



**U.S. Army Corps  
of Engineers**  
San Francisco District  
South Pacific Division

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# **PRELIMINARY DRAFT**

# **RUSSIAN RIVER WATERSHED MANAGEMENT STUDY**

# **PROJECT STUDY PLAN**

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**October 1998**

**PRELIMINARY DRAFT  
RUSSIAN RIVER WATERSHED STUDY**

**TABLE OF CONTENTS**

CONCURRENCE PAGE..... I

TABLE OF CONTENTS .....i

CHAPTER 1 - INTRODUCTION.....1

    1.1 SUMMARY .....1

    1.2 BACKGROUND .....1

    1.3 SCOPE AND OBJECTIVES.....2

    1.4 PHASE I EXPECTED PRODUCTS AND OUTPUTS.....3

        1.4.1 Russian River Watershed Community Council.....4

        1.4.2 Watershed Restoration Framework.....4

        1.4.3 Data and Analytical Models.....6

        1.4.4 Fisheries and Wildlife Habitat Assessment.....7

        1.4.5 Flood Reduction Assessment.....8

        1.4.6 Phase II Plan of Action.....8

    1.5 CONCURRENT ACTIONS.....8

    1.6 RELATED PROGRAMS .....9

CHAPTER 2 - MANAGEMENT AND EXECUTION OF STUDY .....10

    2.1 GENERAL.....10

    2.2 STUDY MANAGEMENT .....10

    2.3 STUDY EXECUTION.....11

2.4 SCHEDULE AND COST CHANGES .....	11
2.5 TECHNICAL REQUIREMENTS .....	11
2.6 WORK BREAK DOWN STRUCTURE .....	11
CHAPTER 3 - STUDY TASKS AND COST ESTIMATE.....	13
3.1 STUDY TASKS.....	13
3.1.1 Coordination and Support of R. R. Watershed Community Council ....	15
3.1.1.1 Russian River Watershed Community Council Activities ..	15
3.1.1.2 Develop Public Involvement Tools .....	16
PHASE I	
3.1.2 Develop Russian River Watershed Restoration Framework .....	18
3.1.2.1 Specify Problems and Opportunities Associated with Water and Related Land Resources .....	19
3.1.2.2 Inventory, Forecast, and Analyze Water and Related Land Resource Conditions .....	20
3.1.2.3 Formulate Alternative Restoration Plans .....	20
PHASE I	
3.1.2.4 Expand Data and Analytical Models .....	20
3.1.2.5 Evaluate the Effects of the Alternative Restoration Plans ..	20
3.1.2.6 Compare Alternative Plans .....	21
3.1.2.7 Select Recommended Plan.....	21
3.1.3 Conduct Implementation Studies for Elements of the Russian River Watershed Plan .....	21
3.1.4 Initiate Environmental Process.....	22
3.2 STUDY COSTS.....	22

Appendix A: Related Programs .....A-1

    A.1 Habitat Inventory .....A-2

    A.2 Watershed Restoration.....A-3

    A.3 Northwest Emergency Assistance Program .....A-4

    A.4 North Coast Basin Planning Project .....A-4

    A.5 Fish Friendly Farming and Volunteer Monitoring Program.....A-4

    A.6 Environmental Quality Incentive Program..... A-5

Appendix B: Reference Documents ..... B-1

**PRELIMINARY DRAFT  
FOR WATERSHED COMMUNITY COUNCIL REVIEW**

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**CHAPTER 1 - INTRODUCTION**

**1.1 SUMMARY**

The Russian River Ecosystem Restoration Reconnaissance Report (September 1997) identified three project proposals, which are in the Federal interest to develop further. One of the proposals was the development of a watershed management ecosystem restoration study. Ecosystem management considers social, economic, and ecological watershed resource use and protection. This study will support a Council that may explore a broad range of issues identified by diverse stakeholders. The watershed study will be completed in two phases. This Project Study Plan (PSP) outlines in general the entire Russian River Watershed Study, and focuses on Phase I. This PSP reflects the interest and the importance the community places in the restoration of the Russian River watershed by their involvement in the creation of the Russian River Watershed Community Council. As the study progresses, this PSP may be revised to reflect the changes of scope. By the end of Phase I, this PSP will be revised to detail the scope of the remainder of the study.

**1.2 BACKGROUND**

The Russian River originates in central Mendocino County, California, approximately 15 miles north of the city of Ukiah. The watershed encompasses 1,485 square miles (approx. 950,000 acres) within Sonoma and Mendocino Counties. It empties into the Pacific Ocean at Jenner, about 20 miles west of the city of Santa Rosa. The main channel of the river is about 110 miles long and flows generally southward from its headwaters near Redwood and Potter Valleys to Mirabel Park, where the direction of flow changes generally westward as the river crosses a part of the Coast Range.

The Russian River is the primary source of water for 500,000 people and extensive agricultural development within Mendocino, Sonoma, and Marin Counties. The principal communities in the watershed are the Potter Valley, Ukiah, Hopland, Cloverdale, Healdsburg, Windsor, Forestville, Sebastopol, Santa Rosa, Rohnert Park, Cotati, and the Russian River Resort area, which stretches from Mirabel Park to the mouth of the Russian River, and contains the communities of Rio Nido, Guerneville, Monte Rio, Duncans Mill, and Jenner.

Historically, the Russian River basin has been subject to floods that result from rainfall in the fall and winter months. The threat of flooding may be affected by reductions in floodway channel capacity caused by sediment deposition, bank erosion, and other problems.

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Over time, society's needs have changed and lessons have been learned regarding the most effective approach to long-term watershed management. One lesson learned is that the most effective management of the flood relief may not be a primarily "structural approach" of building levees and dams, but rather a combination of structural and nonstructural approaches that considers the many interrelated benefits to society offered by a river system. It is in the public interest to look at opportunities to prevent or reduce flood damages, to restore riverine ecosystem values and the wise use of floodplains, to restore watershed functions through restorative land-use practices, and to conserve remaining hydrologic and ecological resources.

Over the past several decades, environmental resource concerns in the watershed have been identified and the need for restoration of these resources has been established as another of the region's major goals. Because many physical and social changes have occurred over time, including hydrologic conditions, recognition of environmental issues, land use changes, and river uses, a contemporary multiple purpose, community-based guiding vision for watershed management is needed.

