

MALIBU CREEK ENVIRONMENTAL RESTORATION LOS ANGELES COUNTY, CALIFORNIA

PROJECT MANAGEMENT PLAN



June 2001



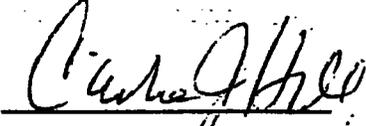
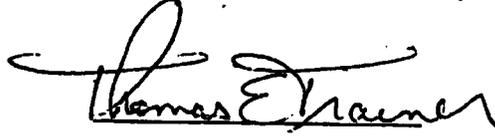
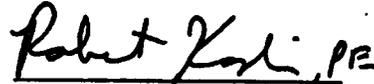
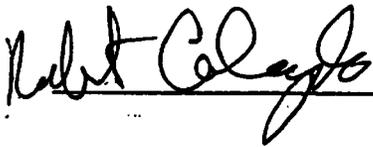
**US Army Corps
of Engineers®**
Los Angeles District



California State Parks

CONCURRENCE PAGE

As members of the Los Angeles District Project Review Board, we the undersigned, concur in the Project Management Plan dated May 2001 for the Malibu Creek Environmental Restoration Study. We understand that the Project Management Plan is a living management document that will be updated throughout the course of the study.

<u>Name/Title</u>	<u>Signature</u>	<u>Date</u>
RUTH VILLALOBOS Chief, Planning Division		6/14/01
BRIAN MOORE Chief, PPM		5/23/01
CARRIE HILL Chief, PMOB		5/3/01
GEORGE BEAMS Chief, Con-Ops Division		4/19/01
ROBERT KOPLIN Chief, Engineering Division		6/13/01
STEPHEN TEMMEL Office of Counsel		4-16-01
 THERESA KAPLAN Chief, Real Estate Division		23 April 01

MALIBU CREEK ENVIRONMENTAL RESTORATION STUDY
PROJECT MANAGEMENT PLAN

TABLE OF CONTENTS

Chapter 1- Purpose and Scope	1-1
Chapter 2 - Section 905(b)(WRDA) Analysis	2-1
Chapter 3 - Work Breakdown Structure	3-1
Chapter 4 - Scopes of Work	4-1
Chapter 5 - Responsibility Assignment	5-1
Chapter 6 – Feasibility Study Schedule	6-1
Chapter 7 - Feasibility Cost Estimate	7-1
Chapter 8 - Quality Control Plan	8-1
Chapter 9 - Identification of Procedures and Criteria	9-1
Chapter 10 - Coordination Mechanisms	10-1

ENCLOSURES

Enclosure A - Project Area Map	A-1
Enclosure B - CESPDMilestone System – Feasibility Phase	B-1
Enclosure C - Detailed Scopes of Work	C-1
Enclosure D - PMP Quality Certification	D-1
Enclosure E - List of Acronyms	E-1

MALIBU CREEK ENVIRONMENTAL RESTORATION STUDY **PROJECT MANAGEMENT PLAN**

CHAPTER I – PURPOSE AND SCOPE

1. DEFINITION OF A PROJECT MANAGEMENT PLAN:

a. The Project Management Plan (PMP) is an attachment to the Feasibility Cost Sharing Agreement (FCSA), which defines the planning approach, activities to be accomplished, schedule, and associated costs that the Federal Government and the local sponsor(s) will be supporting financially. The PMP, therefore defines a contract between the Corps and the local Sponsor(s), and reflects a "buy in" on the part of the financial backers, as well as those who will be performing, and reviewing, the activities involved in the feasibility study.

b. The PMP is a basis for change. Because planning is an iterative process without a predetermined outcome, more or less costs and time may be required to accomplish reformulation and evaluations of the alternatives. With clear descriptions of the scopes and assumptions outlined in the PMP deviations are easier to identify. The impact in either time or money is easily assessed and decisions can be made on how to proceed. The PMP provides a basis for change.

c. The PMP is a basis for the review and evaluation of the feasibility report. Since the PMP represents a contract among study participants, it will be used as the basis to determine if the draft feasibility report has been developed in accordance with established procedures and previous agreements. The PMP reflects mutual agreements of the district, division, sponsor and HQUSACE into the scope, critical assumptions, methodologies, and level of detail for the studies that are to be conducted during the feasibility study. Review of the draft report will be to insure that the study has been developed consistent with these agreements. The objective is to provide early assurance that the project is developed in a way that can be supported by higher headquarters.

d. The PMP is a study management tool. It includes scopes of work that are used for funds allocation by the Project Manager. It forms the basis for identifying commitments to the non-Federal sponsor and serves as a basis for performance measurement.

2. SUMMARY OF PROJECT MANAGEMENT PLAN REQUIREMENTS:

This PMP is comprised of the following chapters:

- Chapter 1 - Purpose and Scope. This chapter includes the definition of the PMP and a summary of the PMP requirements.
- Chapter 2 - Section 905(b) Analysis. This chapter includes the approved Section 905(b) Analysis that includes an overview of the reconnaissance study findings, the plan formulation rationale and proposed streamlining initiatives. This chapter also documents any deviations from the approved Section 905(b) Analysis that have occurred during the negotiations of the FCSA.

- Chapter 3 - Work Breakdown Structure. A product based Work Breakdown Structure (WBS) defines the project, sub-projects, parent tasks and tasks that will be accomplished through the study.
- Chapter 4 - Scopes of Work. A detailed scope of the tasks and activities that describe the work to be accomplished, in narrative form, that answers the questions: "what, how, and how much". This chapter provides a reference to the detailed scopes of work which are included as Enclosure C to the PMP.
- Chapter 5 - Responsibility Assignment. An Organizational Breakdown Structure (OBS) will define "who" will perform work on the study. This allows the identification of the functional organization that will perform each of the tasks in a Responsibility Assignment Matrix (RAM).
- Chapter 6 – Feasibility Study Schedule. The schedule will define "when" key decision points, CESPDP milestone conferences and mandatory HQUSACE milestones will be accomplished.
- Chapter 7 - Feasibility Cost Estimate. This is the baseline estimate for the feasibility study.
- Chapter 8 - Quality Management Plan: This chapter supplements the district's Quality Management Plan. It highlights any deviations to the district's plan and lists the members of the study team and the independent review team.
- Chapter 9 - Identification of Procedures and Criteria: This chapter identifies references to the regulations and other guidance that covers the planning process and reporting procedures.
- Chapter 10 - Coordination Mechanisms: This chapter describes the study's public involvement program.

CHAPTER II

MALIBU CREEK ENVIRONMENTAL RESTORATION STUDY SECTION 905(b) (WRDA 86) ANALYSIS

1. STUDY AUTHORITY

a. This Section 905(b) (WRDA) Analysis was prepared as an initial response to the resolution adopted by the House Committee on Public Works and Transportation, dated 5 February 1992, which reads as follows:

“Resolved by the Committee on Public Works and Transportation of the United States of Representatives, that the Board of Engineers for Rivers and Harbors, is requested to review the report of the Chief of Engineers on Point Mugu to San Pedro Breakwater, California Beach Erosion Control Study, published as House Document 277, Eighty-third Congress, Second Session, and other pertinent reports, to determine whether modifications of the recommendations contained therein are advisable at the present time, in the interest of shore protection, storm damage reduction, and other purposes along the shores of Southern California from Point Mugu to the San Pedro Breakwater and nearby areas within Ventura County and Los Angeles County, California.”

b. Funds in the amount of \$100,000 were appropriated in Fiscal Year 1998 to conduct the reconnaissance phase of the study by a resolution adopted by the House Committee on Public Works and Transportation, dated 5 February 1992, which reads as follows:

“The Committee has provided \$100,000 for the Corps of Engineers to undertake a reconnaissance study of environmental restoration and shoreline protection in the Malibu Creek Watershed.”

2. STUDY PURPOSE

The purpose of the reconnaissance phase study is to determine if there is a Federal (Corps) interest in participating in a cost shared feasibility phase study to determine if there is a Federal interest in providing ecosystem restoration and watershed management improvements at Malibu Creek, California. In response to the study authority, the reconnaissance study was initiated in Fiscal Year 1998. The reconnaissance study has resulted in the finding that there is a Federal interest in continuing the study into the feasibility phase. The purpose of this Section 905(b) (WRDA) Analysis is to document the basis for this finding and establish the scope of the feasibility phase. As the document that establishes the scope of the feasibility study, the Section 905(b) (WRDA) Analysis is used as the chapter of the Project Management Plan that presents the reconnaissance overview and formulation rationale.

3. LOCATION OF STUDY, NON-FEDERAL SPONSOR AND CONGRESSIONAL DISTRICTS

a. The study area is located approximately 30 miles west of downtown Los Angeles, California. The drainage area covers approximately 109 square miles of the Santa Monica Mountains and Simi Hills. Malibu Creek and its tributaries drain into Malibu Lagoon and Santa Monica Bay. Malibu Creek Watershed runs through western Los Angeles County and empties

into the Pacific Ocean at Malibu Lagoon. Malibu Canyon Road/Las Virgenes Road form the primary north/south route through the watershed. Approximately two-thirds of the watershed is located in northwestern Los Angeles County, and the remaining one-third is in southeastern Ventura County. Elevations in the watershed range from over 3,100 feet at Sandstone Peak in Ventura County, to sea level at Santa Monica Bay.

b. The non-Federal sponsor for the feasibility phase of the study is the California Department of Parks and Recreation (CDPR).

c. The study area lies within the jurisdiction of the following Congressional Districts:

- 1) 24th Congressional District (D – Brad Sherman), California.

4. PRIOR REPORTS AND EXISTING PROJECTS

a. The following reports were being reviewed as a part of this study:

- 1) “Malibu Creek Steelhead Habitat Assessment”, dated May 1989, was prepared by Robert F. Franklin and Soyka S. Dobush of ENTRIX, Inc. This study has shown that the steelhead trout population along the Malibu Creek area could increase threefold if habitat upstream of Rindge Dam could be accessed.
- 2) “Malibu Creek/Santa Monica Mountains, Steelhead Investigations”, dated April 1990, was prepared by T.P. Keegan for California Trout, Inc. This report estimated that providing passage at Rindge Dam and possibly three minor barriers above Rindge Dam would allow the steelhead access of about 5 miles of additional habitat.
- 3) “Malibu Creek Watershed Natural Resources Plan, Plan of Work, Los Angeles and Ventura Counties, California”, dated June 1992, was prepared by the US Department of Agriculture - Soils Conservation Service for the Topanga-Las Virgenes Resource Conservation District. This plan of work addressed resource problems and concerns with emphasis on water quality problems in the Malibu Creek Watershed.
- 4) “Rindge Dam, Los Angeles County: Application for California Point of Historical Interest”, dated August 6, 1993, was prepared by a committee to designate Rindge Dam as a California Point of Historical Interest. This report provides construction facts and the historical importance of the Rindge Dam as well as other information on the Malibu Creek Watershed.
- 5) “Report of Geotechnical and Environmental Study, Malibu Creek Steelhead Restoration Project, Malibu Area, Los Angeles County, California”, dated May 23, 1993, was prepared by Law/Randall, Inc. for the State of California. This study addressed some issues related to the feasibility of removing the sediment deposited behind Rindge Dam. The study results indicated that it is feasible to de-water and remove the sediment that has accumulated. The report also identified possible beneficial uses for the material, including beach nourishment, road construction, and others.

- 6) “Malibu Creek Fishery Enhancement Study, Appraisal Report”, dated October 1994, was prepared by the Bureau of Reclamation for the Department of Fish and Game. This study has identified and evaluated several alternatives for removing Rindge Dam and the sediment behind the dam. Some of these alternatives are: (a) mechanical removal of dam and sediment and disposal of sediment in an engineered landfill, and (b) incremental removal of the dam section, while allowing the sediment to be transported by natural stream flow.
- 7) “Rindge Dam Removal Study, Appraisal Report”, dated April 1995, was prepared by the Bureau of Reclamation for the Department of Fish and Game. This study identified and evaluated several alternatives for removing Rindge Dam and sediment behind the dam.
- 8) “Steelhead Restoration and Management Plan for California”, dated February 1996, was prepared by the Department of Fish and Game. This management plan addressed the decline of the steelhead trout Statewide and focused on the restoration of native and naturally produced (wild) stocks, because these stocks have the greatest value for maintaining genetic and biological diversity. This management plan also addressed the importance of the steelhead trout as a valued and important resource to California’s citizens, for both angling and non-consumptive users. The report recommendations included items such as the continuation of the investigations regarding the removal of Rindge Dam and the assessment of Malibu Creek’s environmental conditions to determine the impact of recent fires and earthquakes.
- 9) “Reconnaissance Report, Malibu/Los Angeles County Coastline, Los Angeles County, California”, dated April 1994, was prepared by the U.S. Army Corps of Engineers, Los Angeles District. This report identified areas in need of sand nourishment and storm damage protection.
- 10) The Malibu Creek Watershed and Malibu Lagoon are presently the subjects of an extensive management planning process. This process includes (a) development of an understanding of the physical processes, (b) assessment of enhancement opportunities, and (c) development of strategies for long-term management of the watershed and Malibu Lagoon. These studies are managed and directed by a number of local technical task forces (Malibu Creek Watershed Executive and Advisory Council, Steelhead Restoration Task Force, and Malibu Lagoon Task Force).

5. PLAN FORMULATION

During a study, six planning steps that are set forth in the Water Resource Council’s Principles and Guidelines are repeated to focus the planning effort and eventually to select and recommend a plan for authorization. The six planning steps are: 1) specify problems and opportunities, 2) inventory and forecast conditions, 3) formulate alternative plans, 4) evaluate effects of alternative plans, 5) compare alternative plans, and 6) select recommended plan. The iterations of the planning steps typically differ in the emphasis that is placed on each of the steps. In the early iterations, those conducted during the reconnaissance phase, the step of specifying problems and opportunities is emphasized. That is not to say, however, that the other steps are

ignored since the initial screening of preliminary plans that results from the other steps is very important to the scoping of the follow-on feasibility phase studies. The sub-paragraphs that follow present the results of the initial iterations of the planning steps that were conducted during the reconnaissance phase. This information will be refined in future iterations of the planning steps that will be accomplished during the feasibility phase.

a. National Objectives

1) The national or Federal objective of water and related land resources planning is to contribute to national economic development consistent with protecting the nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. Contributions to National Economic Development (NED) are increases in the net value of the national output of goods and services, expressed in monetary units. Contributions to NED are the direct net benefits that accrue in the planning area and the rest of the nation.

2) The Corps has added a second national objective for Ecosystem Restoration in response to legislation and administration policy. This objective is to contribute to the nation's ecosystems through ecosystem restoration, with contributions measured by changes in the amounts and values of habitat.

b. Public Concerns: A number of public concerns have been identified during the course of the reconnaissance study. Initial concerns were expressed in the study authorization. Additional input was received through coordination with the sponsor, and some initial coordination with other agencies. The public concerns that are related to the establishment of planning objectives and planning constraints are:

- 1) Restoration of Steelhead Habitat - As well as physical barriers, steelhead success within the watershed may be adversely affected by poor water quality. Increased water temperatures, low dissolved oxygen levels, and potentially high nutrient loads may also affect the success of the steelhead trout in the Malibu Creek watershed.
- 2) Habitat Changes - Removal of Rindge Dam would provide steelhead access to suitable spawning and rearing habitat upstream of the dam. Improvements to water quality within Malibu Creek (reduced temperatures, increased dissolved oxygen levels, among others) would reduce environmental stresses on steelhead and potentially improve breeding and survival rates.
- 3) Water Quality - The effects of water quality on the success of steelhead habitat restoration will be evaluated during the study. Specific water quality parameters to steelhead success including, among others, temperature, dissolved oxygen levels, and water velocity will be considered. Specific actions to improve water quality, when warranted, will be evaluated and discussed in the study.
- 4) Flood Control - The existing Rindge Dam has completely filled in with sediment; therefore, this dam provides no flood control. During peak events, entire flow of Malibu Creek cascades over the top crest. For smaller flood events, water flows over the spillway and drops approximately 90 feet to the natural elevation of Malibu Creek. The existing conditions indicate that the

dam does not provide any flood control benefits; therefore, the removal of this dam may not have the possibility to cause flooding in the downstream reaches.

- 5) Water Supply - The original intent of the Rindge Dam was to provide water supply for agricultural purposes. Since the existing conditions indicate that there is no water storage available behind Rindge Dam, water supply cannot be used at this time.
- 6) Bank Erosion - There may be a potential of bank erosion along the channel if the dam is removed. The dam has altered the naturally steep channel alignment, creating a milder slope upstream along Malibu Creek. If the dam and sediment is removed, and the channel is returned to its original vertical slopes, there may be the possibility that the channel banks could erode, thus creating additional problems.
- 7) Beach Nourishment - There may be potential beneficial uses of the accumulated sediment (behind the dam) to nourish the downstream beaches to protect development from coastal storm damage.
- 8) Sedimentation Behind Rindge Dam - The Rindge Dam created an obstruction along Malibu Creek, thus trapping the sediment behind the dam. Since there was no maintenance performed for this dam, the sediment accumulated to the crest of this structure.

c. Problems and Opportunities: The evaluation of public concerns often reflects a range of needs, which are perceived by the public. This section describes these needs in the context of problems and opportunities that can be addressed through water and related land resource management. For each problem and opportunity, the existing conditions and the expected future conditions are described, as follows:

1) Rindge Dam was built between April 1924 and January 1925 by the Rindge family to provide approximately 574 acre-feet of water storage for agricultural needs. The dam is located in Malibu Creek, approximately 2.5 miles upstream from the Pacific Ocean. Rindge Dam is a concrete arch structure 100 feet in height with an arc length of 175 feet at its crest and 95 feet at its base. Sediment carried by Malibu Creek deposited behind the dam until the mid-1950's, at which point the entire dam was filled with sediment and therefore, became useless as a water storage reservoir. It is estimated that between 800,000 and 1,600,000 cubic yards of sediment lies trapped behind the dam. Presently, the dam is considered to be a major contributor of the declining numbers of steelhead along the Malibu Creek area. It does impede the migration of this endangered species into the upper tributaries of Malibu Creek.

If no action is taken to secure passage for the steelhead trout to reach the Upper Malibu Creek Watershed and its tributaries, the dam will continue to obstruct this endangered species from reaching the upstream portion of the watershed, thereby limiting the amount of spawning and rearing habitat available to the steelhead. In addition, the dam would continue to act as a barrier to wildlife movement for other terrestrial and aquatic species. It is also expected that if the Malibu area beaches are not supplied by sand nourishment, these beaches would continue to erode and experience additional storm damages.

2) Malibu Lagoon is one of the two last remaining estuaries in Los Angeles County. It is a small shallow water embayment, covering approximately 13 acres. The lagoon is a remnant of a once more extensive group of estuaries within the Southern California region, from Point Conception to the international border with Mexico. The lagoon has been severely degraded over the past 20 years due to urbanization of the Malibu Creek Watershed. In this unique ecosystem, freshwater meets salt water and serves as a fish hatchery as well as an important migratory stop for birds navigating up and down the Pacific flyway. The lagoon is home to two endangered species of fish, the steelhead trout and the tidewater goby. Malibu Lagoon is heir to numerous problems whose causes stem from activities occurring upstream, as well as those attendant upon a coastal lagoon in an urban area. Unseasonable flows, increased sedimentation, instream structures, loss of habitat, loss of tidal prism, mechanical breaching of the mouth, encroaching development, heavy recreational use, and eutrophication are some of the difficult conditions encountered in the lagoon. Circulation in the lagoon is extremely poor, and coupled with the presence of excess nutrients from undetermined sources, results in eutrophication and algae blooms in the summer. The potential threat to the biota in the lagoon and the impacts to lagoon habitat - home to the listed tidewater goby and one of the southern-most surviving steelhead in the U.S. are not clearly understood.

d. Planning Objectives: The national objectives of National Economic Development and National Ecosystem Restoration are general statements and not specific enough for direct use in plan formulation. The water and related land resource problems and opportunities identified in this study are stated as specific planning objectives to provide focus for the formulation of alternatives. These planning objectives reflect the problems and opportunities and represent desired positive changes in the without project conditions.

The primary planning objective of the study is to restore the Malibu Creek ecosystem and terrestrial and aquatic habitat, as well as restoring the wildlife movement corridor within the watershed. Other objectives that will be considered as appropriate may involve possible beneficial use of sediment for beach nourishment or other environmental restoration (such as a shallow-water habitat).

e. Planning Constraints: Unlike planning objectives that represent desired positive changes, planning constraints represent restrictions or difficulties that may be faced during project implementation. The planning constraints identified in this study are as follows:

- 1) Location of dam would make removal of sediment difficult, due to hauling limitations on Malibu Canyon Road. Malibu Canyon Road is a heavily traveled two-lane (one in each direction) road, with many curves and sight limitations.
- 2) Limited water supply may have an impact on a slurry transport option, during the dry season.
- 3) Existing environmental habitat may have to be avoided throughout project area.
- 4) The Rindge family has voiced strong opposition to the removal of the dam.

- 5) Water quality issues. Quality of water must be suitable for steelhead or any other benefits claimed.

f. Measures to Address Identified Planning Objectives. A management measure is a feature or activity at a site, which address one or more of the planning objectives. A wide variety of measures were considered, some of which were found to be infeasible due to technical, economic, or environmental constraints. Each measure was assessed and a determination made regarding whether it should be retained in the formulation of alternative plans. The descriptions and results of the evaluations of the measures considered in this study are presented below:

1) No Action. The Corps is required to consider the option of “No Action” as one of the alternatives in order to comply with the requirements of the National Environmental Policy Act (NEPA). No Action assumes that no project would be implemented by the Federal Government or by local interests to achieve the planning objectives. No Action, which is synonymous with the Without Project Condition, forms the basis from which all other alternative plans are measured.

- 2) Other alternatives to be examined in the feasibility study are outlined in Table

1.

Table 1 – Preliminary Alternatives

Alt	Description	Expected Benefits		Estimated Cost (\$1,000,000)
		Habitat Restoration	Beneficial Use of Sediment	
1	Removal of Rindge Dam and disposal of sediment at a designated disposal site (landfill, etc.)	YES	NO	40
2	Removal of Rindge Dam and disposal of sediment along the Malibu beaches	YES	YES	25
3	Removal of Rindge Dam and use sediment to create a shallow-water habitat	YES	YES	25
4	Installation of conduits through the dam and reservoir to secure steelhead trout passage to the upstream habitat	YES	NO	10
5	Construction of a Borland fish ladder and a benched flume at Rindge Dam to transport native steelhead trout upstream for spawning and restoring the habitat area below the dam	YES	NO	5

g. Conclusions from the Preliminary Screening. The preliminary screening indicates that the alternatives listed in Table 1 have the greatest potential for implementation. At this level of

study, it is apparent that the alternatives would result in net environmental benefits through ecosystem restoration. Additional incidental benefits may be derived from beach nourishment, and/or recreation. Of particular importance is that all of the action alternatives would provide for an increase in freshwater aquatic habitat, primarily for the endangered steelhead. It is estimated that if Rindge Dam were removed and habitat upstream of the dam became accessible to the steelhead, their population could expand threefold from pre-1960 estimates. Removing the barriers to steelhead migration along Malibu Creek, primarily Rindge Dam, would allow steelhead to access an estimated additional 430 square meters (4,630 sq. ft.) of spawning habitat and 3.2 linear kilometers (2 miles) of rearing habitat within the Malibu Creek Watershed. Access to this habitat represents total spawning and rearing habitat gains of approximately 590% and 180%, respectively (Franklin and Dobush 1989). In addition, removal of the sediment from behind the dam could provide an estimated one million cubic yards of beach nourishment for Malibu beaches (Las Tunas State Beach, Topanga Beach, etc.).

h. Establishment of a Plan Formulation Rationale. The conclusions from the preliminary screening form the basis for the next iteration of the planning steps that will be conducted in the feasibility phase. The likely array of alternatives that will be considered in the next iteration includes, but is not limited to, the alternatives listed in Table 1.

6. FEDERAL INTEREST

Since ecosystem restoration appears justified and is a high priority budget output and that ecosystem restoration is the primary output of the alternatives to be evaluated, there is Federal interest in conducting the feasibility study. There is also Federal interest in other related outputs of the alternatives, such as beach nourishment, possible recovery of Federally-listed endangered species (steelhead) and limited recreation (hiking trails) that could be developed within the existing policy. Based on the preliminary screening of alternatives, there appears to be potential project alternatives that would be consistent with Army policies, costs, benefits, and environmental impacts.

7. PRELIMINARY FINANCIAL ANALYSIS

As the local sponsor, California Department of Parks and Recreation (CDPR) will be required to provide 50 percent of the cost of the feasibility phase. The local sponsor is also aware of the cost sharing requirements for potential project implementation. A letter of intent from the local sponsor stating a willingness to pursue the feasibility study, to share in its cost, and an understanding of the cost sharing that is required for project construction, is included as Attachment IIa.

8. ASSUMPTIONS AND EXCEPTIONS

a. Feasibility Phase Assumptions: The following critical assumptions will provide a basis for the feasibility study:

- 1) The dam will continue to obstruct steelhead from reaching the upstream portion of the watershed, thereby limiting the amount of spawning and rearing habitat.
- 2) The dam would continue to act as a barrier to wildlife movement for other terrestrial and aquatic species.

- 3) If the Malibu area beaches are not supplied by sand nourishment, these beaches would continue to erode and experience additional storm damages

9. FEASIBILITY PHASE MILESTONES

Milestone	Description	Date
Milestone F1	Initiate Study	May-01
Milestone F2	Public Workshop/Scoping	Jul-01
Milestone F3	Feasibility Scoping Meeting	Jun-02
Milestone F4	Alternative Review Conference	Mar-03
Milestone F4A	Alternative Formulation Briefing	Aug-03
Milestone F5	Draft Feasibility Report	Dec-03
Milestone F6	Final Public Meeting	Jan-04
Milestone F7	Feasibility Review Conference	Feb-04
Milestone F8	Final Report to SPD	May-04
Milestone F9	DE's Public Notice	Jun-04
-	Chief's Report	Oct-04
-	Project Authorization	Feb-05

10. FEASIBILITY PHASE COST ESTIMATE

WBS#	Description	Cost
JAA00	Feas - Surveys and Mapping except Real Estate	\$ 75,000
JAB00	Feas - Hydrology and Hydraulics Studies/Report (Coastal)	\$ 207,000
JAC00	Feas - Geotechnical Studies/Report	\$ 153,550
JAE00	Feas - Engineering and Design Analysis Report	\$ 347,000
JB000	Feas - Socioeconomic Studies	\$ 80,000
JC000	Feas - Real Estate Analysis/Report	\$ 56,600
JD000	Feas - Environmental Studies/Report (Except USFWS)	\$ 232,560
JE000	Feas - Fish and Wildlife Coordination Act Report	\$ 40,000
JF000	Feas - HTRW Studies/Report	\$ 57,650
JG000	Feas - Cultural Resources Studies/Report	\$ 35,000
JH000	Feas - Cost Estimates	\$ 50,100
JI000	Feas - Public Involvement Documents	\$ 25,300
JJ000	Feas - Plan Formulation and Evaluation	\$ 153,500
JL000	Feas - Final Report Documentation	\$ 79,100
JLD00	Feas - Technical Review Documents	\$ 90,600
JM000	Feas - Washington Level Report Approval (Review Support)	\$ 50,000
JPA00	Project Management and Budget Documents	\$ 50,000
JPB00	Supervision and Administration	\$ 30,000
JPC00	Contingencies	\$ 150,940
xxxxx	Sponsor Study Management	\$ 64,000
L0000	Project Management Plan (PMP)	\$ 27,100
Q0000	PED Cost Sharing Agreement	\$ 10,000
Total		\$2,065,000

11. VIEWS OF OTHER RESOURCE AGENCIES

Because of the funding and time constraints of the reconnaissance phase, only limited and informal coordination has been conducted with other resource agencies. During the reconnaissance study, the Corps regularly participated in the Malibu Lagoon Task Force meetings. Other agencies in attendance supported the Corps study, with a view towards restoring steelhead migration upstream of Rindge Dam. Some of the agencies involved were:

- a. U.S. Fish & Wildlife Service
- b. California State Coastal Conservancy
- c. Las Virgenes Municipal Water District
- d. California Department of Fish & Game
- e. California Trout
- f. The National Marine Fisheries Service
- g. Resource Conservation District of the Santa Monica Mountains
- h. California Department of Parks & Recreation
- i. National Park Service

12. POTENTIAL ISSUES AFFECTING INITIATION OF FEASIBILITY PHASE

a. Continuation of this study into the cost-shared feasibility phase is contingent upon an executed FCSA. Mr. Ronald L. Rindge (grandson of the original owner of the dam) has expressed strong opposition to the removal of the dam and has presented major concerns, such as: (1) claims that steelhead never migrated to the upper Malibu Creek Watershed, prior to construction of the dam; (2) the high cost of removing the dam; (3) the decline of steelhead population could be related to other factors, such as poor water quality in Malibu Creek and Santa Monica Bay; and (4) the dam removal will eliminate potential use for flood control. This issue is not expected to impact the implementation of the feasibility phase.

b. The schedule for signing the Feasibility Cost Sharing Agreement (FCSA) is December 2000. Based on the schedule of milestones in Paragraph 9., completion of the feasibility report would be in December 2003, with a potential Congressional Authorization in a WRDA 2005 (should there be a WRDA bill in 2005).

13. PROJECT AREA MAP

A map of the study area is provided as Enclosure A.

14. RECOMMENDATIONS

The approved, July 1998, 905(b) Analysis is enclosed as Attachment IIb.

DEPARTMENT OF PARKS AND RECREATION



Angeles District
1925 Las Virgenes Road
Calabasas, California 91302
(818)880-0350

July 13, 1998

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To	Andrew Kadish	From	State Parks
Co.	CESPLPD-CN	Co.	
Dept.		Phone #	
Fax #		Fax #	

Colonel Robert L. Davis
District Engineer, Los Angeles District
U. S. Army Corps of Engineers
P. O. Box 532711
Los Angeles, California, 90053-2325

Re: Malibu Creek Environmental Restoration Study

Dear Colonel Davis:

The California Department of Parks and Recreation supports the ongoing efforts of the U. S. Army Corps of Engineers Reconnaissance Study on Malibu Creek. The Department is willing to support the recommended feasibility study that will further develop and evaluate alternatives to restore access to the steelhead and other species to the upper Malibu Creek watershed. We are pleased that the Reconnaissance Study found at least five alternative solutions to achieve this goal.

The California Department of Parks and Recreation is interested in entering into a cost-sharing agreement with the U. S. Army Corps of Engineers for this feasibility study, subject to completion of negotiations on the Project Study Plan (PSP) and the Feasibility Cost-Sharing Agreement (FCSA), and assembly of the non-Federal funds. The Department understands that a FCSA will have to be signed prior to initiating the feasibility study. The Department further understands that the feasibility study must be cost-shared 50 percent Federal and 50 percent non-Federal, and of the 50 percent non-Federal share, 50 percent can be in-kind services.

We look forward to working with the U. S. Army Corps of Engineers to develop and evaluate solutions to restore the steelhead habitat along Malibu Creek and recommend beneficial use for the deposited sand, such as beach nourishment for Malibu beaches.

If you have any questions, please contact me at 818/880-0350.

Sincerely,

Russell G. Guiney

Russell G. Guiney
District Superintendent

ENCLOSURE IIa

EXPEDITED RECONNAISSANCE STUDY
Section 905 (b) (WRDA 86) Analysis
Malibu Creek, California
July 1998

1. STUDY AUTHORITY: This study is being conducted in accordance with the following:

(a) A study resolution adopted by the House Committee on Public Works and Transportation, dated 5 February 1992, which reads as follows:

“ Resolved by the Committee on Public Works and Transportation of the United States of Representatives, that the Board of Engineers for Rivers and Harbors, is requested to review the report of the Chief of Engineers on Point Mugu to San Pedro Breakwater, California Beach Erosion Control Study, published as House Document 277, Eighty-third Congress, Second Session, and other pertinent reports, to determine whether modifications of the recommendations contained therein are advisable at the present time, in the interest of shore protection, storm damage reduction, and other purposes along the shores of Southern California from Point Mugu to the San Pedro Breakwater and nearby areas within Ventura County and Los Angeles County, California.”, and

(b) A Fiscal Year 1998 Energy and Water Development Appropriations Bill, House of Representatives Report 105-190, dated 21 July 1997, which reads as follows:

“The Committee has provided \$100,000 for the Corps of Engineers to undertake a reconnaissance study of environmental restoration and shoreline protection in the Malibu Creek Watershed.”

