SANTA CLARA RIVER ENHANCEMENT AND MANAGEMENT PLAN

FINAL DOCUMENT

Ventura County
Watershed Protection District

Los Angeles County
Department of Public Works

May 2005















Acknowledgments Page

The past and present Project Steering Committee members of the Santa Clara River Enhancement and Management Plan are to be commended for their vision, dedication, and unceasing efforts in the development of this document. Their contributions to the project will assist future generations to manage this precious resource to the benefit of all of the inhabitants of the watershed.

Project Steering Committee Member List (in alphabetical order)
Acton Town Council
Beach Erosion Authority for Clean Oceans and Nourishment (BEACON)
California State Coastal Conservancy
California State Department of Fish and Game
California State Department of Parks
California State Department of Transportation
California State Regional Water Quality Control Board LA Region
Castaic Lake Water Agency
City of Fillmore
City of Santa Clarita
City of Santa Paula
City of Ventura
Friends of the Santa Clara River
Los Angeles County Department of Public Works
Los Angeles County Sanitation District
National Marine Fisheries Service
Nature Conservancy
Newhall Land and Farming Company
Santa Clara Valley Property Owner's Association
Swift Financial Corp
United States Army Corps of Engineers
United States Fish & Wildlife Service
United Water Conservation District
Valley Advisory Committee
Ventura County Resource Management Agency
Ventura County Board of Supervisors
Ventura County Watershed Protection District
Vulcan Materials Company
Wildlife Conservation Board

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California State Coastal Conservancy
United States Environmental Protection Agency
United States Fish & Wildlife Service
Ventura County Watershed Protection District
Los Angeles County Department of Public Works

SANTA CLARA RIVER
ENHANCEMENT AND MANAGEMENT PLAN
(SCREMP)

May 2005

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1.0 EXECUTIVE SUMMARY

The purpose of the Santa Clara River Enhancement and Management Plan (SCREMP) is to provide a guidance document for the preservation, enhancement, and sustainability of the physical, biological, and economic resources that occur within the 500-year floodplain limits of the Santa Clara River mainstem that will be of benefit to Stakeholders when planning and implementing projects and activities. Implementing the SCREMP will be the means for manifesting the SCREMP Vision Statement:

The Santa Clara River is managed, used, and protected so as to ensure the preservation, enhancement, and sustainability of its physical, biological, and economic resources. The river, its ecosystems, and its natural resources call for stewardship, and are recognized as exceptional in their value and quality by the local communities and the public in southern California.

The SCREMP Mission statement is as follows:

The Santa Clara River Stakeholders, represented by the Project Steering Committee, recognize the Santa Clara River within its 500-year floodplain limits as a body of physical, biological, and economic resources of regional importance. The committee consisting of federal, state, and local government agencies, industrial and commercial enterprises, and citizen groups endeavors to preserve the river as a precious natural asset for residents of the entire watershed while recognizing its multi-use resource potential that can provide for sustainable healthy human growth and development.

In addition, the SCREMP Project Steering Committee's "Statement of Purpose for the Enhancement and Management Plan" is as follows: "The Project Steering Committee (PSC) will develop and seek support for a dynamic, long-ranged Enhancement and Management Plan for the Santa Clara River. The study process will focus on improving coordination and information exchanges among all PSC members and on resolving conflicting uses along the River. The study will give balanced consideration to habitat objectives, natural river processes, private property rights, economic interests, and community objectives in support of preparing a plan that contains mechanisms for implementing the PSC's recommendations."

The need for a plan to manage the resources of the Santa Clara River has been recognized by Stakeholders for over a decade (see Section 3.1). However, the SCREMP is not developed as a regulatory document. It is developed as a set of policies and programs that, if adopted and implemented by the Stakeholders, are expected to promote the preservation, enhancement, and sustainability of several categories of physical, biological, and economic resources within the 500-year floodplain. Accordingly, the SCREMP anticipates that projects and activities that occur within, or that occur outside of and that may affect the 500-year floodplain, will be evaluated by the appropriate Lead Agencies on a case-by-case basis in accordance with the environmental review and compliance process contained in CEQA and/or NEPA, and that the relevant SCREMP policies and programs will be fully considered in the evaluations by those Lead Agencies.

Section 2.0 provides an introduction to the SCREMP, the environmental setting and location, the several categories of resources, and a summary of SCREMP objectives. Section 3.0 describes the origins of the SCREMP process and its relationship to other concurrent planning and conservation efforts. Section 4.0 provides an overview of the natural and human histories of the Santa Clara River. Section 5.0 constitutes a summary of information contained in previous work done for the SCREMP and recent information contributed by SCREMP Stakeholders. Section 6.0 presents goals, policies, and programs that were developed based upon the current understanding among the Stakeholders regarding riverwide issues, riverwide recommendations, and reach specific recommendations. The method used for the development of the goals, policies, and programs is explained in the beginning of Section 6.0. The Project Steering Committee will develop an implementation plan for the SCREMP. The process is described under Section 7.0. The CD attached to the back cover includes GIS-based Overlays that depict the several categories of River resources in Adobe Acrobat format. A files directory for the CD is provided in Appendix A Part IV.

The preparers of this draft SCREMP document have been as thorough as possible in the development of their discussion sections and GIS-based data sets based on reviews of the best-available scientific and factual data, and the employment of best professional judgment; however, it is acknowledged by the preparers that data gaps do still exist in this draft SCREMP document.

Section 2.0

Introduction

2.0 INTRODUCTION

- 2.1 Location and General Physical Setting of the River
- 2.2 SCREMP Area
- 2.3 SCREMP Area Physical, Biological, and Economic Resources
- 2.4 Objectives of the SCREMP
- 2.5 Information Presentation

2.0 INTRODUCTION

2.1 Location and General Physical Setting of the River

The Santa Clara River is the largest river system in southern California remaining in a relatively natural state. The Santa Clara River headwater is at Pacifico Mountain in the San Gabriel Mountains about 12 linear miles southeast of the Community of Acton (Figure 2.1-1). It flows in a generally western direction for approximately 84 miles through Tie Canyon, Aliso Canyon, Soledad Canyon, the Santa Clarita Valley, the Santa Clara River Valley, and the Oxnard Plain before discharging to the Pacific Ocean near the Ventura Marina. The Santa Clara River and tributary system has a watershed area of about 1,634 square miles. Major tributaries include Castaic Creek and San Francisquito Creek in Los Angeles County, and the Sespe, Piru, and Santa Paula creeks in Ventura County. Approximately 40 percent of the watershed is located in Los Angeles County and 60 percent is in Ventura County. About 90 percent of the watershed is to the east and north of the floodplain in the mountainous terrain of the San Gabriel Mountains, the Sierra Pelona, and the Topatopa Mountains of the Sespe backcountry to headwaters near Pine Mountain and Mt. Pinos, and to the south of the river including the Santa Susana Mountains, Oak Ridge, and South Mountain. Much of this area is in the Angeles National Forest and Los Padres National Forest. The remaining 10 percent of the watershed is largely the relatively flat terrain of the Oxnard Plain, the Santa Clarita Valley, Castaic Valley, the Santa Clara River Valley, and the floors or the larger canyons including the upper Soledad (Acton area), and lower Sand, Mint, Bouquet, Placerita, San Francisquito, Piru, Santa Paula, and the Sespe.

Historic records indicate that the climatic and basin characteristics of the Santa Clara River watershed generally produce an intermittent flow regime in the mainstem; however, flows can increase rapidly in response to high intensity rainfall with the potential for severe flooding. At certain times of the year, the river may have continuous surface flow to the Pacific Ocean from natural watershed discharge. Controlled releases of water from Lake Piru supplement surface flows in the river reach in Ventura County. Incidental flows are supplied from water reclamation plant discharges and imported water runoff in the middle reach from the Santa Clarita vicinity to the Los Angeles County and Ventura County line. It is important to note that the current and future amounts of effluent discharges from these facilities can fluctuate due to several factors including seasonal variations, changes in treatment requirements, population growth and effluent reuse. These flows are not considered a component of the natural base flows for the river; however, they do constitute a component of the comprehensive hydrological regime (i.e., surface and recharge waters) and are included for planning purposes.

2.2 SCREMP Area

Within the watershed setting, described above, occurs the 500-year floodplain of the Santa Clara River which constitutes the area under consideration in this SCREMP document. Throughout this document, reference to the “SCREMP Area” will mean the area within the 500-year floodplain limits; as such, the use of either term should be

Figure 2.1-1. Santa Clara River Enhancement and Management Plan River Reaches

SCREMP Area Limits

1|2 SCREMP River Reach

regarded as having an equivalent meaning. The 500-year floodplain occurs entirely within the Oxnard Plain, the Santa Clara River Valley, the Santa Clarita Valley, and Soledad and Kentucky Springs canyons which constitute the easternmost limits of the floodplain. The SCREMP Area from Acton to the river mouth is about 72 miles in length. The floodplain varies in width throughout from about 800 feet in the upper reach through Soledad Canyon to about 6,000 feet in the middle and lower reaches around Fillmore and Santa Paula

2.3 SCREMP Area Physical, Biological, and Economic Resources

The physical, biological, and economic resources of the SCREMP Area under consideration in the SCREMP document include the following categories:

1. Private Property Rights
2. Agricultural Land Use Preservation
3. Regulatory Agency Permit Streamlining
4. Flood Protection Needs
5. Conservation, Preservation, and Enhancement of Species Habitat
6. Aggregate Harvesting
7. Coastal Beaches Erosion and Replenishment
8. Recreation
9. Cultural (i.e., Historic and Archaeological) Resources
10. Groundwater Recharge, Water Rights, Water Supply, and Water Quality

2.4 Objectives of the SCREMP

The primary objectives of the SCREMP are to:

1. Develop a comprehensive management plan for the resources of the Santa Clara River within its 500-year floodplain that will achieve a balance among the various ways that these resources are utilized and the ways they will be sustained;
2. Develop strategies for the enhancement of certain resource categories that will, over time, result in a net increase in these resources and in their associated beneficial uses;
3. Develop the SCREMP such that it is fully compliant with existing federal, State, County, and local jurisdictional entities' laws, codes, regulations, ordinances, plans, policies, and/or programs;
4. Develop the SCREMP such that it facilitates the implementation of public agency mandates in such a manner as to promote strategies for the preservation, enhancement, and sustainability of physical, biological, and economic resources;
5. Develop the SCREMP such that it acknowledges and respects the private property and water rights of private property owners for the duration that the SCREMP is implemented and also provides that the exercise of private property rights will occur in such a manner as to promote strategies for preservation, enhancement, and sustainability of physical, biological, and economic resources; and

6. Develop the SCREMP such that it facilitates the implementation of mandated public agency actions and the exercise of private property rights by providing guidance on obtaining and expediting necessary permitting from federal, State, and County regulatory agencies.