The Federal Government, the State of California, Counties of Sonoma and Mendocino, and the cities and residents in the Russian River watershed have recognized the for a new comprehensive approach to watershed management. This watershed study will provide the opportunity to improve the ecological health of the Russian River watershed. The watershed study will result in the formulation of a watershed management plan of potential structural and nonstructural environmentally and economically beneficial ecosystem restoration measures that will be undertaken in the watershed. This plan will also reflect opportunities to achieve other, related water resource benefits, such as water supply and water quality.

The overall implementation of the various plan elements may be achieved by Federal, State and Local entities through existing programs or proposals for new State and/or Federal legislation.

### **1.3 SCOPE AND OBJECTIVES**

The watershed study will be structured in two phases. The objective of the Phase I effort is to support the Watershed Community Council in identifying watershed problems and opportunities, establish long and short-term planning objectives and constraints, collect critical baseline data, and identify potential restorative measures. The Watershed Community Council may have the opportunity to implement specific projects as the Watershed Community Council clarifies the issues during Phase I. Phase I will include an initial screening of alternatives to

**PRELIMINARY DRAFT  
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support specific projects to proceed and be funded independently of the watershed study. Phase I is necessary to ensure the process has full participation with the Watershed Community Council and other interested parties in the activities outlined in this report. At the end of Phase I, a Phase II Plan of Action will be developed.

During the second phase of the study, the Russian River Watershed Community Council will complete the analyses needed to establish the without-project conditions, identify potential implementation studies and complete the watershed management plan.

***The following objectives are developed from input by the Watershed Community Council and provided here for review and comment.***

*The specific objectives will be developed further during Phase I as the Watershed Community Council identifies issues of highest concern and priority. The preliminary objectives of the Watershed Community Council that have been identified in the Russian River watershed are to reduce flooding, ensure and improve the viability of the threatened Coho salmon and steelhead trout, improve the viability of other fish and wildlife species and their habitat, restore and enhance riparian habitat in the Russian River watershed, reduce operation and maintenance cost of Federal and local projects by reducing sedimentation and channel degradation, educate the public on water resource issues, build trust between different interest groups, and build respect for the Russian River through community consensus.*

#### **1.4 PHASE I EXPECTED PRODUCTS AND OUTPUTS**

The watershed study will rely on active public involvement to bring to light various issues critical to watershed management and protection of Russian River which may include: economic, agricultural, recreational, industrial, environmental restoration and flood damage reduction issues. The public involvement will include stakeholders identified through the Russian River Watershed Community Council public involvement process. The Watershed Community Council is comprised of residents in the Russian River watershed and other stakeholders to ensure that there is community consensus for the plan.

Potential concurrent activities that will be initiated during Phase I will feed into the final watershed plan. These activities will be identified by the Watershed Community Council and may include:

- Development and Support of the Russian River Watershed Community Council
- Development of Watershed Restoration Framework

**PRELIMINARY DRAFT  
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- Data and Analytical Models
- Fisheries and Wildlife Habitat Index
- Flood Reduction Assessment
- Phase II Plan of Action

### **1.4.1 Russian River Watershed Community Council**

The Russian River Watershed Community Council will be responsible for working collaboratively with different stakeholders to develop activities such as public meetings, organizational framework, facilitation and public outreach. In addition, the Russian River Watershed Community Council will review critical issues information, identify and review research data including flow regimes, sedimentation, fisheries data, and other activities. Also, as part of this effort, the Russian River Watershed Community Council will develop a watershed restoration framework, a Phase II Plan of Action, leading to a Watershed Management Plan.

### **1.4.2 Watershed Restoration Framework**

The primary product of Phase I of the Russian River Watershed Study is the development of a community-based watershed restoration framework, which will identify a wide range of potential structural and nonstructural environmentally and economically beneficial ecosystem restoration measures that will be undertaken in the watershed. Development of the watershed restoration framework will include the following tasks:

- 1) Identification of problems, opportunities, constraints, and planning objectives with the cooperation and input from the local community through the formation and collaboration with the Russian River Watershed Community Council. Meeting facilitation, support for technical committees, review of materials by special panels of scientists, public education, and other types of outreach may require professional support services.
- 2) Expand existing GIS (geographic information system) mapping of the Russian River Watershed (includes USGS (US Geological Survey) topographic base maps, and existing and historical land use and habitat data) to supplement and create additional overlays to include:

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***[The following mapping options are developed from input by the Watershed Community Council and provided here for review and comment.]***

- the existing and potential flood reduction elements*
- the establishment of a geomorphic baseline*
- structure inventories*
- land use/ownership*
- natural resources index (e.g.: vegetation mapping)*
- water diversion and wastewater discharge points*
- resource extraction (e.g.: timber harvest and gravel mining inventory)*

3) Identification and development of GIS overlays of potential restorative measures to meet the objectives. Potential restorative measures may include (but are not limited to):

***[The following restorative measures are developed from input by the Watershed Community Council and provided here for review and comment.]***

- re-operating the watershed reservoirs or reallocating storage*
- setting back levees*
- creating meanderbelts*
- creating new upstream storage and detention basins*
- creating new riparian habitat protection, restoration, and enhancement*
- creating terrace mining/gravel pit enhancement*
- managing invasive plants*
- controlling upland erosion*
- controlling stream bank erosion*
- creating new creek fishways*
- creating new dam fishways*
- creating new fish-friendly grade controls*
- improving soil retention*
- creating geomorphically stable channels*

4) Preliminary evaluation and screening of measures, working with Watershed Community Council and other interests, have identified the diverse outputs of the alternative measures:

***[The following outputs are developed from input by the Watershed Community Council and provided here for review and comment.]***

- flood damage reduction by damage type (urban, rural, public)*
- ecosystem restoration (habitat type by acre)*

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*-address incidental benefits to watershed education, recreation, water supply, water quality, and other related water resources*

- 5) Establish a methodology to evaluate trade-off between competing uses of land and water resources. This methodology will be used in the next phase of the watershed study for plan formulation and plan selection.
  
- 6) If, in the process of preparing the watershed restoration framework, the flood reduction assessment and/or developing the data and analytical models, it becomes clear that some elements can and should be implemented, the identification of authorities (i.e. Corps programs, FEMA programs, NRCS programs, the State's Designated Floodway Program, EPA grants, public and private grants) to immediately implement such elements should occur.
  