2. STUDY PURPOSE: The purpose of the Reconnaissance Study is to determine if there is a Federal interest in restoring ecological conditions along Malibu Creek, which has been obstructed by Rindge Dam and other barriers which restrict the migration of steelhead to the upper watershed. The study has the main objective of restoring the Malibu Creek ecosystem and terrestrial and aquatic habitat, as well as the restoration of a wildlife movement corridor within the watershed. The study will evaluate existing conditions with respect to removal of Rindge Dam and its reservoir’s sediment accumulation and examine potential beneficial uses of accumulated sediment to nourish the downstream beaches to protect development from coastal storm damage.

The Reconnaissance Phase also includes developing a Project Study Plan (PSP) for the cost-sharing Feasibility Phase of the study and executing a Feasibility Cost-Sharing Agreement (FCSA) that is supported by both the Federal and non-Federal interests. The primary areas of concern to be addressed in the study, in response to the study resolution and coordination with the local sponsor, are environmental habitat restoration and beneficial use of sediment.

3. LOCATION OF PROJECT/ CONGRESSIONAL DISTRICT: Malibu Creek and its tributaries are located approximately 30 miles west of downtown Los Angeles, California (see Fig.1). The drainage area covers approximately 109 square miles of the Santa Monica Mountains and Simi Hills. Malibu Creek and its tributaries flow into Malibu Lagoon and Santa Monica Bay. Approximately two-thirds of the watershed is located in northwestern Los Angeles County, and the remaining one-third is in southeastern Ventura County. The watershed runs through western Los Angeles County and empties into the Pacific Ocean at Malibu Lagoon. Malibu Canyon Road/ Las Virgenes Road form the primary north/ south route through the watershed. Rindge Dam is located in Malibu Creek, approximately 2.5 miles upstream from the Pacific Ocean. The study is located within the 24th Congressional District (D-Brad Sherman) of California.

4. DISCUSSION OF PRIOR STUDIES, REPORTS AND EXISTING WATER PROJECTS:

(1) A report entitled “Malibu Creek Steelhead Habitat Assessment”, dated May 1989, was prepared by Robert F. Franklin and Soyka S. Dobush of ENTRIX, Inc. This study has shown that the steelhead trout population along the Malibu Creek area could increase threefold if habitat upstream of Rindge Dam could be accessed.

(2) A report entitled “Malibu Creek/ Santa Monica Mountains, Steelhead Investigations, dated April 1990, was prepared by T.P. Keegan for California Trout, Inc. This report estimated that providing passage at Rindge Dam and possibly three minor barriers above Rindge Dam would allow the steelhead access of about 5 miles of additional habitat.

(3) A report entitled “Malibu Creek Watershed Natural Resources Plan, Plan of Work, Los Angeles and Ventura Counties, California”, dated June 1992, was prepared by the US Department of Agriculture - Soils Conservation Service for the Topanga-Las Virgenes Resource Conservation District. This plan of work addressed resource problems and concerns with emphasis on water quality problems in the Malibu Creek Watershed.

(4) A report entitled “ Rindge Dam, Los Angeles County: Application for California Point of Historical Interest”, dated August 6, 1993, was prepared by a committee to designate Rindge Dam as a California Point of Historical Interest. This report provides construction facts and the historical importance of the Rindge Dam as well as other information on the Malibu Creek Watershed.

(5) A report entitled “Report of Geotechnical and Environmental Study, Malibu Creek Steelhead Restoration Project, Malibu Area, Los Angeles County, California”, dated May 23, 1993, was prepared by Law/ Randall, Inc. for the State of California. This study addressed some issues related to the feasibility of removing the sediment deposited behind Rindge Dam. The study results indicated that it is feasible to de-water and remove the sediment that has accumulated. The report also identified possible beneficial uses for the material, including beach nourishment, road construction, and others.

(6) A report entitled “Malibu Creek Fishery Enhancement Study, Appraisal Report”, dated October 1994, was prepared by the Bureau of Reclamation for the Department of Fish and Game. This study has identified and evaluated several alternatives for removing Rindge Dam and the sediment behind the dam. Some of these alternatives are: (a) mechanical removal of dam and sediment and disposal of sediment in an engineered landfill, and (b) incremental removal of the dam section, while allowing the sediment to be transported by natural stream flow.

(7) A report entitled “ Rindge Dam Removal Study, Appraisal Report”, dated April 1995, was prepared by the Bureau of Reclamation for the Department of Fish and Game. This study identified and evaluated several alternatives for removing Rindge Dam and sediment behind the dam.

(8) A report entitled “Steelhead Restoration and Management Plan for California”, dated February 1996, was prepared by the Department of Fish and Game. This management plan addressed the decline of the steelhead trout Statewide and focused on the restoration of native and naturally produced (wild) stocks, because these stocks have the greatest value for maintaining genetic and biological diversity. This management plan also addressed the importance of the steelhead trout as a valued and important resource to California’s citizens, for both angling and non-consumptive users. The report recommendations included items such as the continuation of the investigations regarding the removal of Rindge Dam and the assessment of Malibu Creek’s environmental conditions to determine the impact of recent fires and earthquakes.

(9) A report entitled “Reconnaissance Report, Malibu/ Los Angeles County Coastline, Los Angeles County, California”, dated April 1994, was prepared by the U.S. Army Corps of Engineers, Los Angeles District. This report identified areas in need of sand nourishment and storm damage protection.

(10) The Malibu Creek Watershed and Malibu Lagoon are presently the subjects of an extensive management planning process. This process includes (a) development of an understanding of the physical processes, (b) assessment of enhancement opportunities, and (c) development of strategies for long-term management of the watershed and Malibu Lagoon. These studies are managed and directed by a number of local technical task forces (Malibu Creek Watershed Executive and Advisory Council, Steelhead Restoration Task Force, and Malibu Lagoon Task Force).

5. PLAN FORMULATION:

a. Identified problems

(1) Existing Conditions:

Rindge Dam was built between April 1924 and January 1925 by the Rindge family to store 574 acre-feet of water for agricultural irrigation. The dam is a concrete arch structure 30.48 meters (100 ft.) in height with an arch length of 53 meters (175 ft.) at its crest and 29 meters (95 ft.) at its base. The dam became subject to State jurisdiction for safety following passage of legislation in August 1929. Construction of the dam has obstructed the natural flow of Malibu Creek. Heavy silt loads in the creek resulted in sediment deposition in the reservoir, which was completely filled with sediment by the late 1950's and therefore, became useless as a water storage reservoir. The amount of sediment stored behind the dam is estimated to be between 800,000 and 1,600,000 cubic yards. Presently, the dam is considered by the California Department of Fish and Game, U.S. Bureau of Reclamation, California Trout, Inc., and other State and local agencies to be a major contributor of the declining numbers of steelhead along the Malibu Creek area. Rindge Dam and possibly three minor barriers upstream of the dam impede the migration of this endangered species into the upper tributaries of Malibu Creek. These minor barriers are: (1) a natural falls near the tunnel on Malibu Canyon Road, (2) a concrete apron at the county-operated stream gage below the mouth of Cold Creek, and (3) a concrete road crossing at Malibu Creek State Park (see Fig. 1).

The total area of spawning habitat available in Malibu Creek is 504 square meters. The highest quality spawning habitat is concentrated in narrow gorge sections between the mouth of Cold Creek and a point 2.0 kilometers below Rindge Dam (see Fig. 1). Rearing habitat is available in a total of 4,867 meters of channel, with the highest quality habitat concentrated in narrow gorge sections both below Cold Creek and above Las Virgenes Creek (see Fig. 1). A study conducted by California Trout, Inc. in 1989 indicated that, currently, 86% of the spawning habitat and 65% of the rearing habitat in Malibu Creek is inaccessible to steelhead due to Rindge Dam and possibly the above-mentioned three minor barriers.

In addition, Lower Malibu Creek and Malibu Lagoon have experienced some ecological changes since the early 1920's due to the urbanization of Malibu Creek Watershed and the construction of Rindge Dam. Historically, Malibu Creek flowed only during winter and spring months. However, with recent upstream urban development and the steady increase in water flows from the Tapia treatment plant, flows in recent years have occurred on a year-round basis. Presently, the the University of California at Los Angeles (U.C.L.A) is conducting a comprehensive study for the California Coastal Conservancy and the Malibu Lagoon Task Force to develop and implement a restoration and management plan for this important estuarine habitat.

In 1994, the U.S. Army Corps of Engineers completed a reconnaissance report to study the beach erosion problems along the Malibu/ Los Angeles County coastline. The report indicated that there is a potential for storm damages to existing public and private development along eight (8) reaches of the Los Angeles County shoreline. These are: (a) Zuma County Beach, (b) Escondido Beach, (c) Dan Blocker State Beach, (d) Puerco Beach, (e) Malibu Colony, (f) Malibu Creek to Big Rock Beach, (g) Las Tunas State Beach, and (h) Topanga Beach to Santa Monica Boulevard. Protection of these reaches against storm damages include sand nourishment as a common alternative.

(2) Expected Future Conditions:

If no action is taken to secure passage for the steelhead trout to reach the Upper Malibu Creek Watershed and its tributaries, the dam will continue to obstruct this endangered species from reaching the upstream portion of the watershed, thereby limiting the amount of spawning and rearing habitat available to the steelhead. In addition, the dam would continue to act as a barrier to wildlife movement for other terrestrial and aquatic species. It is also expected that if the Malibu area beaches are not supplied by sand nourishment, these beaches would continue to erode and experience additional storm damages.

(3) Problems and opportunities:

Malibu Creek and Malibu Lagoon are presently experiencing major environmental problems, including wildlife movement obstruction, steelhead habitat restriction, urban runoff, confined animal runoff, wastewater discharge, accelerated sediment loading, and erosion of its downcoast beaches. Presently, the water quality issues are being investigated by U.C.L.A. for the California Coastal Conservancy, the Resource Conservation District of the Santa Monica Mountains, and the Malibu Lagoon Task Force. This effort is expected to produce a restoration plan for Lower Malibu Creek and Malibu Lagoon.

The Feasibility Study would focus on the problem of restoring freshwater aquatic habitat, especially for the steelhead, as it relates to the Rindge Dam and any beneficial use of the sediment to nourish the vicinity beaches (such as Las Tunas State Beach, Topanga Beach, and others).

b. Alternative plans: The array of alternative plans to be examined in the feasibility study includes the following:

Alt	Description	Expected Benefits		Estimated Cost (\$1,000,000)
		Habitat Restoration	Beneficial Use of Sediment	
1	Removal of Rindge Dam and disposal of sediment at a designated disposal site (landfill, etc.)	YES	NO	40
2	Removal of Rindge Dam and disposal of sediment along the Malibu beaches	YES	YES	25
3	Removal of Rindge Dam and use sediment to create a shallow-water habitat	YES	YES	25
4	Installation of conduits through the dam and reservoir to secure steelhead trout passage to the upstream habitat	YES	NO	10
5	Construction of a Borland fish ladder and a benched flume at Rindge Dam to transport native steelhead trout upstream for spawning and restoring the habitat area below the dam	YES	NO	5

c. Evaluation of Alternatives: At this level of study, it is apparent that the alternatives would result in net environmental benefits through ecosystem restoration. Additional incidental benefits may be derived from beach nourishment, and recreation. Of particular importance is that all of the action alternatives would provide for an increase in freshwater aquatic habitat, primarily for the endangered steelhead. It is estimated that if Rindge Dam were removed and habitat upstream of the dam became accessible to the steelhead, their population could expand threefold from pre-1960 estimates. Removing the barriers to steelhead migration along Malibu Creek, primarily Rindge Dam, would allow steelhead to access an estimated additional 430 square meters (4,630 sq. ft.) of spawning habitat and 3.2 linear kilometers (2 miles) of rearing habitat within the Malibu Creek Watershed. Access to this habitat represents total spawning and rearing habitat gains of approximately 590% and 180%, respectively (Franklin and Dobush 1989). In addition, removal of the sediment from behind the dam could provide about one million cubic yards of beach nourishment for Malibu beaches (Las Tunas State Beach, Topanga Beach, etc.).

6. FEDERAL INTEREST: Since ecosystem restoration appears justified and is a high priority budget output and that ecosystem restoration is the primary output of the alternatives to be evaluated, there is Federal interest in conducting the feasibility study. There is also Federal interest in other related outputs of the alternatives, such as beach nourishment, possible recovery of Federally-listed endangered species (steelhead) and limited recreation (hiking trails) that could be developed within the existing policy.

7. PRELIMINARY FINANCIAL ANALYSIS: There are numerous parties that are interested in this study, including California Department of Parks and Recreation (CDPR), California Department of Fish and Game, California Coastal Conservancy, US National Park Service, and other State and Los Angeles County interests. The CDPR has submitted a “Letter of Intent” indicating their willingness to participate in the Feasibility Study.

8. RECOMMENDATIONS: The recommendation resulting from the reconnaissance level investigations is that the Los Angeles District proceed with a cost-shared feasibility study of ecosystem restoration and related purposes subject to a non-Federal sponsor indicating their willingness to provide cost-sharing requirements. A Project Study Plan will be developed and coordination with interested parties will continue during the reconnaissance study to assist arranging for the non-Federal sponsor and cost-sharing for this project.

9. POTENTIAL ISSUES AFFECTING INITIATION OF FEASIBILITY PHASE: A number of State and local agencies have indicated interest to continue the study through the feasibility phase. These agencies are presently exploring the needed arrangements to provide the non-Federal cost of the Feasibility Study. Mr. Ronald L. Rindge (grandson of the original owner of the dam) has expressed strong opposition to the removal of the dam and has presented major concerns, such as: (1) claims that steelhead never migrated to the upper Malibu Creek Watershed, prior to construction of the dam, (2) The high cost of removing the dam, (3) The decline of steelhead population could be related mainly to other factors, such as poor water quality in Malibu Creek and Santa Monica Bay, and (4) The dam removal will eliminate potential use for flood control. These concerns will be addressed during the Feasibility Phase of the study.

10. PROJECT AREA MAP: A project map is attached (Fig. 1).

CHAPTER III – WORK BREAKDOWN STRUCTURE

1. LEVELS OF THE WORK BREAKDOWN STRUCTURE

The work breakdown structure is divided into the following four levels.

a. Level 1: The Project

b. Level 2: The Subprojects are established by the phase that is appropriated by Congress – in this case the feasibility phase of the study. This level includes the major products generated in the feasibility phase: the Feasibility Report, the Project Management Plan and the PED Agreement.

b. Level 3: The Parent Tasks are generally identified as separate products that go into the final feasibility phase documentation. Examples of these subprojects include such items as the real estate report, the H&H report, etc. These parent tasks are normally identified with the responsibility of a particular functional organization.

c. Level 4: The Tasks are major separable elements of the subprojects that are keyed to separately identifiable products that are developed for the major feasibility study milestones. These tasks are elements of work resulting in a deliverable product which have a beginning and an end, may be accomplished within one functional organization, can be described at a work order of detail and are the lowest level that will be specifically tracked with respect to cost and schedule. As an example, the cost estimates for the draft feasibility report would be an example of a task. Tasks can be described as the summation of activities that would be accomplished by a particular functional organization between two of the milestone events. The milestones are defined in Chapter IV and Enclosure B. The following durations between milestones are generally used for the establishment of tasks.

- 1) – Between Milestone F1 and F3
- 2) – Between Milestone F3 and F4
- 3) – Between Milestone F4 and F4A
- 4) – Between Milestone F4A and F5
- 5) – Between Milestone F5 and F8
- 6) – Between Milestone F8 and F9

d. Level 5: The Activities are separate elements of work that are managed by the functional managers to whom the tasks are assigned and which may not necessary result in a deliverable work product to another organization. These activities are not tracked separately in terms of cost and schedule but are described in the scopes of work to the extent required to provide a clear understanding of the work required.

2. LISTING OF TASKS - WORK BREAKDOWN STRUCTURE

In accordance with the levels above, the following work breakdown structure indicates subprojects and parent tasks in bold type, followed by the subordinate tasks.

<<Attach spreadsheet>>

2. LISTING OF TASKS - WORK BREAKDOWN STRUCTURE

In accordance with the levels above, the following work breakdown structure indicates subprojects and parent tasks in bold type, followed by the subordinate tasks.

WBS#	Description
J0000	Feasibility Report (Feas)
J0000	Milestones
	Initiate Feasibility Phase
	Feas Study Public Workshop (F2)
	Feas Study Conference #1 (F3)
	Feas Study Conference #2 (F4)
	Date of AFB
	Public Review of Draft Report
	Final Public Meeting
	Feasibility Review Conference
	Feasibility Report wNEPA
	MSC Commander's Public Notice
	Filing of Final EIS/EA
	Chief's Report to ASA (CW)
	ROD Signed or FONSI Signed
	President Signs Authorization
JA000	Engineering Appendix
JAA00	Feas - Surveys and Mapping except Real Estate
	Surveys and Mapping - Without Project Conditions
	Collection of Existing Mapping and Aerial Photography
	New Aerial Photography and Contour Mapping
	GIS/LIS input
JAB00	Feas - Hydrology and Hydraulics Studies/Report
	H&H - Without Project Conditions & Preliminary Plans
	Research and Review
	Data Collection
	Field Reconnaissance
	Existing Structures Review & Data Collection
	Discharge-Frequency Analysis
	Volume-Frequency Analysis
	Debris Yields Estimation
	Draft Without-Project Hydrologic Documentation
	Sediment Accumulation
	Preparation of Cross-Sections
	Hydraulic Analysis
	Sediment Budget
	Sediment Trapping Efficiency of Existing Structure
	HEC-6 Model for Sediment Transport (~2 miles)
	Draft Without-Project Sedimentation Documentation
	Draft Without-Project Hydraulic Documentation
	H&H - With Project Conditions for Final Plans
	Impacts on Debris Yields
	Downstream Impacts
	Draft With-Project Hydrologic Documentation
	Hydraulic Analysis

	Channel Stabilization w/o Rindge Dam
	Draft With-Project Hydraulic Documentation
	Sediment Transport - Model Results
	Draft With-Project Sedimentation Documentation
	H&H - Draft Report
	Final Hydrologic Documentation
	Final Hydrology & Hydraulics Appendix
	Final Sedimentation Documentation
	H&H - Final Report
	Meetings, Conferences, Coordination
	Independent Technical Review, Address Comments, File Material
JAC00	Feas - Geotechnical Studies/Report
	Geotech - Without Project Conditions & Preliminary Plans
	Field Recon of Impound
	Auguring Contract
	USACE Labor in Support of Auguring
	Geotech - With Project Conditions for Final Plans - Part I
	Dewatering System & Malibu Creek Diversion
	Develop Trucking Costs
	Landfilling
	Sluicing
	Ocean Water Pumping Costs
	Conveyor System Transport
	Geotech - With Project Conditions for Final Plans - Part II
	Field Recon of Spillway
	Coring Contract
	USACE Costs in Support of Coring
	Engr, Stone, and Mtrls Analyses in Support of Channel Const, and Documentation
	Geotech - AFB Documentation
	Finalize the Report
JAE00	Feas - Engineering and Design Analysis/Report
	Engr & Design - Without Project Conditions & Preliminary Plans
	Research and Review Existing Information & Reports
	Meetings, Conferences, Coordination
	Engr & Design - With Project Conditions (Structural Analysis for 6 Alternatives)
	Alts 4, 5 & No Action. Simplified Dynamic/Finite Element Analysis of Dam (A/E)
	Alts 1, 2 & 3. Prelim. Analysis for Removal of Dam & Appurtenant Structures
	Alt. 4. Prelim Analysis for Removing a Portion of Dam and/or Spillway for Outlet Conduit
	Alt 4. Preliminary Design of Conduit
	Alt 5. Preliminary Design of Fish Ladder & Benched Flume
	All Alts. Preliminary Analysis for Removing Three Other River Obstructions
	All Alts. Preliminary Design of Replacing Road Crossing with Single Span Bridge
	CADD/Drafting Support
	Meetings, Conferences, Coordination
	Engr & Design - AFB documentation (Detailed Analysis for Selected Alternative)
	Detailed FE Model & Response Spectrum Analysis for Dam to Remain in Place. (A/E)
	Detail Design for Fish Ladder, Conduit, Single Span Bridge and Other Features.
	Detail Analysis of Removing All or Portions of Rindge Dam & Appurtenant Structures.
	CADD/Drafting Support
	Meetings, Conferences, Coordination
	Draft Structural Appendix
	Engr & Design - Draft Report

	Final Draft Structural Appendix
	Independent Tech Review, Address Comments
	Engr & Design - Final Report
	Meetings, Conferences, Coordination
	Address Comments & Respond
JB000	Feas - Socioeconomic Studies
	Socioecon - Without Project Conditions & Preliminary Plans
	Literature Search
	Determine Baseline Recreation Market and Resources
	Determine Baseline Environmental Conditions
	Prepare Draft F3 Econ Appendix
	Socioecon - With Project Conditions for Final Plans
	Estimate Projected Demand for Recreation
	Forecast Potential Recreation Use in Study Area
	Assess Recreational Impacts of Alternatives
	Forecast Recreation Use Under With Project Conditions
	Determine Unit Day Values/Net Recreation Benefits
	Assist in Development of Environmental Increment Measures.
	Quantify Environmental Impacts of Alternative Increments
	Annualize Costs and Calculate Annual Costs Per H.U.
	Perform Incremental Cost Analysis by Feature
	Incorporate Risk and Uncertainty Analysis
	Perform Final Cost/Benefit Analysis on Restoration Alternatives
	Incorporate Risk and Uncertainty Analysis into Final Alternatives Analysis
	Coordinate With Cost Engineering
	Meetings, Conferences, Coordination
	Socioecon - AFB Documentation
	Meetings, Conferences, Coordination
	Draft Economics Appendix
	Socioecon - Draft Report
	Final Draft Economics Appendix
	Independent Tech Review, Address Comments
	Socioecon - Final Report
	Meetings, Conferences, Coordination
	Address Comments & Respond
JC000	Feas - Real Estate Analysis/Report
	Participate With Planning PM and Other District Elements in Discussions and Meetings
	Attend Meetings With Non-Federal Sponsor
	Real Estate - Without Project Conditions & Preliminary Plans
	Determine Land Requirements and Estates
	Initiate Discussions With Non-Fed Sponsor Regarding Acquisition Policies and Prclds
	Real Estate - With Project Conditions for Final Plans
	Obtain Rights-of-Entry
	Provide Schedules for RE Acquisition (Discuss With PM and Sponsor)
	Map Preparation
	Real Estate Cost Estimates
	Real Estate - Draft Report
	Prepare REP for Inclusion in Feasibility Report or Other Decision Document
	Real Estate - Final Report
	Review Report for Accuracy and Consistency (ITR)
JD000	Feas - Environmental Studies/Report (Except USFWS)
	Environ - Without Project Conditions & Preliminary Plans

	Issue Notice of Intent
	Scoping Meeting
	Establish Without Project Conditions
	GIS Mapping/Spatial Analysis
	F3 Documentation-Existing Conditions
	Agency Coordination
	A-E Contracting (2 Delivery Orders)
	Independent Technical Review
	Environ - With Project Conditions for Final Plans
	Develop Alternatives
	Preliminary Impact Analysis-All Resources
	Preliminary Mitigation Plans/HEP Analysis
	Agency Coordination
	Independent Technical Review
	Environ - AFB Documentation
	Prepare Preliminary Draft EIS/F4 Documentation
	Agency Coordination
	Independent Technical Review
	Environ - Draft Report/EIS
	Refined Impact Analysis and Mitigation Plans
	Legal Compliance-404(b)(1) Analysis; Coastal Comm. CD; Air Conformity; Section 7
	Public Review Draft EIS
	Printing/Copying
	Agency Coordination
	Independent Technical Review
	Environ - Final Report/EIS
	Public Hearing
	Respond to Public Review Comments/Interim FEIS
	Agency Coordination
	Independent Technical Review
	Public Review FEIS
	Printing/Copying
	Record of Decision
JE000	Feas - Fish and Wildlife Coordination Act Report & Planning Aid Letter
	USFWS - Planning Aid Letter
	USFWS - Draft Coordination Act Report
	USFWS - Final Coordination Act Report
JF000	Feas - HTRW Studies/Report
	HTRW - Without Project Conditions & Preliminary Plans
	Sample Analyses, Environmental
	HTRW - With Project Conditions for Final Plans
	EPA Analysis of Quality Data
	Design District Chemist Analysis of Quality Data
	HTRW - AFB Documentation
	Finalize the Report
JG000	Feas - Cultural Resources Studies/Report
	Cultural - Without Project Conditions & Preliminary Plans
	Record & Literature Search
	SHPO Consultation
	Initiate Native American Consultation
	100% Surface Survey to Locate Known Historic Properties
	Id New Historic Properties, and Initial Evaluation of Significance of Historic Properties

	Cultural - With Project Conditions for Final Plans
	Testing of Properties as Needed
	Cultural - Draft Report
	Test Results, Report and Recommendations to SHPO
	Cultural - Final Report
	Develop MOA for Treatment of Historic Properties as Needed
JH000	Feas - Cost Estimates
	Cost Estimates - Without Project Conditions & Preliminary Plans
	Meetings, Conferences, Coordination
	Cost Estimates - With Project Conditions for Final Plans
	Research/Gathering Information
	Site Visit - Travel & Perdiem
	Quantities Evaluation
	MCACES Estimates for Alternatives
	Meetings, Conferences, Coordination, Filing
	Cost Estimates - AFB Documentation
	Refine MCACES Estimate for Recommended Alternative
	Research/Gathering Information
	Quantities Evaluation
	Meetings, Conferences, Coordination
	Draft Cost Engineering Appendix
	Construction Schedule
	Cost Estimates - Draft Report
	Final Draft Cost Engineering Appendix/Documentation
	Independent Tech Review (ITR), Address Comments
	Cost Estimates - Final Report
	Meetings, Conferences, Coordination
	Address Comments & Respond
JI000	Feas - Public Involvement Documents
	Public Involvement - Without Project Conditions and Preliminary Plans
	Initial Public Meeting\NEPA Scoping
	Public Involvement Plan
	Information Dissemination
	Public Involvement - With Project Conditions for Final Plans
	Public Workshops in Support of Plan Selection
	Public Involvement - AFB Documentation
	Public Involvement Workshops to Support to AFB
	Public Involvement - Draft Report
	Final Public Meeting
	Public Involvement - Final Report
	Public Involvement Support to FRC
JJ000	Feas - Plan Formulation and Evaluation
	Plan Formulation of Preliminary Plans
	Define Existing Conditions
	Define Likely Future Conditions
	Plan Formulation for Final Plans
	Preliminary Objectives, Opportunities, and Constraints
	Plan Formulation - AFB documentation
	Final Objectives, Opportunities, and Constraints
	Recommendation of Final Plan(s)
	Plan Formulation - Draft Report
	Plan Formulation - Final Report

	Plan Formulation - Support to Division Commander's Notice
JL000	Feas - Final Report Documentation
	Reproduction and Distribution of F3 Documentation
	Reproduction and Distribution of F4/F4A Documentation
	Reproduction and Distribution of Draft Report
	Reproduction and Distribution of Final Report
JLD00	Feas - Technical Review Documents
	Independent Technical Review - F3 Documentation
	Independent Technical Review - F4 Documentation
	Independent Technical Review - AFB Documentation
	Independent Technical Review - Draft Report
	Independent Technical Review - Final Report
JM000	Feas - Washington Level Report Approval (Review Support)
JP000	Feas - Management Documents
JPA00	Project Management and Budget Documents
	Programs and Project Management to F3 Milestone
	Programs and Project Management to F4 Milestone
	Programs and Project Management - AFB documentation
	Programs and Project Management - Draft Report
	Programs and Project Management - Final Report
	Programs and Project Management - DE's Notice
JPB00	Supervision and Administration
JPC00	Contingencies
L0000	Project Management Plan (PMP)
	PMP - Draft PMP
LA000	PMP - Final PMP
Q0000	PED Cost Sharing Agreement