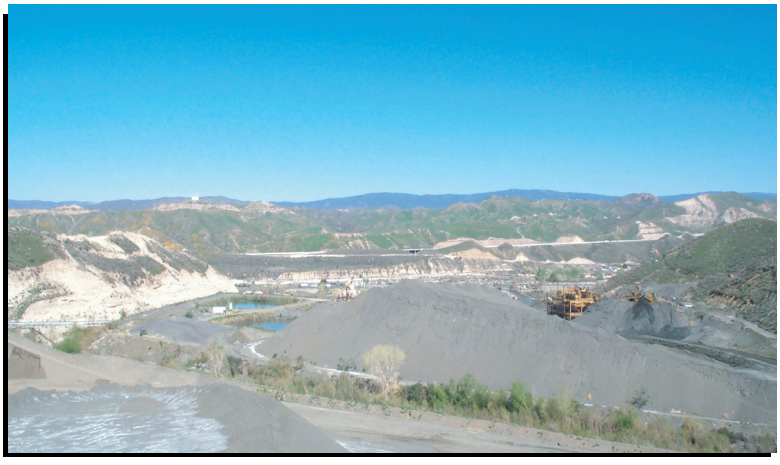
2.5 Information Presentation

This report is organized for the presentation of the following types of information:

- Information developed during the preliminary stages of the SCREMP process by CH2MHill/Psomas including 6 Resources Reports developed in 1996 and GIS-based overlay maps developed in 1998 (see Section 3.3, below).
- Assessment and revision of the existing information and identification of data gaps that was conducted by AMEC.
- Review and incorporation of the document titled "Summary of Riverwide Issues and Recommendations" dated April 1999 and developed by the Project Steering Committee.
- Guidance provided to AMEC by the Project Steering Committee – Consultant Coordinating Committee.
- The development and inclusion of information regarding "planned projects" and "probable future projects" as provided by those Stakeholders who did respond to the Request for Information letter and Questionnaire forwarded by courier on January 21, 2003.
- Development of a set of policies and programs that describe activities and processes that, if implemented, are expected to promote the preservation, enhancement, and sustainability of several categories of physical, biological, and economic resources within the SCREMP Area.
- A SCREMP implementation process.

Section 3.0

SCREMP Background



3.0 SCREMP BACKGROUND

This section provides background on the origin and development of the SCREMP to-date, including the identification of a need and purpose, the engaging of involved parties, the development of information, the identification of issues and recommendations, and the relationship of the SCREMP to other planning and conservation plans and activities that are likely to be implemented concurrently.

3.1 SCREMP Need and Purpose

The SCREMP process began due to the efforts of former Ventura County Supervisor Maggie Kildee and representatives of the Ventura Office of the U.S. Fish and Wildlife Services. As far back as 1991, it was becoming apparent that the agencies regulating the Santa Clara River and the various interests along the river needed a consensus plan to manage the river and its resources.

3.2 Involved Parties

In 1991, all the identified involved parties decided to work together to develop a coordinated management plan for the river. The Project Steering Committee (PSC) was formed to oversee the planning process.

The PSC is comprised of 26 members representing private landowners, local government, industry, special districts, interest groups, and state and federal resource and regulatory agencies who are cooperatively working on the planning effort.

The PSC is composed of the following entities:

- Santa Clara Valley Property Owners Association (2 seats)
- Valley Advisory Committee (Property Owners Association)
- Ventura County Farm Bureau
- CalMat Company
- Newhall Land and Farming Company
- Ventura County Watershed Protection District
- Los Angeles County: Department of Public Works and Department of Regional Planning
- County Sanitation Districts of Los Angeles County
- City of Ventura (also representing the City of Oxnard)
- City of Fillmore and City of Santa Paula (dual representation)
- City of Santa Clarita
- Acton Town Council
- Friends of the Santa Clara River
- Beach Erosion Authority for Control Operations and Nourishment (BEACON)
- Castaic Lake Water Agency
- United Water Conservation District

- California Coastal Conservancy
- California Department of Fish and Game
- California Department of Transportation, District 7
- California Regional Water Quality Control Board, LA Region
- California Department of Parks and Recreation
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service

Initial funding for the planning effort was provided by the California Coastal Conservancy, which was supplemented with funding from other member agencies of the PSC. Various Stakeholders have provided extraordinary amounts of staff time and in-kind services.

3.3 Information Development

For purposes of planning and managing proposed activities on the river, the river was divided into 13 segments or "reaches" reflecting the interrelated general hydrologic conditions, the type and quality of biological resources, and land uses in and adjacent to the 500-year floodplain. River reaches are depicted on the Overlay series that accompanies this SCREMP document as the attached CD.

The primary objectives for the early planning efforts included:

- Development of a set of baseline data for the river, including historical changes, flow regimes, floodplain boundaries, water quality, groundwater usage, habitat and sensitive species distribution, and aggregate extraction areas
- Identification of the most significant issues and potential conflicts facing the river, along with constraints and opportunities in addressing these conflicts
- Identification of those areas of the floodplain most suitable for habitat restoration and enhancement, and future implementation of a program for acquisition and management of the highest priority areas
- Establishment of criteria governing both public and private flood protection facilities
- Development and future implementation of practical strategies for streamlining the regulatory agency permitting process
- Identification and future implementation of schemes for increasing public access and recreational use of the river
- Identification of areas where aggregate harvesting could be carried out as an aid in flood protection or habitat enhancement with due regard to beach nourishment concerns

Technical subcommittees were established to address resource-specific concerns. The Biological Resources, Water Resources, Flood Protection, Aggregate Mining, and Recreation subcommittees each developed reports providing background information, goals, and recommendations for their respective areas. Subcommittees addressing property owners' concerns and regulatory issues were also established.

A low-altitude aerial mapping process was performed to define habitats for the entire length of the river. Additionally, a set of geographic information system (GIS) maps of all the river reaches was prepared, showing various features such as land use, aggregate mining areas, flood plains, and existing facilities. These maps were then further employed in developing a set of overlay maps depicting the potential conflicting uses on each of the 13 river reaches. The overlay maps were used to develop final river-wide and reach-specific recommendations.

The PSC developed the following reports and work products:

- Bibliography of Santa Clara River resources (December 1993)
- A History of the Santa Clara River, Draft (April 1995)
- Water Resources Report (April 1996)
- Cultural Resources Report, Final (April 1996)
- Flood Protection Report, Final Draft (June 1996)
- Biological Resources Report, Volume I (June 1996)
- Biological Resources Report, Volume II, Potential Habitat for Sensitive Species Distribution Maps (March 1996)
- Biological Resources Report, Volume III (March 1996)
- Aggregate Resources Report, Los Angeles and Ventura Counties, Draft (June 1996)
- Public Access and Recreation Report (July 1996)
- GIS Mapping and Overlay Analysis (March 1998)
- Issues and Recommendations Matrix (November 1998)
- Summary of Riverwide Issues and Riverwide Recommendations, Final (April 1999)

In August 1999, the PSC solicited the services of an environmental consultant to finalize the work products developed by the PSC and technical subcommittees into the formal SCREMP and to prepare a programmatic Environmental Impact Report as required by the California Environmental Quality Act. A Consultant Coordination Committee was established to oversee the progress of the environmental consultant. The Consultant Coordination Committee was chaired by the Ventura County Watershed Protection District (VCWPD) and Los Angeles County Department of Public Works (LACDPW) and comprised of representatives of VCWPD, LACDPW, U.S. Fish and Wildlife Service, the California State Coastal Conservancy, Newhall Land and Farming Company and the chairperson from each of the subcommittees. After a series of delays due to funding, the environmental consultant was brought under contract in the fall of 2002.

3.4 Identification of Issues and Recommendations

In mid-1998, the Project Steering Committee came to the conclusion that a smaller group would be more effective at negotiating a set of SCREMP recommendations satisfactory to the wide range of stakeholder interests on the river. An ad-hoc committee was subsequently appointed, consisting of the subcommittee chairs and the Consultant Coordinating Committee. The ad-hoc committee convened three times during 1998 and

early 1999, and developed the recommendations reflected in the April 1999 Issues and Recommendations document (I&R Document). These were later refined and approved by the full Project Steering Committee.

3.5 Other Planning and Conservation Efforts

Over the past several years, other entities, including some members of the PSC, have pursued planning and conservation efforts on the Santa Clara River. The foci of these efforts have included the SCREMP Area proper (i.e., the 500-year floodplain) as well as broader watershed approaches which also have direct bearing on conditions within the SCREMP Area. These efforts include, but are not limited to: land use management plan development; conservation plan development; land use designation for conservation; land acquisition for conservation; impact mitigation plan development; the LA-RWQCB 1994 Basin Plan, as amended; endangered species recovery plan development; restoration and enhancement plan development; Sensitive Resource Area designation; Significant Ecological Area planning (L.A. County); and the work of private resources conservation organizations, tasks forces, and concerned citizen groups. Notable examples of the types of efforts that are occurring parallel with the SCREMP development process are provided below.

3.5.1 Santa Clara River Parkway

One of the consensus recommendations of the SCREMP stakeholder process was the acquisition of river corridor properties for conservation purposes from willing sellers. In 2000 the State Coastal Conservancy conceived and developed the concept of the Santa Clara River Parkway. After discussions with river landowners and with the support of the adjoining cities, State and local politicians and environmental groups, the Conservancy proposed the acquisition and restoration of a 20 mile-long corridor from the river mouth to Sespe Creek. The Santa Clara River Parkway was established with two complimentary purposes: the acquisition and public management of the river corridor to allow for habitat restoration, public enjoyment and environmental education and the restoration of the natural processes of the river to prevent continued flooding and damage to habitat, farmland and public facilities. Governor Davis provided the initial funding of $9.2 million appropriated by the legislature to the Coastal Conservancy for this project.

At that time, the Nature Conservancy was analyzing the potential to protect the most threatened natural communities of the region. Their scientists, having determined the biological significance of the river corridor, the Nature Conservancy began a collaboration with the Coastal Conservancy to help implement its Santa Clara River Parkway project and at the same time begin to achieve the Nature Conservancy's goals for the ecoregion.

The first Santa Clara River Parkway acquisition in March, 2001, was 225 acres and one and a half miles of the river including 150 acres of orchard that will ultimately, after levee removal, be converted back to riparian habitat. Since then nine other properties have been acquired for a total of 1,400 acres and six miles of river. With Coastal

Conservancy grant funds, the Nature Conservancy has acquired most of those properties and will hold them for several years until the majority of the acquisition goal of continuous ownership has been achieved and the Coastal Conservancy is prepared to help implement a comprehensive levee removal (or setback) and habitat restoration effort. At that time, the Coastal Conservancy will establish a joint-powers authority to construct and manage the improvements and public trail access. The Friends of the Santa Clara River has also acquired one property, Valley View Ranch, with Coastal Conservancy funds and is preparing plans for revegetation and removal of exotic plants.

The Coastal Conservancy's acquisition goal for the Santa Clara River Parkway is approximately 6,000 acres to include, in addition to land in the river, (1) agricultural land vulnerable to flooding to be converted back to riparian habitat and (2) upland habitat, mostly on South Mountain, for the added benefits of connectivity to upland natural communities and potential trails.

The Coastal Conservancy hires scientists to assist them in gaining a thorough understanding of the geomorphology of the river and to identify the potential hydrologic and biological impacts of various restoration alternatives.