- 7) Identification and prioritization of "spin-off" studies to complete the formulation and design of elements of the final watershed plan. This task includes possible preparation of Project Study Plans for Phase II activities.

### **1.4.3 Data and Analytical Models**

Existing hydrologic and hydraulic information and models of the Russian River watershed will be used when possible and additional modeling will be developed as necessary for use in the first and/or second phases of the watershed study. Preliminary work during Phase I will include identification of channel capacities, based on available information, observations of system performance, and professional judgement. The analysis will incorporate new data as it is developed.

The models will be used in the second phase of the study as technical tools to evaluate the effects of alternative system improvement and restoration measures. The following will be included in the modeling effort for Phase I:

- 1) Development of a flow regime model to incorporate historic rainfall-runoff data.
  
- 2) Development of a hydrologic model for critical sub-basins in the watershed.
  
- 3) Development of baseline hydraulic models of existing conditions. The models will be a combination of steady- and unsteady-state hydrodynamic models designed to analyze low flows for environmental restoration and potential water supply questions as well as peak flood flows.

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4) Development of a sediment transport model to document and review erosion and depositional trends.

During Phase II of the watershed study, the hydrologic and hydraulic models will be further refined and applied to evaluate the alternative plans.

#### **1.4.4 Fisheries and Wildlife Habitat Assessment**

A habitat inventory will be completed using methodologies for analyzing the fisheries and wildlife resources and carrying capacity of the watershed. This inventory will include protocol types such as:

- Instream Flow Incremental Metrology (IFIM) - determine the in-stream flow requirements for fish habitat.
- Wetted Usable Area (WUA) - quantify relationship between flow and habitat.
- California Bio-Assessment - determine the diversity and function of the system and the problems associated with the system, such as non-point pollution.

Field data will be used in these and similar protocol types to evaluate the physical condition of the habitat, estimate available habitat, identify indicator species, analyze a functioning feeding groups, and evaluate water quality within the watershed for sediment, nutrients, dissolved oxygen, temperature, etc.. The Watershed Community Council will work with agencies and other technical experts to determine which methodologies are applicable on a watershed scale.

#### **1.4.5 Flood Reduction Assessment**

An assessment will be made of the hydrologic, hydraulic, and economic effects of the major recent floods (1983, 1986, 1995, and 1997) in the Russian River Watershed. This assessment will identify the past problems associated with the existing flood management system and help establish future without-project conditions. In addition, a shared perception of river management in the Russian River Watershed over the past 200 years will be described.

The Flood Reduction Assessment will address four key areas: (1) describe the Russian River and its tributaries - how the stream systems work and inventory the existing flood reduction elements; (2) evaluate past and present system performance - document past flooded areas, describe levee and reservoir performance, and identify property and population centers at risk of flooding; (3) perform a damage survey for a sample area in each system; and (4) develop and document a shared perception of the past 200 years of floodplain management.

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The data collected for this assessment will be compiled in a GIS format, where appropriate, and combined with existing GIS databases. These data will be evaluated with data collected as part of the Restoration Framework Study to further define without-project conditions, identify watershed problems, and formulate potential solutions.

#### **1.4.6 Phase II Plan of Action**

A Plan of Action will be developed by the Watershed Community Council with the assistance of the Study Manager. It will identify watershed problems and opportunities, establish planning objectives and constraints, document baseline data, identify potential restorative measures and identify the initial screening of alternatives. The Plan of Action and a revised PSP will be reviewed by the Corps of Engineers Headquarters for continued support of the Watershed Community Council and the products being developed by this process.

### **1.5 CONCURRENT ACTIONS**

The authority for the development of this Federal study and the State of California Resources Agency's watershed focus allows the flexibility to investigate a wide array of potential solutions related to the evaluation of flood protection, reservoir operation, environmental restoration, and flood plain management. Structural and non-structural measures such as re-operating reservoirs, setting back levees, relocating flood prone properties, erosion protection, reconnecting the riverine system and other watershed wide measures will be evaluated in the watershed management plan.

The Russian River watershed water resources problems and potential restorative measures are extremely complex and intertwined. The Russian River Watershed Community Council and other stakeholders, which include agencies with various jurisdictions, different authorities, and numerous resources for implementation, recognize that full implementation of a watershed solution could take many years to achieve. There must be a continuous process of reassessing the objectives and goals of the overall solution. The goals and objectives will be developed and continuously refined as the critical issues, interests, and stakeholders are identified. The adaptive process must be able to evaluate immediate, near-term, and long-term goals.

As the Watershed Community Council clarifies issues, specific projects within the watershed may be implemented by the Corps and by others through existing authorities (such as the Civil Works Program of the Corps, the Watershed Protection and Flood Prevention Program of the Natural Resources Conservation Service, the Hazard Mitigation Grant Program of the Federal Emergency Management Agency, the Environmental Protection Agency and Water

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Quality Control Board grant programs, Department of Fish and Game, local and private grants and others) where possible, and through new authorities where necessary.

## **1.6 RELATED PROGRAMS**

The development of the watershed plan will provide an information and coordination base for on-going Russian River watershed programs. Many local agencies and organization including the California Department Fish and Game, the Resource Conservation Districts, the Natural Resource Conservation Service, Circuit Riders and others are implementing these programs. A partial list of currently known programs and descriptions and implementation of these programs are listed in Appendix A. These programs are important to the restoration of Russian River watershed and will be critical to the Watershed Community Council and the development of the watershed management plan. The Watershed Community Council will work with local agencies and other parties to identify programs and implementation taking place in the watershed. This information will be used in an information system to increase the effectiveness and public education of Russian River watershed restoration.

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## **CHAPTER 2 - MANAGEMENT AND EXECUTION OF STUDY**

### **2.1 GENERAL**

The draft mission of the Russian River Watershed Community Council is to: Protect, restore, and enhance the environmental and economic values of the Russian River watershed through an open community-based process, which facilitates collaboration and communication among all interested parties.

The watershed study will be developed with the Russian River Watershed Community Council. The Watershed Community Council will be responsible for identifying issues of concern in the watershed and finding solutions through consensus. It is proposed that issue work groups collaborate with the Watershed Community Council to clarify and define alternatives for discrete issues. It is the responsibility of the Russian River Watershed Community Council to partner with the Corps of Engineers and the State of California in the development and technical execution of the study.