F-3 ONLY	START	FINISH	TOTAL	FY 2001	FY 2002
F-3 Milestone - Baseline Conditions	4-May-01	3-Jun-02			
Initiate Feasibility Phase	14-May-01	14-May-01			
Feas Study Public Workshop (F2)	23-May-01	23-May-01			
Surveys and Mapping - Without Project Conditions	4-May-01	28-Jun-01			
Collection of Existing Mapping and Aerial Photography	14-May-01	1-Jun-01	\$ 5,000	\$ 5,000	
New Aerial Photography and Contour Mapping	4-May-01	21-Jun-01	\$ 60,000	\$ 60,000	
GIS/LIS input	22-Jun-01	28-Jun-01	\$ 10,000	\$ 10,000	
H&H - Without Project Conditions & Preliminary Plans	14-May-01	14-Feb-02			
Research and Review	14-May-01	1-Jun-01	\$ 8,000	\$ 8,000	
Data Collection	14-May-01	1-Jun-01	\$ 3,000	\$ 3,000	
Field Reconnaissance	4-Jun-01	6-Aug-01	\$ 6,000	\$ 6,000	
Existing Structures Review & Data Collection	29-Jun-01	9-Aug-01	\$ 2,000	\$ 2,000	
Discharge-Frequency Analysis	10-Aug-01	13-Sep-01	\$ 7,000	\$ 7,000	
Volume-Frequency Analysis	10-Aug-01	13-Sep-01	\$ 10,000	\$ 10,000	
Debris Yields Estimation	14-Sep-01	11-Oct-01	\$ 5,000	\$ 4,000	\$ 1,000
Draft Without-Project Hydrologic Documentation	12-Oct-01	8-Nov-01	\$ 5,000		\$ 5,000
Sediment Accumulation	12-Oct-01	8-Nov-01	\$ 3,000		\$ 3,000
Preparation of Cross-Sections	9-Nov-01	30-Nov-01	\$ 10,000		\$ 10,000
Hydraulic Analysis	3-Dec-01	21-Dec-01	\$ 10,000		\$ 10,000
Sediment Budget	24-Dec-01	17-Jan-02	\$ 10,000		\$ 10,000
Sediment Trapping Efficiency of Structure	31-Dec-01	3-Jan-02	\$ 4,000		\$ 4,000
HEC-6 Model for Sediment Transport (2 miles)	4-Jan-02	24-Jan-02	\$ 23,000		\$ 23,000
Draft Without-Project Sediment Documentation	25-Jan-02	14-Feb-02	\$ 2,000		\$ 2,000
Draft Without-Project Hydraulic Documentation	18-Jan-02	14-Feb-02	\$ 5,000		\$ 5,000
Geotech - Without Project Conditions & Preliminary Plans	29-Jun-01	27-Sep-01			
Field Recon of Impound	29-Jun-01	6-Jul-01	\$ 650	\$ 650	
Auguring Contract	9-Jul-01	24-Aug-01	\$ 21,050	\$ 21,050	
USACE Labor in Support of Auguring	9-Jul-01	27-Sep-01	\$ 14,700	\$ 14,700	
Engr & Design - Without Project Conditions & Preliminary Plans	14-May-01	8-Feb-02			
Research and Review Existing Information & Reports	14-May-01	8-Feb-02	\$ 10,900	\$ 5,000	\$ 5,900
Meetings, Conferences, Coordination	14-May-01	8-Feb-02	\$ 3,700	\$ 3,000	\$ 700
Socioecon - Without Project Conditions & Preliminary Plans	20-Aug-01	5-Apr-02			
Literature Search	20-Aug-01	28-Sep-01	\$ 2,200	\$ 2,200	
Determine Baseline Recreation Market and Resources	3-Dec-01	21-Dec-01	\$ 2,800		\$ 2,800
Determine Baseline Environmental Conditions	24-Dec-01	11-Mar-02	\$ 2,200		\$ 2,200
Prepare Draft F3 Econ Appendix	12-Mar-02	5-Apr-02	\$ 8,700		\$ 8,700
Real Estate Analysis/Report	14-May-01	8-Feb-02			
Participate With Planning PM and Other District Elements in Discussions and Meetings	14-May-01	8-Feb-02	\$ 9,000	\$ 4,500	\$ 4,500
Attend Meetings With Non-Federal Sponsor	14-May-01	8-Feb-02	\$ 2,000	\$ 1,000	\$ 1,000
Environ - Without Project Conditions & Preliminary Plans	14-May-01	8-Feb-02			
Issue Notice of Intent	22-Jun-01	22-Jun-01	\$ 1,140	\$ 1,140	
Scoping Meeting	6-Aug-01	6-Aug-01	\$ 5,700	\$ 5,700	
Establish Without Project Conditions	29-Jun-01	18-Oct-01	\$ 72,960	\$ 72,960	
GIS Mapping/Spatial Analysis	19-Oct-01	8-Nov-01	\$ 19,380		\$ 19,380
F3 Documentation-Existing Conditions	3-Dec-01	21-Jan-02	\$ 3,420		\$ 3,420
Agency Coordination	14-May-01	8-Feb-02	\$ 2,850	\$ 1,500	\$ 1,350
A-E Contracting (2 Delivery Orders)	16-Jul-01	3-Aug-01	\$ 6,840	\$ 6,840	
Fish and Wildlife Coordination	19-Oct-01	8-Nov-01			
USFWS - Planning Aid Letter	19-Oct-01	8-Nov-01	\$ 25,000		\$ 25,000
HTRW - Without Project Conditions & Preliminary Plans	28-Sep-01	8-Nov-01			
Sample Analyses, Environmental	28-Sep-01	8-Nov-01	\$ 55,550		\$ 55,550
Cultural - Without Project Conditions & Preliminary Plans	14-May-01	30-Nov-01			
Record & Literature Search	14-May-01	13-Jul-01	\$ 1,000	\$ 1,000	
SHPO Consultation	16-Jul-01	10-Aug-01	\$ 1,000	\$ 1,000	
Initiate Native American Consultation	16-Jul-01	10-Aug-01	\$ 1,000	\$ 1,000	
100% Surface Survey to Locate Known Historic Properties	13-Aug-01	14-Sep-01	\$ 6,000	\$ 6,000	
Id New Historic Properties, and Initial Evaluation of Significance of Historic Properties	17-Sep-01	30-Nov-01	\$ 1,000	\$ 1,000	
Cost Estimates - Without Project Conditions & Preliminary Plans	14-May-01	8-Feb-02			
Meetings, Conferences, Coordination	14-May-01	8-Feb-02	\$ 1,400	\$ 700	\$ 700
Public Involvement - Without Project Conditions and Preliminary Plans	14-May-01	8-Feb-02			
Public Involvement Plan	14-May-01	9-Jul-01	\$ 2,000	\$ 2,000	
Initial Public Meeting/NEPA Scoping Prep	10-Jul-01	23-Jul-01	\$ 7,000	\$ 7,000	
Information Dissemination	14-May-01	8-Feb-02	\$ 1,120	\$ 620	\$ 500
Plan Formulation of Preliminary Plans	15-Feb-02	12-Apr-02			
Define Existing Conditions	15-Feb-02	14-Mar-02	\$ 30,000		\$ 30,000
Define Likely Future Conditions	15-Mar-02	12-Apr-02	\$ 31,400		\$ 31,400
Independent Technical Review - F3 Documentation	15-Apr-02	6-May-02	\$ 18,120		\$ 18,120
Reproduction and Distribution of F3 Documentation	7-May-02	31-May-02			
Complete Draft F-3 Report	7-May-02	24-May-02	\$ 7,775		\$ 7,775
Complete Final F-3 Report	27-May-02	31-May-02	\$ 12,000		\$ 12,000
Feas Study Conference #1 (F3)	3-Jun-02	3-Jun-02			
Programs and Project Management to F3 Milestone	14-May-01	31-May-02	\$ 15,000	\$ 7,500	\$ 7,500
Supervision and Administration	14-May-01	31-May-02	\$ 6,000	\$ 3,000	\$ 3,000
Sponsor Study Management	14-May-01	31-May-02	\$ 14,500	\$ 11,000	\$ 3,500
Contingencies	14-May-01	31-May-02	\$ 48,833	\$ 30,000	\$ 18,833
TOTAL			\$ 663,888	\$ 327,060	\$ 336,828

F-3 to F4/F4A ONLY	START	FINISH	TOTAL	FY 2002	FY 2003
F-3 to F-4, Formulation of Final Plans	4-Jun-02	8-Aug-03			
Feas Study Conference #1 (F3)	4-Jun-02	4-Jun-02			
Feas - Hydrology and Hydraulics Studies/Report	5-Jun-02	10-Feb-03			
Impacts on Debris Yields	5-Jun-02	9-Aug-02	\$ 5,000	\$ 5,000	
Downstream Impacts	12-Aug-02	11-Oct-02	\$ 5,000	\$ 5,000	
Draft With-Project Hydrologic Documentation	14-Oct-02	11-Nov-02	\$ 4,000		\$ 4,000
Hydraulic Analysis	5-Jun-02	9-Aug-02	\$ 9,000	\$ 9,000	
Sediment Trapping Efficiency of Structure	12-Aug-02	11-Nov-02	\$ 14,000	\$ 7,000	\$ 7,000
Channel Stabilization w/o Rindge Dam	12-Nov-02	10-Jan-03	\$ 10,000		\$ 10,000
Draft With-Project Sediment Documentation	13-Jan-03	10-Feb-03	\$ 2,000		\$ 2,000
Draft With-Project Hydraulic Documentation	13-Jan-03	10-Feb-03	\$ 7,000		\$ 7,000
Feas - Geotechnical Studies/Report	5-Jun-02	3-Feb-03			
Geotech - With Project Conditions for Final Plans - Part I	5-Jun-02	18-Oct-02			
Dewatering System & Malibu Creek Diversion	5-Jun-02	5-Jul-02	\$ 3,623	\$ 3,623	
Develop Trucking Costs	5-Jun-02	5-Jul-02	\$ 620	\$ 620	
Landfilling	8-Jul-02	5-Aug-02	\$ 1,863	\$ 1,863	
Sluicing	6-Aug-02	5-Sep-02	\$ 1,863	\$ 1,863	
Ocean Water Pumping Costs	6-Sep-02	18-Oct-02	\$ 1,243	\$ 1,243	
Conveyor System Transport	6-Sep-02	18-Oct-02	\$ 1,863	\$ 1,863	
Geotech - With Project Conditions for Final Plans - Part II	5-Jun-02	5-Dec-02			
Field Recon of Spillway	5-Jun-02	19-Jun-02	\$ 1,260	\$ 1,260	
Coring Contract	20-Jun-02	18-Oct-02	\$ 20,970	\$ 20,970	
USACE Costs in Support of Coring	20-Jun-02	17-Oct-02	\$ 6,645	\$ 5,000	\$ 1,645
Engr, Stone, and Mtrls Analyses in Support of Channel Const, and Documentation	21-Oct-02	5-Dec-02	\$ 76,550		\$ 76,550
Geotech - AFB Documentation	6-Dec-02	3-Feb-03			
Finalize the Report	6-Dec-02	3-Feb-03	\$ 650		\$ 650
Feas - Engineering and Design Analysis/Report	5-Jun-02	28-Apr-03			
Engr & Design - With Project Conditions (Structural Analysis for 6 Alternatives)	5-Jun-02	27-Dec-02			
Alts 4, 5 & No Action. Simplified Dynamic/Finite Element Analysis of Dam (A/E)	5-Jun-02	11-Nov-02	\$ 75,000	\$ 65,000	\$ 10,000
Alts 1, 2 & 3. Prelim. Analysis for Removal of Dam & Appurtenant Structures	5-Jun-02	11-Nov-02	\$ 7,300	\$ 6,000	\$ 1,300
Alt. 4. Prelim Analysis for Removing a Portion of Dam and/or Spillway for Outlet Cond	5-Jun-02	11-Nov-02	\$ 7,300	\$ 6,000	\$ 1,300
Alt 4. Preliminary Design of Conduit	5-Jun-02	11-Nov-02	\$ 3,700	\$ 3,000	\$ 700
Alt 5. Preliminary Design of Fish Ladder & Benched Flume	5-Jun-02	11-Nov-02	\$ 5,100	\$ 4,000	\$ 1,100
All Alts. Preliminary Analysis for Removing Three Other River Obstructions	5-Jun-02	11-Nov-02	\$ 3,700	\$ 3,000	\$ 700
All Alts. Preliminary Design of Replacing Road Crossing with Single Span Bridge	5-Jun-02	11-Nov-02	\$ 3,700	\$ 3,000	\$ 700
CADD/Drafting Support	5-Jun-02	22-Jul-02	\$ 5,000		\$ 5,000
Meetings, Conferences, Coordination	5-Jun-02	8-Nov-02	\$ 3,700	\$ 3,000	\$ 700
Engr & Design - AFB documentation (Detailed Analysis for Selected Alternative)	12-Nov-02	28-Apr-03			
Detailed FE Model & Response Spectrum Analysis for Dam to Remain in Place. (A/E)	12-Nov-02	3-Mar-03	\$ 125,000		\$ 125,000
Detail Design for Fish Ladder, Conduit, Single Span Bridge and Other Features.	4-Mar-03	24-Mar-03	\$ 21,900		\$ 21,900
Detail Analysis of Removing All or Portions of Rindge Dam & Appurtenant Structures.	4-Mar-03	24-Mar-03	\$ 7,300		\$ 7,300
CADD/Drafting Support	25-Mar-03	7-Apr-03	\$ 43,700		\$ 43,700
Meetings, Conferences, Coordination	28-Jan-03	25-Apr-03	\$ 3,700		\$ 3,700
Draft Structural Appendix	8-Apr-03	28-Apr-03	\$ 7,300		\$ 7,300
Feas - Socioeconomic Studies	5-Jun-02	17-Apr-03			
Socioecon - With Project Conditions for Final Plans	5-Jun-02	13-Feb-03			
Estimate Projected Demand for Recreation	5-Jun-02	26-Jun-02	\$ 1,400	\$ 1,400	
Forecast Potential Recreation Use in Study Area	5-Jun-02	26-Jun-02	\$ 1,400	\$ 1,400	
Assess Recreational Impacts of Alternatives	27-Jun-02	26-Jul-02	\$ 2,200	\$ 2,200	
Forecast Recreation Use Under With Project Conditions	29-Jul-02	26-Aug-02	\$ 3,700	\$ 3,700	
Determine Unit Day Values/Net Recreation Benefits	27-Aug-02	11-Sep-02	\$ 1,400	\$ 1,400	
Assist in Development of Environmental Increment Measures.	17-Jun-02	12-Jul-02	\$ 2,200	\$ 2,200	
Quantify Environmental Impacts of Alternative Increments	27-Aug-02	14-Oct-02	\$ 2,800	\$ 2,800	
Annualize Costs and Calculate Annual Costs Per H.U.	25-Oct-02	7-Nov-02	\$ 1,400		\$ 1,400
Perform Incremental Cost Analysis by Feature	8-Nov-02	21-Nov-02	\$ 3,700		\$ 3,700
Incorporate Risk and Uncertainty Analysis	22-Nov-02	19-Dec-02	\$ 3,700		\$ 3,700
Perform Final Cost/Benefit Analysis on Restoration Alternatives	20-Dec-02	16-Jan-03	\$ 2,200		\$ 2,200
Incorporate Risk and Uncertainty Analysis into Final Alternatives Analysis	17-Jan-03	13-Feb-03	\$ 3,700		\$ 3,700
Coordinate With Cost Engineering	25-Sep-02	24-Oct-02	\$ 2,200	\$ 2,200	
Meetings, Conferences, Coordination	5-Jun-02	12-Feb-03	\$ 3,700		\$ 3,700
Socioecon - AFB Documentation	14-Feb-03	17-Apr-03			
Meetings, Conferences, Coordination	14-Feb-03	16-Apr-03	\$ 3,700		\$ 3,700
Draft Economics Appendix	14-Feb-03	17-Apr-03	\$ 7,300		\$ 7,300
Feas - Real Estate Analysis/Report	5-Jun-02	10-Jan-03			
Obtain Rights-of-Entry	5-Jun-02	26-Jun-02	\$ 2,000	\$ 2,000	
Provide Schedules for RE Acquisition (Discuss With PM and Sponsor)	27-Jun-02	12-Aug-02			
Map Preparation	12-Nov-02	11-Dec-02	\$ 3,200		\$ 3,200
Real Estate Cost Estimates	12-Dec-02	10-Jan-03	\$ 25,000		\$ 25,000
Feas - Environmental Studies/Report (Except USFWS)	5-Jun-02	11-Jul-03			
Environ - With Project Conditions for Final Plans	5-Jun-02	13-Feb-03			
Develop Alternatives	5-Jun-02	26-Aug-02	\$ 5,700	\$ 5,700	
Preliminary Impact Analysis-All Resources	27-Aug-02	25-Oct-02	\$ 22,800	\$ 22,800	

Preliminary Mitigation Plans/HEP Analysis	28-Oct-02	10-Jan-03	\$ 11,400		\$ 11,400
Agency Coordination	5-Jun-02	9-Jan-03	\$ -		
Independent Technical Review	13-Jan-03	13-Feb-03	\$ -		
Environ - AFB Documentation	14-Feb-03	11-Jul-03			
Prepare Preliminary Draft EIS/F4 Documentation	11-Mar-03	12-Jun-03	\$ 5,700		\$ 5,700
Agency Coordination	14-Feb-03	13-Jun-03	\$ 2,850		\$ 2,850
Independent Technical Review	13-Jun-03	11-Jul-03	\$ -		
Feas - Fish and Wildlife Coordination Act Report & Planning Aid Letter	28-Oct-02	12-May-03			
USFWS - Draft Coordination Act Report	28-Oct-02	11-Feb-03	\$ 10,000		\$ 10,000
USFWS - Final Coordination Act Report	11-Mar-03	12-May-03	\$ 5,000		\$ 5,000
Feas - HTRW Studies/Report	21-Oct-02	12-May-03			
HTRW - With Project Conditions for Final Plans	21-Oct-02	4-Feb-03			
EPA Analysis of Quality Data	21-Oct-02	15-Nov-02	\$ 725		\$ 725
Design District Chemist Analysis of Quality Data	18-Nov-02	4-Feb-03	\$ 725		\$ 725
HTRW - AFB Documentation	11-Mar-03	12-May-03			
Finalize the Report	11-Mar-03	12-May-03	\$ 650		\$ 650
Feas - Cultural Resources Studies/Report	27-Aug-02	11-Nov-02			
Testing of Properties as Needed	27-Aug-02	11-Nov-02	\$ 20,000	\$ 10,000	\$ 10,000
Feas - Cost Estimates	5-Jun-02	10-Jul-03			
Cost Estimates - With Project Conditions for Final Plans	5-Jun-02	6-Jan-03			
Research/Gathering Information	5-Jun-02	30-Jul-02	\$ 2,700	\$ 2,700	
Site Visit - Travel & Perdiem	5-Jun-02	30-Jul-02	\$ 1,000	\$ 1,000	
Quantities Evaluation	31-Jul-02	24-Sep-02	\$ 2,700	\$ 2,700	
MCACES Estimates for Alternatives	12-Nov-02	6-Jan-03	\$ 16,500		\$ 16,500
Meetings, Conferences, Coordination, Filing	5-Jun-02	3-Jan-03	\$ 4,100	\$ 3,100	\$ 1,000
Cost Estimates - AFB Documentation	11-Mar-03	10-Jul-03			
Refine MCACES Estimate for Recommended Alternative	11-Mar-03	7-Apr-03	\$ 3,500		\$ 3,500
Research/Gathering Information	11-Mar-03	7-Apr-03	\$ 1,400		\$ 1,400
Quantities Evaluation	8-Apr-03	5-May-03	\$ 1,400		\$ 1,400
Meetings, Conferences, Coordination	11-Mar-03	9-Jul-03	\$ 3,500		\$ 3,500
Draft Cost Engineering Appendix	6-May-03	12-Jun-03	\$ 1,400		\$ 1,400
Construction Schedule	13-Jun-03	10-Jul-03	\$ 3,500		\$ 3,500
Feas - Public Involvement Documents	5-Jun-02	7-Aug-03			
Public Workshops in Support of Plan Selection	5-Jun-02	7-Mar-03	\$ 3,000	\$ 1,500	\$ 1,500
Public Involvement Workshops to Support to AFB	10-Mar-03	7-Aug-03	\$ 3,325		\$ 3,325
Feas - Plan Formulation and Evaluation	4-Jun-02	11-Jun-03			
Plan Formulation for Final Plans	4-Jun-02	11-Feb-03			
Preliminary Objectives, Opportunities, and Constraints	4-Jun-02	11-Feb-03	\$ 38,375	\$ 15,000	\$ 23,375
Plan Formulation - AFB documentation	12-Feb-03	11-Jun-03			
Final Objectives, Opportunities, and Constraints	12-Feb-03	11-Apr-03	\$ 10,000		\$ 10,000
Recommendation of Final Plan(s)	14-Apr-03	11-Jun-03	\$ 5,350		\$ 5,350
Project Management and Budget Documents	5-Jun-02	7-Aug-03			
Programs and Project Management to F4 Milestone	5-Jun-02	7-Mar-03	\$ 10,000	\$ 7,000	\$ 3,000
Programs and Project Management - AFB documentation	10-Mar-03	7-Aug-03	\$ 10,000		\$ 10,000
Feas - Technical Review Documents	14-Feb-03	7-Aug-03			
Independent Technical Review - F4 Documentation	14-Feb-03	7-Mar-03	\$ 18,120		\$ 18,120
Independent Technical Review - AFB Documentation	13-Jun-03	7-Aug-03	\$ 18,120		\$ 18,120
Reproduction and Distribution of F4/F4A Documentation	11-Mar-03	6-Aug-03	\$ 19,775		\$ 19,775
Feas Study Conference #2 (F4)	10-Mar-03	10-Mar-03			
Date of AFB	8-Aug-03	8-Aug-03			
Supervision and Administration	4-Jun-02	7-Aug-03	\$ 14,000	\$ 5,000	\$ 9,000
Sponsor Study Management	4-Jun-02	7-Aug-03	\$ 29,500	\$ 10,000	\$ 19,500
Contingencies	4-Jun-02	7-Aug-03	\$ 72,079	\$ 19,995	\$ 52,084
TOTAL			\$ 952,344	\$ 283,100	\$ 669,244

F4 to F9 ONLY	START	FINISH	TOTAL	FY 2002	FY 2003
F-4 to F-9 - Draft/Final Report	11-Aug-03	28-Jan-05			
Date of AFB	11-Aug-03	11-Aug-03			
Feas - Hydrology and Hydraulics Studies/Report	12-Aug-03	28-Apr-04			
H&H - Draft Report	12-Aug-03	12-Nov-03			
Final Hydrologic & Sediment Documentation	12-Aug-03	22-Sep-03	\$ 10,000	\$ 10,000	
Final Hydrology & Hydraulics (incl. Sed.) Appendix	23-Sep-03	12-Nov-03	\$ 6,000	\$ 2,000	\$ 4,000
H&H - Final Report	13-Nov-03	28-Apr-04			
Meetings, Conferences, Coordination	13-Nov-03	28-Apr-04	\$ 10,000		\$ 10,000
Independent Technical Review, Address Comments, File Material	2-Mar-04	26-Apr-04	\$ 12,000		\$ 12,000
Feas - Engineering and Design Analysis/Report	12-Aug-03	26-Apr-04			
Engr & Design - Draft Report	12-Aug-03	3-Dec-03			
Final Draft Structural Appendix	12-Aug-03	12-Nov-03	\$ 3,700	\$ 2,000	\$ 1,700
Independent Tech Review, Address Comments	13-Nov-03	3-Dec-03	\$ 3,700		\$ 3,700
Engr & Design - Final Report	4-Dec-03	26-Apr-04			
Meetings, Conferences, Coordination	4-Dec-03	21-Apr-04	\$ 800		\$ 800
Address Comments & Respond	2-Mar-04	26-Apr-04	\$ 800		\$ 800
Feas - Socioeconomic Studies	12-Aug-03	26-Apr-04			
Socioecon - Draft Report	12-Aug-03	3-Dec-03			
Final Draft Economics Appendix	12-Aug-03	12-Nov-03	\$ 7,300	\$ 6,000	\$ 1,300
Independent Tech Review, Address Comments	13-Nov-03	3-Dec-03	\$ 3,700		\$ 3,700
Socioecon - Final Report	2-Mar-04	26-Apr-04			
Meetings, Conferences, Coordination	2-Mar-04	26-Apr-04	\$ 2,200		\$ 2,200
Address Comments & Respond	2-Mar-04	26-Apr-04	\$ 3,700		\$ 3,700
Feas - Real Estate Analysis/Report	12-Aug-03	26-Apr-04			
Real Estate - Draft Report	12-Aug-03	12-Nov-03			
Prepare REP for Inclusion in Feasibility Report or Other Decision Document	12-Aug-03	12-Nov-03	\$ 15,000	\$ 13,000	\$ 2,000
Real Estate - Final Report	2-Mar-04	26-Apr-04			
Review Report for Accuracy and Consistency (ITR)	2-Mar-04	26-Apr-04	\$ 400		\$ 400
Feas - Environmental Studies/Report (Except USFWS)	12-Aug-03	27-Apr-04			
Environ - Draft Report/EIS	12-Aug-03	3-Dec-03			
Refined Impact Analysis and Mitigation Plans	12-Aug-03	8-Sep-03	\$ 4,560	\$ 4,560	
Legal Compliance-404(b)(1) Analysis; Coastal Comm. CD; Air Conformity; Sec 7	9-Sep-03	6-Oct-03	\$ 17,100	\$ 17,100	
Public Review Draft EIS	7-Oct-03	5-Nov-03	\$ 8,550		\$ 8,550
Printing/Copying	12-Aug-03	12-Nov-03	\$ 5,700	\$ 4,700	\$ 1,000
Agency Coordination (cost incl. in F3/F4)	12-Aug-03	12-Nov-03	\$ -	\$ -	
Independent Technical Review (cost incl. in overall)	6-Nov-03	3-Dec-03	\$ -	\$ -	
Environ - Final Report/EIS	4-Dec-03	27-Apr-04			
Public Hearing	4-Dec-03	4-Dec-03	\$ 5,700		\$ 5,700
Respond to Public Review Comments/Interim FEIS	2-Feb-04	27-Feb-04	\$ 11,400		\$ 11,400
Agency Coordination (cost incl. in F3/F4)	4-Dec-03	18-Mar-04	\$ -		\$ -
Independent Technical Review	1-Mar-04	26-Apr-04	\$ 4,560		\$ 4,560
Public Review FEIS	1-Jan-04	28-Jan-04	\$ 5,700		\$ 5,700
Printing/Copying	4-Dec-03	18-Mar-04	\$ 5,700		\$ 5,700
ROD Signed	27-Apr-04	27-Apr-04	\$ 2,850		\$ 2,850
Feas - Cultural Resources Studies/Report	12-Aug-03	31-Dec-03			
Cultural - Draft Report	12-Aug-03	12-Nov-03			
Test Results, Report and Recommendations to SHPO	12-Aug-03	12-Nov-03	\$ 1,000	\$ 1,000	
Cultural - Final Report	4-Dec-03	31-Dec-03			
Develop MOA for Treatment of Historic Properties as Needed	4-Dec-03	31-Dec-03	\$ 4,000		\$ 4,000
Feas - Cost Estimates	12-Aug-03	19-May-04			
Cost Estimates - Draft Report	12-Aug-03	3-Dec-03			
Final Draft Cost Engineering Appendix/Documentation	12-Aug-03	12-Nov-03	\$ 2,100	\$ 1,100	\$ 1,000
Independent Tech Review (ITR), Address Comments	13-Nov-03	3-Dec-03	\$ 3,500		\$ 3,500
Cost Estimates - Final Report	4-Dec-03	19-May-04			
Meetings, Conferences, Coordination	4-Dec-03	19-May-04	\$ 700		\$ 700
Address Comments & Respond	2-Mar-04	26-Apr-04	\$ 700		\$ 700
Feas - Public Involvement Documents	20-Nov-03	11-Dec-03			
Public Involvement - Draft Report	20-Nov-03	20-Nov-03			
Final Public Meeting	20-Nov-03	20-Nov-03	\$ 3,795		\$ 3,795
Public Involvement - Final Report	21-Nov-03	11-Dec-03			
Public Involvement Support to FRC	21-Nov-03	11-Dec-03	\$ 2,530		\$ 2,530
Feas - Plan Formulation and Evaluation	12-Aug-03	8-Jun-04			
Plan Formulation - Draft Report	12-Aug-03	12-Nov-03	\$ 23,025	\$ 13,025	\$ 10,000
Plan Formulation - Final Report	3-Feb-04	27-Feb-04	\$ 15,350		\$ 15,350
Plan Formulation - Support to Division Commander's Notice	1-Mar-04	8-Jun-04	\$ 3,030		\$ 3,030
Feas - Final Report Documentation	13-Nov-03	10-May-04			
Reproduction and Distribution of Draft Report	13-Nov-03	30-Jan-04	\$ 31,640		\$ 31,640
Reproduction and Distribution of Final Report	2-Feb-04	10-May-04	\$ 7,910		\$ 7,910
Feas - Technical Review Documents	13-Nov-03	26-Apr-04			
Independent Technical Review - Draft Report	13-Nov-03	3-Dec-03	\$ 18,120		\$ 18,120
Independent Technical Review - Final Report	2-Mar-04	26-Apr-04	\$ 18,120		\$ 18,120
Feas - Washington Level Report Approval (Review Support)	11-Aug-03	28-Apr-04	\$ 50,000	\$ 10,000	\$ 40,000

Project Management and Budget Documents	11-Aug-03	14-May-04			
Programs and Project Management - Draft Report	11-Aug-03	26-Dec-03	\$ 8,000	\$ 3,000	\$ 5,000
Programs and Project Management - Final Report	29-Dec-03	16-Apr-04	\$ 5,000		\$ 5,000
Programs and Project Management - DE's Notice	19-Apr-04	14-May-04	\$ 2,000		\$ 2,000
Complete Draft Report	4-Dec-03	2-Jan-04	\$ -		\$ -
Public Review of Draft Report	5-Jan-04	30-Jan-04	\$ -		\$ -
Feasibility Review Conference	2-Feb-04	2-Feb-04	\$ -		\$ -
Feasibility Report w/NEPA	11-May-04	11-May-04	\$ -		\$ -
MSC Commander's Public Notice	9-Jun-04	9-Jun-04	\$ -		\$ -
Filing of Final EIS/EA	1-Mar-04	1-Mar-04	\$ -		\$ -
Chief's Report to ASA (CW)	30-Sep-04	30-Sep-04	\$ -		\$ -
ROD Signed or FONSI Signed	27-Apr-04	27-Apr-04	\$ -		\$ -
President Signs Authorization	28-Jan-05	28-Jan-05	\$ -		\$ -
Supervision and Administration	11-Aug-03	28-Apr-04	\$ 10,000	\$ 2,000	\$ 8,000
Sponsor Study Management	11-Aug-03	28-Apr-04	\$ 20,000	\$ 2,000	\$ 18,000
Contingencies	11-Aug-03	28-Apr-04	\$ 30,028	\$ 3,115	\$ 26,913
Project Management Plan (PMP)	10-Jun-04	29-Sep-04			
PMP - Draft PMP	10-Jun-04	4-Aug-04	\$ 22,100		\$ 22,100
PMP - Final PMP	5-Aug-04	29-Sep-04	\$ 5,000		\$ 5,000
PED Cost Sharing Agreement	30-Sep-04	24-Nov-04	\$ 10,000		\$ 10,000
TOTAL			\$ 448,768	\$ 94,600	\$ 354,168

CHAPTER IV – SCOPES OF WORK

1. DETAILED SCOPES OF WORK

For each task that is included in the work breakdown structure, a scope of work is developed that describes the work that is to be performed. For each task, the scope describes the work, including specific activities, to be accomplished in narrative form. The scopes of work have been developed by the study team, that includes representatives of the non-Federal sponsor. The detailed scopes of work for the feasibility study are organized by parent task in Enclosure C.

2. DURATIONS OF TASKS

The durations for the tasks are entered into the project's network analysis system (NAS) to develop the schedule that is included in Chapter VI – Schedule. The durations are based on negotiations between the Project Manager and the chiefs of the responsible organizations, as identified in Chapter V, Responsibility Assignment.

3. COSTS OF TASKS

The scopes of work for the tasks are grouped by the parent tasks that they support. The total estimates for the parent tasks are then combined in the Feasibility Cost Estimate, Chapter VII. The cost estimates for the tasks are also based on negotiations between the Project Manager and the chiefs of the responsible organizations.

4. MILESTONES

Below is a listing of the milestones designed to provide a schedule of expected deliverables throughout the entirety of the feasibility phase of the project. The milestones are scoped to allow adequate time to properly review all project alternatives from an engineering, environmental, and economic standpoint.

F1 - Initiate Feasibility Phase – This is the date that the district receives Federal feasibility phase study funds; thereby, allowing the initiation of the feasibility phase study.

F2 – Feasibility Study Public Workshop – This milestone has been implemented to conduct a Public Meeting/Workshop to inform the public of the impending project study and management plan. In addition, this forum allows planning managers to obtain public opinion input and fulfill scoping requirements for National Environmental Policy Act (NEPA) purposes.

F3 – Feasibility Study Scoping Conference – This is the first Feasibility Scoping Meeting with Headquarters (HQUSACE) to address potential changes in the Project Management Plan. In addition, this meeting establishes the without project conditions and the preliminary discussions on screening preliminary plans.

F4 – Feasibility Study Alternative Review Conference – This conference is the second South Pacific Division mandatory milestone conference. The purpose of the conference is to screen the final plans in order to reach a cumulative opinion that the evaluations are adequate to select a plan and identify potential issues for the Alternative Formulation Briefing.

F4A – Date of Alternative Formulation Briefing – The Alternative Formulation Briefing (AFB) will be scheduled. The goal of the AFB process is to obtain Headquarters approval to prepare the draft report and release it for public review concurrent with forwarding the draft to Headquarters. The AFB will be held in accordance with the instructions in Appendix O of ER 1105-2-100. The AFB includes participation by Headquarters and will be chaired by the South Pacific Division’s Chief, Planning Division, or the Division’s planning program manager on behalf of the Chief, Planning Division. The planning program manager will facilitate informal coordination with Headquarters and the District to finalize the final memorandum for the AFB and will be signed at Headquarters approximately 10 days after the conference. Upon receipt of the signed memorandum from Headquarters, the planning program manager will endorse the memorandum to the district.

F5 – Public Review of Draft Report – This is the initiation of field level coordination of the draft report with a concurrent submittal to the HQUSACE through the South Pacific Division for policy compliance and review.

F6 – Final Public Meeting – This is the date of the final public meeting to review changes to the original streamlining initiatives and alterations to the project management plan. This task is not required to be included in milestone submissions.

F7 – Feasibility Review Conference – The purpose of the Feasibility Review Conference (FRC) is to resolve outstanding policy issues that were raised in the Headquarters review of the draft report and identify actions that are required to complete the final report. The FRC includes participation by Headquarters and will be chaired by the South Pacific Division Chief, Planning Division, or the planning program manager on behalf of the Chief, Planning Division.

F8 – Feasibility Report w/NEPA – This is the date of submittal of the final report package to the South Pacific Division (CESPD-ET-P). The final report package will include all technical and legal certifications, compliance memorandums, and other required documentations.

F9 – MSC Commander’s Public Notice – This is the date of issue of the Division Commander’s Public Notice, preceded by Congressional notification, which would occur two days prior. Report and supporting documentation will be forwarded to HQUSACE where it will be utilized as the completed form of the feasibility report in the Command Management Review (CMR).

Filing of Final EIS/EA – This is the date the notice appears in the Federal Register. Letters for filing will be furnished by CECW-AR.