3.5.2 The Nature Conservancy's Conservation Efforts

In addition to managing property for the Coastal Conservancy, The Nature Conservancy is actively acquiring land and conservation easements in the river floodplain. The Nature Conservancy (TNC) is an international, non-profit conservation organization dedicated to preserving the plants, animals, and natural communities that represent the diversity of life on earth by protecting the lands and waters they need to survive. The Nature Conservancy's land preservation strategy for the Santa Clara River is to assist in the implementation of the Santa Clara River Parkway and to acquire other lands in the SCREMP Area that may not fit within the scope of the Parkway effort but which meet other TNC conservation goals. To date, they have acquired approximately 1,100 acres along 9.6 miles of the river. Other conservation-related efforts by The Nature Conservancy include:

- Exploring a program designed to encourage ecologically compatible and economically viable local farming operations to act as a buffer zone between the river and developed areas.
- Facilitating restoration of southern steelhead habitat;
- Planting vegetation filter strips along urban and agricultural interfaces to filter contaminants.
- Planting native vegetation along riverbanks to lessen erosion and to reduce sediment loading.
- Conducting exotic plant removal and native vegetation restoration pilot projects such as at the demonstration site in Santa Paula.
- Using the comprehensive river hydrology and geomorphology study being developed by the Coastal Conservancy to support decisions about where to locate restoration projects.

The Nature Conservancy has partnered with the National Oceanic and Atmospheric Administration's (NOAA) "Community-Based Restoration Program" to help promote southern steelhead recovery and sustainable fisheries.

3.5.3 ARCO Oil Spill Restoration Plan and Environmental Assessment for the Santa Clara River

In January 1994, an oil pipeline owned by ARCO Pipe Line Company ruptured during and following the Northridge earthquake. The spill occurred near the City of Santa Clarita in Los Angeles County. Approximately 190,000 gallons of crude oil flowed from the pipeline into the Santa Clara River. The oil flowed downstream for approximately 16 miles where a dam was constructed to stop the flow. A Consent Decree pursuant to the federal Oil Pollution Act established a settlement of $7.1 million for natural resources damages resulting from the spill. The settlement stipulates that funds be used for habitat rehabilitation, revegetation, and/or protection of areas within the Santa Clara River watershed and for wildlife projects that benefit endangered species. A Trustee Council composed of the U.S. Fish and Wildlife Service and the California Department of Fish and Game Office of Spill Prevention and Response (OSPR) is responsible for the development and implementation of a Restoration Plan, and the allocation of settlement funds associated with that effort. The Trustee Council is also responsible for oversight and monitoring to ensure success and completion of the restoration projects.

The purpose of the Restoration Plan is to outline and provide a framework for the proposed restoration alternatives that will restore, rehabilitate, replace, or acquire the equivalent of the injured natural resources resulting from the oil spill. The selected restoration alternative includes the following restoration actions: land acquisition/conservation easements, invasive non-native species control, other restoration projects, information and education, and watershed evaluation and monitoring. The focus of the restoration will be protecting, managing, and restoring the land through land acquisition and invasive non-native species control. A full discussion of the plan is provided in *Draft Restoration Plan and Environmental Assessment for the Santa Clara River ARCO Oil Spill* prepared by the U.S. Fish and Wildlife Service and the California Department of Fish and Game, Office of Oil Spill Prevention and Response, January 2002.

3.5.4 Exxon/Mobil 1991 Oil Pipeline Spill

An oil pipeline rupture in 1991 released about 1,777 barrels of crude oil into a 15-mile reach of the river between Los Angeles and Ventura counties. The spill caused extensive damage to wildlife habitat and species. A settlement was announced in September 2002 under which Exxon/Mobil Oil Corporation would pay the United States and the State of California $4.7 million in compensation. The settlement funds will eventually be used to benefit species and their habitats along the Santa Clara River.

3.5.5 U.S. Army Corps of Engineers Reconnaissance and Feasibility Study to Begin Development of a Santa Clara River Watershed Protection Plan

The U.S. Army Corps of Engineers (USACE) has recently completed a Reconnaissance Study of the Santa Clara River watershed. This report determined that there would be federal interest in completing a Feasibility Study for a Santa Clara River Watershed Protection Plan. This effort would cover the whole watershed, not just the 500-year floodplain, as is studied in the SCREMP. The Feasibility Study would assess the predevelopment conditions of the watershed, the current condition, and future condition scenarios. The effort would involve extensive modeling of the watershed. The Feasibility Study would be a scientific study, designed to be a tool for decision makers. Funding for the Feasibility Study is currently being pursued. Once initiated, the effort would take approximately three years to complete.

3.5.6 Friends of the Santa Clara River

The Friends of the Santa Clara River is a non-profit conservation group with a focus on the protection, preservation and enhancement of the river's resources. The Friends are actively involved in several efforts including river planning efforts, habitat management, riparian restoration, Arundo removal and control, promoting sensitive species protection and recovery, and Public outreach and education regarding the resources values of the Santa Clara River. The Friends own and manage a 230-acre river terrace property near the City of Santa Paula with over a mile of river frontage called the Hedrick Ranch Natural Area.

3.5.7 Valencia Company Natural River Management Plan

The Natural River Management Plan (NRMP) is the furtherance of the "Natural River Management Concept" developed by the Valencia Company and presented in Reach Specific Recommendations for Reach 11 and Reach 12 in the 1999 I&R Document. Features of the NRMC include maintaining natural river hydraulics and sediment transport along a 15 mile mainstem reach; providing for a conservation easement of over 1,200 acres of riparian habitat within this reach; providing for groundwater recharge by maintaining soft-bottomed riverbeds; establishment of vegetated buffers at the urban interface; and installation of filters and wetlands to protect the quality of waters discharged to the Santa Clara River. The NRMP is described in greater detail under Section 6.10.2.

3.5.8 Proposed Santa Clara River Significant Ecological Area

A Santa Clara River Significant Ecological Area (SEA) that includes existing SEA Nos. 19, 23, and 61, is proposed that extends the full length of the Santa Clara River in Los Angeles County. The proposed SEA meets several designation criteria and supports many regional biological values including habitat for core populations of endangered species, important wildlife movement and migration corridors, diverse and abundant plant and wildlife species assemblages, regionally distinct biotic communities, essential

habitats for fulfilling species' life cycles, and areas that have high value for preservation because they represent relatively undisturbed examples of natural biotic communities in L.A. County. Management recommendation for the proposed SEA include limiting new developments to well outside the existing floodplain margins to obviate the necessity for further bank stabilization, carefully review proposals for new or increased groundwater extraction to prevent overdrafting of the shallow aquifer supporting riparian habitat areas, and requiring agricultural activities to employ best management practices (BMPs) to avoid unnecessary direct impacts to habitats. The SEA concept was developed by Los Angeles County in the 1970s in conjunction with adopting the original General Plan for the County. SEAs are defined and delineated in conjunction with the Land Use and Open Space Elements of the General Plan. Language in the Santa Clarita Areawide General Plan regarding SEAs as well as in the City of Santa Clarita General Plan's Land Use and Open Space Elements is similar to that in the General Plan. Additional information on SEAs in the Santa Clarita Valley is available on the web at http://www.scope.org/scope/sea/.

3.5.9 Southern California Wetlands Recovery Project

The Southern California Wetlands Recovery Project is spearheaded locally by the Ventura County Task Force and Los Angeles County Task Force. The task forces are a partnership of State and federal regulatory agencies, local governmental entities, and conservation organizations. The task forces are working with other involved parties to acquire lands at, and to preserve and enhance, the Santa Clara River estuary and at other locations along the River.

3.5.10 USFWS Partners for Fish & Wildlife Program

This program supplies funds and technical assistance to landowners who want to restore and enhance wetlands, native grasslands, and other declining habitats, to benefit threatened and endangered species, migratory birds, and other wildlife. This includes the removal of Arundo and other invasive non-native plants and reintroduction of native plant species. Under the program, landowners enter into a cooperative agreement that requires them to maintain the restoration project for a minimum of ten years. Although it is not a requirement of the program, the USFWS seeks a dollar-for-dollar cost share on a project-by-project basis. In California, 50 percent of the cost is typically borne by the landowner, or other partners, such as State or local governments, businesses, or other entities. Hedrick Ranches is a current participant in the program in the SCREMP Area.

3.5.11 Arundo Task Force

Arundo removal and control is coordinated within the SCREMP Area through the efforts of the Ventura County and Los Angeles County task forces, and the Ventura County Resources Conservation District. The task forces include representatives from federal, State and county agencies as well as non-governmental resource conservation organizations and concerned citizen groups.

3.5.12 Santa Clara Estuary Work Group

This group is engaged in an effort to develop a Natural Resources Management Plan for the State Parks land in and around the estuary. The focus of the plan will be water quality, habitat issues, and monitoring protocols. The work group includes members from California State Parks – Channel Coast District, the L.A. Regional Water Quality Control Board, California Department of Fish and Game, and the City of Ventura Department of Public Works (Ventura Water Reclamation Facility).

3.5.13 Sierra Club's Santa Clara River Greenway Campaign

The stated goal of this effort is to bring the entire 500-year floodplain of the River from Fillmore to Acton into public ownership and protection. Protection needs are identified for water quality and quantity, plant and wildlife species habitats, movement corridors for wildlife, open space attributes and aesthetics, River fluvial dynamics, and agricultural resources.

Section 4.0

Historical Overview of The Santa Clara River

4.0 HISTORICAL OVERVIEW OF THE SANTA CLARA RIVER

- 4.1 Historical Overview
- 4.2 Natural History
- 4.3 Floods
  - 4.3.1 Major Events
  - 4.3.2 Flood Plains After Major Events
- 4.4 Fires
- 4.5 Human Uses of River Resources
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4.0 HISTORICAL OVERVIEW OF THE SANTA CLARA RIVER

The following is summarized from the *History of the Santa Clara River* report prepared by the PSC. Please refer to this document for a more thorough discussion of the social, political, agricultural, and industrial factors affecting the river and land use in the vicinity of the river.

4.1 Historical Overview

The Santa Clara River, typical of Southern and Central California coastal drainages, cuts through a variety of climate zones, flows intermittently, has a broad sandy bed and shallow depth, and is subject to annual flooding. Humans, animals, and plants have incorporated these characteristics into their lifeways differently over time. The first groups of humans to interact with the river involved themselves in trade, small-scale agriculture, and livestock raising until the 1870s.

The indigenous Chumash and Tataviam people traded food, pelts, and plant material for clothing and basketry from their living sites along the river, and from Shisholop, a large Chumash village which may have been a provincial capital, located about three miles north of the river mouth.

The first major contact with Europeans occurred in 1782 with the establishment of San Buenaventura Mission by Spanish priests. The mission developed land along the Santa Clara River, and most of the local population became involved with the mission's plan for self-sufficiency through the raising of crops and livestock.

From the 1820s to the 1860s livestock raising on large ranchos became the dominant occupation along the river. The new Mexican government granted parcels of land to aspiring ranchers. Ranchos adjacent to the river such as San Miguel, San Pedro, Rio de Santa Clara, Santa Clara del Norte, Santa Paula Y Saticoy, Sespe, and San Francisquito supported growing populations of cattle and sheep. The hide and tallow trade followed by a demand for meat from the gold miners in the Sierras fueled this demand for livestock. Grazing and watering of livestock and limited irrigation shaped land use adjacent to the Santa Clara River in this period.