### **2.2 STUDY MANAGEMENT**

The Study Manager with the input of the Project Manager will work with the Watershed Community Council to develop the Russian River Watershed Study, including the development of the watershed restoration framework, the data and analytical models, the fisheries and wildlife habitat assessment and the flood reduction assessment. The Study Manager will coordinate with the Russian River Watershed Community Council on the day-to-day activities of the watershed study. The Project Manager and Study Manager will report and provide information briefs to HQUSACE. The Study Manager, working with the Watershed Community Council will provide for a continuous flow of information and coordination between the Watershed Community Council, the Division Office, and other interested parties. The Project Manager will also coordinate with HQUSACE the review of interim products; the Study Manager may coordinate directly with HQUSACE Policy, Planning, and Programs Divisions representatives.

The Project Manager with the assistance of the Study Manager and the Russian River Watershed Community Council will ensure and facilitate the transfer of funds between organizations for the purposes of funding interagency and Watershed Community Council participation in the study.

### **2.3 STUDY EXECUTION**

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The Russian River Watershed Community Council will be responsible for identifying study direction and eventual solutions. This on going process will have the technical and logistical support of agencies participating in the process. The Study Manager will work with the Watershed Community Council in the day-to-day execution of the study tasks. Members of the Watershed Community Council and the Corps' Project and Study Managers will participate in the transfer of funds between organizations to determine funding priorities and plan formulation tasks. The Watershed Community Council will ensure appropriate scope of the studies; assist in gathering required data, and formulating restorative measures and criteria.

## **2.4 SCHEDULE AND COST CHANGES**

The Schedule and Cost Change Request (SACCR) is the principal form that will be used to change the PSP. Requests can be made to change the study scope, cost, or milestones. The initiator of the SACCR provides the request to the overall study manager for approval, evaluation of study impacts, and coordination. Non-Federal sponsor representatives will review and agree to changes proposed by the SACCR before subsequent action by the appropriate level of approval.

## **2.5 TECHNICAL REQUIREMENTS**

The work to be performed will develop an array of management plans for implementing solutions for problems in the watershed, and will include any plans preferred by the non-Federal sponsor and the Russian River Watershed Community Council. The plans that best address the planning objectives of the Russian River Watershed Community Council will be carried into a final array of alternatives, and from these alternatives, a recommended watershed management plan will be selected. Work on the watershed management plan will include plan formulation; technical analysis; preliminary design calculations, if appropriate; preliminary cost estimates; real estate investigations, if appropriate; study management; and coordination with local, state, and Federal agencies as well as environmental and other interest groups and the public. The scope of studies in terms of content and level of detail are as defined and required by the documents in Appendix B.

## **2.6 WORK BREAKDOWN STRUCTURE**

A Work Breakdown Structure (WBS) outlines the entire feasibility study, identifies the major products of the study, identifies the standards to be used for the investigations for each of

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the major products, and identifies the tasks described in this PSP (description, critical path network, and study cost estimate).

*[The WBS is a necessary component of a PSP to fulfill the requirement of the Corps' planning process. The WBS will be available at the November 7 meeting after the Watershed Community Council clarifies the issues and other items during the October 3 meeting]*

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## **CHAPTER 3 - STUDY TASKS AND COST ESTIMATE**

### **3.1 STUDY TASKS**

The following section describes the tasks and subtasks to be performed with the concurrence of the Watershed Community Council as part of the study to identify a wide range of potential structural and nonstructural environmentally and economically beneficial ecosystem restoration measures that will be undertaken in the watershed. The actions may potentially include:

- coordinating and supporting the Russian River Watershed Community Council;
- conducting technical studies, as necessary (e.g.: hydrologic and hydraulic);
- establishing and facilitating a public outreach program; and
- producing implementation plans for elements of the watershed plan.

Although the four major actions identified in this summary are presented as independent discussions, all four actions will be integrated to support a community-based decision-making process, assess current conditions in the watershed, develop potential ideas and solutions, formulate and evaluate alternatives to develop a recommended plan. Phase II will be developed further as Phase I issues are clarified through the Russian River Watershed Community Council process.

The planning process is scheduled to be completed in [?] years, with a major milestone occurring at Year [?] that separates the study into two phases. Phase I of the study consist of developing the foundation, or Restoration Framework Plan for a wide range of potential structural and nonstructural environmentally and economically beneficial ecosystem restoration measures that will be undertaken in the watershed. The result of this investigation will be a Plan of Action. Phase II will entail the formulation of alternative plans and the detailed evaluation of the engineering, economic, environmental, and other effects of the plan.

This section provides the scope of work for the study. The major products developed in Phase I of the study will determine the scope and direction of the second phase. Following are the potential products that may be developed in Phase I of the study and documented in the Plan of Action. The following items are examples of the potential products that may be developed by the Watershed Community Council in Phase I:

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■ **PARTICIPATING IN RUSSIAN RIVER WATERSHED COMMUNITY COUNCIL**

– The complexity of the issues and problems inherent in a watershed study requires that there be widespread community involvement in the planning process. Information exchange between stakeholders and resource agencies will be managed by ensuring ongoing public input. The Russian River Watershed Community Council will convene (possibly bi-weekly) to address the issues relevant to the environmental and economic health of the watershed.

■ **DEVELOPING WATERSHED RESTORATION FRAMEWORK** - The primary product of Phase I of the watershed study is the development by the Russian River Watershed Community Council of a restoration framework to protect, restore, and enhance the environmental and economic values of the Russian River watershed. The restoration framework is intended to provide a context for evaluating combinations of measures that most effectively achieve multiple objectives. The development of the watershed restoration framework will be developed with the assistance of the Watershed Community Council and the necessary technical support.

■ **DEVELOPING DATA AND ANALYTICAL MODELS** - Baseline models of the Russian River system will be developed during Phase I, and will be used in the Phase II of the watershed study as technical tools to evaluate the effects of alternative system improvement and restoration measures. Existing data will be incorporated into the models. Hydrologic and hydraulic models will be verified, calibrated, and applied to the evaluation of alternative plans in the second phase of the watershed studies. An emphasis will be placed on non-structural flood damage reduction measures. Additionally, emphasis will be placed on riverine and watershed ecosystem restoration measures that conserve, improve, and manage hydrologic and hydraulic regimes that restore the natural functions of the watershed. Additional modeling will be completed as necessary (e.g.: sediment transport model, flow regime model).

