitna projects, current major assessments of Alaska demographic, social, and economic conditions, and literature pertaining to the Alaska sociocultural environment are to be identified, reviewed, and evaluated. In addition, information developed in other Subtasks of Task 7, and other Tasks of the Susitna Hydroelectric Project, are to be reviewed and used, as appropriate. It is anticipated that information from Tasks 1 (Power Studies), 8 (Transmission) and 12 (Public Participation Program) will be particularly relevant. This work package is to be divided into four work items:

a. Collection of studies;
b. Impacts of similar hydroelectric projects;
c. Identification, review, and assessment of data and information concerning Alaskan socioeconomic conditions; and
d. Relevance of similar hydroelectric studies.

Rationale

It is anticipated that the literature review and interviews will provide: (1) an inventory of socioeconomic impacts that could be relevant in the case of the Susitna Project; (2) consideration of alternative social and economic impact research methodologies; and (3) information for the development of detailed socioeconomic profiles of the areas that could be impacted by a Susitna project. These three items will, in turn, provide: (1) guidance in the determination of socioeconomic conditions that could be particularly sensitive to Susitna hydroelectric development; (2) guidance in the selection and refinement of the forecasting methodology (Work Package 4), and in the refinement of profiling and preliminary impact study methodologies (Work Packages 2 and 3, respectively).

Work Item a.: Collection of studies

Socioeconomic impact studies for: (1) hydroelectric projects similar to the range of possible Susitna projects; and (2) other types of

projects with major socioeconomic impacts and current major assessments of Alaska demographic, social and economic conditions, and literature pertaining to the Alaska sociocultural environment are to be identified and obtained by the following method:

1. Consult Frank Orth & Associates, Inc.'s library for studies and bibliographies.

2. Contact major entities such as the Bureau of Reclamation, Department of Interior, Environmental Protection Agency, Army Corps of Engineers, the Tennessee Valley Authority, and the Bonneville Power Administration; obtain citations for relevant studies, and/or obtain studies directly.

3. (If necessary.) Identify consultants with extensive experience in social and economic impact analysis of large hydroelectric or other energy projects of comparable scale. Tentative choices would be: C.P. Wolf, Ph.D., editor of Social Impact Assessment -- a monthly newsletter (social); and/or Homan-McDowell Associates, Juneau, AK (economic).

4. (If necessary.) Develop an Information Request Guide for Consultant's use. This guide would request bibliographies, relevant studies, and suggested strategies for further identification of relevant studies.

5. (If necessary.) Implement Information Request Guide.

6. Prepare list of relevant socioeconomic impact studies. Follow CBE Style Manual. This will be Exhibit II-1. (Note: This exhibit and subsequent exhibits are provided below in III. DATA PROCEDURES.)

Work Item b.: Impacts of similar hydroelectric projects

The method for this work item is as follows:

1. Develop a format (matrix) to facilitate the compiliation of impacts from alternative studies. The format is to include type of project, size of project, and type and magnitude of impacts. A sample format is provided in Exhibit II-2.

2. Review studies in Exhibit II-1. Extract impact information using Exhibit II-2.

3. Highlight information in Exhibit II-2 that appears to be particularly relevant to Alaska and the Susitna area.

Work Item c.: Identification, review, and assessment of data and information concerning Alaskan socioeconomic conditions

The method for this work item is as follows:

1. Develop a format for illustrating important characteristics of economic and social data bases and information. This format should include location of data, form for access, frequency of coverage, latest date covered, area covered (statewide, SMSA, or village/town) and type of data (i.e., population, projected population, housing, projected housing growth, etc.) as presented on page 2.

2. Identify and review literature pertaining to current major assessments of Alaska demographic, social and economic conditions, and the Alaska sociocultural environment. Limit this effort to Frank Orth & Associates, Inc.'s library.

3. Develop an Interview Guide for use when interviewing other authorities on Alaska economic and social data bases and conditions. The Guide should be designed so as to effectively obtain sources of data and information, and efficient methods for accessing such data and information.

4. Implement the Interview Guide. Conduct interviews with: Mr. Lawrence Kimball, Jr., Alaska Department of Community and Regional Affairs; Dr. Lee Husky, The Institute of Social and Economic Research, University of Alaska; Dr. David Reaume, Alaska Department of Commerce and Economic Development; Mr. Robert Richards, Alaska Pacific Bank; officials of the Matanuska-Susitna Borough; and regional and local authorities, as appropriate.

5. Seek out and review data and information identified in 4. above. Compile in format as discussed in step 1.

Work Item d.: Relevance of similar hydroelectric studies

The relevance of impacts, identified and characterized in work item 1. b., for the State of Alaska will be assessed at local, regional, and state levels. This assessment will yield a list of impacts, by Alaska geographic area, type, and degree, which could be relevant for the preliminary impact studies (see Work Package 3. below).

This work item will be conducted by the following:

1. Use knowledge gained from the literature reviews and interviews above to assess the relevance of the highlighted impacts of Exhibit II-2 for Alaska and the Susitna area.

2. Develop a list of potential impacts of the Susitna Project, by geographic area.

B. WORK PACKAGE 2: SOCIOECONOMIC PROFILE DEVELOPMENT

Description

A detailed profile of socioeconomic conditions most likely to be impacted by various alternative Susitna projects is to be developed. This will be accomplished through the following work items:

a. Identification of potential impacts peculiar to the areas;
b. Determination of most likely potential impacts;
c. Development of data collection guides;
d. Implementation of data collection guides;
e. Compilation of collected data; and
f. Development of detailed profile.