This system began to be challenged with the advent of American ownership of the land in 1848. However, ranchers retained much of their pastoral lifestyle until the early 1860s when a decline in demand for cattle coupled with natural disasters economically stripped most of them. Gradually land use around the river shifted from ranching to agriculture.

The period from the 1870s to about the end of World War I can be characterized by the increasing control of water usage and land to facilitate emerging capital growth. Euro-American immigrants began arriving in the 1860s and established larger-scale agriculture and oil enterprises. Crops of sugar beets, walnuts, lima beans, and citrus relied on irrigation from the river and groundwater. For example, it was during this era that Nathan Blanchard and Wallace L. Hardison founded the Limoneira lemon ranch, which

developed into the world's largest lemon producer. Hardison also founded Union Oil with Thomas Bard. This company also rose to national prominence. The Oxnard Brothers American Sugar Beet factory introduced a new agricultural crop into the county and became another constituent of the river.

The growth of these industries served as the impetus for the Southern Pacific Railroad to build tracks linking Ventura County with the rest of California. The builders of the railroad constructed bridges and berms that altered the character of the river. The combination of improved access to transportation and developing crops and markets anchored Ventura County as a growing center of California industry. Consequently, the human uses of the Santa Clara River grew substantially. For the first time floods on the river were measured by the damage done to agriculture and individuals became increasingly concerned with ways to control and use the waters of the Santa Clara River.

The years from about 1920 to the present day reflect the ever more complex demands upon the Santa Clara River. Agriculture has moved toward agribusiness, which has increased water demands on the river and its associated groundwater. As the population of Ventura and Los Angeles Counties expanded numerically and geographically, urban development encroached upon the floodplains. Subsequently, residential demands and recreational uses of the river have multiplied. Further, the development of more sophisticated government systems at the city, county, state, and federal levels has had a significant impact on the history of the Santa Clara River Valley. With increased demands on the waters of the river and the lands surrounding the river, efforts to protect natural resources as well as develop human uses have shaped government actions.

4.2 Natural History

In 1769 Father Juan Crespi recorded his observations of the Santa Clara River from Castaic Creek to Santa Paula. His notes are consistent with our current day notions of a fully functioning riparian system. Near Castaic he observed vegetation that indicated a consistent source of water. He wrote about "tall and thick cottonwoods and oaks," and an "arroyo with a great deal of water which runs in a moderately wide valley, well grown with willows and cottonwoods." As he moved toward Camulos rancho he saw a "good stream of water…[its] banks well grown with cottonwoods, live oaks, and willows… plenty of grass." He remarked about the alkaline soil of the area, "[The] earth was very spongy, insecure and whitish, [and the] arroyo flowing with plenty of water [sunk] into [the] sand." Near Fillmore he commented that the "road [was] broken by arroyos and gullies formed by the floods from the mountain ridges… [We] stopped by one of [the arroyos] which had plenty of water." As Crespi's party approached Santa Paula he estimated the width of the arroyo, which he "would call at this point a river," at "fifty varas of sand and about eighteen varas of running water." (A vara is roughly equivalent to a yard.)

In the mid-1850s the United States government commissioned surveys of the region to ascertain the best route for a railroad. Members of these parties also noted indicators of a riparian system. At the east end of the river moving towards San Francisquito Creek, the

party had difficulty traveling due to the denseness of the vegetation in the river bed, "… the growth of timber and willows along the creek, … filled the whole valley between the ridges on either side … we were obliged to cut our way out through the thickets and form a road for the wagon." Another member of the party observed a Black-shouldered hawk (*Elanus leucurus*) "hovering over a freshwater marsh" in the same region. This surveying group also found and named the Unarmored Threespine Stickleback (*Gastersteus williamsoni*) near the eastern headwaters of the river, which they called Williamson's Pass. Plant species noted in the area are listed in the *History of the Santa Clara River* report.

Surveys conducted in the 1870s and 1880s noted the introduction and establishment of an invasive mustard plant (*Brassica nigra*) near the western portion of the river. Tule (*Scirpus validus*) was still found abundantly in the swampy areas of the river. An extensive bird list from this time is located in the *History of the Santa Clara River* report. The bird list indicates species closely associated with riparian habitats. The list includes an extensive representation of birds found both in lagoon and freshwater habitats. Several birds widely distributed in the nineteenth century but rare now are included such as Ross' Goose (*Chen Rossi*), Trumpeter Swan (*Olor buccinator*), White-tailed Kite (*Elanus leucurus*), Golden Eagle (*Aquila chrysaetos*), Bald Eagle (*Haliaeetus leucocephalus*), Peregrine Falcon (*Falco peregrinus anatum*), and Osprey (*Pandion haliaetus carolinensis*).

4.3 Floods

4.3.1 Major Events

Historic records indicate that although the climatic and basin characteristics of the Santa Clara River generally produce intermittent flows in the river, flows can increase rapidly in response to high intensity rainfall with potential of severe flooding. Details about the extent and impact of unusual flood events from 1769 until the early 1900s are contained in the mission archives. These events include the 1811, 1815 1820-21, 1824-25, 1840, 1861-62, 1883-84, 1892-93 floods, with the floods of 1861-62 being the worst in the nineteenth century. Other general accounts describe floods in 1909, 1911, and 1914.

Accounts of the devastating flood of 1861-62 include J.M. Guinn's statements that the floodwaters "made an inland sea of the Santa Clara Valley." Reginaldo F. Del Valle, interviewed by Vern Freeman in 1938, claimed that, "In the flood of 1861-62, the Santa Clara River took out quite a lot of land. Acreage planted to a number of crops was taken out. The chapel located near the adobe on the Camulos Ranch came near to being washed away. It was saved by building sand bag levees around it." It was also reported that the road to Los Angeles, adjacent to the Santa Clara River, was impassable for three weeks due to numerous landslides.

In 1883-84, a picturesque flood account was written by Lowell Mason Hardison who established a homestead at the 2,600-foot elevation of the south slope of Mt. San Cayeteno on the Herculean Oil Claim on December 18, 1883. Hardison's account

indicates that the winds blew so hard it was difficult to stand in order to build their house. On December 26th, 1883, Hardison recalls that, "it started to rain and did not let up for 34 hours. During that time fifteen inches of rain fell (and) it was the most rain I had ever seen fall in one storm." Heavy rains continued through January and February 1884.

Hardison also reported that on the night of February 15, 1884 "it commenced to rain and kept it up for 4 days. The whole county was flooded. The railroads and all wagon roads were washed out. The banks of the Santa Clara River, Sespe Creek, and the Santa Paula Creek had been swept bare of the great oak, sycamore, and cottonwood trees that had stood for centuries." His account of February 17th indicates that barns and houses floated down the Santa Clara River and that the Santa Clara Valley "looked like a great lake as far as the eye could reach." But even in the midst of the devastation, Hardison could see the brighter side: "It filled the ground so full of water" he said, "that for 10 years there was no shortage."

In 1909 Santa Clara River flowed down River Street (now Harvard Blvd.) in Santa Paula. Later that year, floods damaged part of the Saticoy Bridge abutment and farmlands near Saticoy. In 1911, floods along the Santa Clara River damaged railroad bridges and irrigation systems. Flooding during 1914 washed away homes and farm buildings in Bardsdale as well as the State Highway 23 Bridge.

On March 12-13, 1928, the Saint Francis Dam failure created the largest flood known to have ever occurred on Santa Clara River. The dam was located in San Francisquito Canyon in Los Angeles County; however, most of the damage occurred in Ventura County. Approximately 385 people were killed, 1,250 homes were destroyed, and 23,700 acres of orchards in the flood plain were washed away. The estimated damage in 1928 dollars was $5.5 million. The maximum flow rate was estimated between 500,000 and 800,000 cubic feet per second (cfs).

The St. Francis Dam disaster occurred during the time Congress was considering appropriation to build the Hoover Dam on the Colorado River. Nationwide attention on this disaster provided the impetus for adoption of national standards for dam safety. The flood that resulted from this dam failure is classified as "man-made" and is not representative of the type of flooding that could occur from a natural event.

Detailed streamgaging on the Santa Clara River at Montalvo, by the U.S. Geological Survey (USGS), was initiated in 1932 and continued through 1993. The six greatest peak flows during this period all exceeded 100,00 cfs and are ranked in the following order: 1969, 1938, 1995, 1992, 1978, and 1983. In 1995 the USGS installed a new streamgaging station on the Santa Clara River at the Highway 118 crossing. The Montalvo station is presently operated by the Ventura County Watershed Protection District (VCWPD) as a flood-warning gage.

The massive floods of March 1938, resulted in extensive damage throughout Southern California with Ventura County's losses estimated at $2.5 million (in 1938 dollars). Homes were destroyed and hundreds of acres of productive agricultural lands were

damaged or ruined. The Saticoy Bridge lost two spans and the Newhall Ranch Bridge east of Piru was destroyed. The state highway was damaged near the Camulos Ranch, and the concrete pipeline irrigation intake was destroyed. In Santa Paula, the Santa Clara River floodwaters reached floorboard depth on automobiles at Eighth and Harvard Streets. Some Santa Paula homes were moved from their foundations and the city sewage treatment plant was destroyed. At the river mouth, the Bard Beach Road Bridge was damaged. The 1938 flood was comparable to the 1914 flood but was probably less damaging than the 1862 and 1884 floods.

The floods of January and February 1969 were the worst floods in recorded history on Santa Clara River. During the January flood, State Highway 126 was closed for two weeks between Piru and Los Angeles County line. Two spans of Willard Bridge in Santa Paula were almost destroyed. Flood flows threatened to erode the north bank at the Santa Paula Airport, and 15 planes were taxied out of the airport and parked on city streets in Santa Paula. The greatest damage along the Santa Clara River occurred between Highway 101 and the Pacific Ocean. A radio station lost a tower on the north bank; the Montalvo sewage treatment plant was out of operation for a week; fifty acres of golf course was covered with silt, and the West Foods mushroom plant was severely damaged when four feet of silt and water poured through the building. The City of Ventura's east side sewage treatment plant was inundated and out of service for several days, during which time raw sewage flowed into the ocean.

The February 1969 flood caused even more damage than the January flood. Again, State Highway 126 was closed for two weeks between Piru and the Los Angeles County Line City of Fillmore's Sanitary Landfill site on the south bank near Bardsdale Bridge was washed out. About 500 feet of State Highway 118 Bridge at Saticoy was washed out. The toe stone protection on the U.S. Army Corps of Engineers (COE) Santa Clara River levee was undercut causing failure of about 2,000 feet of the levee and eroding ground behind the levee. There was extensive damage to agricultural property. During the peak of the February flood, the Ventura Marina was inundated by a large overflow from the Santa Clara River and required extensive dredging and reconstruction. The COE was called in for emergency work at Fillmore's Wastewater Treatment Plant and at the City of Ventura's sanitation plant during the February storm. Edison Company's Mandalay Generating Plant was severely damaged and was out of operation for 14 days.

The WestFoods mushroom plant was inundated again with flood waters reaching 8 feet in depth at the plant. About 200 feet of Harbor Boulevard was cut to a depth of 15 feet, with sewer and water mains washed out. Overhead telephone and electric lines were washed out as flood flow toppled poles.