■ **CONDUCTING FLOOD REDUCTION ASSESSMENTS** - Flood reduction assessments will be made of the hydrologic, hydraulic, and economic effects of the major recent (1986, 1993, 1995, 1997) floods in the Russian River watershed. These assessments will build on the results of the 1997 Small Communities Flood Assessments completed in October 1997.

The planning process will be supported by preparing technical hydrologic and hydraulic models, sediment transport model, flow regime models, ecosystem functions models, land use analysis and by developing a geographic information system (GIS).

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The watershed planning process will be dynamic. Several of the tasks will be conducted concurrently, and as the process progresses, various tasks or phases of the process will be revisited, revised, and possibly rescoped. Moreover, specific subtasks may change or be refined as a part of adaptive study management.

### **3.1.1 Coordination and Support a Russian River Watershed Community Council**

This section presents options for coordinating and supporting a Russian River Watershed Community Council. Potential activities of the Russian River Watershed Community Council may include serving as the forum for identifying problems and potential solutions for ecosystem issues in the watershed; identifying and contacting stakeholders in the watershed; determining potential event locations; designing and holding public involvement activities; developing public notices; designing newsletter and web page formats and other methods of communication with the public; and facilitating interaction between the Russian River Watershed Community Council and other stakeholders throughout all phases of the study.

This section also identifies possible public involvement activities that will occur during the planning process and what the potential goals for each activity will be. The program will include a discussion of how the Watershed Community Council's recommendations will be developed into a watershed management plan.

#### **3.1.1.1 Russian River Watershed Community Council Activities**

Because of the scope of this study, public involvement is critical in the planning process and public involvement is required in Phase II by the NEPA/CEQA process. The Watershed Community Council will include stakeholders from throughout the watershed to identify issues, work together to resolve differences, work with resource agencies to identify study direction, and identify possible solutions from the information provided by the technical advisors. The following sections describe the potential different types of activities and review groups.

**Scoping Meetings and Public Meetings.** Scoping meetings and subsequent public meetings will be held in designated locations throughout the watershed. These meetings will be designed to elicit stakeholder and general public input on the issues, problems, and opportunities that should be considered as regional options and watershed study plan alternatives are developed for structural and nonstructural environmentally and economically beneficial ecosystem restoration measures that will be undertaken in the watershed.

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**Watershed Community Council Workshops.** Watershed Community Council workshops will be more focused in scope, smaller in scale, and more frequently held than scoping and public meetings. The format will be round-table discussions to develop a working relationship to reach solutions and conclusions on specific issues.

**Potential Work Groups.** As part of the process, focused work groups may be formed to focus on key issues. These work groups may be involved with many of the Watershed Community Council meetings and could be made up of stakeholder representatives and interested members of the public, as well as, technical professionals and scientists from the academic and research community.

**3.1.1.2 Develop Public Involvement Tools**

The Russian River Watershed Study will be geographically and demographically extensive in scope. It will require several years of planning to accomplish the expressed goals of the study. Decisions made during this process regarding structural and nonstructural environmentally and economically beneficial ecosystem restoration measures will potentially affect a wide range of stakeholders. Therefore, it is important to have in place from the outset of the study, a programmatic approach to public involvement. The following section presents the numerous tools that will be used to effectively involve stakeholders.

**Public Outreach Program Outline.** An outline will be developed at the outset of the study to identify elements the Watershed Community Council's public outreach strategy. This hardcopy and/or digital outline will be designed to be a ready-reference guide to public involvement over the life of the study. The outline will be designed to be user-friendly and may include sections on the following topics:

- study background,
- key issues,
- public involvement methods and rationale,
- public involvement products and activities, and
- study schedule,

Potential issues to be discussed may include: frequency of public outreach efforts and publications; definitions and applicability of public involvement event types; communication procedures; roles and responsibilities of agencies and other stakeholders; media involvement; responses to comments, event transcripts, and other documents; and facilitation and mediation methods.

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Using this product as a guideline, the following additional public involvement tools will be developed and implemented.

**Mailing List/Database.** A master mailing list will be developed beginning with the key stakeholders and then adding to it members of the public who express an interest in being on such a list. Opportunities to be included on the list will be offered through sign-up sheets at all study-related gatherings as well as through the development of a study-specific web page and newsletter.

**Web Page.** A study-specific web page will be developed that can include a wide range of information, including but not limited to updates of the administrative record, newsletters, stakeholder contact information, study maps, real-time updates on the progress of the study and many other topics. The web page can be set up at an existing address, such as the Corps or DWR, or it can be developed as a stand-alone address.

**Newsletter.** A newsletter will be authored and distributed on a predetermined schedule to everyone on the master mailing list. The newsletter will carry similar but smaller amounts of information than the study web page.

**Media Packets.** Study-specific packets will be prepared as needed for local and regional media. These packets may include technical fact sheets, maps, updates on public involvement activities, and other topics. Periodic news conferences may also be conducted to allow question and answer periods on key topics and with key study staff. Public notices and public service announcements will be released as needed.

**Multimedia Presentations.** Informational presentations using materials such as video, slides, computers, and hardcopy will be produced for use at study-specific public gatherings. These presentations can be used to present technical, economic, and demographic data and can also present geographic data. As part of this process, three-panel boards will be used regularly as display units that can be viewed at a participant's leisure. Information presented on these panels can be changed efficiently and economically to match the subject matter of a meeting.

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**PHASE I TASKS - The tasks conducted during Phase I of the study.**

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### **3.1.2 Develop Russian River Watershed Restoration Framework**

The watershed planning process will result in an integrated environmentally and economically beneficial ecosystem restoration watershed management plan. The planning process is supported by and integrated with the other major tasks (i.e., hydrologic and hydraulic studies, public involvement, and implementation plans). The process consists of executing a series of steps to identify or respond to problems and opportunities identified by the Watershed Community Council that are consistent with local, state, and federal laws. Implementation plans for specific projects as identified by the Watershed Community Council during this planning effort may tier off of this watershed study and move forward on an independent track.