Chief’s Report to ASA (CW) – Coordination of the Chief’s report, based on the initial draft and the final feasibility report submitted by the District, will be through the South Pacific Division’s planning program manager. When the final Chief’s report is received, the planning program manager will provide copies to the district, and the assigned planning program manager will inform other members of the electronic copies of the Chief’s report.

ROD Signed or FONSI Signed – This is the date the Record of Decision (ROD) is signed by the Assistant Secretary of the Army for Civil Work (ASA(CW)) when forwarded for authorization.

President Signs Authorization – This is the date the president signs the feasibility report authorizing legislation.

5. WORK TASKS AND RESPONSIBILITIES

The Malibu Creek Environmental Restoration Feasibility Study will concentrate on the five (5) alternatives described in the reconnaissance study (905(b) Report) with the focus on formulating and optimizing the alternatives. The feasibility study will include the following tasks: survey and mapping, hydrology and hydraulics, geotechnical studies, engineering and design analysis, socioeconomic studies, real estate analysis, environmental studies, Fish and Wildlife Coordination Act Report, HTRW studies, cultural resources studies, cost estimating, public involvement, plan formulation, final report documentation, and technical review. At the beginning of the study, requests will be issued by the Project Manger detailing specific study tasks, funding, schedules, and the form and detail of the expected product. At the beginning of each task, the non-initiating agency, either the Corps or Local Sponsor, may review any planned work or contact the other for adequacy. At the completion of each task, the non-initiating agency may review and approve the results of the work before it is considered complete. The Study Management Team and its technical staff will accomplish review and assessment of the adequacy of the work. The term “In-Kind” is defined as those tasks completed by the Local Sponsor in substitution of a cash contribution.

a. Engineering Studies (JA000) - The feasibility study engineering appendix will contain sufficient engineering detail to enable the District to proceed directly to plans and specifications without additional engineering documentation. Sufficient engineering and design will be performed to evaluate technical alternatives (including the without project condition), enable further refinement of the project features, prepare the baseline cost estimate, develop a design and construction schedule, and allow design on the selected plan to begin immediately following receipt of Pre-construction, Engineering and Design (PED) funds. The objective is to allow the project to proceed through the PED phase without the need for reformulation, a General Design Memorandum (GDM), or post-authorization changes. Engineering will also provide support to the Project Manager (PM) in developing revisions to the Project Management Plan (PMP) for the selected plan.

b. Surveying and Mapping (JAA00)

Collection of Existing Mapping and Aerial Photography – This task will include the collection of existing aerial photographs, topographic, and Geographical Information System (GIS) mapping and Land Information System (LIS) mapping for use by the study team to define the baseline condition. Existing mapping will be reviewed to determine additional aerial photography and mapping needs for the modeling and environmental efforts.

New Aerial Photography and Contour Mapping – New aerial photography will be used for habitat mapping and real estate investigations. Aerial photography and contour mapping will be used for the hydrologic, hydraulic, and sediment transport modeling and for the conceptual design of the alternatives. The aerial photographs will be ortho-corrected to ensure that they correspond with topographic mapping and can be easily added to the GIS database.

GIS/LIS – A GIS will be used to store information about the existing conditions within the Malibu Creek watershed. The GIS will make it possible to link, or integrate, information that is difficult to associate through any other means. Thus, the GIS can use combinations of mapped variables to build and analyze new variables. Information to be included in the GIS will be

gathered from available sources such as Federal, State, and Local government agencies. The GIS will also include several themes describing information that will be developed by the study team during the course of this feasibility study. When the GIS is populated with all available and generated information, it will be used as an tool to evaluate alternative measures and plans.

[Executive Order 12906](#) calls for the establishment of the National Spatial Data Infrastructure defined as the technologies, policies, and people necessary to promote sharing of geospatial data throughout all levels of government, the private and non-profit sectors, and the academic community. The information included in the GIS shall follow the SDS (Spatial Data Standard), as described by CADD/GIS Technology Center, Federal Government. The Spatial Data Standards (SDS) were developed as a single comprehensive master and environmental planning data model for Air Force, Army, and Navy installations, as well as Corps of Engineers' civil works projects. The Spatial Data Standards were designed to complement Federal Geographic Data Committee (FGDC) data standards that address small-scale mapping (map scales greater than 1:24,000).

The GIS will serve as a central repository for project spatial data, and can be made available to public and private agencies during and after the study. All data shall be reviewed by the local sponsor and the Corps of Engineers to ensure copyright restrictions are protected prior to posting. Each separate discipline shall liaise with the Study Manager prior to collecting or producing new geospatial data to ensure compatibility with the GIS.

Each separable element will be stored in the GIS as a separate theme. The themes shall be compatible with the ArcInfo/ArcView format. Metadata for all data is required. A metadata file describing the geographic data file(s) content and format shall be generated and made available through the internet. The Corps of Engineers uses a software tool called Corpsmet for developing metadata. Data developed using Cadd software such as Microstation (or Autocad) shall follow the A/E/C CADD Standard, current release 1.8

The geodetic reference for horizontal positioning shall be based on the California State Plane Coordinate system Zone V, and the North American Datum of 1983 (NAD 83). The geodetic reference for elevations and vertical data shall be based on the North American Vertical Datum of 1988 (NAVD 88).

At this time, the following information is expected to be included in the GIS (subject to change during the course of this feasibility study):

1. Ortho-rectified aerial photos of the project area, to include Malibu Creek and tributaries.
2. USGS Quadrangle maps covering the Malibu Creek Watershed.
3. Two-foot contour mapping upstream and downstream of Rindge Dam to the Pacific Ocean.
4. Points of interest.
5. Political boundaries.
6. Stream gages.
7. Precipitation gages.

8. Water treatment plants and facilities.
9. Spreading facilities.
10. Existing infrastructure (roads, bridge crossings, major utility crossings and lines, landfills, and grade control structures).
11. Structures that may be subject to inundation.
12. Channel limits (top of bank) of Malibu Creek and tributary creeks, channels and washes as available.
13. Channel thalwegs of Malibu Creek and tributary creeks, channels and washes as available.
14. Cross section locations.
15. Flood plain mapping of the 10-, 50-, 100-, and 500-year floodplains for Existing Without-Project Conditions, and potential variations in the flood plain downstream of the dam under Future Without-Project Conditions.
16. Flood plain mapping of the 10-, 50-, 100-, and 500-year flood plains for Existing With-Project Conditions, and potential variations in the flood plain downstream of the dam under Future With-Project Conditions.
17. Discharges at selected locations.
18. Sediment transport conditions, areas of river aggradation and degradation, bank erosion and related damages for the Without and With-Project analyses.
19. Groundwater location, depth and quality, including major well locations around the Rindge Dam area.
20. Land use patterns for Existing and Future Conditions.
21. General soils data.
22. Drilling locations.
23. Seismic conditions at Rindge Dam and for the surrounding area.
24. Real estate ownership identification of lands within the survey area, identifying whether lands are public or are owned by private parties. *Note: Due to privacy concerns, this material will not be released to public and will only be used for alternative analysis.*
25. Access areas to the damsite.
26. Possible disposal areas for the material behind the dam.

27. Recreation facilities including parks, trail linkages, recreational facilities, golf courses, school yards, major open space, etc. that may be used by environmental to link proposed trail(s) to existing recreation features.

28. Mapping of sensitive cultural resource areas. *This information will not be posted to ensure protection of these areas.*

29. Riparian, wetland, and significant upland habitats, known locations of Threatened, Endangered or other species of concern, and land use patterns for areas upstream and downstream from Rindge Dam to the mouth at the Pacific Ocean.

Description of work and services required – Mapping will be prepared at a scale of one inch equals two hundred feet (1"=200') with a two foot (2') contour interval for Malibu Creek, Los Angeles County, California in accordance with engineering criteria and project maps.

1. Mapping Services: Prepare Aerial Mapping at a scale of one inch equals two hundred feet (1"=200') with a two foot (2') contour interval, and a sheet index, in .TIN Arcview, .DGN Microstation and .DTM Inroads file formats.

a. Mapping for Malibu Creek will cover the FEMA FIRM 500-year flood plain maps, 1.5 miles upstream of the damsite, and 2 miles downstream to the Pacific Ocean.

b. Digital color orthophotography will be prepared for aerial photography taken.

c. Four (4) sets of the mapping materials will be created in the following data formats:

- Arcview .TIN file format.
- Microstation .DGN file format.
- Inroads .DTM file format.
- X,Y,Z .PTS file format of mass points representing surface.
- Breakline .BRK file used for creating surface.
- Orthophotography shall be in .TIF format.
- Each pixel unit for digital files shall represent two (2) feet on the ground.

d. Mapping will show culture, including berms, levees, buildings, bridges, fences, walls, trees, shrubbery, labeled streets and access roads, sidewalks, railroads, dirt roads, paths, and courses and ways of travel. Mapping will include all other standard map features.

e. Label all culture, including berms, levees, buildings, bridges, fences, walls, trees, shrubbery, labeled streets and access roads, sidewalks, railroads, dirt roads, paths, and courses and ways of travel. Labeling will include types of material for culture, and all other standard mapping labeling.

2. Quality Assurance/Quality Control Report will be generated and submitted with project.

3. General Specification

a. Data Storage on Computer-Aided Drafting System: Full size drawings will be prepared, using a computer-aided drafting system. The complete drawings will be three-dimensional and fully operational and compatible on the Corps of Engineers system. The LOS ANGELES DISTRICT is presently utilizing Intergraph MicroStation and Inroads. All drawings for the Corps will be stored in Intergraph or MicroStation file format on Compact Disk(s) (CD). Each drawing will have a separate file name and be stored individually on the disk(s).

b. Photogrammetry:

- Scale of Photography: 1:7200
- Compilation Manuscripts: 1"=200'
- Contour Interval: two foot (2')
- Focal Length of Camera: 6" (153 mm \pm 2.0).
- Camera Format 9" x 9".

c. Digital mapping will be compiled in such a manner that hard copy manuscripts may be plotted directly from digital files.

4. Digital Mapping – Final digital map materials will be prepared in accordance with criteria and applicable publications and manuals listed herein and are hereby made a part of this Scope of Work. The following technical references will be used for the work and services:

- CD "A/E/C CADD STANDARDS RELEASE 1.8" dated April 2000.
- EM 1110-1-1807, "Standards Manual for U.S. Army Corps of Engineers Computer-Aided Design and Drafting (CADD) Systems" dated 30 July 1990, a four volume set.
- EM 1110-1-1002, "Survey Markers and Monumentation" dated 14 September 1990.
- EM 1110-1-1005, "Topographic Surveying" dated 31 August 1994.
- EM 1110-2-1003, "Hydrographic Surveying" dated 31 October 1994.
- EM 1110-1-1000, "Photogrammetric Mapping" dated 31 March 1993.
- EM 1110-1-1003, "NAVSTAR Global Positioning System Surveying" dated 1 August 1996.
- SDS (Spatial Data Standard), as described by CADD/GIS Technology Center, Federal Government.

5. Horizontal Control – Horizontal control will be established by traverse or GPS for third order accuracy or better using electronic distance measuring equipment and based on control furnished by the Corps of Engineers or the National Geodetic Survey, based on California state plane coordinate system Zone VI, NAD83.

Control points set will be of a semi permanent nature, such as copper weld type rods in paved surfaces or aluminum pipes in dirt areas. All points established will be adequately described and referenced on Standard Form DA 1959.

6. Vertical Control – Vertical control will be of third order accuracy or better based on bench marks provided by the Corps of Engineers or the National Geodetic Survey, NAVD88.

7. Field Notes – All field notes will be recorded on eight inch by ten and one half inch (8" X 10") Corps of Engineer's looseleaf forms. A drawing will be made showing all points set or found, with the angles and distances measured. Field drawings will be kept in such a manner as to allow the traverse to be computed directly from the notes. Level notes will show descriptions of bench marks and as to whether they were found or set. A drawing identifying premarks will be made.

8. Submittals – The final submittal consists of the following originals:

- Four (4) sets of .TIN files in Arcview file format.
- Four (4) sets of .DTM files of aerial mapping.
- Four (4) sets of .DGN files with contours generated from the .DTM.
- Four (4) sets of mass points file and breakline file used to create surface.
- Four (4) sets of digital color orthophotography in .TIF file format.
- One (1) Quality Assurance/Quality Control Report.
- All original field notes, calculations, sketches and directive prints.
- All monuments set-found-used described on DA Form 1959.

c. Geotechnical Studies (JAC00)

Quantity and Quality of Sediment - a preliminary inspection of the site will be made to quantify and describe the quality and physical characteristics of the impounded sediment. Necessary permits will be obtained for refurbishing the access road and working in the creek. A contract will be awarded for road work and restoration, drilling and sampling the sediment, and installing groundwater monitoring wells. Physical and durability characteristics of the samples will be tested at the USACE lab. Environmental quality testing will be performed at a commercial lab. The data will be assessed to determine the quantity and quality of the sediment, with particular attention to beach compatibility. Groundwater data (over time) will be collected, which will be useful not only in dewatering design, but also in the dam stability analysis (leak verification).

Sediment Removal and Disposal - conveyor, sluice, and trucking systems will be devised, and costs for the implementation of each will be estimated. Beach nourishment and landfill end-use of the sediment will be evaluated. Sediment de-watering and creek diversion systems will be devised and implementation costs will be estimated. The possibility of piping ocean water to the site to facilitate sluicing will be investigated. The channel excavation/spillway demolition/impound retention option will be evaluated. The bedrock location and depths at the spillway and upstream, under the impounded sediment will be determined. Core drilling and sampling of that bedrock will be conducted. Utilizing the core and laboratory testing, slope stability and constructability analyses of the proposed channel will be conducted. Analyses for channel protection and reinforcement, including concrete materials investigation, and stone protection analyses (on-site and off-site sources identification and laboratory testing) will be conducted. Results, including completion of additional logs and plates will be documented. It is assumed that previously accounted soils analysis and sampling, and mobilization of exploration equipment in the field is sufficient to address the channel excavation situation.

d. Hydraulic and Hydrology Studies (JAB00) - The Malibu Creek watershed drains approximately 109 square miles of the Santa Monica Mountains and Simi Hills. Malibu Creek

and its tributaries flow into Malibu Lagoon. The work efforts for this feasibility study will entail evaluation of proposed alternatives and review of the existing watershed. The five alternatives that were addressed in the reconnaissance study will be analyzed during this study for the restoration of fish habitats upstream of Rindge Dam.

Each of the design alternatives will require a review of existing hydrologic and hydraulic data that may be available for the Malibu Creek watershed. The review will consist of stream-gage data, historic photos, rainfall-runoff information, topographic maps, and other pertinent data that may be readily available for review. Further hydraulic research may be involved for the one or more of the design alternatives.

Discharge-frequency curves will be developed for selected locations along Malibu Creek. The debris/sediment production of the watershed will be analyzed during the feasibility stage of this study and potential disposal sites will be examined.

The potential bank erosion will be analyzed and a stable channel design will be provided for all alternatives. Each of the five alternatives will be analyzed and designed to provide the maximum benefit without jeopardizing engineering integrity. The following tables shows that estimated hydrologic and hydraulic costs for this feasibility study. The costs are based on the analysis of five alternatives, review of watershed, generating hydrologic and hydraulic models, providing support to others, and furnishing technical reports to support the engineering analysis.

1. Hydrology.

The hydrologic work effort for this study will include a review of previous studies for the Malibu Creek watershed. Discharge and volume frequency analyses will be performed using stream gage data available for the watershed. Debris yield estimates will be determined for Rindge Dam. The analysis will also determine downstream impacts on sediment and debris yields with the removal of the dam.

- Research, collect, and review hydrologic information from Corps of Engineers, Los Angeles and Ventura Counties, other public agencies, and private consultants.
- Collect annual peak and mean daily flows for available stream gages in the watershed.
- Perform field reconnaissance of the drainage area. Note existing structures that have an impact on low-flows, average daily flows, peak flows, and sediment and debris.
- Perform discharge-frequency analysis using stream gage information.
- Perform volume-frequency analysis using stream gage information. Determine average daily flows and low-flows.
- Determine debris yields for with and without Rindge Dam.
- Attend meetings, milestone conferences, and coordinate as required.
- Prepare hydrologic documentation presenting frequency discharges and sediment and debris estimates with and without Rindge Dam.

- Prepare independent technical review comments and attend review conferences. Address review comments and prepare final appendix.

2. Hydraulics

The hydraulics work effort for this study will include a review of previous studies for the Malibu Creek watershed. The existing channel stabilization regime

will be determined for Malibu Creek in the vicinity of Rindge Dam. The impact on channel stabilization with removal of the dam will be addressed.

- Research, collect, and review hydraulic information from Corps of Engineers, Los Angeles and Ventura Counties, other public agencies, and private consultants. Identify all water control structures and channel improvements in the watershed. Gather all pertinent information related to structures.
- Collect and review as-built plans for structures, bridges, utilities, topographic mapping, and field surveys to determine channel configuration. Prepare a list of all plans and surveys available.
- Perform a field reconnaissance of the Malibu Creek watershed and prepare field notes, sketches, and photographs of bridges, utility crossings, confluences, transitions, and other areas as needed to verify channel geometry, stability, roughness values, debris trapping problems, and river morphology. Provide hydraulic parameters (reach length, slope, geometry, and roughness) for use in the hydraulic models.
- Use appropriate hydraulic model(s) to determine the existing channel conditions along Malibu Creek in the vicinity of Rindge Dam. Modify the cross-sections to reflect removal of Rindge Dam and the accumulated sediment and estimate the channel stability. Prepare channel design to stabilize channel with removal of the dam.
- Attend meetings, conferences, and coordinate as required.
- Prepare hydraulic documentation presenting the existing features in the watershed, channel stabilization results, and sediment budgets with and without Rindge Dam.
- Prepare independent technical review comments and attend review conferences. Address review comments and prepare final appendix.

3. Sediment Analysis

Sediment transport models of the study area will be used to estimate the sediment erosion/deposition rates along Malibu Creek from Rindge Dam to the Pacific Ocean under Without-Project (With Rindge Dam) and With-Project (Without Rindge Dam). Model simulation results, in conjunction with the results of the hydrology and

hydraulic studies, will be used to describe the downstream sedimentation under selected alternative scenarios.

- Research, collect, and review sediment information from Corps of Engineers, Los Angeles County, and other public agencies for Malibu Creek and tributaries. Include in the review an identification of major sediment sources within the watershed. Compile information that may be used to characterize watershed soil loss and sediment yields. Summarize the data available.
- Perform field reconnaissance of the drainage area. Note any features that may have an impact on sediment deposition and scour.
- Evaluate the effects of sediment trapping by the existing basin and the impact on downstream sediment delivery. Estimate locations that may contribute to local scour.
- Incorporate information into HEC-6 sediment transport model(s) and calibrate. Use the sediment delivery estimates to Rindge Dam from the hydrologic analysis and estimate the delivery to the Pacific Ocean for Without-Project Conditions using the calibrated HEC-6 model(s).
- Prepare draft documentation on sedimentation for Without-Project Conditions, i.e., with Rindge Dam.
- Modify HEC-6 sediment transport model(s) to reflect selected alternatives. Determine the sediment delivery thru Rindge Dam and estimate for the delivery/deposition/scour for downstream Malibu Creek.
- Prepare draft documentation on sedimentation for With-Project Conditions, i.e., without Rindge Dam.
- Prepare final documentation on sedimentation for Without- and With-Project Conditions. Compile with hydrology and hydraulic documentation and prepare draft Hydrology & Hydraulics Appendix.
- Attend meetings, conferences, and coordinate as required and assist in plan formulation.
- Prepare independent technical review comments and attend review conferences. Address review comments and prepare final appendix. File study material.

e. Engineering and Design Analysis (JAE00) - Rindge Dam was built in 1926, filled with sediment in the late 1950's, decommissioned by the State of California in 1967 and since then has been controlled by the State Parks Department. Sediment has filled the reservoir to the elevation of the spillway, preventing Rindge Dam from retaining water. The structural engineering studies will evaluate the current project condition, the structural aspects of the project alternatives, and as an optional item, evaluate the seismic stability of the dam.

Determine Existing Project Conditions – The first step of the engineering study will be to determine the existing project conditions, primarily those of Rindge Dam. Structural engineers will research existing documents and complete a dam safety inspection. Engineers will contact

potential sources such as the State Department Safety of Dams, State Parks Department, and the Rindge family to find information about the original design of the dam, subsequent modifications, inspection results, or any previous stability studies.

The dam safety team will complete a dam safety inspection at Rindge Dam. The team will inspect the dam, spillway, abutments and foundation contact for any structural deficiencies. One area of concern is seepage located on the downstream face of the dam. The dam safety team will include structural, geotechnical and hydraulic engineers, and operations personnel.

Develop and Evaluate Feasibility of Alternatives – Structural engineers will evaluate the project alternatives, identify any restrictive conditions, and provide preliminary design for the structural aspects of the alternatives. Specific items to be addressed include: removing Rindge Dam, removing a portion of Rindge Dam for a conduit, removing a portion of the spillway for a conduit, conduit design, the structural aspects of removing three potential obstructions, replacing the road crossing with a bridge, and designing a fish ladder. Additional site visits to investigate the potential obstructions are anticipated.

Perform Structural Dynamic Analysis (OPTIONAL) – The existing project does not impound water, and it is assumed that there is not an immediate threat to life or property downstream of the dam. However, a complete dynamic analysis of Rindge Dam will be required if life or property would be threatened by flooding or by structural failure of the dam. For instance, a structural analysis of the dam would be required if a fish ladder was constructed just downstream of the dam, or if the sediment was removed but the dam remained.

In order to complete the structural analysis, field testing and material sampling will be completed in conjunction with the geotechnical investigation of the sediments behind the dam. Core samples will be taken from the dam, spillway, rock abutments and foundation (it is assumed that the dam is founded on bedrock). Downhole seismic testing will be conducted, as well as mapping of nearby faulting and bedding. In addition, Standard Penetration Tests (SPT) will be made in the sediment to determine liquefaction potential. Geotechnical engineers will then analyze the data to determine the seismic parameters (seismicity) of the project site.

From the information gathered from the existing documentation, dam safety inspection, and field testing, structural engineers will conduct a finite element analysis of the dam using SAP2000 or equivalent FEA software. The Corps will also contract with a seismic engineering consultant to provide guidance and overview to the analysis. Geotechnical engineers will investigate the seismic parameters and dynamic analysis results to identify any foundation stability issues. Structural and Geotechnical engineers will discuss the potential failure modes of Rindge Dam or its foundation, and determine whether or not Rindge Dam is a “safe” dam to remain in place.

Summarize Results/Report Preparation – Structural engineers will prepare the appropriate sections of the feasibility report with the evaluation of alternatives and the optional results obtained from the structural analysis. Calculations, tables and drawings will be provided where necessary. The structural engineers will participate in meetings, coordinate activities with the geotechnical, hydrological and civil engineers, and incorporating revisions into the draft and final documents as needed.

Civil Engineering Studies – The cost estimate is based upon the following conditions: the study reach stretches from Santa Monica Bay to Century Reservoir; all work will be done In-House; actual time required to complete the work will depend on Design Branch’s work load at that time; the Feasibility Study will include five alternatives, each with two drawings; the selected

plan is estimated to require 30 drawings with plan and profile sheets at a metric scale of 1:1000 (imperial scale of 1":100'); and the estimate includes some costs for supporting a maximum of four reviews.

Review Alternatives – Civil designers will provide assistance the Geotechnical Branch to compile adequate mapping of the project area. The actual survey and mapping costs are not included in this estimate (see Enclosure C). Civil designers will work with the study team to develop, evaluate and compare alternatives. Site specific constraints and opportunities will be identified, and a plan recommended for design. The work will include identifying alignments of access roads, excavation, conduits, and the fish ladder. Quantities will be determined for the excavation, dam demolition, and materials. Furthermore, the proposed lines and grades of excavation, and temporary access roads or other areas will be provided. The civil designers will prepare the necessary documents and drawings of the projects civil aspects as needed.

f. Socioeconomic Studies (JB000) - The economic data prepared during the reconnaissance 905(b) study will be used to its full extent when such data is consistent with feasibility phase requirements. Studies will be conducted pursuant to Appendix D “Economic Considerations”, of ER 1105-2-100. The base conditions in the study area must be well-documented and readily understood. This area includes the entire riparian ecosystem from the upstream end of the sediment retained behind Rindge Dam (approx. 4,000 - 5,000 ft. from Dam) to Malibu Lagoon, the adjacent beaches, downcoast beach and littoral zone for a distance of up to two miles from the lagoon. Feasibility phase analyses require the development of project area specific baseline information, including the environmental habitat and recreational values in the study area.

1. Preliminary Benefits Studies – Overview

Environmental Restoration/Enhancement - Expected benefits are primarily related to the study purpose of environmental restoration of the riparian ecosystem, including endangered species habitat, with some incidental benefits related to recreation and environmental enhancement. Once without project conditions have been established, the Economics Section will quantify increases in habitat units associated with each alternative and each possible combination of alternatives. Estimated first costs will be annualized at the current Federal discount rate and combined with estimated operation and maintenance costs to derive annual costs for each alternative. Habitat unit and cost data for each feature will be utilized to perform an incremental cost analysis. This analysis identifies efficient alternatives and alternative combinations, eliminating those which produce fewer habitat units at the same cost, or which produce the same habitat units at a higher cost. Efficient alternatives are plotted on a curve which details incremental increases in habitat units which can be achieved for incremental increases in expenditures. This curve will aid in the recommendation of the proposed project. The IWR Plan has been developed for this task, and will be used. The steps involved in the complete analysis are listed in the section titled “Specific Tasks”.

Flood Damage Reduction - As discussed previously, because the structures that may be removed under with project conditions provide no demonstrable flood control protection (Rindge Dam is full of sediment and has no water-storage capacity), removal of these impediments is not expected to impact flooding and/or flood related damages downstream. Therefore, the economic studies will include only a brief discussion and analysis to support this assumption, and no inundation damage reduction benefits will be computed, as none are expected.

2. Incidental Benefit Studies - Overview

Dam Removal (Recreational Enhancement) - Removal of Rindge Dam and the sediment trapped behind it would allow hikers easier access up and down the canyon by removing a major impediment to hiking in the area, and opportunities exist to provide further recreational enhancements such as hiking or bicycle trails. As an incidental benefit, this need not be quantified in monetary terms for project justification purposes, but will be discussed in the Economics Appendix. However, if it is decided to add recreational elements to the project at additional cost, the recreational benefits of the project may be analyzed further to quantify benefits and justify the additional costs. Studies would quantify any recreational benefits resulting from each alternative, and an analysis would be performed using the Unit Day Value (UDV) method to determine the impacts on recreation as compared to the without-project alternative. This analysis shall include projecting visitation and assessing the recreational value of the resource. The recreation capacity of each proposed alternative will be estimated. If recreation demand exceeds capacity, projected visitation will be based upon resource capacity. If resource capacity is greater than demand, visitation will be projected based upon market area demand for the resource. Visitation projections will account for transfers from competing recreation resources in the market area. Based upon the proposed project features, UDV point values (ER 1105-2-100) will be assessed. Estimates will be based in part upon input from local, county and state agencies. Once gathered, point value estimates will be converted into unit day dollar values. Unit day dollar values will be applied to visitation projections to derive average annual recreation benefits.

Beach Nourishment (Environmental and Recreational Enhancement) - Under one alternative being considered, sediment removed from behind the dam would be placed onto the beach in front of or near the lagoon or in the nearshore area for beach nourishment purposes.

Two benefit categories which may result from beach nourishment are environmental and recreational enhancement. As incidental benefits, these need not be quantified in monetary terms for project justification purposes, but will be discussed in the Economics Appendix. However, if initial cost estimates for disposal of the material show that there are other feasible options with lower costs, then beach placement may be analyzed further to quantify benefits and justify the additional costs. Studies would be done to quantify any environmental benefits resulting from this placement, and an incremental analysis would be performed to determine which alternative provides the best use of the material with respect to environmental enhancement. Recreational benefits would be estimated using the Unit Day Value (UDV) method to determine the impacts on recreation as compared to the without-project alternative. The UDV was selected based on guidance from ER-1105-2-100.

Net Recreation Benefits - Annual recreation costs will be quantified and compared with annual recreation benefits to determine net recreation benefits. Any proposed recreation features and associated costs will be reviewed for compliance with PGL-036.

3. Cost Benefit Analysis - Overview

Project Cost Coordination - Close coordination with cost engineering personnel will be required to compute the gross investment and annualized costs for each alternative. MCACES level detailed cost estimates will be analyzed to determine those

costs that should be considered in the NED cost/benefit analysis and those costs (if any) which should be considered separately (locally preferred or recreational features).

Risk and Uncertainty Model - Risk and uncertainty will be focused primarily on the incremental cost analysis of environmental restoration alternatives. Risk and uncertainty features of the IWR Plan software will be utilized for this analysis. Risk and Uncertainty Analysis is used to attempt to quantify the uncertainty inherent in certain input parameters to the project costs and benefits by allowing these parameters to vary across their possible range of values, and observing the effect on the final Costs and Benefits of the alternatives.

4. Specific Tasks - Baseline Studies

Literature Search – A literature search of research into the quantification of environmental restoration outputs will be conducted. A report summarizing the results of the literature search will be produced and included in the feasibility report as an attachment. No attempt will be made to produce benefit-cost ratios based on any alternate methodologies. The literature search will explore the applicability of methodologies such as contingent valuation, existence values, potential capital cost savings, and others if necessary.

Determine Without Project Environmental Conditions – This subtask involves discussions with local sponsors and experts to determine existing riparian habitat and environmental resources. The study shall quantify the value of these resources based on the types and populations of species present and the suitability of the habitat for these species. The baseline studies for the incremental analysis of environmental restoration will include the following:

- a. Identify study area boundaries
- b. Select representative list of species or species groups.
- c. Determine types of cover necessary to support these species.
- d. Perform a field assessment of the quality of habitat for supporting the selected species.
- e. Based upon the field assessment, develop habitat suitability indices (HSIs) for each species. HSIs (which range from one to zero) are calculated as the ratio of the study area habitat life requisite values to optimum habitat values.
- f. Compute baseline habitat units (HUs); equal to HSI times habitat acreage for each species.

Determine Without Project Recreational Conditions - This subtask involves assessing recreation needs for the study area based upon existing and projected supply and demand, and will include discussions with local sponsors and experts to determine existing recreation resources and attempt to quantify the value of these resources and the level of recreational use. The baseline studies for the analysis of recreational use will utilize the Unit Day Value (UDV) method, and will include the following:

- a. Retrieve existing information from local experts and local recreation organizations.
- b. Define recreation market area - Inventory existing and planned recreation facilities in the market area, and determine existing resource

capacity. Involves discussions with local and other recreation experts to determine recreation market area.

c. Estimate recreation resource (similar recreation provided in study area). Involves gathering information from local sponsor and/or local experts to estimate inventory of similar recreation in market area.

d. Estimate present use and projected demand for recreation in the study area.

5. Prepare Draft Economics Appendix for F3 - All baseline data collected and/or developed will be collected and displayed in a draft economics appendix to the final feasibility report.

6. Alternatives/Incremental Analysis

The tasks to be performed for the recreation analysis, With Project Conditions, are as follows:

a. Determine demand for recreation resources similar to those which could be provided by a project for the study area.

b. Forecast potential recreation use in study area. Gather information from local sponsors and local experts to determine potential recreation use.

c. Forecast recreation use with project (unit day value).

Incremental Cost Analysis; Environmental Restoration. - This analysis is required by IWR Report #95-R1: Evaluation of Environmental Investments Procedures Manual. The components of this particular effort include the following tasks:

a. Develop restoration objectives and strategies. Identify and analyze management measures to separate those that can and can't be implemented together.

b. Project HU's for each alternative and increment under future with and future without project conditions.

c. Display environmental outputs (habitat units) and cost estimates of the restoration elements of each alternative.

d. Develop cost estimates for each alternative and increment, including development, acquisitions, and operation and maintenance. Annualize costs and calculate annual costs/HU.

e. Perform incremental cost analysis to identify cost efficient alternatives/combinations of alternatives

f. Identify combinations of the combinable management measures increments, and calculate each combination's output (HUs) and cost (\$). Incorporate Risk and Uncertainty Analysis into this calculation and carry through Cost/Benefit analysis.