The March 1978 flood on the Santa Clara River caused severe damage to roads, bridges, and other infrastructures. Several hundred acres of agricultural land was lost due to erosion. Economically the 1978 flood was the most damaging, after the 1969 floods.

The storms of January 27 through January 31, 1983 made a direct hit on west facing beaches as heavy rain, strong wind and high surf coincided with the highest tides of the

year. While coastal flooding damages reached $10,000,000 in Ventura County, flood damages on the Santa Clara River was about $400,000. The heaviest damages occurred between Highway 101 and Highway 118 and along the south bank of the river between the Sespe Creek confluence and the Highway 23 bridge.

The 1992 storms brought rainfall totals to above normal for the season by the end of January. The subsequent heavy rains on February 10 and 12, 1992 fell on saturated ground to produce major runoff throughout Ventura County. The peak flow in the Santa Clara River exceeded 104,000 cfs at the Montalvo streamgaging station at Highway 101. Fillmore's Wastewater Treatment Plant was threatened and the rock slope protection along the settling ponds below the Freeman Diversion was undermined. As in previous floods, some agricultural land was lost due to erosion, particularly near Santa Paula and Fillmore.

The January 10 and March 10, 1995 floods threatened to erode the north bank of the Santa Clara River adjacent to the Santa Paula airport. The estimated peak discharge at the Montalvo streamgaging station was 110,000 cfs. Erosion damaged the rock groins along the south bank of the river downstream of Highway 101 near Ventura Road. Also, considerable damage occurred along various reaches upstream of State Highway 118 with loss of agricultural land.

On February 23, 1998 an estimated peak discharge of 84,000 cfs was recorded at the Saticoy streamgaging station. Groin damage occurred along the south bank of the river downstream of Highway 101 near Ventura Road. A meander in the river near Santa Paula caused erosion and the loss of some orchard trees. The high water level along the Santa Clara reached areas it had not been in 25 years. The flow rate from Santa Paula Creek at the Santa Clara River was actually higher than in 1969 and caused large amounts of erosion along the stream bank upstream of the city of Santa Paula. Another major tributary, Sespe Creek, had a peak flow rate close to its previous high flow that occurred in 1978.

4.3.2 Flood Plains After Major Events

Limited topographic or photographic information is available on the extent of flooding during major events. However, aerial photographs taken by the COE in 1958 for the design of the Santa Clara River Levee and by VCWPD following major flood events since 1969 provide valuable historic data of the extent of inundation during these floods. Some of this information only covers portions of the river in Ventura County. Appendix 2, Figures 2-1 through 2-7 in the Flood protection Report, June 1996, present the extent of flood inundation for events indicated in Table 4.3-1.

Table 4.3-1 Historical Flood Flow Rates

Peak Flow Rate at Highway 101 (cfs)	Frequency of Occurrence * (years)	Post-storm Aerial Photographs
52,170	7	April 1958
165,000	60	January 1968
102,000	20	March 1978
104,000	20	February 1992
100,000	19	March 1992
110,000	25	January 1995
84,000**	13	February 1998

* Based on 1994 frequency analysis data.
** Measured at Hwy. 118 Bridge

In addition to variation in flow rates experienced, major influences on the historical flood plain include the effects of development and encroachment; construction of levees, dikes and diversions; degradation and encroachment due to historic sand and gravel extraction; and natural riverbed degradation and aggradation.

4.4 Fires

Fires have regularly affected the vegetation in the Santa Clara River watershed and increased the load of silt and debris carried by the river. The Matilija fire of 1932 damaged 139,000 acres of cover on the Sespe and Santa Paula Creeks watershed and resulted in silting that closed down the Santa Clara Water Conservation District's water spreading efforts for the water year. Some other major fires that have occurred in the Santa Clara River Watershed were the Ridge Fire of 1928 scorched approximately 44,000 acres in the upper Piru Creek Watershed, the Ferndale Fire of 1985 which burned approximately 46,000 acres near Santa Paula, the Piru Fires of 1988 and 1998 both of which burned approximately 12,500 acres in the lower Piru watershed, the July 1996 the Grand Fire torched 11,000 acres northwest of the city of Fillmore, and the Hopper Fire of 1997 which burned 25,000 acres. After less than two years of recovery time following the Grand and Hopper Fires, the El Nino rains of 1998 came and caused major problems with debris flows from smaller tributaries clogging highway and road culverts. Fires in the watershed have affected and will continue to affect the river's flow and morphology.

4.5 Human Uses of River Resources

4.5.1 Native American Uses of the River

The first peoples to settle around the river were Native Americans of two different groups: the Tataviam and the Ventureño Chumash. The Tataviam lived on the upper Santa Clara River west to about Piru. The group settled through the drainage area of the river near water and on south-facing slopes. Various maps show settlements on the river and its tributaries, especially Piru Creek. The Ventureño Chumash settled near the river from Piru west to the ocean. This group relied more on water and tended to settle at the confluences of the river and creeks such as the Santa Paula, Sespe, and Piru.

Typical of other California Indian groups, the Tataviam and Chumash adapted their lives to available water sources. The rhythm of the river shaped their daily and yearly routines. While they believed in manipulating the environment, they centered their lifestyles around the capacity of the land. Both the Tataviam and Chumash relied on the resources of the river for their food supplies, material culture, and transportation.

After the 1782 establishment of Mission San Buenaventura, the mission administrators used the labor of the Tataviam and Chumash people. The Spanish and Mexican priests brought with them different values and technologies regarding water. They viewed water primarily as a resource to be harnessed for the good of the community. In this context, the first diversions of the river occurred at Santa Paula. Chumash laborers created a ditch and a reservoir to irrigate mission crops to feed livestock.

4.5.2 Spanish-Mexican Uses of the River

Following secularization of the missions in the 1830s, Spanish-Mexican law and custom shaped the use of the river. Community rights not only had priority over the environment, but also over individual rights. Private diversion of water for irrigation did not occur unless decrees from the Mexican government specifically allowed it. Government authorities increased and decreased the percentage of designated irrigable land when petitioned.

Most of the ranchos were devoted to livestock raising. Grazing livestock did have an impact on the river and its associated riparian habitats. Livestock grazing can result in loss of vegetation and increased erosion. Consequently, sediment in the river increases which, along with animal waste, lowers water quality. Grazing is also associated with the replacement of native perennial grasses with introduced and less nutritious perennials and aggressive annuals.

Until the mid 1860s, rancheros invested primarily in cattle. A shift to sheep raising occurred after drought caused heavy cattle losses. Subsequently, heightened demand for wool influenced increased investment in sheep in the late 1860s and early 1870s. This shift in production, like many subsequent changes, affected the Santa Clara River. Sheep have different grazing patterns than cattle. Though better adapted to arid climates, they require closer tending and cause more damage as they graze. In 1875 a government surveyor noted the impact of sheep grazing near the river, “Sheep have made savage work … by treading out the natural grasses (principally the annual “filaree”) from the root, which, if not properly cared for, must become in a few years arid.”

During the end of the Spanish-Mexican era and beginning of Anglo dominance, mining began to occur near the river. The first gold “boom” in California began in 1842 near Piru Creek in San Feliciano Canyon. From 1842 until the 1848 discovery of gold in northern California, prospectors trickled into the area. The lack of water in the canyons limited the capacities of the miners. The small numbers of miners and their methods probably created a negligible impact on the river.

4.5.3 Commercial Agriculture

Commercial agriculture began along the river in the 1860s and 1870s, supplementing and replacing livestock raising. After the devastating flood and drought cycles of those two decades, most investors shifted their interests from ranching to agriculture. Many nineteenth century farmers continued with familiar crops such as grain farming. They cultivated barley, corn, flax, alfalfa, oats, and mustard. At this time the main agricultural development existed primarily along the lower fifteen miles of the river. In 1878 about 85 percent of crop acreage consisted of wheat, barley, and corn. About 8,400 acres in Ventura County supported crops.

Intensive agriculture began with the introduction of lima beans in 1875. Limas slowly began to displace grain as a major crop in the region, enabling more small farmers to succeed. By the late nineteenth century, sugar beets, lima beans, and barley became the dominant crops in this area. In 1898 farmers discovered the high earnings generated from sugar beets and the ideal growing conditions provided by the Oxnard Plain, with its high water table and dissolved salts. Sugar beets consume nitrogen while lima beans manufacture nitrogen; thus the crops were complimentary. Sugar beet plantings in Ventura County reached a high in 1919, after which other crops such as citrus eclipsed them. The increasing agriculture on the Oxnard Plain began the lowering of the water table.

Experiments with citrus cultivation began in the late 1860s, but did not develop into a profitable crop until the 1890s when the Limoneira Company was founded in Santa Paula. Citrus crops required irrigation and some of the first substantial diversions of river water were for citrus crops. After World War I, citrus became the dominant crop, surpassing lima beans and walnut production.

With increased settlement and agricultural use of the Santa Clara River Valley, dry farming techniques were no longer a reliable option both because of drought and lower crop yields. Thus, individuals began to use river water on a larger scale, generally through diversions. Early in the 1900s, over 16,000 acres were irrigated by the surface flows of the Santa Clara River. From 29,000 acres in 1917, orchard land in Ventura County increased to 66,000 acres in 1950. Overall, irrigated acreage in Ventura County increased from 31,700 acres in 1919 to 107,689 acres in 1949. By the late 1940s, only 4,900 of the original 74,800 dry-farmed acres in the Oxnard area continued to be farmed without irrigation.

The number of historic private diversions, dams, and canals is difficult to quantify accurately. They varied in size and duration, and were subject to destruction by streamflows. Many structures appeared to have a short history. Other irrigation systems, particularly those established by corporations, survived for long periods. Agricultural holdings in the early twentieth century show a move from fragmented individual ownership to larger water companies who markedly increased irrigated acreage primarily

with river water. Water from the Santa Clara River became an important component in a complex capitalist system.

The most significant shift in Santa Clara River Valley agriculture occurred as ranchers realized the higher profits of valuable citrus crops, which came to overshadow earlier types of planting. Other crop patterns shifted as well. Increased urban demand for dairy products in the 1920s and beyond led to an increased planting of alfalfa for cattle feed. Before the 1920s, vegetables such as tomatoes, peppers, lettuce, and green limas were insignificant, but improved transportation and population shifts led to higher production of these row crops and seeds.

In the region of the lower river, owners shifted to smaller farms. As Ventura County's (particularly coastal) population has increased and farm areas have decreased, farmers in the Oxnard Plain have sough higher profit and increased yields. Many of these intensive crops require irrigation, often from groundwater supplies. High revenues also served to increase land values, thus further favoring small farms. By 1949, over 62 percent of the grain, row, or tree crop farms in the Ventura Lowland region were under 100 acres. The switch to intensive crops has been particularly linked to the growth of urban Oxnard.

As discussed earlier, increased agricultural demands tapped first into the surface water supply. In 1912, surface flows supplied irrigation to almost 17,000 acres. By 1965, that number dropped to 2,500 acres, not because of reduced demand but because of reduction of surface flow. Groundwater supplies became increasingly significant. The first artesian wells on the Oxnard Plain were drilled in the 1870s. By the 1890s, after the establishment of the town of Oxnard and the building of the sugar factory, the water demands of the Oxnard Plain reached levels high enough so that water pressure in the Oxnard Basin was reduced and pumps had to be installed.