Rationale

The purpose of this work package is to collect and compile data on socioeconomic conditions for utilization in the preliminary impact studies (Work Package 3) and forecast of socioeconomic conditions (Work Package 4). Emphasis is placed upon collecting data on only the socioeconomic conditions that are considered to be highly susceptible to change as a result of a Susitna project (see also Major Heading IV, QUALITY CONTROL). These socioeconomic conditions are to be described by social and economic variables. The range of variables considered for the preliminary impact analysis will include at a minimum the variables of FERC Exhibit W, components 2.3, 3.1.3, 3.2.3, 5.1, and 7.3, and the variables listed above in Major Heading I. INTRODUCTION. Only data for variables that are relevant for the socioeconomic impact analysis for a Susitna project will be collected; reasons for eliminating any of the above variables will be elaborated.

Work Item a.: Identification of potential impacts peculiar to the areas

Potential impacts peculiar to the local area, region, and state will be determined. This list of impacts will be combined with those of work item 1d. to provide a complete list of potential impacts for a range of alternative Susitna projects. The method for this work item is as follows:

1. Review partial list of potential Susitna project impacts.

2. Obtain input from other Susitna Project team members and review transcripts from public participation meetings: identify conditions that could be susceptible to change as a result of hydroelectric development and that are not on the partial list of potentially impacted conditions.

3. Combine conditions identified in 2. with those of the partial list. Compile in tabular format (see Exhibit II-3).

Work Item b.: Determination of most likely impacts

Impacts of Exhibit II-3 that appear to be most probable will be designated as such in the Exhibit. Information obtained from the interviews of Work Item 1.c. will be instrumental in this determination.

Work Item c.: Development of data collection guides

Data collection guides will be developed to gather information necessary to support the production of detailed profiles of socio-

economic conditions most likely to be impacted. Assistance in the design and implementation of these guides will be obtained from consultants (Ms. Monica Thomas and Homan-McDowell Associates), and Dr. Alan Jubenville (Recreation and Land-Use Studies). It is anticipated that there will be substantial opportunity to reduce the total collection effort required through coordination with Dr. Jubenville. It is further anticipated that there will be data-sharing between the socioeconomic and recreation/land-use studies -- especially for data collected near or at the potential dam sites. Dr. Bill Workman will serve in a liaison capacity for this coordination and data-sharing. This work item will be conducted by the following method:

1. Analyze most probable impacts of Exhibit II-3. Further define the set of socioeconomic variables for which more data are required.

2. Identify sources of data for the set of variables. Separate the variables into two categories: (1) those for which data currently exist, and (2) those for which data could be obtained at a reasonable cost (primary data).

3. Develop guide composed of specific work steps for accessing (1) and develop data collection guides to obtain desired data for (2). Guides will be designed to maximize the efficiency of the data collection and compilation effort.

Work Item d.: Implementation of data collection guides

Data collection guides are to be implemented during July, August and September of 1980. Implementation will probably require some field work at the Devil's Canyon and Watana Base Camps (coordinated with Dr. Alan Jubenville), and substantial field work in the Fairbanks-Anchorage corridor and Anchorage.

Work Item e.: Compilation of collected data

Data are to be compiled in a format conducive to profile development and to forecasting. The method to be used is as follows:

1. Develop compilation formats for each variable. It is expected that ease (cost) of access to data will fall into three categories: (1) easy -- already compiled, by computer or otherwise; (2) moderate -- not compiled by computer, but not costly to program for aggregation or to aggregate "by hand"; (3) difficult -- not compiled by computer and costly to program for aggregation or to aggregate "by hand." An attempt will be made to access all appropriate data, subject to the computer budget constraint and the Work Package #2 budget. Contractor will be promptly notified in the event that critical or highly appropriate data cannot be accessed within budget. While it may not be financially feasible or prudent to compile all appropriate data in the detailed profiles, it is highly probable that omitted appropriate data will be accessed if a computerized model is used in forecasting socioeconomic conditions (Work Package 4).

2. Apply compilation formats to accessible data.

Work Item f.: Development of detailed profile

The detailed profile is to be designed to be easily used as a source of information for the preliminary socioeconomic impact studies of alternative types of hydroelectric developments, and as an input to the forecast. Thus, the data and information must be presented concisely and as comprehensively as possible. This work item is to be performed as follows:

1. Review data compiled in Work Item e.

2. Develop an outline for the detailed profiles. To the extent possible, arrange data by relevant geographic area. Segregate data available in computer files. Further, where appropriate, separate secondary data from primary data.

3. Draft detailed profiles.

C. WORK PACKAGE 3: PRELIMINARY SOCIOECONOMIC IMPACT STUDIES

Description

This work package is to provide a preliminary analysis of potential impacts of alternative hydroelectric developments. Substantial physical specification and other information is to be made available for each alternative development from Acres American, Inc. and other Susitna Project team members. This information will be used, along with the experiences reported in the literature reviewed, to determine the types and relative magnitude of impacts for each alternative. These results will be presented by geographic area to the extent information developed to this point allows. This work package is to be divided into four work items:

a. Determination of conditions most likely to be impacted by each alternative.
b. Determination of impacts for each alternative.
c. Comparison of impacts of alternatives.
d. Determination and assessment of impacts of alternative selected by the Alaska Power Authority and Acres American, Inc.