The process involves applying an orderly and systematic approach to addressing all key steps in the planning process, from identifying problems and opportunities to developing project goals, objectives, alternatives, and a recommended plan. The Watershed Community Council and the public outreach strategy will enable interested parties to be fully aware of and provide input to the development of study objectives and basic assumptions employed; data and information analyzed; areas of uncertainty; and significant implications of each alternative plan. Commonly used steps for this type of planning process generally include:

- specifying the water and related land resource problems and opportunities and goals and objectives;
- inventorying, forecasting, and analyzing water and related land resource conditions, as needed;
- formulating alternative restoration plans;
- evaluating and comparing the effects of the alternative plans; and
- selecting a recommended plan based upon the comparison of alternative plans.

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**3.1.2.1 Specify Problems and Opportunities Associated with Water and Related Land Resources**

This section describes potential study activities to be conducted in order to identify problems with and opportunities for implementing a wide range of potential structural and nonstructural environmentally and economically beneficial ecosystem restoration measures in the Russian River Watershed. These efforts include defining the study area, developing baseline study area maps and spatial databases, developing a document review process, collecting and reviewing preliminary technical data, conducting scoping and public workshops, identifying problems and opportunities, and defining goals and objectives. The following list was developed in cooperation with the Watershed Community Council during a series of public meetings.

*[The following potential issues were identified by the Watershed Community Council and are provided here for review and comment.]*

- *flood damage reduction,*
- *environmental restoration,*
- *erosion and sediment control,*
- *riparian corridor enhancement,*
- *Habitat conversion and fragmentation*
- *resource extraction management (e.g.: gravel and timber),*
- *water supply management (e.g.: Eel/Russian River exchange, dam operations),*
- *water quality enhancement,*
- *land use designations and management,*
- *utilities and infrastructure ecological management,*
- *hydrology and hydraulics management,*
- *cultural resources preservation,*
- *vectors and vector control,*
- *recreation and educational opportunities,*
- *exotic species control,*
- *fish and wildlife enhancement,*
- *threatened and endangered species recovery, and*
- *aesthetics improvement*

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**3.1.2.2 Inventory, Forecast, and Analyze Water and Related Land Resource  
Conditions**

The potential for addressing problems and opportunities is determined during inventorying and forecasting. The inventory of resource conditions and forecast of trends will be focused on topics and geographic areas associated with the goals and objectives and problems and opportunities previously identified. Existing information collected and reviewed during the previous scoping phase will be expanded in this task. Information identified as data gaps will be collected.

**3.1.2.3 Formulate Alternative Restoration Plans**

During this phase of the process, the refined list of restoration measures developed by the Russian River Watershed Community Council from the previously identified data, the goals and objectives, and the problems and opportunities are combined to formulate preliminary study alternatives. Alternatives are defined by combining several measures to address a range of project goals and objectives.

This is an iterative part of the planning process. Preliminary and conceptual alternatives will be developed, refined, reviewed, and rejected during this phase to formulate alternative plans. The hydrology and hydraulics management, ecological functions, and flood damage assessment models will be used extensively in the process to test alternatives for consistency with the watershed plan goals.

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**PHASE II TASKS - The remaining tasks will be conducted during Phase II of the study.**

**3.1.2.4 Expand Data and Analytical Models**

It is anticipated that data and analytical models including the hydrologic studies and baseline hydraulic model will need to be refined to analyze potential structural and nonstructural environmentally and economically beneficial ecosystem restoration alternatives. This model refinement will begin in this task in order to support the inventory and forecast of resource conditions and will continue through the evaluation of alternatives and the development of a recommended plan.

**3.1.2.5 Evaluate the Effects of the Alternative Restoration Plans**

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The alternative plans will be evaluated to determine their proposed effect on the primary issues identified by the Watershed Community Council. *[see Section 3.1.2.1 for the preliminary list]*

Evaluation of alternative plans occurs at two levels: the assessment level and the appraisal level. The assessment-level evaluation is the process of measuring or estimating the effects of an alternative plan. It compares the difference between the without-plan condition and with-plan condition for each category or component. The appraisal-level evaluation is the process of assigning social values to the technical information gathered and evaluated at the assessment-level evaluation. Next, a cost-benefit analysis will be conducted, and values will be expressed in monetary units.

Both the assessment-level and appraisal level evaluation will be expressed and displayed in a clear and understandable format.

### **3.1.2.6 Compare Alternative Plans**

After the alternative plans have been evaluated, the most cost-effective and productive combination of measures from site-specific, subarea, and watershed alternatives will be refined and reformulated into watershed alternatives that apply to the entire watershed. These watershed alternative plans will be compared, focusing on the differences identified in the appraisals as determined during the evaluation process as well as each alternative's ability to best address the problems and opportunities, and achieve planning goals and objectives.

### **3.1.2.7 Select Recommended Plan**

Based on the evaluation and comparison of each of the alternatives and the input received from other public stakeholders, a preferred watershed management plan alternative will be selected. The watershed management plan will present an overall integrated vision for the management of an environmentally and economically beneficial ecosystem restoration program.

## **3.1.3 Conduct Implementation Studies for Elements of the Russian River Watershed Plan**

Because of the geographic and demographic scope of the Russian River Watershed Management Plan, it is fully anticipated that several potentially feasible projects will be identified on a subarea basis during the planning process phase. Many of these potential projects may fulfill

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the goals of the Watershed Community Council, match the specific objectives of the study, may meet the programmatic definition of water resource problems, and may have existing or easily acquired support for implementation by federal and nonfederal sponsors. Therefore, as part of the watershed study, procedures will be developed to identify potential projects. Once identified by the Watershed Community Council, they will be expedited as appropriate under Federal, State, and local authorities. The intent of this approach is to build flexibility into the watershed planning process that allows for timely implementation of workable solutions, rather than waiting for the absolute completion of the Russian River Watershed Management Plan, which will take several years to complete. A caveat to this approach will be the requirement that regardless of the acceptability of particular potential projects on a subarea basis, the project should not conflict or contradict the overall goals and objectives of the entire watershed plan.

### **3.1.4 Initiate Environmental Process**

Potential projects identified during the watershed management planning process will be developed in accordance with the requirements of NEPA and CEQA, and an EIS and EIR process must be conducted to assess the effects of the proposed projects on the environment.