4.5.4 Transportation and Urbanization

In the mid 1870s, the federal government constructed the main line of the Southern Pacific Railroad that ran east from Newhall through Soledad Canyon. By 1887 a branch line extended from Newhall west down the length of the river to Ventura. The train tracks parallel the riverbed for the most part. In narrow places in Soledad Canyon the tracks hug the side of the canyon, barely rising out of the riverbed. The original tracks were placed on berms constructed of gravel extracted from the riverbed.

In addition to creating physical alterations in the river, the railroad brought significant economic change to adjacent areas. Before the 1870s, Ventura was the only town along river, followed soon after by Santa Paula. Towns such as Piru, Fillmore, and Bardsdale sprang up to intercept the Southern Pacific. The arrival of the railroad stimulated a population boom, spurring the growth of agriculture and new industries such as oil. Each constituency had a need for water that was fulfilled primarily with river water.

With increased population and a growing industrial base, urban areas themselves began to extend to the edges of the river. The new industries needed laborers to support them.

With less economic and political power than their employers, these laborers often lived on the floodplains of the river. Small areas of illegal housing have existed in the river for many years. Hobo encampments persisted throughout the middle of the twentieth century and the homeless continue to reside in the river bottom.

Before the extensive development of paved roads in the late 1910s and early 1920s, area citizens often used the riverbed as a road due to the lack of improved routes. Annual rains turned the riverbed into a place of treacherous quicksands, not only at the mouth but upstream as well. Until 1910, the two primary roads connecting the Antelope Valley with Los Angeles were through Soledad Canyon and San Francisquito Canyon. The Mint Canyon Highway, also known as Sierra Highway, was completed in 1921. In 1918 the Sierra Highway Bridge over the river was completed.

Since the 1950s, especially in the upper Santa Clara River region, development has had a significant impact on the river. In 1980 urban water uses in the Upper Santa Clara River Drainage Area in Los Angeles County and in Ventura County were greater than agricultural uses by a narrow margin of 51 to 49 percent. By comparison, urban uses demanded only 39 percent of local water service in 1969. The number of urbanized acres in this area increased by over two thirds, from 72,600 acres in 1969 to 121,870 acres in 1980. The greatest gain was in industrial use (136 percent), with significant gains in residential (68 percent) and commercial (64 percent) acreage as well.

4.5.5 Increased Public and Private Agency Control of the River

Government control over the river became much more extensive in the years after 1920, and came in a variety of forms. Local, state, and federal interests overlapped and mixed with private interests. Government control began with the need to resolve conflicting demands on the water resources of the Santa Clara River Valley. In 1920, the federal government supported the view that the Santa Clara River could clearly meet all the demands placed upon its waters. Yet that view was not held for long, as landholders in the watershed began to fear encroachment by the demands of outside users and became aware of increased local usage as well.

Starting in the 1920s, local and regional bodies exerted the most government control. Increased agricultural and urban development led to new forms of governmental intervention, often in support of ranchers and business interests. Local irrigation districts, created under laws authorizing special district formation, took over from individuals the tiling and drainage work that private citizens demanded as improvements on agricultural land.

By the mid 1920s, the state of California had received applications for use of the Santa Clara River drainage basin from five organizations, some from outside the valley itself. Alarmed by the potential for these increased demands and possible exportation of Santa Clara River water resources, the Santa Clara River Protective Association was formed in 1925.

The Protective Association was a private organization supported by agricultural interests but was not by the three municipal governments in its purview. It received additional support from local oil and refining companies and gravel/aggregate manufacturers. The Protective Association commissioned an investigation of the water resources of the valley. The report stated that there would be no surplus of water available for diversion from the valley except in times of heavy rain and that even those surpluses could not be used without detrimentally affecting the interests of the Santa Clara River region.

The Protective Association also supported the spreading of water to replenish groundwater supplies. Under authority of the 1927 Water Conservation Act (drafted under direction by the Association), the Santa Clara Water Conservation District was formed (SCWCD). The SCWCD included 110,000 acres in the Ventura County section of the river valley and the Oxnard Plain, excluding incorporated Oxnard, Santa Paula, and Fillmore. The SCWCD began its spreading operations at the Saticoy Spreading Ground because of lowered well levels in the Oxnard Plain. In 1930, the SCWCD began diversion of water from Piru Creek and in 1931, from Santa Paula Creek. The district also carried out other operations in the Santa Clara River bed itself.

The 1928 St. Francis Dam disaster, besides significantly altering the physical contours of the river valley, prompted local government agencies to intervene in the river. After the flood, numerous protective levees and groins were built. They are among the earliest public works along the Santa Clara River, besides bridge protection, built by government agencies to protect landowners along the river and to control flood flows.

During these years, other government agencies began to regulate and control the river. On the federal level, the War Department (later the Army Corps of Engineers) developed plans for a levee between South Mountain and Highway 101 by the end of World War II. On the local level, flood protection work and channel changes were carried out by Ventura County. The Ventura County Flood Control District (now known as the Ventura County Watershed Protection District) was established in 1944.

The Santa Clara Water Conservation District was succeeded by the 1950 formation of a new special district, the United Water Conservation District (UWCD). The UWCD continued investigations of dam sites and water conservation measures, and was authorized to secure funds for the construction of major projects. In 1955 the UWCD completed the Santa Felicia Dam on Piru Creek. The Lower River Project, built from 1954 to 1956, included an improved diversion at Saticoy, new spreading grounds at El Rio, a Pleasant Valley diversion line and reservoir, and a pipeline to Oxnard and Port Hueneme.

The Army Corps of Engineers issued final reports and plans for the levee from South Mountain to Highway 101 in 1958. In 1961, construction of the stone revetted levee was completed, and an earthen berm was extended downstream to the present site of the Victoria Avenue Bridge between Ventura and Oxnard. After construction of the Victoria Avenue Bridge in 1976, that berm was developed into a levee. The levee blocks the river

from places where water historically flowed. The Ventura County Watershed Protection District currently maintains the levee.

The Ventura County Flood Control District (now known as the Ventura County Watershed Protection District) also restructured the river in a variety of ways. Pilot channeling, or the excavation of stream channels within the riverbed, was a regular practice in the river. In 1959, 1,950 linear feet of riverbed was affected by pilot channels, which moved 42,300 cubic yards of riverbed materials. Annual reports clearly mention pilot channel work throughout the early to mid 1960s. Aggregate extraction companies were apparently given permits to maintain pilot channels as well.

The earliest permits for work in the Santa Clara River were issued in the early 1960s and included permits for pipeline crossings, construction of haul roads, sedimentation ponds and storm drains, and removal of borrow from the river bed. The majority of permits allowed for removal of riverbed material and alluvium. County permitting of the sand and gravel mining industry accelerated in the early 1970s, and state and county intervention in aggregate extraction is a prime example of government involvement in the Santa Clara River.

Over the years, numerous projects have been implemented to repair and improve flood control and river flow structures. Projects included repairs to rock groins at the riverbank, repairs and improvements to existing levees.

Environmental concerns became an important facet of government involvement in watershed policy during the 1970s. In 1986, parts of the Sespe Creek were proposed for wild and scenic river designation. The bill to designate 31.5 miles of the Sespe Creek as wild and scenic was approved by Congress and signed in 1992.

4.5.6 Resource Extraction

Sand and gravel mining is the best known form of resource extraction in the history of the Santa Clara River. The river produces the best aggregate material in Ventura County, and much of the county's roads and other structures were built out of materials extracted from the river. With the growth of the county in the early 1900s and the construction of paved roads, many small companies extracted aggregate from the river. Larger companies generally bought out the local businesses over time. By the 1960s, aggregate extraction in the river had grown significantly.

After the beginning of the environmental movement of the 1970s and the 1975 California Surface Mining and Reclamation Act, gravel extraction from the river changed dramatically. The Act was intended to protect access to significant mineral resources and to require reclamation of lands used in aggregate extraction. State law now requires that extractions over 1,000 cubic yards require reclamation, such as grading and replanting.

In 1980 Ventura County began its Mineral Resource Management Program, with the State Division of Mines and Geology conducting a resource survey. Ventura County

created a “red line” to limit mining in the river. At first, an imaginary line from the top of footings at the Santa Paula Bridge to the top of footings at the Montalvo Bridge limited the depth of mining; this line has subsequently been revised to reflect more sophisticated projections.

4.5.7 Recreation

Recreational uses along the river have varied widely. Fishing was an intermittent pastime possible along the Santa Clara River at least in the early part of the twentieth century and earlier. Areas along the river have also been maintained as duck ponds, and a number of duck clubs were located near the mouth of the river in the first half of the twentieth century.

A number of golf courses both public and private are adjacent to the river. Some of these are irrigated by river water using existing claims on water rights. Recreational vehicle parks are also scattered along the Santa Clara River upstream from Piru and into Los Angeles County. All-terrain vehicles and other motor vehicles have been frequent and illegal intruders on the river bottom and surrounding lands.

Municipalities have included the river in their general recreational plans since the 1960s but few of the extensive plans have come to fruition. Along the upper river area, some communities have used the river as a center for recreational areas.

Section 5.0

Current Conditions

5.0 CURRENT CONDITIONS

Information that is relevant to the purposes of the SCREMP regarding the current conditions of resources within the 500-year floodplain limits that define the SCREMP Area, are described in the sections below. Information was developed from reviews of the following: (1) the reports and work products identified under Section 3.1.1, above; (2) the information contained in the replies to the Request for Information letter and Questionnaire (RFI/Q letter) forwarded by courier to the Stakeholders on January 21, 2003; and (3) additional information sources identified by AMEC and the Stakeholders during the development of the SCREMP.

An integral component of AMEC's approach to developing the Current Conditions Section was the utilization of a geographic information system (GIS) to manage and analyze the vast amount of information. AMEC obtained the existing GIS data developed as part of the previous work efforts in addition to identifying and utilizing data from other federal, state, regional, and local sources. The GIS database was developed to integrate data from the various sources in order to develop a thorough understanding of the existing conditions. The CD attached to the back cover includes GIS-based Overlays that depict the several categories of River resources in Adobe Acrobat format.

5.1 Land Use

5.1.1 Summary of Existing Conditions

The Santa Clara River flows through two counties: Los Angeles and Ventura; six incorporated communities: Acton, Santa Clarita, Fillmore, Santa Paula, Ventura, and Oxnard; and three unincorporated communities: Piru, Bardsdale, and Saticoy. The total acreage and percentage of the 500-year floodplain in each jurisdiction is shown in Table 5.1-1. The largest percentage of the SCREMP Area lies in Unincorporated Ventura County (65 percent) followed by Unincorporated Los Angeles County (19 percent). Each incorporated community contains less than 10 percent of the total SCREMP Area, with the largest amount in Santa Clarita (8 percent).