Rationale

Socioeconomic impacts are one of many types of impacts that could result from hydroelectric development. To choose from among alternative hydroelectric developments, it is desirable to determine the most probable socioeconomic and other impacts of each alternative. This information could contribute substantially to the basis for selecting certain preferred alternatives for further consideration.

Work Item a.: Determination of conditions most likely to be impacted

The method for this work item is as follows:

1. Review information on alternative developments.

2. Review Exhibit II-3 of Work Package 2, Work Item b.

3. Determine what conditions (variables) are most likely to be impacted by each alternative.

Work Item b.: Determination of impacts for each alternative

This work item is to be performed as follows:

1. For each alternative, determine what conditions are most likely to be impacted in the long term (operating phase) by geographic area. Develop and fill in a matrix that will facilitate comparison of impacts across alternatives (see Exhibit II-4).

2. As available information permits, determine the construction phase impacts for each alternative. Develop and fill in a matrix that will facilitate comparison of impacts across alternatives (see Exhibit II-5).

Work Item c.: Comparison of impacts of alternatives

This work item is to be conducted as follows:

1. Using the information developed in Work Item b., compare and contrast the impacts of each alternative. Emphasize, if appropriate: (1) the potential impacts created by the influx and efflux of construction and operations work forces; (2) potential financial impacts on borough and/or municipal governments; and (3) potential impacts on transportation systems and fish and wildlife use patterns.

2. Provide other Project team members with the results of the comparison.

Work Item d.: Determination and assessment of impacts of selected alternative

After receiving detailed information concerning the selected project (this information must be received by October 1, 1981, to be able to perform this work item within schedule and budget), and upon completion of Work Package 4 (below), the potential impacts of the selected alternative are to be determined and assessed. The analysis will differ from that of Work Items a. and b. because it will have the benefit of the forecast of socioeconomic conditions. Thus, a more in-depth analysis is to be conducted. This work item will be performed as follows:

1. Review information received concerning the selected alternative.

2. Review impact determination for this alternative previously conducted in Work Items a. and b.

3. Review forecast.

4. Determine potential changes in forecast of baseline conditions (variables) that are expected to result from the selected alternative. Determine these changes by geographic area and time period (phase of project) to the extent information developed in Work Item b. allows.

5. Briefly discuss the economic and social significance of the changes in the forecasted conditions.

D. WORK PACKAGE 4: FORECAST OF SOCIOECONOMIC CONDITIONS IN THE ABSENCE OF THE SUSITNA PROJECT

Description

Assuming no hydroelectric development, socioeconomic conditions are to be forecast. It is anticipated that the forecasting methodology to be used in this work package will be borrowed directly from, or modified slightly from methodologies used by Alaska government or academic institutions. Further, relevant results already generated by acceptable methodologies are to be adopted. Where certain desired results are lacking, existing methodologies will have to be modified and implemented to produce such results. This work package is to be divided into six work items:

a. Literature search
b. Literature review and evaluation
c. Development and application of methodology evaluation criteria
d. Selection of studies and studies' results for adoption
e. (If necessary) Methodology revision
f. (If necessary) Implementation of methodology

Rationale

To produce a forecast of socioeconomic conditions at minimum cost, it is highly desirable to investigate the relevance and acceptability of recent and current forecasts. To the extent that these forecasts are appropriate, little or no incremental work may be required.

The forecast will allow for a more rigorous impact analysis for the selected alternative than was possible for the initial impact analyses for alternative projects (Work Package 3, Work Items a., b. and c.). While this impact analysis will not be as detailed as those of Phase II, it should provide the depth necessary for the submission of the FERC license application.

Work Item a.: Literature search

This work item is to be conducted as follows:

1. Review Exhibit II-1 for studies (and models) that forecasted socioeconomic conditions.

2. Contact knowledgeable Alaskan social scientists who have participated in forecasting efforts. Solicit titles of studies from these persons.

3. Develop a list of Alaskan studies that forecast socioeconomic and related conditions.

Work Item b.: Literature review and evaluation

This work item is to be conducted as follows:

1. Review studies' results for level of geographic disaggregation and currency.

2. Develop a list of studies (to be Exhibit II-6) that have appropriate geographic disaggregation (must be reasonably consistent with the geographic areas of this study) and that are current enough to be relevant. A couple of models that should be considered include the Alaska Institute for Social and Economic Research's "MAP" model and a model used by Alaska Division of Economic Enterprise.

Work Item c.: Development and application of methodology evaluation criteria

This work item is to be performed as follows:

1. Develop methodology evaluation criteria.

2. Apply criteria to studies listed in Exhibit II-6.

3. Prepare a list of studies that meet the criteria. (To be Exhibit II-7.)

Work Item d.: Selection of studies for adoption

This work item is to be performed as follows:

1. Prepare a list of studies that are common to both Exhibit II-6 and Exhibit II-7. Adopt results from studies to serve as partial (or complete) forecast of socioeconomic conditions.

2. Qualify results in 1. above, as appropriate.

Work Item e.: Methodology revision

To the extent that the forecast produced in d. above is partial, the methodology(s) used in obtaining the partial forecast may need to be (1) used to generate forecasts for remaining variables, or (2) revised/ modified to be used to generate forecasts for remaining variables. If (2) is the case, the appropriate methodology(s) will be revised/ modified in this work item for use in Work Item f. below. Reasons for revision include inappropriate geographic disaggregation, new factors of changes, etc.