## **3.2 STUDY COSTS**

Development of the restoration framework plan and subsequent analysis of watershed plans for identifying a wide range of potential structural and nonstructural environmentally and economically beneficial ecosystem restoration measures that will be undertaken in the watershed will be cost-shared between the Corps of Engineers and the non-Federal sponsor on a 50-50 basis. The non-Federal sponsor may provide a maximum of half of its total share as in-kind services toward the study.

*[A cost breakdown table will be provided at the November 7 meeting after additional information from the October 3 meeting is incorporated into this document.]*

## APPENDIX A

### Related Programs

**PRELIMINARY DRAFT  
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*[The draft list of issues, how to investigate, and solutions (objectives) developed by the WCC at the September 22 meeting are incorporated in this document. Please bring a marked-up copy and/or comments of this document to the October 3 meeting]*

A.1 Habitat Inventory ..... 1  
A.2 Watershed Restoration..... 2  
A.3 Northwest Emergency Assistance Program ..... 3  
A.4 North Coast Basin Planning Project ..... 3  
A.5 Fish Friendly Farming and Volunteer Monitoring Program..... 3  
A.6 Environmental Quality Incentive Program..... 4

**A.1 Habitat Inventory**

California Department of Fish and Game Inland Fisheries Division is in the process of completing a Habitat Inventory using the protocols identified in California Salmonid Stream Habitat Restoration Manual, (Flosi and Reynolds), State of California Resources Agency, Department of Fish and Game, January 1998. This inventory utilizes protocols and database structures for anadromous salmonid resource assessment on the tributaries in the Russian River watershed. The following creeks have had some level of work completed:

<u>Stream Surveyed</u>	<u>Distance in Feet</u>	<u>Year</u>
Ackerman Creek	42,240	1994
Green Valley Creek	58,080	1994
Purrington Creek	19,008	1994
Willow Creek	36,432	1994
Big Austin (upper portion)	2,959	1994
Bear Pen Creek	16,361	1994
Atascadero Creek	50,160	1995
Jonive Creek	23,760	1995
Griffin Creek	15,840	1995
Mill Creek	81,523	1995
Felta Creek	26,400	1995
Salt Creek	3,000	1995
Wallace	19,120	1995
Palmer	21,120	1995
Angel	5,413	1995
Freezeout Creek	6,834	1995
Alder Creek	14,054	1995

<u>Stream Surveyed</u>	<u>Distance in Feet</u>	<u>Year</u>
Little Briggs	16,368	1996
Coon	21,648	1996
Mill Stream	21,120	1996
McDonnel	22,176	1996
Blue Gum	10,560	1996
Ingalls	16,368	1996
Bear	16,368	1996
Mark West Creek	79,280	1996
Porter Creek	42,768	1996
Mill Creek	11,616	1996
Humbug Creek	11,616	1996
Windsor Creek	44,352	1996
Pool Creek	42,240	1996
Unnamed streams	211,200	1996
Maacama Creek (lower portion)	24,185	1997
Foote	25,872	1997
Franz	56,496	1997

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Robinson Creek	28,612	1995
Mohr Creek	10,580	1995
Sheephouse Creek	34,320	1996
Austin Creek	90,816	1996
Kidd Creek	37,488	1996
Ward Creek	53,328	1996
Big Oat	7,920	1996
Blue Jay	16,368	1996
Pole Mt.	20,592	1996
East Austin Creek	87,120	1996
Black Rock Creek	13,728	1996
Gilliam Creek	58,080	1996
Thompson Creek	10,560	1996
Gray Creek	33,264	1996
Devils Creek	23,760	1996
Conshea Creek	7,920	1996
Sulphur Creek	12,672	1996
Maacama Creek(Upper portion)	14,887	1996
Briggs	31,680	1996

Bidwell	22,176	1997
Porter Creek	33,264	1997
DutchBill	34,848	1997
Duvoul	6,865	1997
Grab	32,736	1997
Hulbert	3,696	1997
Mission	9,504	1997
Fife	27,894	1997
Redwood	7,392	1997
McNab	30,624	1997
Parsons	26,400	1997
Horse Hill	11,088	1997
Van Buren	10,032	1997
Weeks	9,504	1997
Pool	21,120	1997
Dead Horse	4,000	1997
Matanzas	59,136	1997
South Fork Matanzas	25,344	1997

**TOTAL COMPLETED TO DATE**

<u>Stream Surveyed</u>	<u>Distance in Feet</u>	<u>Year</u>
Ackerman Creek	42,240	1994
Green Valley Creek	58,080	1994
Purrington Creek	19,008	1994
Willow Creek	36,432	1994
Big Austin (upper portion)	2,959	1994
Bear Pen Creek	16,361	1994
Atascadero Creek	50,160	1995
Jonive Creek	23,760	1995
Griffin Creek	15,840	1995
Mill Creek	81,523	1995
Felta Creek	26,400	1995
Salt Creek	3,000	1995
Wallace	19,120	1995
Palmer	21,120	1995

**351 MILES**

<u>Stream Surveyed</u>	<u>Distance in Feet</u>	<u>Year</u>
Little Briggs	16,368	1996
Coon	21,648	1996
Mill Stream	21,120	1996
McDonnel	22,176	1996
Blue Gum	10,560	1996
Ingalls	16,368	1996
Bear	16,368	1996
Mark West Creek	79,280	1996
Porter Creek	42,768	1996
Mill Creek	11,616	1996
Humbug Creek	11,616	1996
Windsor Creek	44,352	1996
Pool Creek	42,240	1996
Unnamed streams	211,200	1996