Table 5.1-1 SCREMP Area Location by Jurisdiction

Area	Acreage	Percent	Acreage	Percent
Los Angeles County	5,339	27		
Unincorporated Los Angeles County			3,752	19
Acton			3	<1
Santa Clarita			1,584	8
Ventura County	14,445	73		
Unincorporated Ventura County			12,963	65
Fillmore			413	2
Santa Paula			597	3
Ventura			298	2
Oxnard			174	1
Total	19,784	100	19,784	100

Land uses within the 500-year floodplain are shown in Table 5.1-2. The most prevalent land use is open space (62 percent), followed by agriculture (29 percent). The remaining land uses can be considered developed and/or urbanized and make up less than 10 percent of the total.

Table 5.1-2 Land Uses in the SCREMP Area

Land Use	Acreage	Percent
Open Space	12,315	62
Agriculture	5,814	29
Industrial	548	3
Residential	367	2
Commercial	357	2
Recreation	276	1
Urban Vacant	107	1
Total	**19,784**	**100**

5.1.2 Conclusions

As part of this effort, the jurisdictions with land in the SCREMP Area were requested to provide information on planned or reasonably foreseeable projects that would affect the 500-year floodplain (see Section 2.3). Of the jurisdictions that replied, the majority of the activities that would affect the 500-year floodplain are flood control projects. These projects include groins, bank protection, levee repair, channel cleanout, etc. Immediately adjacent to the floodplain, commercial, industrial, residential, and recreational uses are proposed. Many of these urbanized uses are proposed for areas that are currently open space.

The Santa Clara River Valley is undergoing enormous development pressures as the population in the region and Southern California grows. Approximately half a million people lived in the incorporated and unincorporated communities near the river in 2000 (City of Santa Clarita, 2003, County of Ventura, 2003). This population is forecast to grow to approximately 700,000 by 2010, a 40 percent increase (City of Santa Clarita, 2003, County of Ventura, 2003).

An analysis of land use alteration in the Santa Clara River watershed was conducted to determine the impact of future development on flood peaks. The major change in land use has been the conversion of natural and agricultural terrain to urban development. In 1972, the urban area of Ventura County accounted for approximately 0.6 percent of the total watershed area. This increased to approximately 1.5 percent in 1994 and is expected to increase to 1.8 percent in the projected future. Future development in Los Angeles County is expected to be about 4.0 percent of the total watershed (Flood Protection Report, June 1996).

5.2 Water Resources

This section describes the current conditions of water resources in the SCREMP Area.

5.2.1 Introduction/ General

The Santa Clara River is the largest river system in southern California remaining in a relatively natural state, and an important water resource for the Ventura County and northern Los Angeles County region. Surface water resources include surface flow diversions, storage reservoirs and wastewater treatment plants (UWCD and CLWA, 1996). Ground water accounts for most of the fresh water supply for the region. Large groundwater reserves exist in alluvial aquifers underlying the valley of the Santa Clara River and its tributaries, and the Oxnard Coastal Plain (RWQCB, 1994). The Santa Clara River is the major source of recharge for all groundwater basins within the 500-year floodplain. The Santa Clara River Enhancement and Management Plan (SCREMP) encourages activities that promote preservation and enhancement of beneficial uses of water in the Santa Clara River.

Documentation of the existing conditions and analysis of issues associated with water resources development and use was based on review of the published reports and draft update reports of the Department of Water Resources (DWR), the June 1994 *Water Quality Control Plan (Basin Plan) for the Los Angeles Region* (RWQCB, 1994), the April 1996 *Water Resources Report* prepared by United Water Conservation District and Castaic Lake Water Agency (UWCD and CLWA, 1996), and the June 1996 *Flood Protection Report* prepared by the Ventura County Watershed Protection District (formerly Ventura County Flood Control District) and the Los Angeles County Department of Public Works (VCWPD and LACDPW, 1996).

5.2.2 Regional Hydrologic Setting

Watersheds and Drainage

The Santa Clara River system originates at Pacifico Mountain of the San Gabriel Mountains, and flows westward for approximately 84 miles to the Pacific Ocean. It drains a total area of about 1634 square miles. Ninety percent of the watershed consists of rugged mountains up to 8800 feet elevation; the remainder consists of valley floor and coastal plain (VCWPD and LACDPW, 1996). Principal tributaries of the Santa Clara river are Castaic Creek in Los Angeles County, and Piru, Sespe and Santa Paula Creeks in Ventura County, with drainage areas of 197, 441, 269 and 42 square miles, respectively. Four major reservoirs, Lake Piru and Pyramid Lake on Piru Creek, Castaic Lake on Castaic Creek, and the Bouquet Reservoir on Bouquet Creek control about 37 percent of the watershed (VCWPD and LACDPW, 1996).

Approximately 40 percent of the watershed (drained by the upper Santa Clara River) is located in Los Angeles County, and 60 percent (drained by the lower Santa Clara River)

is in Ventura County. Part of the upper watershed lies within the CLWA study area, and the lower watershed lies mostly within the UWCD boundary.

Water Budget

The water flowing through a watershed is a part of the total water budget for a watershed regardless of whether it occurs at the surface or below the ground surface. A volume of groundwater extracted or exported will be replaced eventually by surface water that recharges the groundwater basin (DWR, Water Facts, Groundwater, number 6). For planning purposes, to correctly estimate how much water exists in storage in a drainage basin, hydrologists prepare the water balance (hydrologic budget) estimates. The water balance equation,

Inflow-Outflow=Change of Storage,

includes all water in the watershed, both in surface and subsurface. Examples of this water balance that are relevant to the SCREMP area include Figure 22 and Figure 24 in Appendix A, that respectively show water balances for the Upper Santa Clara River watershed in Los Angeles County and the Lower Santa Clara River watershed in Ventura County (UWCD and CLWA, 1996).

5.2.3 Surface Water Hydrology

The major export from a drainage basin to the global hydrologic system occurs as stream discharge (stream flow). To characterize how the stream flow varies with time, repeated measurements of the discharge are performed at gaging stations. There are a number of gaging stations on the Santa Clara River that monitor the flow of the river and its tributaries, as well as several sampling stations where surface quality data is collected along the river and its tributaries (UWCD and CLWA, 1996).

Daily discharge (flow) records collected at the stations are used to calculate average (mean) monthly flows and average (mean) annual flows, and prepare flow duration curves. Flow duration analysis quantifies the percentage of daily measurements that equals or exceeds average daily flows. The frequency of a given flow is graphed as a flow duration curve: average daily flow (Y axis) is plotted against a percent of time that average daily flow is equaled or exceeded (X axis). Furthermore, the frequency-magnitude relationship for the peak flow is considered for the floodplain planning (see Section 5.7).

5.2.3.1 Stream Flow

According to the USGS national system for historic streamflow data (http://waterdata.usgs.gov/nwis), there are a total of 13 gaging stations that have historic and/or current stream-gaging data for Hydrologic Unit 18070102 (i.e., the Santa Clara River Watershed) in Los Angeles County. Of these 13 gaging stations listed on the USGS website, only three of these stations are currently active and being monitored by

USGS, with the rest no longer in-service. The three active stations are USGS Station 11107745 (Santa Clara River Near Lang), USGS Station 11108000 (Santa Clara River Near Saugus), and USGS Station 11108134 (Castaic Creek Below MWD Diversion, Below Castaic Lake). In addition to these 13 gaging stations, there are three additional stations that are being operated by the Los Angeles County Department of Public Works (LACDPW). These three stations are F377-R Bouquet Canyon Creek at Urbandale Avenue, F328-R Mint Canyon Creek at Fitch Avenue, and F92-R Santa Clara River at Old Road Bridge. All three LACDPW stations were recently transferred to the USGS for their operation and maintenance in Water Year 2002. On the basis of the above, there are two gaging stations that currently monitor flow on the main stem of the Santa Clara River in Los Angeles County (i.e., near Lang and near Saugus), and there are three active gaging stations that currently monitor flow along tributaries to the Santa Clara River (Castaic Creek, Mint Canyon Creek, and Bouquet Canyon Creek).

In Ventura County, there are a total of 14 gaging stations that have historic and/or current stream-gaging data for Hydrologic Unit 18070102 (i.e., the Santa Clara River Watershed) according to the USGS national system for historic streamflow data (http://waterdata.usgs.gov/nwis). Of these 14 gaging stations listed on the USGS website, only six of these stations are currently active and being monitored by USGS, with the rest no longer in-service. The six active stations are USGS Station 11109000 (Santa Clara River Near Piru), USGS Station 11109600 (Piru Creek Above Lake Piru), USGS Station 11109800 (Piru Creek Below Santa Felicia Dam), USGS Station 11103000 (Sespe Creek Near Fillmore), USGS Station 11103500 (Santa Paula Creek Near Santa Paula), and USGS Station 11104000 (Santa Clara River Near Saticoy).

Stream flows in some portions of the river and its tributaries are seasonal and can be of high intensity following rainfall events. The other portions of the river have surface flows year-round. Controlled water conservation releases, wastewater effluent discharges, agricultural runoff, "rising" groundwater and other flows contribute to the year-round flow. For instance, in the Piru subbasin, under low-flow conditions, all of the streamflow of the Santa Clara River from above the confluence with Piru Creek infiltrates into the Piru basin so that there is no continuity of river flow. Flows below the confluence of the Santa Clara River and Piru Creek are partially controlled by water conservation releases of captured winter floodwaters at Lake Piru (UWCD and CLWA, 1996). The Freeman Diversion near Saticoy diverts natural runoff of the lower Santa Clara River, along with water releases from Lake Piru.

The annual mean flow at the Los Angeles-Ventura County Line gaging station (the most downstream in the Los Angeles County) has increased from 25,700 acre-feet (af) in 1972 (mean for 20 years) to 35,360 af in 1988 (mean for 36 years) (UWCD and CLWA, 1996).

The annual mean flow at the Montalvo gaging station (the most downstream station on the river) has increased from 82,590 acre-feet (af) in 1971 (mean for 22 years) to 144,590 af in 1992 (mean for 20 years) (UWCD and CLWA, 1996).

5.2.3.2 Flood Frequency

The rainfall patterns, watershed characteristics, and river hydrographs are studied for the prediction of the future average frequency of occurrence of flood events. Flood predictions estimate the probable discharge that will be exceeded once in any particular period. The relationship of the discharge to recurrence interval, computed from the annual series, is plotted on so-called flood frequency curve, which is used to estimate the magnitude of a flood that can be expected within a specified (i.e. 25-, 50-, 100-, 500-year) period of time.

A joint hydrologic modeling study was performed in 1994 with the guidance of the U. S. Army Corps of Engineers and the participation of VCWPD and LACDPW to simulate current conditions, including discharge magnitudes and frequencies. The results of the study were submitted to FEMA. Currently, a LOMR (Letter of Map Revision) is being prepared to delineate the floodplain based on the HEC-2 analysis that was previously completed in conjunction with the Flood Protection Report.

Limited historical data were incorporated in the study. Historical flood frequency information at the gaging station at Highway 101 is summarized in Table 4.3-1 under Section 4.3.2.

Adopted discharge frequency values resulted from the 1994 hydrologic analysis are presented in Table 3-1 in Appendix A.