Work Item f.: Implementation of methodology

In this work item the methodology(s) from d. and/or e. above will be implemented to produce forecasts for the remaining variables.

III. DATA PROCEDURES

Sample table formats to be used when compiling and presenting interpreted and analyzed data are provided in the following exhibits. These exhibits are to be used in performing several of the work items discussed above in TECHNICAL PROCEDURES. Sample interview outlines will be developed after Work Package 1 commences.

EXHIBIT II-2 (SAMPLE FORMAT)

TYPE AND MAGNITUDE OF IMPACTS FROM ALTERNATIVE IMPACT STUDIES

		DIRECT IMPACTS					INDIRECT IMPACTS			
IMPACT/STUDY PROJECT	SIZE OF PROJECT[1]	FISH AND WILDLIFE	HOUSING	RECREATION	ETC.		INDUSTRIAL GROWTH	PUBLIC FACILITIES	TAX BASE	ETC.
Feasibility of Hoover Dam	$1 billion, 80,000 acres, 10 megawatts, etc.	$ gained or lost; types gained and lost; etc.	# families displaced; size of area impacted, etc.	Opportunities gained ahd forfeited; size of area impacted; etc.			Type and # of new industries; type and # of displaced industries; etc.	Change in demand; new facilities needed, etc.	Change in tax revenue	

[1]Construction cost, reservoir acreage, annual power generation, etc.

EXHIBIT II-3 (SAMPLE FORMAT)

"COMPLETE" LIST OF POTENTIAL IMPACTS, BY GEOGRAPHIC AREA

IMPACTS	GEOGRAPHIC AREA					
	LOCAL[1]		REGIONAL[2]		STATEWIDE	
	DIRECT	INDIRECT	DIRECT	INDIRECT	DIRECT	INDIRECT
Land-use	X			X		
Industrial Development	X			X		X
Transportation	X			X		X
Recreation	X			X		X
Fish	X		X			X
Wildlife	X		X			
Displaced Individuals	X			X		
Displaced Institutions	X					
Etc.						

[1]The area surrounding the potential dam site(s) and reservoirs -- the delineation of the local area will be coordinated to the extent possible with boundaries or zones already established by other Susitna Project team members.

[2]The zone surrounding the local area, including the Matanuska-Susitna Borough, as well as the Fairbanks/Tanana and Anchorage/Cook Inlet regions.

EXHIBIT II-4 (SAMPLE FORMAT)

MOST LIKELY IMPACTS, BY ALTERNATIVE PROJECT AND GEOGRAPHIC AREA: OPERATING PHASE

IMPACT/ALTERNATIVE PROJECT #	GEOGRAPHIC AREA					
	LOCAL[1]		REGIONAL[2]		STATEWIDE	
	DIRECT	INDIRECT	DIRECT	INDIRECT	DIRECT	INDIRECT
Recreation						
Alternative #1	L+[3]			S+		N+[6]
Alternative #2	M+[4]			S+		N+
Alternative #3	M+[5]			S+		N+
Fish						
Alternative #1	L-			M-		S-
Alternative #2	L-			M-		S-
Alternative #3	M-			S-		N-
Etc.						

[1]The area surrounding the potential dam site(s) and reservoirs -- the delineation of the local area will be coordinated to the extent possible with boundaries or zones already established by other Susitna Project team members.

[2]The zone surrounding the local area, including the Matanuska-Susitna Borough, as well as the Fairbanks/Tanana and Anchorage/Cook Inlet regions.

[3]Large impact

[4]Medium impact

[5]Small impact

[6]Negligible impact

An attempt will be made to provide a numerical range of values for a meaningful quantifiable dimension of each impacted social and economic condition. For example, a large positive recreational impact might be the creation or availability of at least 20,000 user-days per year; medium: 10,000-19,999; small: 100-9,999; and negligible: 0-99. Where quantification is not possible, qualitative judgements would be elaborated.

EXHIBIT II-5 (SAMPLE FORMAT)

MOST LIKELY IMPACTS, BY ALTERNATIVE PROJECT AND GEOGRAPHIC AREA: CONSTRUCTION OF DAM PHASE

IMPACT/ALTERNATIVE PROJECT #	GEOGRAPHIC AREA					
	LOCAL[1]		REGIONAL[2]		STATEWIDE	
	DIRECT	INDIRECT	DIRECT	INDIRECT	DIRECT	INDIRECT
Recreation						
Alternative #1	L+[3]			S+		N+[6]
Alternative #2	M+[4]			S+		N+
Alternative #3	M+[5]			S+		N+
Fish						
Alternative #1	L-			M-		S-
Alternative #2	L-			M-		S-
Alternative #3	M-			S-		N-
Etc.						

[1]The area surrounding the potential dam site(s) and reservoirs -- the delineation of the local area will be coordinated to the extent possible with boundaries or zones already established by other Susitna Project team members.

[2]The zone surrounding the local area, including the Matanuska-Susitna Borough, as well as the Fairbanks/Tanana and Anchorage/Cook Inlet regions.