7. Economic Analysis of Final Alternatives

Incremental Analysis - Final Alternatives

a. Eliminate economically inefficient solutions (e.g. those solutions which produce the same output but have a higher cost).

- b. Eliminate economically ineffective solutions (e.g. those solutions which have a higher cost and produce less output.
- c. Calculate average cost of each level of output.
- d. Recalculate average costs for additional output.
- e. Calculate incremental costs.
- f. Compare successive outputs and incremental costs

Net Recreation Benefits - Final Alternatives

- a. Quantify annual recreation costs and compare with annual recreation benefits to determine net recreation benefits.
- b. Review proposed recreation features and associated costs for compliance with PGL-036.

Cost/Benefit Analysis

- a. Project Cost Coordination - Coordinate with Cost Engineering to compute the gross investment and annualized costs for each alternative. MCACES level detailed cost estimates will be analyzed to determine those costs that should be considered in the NED cost/benefit analysis and those costs (if any) that should be considered separately (locally preferred or recreational features).
- b. Risk and Uncertainty Model - Incorporate a Risk and Uncertainty Analysis to quantify the mean, range, and standard deviation of the project costs and benefits when certain inexact input parameters are allowed to vary across their possible range of values.

8. Draft Economics Appendix - Prepare a Draft Economics Appendix including an NED Cost/Benefit analysis.

9. Revisions to Draft per SPD Comments - Revise Draft Economics Appendix to reflect revisions requested as a result of SPD review.

10. Finalize Economics Appendix - Finalize Economics Appendix to incorporate all comments received.

11. Report Documentation - Internal documentation will consist of notes on meetings, telephone conversations, methodology, field trips, assumptions, etc., which will become part of the project files.

12. Meetings and Coordination - Close coordination will be required between the Project Economist and the Study Manager, as well as other Study Team members. The Project Economist will attend Study Team meetings, site visits, and meetings with local officials as necessary. In addition, the Project Economist will meet regularly with the Economic Section Chief regarding study progress. The Project Economist will receive assistance in the study effort from other Economic Section staff, necessitating additional meetings and coordination. The Project Economist and the Economic Section Chief will attend the F3, F4, and FRC conferences.

g. Real Estate Analysis/Report (JC000)

Real Estate studies are required to determine the value of land that may be affected by proposed alternatives, and the cost of easements (temporary or permanent) necessary for construction of the proposed project.

Real Estate Coordination – Includes, participation in team meetings, negotiation of work requirements, coordination with other offices on project data needed for Real Estate’s major study products, and monitoring of progress and findings associated with Real Estate study products. During the *without project conditions* phase, discussions will be initiated with the non-federal sponsor regarding acquisition policies and procedures, as well as initial coordination with Legal Branch on potential legal matters. During the *with project conditions* phase, schedules for RE acquisition will be provided, in coordination with the sponsor.

Determine Land Requirements and Estates – For each project purpose and feature, a description of the LERRD’s (fee and/or easement) required for the construction, operation and maintenance of the project including those required for relocations, borrow material, and dredged or excavated material disposal.

Rights of Entry – Real Estate will coordinate requests and work with the sponsor to obtain rights-of-entry for survey, HTRW, cultural resource, and geotechnical exploration work required. ROE’s must be obtained before any sampling can be done privately owned property.

Map Preparation – Coordinate with Engineering Division to determine footprint and acreage required for project. Also prepare real estate preliminary and final take line drawings.

Cost Estimates (Gross Appraisal) – Work includes preparation of a preliminary market study and a detailed estimate of all real estate costs (gross appraisal) associated with acquisition of the project’s real property requirements. Documents will also be used in crediting sponsor for Lands, Easements and Right-of-Ways for cost shared projects.

Real Estate Plan – Real Estate work product that supports Project Plan Formulation. Must be prepared in support of decision documents. Must include a discussion of the significant topics as per Chapter 405-1-12. Real estate studies will be conducted by the Corps to determine lands, easements, rights-of-way, relocations and disposal areas (LERRDs) necessary for the project. The work includes completion of required investigations on property ownership and jurisdictions; gross appraisals of the value of properties required for the project; and preparation of an acquisition plan.

Technical Review – Review report for accuracy, consistency, and all real estate acquisition requirements as they relate to the design and the Sponsor.

h. Environmental Studies/Report (JD000)

Environmental Analysis - The environmental studies for this project will focus on opportunities for terrestrial and aquatic habitat restoration within the Malibu Creek watershed as well as beneficial use of sediment to nourish eroding beaches. A comprehensive Environmental Impact Statement (EIS)/Environmental Impact Report (EIR) to meet both Federal NEPA requirements and state CEQA requirements will be prepared. Based on the reconnaissance study, the primary issue of concern is restoration of historic steelhead habitat through the removal of barriers to fish movement.

The EIS/EIR document will evaluate the environmental effects of the alternative plans and satisfy the requirements of NEPA, CEQA, and other Federal and State environmental laws. A joint EIS/EIR will be prepared. Generally, the Corps will be responsible for satisfying Federal requirements, and the local sponsor will be responsible for assuring that State regulations are satisfied. The draft environmental document will be circulated to appropriate State and Federal agencies and interested organizations and individuals. Comments received on the draft will be addressed, and revisions will be made in accordance with Federal and State law.

Mitigation features for fish and wildlife and other affected resources will be formulated and a monitoring plan developed to record the success of the mitigation, should mitigation be required. Any land required for mitigation will be identified.

Compliance to the Endangered Species Act and the California Endangered Species Act will be completed during the feasibility phase. A biological assessment and formal consultation with the U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), and California Department of Fish and Game (CDFG) will be initiated if it is determined that State and Federally listed species will be affected by the alternatives. The Corps of Engineers shall be responsible for federally listed endangered species consultation while the local sponsor (non-federal entity) shall be responsible for state listed endangered species consultation.

A Section 404 (b)(1) evaluation of water quality impacts will be accomplished by the Corps and coordinated with State and Federal water quality agencies to ensure that adequate consideration has been given to water quality and to acquire 401 water quality certification or exemption. The local sponsor shall be responsible for the acquisition of the Department of Fish and Game Streambed Alteration Agreement.

Coordination with the California Coastal Commission shall be conducted to ensure that the project is in compliance with the California Coastal Act. A Consistency Determination (or Negative Determination, if appropriate) shall be prepared and submitted to the Commission for their review and concurrence.

Plan Formulation - Ecosystem restoration objectives, opportunities and constraints for the study area will be defined. Overall objectives may be set in terms of ecosystem restoration of habitats for steelhead and other sensitive species. Objectives will be quantified in terms of habitat units as defined by the habitat evaluation method adopted for use in this study. Biological input to the plan formulation process will include developing ecosystem restoration objectives and procedures and providing estimates of environmental benefits in terms of habitat descriptions and habitat units.

Water Quality Issues - Environmental studies will include evaluation of baseline and projection of future with and without-project water quality conditions for surface water within Malibu Creek. Temperature, dissolved oxygen, depth, water movement criteria, sediment load, contaminant load, groundwater pollutant types and concentrations, and other components of water quality shall be considered. This analysis will be based on the review of existing water quality data collected by local and state agencies and limited data collection of physical water quality parameters (dissolved oxygen, temperature, pH, etc.) The suitability of existing surface water for wildlife, especially steelhead, shall also be considered. Sources of bacteriological contamination shall be evaluated based on existing data or data developed during the study by other agencies, including the local sponsor.

Opportunities and alternatives for with-project water quality improvement shall be developed for surface water flows to enhance the creek's use by wildlife. Areas of specific

concern shall include water quality of surface flows within the creek and within Malibu Lagoon and the near shore zone of the Pacific Ocean at the creek mouth.

Methods of water quality improvement to be investigated shall include wetland and riparian vegetation development, best management practices, modification of stream topography and gradient, and other opportunities identified in the plan formulation process.

Habitat and Species Surveys - Baseline (present) and future, both with and without-project conditions, for riparian habitat, water quality, fish and wildlife, endangered species, and other pertinent environmental conditions will be surveyed, mapped, and adequately described at a level appropriate to this study so that a Habitat Evaluation may be performed. This assessment will include a mapping and inventory of all major habitat types within the project area. Baseline terrestrial and aquatic habitat types for the area shall be evaluated using available information, aerial photographs, and a comprehensive field survey. A scientific habitat evaluation method acceptable to the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, and California Department of Fish and Game will be used to assess habitat value. Included, as a part of the baseline studies, will be an analysis and characterization of existing steelhead populations and suitable spawning and rearing habitat. Field surveys will include fish surveys and creek bed and bank surveys to quantify steelhead populations and existing suitable habitat. Areas of potential habitat and opportunities for environmental restoration will also be identified.

Impact of Upstream Barriers on Steelhead Migration - A qualitative assessment of historic habitat conditions will be made to determine past use of Malibu Creek by steelhead and the effect of human influence in the watershed including placement of dams and other barriers and impacts to water quality. The assessment will consist of a literature search and aerial photo analysis and include generalized mapping and characterization of steelhead habitats that existed along the creek in historic times. Historic aerial photos will be used to identify vegetative canopy cover over the creek to aid in the determination of creek temperatures, an important factor in steelhead habitat suitability.

Recreation - A recreation system along Malibu Creek will be developed, including recreation alternatives in conjunction with ecosystem restoration alternatives. Opportunities for development of river trails and other recreational uses along the creek system will be identified and evaluated. Plans showing the nature and location of alternative recreation facilities will be developed. Recreation efforts will be coordinated with state and local government entities.

An inventory and description of existing recreation resources will be completed and will include the following:

- a. Estimate recreation market area. The recreation market area will be determined based upon the types of existing and potential recreation activities for the area and information obtained from local and other recreation experts.
- b. Estimate existing recreation resource use (similar recreation provided in the study area). This involves gathering information from the local sponsor (s) and/or local experts to inventory and describe the existing recreation resources in the market area.
- c. Forecast potential recreation use in the study area. Gather information from the local sponsor(s) and local experts to determine potential recreation use.

i. U.S. Fish and Wildlife Service Coordination Act Report & Planning Aid Letter (JE000)
- This task includes studies by the USFWS in fulfillment of the requirements of the Fish and Wildlife Coordination Act. The principal USFWS product is a Coordination Act Report (CAR),

although Planning Aid Report(s) will also be prepared. The CAR will present USFWS, in coordination with NMFS and CDFG, opinions on impacts of alternatives on fish and wildlife resources and recommend types and amounts of mitigation for habitat losses and opportunities for environmental restoration. The Corps will coordinate with USFWS and supervise the interagency contract as part of its environmental impact studies task. As part of the coordination process, the USFWS and CDFG will participate in a Habitat Evaluation Procedure (HEP) to determine the habitat units associated with habitat restoration and improvements alternatives.

j. HTRW Studies (JF000) - A literature and data search will be conducted to identify known HTRW sites in the vicinity of proposed project alternatives. The HTRW work will be documented in a report that will be used in the EIS/EIR. The known sites, if any, will be summarized, and an inventory of available data (i.e., agency, location, website, etc.) will be produced for use for future project features and design purposes. HTRW work will be performed by Engineering Division's Geotechnical Branch.

k. Cultural Resources Studies (JG000) - A records and literature search and pedestrian survey may need to be conducted in order for Section 106 compliance to be initiated, including Native American Consultation. If any potential historic properties are located during the surveys, National Register eligibility consultation will be completed. Documentation will be prepared detailing the results of the cultural resources investigations and any potential impacts to each project alternative which will then be submitted to the State Historic Preservation Officer. If any National Register eligible properties are found within the area of potential effect (APE), a Memorandum of Agreement (MOA) may need to be prepared. The MOA will specify mitigation measures to be undertaken.

l. Cost Estimates (JH000) - Cost Engineering will develop a baseline cost estimate that includes all Federal and non-Federal costs for real estate, mitigation, construction, engineering and design, and construction management along with the appropriate contingencies and inflation associated with each of these activities through project completion. Cost Engineering will work closely with H&H when developing costs for project alternatives. Detailed first and annual baseline costs including operation and maintenance and replacement, will be developed in the MCACES format. The estimates will be prepared in accordance with ER 1110-1-1300, ER 1110-2-1302, "Civil Works Work Breakdown Structure (WBS)", and EC 11-2-157, "Fully Funded Estimate". A detailed basis of estimate and sensitivity analysis will be developed. All estimates shall be prepared as both first-costs (existing prices) and fully-funded costs.

m. Public Involvement Documents (JI000) - The responsibility for this task will be shared between the Corps and the local sponsor. This task will include developing a mailing list of all public and private interests, including Federal and State clearinghouses, who will be kept informed of study progress and results; conducting one (1) public workshop which will include scoping meeting requirements for the EIS/ EIR, in accordance with NEPA and CEQA guidelines; and conducting a final public meeting on the draft report and draft EIS/ EIR.

The purpose of the public workshop is to solicit input concerning study scope and local interests and desires, and the scoping of concerns to be addressed in the EIS/ EIR. It is expected that a separate meeting will be held with interested Federal, State, and local agencies, and a open workshop for other interested parties.

The public review of the draft report and associated public meeting will give the public and organizations an opportunity to comment on the study findings included in the draft report, and the proposed recommended plan and impact analysis presented in the EIS/ EIR. Oral testimony at the public meeting as well as written comments received during the public review

session will be considered official comments on the draft report, and will be addressed in the EIS/EIR to satisfy NEPA and CEQA public review requirements.

The goals of this task are: 1) promote understanding of the planning process, and to a lesser extent, the design and construction processes in terms of potential projects; 2) obtain public input regarding problems, opportunities, constraints, alternatives, outputs, impacts, and costs; and 3) coordinate the Malibu Creek watershed planning effort with the efforts of other Federal, state, and local agencies.

Public Involvement Plan – The Corps Study Manager, in cooperation with the lead study manager for California State Parks, will provide participating sponsors with guidelines to define the objectives of the program. Public involvement techniques will be decided and a study schedule with specific milestones will be incorporated into a Public Involvement Plan. During the formulation of the Public Involvement Plan, the number and types of meetings, workshops, and newsletters will be determined. A mailing list will be updated to include all potentially interested parties. Strategies to maximize public outreach will be developed.

Initial Public Workshop – An initial public meeting will be held early in the feasibility schedule to serve to introduce the study to interested parties. Scoping issues, concerns, and opportunities will be discussed. The following will be required:

- Public meeting facility (50+persons)
- Professional facilitator (optional)
- Audio/visual equipment
- Meeting announcement/advertising
- Presentation materials/handouts
- Record of meeting/follow-up mailing to interested parties

Additional Study Progress Briefings – The Malibu Creek Watershed Management Committee meetings will be held on a monthly basis, and will be used to brief the public on the status of the watershed study efforts. Additional informal public workshops may be held during the course of the study to report technical findings and solicit public input into the formulation of the watershed framework plan.

Information Dissemination – All interested parties will continue to be informed of the progress of the study through periodic news releases and newsletters. A Malibu Creek watershed website may be established under the existing California State Parks homepage as a repository for electronic copies of documents, newsletters, and links to related websites or homepages. Prior to the Final Public Meeting, the Draft Feasibility Report will be released for review and comment by the public.

Final Public Meeting – A Final Public Meeting will be held to present the findings of the Draft Feasibility Report. Direct input from the public will be obtained for incorporation into the Final Report. Similar logistical requirements as Initial Public Workshop (above), with the addition of a professional recorder and preparation of hearing transcripts.

n. **Plan Formulation (JJ000)** - Plan formulation activities establish the problems and opportunities in the study area, identify the baseline conditions for which plan performance is measured, and involve the reviewing and refining of the plans and management measures selected for the study during the reconnaissance phase and other plans developed during the course of the feasibility phase. An array of management alternatives with emphasis on hydrology, flood

control, ecosystem restoration, management of wastewater effluent, erosion/sedimentation control, storm water management, and groundwater recharge will be developed and evaluated.

Plan formulation is the process of integrating and analyzing the technical data that is made available during the course of the feasibility phase. The Principles and Guidelines (P&G)(Water Resources Council, 1983), the centerpiece of Corps planning guidance, enumerates a six-step planning process that provides a conceptual planning sequence for determining the feasibility of alternative project plans. The six steps follow a logical order, beginning with identifying problems and opportunities through formulation of alternative plans that may reduce problems or exploit opportunities, to comparison and eventual selection of a recommended plan that is considered to be in the federal interest. The six step planning process:

1. Specify the water and related land resources problems and opportunities of the study area. Identify planning goals and constraints, which meet the Federal interest and address specific state and local concerns.
2. Inventory, forecast and analyze the water and related land resource conditions in the study area. Develop future "without project" conditions for the study area over the planning period (50 years).
3. Identify and formulate structural and non-structural alternatives that meet the problems and opportunities of the study area and contribute to Federal objectives. Alternatives will be developed in an iterative process, with increasing level of detail as preliminary plans are screened and the final set of alternatives are developed. Alternative plans will be formulated in consideration of four criteria: completeness, effectiveness, efficiency and acceptability.
4. Assess the impacts of each alternative. The effects of each alternative will be presented and displayed according to the systems of accounts, including: National Economic Development (NED), Regional Economic Development (RED), Environmental Quality (EQ), and Other Social Effects (OSE).
5. Compare the alternative plans in terms of their contributions to the four criteria (completeness, effectiveness, efficiency, and acceptability) and the four accounts (NED, RED, EQ, and OSE). The comparison will focus on the differences between each plan in terms of their beneficial and adverse impacts and contributions to the planning objectives. Alternatives will be screened in increasing levels of detail as the final set of alternatives are developed.
6. Identify a selected plan after consideration of the final set of alternatives and their effects, and receipt of public input. Identify and select the NED plan, unless an exception is granted. The basis for selection of the recommended plan will be fully documented, including the considerations used in the plan formulation and selection process.

An updated and detailed assessment of present conditions within the Malibu Creek Watershed will be made as a baseline of reference for comparison with future without- and with-project conditions and for evaluation of the impact of past human disturbance and management practices. The assessment will include a mapping and inventory of the items listed below. All of the gathered information will be entered into a geographical information system (GIS) as individual themes and/or tables.

- Surface water hydrology, including base (dry season) flows as well as flood peaks
- Channel widths, depths and condition (natural, channelized but not lined, lined with bank protection only, fully-lined open channel, underground storm drain, etc.)
- Flood-prone areas and flood-related damages
- Sediment transport conditions, areas of river aggradation and degradation, bank erosion and related damages
- Bank protection, bridges, grade-control structures, and detention basins
- Wastewater facilities including treatment plants and major conveyance lines
- Surface water quality
- Groundwater location, depth and quality, including major well locations
- Recreation facilities including parks, trail linkages, recreational facilities, golf courses, school yards, major open space, etc.
- Riparian vegetation and wildlife habitat (documented by ground and aerial photography)
- Cultural resources inventory
- Existing infrastructure (roads, water mains, major electricity/gas, railroads, and landfills)
- Land development, densities, ownership, and land use patterns
- Open space, including that set aside under the NCCP.

The likely future conditions, also known as, the *without-project conditions*, will be forecast for Malibu Creek and surrounding area. Time periods for future without-project forecasting will be defined during the course of the study. This condition will represent the no-action alternative. In terms of water quality, it may be necessary to consider the likelihood of compliance with TMDL's for sediment, nutrients, toxics, and/or pathogens.

Plan Formulation activities include the preliminary objectives, opportunities, and constraints; which will be defined for the following purposes:

- Ecosystem Restoration
- Sediment Management
- Flood Peak/ Damage Reduction
- Erosion Protection
- Water Supply and Re-Use
- Surface & Ground Water Quality
- Recreation
- Education (Schools/Volunteer)

The final effort in Plan Formulation and Evaluation will involve defining implementation requirements for the recommended plan, including Federal and non-Federal responsibilities. The initial construction requirements and future periodic activities and responsibilities for operating and maintaining the completed project, including any environmental mitigation sites, will be described. The magnitude of these activities will be described for the implementation of the recommended alternative plan. All Federal policies and regulations specifying construction, mitigation, operation, and maintenance requirements will be clearly described; thereby, allowing the City local sponsor to be fully aware of their respective future duties.

o. Report Preparation (JL000)

Preliminary Reports - Documentation of study findings and results will be continuous by each organization as work proceeds. The work effort is associated with preparing and reproducing preliminary drafts, a final draft, and the final report on the study. The final report will include a Main Report with the EIS/ EIR document and appendices. Preliminary in-progress review reports will be prepared for two checkpoint meetings with the Technical Review Team, South Pacific Division (SPD) and Headquarters (HQUSACE): the F3 Report and F4 Report. The F3 Report will provide a description of the study area, conditions, problems and needs, the established planning objectives and preliminary alternatives and preliminary estimates of costs, benefits, and potential significant environmental impacts to identify which alternatives warrant further development during the study. The F4 Report will document alternative formulation and identification of the National Economic Development (NED) plan and the tentatively selected plan. Costs and benefits and environmental impacts will be discussed in the F4 Report as well as proposed Federal and non-Federal implementation requirements. The F4 report will provide the basis for the Alternative Formulation Briefing (AFB) and South Pacific Division (SPD) and Headquarters (HQUSACE), which will decide and document in an AFB Project Guidance Memorandum (PGM) which actions are needed to allow for completion of a draft report for public review.

Draft Report Documentation - The work will include addressing the required actions identified in the AFB Project Guidance Memorandum (PGM) to finalize the draft report. The draft report will be reproduced and sent to South Pacific Division, HQUSACE, and Office of the Assistant Secretary of the Army for Civil Works, as a basis for the Feasibility Review Conference (FRC), which will address any final issues or questions regarding the study recommendations and completion of the final report. An FRC PGM will be completed by HQUSACE which will identify the required actions needed to complete the final feasibility report. At the same time, the draft report will be sent to higher Corps levels. The draft report and draft EIS/ EIR will be distributed for public review by interested Federal, State, and local agencies, as well as other public and private interests.

Final Documentation - The work will include all tasks necessary to produce and distribute the final feasibility report and supporting documents. This includes addressing all required actions as contained in the FRC PGM, and comments received from public review of the draft report. The tasks will also include all work items necessary to support the review process from review of the final report by South Pacific Division and Headquarters, through the forwarding of the final report by the Assistant Secretary of the Army for Civil Works (ASACW) to the Office of Management and Budget (OMB) and eventually to Congress. These tasks include providing copies of the report for State and Agency Review, preparing a Record of Decision on the EIS/EIR, answering comments, attending review meetings, and revising the report as necessary.

All report completion actions include assembling pertinent data, writing, editing, typing, drafting, revising, reproducing, and distributing the draft feasibility report, EIS/EIR, and related technical appendices.

p. Technical Review Documents (JLD00) - All planning, NEPA and CEQA documents will be extensively reviewed prior to being finalized. The quality control process will include technical team meetings, meetings with the local sponsors, and Corps in-house technical review. The quality control process will be on-going throughout the study (seamless peer review), but at particular milestones, specific efforts will be made to assess the quality and progress of the study (independent technical/policy review). Corps CESPL-PD OM 1105-1-1, Independent Technical Review Guidelines, will be followed.

1. COE Internal Seamless Peer Review - Seamless peer review is an in-progress, single discipline peer review conducted at the work station of the study team member. It will not substitute for normal internal review of products which is the responsibility of each Study team member's first line supervisor. Upon completion of each assigned study or design task, and prior to release of task products, study team members will request on-board peer reviews by their Review Team counterparts. It is envisioned that most study team members will receive a series of reviews during the preparation of a major project document. The review will be planned, conducted and documented. Underlying policy and design assumptions will be identified. Each review will include an evaluation of the adequacy of data, assumptions, acceptability of techniques and procedures used, level of detail, compliance with policy and guidelines, consistency of results, accuracy and comprehensiveness. A formal comment/response/decision process will be used in this stage of review. A memorandum for the record prepared by the Review Team member will be the basis for establishing accountability for the product and review process. Peer reviews will be conducted much less formally than final document reviews. Countersigned checklists must be submitted to maintain accountability. The reviews will be completed prior to major decision points so that technical results can be verified prior to setting the future course of study activities. If any technical issues are unresolved prior to submission of the milestone reports to the South Pacific Division (SPD), SPD can be requested to aid in resolution or forward the issues to HQUSACE if needed. Costs associated with these reviews are incorporated into the other subaccounts.

2. Corps Internal Independent Technical/Policy Review - This process begins with a Review Strategy Session to establish the Quality Control Plan, prepare plan of review to include checklists, and identify participants. Study design and review teams will be assigned at this meeting. Completion of specific documents will be identified by specific milestone dates, i.e. F3, F4, F5 etc. The Review Team will perform their review at the specific milestones and document each review. An SPD representative will participate in the initial Review Strategy meeting as part of the Division's quality assurance partnership with the District. Division representatives will, throughout the course of the study, aid in resolving technical issues that cannot be resolved within the District level teams.

The Quality Control Plan that will be adopted at the Review Strategy Session will need to include the following items:

a. Objective: The objective of this Subaccount will be the successful completion and delivery of quality documents to customers, within budget and on time. The goals of the QC process are:

- Provide enhanced quality through timely review of decision and implementation documents.
- Reduce personnel requirements at the District to the maximum extent possible by reducing the amount of document revision required during the review process.
- Provide a mechanism for continuous in-progress (seamless) review of documents as they are prepared to improve quality and minimize revision of completed documents.
- Integrate policy review into technical review of decision documents.

b. Guidelines: The guidelines to be followed when completing this Subaccount will provide Review Team Members the tools to meet QCP objectives. The guidelines to be followed will include:

- CESPL OM Independent Technical Review Guidelines for Planning, Engineering, Construction, Operations, and Real Estate.
- CESPL OM Standard Operating Procedure for Independent Technical Review.
- CESPL OM Checklist for Single Discipline Peer Review.
- CESPL OM Guidelines for Independent Technical Review of Pre-Authorization Decision Documents.
- CESPL OM Review Checklist for Reconnaissance, Feasibility and Reevaluation Reports.
- CESPL OM Index to Minimum Report Content.
- CESPL OM Independent Technical Review Management Checkpoint System for Reconnaissance, Feasibility, and Reevaluation Reports.

c. Study Team Roster: As mentioned above, individuals to be appointed to the study team will be accomplished at a Review Strategy Session. However, its members will have technical expertise in each area of each Subaccount previously mentioned.

d. Review Team Roster: At the Review Strategy Session, a review team will be assembled that will mirror the study management team. The Review Team members will also have technical expertise in each area of each Subaccount previously mentioned.

e. List of Documents to be Reviewed: A list of completed documents to be reviewed by the Technical Review Team will be developed.

f. Review Schedule: A schedule for review activities will be developed and included as a part of the QC plan. This will include a schedule for periodic review and update of the QC plan.

g. Other: Other items to be included in the QC plan are a discussion of known policy questions needing clarification, a list of major technical issues that may require Headquarters' technical guidance, a statement of manpower and financial resources to be committed to the review, and views of the local sponsor on the QC process.

q. Project Management and Budget Documents (JPA00) - The Corps project manager is responsible for managing the overall study cost and schedule through use of the Project Review Board (PRB) system, preparation of present and future budget year submissions; coordination with the non-Federal sponsor, and preparation of the Project Management Plan, which presents the Federal and non-Federal requirements, costs, and schedule required for implementation of the recommended plan. The Corps project manager, with assistance from the non-Federal project manager, will monitor expenditures, keep the Project Management Plan (PMP) current, and report study status and issues to the District Engineer. The project management structure will continue into the pre-construction engineering and design phase, and construction phase.

Updates of Project Management Plan (PMP) - Updates of the PMP will include monthly finance and accounting reports regarding expenditures and obligations, executive summary reports for the Project Review Board (PRB), schedule and cost changes, and changes to the work elements.

Project Management Plan (PMP) - A product associated with the feasibility study is the PMP. The PMP describes the project activities during Pre-construction Engineering & Design and construction phases and is a basis for the project cost-sharing agreement. A draft PMP will be attached to the draft feasibility report.

Programs and Project Management Documents - This subactivity includes preparation of Project Executive Summary Reports (PES) to be used in the Project Review Board Meetings, budget documents and financial reports. At the end of the study, a final audit will be performed. SACCR reports associated with any changes in costs and schedules will also be prepared under this activity.

CHAPTER V – RESPONSIBILITY ASSIGNMENT

1. ORGANIZATIONAL BREAKDOWN STRUCTURE

The scopes of work represent agreements between the Project Manager and first line supervisors of functional organizations. The functions of these organizations in support of the project are defined by the work that is assigned. All organizations responsible for tasks, including the local sponsor and other agencies, are included with their organization codes in the following Organizational Breakdown Structure (OBS).

Los Angeles District	Org Code
Planning Division, Plan Formulation Branch	PD-PF
Planning Division, Environmental Branch	PD-ERB
Planning Division, Economics Branch	PD-ECO
Engineering Division, Hydraulics & Hydrology	ED-HH
Engineering Division, Structures	ED-SD
Engineering Division, Civil Design	ED-CD
Engineering Division, Survey & Mapping	ED-SM
Engineering Division, Geotechnical Studies	ED-G
Engineering Division, Cost Estimating	ED-EST
Programs and Project Management Division	PPMD
Real Estate Division	RE

Non Federal Sponsor	Org Code
California Department of Parks & Recreation	CDPR

Other Agency/Other Corps	Org Code
U.S. Fish and Wildlife Service	USFWS

2. RESPONSIBILITY ASSIGNMENT MATRIX

The scopes for each task are grouped by the parent task that they support and the primary responsible organization for each parent task is identified by the organization codes in the following Responsibility Assignment Matrix (RAM).

WBS#	Description	District Org	Non-Fed	Other
JAA00	Feas - Surveys and Mapping except Real Estate	ED-SM	CDPR	-
JAB00	Feas - Hydrology and Hydraulics Studies/Report (Coastal)	ED-HH	-	-
JAC00	Feas - Geotechnical Studies/Report	ED-G	-	-
JAEO0	Feas - Engineering and Design Analysis/Report	ED-D	-	-
JB000	Feas - Socioeconomic Studies	PD-ECO	-	-
JC000	Feas - Real Estate Analysis/Report	RE	CDPR	-
JD000	Feas - Environmental Studies/Report (Except USFWS)	PD-ERB	CDPR	-
JE000	Feas - Fish and Wildlife CAR & PAL	PD-ERB	-	USFWS
JF000	Feas - HTRW Studies/Report	ED-G	-	-
JG000	Feas - Cultural Resources Studies/Report	PD-ERB	CDPR	-
JH000	Feas - Cost Estimates	ED-EST	-	-
JI000	Feas - Public Involvement Documents	PD-WW	CDPR	-
JJ000	Feas - Plan Formulation and Evaluation	PD-WW	CDPR	-
JL000	Feas - Final Report Documentation	PD-WW	-	-
JLD00	Feas - Technical Review Documents	PD-WW	-	-
JM000	Feas - Washington Level Report Approval (Review Support)	PD-WW	-	-
JPA00	Project Management and Budget Documents	PPMD	CDPR	-
JPB00	Supervision and Administration	All	CDPR	-
JPC00	Contingencies	N/A	-	-
L0000	Project Management Plan (PMP)	PPMD	-	-
Q0000	PED Cost Sharing Agreement	PPMD	-	-

CHAPTER VI – FEASIBILITY STUDY SCHEDULE

1. SCHEDULE DEVELOPMENT

All schedules are developed using a Network Analysis System (NAS). The network is based upon the tasks that are listed in Chapter III, Work Breakdown Structure and the durations that are included in the detailed scopes of work in Chapter IV, Scope of Studies. Major milestones that are defined in Enclosure B, CESPDP Milestone System, are also included in the schedules.

2. FUNDING CONSTRAINTS

Funding for the first Fiscal Year of the feasibility study is normally limited because of the uncertainty in the initiation of the feasibility phase. This constraint has been reflected in the development of the study schedule. Following the first year, an optimum schedule based upon unconstrained funding has been assumed for subsequent Fiscal Years.