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Angel	5,413	1995	Maacama Creek (lower portion)	24,185	1997
Freezeout Creek	6,834	1995	Foote	25,872	1997
Alder Creek	14,054	1995	Franz	56,496	1997
Robinson Creek	28,612	1995	Bidwell	22,176	1997
Mohr Creek	10,580	1995	Porter Creek	33,264	1997
Sheephouse Creek	34,320	1996	DutchBill	34,848	1997
Austin Creek	90,816	1996	Duvoul	6,865	1997
Kidd Creek	37,488	1996	Grab	32,736	1997
Ward Creek	53,328	1996	Hulbert	3,696	1997
Big Oat	7,920	1996	Mission	9,504	1997
Blue Jay	16,368	1996	Fife	27,894	1997
Pole Mt.	20,592	1996	Redwood	7,392	1997
East Austin Creek	87,120	1996	McNab	30,624	1997
Black Rock Creek	13,728	1996	Parsons	26,400	1997
Gilliam Creek	58,080	1996	Horse Hill	11,088	1997
Thompson Creek	10,560	1996	Van Buren	10,032	1997
Gray Creek	33,264	1996	Weeks	9,504	1997
Devils Creek	23,760	1996	Pool	21,120	1997
Conshea Creek	7,920	1996	Dead Horse	4,000	1997
Sulphur Creek	12,672	1996	Matanzas	59,136	1997
Maacama Creek(Upper portion)	14,887	1996	South Fork Matanzas	25,344	1997
Briggs	31,680	1996			

**TOTAL COMPLETED TO DATE**

**351 MILES**

### **A.2 Watershed Restoration**

California Senate Bill 271 provides money for watershed restoration. Several projects have been completed including; Gill Creek Revegetation and Restoration, Santa Rosa Creek Road Assessment, Pale Mountain Creek Landslide Stabilization, Parsons Creek Barrier Improvement, Austin Creek Road Assessment Evaluation and Austin Creek Revegetation and Restoration.

### **A.3 Northwest Emergency Assistance Program**

Northwest Emergency Assistance Program (NEAP) provides funding to employ fisherman

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and woman, who were displaced from their livelihoods and professions by a combination of factors affecting salmon, populations. Some of the work administered by the Resource Conservation District through NEAP includes; Green Valley Creek Riparian Restoration, Bishop's Ranch Creek Restoration, Salmon Creek Restoration Work, Russian River Tributary Inventory, Russian River Creel and Spawning Census, Freezeout Creek Riparian Fencing, Fuller Creek Road Assessment and Habitat Inventory, Walker Creek Restoration, and Salmon Creek Instream Restoration.

#### **A.4 North Coast Basin Planning Project**

The North Coast Basin Planning Project, developed by the California Department of Fish and Game, strives to enhance the status of anadromous salmonid populations through the implementation of the California's Salmon and Steelhead Restoration and Enhancement Program.

California's Salmon and Steelhead Restoration and Enhancement Program of 1988 (Chapter 1545/88) was created to enhance the status of anadromous salmonid populations and improve the fishing experience for Californians. The Russian River Salmon and Steelhead Trout Restoration Plan (CDFG 1991) stated that "protection of existing habitat and restoration of damaged habitat has to occur while the Russian River basin is developed for human populations if the intent of Chapter 1545/88 is to become a reality".

The focus of California Department of Fish and Game's program on the Russian is to develop and implement a salmon and steelhead restoration program. To achieve this goal, program staff are: 1) inventorying fish habitat in the Russian River basin and subbasins following standard methodologies discussed in the *California Salmonid Stream Habitat Restoration Manual* (Flosi and Reynolds, 1994); 2) identifying specific problem issues and sites stratified by sub-basin watershed; 3) prioritizing inventoried streams for restoration work; 3) building partnerships with local people and agencies to promote stewardship and assist with implementation.

#### **A.5 Fish Friendly Farming and Volunteer Monitoring Program**

The Resource Conservation Districts in the Russian River watershed are implementing a Fish Friendly Farming project to address the recovery of the federally-listed Coho Salmon and Steelhead trout by developing a certification program for grapegrowers who implement land management practices that restore and sustain fish habitat on their property. In addition, the Resource Conservation Districts are helping to maintain a sustainable river ecosystem by involving the public in watershed monitoring activities. This effort is being administered through a Volunteer Monitoring Program, with the program goals of; (1.) further citizen education and awareness of watershed systems, (2.) collect data that can enable watershed stakeholders to develop sustainable management practices, and (3.) foster an understanding of how each individual is significant in maintaining a healthy watershed. The

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Sotoyome Resource Conservation District is in the process of forming ten watershed groups by mid 1999. The Sotoyome Resource Conservation District will provide the watershed groups with the organization and workshop support, as well as a watershed newsletter and restoration implementation moneys as it becomes available.

**A.6 Environmental Quality Incentive Program**

Natural Resources Conservation Service has been funded to conduct an Environmental Quality Incentive Program (EQIP) for bank stabilization in the Russian River watershed. The program provides cost-sharing assistance to install conservation practices to help solve: erosion problems, especially from roads, fish habitat and stream re-vegetation improvements, water and range conservation practice.

## APPENDIX B

### Reference Documents

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ER 5-7-1 dtd 1 March 1991	<i>Project Management</i> Department of the Army regulation for the overall management of civil works projects.
ER 220-2-2 dtd 4 March 1988 33 CFR 230	<i>Procedures for Implementing NEPA</i> Department of Army regulation on environmental quality.
ER 405-1-12 (Ch. 12) dtd 28 May 1991	<i>Real Estate Handbook - Local Cooperation</i> Department of the Army regulation establishing guidelines for real estate activities for local cooperation agreements.
ER 1105-2-100 dtd 28 December 1990	<i>Planning Guidance</i> Department of the Army regulation on policy and guidance for the conduct of civil works planning studies.
ER 1110-2-1150	<i>Engineering and Design for Civil Works Projects as amended by CECW-EP, Subject: Engineering, Design and Dam Safety.</i>
EC 1105-2-210	<i>Ecosystem Restoration in the Civil Works Program</i>
EC 1110-2-263	<i>Civil Works Construction Cost Engineering</i> Department of the Army circular establishing accounting standards for preparing cost estimates for civil projects.
EC 1110-2-538	<i>Civil Works Project Cost Estimating - Code of Accounts</i> Department of the Army circular establishing accounting standards for preparing cost estimates for civil projects.
EM 1110-2-1301 dtd 10 March 1983	<i>Cost Estimates - Planning and Design Stages</i> U.S. Water Resources <i>Economic and Environmental Principles and Guidelines Council Publication for Water and Related Land Resources Implementation Studies</i>
EM 1110-1-2909	??
ER 1110-1-8156	??

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EM 110-2-1913

*Design and Construction of Levees*

EM 1110-2-301

*Guidelines for landscape planting at floodwalls, levees, and embankment dams*