[3]Large impact

[4]Medium impact

[5]Small impact

[6]Negligible impact

An attempt will be made to provide a numerical range of values for a meaningful quantifiable dimension of each impacted social and economic condition. For example, a large positive recreational impact might be the creation or availability of at least 20,000 user-days per year; medium: 10,000-19,999; small: 100-9,999; and negligible: 0-99. Where quantification is not possible, qualitative judgements would be elaborated.

IV. QUALITY CONTROL

A. SCOPE OF WORK COMPLIANCE

Frank Orth & Associates, Inc. will assure compliance with the identified scope of work through an intensive and iterative review process. It is anticipated that each section of the socioeconomic study will go through a minimum of two draft stages before a final report is produced. After a first draft is produced it will be reviewed by selected professional members of the staff. These individuals will in some cases have participated in that portion of the study, and in every case will be knowledgeable concerning the subject matter. After this review is completed, the Draft Phase I report will be produced. This will be reviewed by appropriate consultants and the Discipline Coordinator. After this review is completed the Final Phase I report will be produced. It is recognized that, if in certain cases comments from the in-house or consultant review are major in nature, additional drafts may be required.

B. DATA CONTROL

Data control is viewed as consisting of two dimensions: (1) assuring that only high quality data (or, where required, best quality data) are used in analysis, and (2) assuring that only relevant data are collected in order to prevent technical and financial problems associated with "untargeted" data collection.

We will rely heavily on the judgment of the in-house professional staff and consultants to assure the use of the highest quality data. In particular, we will rely on Ms. Monica Thomas and Homan-McDowell Associates. Each of these consultants has had extensive experience in the use of various Alaska economic data bases. They will be consulted prior to accessing economic data bases or collecting primary data to make such efforts more efficient. A consultant will be similarly utilized for social data availability and access.

In order to assure that only relevant data are collected, we will rely on the use of a modified Management by Objectives approach and data collection guides. Management by Objectives (M.B.O.) is a management philosophy whereby management of an operation is developed in an objective-oriented manner. That is, the basic reason for the operation, and the products needed, serve as the basis for all work performed within that operation. By developing the reasons for the data collection effort, we will be able to identify the particular types of data necessary. After this is done, we will develop data collection guides (see Major Heading III) which will serve as an outline for field personnel collecting data. The detailed work plans of Major Heading II will contribute toward the precise definition of data requirements for each work item.

C. TRACEABILITY OF ANALYSIS

Traceability of analyses performed will be assured through the use of thorough referencing combined with the use of content footnotes and Technical Appendices. References will refer the reader to various publications, reports, etc. or to parts of the Technical Appendix. The reader will be able to trace the logic of, and methods for, each work package or item by the combined use of text explanation and description, references, content footnotes and technical appendices. Technical appendices will be sufficiently comprehensive to document the data used and rationale for the methodologies selected.

D. DATA SECURITY

Inasmuch as the study area is relatively undeveloped economically, the number of individuals and entities contacted will be low. Therefore, care will have to be taken to prevent descriptions of impacts on particular types of economic activities or groups of individuals from identifying confidential information. In presenting such data we will group areas sufficiently to prevent individual identification. Dr. Orth and project consultants have encountered similar problems in previous research and analysis projects performed in Alaska, and they are experienced in dealing with them in a manner which both respects confidentiality and allows the maximum use of data for the purpose at hand.

Whatever primary data are collected will be stored in our fire-resistant four-drawer vertical file during the research period. In cases where collection of primary data is conditioned upon eventual destruction, such data will be promptly destroyed after they have been fully utilized and the outputs derived from them have been reviewed and accepted by the client.