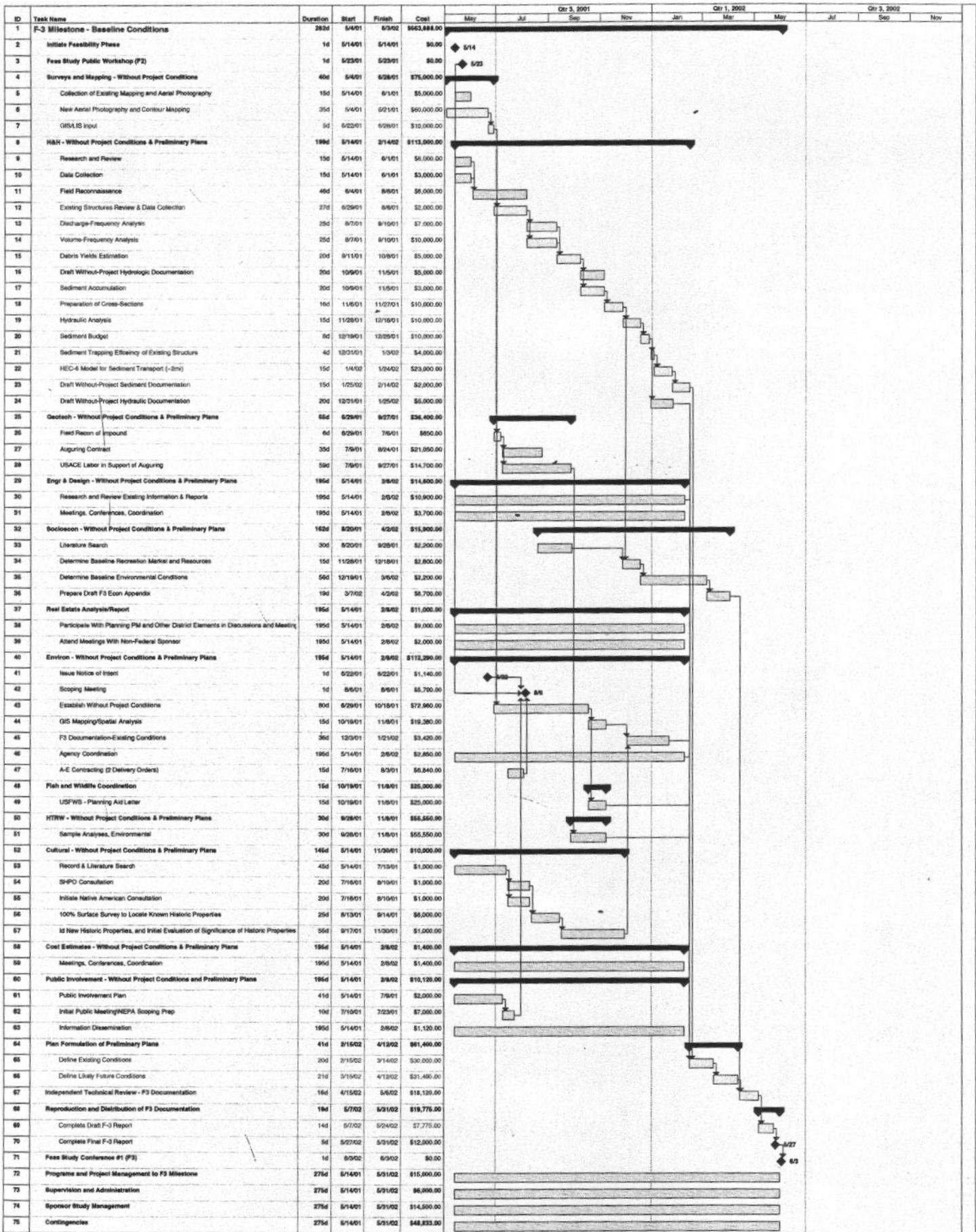
3. LOCAL SPONSOR COMMITMENTS

Milestones become commitments when the project manager meets with the local sponsor(s) at the beginning of each Fiscal Year and identifies two to five tasks that are important for the district to complete during the Fiscal Year. These commitments would be flagged in the PROMIS database and monitored and reported on accordingly.

3. MILESTONE SCHEDULE

The schedule for the milestones in the CESPDP Milestone System are as follows:

Milestone	Description	Baseline Sch.	Current Sch.
Milestone F1	Initiate Study	May-01	May-01
Milestone F2	Public Workshop/Scoping	Jul-01	Jul-01
Milestone F3	Feasibility Scoping Meeting	Jun-02	
Milestone F4	Alternative Review Conference	Mar-03	
Milestone F4A	Alternative Formulation Briefing	Aug-03	
Milestone F5	Draft Feasibility Report	Dec-03	
Milestone F6	Final Public Meeting	Jan-04	
Milestone F7	Feasibility Review Conference	Feb-04	
Milestone F8	Final Report to SPD	May-04	
Milestone F9	DE's Public Notice	Jun-04	
-	Chief's Report	Oct-04	
-	Project Authorization	Feb-05	



Project:
Date: 5/1/01



ID	Task Name	Days	Start	Finish	Cost	2002												2003				
						Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
1	F-3 to F-4, Formulation of Final Plans	30d	6/4/02	8/8/03	\$52,344.00	[Gantt bar]																
2	Fees Study Conference #1 (F3)	1d	6/4/02	6/4/02	\$0.00	[Gantt bar]																
3	Fees - Hydrology and Hydraulics Studies/Report	179d	6/5/02	2/10/03	\$56,000.00	[Gantt bar]																
4	Impacts on Debris Yields	48d	6/5/02	8/9/02	\$5,000.00	[Gantt bar]																
5	Downstream Impacts	45d	8/12/02	10/11/02	\$5,000.00	[Gantt bar]																
6	Draft With-Project Hydrologic Documentation	21d	10/14/02	11/11/02	\$4,000.00	[Gantt bar]																
7	Hydraulic Analysis	48d	6/5/02	8/9/02	\$8,000.00	[Gantt bar]																
8	Sediment Trapping Efficiency of Structure	60d	8/12/02	11/11/02	\$14,000.00	[Gantt bar]																
9	Channel Stabilization w/o Rridge Dam	44d	11/12/02	1/10/03	\$10,000.00	[Gantt bar]																
10	Draft With-Project Sedimentation Documentation	21d	1/13/03	2/10/03	\$2,000.00	[Gantt bar]																
11	Draft With-Project Hydraulic Documentation	21d	1/13/03	2/10/03	\$7,000.00	[Gantt bar]																
12	Fees - Geotechnical Studies/Report	174d	6/5/02	3/3/03	\$117,180.00	[Gantt bar]																
13	Geotech - With Project Conditions for Final Plans	96d	6/5/02	10/18/02	\$11,875.00	[Gantt bar]																
14	Dewatering System & Maltbu Creek Diversion	23d	6/5/02	7/5/02	\$3,823.00	[Gantt bar]																
15	Develop Trucking Costs	23d	6/5/02	7/5/02	\$620.00	[Gantt bar]																
16	Landfilling	21d	7/8/02	8/5/02	\$1,863.80	[Gantt bar]																
17	Sluicing	23d	8/6/02	9/5/02	\$1,863.00	[Gantt bar]																
18	Ocean Water Pumping Costs	31d	9/6/02	10/18/02	\$1,243.00	[Gantt bar]																
19	Conveyor System Transport	31d	9/6/02	10/18/02	\$1,863.00	[Gantt bar]																
20	Geotech - With Project Conditions for Final Plans	132d	6/5/02	12/5/02	\$105,425.00	[Gantt bar]																
21	Field Recon of Spillway	11d	6/5/02	6/19/02	\$1,260.00	[Gantt bar]																
22	Coring Contract	67d	6/20/02	10/18/02	\$20,870.00	[Gantt bar]																
23	USACE Costs in Support of Coring	86d	6/20/02	10/17/02	\$6,645.00	[Gantt bar]																
24	Engr, Stone, and Mixt Analyses in Support of CI	34d	10/21/02	12/5/02	\$76,550.00	[Gantt bar]																
25	Geotech - AFB Documentation	42d	12/6/02	2/3/03	\$850.00	[Gantt bar]																
26	Finalize the Report	42d	12/6/02	2/3/03	\$650.00	[Gantt bar]																
27	Fees - Engineering and Design Analysis/Report	234d	6/5/02	4/28/03	\$323,400.00	[Gantt bar]																
28	Engr & Design - With Project Conditions (Structur	114d	6/5/02	11/11/02	\$114,500.00	[Gantt bar]																
29	Alts 4, 5 & No Action, Simplified Dynamic/Finte	114d	6/5/02	11/11/02	\$75,000.00	[Gantt bar]																
30	Alts 1, 2 & 3, Prelim. Analysis for Removal of D.	114d	6/5/02	11/11/02	\$7,300.00	[Gantt bar]																
31	Alt. 4, Prelim Analysis for Removing a Portion of	114d	6/5/02	11/11/02	\$7,300.00	[Gantt bar]																
32	Alt. 4, Preliminary Design of Conduit	114d	6/5/02	11/11/02	\$3,700.00	[Gantt bar]																
33	Alt. 5, Preliminary Design of Fish Ladder & Bend	114d	6/5/02	11/11/02	\$5,100.00	[Gantt bar]																
34	All Alts, Preliminary Analysis for Removing Thre	114d	6/5/02	11/11/02	\$3,700.00	[Gantt bar]																
35	All Alts, Preliminary Design of Replacing Road C	114d	6/5/02	11/11/02	\$3,700.00	[Gantt bar]																
36	CADD/Drafting Support	34d	6/5/02	7/22/02	\$5,000.00	[Gantt bar]																
37	Meetings, Conferences, Coordination	113d	6/5/02	11/8/02	\$3,700.00	[Gantt bar]																
38	Engr & Design - AFB documentation (Detailed Ani	120d	11/12/02	4/28/03	\$206,900.00	[Gantt bar]																
39	Detailed FE Model & Response Spectrum Analy	80d	11/12/02	3/3/03	\$125,000.00	[Gantt bar]																
40	Detail Design for Fish Ladder, Conduit, Single B)	15d	3/4/03	3/24/03	\$21,900.00	[Gantt bar]																
41	Detail Analysis of Removing All or Portions of Rls	15d	3/4/03	3/24/03	\$7,300.00	[Gantt bar]																
42	CADD/Drafting Support	10d	3/25/03	4/7/03	\$43,700.00	[Gantt bar]																
43	Meetings, Conferences, Coordination	64d	1/26/03	4/25/03	\$3,700.00	[Gantt bar]																
44	Draft Structural Appendix	15d	4/8/03	4/28/03	\$7,300.00	[Gantt bar]																
45	Fees - Socioeconomic Studies	227d	6/5/02	4/17/03	\$46,700.00	[Gantt bar]																
46	Socioecon - With Project Conditions for Final Plan	182d	6/5/02	3/13/03	\$35,700.00	[Gantt bar]																
47	Estimate Projected Demand for Recreation	16d	6/5/02	6/26/02	\$1,400.00	[Gantt bar]																
48	Forecast Potential Recreation Use in Study Area	16d	6/5/02	6/26/02	\$1,400.00	[Gantt bar]																
49	Assess Recreational Impacts of Alternatives	22d	6/27/02	7/26/02	\$2,200.00	[Gantt bar]																
50	Forecast Recreation Use Under With Project Cor	21d	7/29/02	8/28/02	\$3,700.00	[Gantt bar]																
51	Determine Unit Day Values/Net Recreation Bene	12d	8/27/02	9/11/02	\$1,400.00	[Gantt bar]																
52	Asses in Development of Environmental Income	20d	6/17/02	7/12/02	\$2,200.00	[Gantt bar]																
53	Quantify Environmental Impacts of Alternative Ir	35d	8/27/02	10/14/02	\$2,800.00	[Gantt bar]																
54	Annualize Costs and Calculate Annual Costs Per	10d	10/25/02	11/7/02	\$1,400.00	[Gantt bar]																
55	Perform Incremental Cost Analysis by Feature	10d	11/8/02	11/21/02	\$3,700.00	[Gantt bar]																
56	Incorporate Risk and Uncertainty Analysis	20d	11/22/02	12/19/02	\$3,700.00	[Gantt bar]																
57	Perform Final Cost/Benefit Analysis on Restora	20d	12/20/02	1/16/03	\$2,200.00	[Gantt bar]																
58	Incorporate Risk and Uncertainty Analysis into Fi	20d	1/17/03	2/13/03	\$3,700.00	[Gantt bar]																
59	Coordinate With Cost Engineering	22d	9/25/02	10/24/02	\$2,200.00	[Gantt bar]																
60	Meetings, Conferences, Coordination	181d	6/5/02	2/12/03	\$3,700.00	[Gantt bar]																
61	Socioecon - AFB Documentation	45d	2/14/03	4/17/03	\$11,000.00	[Gantt bar]																
62	Meetings, Conferences, Coordination	44d	2/14/03	4/16/03	\$3,700.00	[Gantt bar]																
63	Draft Economics Appendix	45d	2/14/03	4/17/03	\$7,300.00	[Gantt bar]																
64	Fees - Real Estate Analysis/Report	198d	6/5/02	1/10/03	\$30,200.00	[Gantt bar]																
65	Obtain Rights-of-Entry	16d	6/5/02	6/26/02	\$2,000.00	[Gantt bar]																
66	Provide Schedules for RE Acquisition (Discuss With F	33d	6/27/02	8/12/02	\$0.00	[Gantt bar]																
67	Map Preparation	22d	11/12/02	12/11/02	\$3,200.00	[Gantt bar]																
68	Real Estate Cost Estimates	22d	12/12/02	1/10/03	\$25,000.00	[Gantt bar]																
69	Fees - Environmental Studies/Report (Except USFWS)	288d	6/5/02	7/11/03	\$48,450.00	[Gantt bar]																
70	Environ - With Project Conditions for Final Plans	182d	6/5/02	3/13/03	\$36,800.00	[Gantt bar]																
71	Develop Alternatives	59d	6/5/02	8/26/02	\$5,700.00	[Gantt bar]																
72	Preliminary Impact Analysis-All Resources	44d	8/27/02	10/25/02	\$22,800.00	[Gantt bar]																
73	Preliminary Mitigation Plans/HEP Analysis	55d	10/28/02	1/10/03	\$11,400.00	[Gantt bar]																

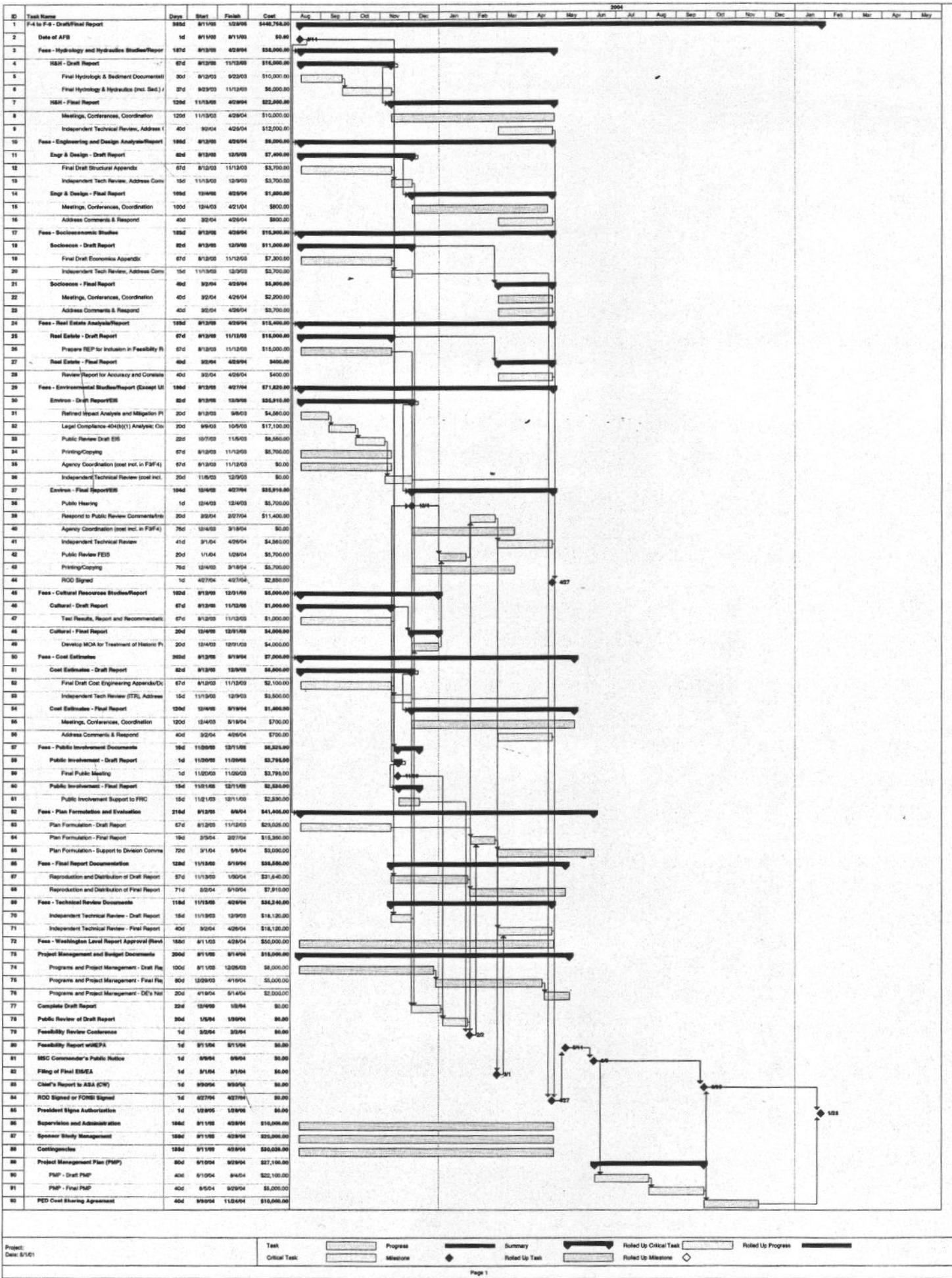
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Date: 5/1/01

Task [Symbol] Milestone [Symbol] Rolled Up Critical Task [Symbol]
 Critical Task [Symbol] Summary [Symbol] Rolled Up Milestone [Symbol]
 Progress [Symbol] Rolled Up Task [Symbol] Rolled Up Progress [Symbol]

ID	Task Name	Days	Start	Finish	Cost	2002												2003			
						Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
74	Agency Coordination (incl. in AFB cost)	157d	6/5/02	1/9/03	\$0.00	[Task bar]															
75	Independent Technical Review (incl. in overall)	24d	1/13/03	2/13/03	\$0.00																
76	Environ - AFB Documentation	106d	3/14/03	7/1/03	\$8,550.00																
77	Prepare Preliminary Draft EIS/F4 Documentation	68d	3/11/03	6/12/03	\$5,700.00																
78	Agency Coordination	80d	2/14/03	6/13/03	\$2,850.00																
79	Independent Technical Review (incl. in overall)	21d	6/13/03	7/1/03	\$0.00																
80	Fees - Fish and Wildlife Coordination Act Report & Pla	141d	10/28/02	5/12/03	\$15,000.00																
81	USFWS - Draft Coordination Act Report	77d	10/28/02	2/1/03	\$10,000.00																
82	USFWS - Final Coordination Act Report	45d	3/11/03	5/12/03	\$5,000.00																
83	Fees - HTRW Studies/Report	146d	10/21/02	5/19/03	\$2,100.00																
84	HTRW - With Project Conditions for Final Plans	77d	10/21/02	2/4/03	\$1,480.00																
85	EPA Analysis of Quality Data	20d	10/21/02	11/15/02	\$725.00																
86	Design District Chemist Analysis of Quality Data	57d	11/18/02	2/4/03	\$725.00																
87	HTRW - AFB Documentation	45d	3/11/03	5/13/03	\$650.00																
88	Finalize the Report	45d	3/11/03	5/12/03	\$650.00																
89	Fees - Cultural Resources Studies/Report	55d	8/27/02	11/1/02	\$20,000.00																
90	Testing of Properties as Needed	55d	8/27/02	11/1/02	\$20,000.00																
91	Fees - Cost Estimates	287d	6/5/02	7/10/03	\$41,700.00																
92	Cost Estimates - With Project Conditions for Final	154d	6/5/02	1/8/03	\$27,000.00																
93	Research/Gathering Information	40d	6/5/02	7/30/02	\$2,700.00																
94	Site Visit - Travel & Perdiem	40d	6/5/02	7/30/02	\$1,000.00																
95	Quantities Evaluation	40d	7/31/02	9/24/02	\$2,700.00																
96	MCACES Estimates for Alternatives	40d	11/12/02	1/6/03	\$16,500.00																
97	Meetings, Conferences, Coordination, Filing	153d	6/5/02	1/3/03	\$4,100.00																
98	Cost Estimates - AFB Documentation	86d	3/11/03	7/19/03	\$14,700.00																
99	Refine MCACES Estimate for Recommended Alt	20d	3/11/03	4/7/03	\$3,500.00																
100	Research/Gathering Information	20d	3/11/03	4/7/03	\$1,400.00																
101	Quantities Evaluation	20d	4/8/03	5/5/03	\$1,400.00																
102	Meetings, Conferences, Coordination	87d	3/11/03	7/6/03	\$3,500.00																
103	Draft Cost Engineering Appendix	28d	5/8/03	6/12/03	\$1,400.00																
104	Construction Schedule	20d	6/13/03	7/10/03	\$3,500.00																
105	Fees - Public Involvement Documents	307d	6/5/02	8/7/03	\$4,325.00																
106	Public Workshops in Support of Plan Selection	198d	6/5/02	3/7/03	\$3,000.00																
107	Public Involvement Workshops to Support to AFB	109d	3/10/03	8/7/03	\$3,325.00																
108	Fees - Plan Formulation and Evaluation	267d	6/4/02	6/11/03	\$53,725.00																
109	Plan Formulation for Final Plans	181d	6/4/02	6/11/03	\$38,375.00																
110	Preliminary Objectives, Opportunities, and Const	181d	6/4/02	2/11/03	\$38,375.00																
111	Plan Formulation - AFB documentation	86d	3/12/03	6/11/03	\$15,350.00																
112	Final Objectives, Opportunities, and Constraints	43d	2/12/03	4/11/03	\$10,000.00																
113	Recommendation of Final Plan(s)	43d	4/14/03	6/11/03	\$5,350.00																
114	Project Management and Budget Documents	307d	6/5/02	8/7/03	\$20,000.00																
115	Programs and Project Management to F4 Milestone	198d	6/5/02	3/7/03	\$10,000.00																
116	Programs and Project Management - AFB documents	109d	3/10/03	8/7/03	\$10,000.00																
117	Fees - Technical Review Documents	125d	2/14/03	8/7/03	\$36,240.00																
118	Independent Technical Review - F4 Documentation	16d	2/14/03	3/7/03	\$18,120.00																
119	Independent Technical Review - AFB Documentation	40d	6/13/03	8/7/03	\$18,120.00																
120	Reproduction and Distribution of F4/F4A Documentat	107d	3/11/03	8/6/03	\$19,775.00																
121	Fees Study Conferences #2 (F4)	1d	3/10/03	3/10/03	\$0.00																
122	Date of AFB	1d	8/8/03	8/8/03	\$0.00																
123	Supervision and Administration	306d	6/4/02	8/7/03	\$14,000.00																
124	Sponsor Study Management	306d	6/4/02	8/7/03	\$29,500.00																
125	Contingencies	306d	6/4/02	8/7/03	\$72,079.00																

Project:
Date: 5/1/01





Project: Date: 5/1/01

Task: Progress Summary Rolled Up Critical Task Rolled Up Progress

Critical Task: Milestone Rolled Up Task Rolled Up Milestone

Page 1

CHAPTER VII – FEASIBILITY COST ESTIMATE

1. BASIS FOR THE COST ESTIMATE

a. The feasibility cost estimate is based upon a summation of the costs that were identified for the individual tasks in detailed scopes of work that are included in Enclosure C, Detailed Scopes of Work. Study cost estimates include allowances for inflation so that the non-Federal sponsor is fully aware of its financial commitment.

b. Appropriate contingencies and contingency management are included to adequately deal with the uncertainty in the elements of the study. Experience has shown that approximately 20 percent of the study costs should be reserved for activities after the release of the draft report. Contingencies in the amount to required to raise the costs of activities after the draft report this amount have been added to the cost estimate.

2. COSTS FOR FEDERAL AND NON-FEDERAL ACTIVITIES

The non-Federal sponsor must contribute 50 percent of the cost of the study during the period of the study. The non-Federal share may be made by the provision of services, materials, supplies or other in-kind services necessary to prepare the feasibility report. The feasibility cost estimate below includes credit for work that is to be accomplished by the non-Federal sponsor.

WBS#	Description	Federal Cost plus cash	Non-Fed In-Kind*	Total Cost
JAA00	Feas - Surveys and Mapping except Real Estate	\$ 75,000	\$ -	\$ 75,000
JAB00	Feas - Hydrology and Hydraulics Studies/Report	\$ 207,000	\$ -	\$ 207,000
JAC00	Feas - Geotechnical Studies/Report	\$ 153,550	\$ -	\$ 153,550
JAE00	Feas - Engineering and Design Analysis/Report	\$ 347,000	\$ -	\$ 347,000
JB000	Feas - Socioeconomic Studies	\$ 80,000	\$ -	\$ 80,000
JC000	Feas - Real Estate Analysis/Report	\$ 6,600	\$ 50,000	\$ 56,600
JD000	Feas - Environmental Studies/Report (Except USFWS)	\$ 190,000	\$ 42,560	\$ 232,560
JE000	Feas - Fish and Wildlife Coordination Act Report	\$ 40,000	\$ -	\$ 40,000
JF000	Feas - HTRW Studies/Report	\$ 57,650	\$ -	\$ 57,650
JG000	Feas - Cultural Resources Studies/Report	\$ 35,000	\$ -	\$ 35,000
JH000	Feas - Cost Estimates	\$ 50,100	\$ -	\$ 50,100
JI000	Feas - Public Involvement Documents	\$ 5,300	\$ 20,000	\$ 25,300
JJ000	Feas - Plan Formulation and Evaluation	\$ 118,500	\$ 35,000	\$ 153,500
JL000	Feas - Final Report Documentation	\$ 79,100	\$ -	\$ 79,100
JLD00	Feas - Technical Review Documents	\$ 90,600	\$ -	\$ 90,600
JM000	Feas - Washington Level Report Approval (Review Support)	\$ 50,000	\$ -	\$ 50,000
JPA00	Project Management and Budget Documents	\$ 50,000	\$ -	\$ 50,000
JPB00	Supervision and Administration	\$ 20,000	\$ 10,000	\$ 30,000
JPC00	Contingencies	\$ 150,940	\$ -	\$ 150,940
xxxxx	Sponsor Study Management		\$ 64,000	\$ 64,000
L0000	Project Management Plan (PMP)	\$ 27,100	\$ -	\$ 27,100
Q0000	PED Cost Sharing Agreement	\$ 10,000	\$ -	\$ 10,000
Total		\$1,843,440	\$221,560	\$2,065,000

* The non-Federal in-kind services will continue to be negotiated throughout the study. There may be exchanges between the in-kind vs. cash contributions for the Sponsor, but the total amount will always equal 50% of the total study cost.

3. COST SHARING BREAKDOWN

Federal share	\$1,032,500
Non Federal share (cash)	\$810,940
Non Federal in-kind	\$221,560
Total study cost	\$2,065,000

4. FISCAL YEAR BREAKDOWN

The following table is a summary of the task-by-task breakdown in Chapter VI.

Milestone	FY 2001	FY 2002	FY 2003	FY 2004	TOTAL
F-1 to F3	\$ 327,060	\$ 336,828			\$ 663,888
F-4 to F4/4A		\$ 283,100	\$ 669,244		\$ 952,344
F-4/4A to F-9			\$ 94,600	\$354,168	\$ 448,768
TOTAL	\$ 327,060	\$ 619,928	\$ 763,844	\$354,168	\$ 2,065,000

CHAPTER VIII – QUALITY CONTROL PLAN

1. QUALITY CONTROL PLAN OBJECTIVE

The quality control objective is to achieve feasibility phase documents and services that meet or exceed customer requirements, and are consistent with Corps policies and regulations.

2. GUIDELINES FOLLOWED FOR TECHNICAL REVIEW

The guidelines for independent technical review are set forth in CESPD R 1110-1-8, “Quality Management Plan”, dated 14 December 1998, and SPL OM No. 1105-1-1, “Quality Management Plan” dated 25 January 2000.

3. ROSTER OF THE PROJECT STUDY TEAM

Organization/Function	Name/Title	Phone
Planning Division Plan Formulation	Jason Shea Project Planner	213-452-3794
Engineering Division Geotechnical	Mark Chatman Geologist	213-452-3585
Engineering Division Structural	Dave Van Dorpe Structural Engineer	213-452-3693
Engineering Division H&H	Kerry Casey H&H Engineer	213-452-3574
Engineering Division Cost Estimating	Don Nguyen Cost Engineer	213-452-3712
Planning Division Economics	Bruce Williams Economist	213-452-3818
Planning Division Environmental Branch	Lois Goodman Environmental Coordinator	213-452-3869
Survey & Mapping	Don Hermanson Survey & Mapping	626-401-4010
Real Estate Division	Pete Garcia Real Estate Analyst	213-452-3131
PPMD	Se-Yao Hsu Project Manager	213-452-3131

4. ROSTER OF THE TECHNICAL REVIEW TEAM

Organization/Function	Name/Title	Phone
Planning Division Plan Formulation	Debbie Lamb ITR Team Leader	213-452-3798
Engineering Division Geotechnical	Teresa Wilt	213-452-3597
Engineering Division Structural	Joan Siao	213-452-3695
Engineering Division H&H	Kevin Thomas	213-452-3561
Planning Division Economics	Mike Green	213-452-3827
Planning Division Environmental Branch	Deanie Kennedy	213-452-3856

5. DOCUMENTS TO BE REVIEWED AND SCHEDULE FOR REVIEW ACTIVITES

a. All of the products of the tasks listed in the detailed scopes of work in Chapter IV, Scope of Studies, will be subject to independent technical review. Seamless Single Discipline Review will be accomplished prior to the release of materials to other members of the study team or integrated into the overall study. Section chiefs shall be responsible for accuracy of the computations through design checks and other internal procedures, prior to the independent technical review.

b. Independent product review will occur prior to major decision points in the planning process at the CESPDP milestones so that the technical results can be relied upon in setting the course for further study. These products would include documentation for the CESPDP mandatory milestone conferences (F3 & F4), HQUSACE issue resolution conferences (AFB & FRC) and the draft and final reports. These products shall be essentially complete before review is undertaken. Since this quality control will have occurred prior to each milestone conference, the conference is free to address critical outstanding issues and set direction for the next step of the study, since a firm technical basis for making decisions will have already been established. In general, the independent technical review will be initiated at least two week prior to a CESPDP mandatory milestone conference and at least two weeks prior to the submission of documentation for a HQUSACE issue resolution conference.

c. For products that are developed under contract, the contractor will be responsible for quality control through an independent technical review. Quality assurance of the contractor's quality control will be the responsibility of the district.

6. COST ESTIMATE FOR QUALITY MANAGEMENT

The costs for conducting independent technical review are included in the individual scopes of work that are included in Chapter IV, Scope of Studies. Quality management activities of Branch and Division Chiefs are included in Supervision and Administration. The total cost for quality management is approximately \$214,200, which is approximately 10% of the study cost

estimate. Of this amount, \$90,600 is included in parent task JLD00 and \$123,600 is included in other parent tasks.

7. PMP QUALITY CERTIFICATION

The Chief, Planning Division has certified that 1) the independent technical review process for this PMP has been completed, 2) all issues have been addressed, 3) the streamlining initiatives proposed in this PMP will result in a technically adequate product, and 4) appropriate quality control plan requirements have been adequately incorporated into this PMP. The signed certification is included as Enclosure D.