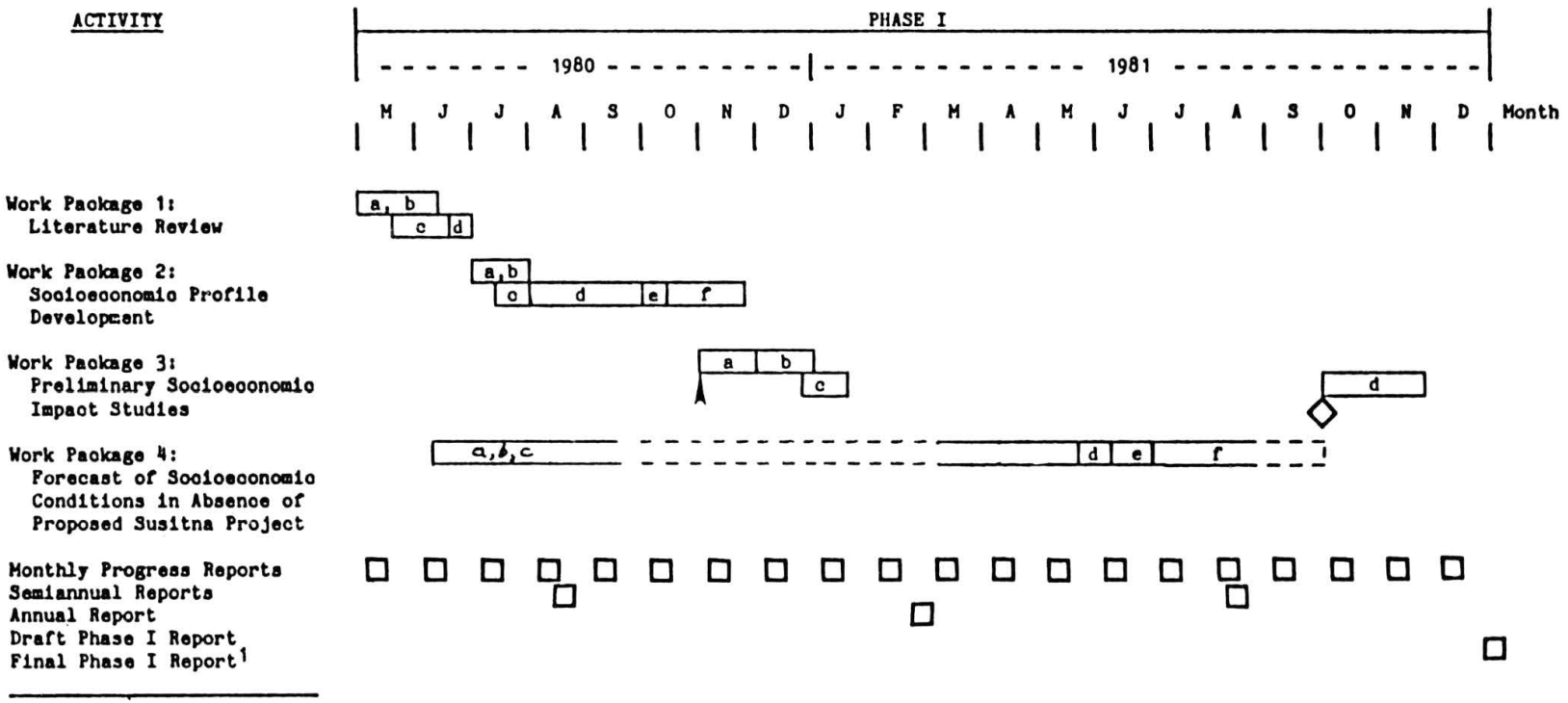
V. SCHEDULE

The production schedule for Phase I of this study is presented in Exhibit V-1. Here it can be seen that a schedule is provided for each work package, work item, and deliverable.

The work packages and work items are scheduled to be responsive to two key events: (1) the receipt of information on alternative hydroelectric projects being considered by Acres American, Inc. and (2) receipt of information on the project selected for further study by Acres American, Inc. and the Alaska Power Authority. The expected timing of the first of these events requires that Work Packages 1 and 2 be nearly complete by November 1, 1980. According to the schedule, the draft profile of general socioeconomic conditions will be in a final drafting process (see Work Package 2, Work Item f) during the early part of November, 1980. This will allow work to begin on the preliminary socioeconomic impact studies of alternative projects. The expected timing of the second event requires that a forecast of socioeconomic conditions (assuming no hydroelectric development) be made prior to October 1, 1981. To ensure that this timetable is met, work on the forecast (Work Package 4) is to commence on March 1, 1981 and end by September 1, 1981 -- one full month ahead of schedule. This scheduling provides some protection should unexpected delays occur.

EXHIBIT V-1

PRODUCTION SCHEDULE.



Note: Letters within boxes correspond to work items of work packages.
: Receive information on alternative projects from Acres, TES, and other project participants.
: Submit to TES.
: Receive information on selected project from Acres, TES, and other project participants.

[1]Submit to TES, Inc. within 30 days of receiving comments on Draft Phase I Report.

VI. PERSONNEL

Descriptions of qualifications required to perform Phase I, Socio-economic Analysis, and each of its work packages are provided in the following section. These descriptions are provided at the work package level of detail and frequently at the work item level of detail for work items that require special skills and/or experience.

The second section presents key personnel and their experience in socio-economic analysis and related work. This section concludes with an exhibit that links personnel to work packages and work items.

A. DESCRIPTIONS OF QUALIFICATIONS

This study requires that personnel be able to: (1) efficiently gather and interpret secondary data from all relevant sources; (2) gather and analyze primary data; and (3) develop and successfully implement a forecasting methodology. Further, it requires that a Project Manager (Principal Investigator) be able to manage and coordinate personnel efforts in a manner consistent with budget and time constraints. This includes ensuring that: (1) the best data are available for use in the study; (2) these data are collected in a cost-effective manner (i.e., properly sequenced in time and place to use professional time efficiently); and (3) forecasting methods are consistent with the data available and responsive to information (contract) requirements. It may be desirable on efficiency (cost) grounds for the Project Manager (Principal Investigator) to assign some of these responsibilities to a Project Leader.

Work Package 1: Literature Review

This work package requires personnel who are: (1) familiar with economic and social impact literature, including hydroelectric impact studies; (2) experienced in literature search techniques; (3) effective in telephone interviews; (4) able to review massive studies quickly and efficiently; (5) experienced in interview preparation and procedures; and (6) able to synthesize information from many sources into a concise, usable document. It also requires a person to lead (manage) personnel who participate in different elements of the work package.

Work Package 2: Socioeconomic Profile Development

Work Items a. and b. require personnel who are familiar with Alaska and the Fairbanks/Anchorage corridor. These personnel must also be very perceptive and be able to think in broad as well as narrow, or detailed, terms.

Work Item c. requires personnel who have knowledge of relevant secondary and primary sources of data and who have experience in assessing these or similar sources of data. Work Item d., on the other

hand, only requires personnel who have experience in efficiently accessing these data. The person(s) assigned to collect primary data at or near the potential dam site(s) should be accustomed to outdoor living and the outdoor environment.

Work Item e. requires personnel who can efficiently compile data, and Work Item f. requires personnel who are able to synthesize information from different types of sources into a concise, usable document.

Finally, a Work Packge Leader is needed who is experienced in profile development processes.

Work Package 3: Preliminary Socioeconomic Impact Studies

This work package requires personnel who are experienced and skilled at performing economic and social impact analyses with and without the benefit of baseline projections. These personnel should have been involved to a substantial degree in Work Packages 1 and 2.

A Work Package Leader should be assigned to this work package, as Work Item d. has the potential for being quite complex.

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

This work package requires personnel who are trained, experienced, and skilled with forecasting methodology development and application. One of these personnel should be familiar with economic and social forecasting methodologies utilized in Alaska government, academic, and private sector institutions. It would be desirable for one of the personnel to be knowledgable of the results of these forecasts.

As with the preceding work packges, a Work Package Leader is necessary. This person should have a working knowledge of forecasting techniques, but not necesarily those used by Alaska institutions.

B. KEY PERSONNEL

Robert L. Anderson, Group Leader (TES)

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

- Principal Investigator on study to analyze and develop projection of tax and municipal fiscal impacts of growth and development for three coastal communities. For Coastal Consultants, Ltd., 1980.

- Served as consultant on study to assess growth, municipal service structure, and fiscal and social impacts of major steel plant construction. For Davenport-Gallo Associates, 1979.

- Project Manager of program to develop methodology for determining primary and consequent environmental and economic impacts of land and water uses in coastal area. For St. Lawrence - Eastern Ontario Commission, 1977.

- Principal Investigator in development and implementation of methodology to determine areas of concern based on environmental, economic, and cultural factors in a coastal area. For St. Lawrence - Eastern Ontario Commission, 1976.

- Coordinated and directed environmental and comprehensive planning programs throughout three-year study period for five-county area, for a regional planning and economic development board, 1973-76.

Frank Orth, Ph.D., Principal Investigator

Dr. Orth is responsible for management of the socioeconomic analysis that is being performed by Frank Orth & Associates, Inc. Previous experience relevant to this project includes:

- Managed study of the market structure of Alaska's seafood processing sector. Study included extensive primary data collection from the Alaska Department of Fish and Game and from private industry. For the University of Alaska Sea Grant Program, 1977-79.

- Project Manager on study to determine the economic impact of Outer Continental Shelf Oil Development on the razor clam fishery of the Northern and Western Gulf of Alaska. For Alaska Sea Grant Program and the U.S. Bureau of Land Management, 1978-79.

- An analysis of economic impact of proposed civic, recreation, and convention center on economy of Cordova, Alaska. For Linck-Thompson Engineers and Planners, 1973.

- Orth, F. L. (contributor). 1974. "Economic Analysis and Load Projections." Alaska Power Survey. Federal Power Commission.

- Project Manager and analyst on study to estimate benefits and costs, and macroeconomic impacts, of U.S. fisheries development. Developed methodology for analysis, directed and coordinated staff research and project integration. For National Marine Fisheries Service and U.S. Department of Commerce Task Force on Fisheries Development, 1979.

- Estimated current and future levels of credit demand from the commercial fisheries and agriculture industries of Alaska. For Federal Intermediate Credit Bank of Spokane, Washington, 1978-79.

- Developed and implemented methodology to estimate capital requirements of the Alaska Commercial Fisheries and Agriculture Bank. For Alaska Department of Commerce and Economic Development, 1978-79.

- Project Manager on study to identify foreign investment in Alaska seafood processing sector, to evaluate the corporate reporting requirements, and to assess the economic implications of foreign investment. For House Interim Committee on Foreign Investment, Alaska Legislature, 1979-80.

- Orth, F. L., January, 1974. "The Fairbanks Economy in the 1970's." Alaska Construction and Oil.

Peter Rogers, Project Leader

Mr. Rogers has over five years of experience that has included development and implementation of research strategies for forecasting industry activity levels, social and economic impact analysis, and cost/benefit analysis. Some examples of his work related to this project include:

- Project Leader -- determined the economic impact of outer continental shelf oil development on the razor clam industry of the Northern and Western Gulf of Alaska. Developed and utilized a methodology to forecast biological and economic variables. Variables forecasted included employment of capital and labor, values and volumes of harvested and processed products, resource availability, availability of support sector facilities, and income. For Alaska Sea Grant Program and U.S. Bureau of Land Management, 1978-79.

- Work Package Leader -- determined capital requirements for the Alaska agriculture industry to the year 1990. Participated in the valuation of Alaska's fishing fleet utilizing regression techniques; conducted vessel value survey as a prerequisite to the valuation exercise. For Department of Commerce and Economic Development, State of Alaska, 1978-79.

- Project Leader -- developed social criteria for the evaluation of potential investments and ongoing and completed projects in Alaska renewable resource industries. Incorporated social criteria into a comprehensive and consistent social evaluation system. The system was designed to interface with financial and economic evaluation systems. For Alaska Renewable Resources Corporation, 1979.

- Project Leader on study that analyzed the relation between foreign equity investment and foreign control of the Alaska seafood processing industry. Developed and compared foreign investment policy options available to the State of Alaska. Coordinated project efforts and prepared draft and final reports. For House Interim Committee on Foreign Investment of the Alaska Legislature, 1978-80.

- Reviewed and integrated recent studies concerning market structure of the U.S. seafood processing industry. Presented industrial organization theory in a manner understandable to a varied audience. For Alaska Sea Grant Program, 1978.