8. FEASIBILITY PHASE CERTIFICATION

The documentation of the independent technical review shall be included with the submission of the reports to CESP. Documentation of the independent technical review shall be accompanied by a certification, indicating that the independent technical review process has been completed and that all technical issues have been resolved. The certification requirement applies to all documentation that will be forwarded to either CESP or HQUSACE for review or approval. The Chief, Planning Division will certify the pre-conference documentation for the HQUSACE issue resolution conferences and the draft feasibility report. The final feasibility report, which includes the signed recommendation of the District Commander, will be certified by the District Commander. This certification will follow the example that is included as Appendix H of the CESP Quality Management Plan and will be signed by the Chief, Planning Division and the District Commander.

CHAPTER IX IDENTIFICATION OF PROCEDURES AND CRITERIA

1. EVOLUTION OF THE PMP

The PMP describes all activities from the initial tasks of the feasibility phase through the preparation of the final feasibility report, the Project Management Plan and PED cost-sharing agreement, and the district's support during the Washington-level review. As the PMP is based primarily on existing information, it will be subject to scope changes as the technical picture unfolds. Because of the limited evaluations in the reconnaissance phase, the PMP will include significantly more uncertainty and must make appropriate allowances. As an example, this PMP assumes the requirement for an Environmental Impact Statement, because of the limited environmental evaluations conducted in the reconnaissance phase. Use of the Project Management Plan. The current PMP, including the documentation of agreements on changes to the conduct of the study, will be addressed at each of the CESPDP milestone conferences and at the formal issue resolution conferences with HQUSACE, including the AFB and FRC.

2. THE PLANNING PROCESS

The Water Resource Council's Principles and Guidelines (P&G) is the basic planning guidance which establishes a six-step planning process. This process is a conceptual planning sequence for developing solutions to water resource problems and opportunities. The Planning Manual and Planning Primer, both published by IWR provide excellent coverage of the planning process. The South Pacific Division also provides training in the six-step process.

3. POLICY

The policies that govern the development of projects are contained in the DIGEST OF WATER REOURCES POLICIES AND AUTHORITIES, EP 1165-2-1.

4. CORPS REGULATIONS

All of the Corps' current regulations are included on the HQUSACE homepage (<http://www.usace.army.mil>). The most important of these regulations is ER 1105-2-100, PLANNING GUIDANCE. Policy compliance review is addressed in EC 1165-2-203, TECHNICAL AND POLICY COMPLIANCE REVIEW. And, quality control is covered in the CESPDP Quality Management Plan, CESPDP R 1110-1-8. The review of the products will be accomplished with the review checklist that is provided in EC 1165-2-203 as Appendix B, POLICY COMPLIANCE REIVEW CONSIDERATIONS.

5. PROCESSING REQUIREMENTS

In addition to ER 1105-2-100, the South Pacific Division has provided additional guidance on the processing requirements for each of the milestone submittals. This guidance is contained in CESPDP-ET-P memorandum, dated 30 March 2000, subject: Processing of Planning Reports in the South Pacific Division.

CHAPTER X – COORDINATION MECHANISMS

1. CESPDMILESTONES

Two of the milestones in the CESPDMilestone system have been established specifically for the purpose of providing a public forum to receive public input. The first of these is the initial public workshop. This workshop is an opportunity to present the study to the public, obtain input and public opinions, and fulfill the NEPA scoping meeting requirements. The second milestone in the system is the final public meeting. This meeting is after the release of the draft report for public review and is an opportunity to present the findings of the draft report to the public and receive public comment.

2. STUDY SPECIFIC PUBLIC INVOLVEMENT ACTIVITIES

Public involvement is a process by which interested and affected individuals, organizations, agencies, and government entities are consulted and included in the decision-making process of a planning effort. *Public information is not public involvement.* Public information is intended only to inform the public. Public involvement is intended to both inform the public and to be informed by them by actively soliciting public response regarding their problems, needs, values, ideas about solutions, and reactions to proposed solutions to problems. Public involvement is a two-way communication process.

The purpose of public involvement is to ensure that the Corps programs are responsive to the needs and concerns of the public. The objectives of public involvement are to provide information about proposed Corps activities to the public; make the public's desires, needs, and concerns known to decision makers; to provide for consultation with the public before decisions are reached; and to take into account the public's views in reaching decisions.

There is no single formula for the amount and kind of public involvement activities, which should be offered. Rather, the level of public interest and the Corps' needs will guide the amount and type of public involvement activities. Initial public involvement activities will provide an opportunity to assess the level of interest. The following is a generalized framework, which the Corps uses for its public involvement process.

a. Announcement of Initiation of the Study

Announcements may be done through any of the communications media, but at a minimum, a mailing of an announcement be made to potentially interested parties. The mailing method insures that at least those on the list have been made aware of the study initiation. If other media methods (such as TV, radio, newspapers, etc.) are deemed productive, they will also be pursued through coordination with the public affairs officer.

b. Identification of the Public

When initiating contact with the public, a list will be developed of those individuals and organizations who should be informed at the beginning of the planning process for the particular project or activity. This list will be updated regularly during the process as new groups and individuals are identified and new alternatives surface. This list will include people who have previously shown an interest in Corps issues or participated in other planning activities. The affected public may range from a single person to a few individuals, a small community, or a large region. Proponents as well as opponents of potential

alternatives analyzed in the study will be invited to participate and voice their concerns and suggestions. A special effort should be made to notify, personally, those who might be directly affected by any of the alternatives that the study may consider.

The nature of the planning study will determine who will be contacted. As a starting point, the following organizations, among others, will be considered:

- Environmental/Conservation groups.
- Civic and neighborhood associations and community leaders.
- Other Federal, State and local public agencies and entities.
- User groups.
- Consumer and public interest groups.
- Religious and ethnic groups.
- Business groups, including small businesses and merchants.
- Civil rights organizations.
- Labor organizations.
- Organizations representing the handicapped, the elderly, the low income, the minorities, and the disadvantaged.

c. Meetings and Workshops

The guiding principle of designing meetings and workshops is that "format follows functions," meaning that the design of the meeting will reflect the purpose of the meeting. Meetings can serve five basic functions: information giving; information receiving; interaction; consensus forming/negotiation; and, summarizing. The scheduled public meetings for the Malibu Creek Feasibility Study are as follows:

1. F2 – Public Workshop July 2001
2. F6 – Final Public Meeting January 2004

The need for additional meetings/workshops will depend complexity of the study.



MALIBU CREEK – RINDGE DAM

ENCLOSURE B

CESPD MILESTONE SYSTEM FEASIBILITY PHASE

MIL¹	MILESTONE NAME	DESCRIPTION
100	Initiate Feasibility Phase	SPD Milestone F1 ² - This is the date the district receives Federal feasibility phase study funds.
101	Feas Study Pub Wkshp (F2)	SPD Milestone F2 – This is a Public Meeting/Workshop to inform the public and obtain input, public opinions and fulfill scoping requirements for NEPA purposes.
102	Feas Study Conf #1 (F3)	SPD Milestone F3 – The Feasibility Scoping Meeting is with HQUSACE to address potential changes in the PMP. It will establish without project conditions and screen preliminary plans.
103	Feas Study Conf #2 (F4)	SPD Milestone F4 – The Alternative Review Conference will evaluate the final plans, reach a consensus that the evaluations are adequate to select a plan and prepare AFB issues.
124	Date of AFB	SPD Milestone F4A - Alternative Formulation Briefing (AFB) is for policy compliance review of the proposed plan with HQUSACE to identify actions required to prepare and release the draft report.
145	Public Review of Draft Report	SPD Milestone F5 - Initiation of field level coordination of the draft report with concurrent submittal to HQUSACE through SPD for policy compliance review.
162	Final Public Meeting	SPD Milestone F6 - Date of the final public meeting.
130	Feasibility Review Conference	SPD Milestone F7 - Policy compliance review of the draft report with HQUSACE to identify actions that are required to complete the final report.
165	Feasibility Report w\NEPA	SPD Milestone F8 - Date of submittal of final report package to CESPd-ET-P, including technical and legal certifications and compliance memorandum.
170	MSC Commander's Public Notice	SPD Milestone F9 - Date of issue of the public notice. Congressional notification would occur two days prior. Report would be forwarded to HQUSACE. Used as the completion of the feasibility report in the CMR .

¹ MIL – Milestone number used in the PROMIS database.

² F1 through F9 are the historical designations for the SPD Milestones.

MIL¹	MILESTONE NAME	DESCRIPTION
310	Filing of Final EIS/EA	Date that the notice appears in the Federal Register. Letters for filing would be furnished by HQUSACE.
330	Chief's Report to ASA (CW)	Date of the signed report of the Chief of Engineers.
320	ROD Signed or FONSI Signed	Date that the ROD is signed by the ASA(CW) when forwarded for authorization.
350	President Signs Authorization	Date President signs authorizing legislation.

¹ MIL – Milestone number used in the PROMIS database.

ENCLOSURE C

DETAILED SCOPES OF WORK

TABLE OF CONTENTS

WBS#	DESCRIPTION	Cell Location	Page
	Summary of Costs	A53	2
JAA00	Feas - Surveys and Mapping except Real Estate	A104	3
JAB00	Feas - Hydrology and Hydraulics Studies/Report (Coastal)	A139	4
JAC00	Feas - Geotechnical Studies/Report	A234	5
JA000	Feas - Engineering and Design Analysis Report	A317	7
JB000	Feas - Socioeconomic Studies	A428	9
JC000	Feas - Real Estate Analysis/Report	A529	11
JD000	Feas - Environmental Studies/Report (Except USF&WL)	A612	13
JE000	Feas - Fish and Wildlife CAR & PAL	A717	15
JF000	Feas - HTRW Studies/Report	A739	15
JG000	Feas - Cultural Resources Studies/Report	A802	17
JH000	Feas - Cost Estimates	A881	18
JI000	Feas - Public Involvement Documents	A980	20
JJ000	Feas - Plan Formulation and Evaluation	A1076	22
JL000	Feas - Report Preparation	A1186	24
JLD00	Feas - Technical Review Documents	A1275	26
JM000	Feas - Washington Level Report Approval (Review Support)	A1352	28
JPA00	Project Management and Budget Documents	A1367	28
JPB00	Supervision and Administration	A1467	30

SUMMARY OF COSTS

WBS#	Description	Federal Cost	Non-Fed In-Kind	Total Cost
JAA00	Feas - Surveys and Mapping except Real Estate	\$7,500	\$67,500	\$75,000
JAB00	Feas - Hydrology and Hydraulics Studies/Report	\$207,000	\$0	\$207,000
JAC00	Feas - Geotechnical Studies/Report	\$153,550	\$0	\$153,550
JA00	Feas - Engineering and Design Analysis/Report	\$347,000	\$0	\$347,000
JB000	Feas - Socioeconomic Studies	\$80,000	\$0	\$80,000
JC000	Feas - Real Estate Analysis/Report	\$6,600	\$50,000	\$56,600
JD000	Feas - Environmental Studies/Report	\$150,000	\$82,560	\$232,560
JE000	Feas - Fish and Wildlife CAR & PAL	\$40,000	\$0	\$40,000
JF000	Feas - HTRW Studies/Report	\$57,650	\$0	\$57,650
JG000	Feas - Cultural Resources Studies/Report	\$3,500	\$31,500	\$35,000
JH000	Feas - Cost Estimates	\$50,100	\$0	\$50,100
JI000	Feas - Public Involvement Documents	\$5,300	\$20,000	\$25,300
JJ000	Feas - Plan Formulation and Evaluation	\$118,500	\$35,000	\$153,500
JL000	Feas - Report Preparation	\$79,100	\$0	\$79,100
JLD00	Feas - Technical Review Documents	\$90,600	\$0	\$90,600
JM000	Feas - Washington Level Report Approval	\$50,000	\$0	\$50,000
JPA00	Project Management and Budget Documents	\$50,000	\$0	\$50,000
JPB00	Supervision and Administration	\$20,000	\$10,000	\$30,000
JPC00	Contingencies	\$150,940	N/A	\$150,940
xxxxx	Sponsor Study Management	\$0	\$64,000	\$64,000
L0000	Project Management Plan (PMP)	\$27,100	\$0	\$27,100
Q0000	PED Cost Sharing Agreement	\$10,000	\$0	\$10,000
Total Federal and Non-Federal Costs		\$1,704,440	\$360,560	\$2,065,000

WBS#	Description
J0000	Feasibility Report (Feas)
JA000	Engineering Appendix
JAA00	Feas - Surveys and Mapping except Real Estate

Survey Branch will either work in house or contract out survey tasks, producing aerial, topographic, and digital mapping. The mapping will be used by H&H, Real Estate and ERB for various feasibility study activities.

Previously Approved	\$75,000
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Labor	\$6,375
Non-Labor	\$1,125
Total District	\$7,500

Other Corps	
Other Agency	
Contract	

Total Federal	\$7,500
Non-Fed In-Kind	\$67,500
Total	\$75,000

Task:	Surveys and Mapping - Without Project Conditions
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Tasks to be performed:

- Collection of Existing Mapping and Aerial Photography
- New Aerial Photography and Contour Mapping
- GIS/LIS input

Cost Summary

Labor	\$6,375
Non-Labor	\$1,125
Total District	\$7,500

Other Corps	
Other Agency	
Contract	

Total Federal	\$7,500
Non-Fed In-Kind	\$67,500
Total	\$75,000

Duration: 75 Days

WBS#	Description
J0000	Feasibility Report (Feas)
JA000	Engineering Appendix
JAB00	Feas - Hydrology and Hydraulics Studies/Report

Each of the design alternatives will require a review of existing hydrologic and hydraulic data that may be available for the Malibu Creek watershed. The review will consist of stream-gage data, historic photos, rainfall-runoff information, topographic maps, and other pertinent data. Further hydraulic research may be involved for the one or more of the design alternatives.

A hydrologic model will be created to produce discharge-frequency curves and provide existing conditions of the watershed. The debris/sediment production of the watershed will be analyzed and potential disposal sites will be examined. Overflow boundaries downstream of the Rindge Dam will be analyzed for existing conditions and with project conditions.

The potential bank erosion will be analyzed and a stable channel design will be provided for all alternatives. Each alternative will be analyzed and designed to provide the maximum benefit without jeopardizing engineering integrity.

Previously Approved	\$207,000
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Labor	\$165,600
Non-Labor	\$41,400
Total District	\$207,000

Other Corps	
Other Agency	
Contract	

Total Federal	\$207,000
Non-Fed In-Kind	
Total	\$207,000

Task:	H&H - Without Project Conditions
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- Tasks to be performed during the without project conditions phase (with Rindge Dam in place):
- Discharge-Frequency Analysis
 - Volume-Frequency Analysis
 - Debris Yields Estimation
 - Draft Without-Project Hydrologic Documentation
 - Sediment Accumulation
 - Preparation of Cross-Sections
 - Hydraulic Analysis
 - Sediment Budget
 - Draft Without-Project Hydraulic Documentation
 - Sediment Trapping Efficiency of Existing Structure
 - HEC-6 Model for Sediment Transport (~2 miles)
 - Draft Without-Project Sedimentation Documentation

Cost Summary

Labor	\$90,400
Non-Labor	\$22,600
Total District	\$113,000

Other Corps	
Other Agency	
Contract	

Total Federal	\$113,000
Non-Fed In-Kind	
Total	\$113,000

Duration: 390 Days

Task:	H&H - With Project Conditions
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- Tasks to be performed during the with project conditions phase (after removal of Rindge Dam):
- Impacts on Debris Yields
 - Downstream Impacts
 - Draft With-Project Hydrologic Documentation
 - Hydraulic Analysis
 - Channel Stabilization w/o Rindge Dam
 - Draft With-Project Hydraulic Documentation
 - Sediment Transport - Model Results
 - Draft With-Project Sedimentation Documentation

Cost Summary

Labor	\$44,800
Non-Labor	\$11,200
Total District	\$56,000

Other Corps	
Other Agency	
Contract	

Total Federal	\$56,000
Non-Fed In-Kind	
Total	\$56,000

Duration: 270 Days

Task:	H&H - Draft Report
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The draft feasibility report will include the final H&H documentation, including the H&H Appendix. Tasks to be performed during this phase include:

- Final Hydrologic Documentation
- Final Hydrology & Hydraulics Appendix
- Final Sedimentation Documentation

Cost Summary

Labor	\$12,800
Non-Labor	\$3,200
Total District	\$16,000

Other Corps	
Other Agency	
Contract	

Total Federal	\$16,000
Non-Fed In-Kind	
Total	\$16,000

Duration: 90 Days

Task:	H&H - Final Report
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The H&H activities during the final report stage of the feasibility study will simply consist of meetings, conferences, coordination, independent technical review, addressing comments, and filing material.

Cost Summary

Labor	\$17,600
Non-Labor	\$4,400
Total District	\$22,000

Other Corps	
Other Agency	
Contract	

Total Federal	\$22,000
Non-Fed In-Kind	
Total	\$22,000

Duration: 150 Days

WBS#	Description
J0000	Feasibility Report (Feas)
JA000	Engineering Appendix
JAC00	Feas - Geotechnical Studies/Report

A contract will be awarded for, drilling and sampling the sediment, and installing groundwater monitoring wells. Physical and environmental testing will be performed. The data will be assessed to determine the quantity and quality of the sediment, with particular attention to beach compatibility. Groundwater data (over time) will be collected, which will be useful not only in dewatering design, but also in the dam stability analysis (leak verification). Sediment Removal and Disposal options will be devised and costs will be estimated (conveyor, sluice, and trucking systems). Beach nourishment and landfill end-use of the sediment will be evaluated. Bedrock location and depths will be determined at the spillway and upstream, under the impounded sediment. Core drilling and sampling of that bedrock will be conducted and tested for slope stability and constructability analyses of the proposed channel. HTRW tasks are listed under WBS# JF000.

Previously Approved	\$153,550
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Labor	\$130,518
Non-Labor	\$23,033
Total District	\$153,550

Other Corps	
Other Agency	
Contract	

Total Federal	\$153,550
Non-Fed In-Kind	
Total	\$153,550

Task:	Geotech - Without Project Conditions
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Quantify and describe quality and physical characteristics of sediment (Requires four 90-100 ft auger holes, three 60-80 ft auger holes; three 20 to 40 ft auger holes, all with water level at -6 to -8 ft.). Tasks include:

- Field recon of impound
- Auguring contract
- USACE labor in support of auguring

Cost Summary

Labor	\$30,940
Non-Labor	\$5,460
Total District	\$36,400

Other Corps	
Other Agency	
Contract	

Total Federal	\$36,400
Non-Fed In-Kind	
Total	\$36,400

Duration: 390 Days

Task:	Geotech - With Project Conditions
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The geotechnical task will be divided into two parts during the *with project conditions* phase. The goals for each part are, (1) Develop impounded sediment removal and disposal costs; and (2) evaluate the channel excavation option. Tasks include:

- Part I
 - Dewatering system & Malibu Creek diversion
 - Develop trucking costs
 - Landfilling
 - Sluicing
 - Ocean water pumping costs
 - Conveyor system transport
- Part II
 - Field recon of spillway
 - Coring contract
 - USACE costs in support of coring
 - Engr, stone, and mtrls analyses in support of channel const, and documentation

Cost Summary

Labor	\$99,025
Non-Labor	\$17,475
Total District	\$116,500

Other Corps	
Other Agency	
Contract	

Total Federal	\$116,500
Non-Fed In-Kind	
Total	\$116,500

Duration: 270 Days

Task:	Geotech - AFB documentation
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During the AFB phase, the geotechnical work will have been completed. The Geotech Appendix will be finalized during this phase.

Cost Summary

Labor	\$553
Non-Labor	\$98
Total District	\$650

Other Corps	
Other Agency	
Contract	

Total Federal	\$650
Non-Fed In-Kind	
Total	\$650

Duration: 150 Days

WBS#	Description
J0000	Feasibility Report (Feas)
JA000	Engineering Appendix
JAE00	Feas - Engineering & Design Analysis Report

The structural engineering studies will evaluate the current project condition, the structural aspects of the project alternatives, and as an optional item, evaluate the seismic stability of the dam. The dam safety team will complete a dam safety inspection at Rindge Dam. The team will inspect the dam, spillway, abutments and foundation contact for any structural deficiencies.

Previously Approved	\$347,000
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Labor	\$312,500
Non-Labor	\$34,500
Total District	\$347,000

Other Corps	
Other Agency	
Contract	

Total Federal	\$347,000
Non-Fed In-Kind	
Total	\$347,000

Task:	Engineering & Design Analysis - Without Project Conditions
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The first step of the engineering study will be to determine the existing project conditions, primarily those of Rindge Dam. Structural engineers will research existing documents and complete a dam safety inspection. Engineers will contact potential sources such as the State Department Safety of Dams, State Parks Department, and the Rindge family to find information about the original design of the dam, subsequent modifications, inspection results, or any previous stability studies. Tasks include:

- Research and Review Existing Information & Reports
- Meetings, conferences, coordination

Cost Summary

Labor	\$11,200
Non-Labor	\$3,400
Total District	\$14,600

Other Corps	
Other Agency	
Contract	

Total Federal	\$14,600
Non-Fed In-Kind	
Total	\$14,600

Duration: 390 Days

Task: Engineering & Design Analysis - With Project Conditions

Develop and evaluate feasibility of alternatives. Structural engineers will evaluate the project alternatives, identify any restrictive conditions, and provide preliminary design for the structural aspects of the alternatives. Specific task include:

- Alts 4, 5 & No Action. Simplified dynamic/finite element analysis of Dam (A/E)
- Alts 1, 2 & 3. Prelim. Analysis for Removal of Dam & Appurtenant Structures
- Alt. 4. Prelim Analysis for Removing a Portion of Dam and/or Spillway for Outlet Conduit
- Alt 4. Preliminary Design of Conduit
- Alt 5. Preliminary Design of Fish Ladder & Benched Flume
- All Alts. Preliminary Analysis for Removing Three Other River Obstructions
- All Alts. Preliminary Design of Replacing Road Crossing with Single Span Bridge
- CADD/Drafting support
- Meetings, conferences, coordination

Cost Summary

Labor	\$105,100
Non-Labor	\$9,400
Total District	\$114,500

Other Corps	
Other Agency	
Contract	

Total Federal	\$114,500
Non-Fed In-Kind	
Total	\$114,500

Duration: 270 Days

Task: Engineering & Design Analysis - AFB documentation

A detailed analysis for the selected alternative will be performed for the AFB report. Tasks include:

- Detailed FE model & response spectrum analysis for Dam to remain in place. (A/E)
- Detail Design for fish ladder, Conduit, Single Span Bridge and other Features.
- Detail Analysis of Removing All or Portions of Rindge Dam & Appurtenant Structures.
- CADD/Drafting support
- Meetings, conferences, coordination
- Draft Structural Appendix

Cost Summary

Labor	\$189,400
Non-Labor	\$19,500
Total District	\$208,900

Other Corps	
Other Agency	
Contract	

Total Federal	\$208,900
Non-Fed In-Kind	
Total	\$208,900

Duration: 150 Days

Task: Engineering & Design Analysis - Draft Report

Structural engineers will prepare the appropriate sections of the feasibility report with the evaluation of alternatives and the optional results obtained from the structural analysis. Calculations, tables and drawings will be provided where necessary. The structural engineers will participate in meetings, coordinate activities with the geotechnical, hydrological and civil engineers, and incorporating revisions into the draft and final documents as needed. Tasks include:

- Final Draft Structural Appendix
- Independent tech. review, address comments

Cost Summary

Labor	\$5,600
Non-Labor	\$1,800
Total District	\$7,400

Other Corps	
Other Agency	
Contract	

Total Federal	\$7,400
Non-Fed In-Kind	
Total	\$7,400

Duration: 90 Days

Task:	Engineering & Design Analysis - Final Report
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See description above for "Draft Report". The specific tasks for "Final Report" will include:

- Meetings, conferences, coordination
- Address comments & respond

Cost Summary

Labor	\$1,200
Non-Labor	\$400
Total District	\$1,600

Other Corps	
Other Agency	
Contract	

Total Federal	\$1,600
Non-Fed In-Kind	
Total	\$1,600

Duration: 150 Days

WBS#	Description
J0000	Feasibility Report (Feas)
JB000	Feas - Socioeconomic Studies
JB000	Feas - Socioeconomic Studies

The economic data prepared during the reconnaissance 905(b) study will be used to its full extent when such data is consistent with feasibility phase requirements. Studies will be conducted pursuant to Chapter 6 "Economic Considerations", of ER 1105-2-100. The base conditions in the study area must be well-documented and readily understood. This area includes the entire riparian ecosystem from the upstream end of the sediment retained behind Rindge Dam (approx. 4,000 - 5,000 ft. from Dam) to Malibu Lagoon and the adjacent beaches. Feasibility phase analyses require the development of project area specific baseline information, including the environmental habitat and recreational values in the study area.

Previously Approved	\$80,000
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Labor	\$61,000
Non-Labor	\$19,000
Total District	\$80,000

Other Corps	
Other Agency	
Contract	

Total Federal	\$80,000
Non-Fed In-Kind	
Total	\$80,000

Task:	Socioeconomic - Without Project Conditions
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The baseline economic studies will include the following tasks:

- Literature Search
- Determine Baseline Recreation Market and Resources
- Determine Baseline Environmental Conditions
- Prepare Draft F3 Econ Appendix

Cost Summary

Labor	\$12,300
Non-Labor	\$3,600
Total District	\$15,900

Other Corps	
Other Agency	
Contract	

Total Federal	\$15,900
Non-Fed In-Kind	
Total	\$15,900

Duration: 390 Days

Task:	Socioeconomic - With Project Conditions
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The With Project Conditions, also known as the future conditions, will consist of the following tasks:

- Estimate Projected Demand for Recreation
- Forecast Potential Recreation Use in Study Area
 - Assess Recreational Impacts of Alternatives
- Forecast Recreation Use Under With Project Conditions
- Determine Unit Day Values/Net Recreation Benefits
 - Assist in Development of Environmental Increment Measures.
 - Quantify Environmental Impacts of Alternative Increments
- Annualize Costs and Calculate Annual Costs Per H.U.
 - Perform Incremental Cost Analysis by Feature
 - Incorporate Risk and Uncertainty Analysis
 - Perform Final Cost/Benefit Analysis on Restoration Alternatives
 - Incorporate Risk and Uncertainty Analysis into Final Alternatives Analysis
 - Coordinate With Cost Engineering
- Meetings, Conferences, Coordination

Cost Summary

Labor	\$27,400
Non-Labor	\$8,300
Total District	\$35,700

Other Corps	
Other Agency	
Contract	

Total Federal	\$35,700
Non-Fed In-Kind	
Total	\$35,700

Duration: 270 Days

Task:	Socioeconomic - AFB documentation
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The AFB activities will consist simply of attending meetings, conferences, and coordination, in an effort to complete the Draft Economic Appendix.

Cost Summary

Labor	\$8,400
Non-Labor	\$3,100
Total District	\$11,500

Other Corps	
Other Agency	
Contract	

Total Federal	\$11,500
Non-Fed In-Kind	
Total	\$11,500

Duration: 150 Days

Task: Socioeconomic - Draft Report

The Final Economics Appendix will be completed during this phase, as well as Technical Review.

Cost Summary

Labor	\$8,400
Non-Labor	\$2,600
Total District	\$11,000

Other Corps	
Other Agency	
Contract	

Total Federal	\$11,000
Non-Fed In-Kind	
Total	\$11,000

Duration: 90 Days

Task: Socioeconomic - Final Report

During this phase, the Economist will be responsible for responding to comments and attending meetings.

Cost Summary

Labor	\$4,500
Non-Labor	\$1,400
Total District	\$5,900

Other Corps	
Other Agency	
Contract	

Total Federal	\$5,900
Non-Fed In-Kind	
Total	\$5,900

Duration: 150 Days

WBS#	Description
J0000	Feasibility Report (Feas)
JC000	Feas - Real Estate Analysis/Report
JC000	Feas - Real Estate Analysis/Report

Real Estate studies are required to determine the value of land that may be affected by proposed alternatives, and the cost of easements (temporary or permanent) necessary for construction of the proposed project.

Previously Approved \$56,600

Labor	\$5,610
Non-Labor	\$990
Total District	\$6,600

Other Corps	
Other Agency	
Contract	

Total Federal	\$6,600
Non-Fed In-Kind	\$50,000
Total	\$56,600

Task: Real Estate Analysis - Without Project Conditions

During the *without project conditions* phase, discussions will be initiated with the non-federal sponsor regarding acquisition policies and procedures, as well as initial coordination with Legal Branch on potential legal matters. During this phase, tasks include:

- Participate with Planning PM and other district elements in discussions and meetings
- Attend meetings with non-federal sponsor
- Determine land requirements and estates
- Initiate discussions with non-fed sponsor regarding acquisition policies and procedures

Cost Summary

Labor	\$1,700
Non-Labor	\$300
Total District	\$2,000

Other Corps	
Other Agency	
Contract	

Total Federal	\$2,000
Non-Fed In-Kind	\$9,000
Total	\$11,000

Duration: 390 Days

Task: Real Estate Analysis - With Project Conditions

During the *with project conditions* phase, schedules for RE acquisition will be provided, in coordination with the sponsor. During this phase, tasks include:

- Obtain rights-of-entry
- Provide schedules for RE acquisition (discuss with PM and sponsor)
- Map Preparation
- Real Estate Cost Estimates

Cost Summary

Labor	\$1,870
Non-Labor	\$330
Total District	\$2,200

Other Corps	
Other Agency	
Contract	

Total Federal	\$2,200
Non-Fed In-Kind	\$28,000
Total	\$30,200

Duration: 270 Days

Task: Real Estate Analysis - Draft Report

A Real Estate Plan (REP) will be prepared for the Draft Feasibility report. The REP is the work product that supports Project Plan Formulation. Will be prepared in support of decision documents & include a discussion of the significant topics as per Chapter 405-1-12. Real estate studies will be conducted by the Corps to determine lands, easements, rights-of-way, relocations and disposal areas (LERRDs) necessary for the project. The work includes completion of required investigations on property ownership and jurisdictions; gross appraisals of the value of properties required for the project; and preparation of an acquisition plan.

Cost Summary

Labor	\$1,700
Non-Labor	\$300
Total District	\$2,000

Other Corps	
Other Agency	
Contract	

Total Federal	\$2,000
Non-Fed In-Kind	\$13,000
Total	\$15,000

Duration: 90 Days

Task: Real Estate Analysis - Final Report

During the Final Report phase, technical review of all Real Estate documents will be performed by Real Estate Division. Report will be reviewed for accuracy, consistency, and all real estate acquisition requirements as they relate to the design and the Sponsor. Comments responses will also be addressed.

Cost Summary

Labor	\$340
Non-Labor	\$60
Total District	\$400

Other Corps	
Other Agency	
Contract	

Total Federal	\$400
Non-Fed In-Kind	
Total	\$400

Duration: 150 Days

WBS#	Description
J0000	Feasibility Report (Feas)
JD000	Feas - Environmental Studies/Report
JD000	Feas - Environmental Studies/Report

The environmental studies for this project will focus on opportunities for terrestrial and aquatic habitat restoration within the Malibu Creek watershed as well as beneficial use of sediment to nourish eroding beaches. A comprehensive Environmental Impact Statement (EIS)/Environmental Impact Report (EIR) to meet both Federal NEPA requirements and state CEQA requirements will be prepared. Based on the reconnaissance study, the primary issue of concern is restoration of historic steelhead habitat through the removal of barriers to fish movement.

Previously Approved	\$232,560
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Labor	\$129,000
Non-Labor	\$21,000
Total District	\$150,000

Other Corps	
Other Agency	
Contract	

Total Federal	\$150,000
Non-Fed In-Kind	\$82,560
Total	\$232,560

Task:	Environmental Studies - Without Project Conditions
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The without project conditions phase will consist of the following tasks:

- Issue notice of intent
- Scoping meeting
- Establish without project conditions
- GIS Mapping/Spatial Analysis
- F3 Documentation-Existing Conditions
- Agency Coordination
- A-E Contracting (2 Delivery Orders)

Cost Summary

Labor	\$60,200
Non-Labor	\$9,800
Total District	\$70,000

Other Corps	
Other Agency	
Contract	

Total Federal	\$70,000
Non-Fed In-Kind	\$42,290
Total	\$112,290

Duration: 390 Days

Task:	Environmental Studies - With Project Conditions
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The with project conditions phase consists of the following tasks:

- Develop alternatives
- Preliminary impact analysis-all resources
- Preliminary mitigation plans/HEP Analysis

Cost Summary

Labor	\$21,500
Non-Labor	\$3,500
Total District	\$25,000

Other Corps	
Other Agency	
Contract	

Total Federal	\$25,000
Non-Fed In-Kind	\$14,900
Total	\$39,900

Duration: 270 Days

Task: Environmental Studies - AFB documentation

A joint EIS/EIR will be prepared. The EIS/EIR document will evaluate the environmental effects of the alternative plans and satisfy the requirements of NEPA, CEQA, and other Federal and State environmental laws. Generally, the Corps will be responsible for satisfying Federal requirements, and the local sponsor will be responsible for assuring that State regulations are satisfied. The draft environmental document will be circulated to appropriate State and Federal agencies and interested organizations and individuals. Comments received on the draft will be addressed, and revisions will be made in accordance with Federal and State law.