- Analyzed the economic impact of limiting vessel entry into the Washington State salmon fishing industry. Developed and implemented methodology, and coordinated the project in its early and middle stages. For Washington Sea Grant Program, Washington, 1976-77.

- Analyzed and assessed the domestic market potential of currently under-utilized fish and shellfish species under U.S. jurisdiction. Analysis based upon trend analysis of import, export, and domestic production data. Assessed relative importance of consumer characteristics, resource availability, institutional structure, and state of technology as impediments to market development. Also reviewed and synthesized literature on U.S. seafood consumers. For National Marine Fisheries Service, U.S. Department of Commerce, 1978-79.

Irene Gendron, Work Package Leader

Ms. Gendron has over eight years of experience in economic and financial analysis, market planning, data processing, and administration. Her work includes economic forecasts of prices, interest rates, and corporate income for a variety of industries. Some examples of her work related to this project include:

- Project Leader and researcher for an inventory of information on the socioeconomic characteristics of the commercial and recreational fisheries off Washington, Oregon, and California. For Pacific Fishery Management Council, 1978.

- Work Package Leader -- analyzed the market structure of the Hawaiian fisheries and recommended a plan of new market development for currently under-utilized species. Recommendations were formulated to counteract major impediments to development while preserving the unique cultural integrity of the Hawaiian fishing industry. For Hawaii Fish and Game Division, Department of Land and Natural Resources, 1979.

- Project Leader for a bottomfish and salmon fish plant feasibility analysis. Selected species and product forms for plant based on resource availability and market factors. For a private client, 1979 - present.

- Assisted in the development of programming models for scheduling loan maturities and yields. 1975.

- Participated in developing and implementing a computerized model for projecting bank income, margin-on-funds, loan and demand deposits, and other balance sheet items based on alternative interest rate scenarios. Updated the model monthly and prepared status reports for management. 1973-75.

- Conducted an inventory and market potential analysis for developing Northwest Indian-controlled resources. For the United Indians of All Tribes Foundation, Seattle, 1978-79.

- Prepared marketing programs for bottomfish development for several private corporations in Alaska. Analyzed world supply and demand conditions for various bottomfish species/product forms. Studied capacity, routing, and cost attributes of the Alaska transportation system and recommended the most cost-effective distribution for each plant. Various private clients, 1976-78.

Consultants

Consultants will provide advice and direction to individual work items, as appropriate. Consultants will also review working drafts and draft reports on request. Descriptions of consultants and their primary project roles are presented below.

Monica Thomas

Ms. Thomas is an economist and is affiliated with the University of Alaska. She has extensive experience in socioeconomic research in Alaska, and has expertise in data base development and modeling of the Alaskan economy. Her primary role will be to assist in identifying and accessing data bases, and in reviewing socioeconomic profiles and impact analyses.

Homan-McDowell Associates

Homan-McDowell Associates is an Alaskan economic and business consulting firm based in Juneau since 1971. One of its strongest assets is its knowledge of local, regional, and statewide economics, and detailed knowledge of economic data sources, their quality, and their application. Its primary role will be to assist with literature searches, sources of data, and evaluations of forecasting methodologies.

William Workman, Ph.D.

Dr. Workman is an Associate Professor with the University of Alaska. He has studied in the areas of agricultural and natural resource economics, quantitative methods, and economic theory. He has taught courses in each of these areas as well as in managerial economics. His research and publications cover topics in human resource development, agricultural marketing, outdoor recreation management, forestry economics, and land-use economics and planning. Dr. Workman's research efforts have been directed toward providing both private and public entities with information to aid in decision-making processes and to improve resource allocation. His primary role will be to review resource valuations and impact analyses.

Joseph Terry, Ph.D.

Dr. Terry is an Assistant Professor with the University of Alaska, and has studied in the areas of public finance, economic development, and economic theory. He has lectured in each of these

subjects. His research and publications include topics in public finance, resource development, and community impact analysis. Dr. Terry conducted applied economic research for both federal and state governments. Of particular note, he developed and applied community impact analyses. His primary roles will be to assist in the evaluation and development of forecasting methodologies, and to review the impact analysis.

Other

An as yet to be identified consultant that has substantial experience in determining and assessing social impacts of natural resource development will review the social impact methodology and results.

Personnel Assignments

Exhibit VI-1 shows how personnel and consultants are to be allocated among work packages. In addition, a Work Package Leader is designated for each work package.

EXHIBIT VI-1

ALLOCATION OF PERSONNEL AND CONSULTANTS AMONG WORK PACKAGES

WORK PACKAGE	WORK PACKAGE LEADER	KEY STAFF SUPPORT	OTHER STAFF SUPPORT	CONSULTANT
1. Literature Review	Irene Gendron	Frank Orth Peter Rogers	David Davies	Homan-McDowell Associates
2. Socioeconomic Profile Development	Peter Rogers	Frank Orth Irene Gendron	Wendy Harris Sandi McKenzie David Davies	Monica Thomas Homan-McDowell Associates William Workman
3. Preliminary Socioeconomic Impact Studies	Peter Rogers	Frank Orth Irene Gendron	Larry Johnson Wendy Harris David Davies	
4. Forecast of Socieconomic Conditions in Absence of Susitna Project	Frank Orth	Irene Gendron Peter Rogers	David Davies	Joseph Terry Homan-McDowell Associates