Cost Summary

Labor	\$4,300
Non-Labor	\$700
Total District	\$5,000

Other Corps	
Other Agency	
Contract	

Total Federal	\$5,000
Non-Fed In-Kind	\$3,550
Total	\$8,550

Duration: 150 Days

Task: Environmental Studies - Draft Report/EIS

The Draft Report/EIS phase will consist of the following tasks:

- Refined impact analysis and mitigation plans
- Legal compliance-404(b)(1) analysis; Coastal comm. CD; Air conformity; Section 7
- Public Review Draft EIS
- Printing/Copying

Cost Summary

Labor	\$21,500
Non-Labor	\$3,500
Total District	\$25,000

Other Corps	
Other Agency	
Contract	

Total Federal	\$25,000
Non-Fed In-Kind	\$10,910
Total	\$35,910

Duration: 90 Days

Task: Environmental Studies - Final Report/EIS

The Draft Report/EIS phase will consist of the following tasks:

- Public Hearing
- Respond to Public Review Comments/Interim FEIS
- Independent Technical Review
- Public Review FEIS
- Printing/Copying
- Record of Decision

Cost Summary

Labor	\$21,500
Non-Labor	\$3,500
Total District	\$25,000

Other Corps	
Other Agency	
Contract	

Total Federal	\$25,000
Non-Fed In-Kind	\$10,910
Total	\$35,910

Duration: 150 Days

WBS#	Description
J0000	Feasibility Report (Feas)
JE000	Feas - USFWS Coordination Act Report & Planning Aid Letter
JE000	Feas - USFWS Coordination Act Report & Planning Aid Letter

This task includes studies by the USFWS in fulfillment of the requirements of the Fish and Wildlife Coordination Act. The principal USFWS product is a Coordination Act Report (CAR), although Planning Aid Report will also be prepared. The CAR will present USFWS, in coordination with NMFS and CDFG, opinions on impacts of alternatives on fish and wildlife resources and recommend types and amounts of mitigation for habitat losses and opportunities for environmental restoration. The Corps will coordinate with USFWS and supervise the interagency contract as part of its environmental impact studies task. As part of the coordination process, the USFWS, NMFS, and CDFG will participate in a Habitat Evaluation Procedure (HEP) to determine the habitat units associated with habitat restoration and improvements alternatives.

Previously Approved	\$40,000
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Labor	\$0
Non-Labor	\$0
Total District	\$0

Other Corps	
Other Agency	\$40,000
Contract	

Total Federal	\$40,000
Non-Fed In-Kind	
Total	\$40,000

WBS#	Description
J0000	Feasibility Report (Feas)
JF000	Feas - HTRW Studies/Report
JF000	Feas - HTRW Studies/Report

A literature and data search will be conducted to identify known HTRW sites in the vicinity of proposed project alternatives. The HTRW work will be documented in a report that will be used in the EIS/EIR. The known sites, if any, will be summarized, and an inventory of available data (i.e., agency, location, website, etc.) will be produced for use for future project features and design purposes. Geotech Branch will perform all HTRW work.

Previously Approved	\$57,650
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Labor	\$49,003
Non-Labor	\$8,648
Total District	\$57,650

Other Corps	
Other Agency	
Contract	

Total Federal	\$57,650
Non-Fed In-Kind	
Total	\$57,650

Task: HTRW Studies - Without Project Conditions

Tasks are shared with Geotech SOW (JAC00). Specific tasks for HTRW will include environmental sample analyses.

Cost Summary

Labor	\$47,218
Non-Labor	\$8,333
Total District	\$55,550

Other Corps	
Other Agency	
Contract	

Total Federal	\$55,550
Non-Fed In-Kind	
Total	\$55,550

Duration: 390 Days

Task: HTRW Studies - With Project Conditions

Tasks are shared with Geotech SOW (JAC00). Specific tasks for HTRW will include EPA analysis of quality data and Design District Chemist analysis of quality data.

Cost Summary

Labor	\$1,233
Non-Labor	\$218
Total District	\$1,450

Other Corps	
Other Agency	
Contract	

Total Federal	\$1,450
Non-Fed In-Kind	
Total	\$1,450

Duration: 270 Days

Task: HTRW Studies - AFB documentation

During the AFB phase, the HTRW work will have been completed. The HTRW report will be finalized during this phase.

Cost Summary

Labor	\$553
Non-Labor	\$98
Total District	\$650

Other Corps	
Other Agency	
Contract	

Total Federal	\$650
Non-Fed In-Kind	
Total	\$650

Duration: 150 Days

WBS#	Description
J0000	Feasibility Report (Feas)
JG000	Feas - Cultural Resources Studies/Report
JG000	Feas - Cultural Resources Studies/Report

A records and literature search and pedestrian survey may need to be conducted in order for Section 106 compliance to be initiated, including Native American Consultation. If any potential historic properties are located during the surveys, National Register eligibility consultation will be completed. Documentation will be prepared detailing the results of the cultural resources investigations and any potential impacts to each project alternative which will then be submitted to the State Historic Preservation Officer. If any National Register eligible properties are found within the APE, a Memorandum of Agreement (MOA) may need to be prepared. The MOA will specify mitigation measures to be undertaken.

Previously Approved	\$35,000
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Labor	\$3,010
Non-Labor	\$490
Total District	\$3,500

Other Corps	
Other Agency	
Contract	

Total Federal	\$3,500
Non-Fed In-Kind	\$31,500
Total	\$35,000

Task:	Cultural Resources Studies - Without Project Conditions
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The without project conditions phase will consist of the following tasks:

- Record & Literature Search
- SHPO Consultation
- Initiate Native American Consultation
- 100% surface survey to locate known historic properties,
- Id new historic properties, and initial evaluation of significance of historic properties

Cost Summary

Labor	\$860
Non-Labor	\$140
Total District	\$1,000

Other Corps	
Other Agency	
Contract	

Total Federal	\$1,000
Non-Fed In-Kind	\$9,000
Total	\$10,000

Duration: 390 Days

Task:	Cultural Resources Studies - With Project Conditions
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The testing of properties, as needed, will be conducted during the with project conditions phase and will be documented in the F3 Report.

Cost Summary

Labor	\$1,720
Non-Labor	\$280
Total District	\$2,000

Other Corps	
Other Agency	
Contract	

Total Federal	\$2,000
Non-Fed In-Kind	\$18,000
Total	\$20,000

Duration: 270 Days

Task: Cultural Resources Studies - Draft Report

Test results will be documented, detailing the results of the cultural resources investigations and any potential impacts to each project alternative which will then be submitted to the State Historic Preservation Officer.

Cost Summary

Labor	\$86
Non-Labor	\$14
Total District	\$100

Other Corps	
Other Agency	
Contract	

Total Federal	\$100
Non-Fed In-Kind	\$900
Total	\$1,000

Duration: 90 Days

Task: Cultural Resources Studies - Final Report

If any National Register eligible properties are found within the APE, a Memorandum of Agreement (MOA) will be prepared. The MOA will specify mitigation measures to be undertaken.

Cost Summary

Labor	\$344
Non-Labor	\$56
Total District	\$400

Other Corps	
Other Agency	
Contract	

Total Federal	\$400
Non-Fed In-Kind	\$3,600
Total	\$4,000

Duration: 150 Days

WBS#	Description
J0000	Feasibility Report (Feas)
JH000	Feas - Cost Estimates
JH000	Feas - Cost Estimates

Cost Engineering will develop a baseline cost estimate that includes all Federal and non-Federal costs for real estate, mitigation, construction, engineering and design, and construction management along with the appropriate contingencies and inflation associated with each of these activities through project completion. Cost Engineering will work closely with H&H when developing costs for project alternatives. Detailed first and annual baseline costs including operation and maintenance and replacement, will be developed in the MCACES format. A detailed basis of estimate and sensitivity analysis will be developed. All estimates will be prepared as both first-costs (existing prices) and fully-funded costs.

Previously Approved \$50,100

Labor	\$38,900
Non-Labor	\$11,200
Total District	\$50,100

Other Corps	
Other Agency	
Contract	

Total Federal	\$50,100
Non-Fed In-Kind	
Total	\$50,100

Task: Cost Estimates - Without Project Conditions

During this phase of study, Cost Engineering will simply be attending meetings, site visits, and being coordination with the study team members.

Cost Summary

Labor	\$1,100
Non-Labor	\$300
Total District	\$1,400

Other Corps	
Other Agency	
Contract	

Total Federal	\$1,400
Non-Fed In-Kind	
Total	\$1,400

Duration: 390 Days

Task: Cost Estimates - With Project Conditions

During this phase of study, Cost Engineering will begin preparing cost estimates for the preliminary alternatives. The following tasks will be performed:

- Research/gathering information
- Site Visit - travel & per diem
- Quantities evaluation
- MCACES Estimates for alternatives
- Meetings, conferences, coordination, filing

Cost Summary

Labor	\$21,100
Non-Labor	\$5,900
Total District	\$27,000

Other Corps	
Other Agency	
Contract	

Total Federal	\$27,000
Non-Fed In-Kind	
Total	\$27,000

Duration: 270 Days

Task: Cost Estimates - AFB documentation

In preparation for the AFB, Cost Engineering will refine the MCACES and prepare a draft appendix. The following tasks will be performed:

- Refine MCACES estimate for Recommended Alternative
- Research/gathering information
- Quantities evaluation
- Meetings, conferences, coordination
- Draft Cost Engineering Appendix
- Construction Schedule

Cost Summary

Labor	\$11,400
Non-Labor	\$3,300
Total District	\$14,700

Other Corps	
Other Agency	
Contract	

Total Federal	\$14,700
Non-Fed In-Kind	
Total	\$14,700

Duration: 150 Days

Task: Cost Estimates - Draft Report

The final Draft Cost Engineering Appendix will be completed during this phase. Independent Technical Review (ITR) will also be completed, which will include addressing comments.

Cost Summary

Labor	\$4,300
Non-Labor	\$1,300
Total District	\$5,600

Other Corps	
Other Agency	
Contract	

Total Federal	\$5,600
Non-Fed In-Kind	
Total	\$5,600

Duration: 90 Days

Task: Cost Estimates - Final Report

During this phase, Cost Engineering will be attending meetings, conferences, and addressing any additional comments to the final report.

Cost Summary

Labor	\$1,000
Non-Labor	\$400
Total District	\$1,400

Other Corps	
Other Agency	
Contract	

Total Federal	\$1,400
Non-Fed In-Kind	
Total	\$1,400

Duration: 150 Days

WBS#	Description
J0000	Feasibility Report (Feas)
JI000	Feas - Public Involvement Documents
JI000	Feas - Public Involvement Documents

The responsibility for this task will be shared between the Corps and the Local Sponsor. This task will include developing a mailing list of all public and private interests, including Federal and State clearinghouses, who will be kept informed of study progress and results; conducting one (1) public workshop which will include scoping meeting requirements for the EIS/ EIR, in accordance with NEPA and CEQA guidelines; and conducting a final public meeting on the draft report and draft EIS/ EIR.

Previously Approved \$25,300

Labor	\$4,505
Non-Labor	\$795
Total District	\$5,300

Other Corps	
Other Agency	
Contract	

Total Federal	\$5,300
Non-Fed In-Kind	\$20,000
Total	\$25,300

Task:	Public Involvement - Without Project Conditions
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The main tasks during this phase will be preparation of the Public Involvement Plan and the Initial Public Workshop. The purpose of the public workshop is to solicit input concerning study scope and local interests and desires, and the scoping of concerns to be addressed in the EIS/ EIR. It is expected that a separate meeting will be held with interested Federal, State, and local agencies, and a open workshop for other interested parties.

Cost Summary

Labor	\$1,700
Non-Labor	\$300
Total District	\$2,000

Other Corps	
Other Agency	
Contract	

Total Federal	\$2,000
Non-Fed In-Kind	\$8,120
Total	\$10,120

Duration: 390 Days

Task:	Public Involvement - With Project Conditions
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Additional public meetings will be held throughout this phase, to keep the public informed of the Corps progress. The meetings may be held during the montly watershed committee meetings. The Malibu Creek Watershed Management Committee meetings will be held on a monthly basis, and will be used to brief the public on the status of the watershed study efforts. Additional informal public workshops may be held during the course of the study to report technical findings and solicit public input into the formulation of the watershed framework plan.

Cost Summary

Labor	\$1,275
Non-Labor	\$225
Total District	\$1,500

Other Corps	
Other Agency	
Contract	

Total Federal	\$1,500
Non-Fed In-Kind	\$4,825
Total	\$6,325

Duration: 270 Days

Task:	Public Involvement - AFB documentation
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Before finalizing the AFB report and selecting a recommended plan, one or more workshops will be held so that the local sponsor and the public are aware of the Corps finding, and support the selected alternative.

Cost Summary

Labor	\$425
Non-Labor	\$75
Total District	\$500

Other Corps	
Other Agency	
Contract	

Total Federal	\$500
Non-Fed In-Kind	\$2,030
Total	\$2,530

Duration: 150 Days

Task:	Public Involvement - Draft Report
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A Final Public Meeting will be held to present the findings of the Draft Feasibility Report. Direct input from the public will be obtained for incorporation into the Final Report. Similar logistical requirements as Initial Public Workshop with the addition of a professional recorder and preparation of hearing transcripts.

Cost Summary

Labor	\$680
Non-Labor	\$120
Total District	\$800

Other Corps	
Other Agency	
Contract	

Total Federal	\$800
Non-Fed In-Kind	\$2,995
Total	\$3,795

Duration: 90 Days

Task:	Public Involvement - Final Report
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Oral testimony at the final public meeting as well as written comments received during the public review session will be considered official comments on the draft report, and will be addressed in the EIS/ EIR to satisfy NEPA and CEQA public review requirements. All comments will be addressed and responded to, prior to finalizing the report.

Cost Summary

Labor	\$425
Non-Labor	\$75
Total District	\$500

Other Corps	
Other Agency	
Contract	

Total Federal	\$500
Non-Fed In-Kind	\$2,030
Total	\$2,530

Duration: 150 Days

WBS#	Description
J0000	Feasibility Report (Feas)
JJ000	Feas - Plan Formulation and Evaluation
JJ000	Feas - Plan Formulation and Evaluation

Plan formulation activities establish the problems and opportunities in the study area, identify the baseline conditions for which plan performance is measured, and involve the reviewing and refining of the plans and management measures selected for the study during the reconnaissance phase and other plans developed during the course of the feasibility phase. An array of management alternatives with emphasis on hydrology, flood control, ecosystem restoration, management of wastewater effluent, erosion/ sedimentation control, storm water management, and groundwater recharge will be developed and evaluated. Plan formulation is the process of integrating and analyzing the technical data that is made available during the course of the feasibility phase. The Principles and Guidelines (P&G)(Water Resources Council, 1983), the centerpiece of Corps planning guidance, enumerates a six-step planning process that provides a conceptual planning sequence for determining the feasibility of alternative project plans.

Previously Approved	\$153,500
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Labor	\$100,725
Non-Labor	\$17,775
Total District	\$118,500

Other Corps	
Other Agency	
Contract	

Total Federal	\$118,500
Non-Fed In-Kind	\$35,000
Total	\$153,500

Task:	Plan Formulation - Plan Formulation of Preliminary Plans
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An updated and detailed assessment of present conditions within the Malibu Creek Watershed will be made as a baseline of reference for comparison with future without- and with-project conditions and for evaluation of the impact of past human disturbance and management practices. The assessment will include a mapping and inventory of the items listed below. All of the gathered information will be entered into a geographical information system (GIS) as individual themes and/or tables.

The likely future conditions, also known as, the *without-project conditions*, will be forecast for Malibu Creek and surrounding area. Time periods for future without-project forecasting will be defined during the course of the study. This condition will represent the “no-action” alternative. In terms of water quality, it may be necessary to consider the likelihood of compliance with TMDL’s for sediment, nutrients, toxics, and pathogens.

Cost Summary

Labor	\$39,440
Non-Labor	\$6,960
Total District	\$46,400

Other Corps	
Other Agency	
Contract	

Total Federal	\$46,400
Non-Fed In-Kind	\$15,000
Total	\$61,400

Duration: 390 Days

Task:	Plan Formulation - Plan Formulation for Final Plans
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Plan Formulation activities include the preliminary objectives, opportunities, and constraints; which will be defined for the following purposes:

- Ecosystem Restoration
- Sediment Management
- Flood Peak/ Damage Reduction
- Erosion Protection
- Water Supply and Re-Use
- Surface & Ground Water Quality
- Recreation
- Education (Schools/Volunteer)

Cost Summary

Labor	\$24,119
Non-Labor	\$4,256
Total District	\$28,375

Other Corps	
Other Agency	
Contract	

Total Federal	\$28,375
Non-Fed In-Kind	\$10,000
Total	\$38,375

Duration: 270 Days

Task:	Plan Formulation - AFB documentation
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The final objectives, opportunities, and constraints will be evaluated and the Recommendation of Final Plan(s) will be accomplished during this phase.

Cost Summary

Labor	\$10,498
Non-Labor	\$1,853
Total District	\$12,350

Other Corps	
Other Agency	
Contract	

Total Federal	\$12,350
Non-Fed In-Kind	\$3,000
Total	\$15,350

Duration: 150 Days

Task:	Plan Formulation - Draft Report
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The final effort in Plan Formulation and Evaluation will involve defining implementation requirements for the recommended plan, including Federal and non-Federal responsibilities. The initial construction requirements and future periodic activities and responsibilities for operating and maintaining the completed project, including any environmental mitigation sites, will be described. The magnitude of these activities will be described for the implementation of the recommended alternative plan. All Federal policies and regulations specifying construction, mitigation, operation, and maintenance requirements will be clearly described; thereby, allowing the City local sponsor to be fully aware of their respective future duties.

Cost Summary

Labor	\$15,321
Non-Labor	\$2,704
Total District	\$18,025

Other Corps	
Other Agency	
Contract	

Total Federal	\$18,025
Non-Fed In-Kind	\$5,000
Total	\$23,025

Duration: 90 Days

Task:	Plan Formulation - Final Report
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Plan Formulation comments will be addressed and responded to, during this phase.

Cost Summary

Labor	\$11,348
Non-Labor	\$2,003
Total District	\$13,350

Other Corps	
Other Agency	
Contract	

Total Federal	\$13,350
Non-Fed In-Kind	\$2,000
Total	\$15,350

Duration: 150 Days

WBS#	Description
J0000	Feasibility Report (Feas)
JL000	Feas - Report Preparation
JL000	Feas - Report Preparation

Documentation of study findings and results will be continuous by each organization as work proceeds. The work effort is associated with preparing and reproducing preliminary drafts, a final draft, and the final report on the study. The final report will include a Main Report with the EIS/ EIR document and appendices. Preliminary in-progress review reports will be prepared for two checkpoint meetings with the Technical Review Team, South Pacific Division (SPD) and Headquarters (HQUSACE). All report completion actions include assembling pertinent data, writing, editing, typing, drafting, revising, reproducing, and distributing the draft feasibility report, EIS/ EIR, and related technical appendices.

Previously Approved	\$79,100
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Labor	\$7,910
Non-Labor	\$71,190
Total District	\$79,100

Other Corps	
Other Agency	
Contract	

Total Federal	\$79,100
Non-Fed In-Kind	
Total	\$79,100

Task: Report Preparation - Reproduction and Distribution of F3 Documentation

The F3 Report will provide a description of the study area, conditions, problems and needs, the established planning objectives and preliminary alternatives and preliminary estimates of costs, benefits, and potential significant environmental impacts to identify which alternatives warrant further development during the study.

Cost Summary

Labor	\$1,978
Non-Labor	\$17,798
Total District	\$19,775

Other Corps	
Other Agency	
Contract	

Total Federal	\$19,775
Non-Fed In-Kind	
Total	\$19,775

Duration: 390 Days

Task: Report Preparation - Reproduction and Distribution of F4/F4A Documentation

The F4 Report will document alternative formulation and identification of the National Economic Development (NED) plan and the tentatively selected plan. Costs and benefits and environmental impacts will be discussed in the F4 Report as well as proposed Federal and non-Federal implementation requirements. The F4 report will provide the basis for the Alternative Formulation Briefing (AFB) and South Pacific Division (SPD) and Headquarters (HQUSACE), which will decide and document in an AFB Project Guidance Memorandum (PGM) which actions are needed to allow for completion of a draft report for public review.

Cost Summary

Labor	\$1,978
Non-Labor	\$17,798
Total District	\$19,775

Other Corps	
Other Agency	
Contract	

Total Federal	\$19,775
Non-Fed In-Kind	
Total	\$19,775

Duration: 270 Days

Task: Report Preparation - Draft Report

The work will include addressing the required actions identified in the AFB Project Guidance Memorandum (PGM) to finalize the draft report. The draft report will be reproduced and sent to South Pacific Division, HQUSACE, and Office of the Assistant Secretary of the Army for Civil Works, as a basis for the Feasibility Review Conference (FRC), which will address any final issues or questions regarding the study recommendations and completion of the final report. An FRC PGM will be completed by HQUSACE which will identify the required actions needed to complete the final feasibility report. At the same time, the draft report will be sent to higher Corps levels. The draft report and draft EIS/ EIR will be distributed for public review by interested Federal, State, and local agencies, as well as other public and private interests.

Cost Summary

Labor	\$3,164
Non-Labor	\$28,476
Total District	\$31,640

Other Corps	
Other Agency	
Contract	

Total Federal	\$31,640
Non-Fed In-Kind	
Total	\$31,640

Duration: 90 Days

Task:	Report Preparation - Final Report
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The work will include all tasks necessary to produce and distribute the final feasibility report and supporting documents. This includes addressing all required actions as contained in the FRC PGM, and comments received from public review of the draft report. The tasks will also include all work items necessary to support the review process from review of the final report by South Pacific Division and Headquarters, through the forwarding of the final report by the Assistant Secretary of the Army for Civil Works (ASACW) to the Office of Management and Budget (OMB) and eventually to Congress. These tasks include providing copies of the report for State and Agency Review, preparing a Record of Decision on the EIS/ EIR, answering comments, attending review meetings, and revising the report as necessary.

Cost Summary

Labor	\$791
Non-Labor	\$7,119
Total District	\$7,910

Other Corps	
Other Agency	
Contract	

Total Federal	\$7,910
Non-Fed In-Kind	
Total	\$7,910

Duration: 150 Days

WBS#	Description
J0000	Feasibility Report (Feas)
JLD00	Feas - Technical Review Documents
JLD00	Feas - Technical Review Documents

All planning, NEPA and CEQA documents will be extensively reviewed prior to being finalized. The quality control process will include technical team meetings, meetings with the local sponsors, and Corps in-house technical review. The quality control process will be on-going throughout the study (seamless peer review), but at particular milestones, specific efforts will be made to assess the quality and progress of the study (independent technical/policy review). Corps CESPL-PD OM 1105-1-1, Independent Technical Review Guidelines, will be followed.

Corps Internal Independent Technical/Policy Review - This process begins with a Review Strategy Session to establish the Quality Control Plan, prepare plan of review to include checklists, and identify participants. Study design and review teams will be assigned at this meeting. Completion of specific documents will be identified by specific milestone dates, i.e. F3, F4, F5 etc. The Review Team will perform their review at the specific milestones and document each review. An SPD representative will participate in the initial Review Strategy meeting as part of the Division's quality assurance partnership with the District. Division representatives will, throughout the course of the study, aid in resolving technical issues that cannot be resolved within the District level teams.

Previously Approved	\$90,600
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Labor	\$77,010
Non-Labor	\$13,590
Total District	\$90,600

Other Corps	
Other Agency	
Contract	

Total Federal	\$90,600
Non-Fed In-Kind	
Total	\$90,600

Task: Technical Review - F3 Documentation

Cost Summary

Labor	\$15,402
Non-Labor	\$2,718
Total District	\$18,120

Other Corps	
Other Agency	
Contract	

Total Federal	\$18,120
Non-Fed In-Kind	
Total	\$18,120

Duration: 390 Days

Task: Technical Review - F4 Documentation

Cost Summary

Labor	\$15,402
Non-Labor	\$2,718
Total District	\$18,120

Other Corps	
Other Agency	
Contract	

Total Federal	\$18,120
Non-Fed In-Kind	
Total	\$18,120

Duration: 270 Days

Task: Technical Review - AFB documentation

Cost Summary

Labor	\$15,402
Non-Labor	\$2,718
Total District	\$18,120

Other Corps	
Other Agency	
Contract	

Total Federal	\$18,120
Non-Fed In-Kind	
Total	\$18,120

Duration: 150 Days

Task: Technical Review - Draft Report

Cost Summary

Labor	\$15,402
Non-Labor	\$2,718
Total District	\$18,120

Other Corps	
Other Agency	
Contract	

Total Federal	\$18,120
Non-Fed In-Kind	
Total	\$18,120

Duration: 90 Days

Task: Technical Review - Final Report

Cost Summary

Labor	\$15,402
Non-Labor	\$2,718
Total District	\$18,120

Other Corps	
Other Agency	
Contract	

Total Federal	\$18,120
Non-Fed In-Kind	
Total	\$18,120

Duration: 150 Days

WBS#	Description
J0000	Feasibility Report (Feas)
JM000	Feas - Washington Level Report Approval (Review Support)
JM000	Feas - Washington Level Report Approval (Review Support)

The Washington Level Report Approval task involves the preparation and distribution of the draft feasibility report and support to the Washington Level Review effort.

Previously Approved	\$50,000
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Labor	\$50,000
Non-Labor	\$0
Total District	\$50,000

Other Corps	
Other Agency	
Contract	

Total Federal	\$50,000
Non-Fed In-Kind	\$0
Total	\$50,000

Task:	Review Support - Draft Report
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Cost Summary

Labor	\$25,000
Non-Labor	\$0
Total District	\$25,000

Other Corps	
Other Agency	
Contract	

Total Federal	\$25,000
Non-Fed In-Kind	
Total	\$25,000

Duration: 90 Days

Task:	Review Support - Final Report
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Cost Summary

Labor	\$25,000
Non-Labor	\$0
Total District	\$25,000

Other Corps	
Other Agency	
Contract	

Total Federal	\$25,000
Non-Fed In-Kind	
Total	\$25,000

Duration: 150 Days

WBS#	Description
J0000	Feasibility Report (Feas)
JPA00	Project Management and Budget Documents
JPA00	Project Management and Budget Documents

The Corps project manager is responsible for managing the overall study cost and schedule through use of the Project Review Board (PRB) system, preparation of present and future budget year submissions; coordination with the non-Federal sponsor, and preparation of the Project Management Plan, which presents the Federal and non-Federal requirements, costs, and schedule required for implementation of the recommended plan. The Corps project manager, with assistance from the non-Federal project manager, will monitor expenditures, keep the Project Study Plan (PSP) current, and report study status and issues to the District Engineer. The project management structure will continue into the pre-construction engineering and design phase, and construction phase.

Previously Approved	\$50,000
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Labor	\$42,500
Non-Labor	\$7,500
Total District	\$50,000

Other Corps	
Other Agency	
Contract	

Total Federal	\$50,000
Non-Fed In-Kind	\$0
Total	\$50,000

Task:	Project Management - Without Project Conditions
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Cost Summary

Labor	\$12,750
Non-Labor	\$2,250
Total District	\$15,000

Other Corps	
Other Agency	
Contract	

Total Federal	\$15,000
Non-Fed In-Kind	
Total	\$15,000

Duration: 390 Days

Task:	Project Management - With Project Conditions
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Cost Summary

Labor	\$8,500
Non-Labor	\$1,500
Total District	\$10,000

Other Corps	
Other Agency	
Contract	

Total Federal	\$10,000
Non-Fed In-Kind	
Total	\$10,000

Duration: 270 Days

Task:	Project Management - AFB documentation
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Cost Summary

Labor	\$8,500
Non-Labor	\$1,500
Total District	\$10,000

Other Corps	
Other Agency	
Contract	

Total Federal	\$10,000
Non-Fed In-Kind	
Total	\$10,000

Duration: 150 Days

Task:	Project Management - Draft Report
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A product associated with the feasibility study is the PMP. The PMP describes the project activities during Pre-construction Engineering & Design and construction phases and is a basis for the project cost-sharing agreement. A draft PMP will be attached to the draft feasibility report.

Cost Summary

Labor	\$8,500
Non-Labor	\$1,500
Total District	\$10,000

Other Corps	
Other Agency	
Contract	

Total Federal	\$10,000
Non-Fed In-Kind	
Total	\$10,000

Duration: 90 Days

Task:	Project Management - Final Report
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This task work includes the completion of a signed and executed final PMP to accompany the Final Feasibility Study Report.

Cost Summary

Labor	\$4,250
Non-Labor	\$750
Total District	\$5,000

Other Corps	
Other Agency	
Contract	

Total Federal	\$5,000
Non-Fed In-Kind	
Total	\$5,000

Duration: 150 Days

WBS#	Description
J0000	Feasibility Report (Feas)
JPB00	Supervision and Administration
JPB00	Supervision and Administration

The District-wide supervision and administration of tasks involving the conduct of the study and report preparation. Most of the S&A funds are included in the cost estimates for specific tasks.

Previously Approved	\$30,000
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Labor	\$17,000
Non-Labor	\$3,000
Total District	\$20,000

Other Corps	
Other Agency	
Contract	

Total Federal	\$20,000
Non-Fed In-Kind	\$10,000
Total	\$30,000

ENCLOSURE D

QUALITY CONTROL CERTIFICATION

COMPLETION OF QUALITY CONTROL ACTIVITIES

The District has completed the Project Management Plan for the Malibu Creek Feasibility Study. All quality control activities defined in the generic quality control plan for reconnaissance phase products have been completed. Compliance with clearly established policy principles and procedures, utilizing justified and valid assumptions, has been verified, including whether the PMP meets the non-Federal sponsors needs and is consistent with law and existing Corps policy. All issues and concerns resulting from the independent technical review of the PMP have been resolved.

4/24/01
Date


Debbie Lamb
Quality Control Reviewer

ENCLOSURE E

LIST OF ACRONYMS

AFB	Alternative Formulation Briefing
ASA (CW)	Assistant Secretary of the Army for Civil Works
CEQA	California Environmental Quality Act
CESPD	South Pacific Division (also SPD)
DE	Division Engineer (Division Commander)
EA	Environmental Assessment
EC	Engineering Circular
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EP	Engineering Pamphlet
ER	Engineering Regulation
FCSA	Feasibility Cost Sharing Agreement
FONSI	Finding of No Significant Impact
FRC	Feasibility Review Conference
H&H	Hydrology and Hydraulics
HQUSACE	Headquarters, U.S. Army Corps of Engineers
HTRW	Hazardous, Toxic and Radioactive Waste
MSC	Major Subordinate Command
NAS	Network Analysis System
NED	National Economic Development
NEPA	National Environmental Policy Act
NMFS	National Marine Fishery Service
OBS	Organizational Breakdown Structure
P&G	Water Resources Council's Principles and Guidelines
PED	Planning Engineering and Design
PMP	Project Management Plan

PPMD	Programs and Project Management Division
PROMIS	Project Management Information System
PMP	Project Management Plan
RAM	Responsibility Assignment Matrix
ROD	Record of Decision
S&A	Supervision and Administration
SPD	South Pacific Division (CESPD)
USFWS	U.S. Fish and Wildlife Service
WBS	Work Breakdown Structure
WRDA	Water Resources Development Act