5.2.3.3 Fluvial Geomorphology

Upper Santa Clara River

The Upper Santa Clara River is a large ephemeral stream that comprises the headwaters for the Santa Clara River system. The morphology of the river changes along its course. It originates as a typical mountain stream with a relatively narrow channel incised into hard bedrock that formed the local mountains. It has a straight to meandering channel pattern, and characteristic channel bedforms represented by a sequence of bars, riffles and pools. The bars are accumulations of the bed material positioned successfully downriver on the opposite sides of the channel. The pools are deep zones located directly opposite the bars, and the riffles are the shallow zones between the pools. The coarsest material is deposited in the bars. In alluvial channels, often a coarse-grained lag is left on the riffle, and fine-grained material is deposited in the pool.

As the river exits the confinement of the mountains, it has a typical braided stream geomorphology characterized by the frequently shifting network of channels and the intervening bars, and the broad floodplain area, and typical braided stream deposits composed of coarse sediment ranging in size from coarse sand to boulder. In arid and semiarid climate, the morphology of such streams is controlled by stormwater flows originated in highland areas and due to storms of short duration and great intensity in rainfall, so called flash floods (UWCD and CLWA, 1996). Such braided rivers typically

transport large volumes of bedload. It is believed by the fluvial geomorphologists that the bank erosion is the most necessary factor in creating braided systems.

Again, as the Upper Santa Clara River enters the mountains, it narrows down into a single channel, and as it exits, it becomes distinctly braided. The following detailed narrative is modified from the 1996 Water Resources Report (UWCD and CLWA, 1996).

In the area where the river system exits Aliso Canyon and Soledad Pass, the morphology of the river is broad and flat. In Aliso Canyon the width of the 500-year floodplain ranges from 400 to 600 feet and drains to the north. As the river exits Aliso Canyon, it abruptly turns to the west and the floodplain widens to a width of approximately 2,000 feet near Acton. At Acton, the river channel abruptly turns south, and the floodplain narrows down to a width ranging between 600 and 800 feet across as it enters Soledad Canyon near Ravenna. Leaving the canyon just east of State Highway 14 at Soledad, the river traverses across the Santa Clara River Valley East Subbasin. There, it becomes broad and shallow, and displays typical braided stream geomorphological features, such as point bar deposits, gravelly stream bottoms, and broad wide washes that contain an abundant coarse-size material (sand, gravel, cobble and boulder). The 500-year floodplain formed along this reach of the river contains mostly fine sediment (silt and clay) and varies from about 1,000 to 2,000 feet wide. As the river enters the main Santa Clarita Valley at Bouquet Canyon Road, it is joined by the tributary in San Francisquito Canyon that displays a similar morphology. As the river passes through the west-northwest trending valley, the width of the floodplain abruptly narrows to about 500 feet before reaching Interstate Highway 5. The Castaic Creek enters the Santa Clara River from the north at the Castaic Junction area, and the river course continues in the southwestern direction. The width of the floodplain ranges between about 800 feet and 3,000 feet along this reach to the Los Angeles- Ventura County Line.

Lower Santa Clara River

The Lower Santa Clara River becomes a typical braided stream, characterized by braided channels, wide floodplain, and coarser size (coarse sand to gravel) alluvial deposits. The river floodplain at the eastern boundary of the Piru groundwater subbasin (approximately 0.7 stream miles below the Blue Cut gaging station and the Los Angeles County-Ventura County Line) is about 1,000 feet wide, and varies in width between 2,000 feet and 6,000 feet downstream to the Fillmore Fish Hatchery. The floodplain then narrows to about 1,000 feet just east of the City of Santa Paula. The river meanders to the south side of the valley near Peck Road due to structural controls (Oak Ridge Fault), and stays about 1,000 feet from that point to the western boundary of the Santa Paula subbasin. The floodplain below Santa Paula and across the Oxnard Plain varies in width between 1,000 and 4,000 feet. The Santa Clara River forms a coastal lagoon and an estuary at its mouth at the Pacific Ocean near the Ventura Marina and McGrath State Beach.

Historic Bed Profile Adjustments

The adjustment of riverbed profile is a common response of channel morphology to changes. A typical concave-up longitudinal profile of alluvial rivers forms as a result of adjustment to the normal downstream decrease in gradient. The local conditions, such as bedrock exposure at the channel floor, or additional coarse sediment load from the major tributary stream (that would likely result in deposition downstream of the confluence with the tributary), would further complicate this general trend resulting in a unique river profile dynamically changing with time.

Historically, the changes in the Santa Clara riverbed occurred as a result of both natural and anthropogenic processes. Historical in-river aggregate mining (gravel extractions) and extreme flood flows lowered the river profile tens of feet across the Santa Paula groundwater subbasin and the Oxnard forebay (UWCD and CLWA, 1996). Construction of the Freeman Diversion stabilized this river entrenchment (UWCD and CLWA, 1996). Entrenchment of the river is a typical response to the dam construction that reduces the bedload to the reaches immediately downstream of the construction and causes the river to use the excessive energy (otherwise used for bedload transport) to downcut its channel and lower its gradient. The episodes of downcutting may be somewhat anticipated based on examination of a longitudinal riverbed profile: a channel incision may be expected immediately upstream from the short oversteepened segments of the profile (so-called knickpoints) (Ritter and others, 1995).

Historical bed profiles of the lower Santa Clara River along the flow line (thalweg) are graphically shown on Figures 2-8 through 2-15 in Appendix 2 of the Flood Protection Report.

5.2.3.4 Hydraulic Analysis

The relationships between flow and resistance to flow in the rivers have been the concern of hydraulic engineers for centuries. Hydraulic equations (i.e., Chezy and Manning equations) were derived to express these relationships. Hydraulic analysis is commonly performed in a variety of fluvial investigation, floodplain and floodway studies. The utility of hydraulic geometry in geomorphic studies is not satisfactory documented (Ritter and others, 1995).

The Hydrologic Engineering Center Water Surface Profiles (HEC-2) computer program, recommended by the Federal Emergency Management Agency (FEMA), was used for hydraulic modeling during the 1994 joint hydrologic study of the Santa Clara River. The river channel was defined by cross-sections perpendicular to the flow direction. The frictional resistance to flow was defined as the Manning roughness factor “n”, the coefficient used to quantify the relative roughness of the surface of the bed and banks of the river. The cross-sections, bridge abutments, piers, and superstructure were coded and analyzed. The hydraulic analysis assumed that the fixed river bottom would remain constant at the elevations shown on the June 1993 topographic maps.

The water surface profile derived from the hydraulic analysis was used for the floodplain delineation (see Section 5.7).

A detailed hydraulic analysis was performed on the Lower Santa Clara River using the present condition flood flows for the 25-, 100- and 500-year return frequency (VCWPD and LACDPW, 1996). Roughness factors "n" required for the hydraulic modeling was based on the visual estimation at any given reach in June 1993. Hydraulic properties for different reaches of the river utilized by the 1994 study (VCPWA FCD, 1994) are summarized in Table 6.4.1-2 under Section 6.4.1, below.

Roughness factor "n" of 0.06 was used for the hydraulic modeling in the Upper Santa Clara River.

5.2.4 Groundwater Basins

The California Department of Water Resources (DWR) conducts investigations of the State's groundwater basins as mandated by the California Water Code, Section 12924. **The results of these groundwater basin evaluations are published in the Bulletin 118 series. The DWR** divides surface waters into hydrologic units, areas and sub-areas and ground waters into groundwater basins and sub-basins. The Regional Board uses the DWR classification system for its planning purposes. The most current 1994 Basin Plan (RWQCB, 1994) and the 1996 United Water Conservation District and Castaic Lake Water Agency Water Resources Report (UWCD and CLWA, 1996) used the groundwater basin delineations identified in the 1980 DWR report. Currently, a 2003 update to the Bulletin 118 is being prepared by the DWR. Additionally, Richard Slade and Associates has produced a report titled "Hydrogeological Conditions in the Alluvial and Saugus Formation Aquifer Systems" that provides information in addition to that contained in this section. The discussion of basin boundaries and hydrology, hydrogeology, groundwater barriers, recharge areas, as well as groundwater hydrology, storage and quality in this and the following sections is based primarily on the compilation of the data from the most recent DWR groundwater basin reports, the UCWD reports, and the 1996 publication (UWCD and CLWA, 1996).

The DWR delineates two groundwater basins in the Santa Clara River floodplain: Acton Valley Basin and Santa Clara River Valley Basin. Both valleys are drained by the Santa Clara River toward the Pacific Ocean to the west. The Acton Valley and Santa Clara River Valley groundwater basins are located within the Santa Clara-Calleguas surface hydrologic unit, as designated by the California Regional Water Quality Control Board. The Santa Clara-Calleguas hydrologic unit has a drainage area of 1,760 square miles, and is the largest in the Ventura and Los Angeles counties region (RWQCB, 1994).

5.2.4.1 Acton Valley Groundwater Basin

The Acton Valley Groundwater Basin encompasses an area of approximately 12.9 square miles (DWR, 2002). It is bounded by the Sierra Pelona on the north and the San Gabriel Mountains on the south, east and west. It is drained by the Santa Clara River.

Hydrogeology

The Acton Valley groundwater basin is an alluvial basin consisting of two water bearing geologic units: the Holocene age undifferentiated alluvium and the Pleistocene age stream terrace deposits. Groundwater in these deposits is unconfined.

Alluvial deposits are encountered in the town of Acton and its vicinity, and along upper Soledad Canyon, beginning just southwest of Soledad Pass. They are the thickest in the Santa Clara River channel, and reach their maximum thickness of 225 feet near Acton, thinning east and west of the town. Alluvial deposits consist of unconsolidated, poorly bedded, poorly sorted to sorted sand, gravel, silt and clay with some cobbles and boulders. Specific yield in the alluvium ranges from 10 to 19 percent (DWR, 2002).

Terrace deposits occur in the northern part of the basin, north of Acton, where they reach the maximum thickness of 210 feet (Slade, 1990). They consist of crudely stratified, poorly consolidated, only locally cemented, angular to subangular detritus of local origin (DWR, 2002). Specific yield in terrace deposits ranges from 3 to 5 percent (DWR, 2002).

Terrace and alluvial sediments are deposited on the erosional surface of the Pre-Cambrian basement rocks (anorthosite, schist, gabbro, syenite, gneiss), Mesozoic granite and granodiorite, sandstone and volcanic rocks of the Tertiary Vasquez Formation. These rocks are considered to be non-water bearing (DWR, 2002).

The Acton Valley groundwater basin is transected by the numerous faults. Three of the principal faults are the northwest-trending Kashmere Valley and Acton faults, and the northeast-trending Soledad fault system. The geologic history and seismic activity of these faults are not known. Although these faults offset the basement rocks, they have not been shown to offset younger alluvial and terrace deposits (UWCD and CLWA, 1996). No groundwater measurements data are available to determine whether these faults form barriers to groundwater flow in the basement complex. DWR does not consider these faults to be barriers to groundwater flow in the alluvium (DWR, 1993).

Groundwater Flow

The groundwater within the basin flows toward the channel of the Santa Clara River. It then flows in the southwest direction toward Soledad Canyon at an average gradient of 64 to 91 feet per mile. The gradient varies seasonally, with the lowest gradient during dry seasons, and the highest during wet seasons. The Soledad Canyon forms the only outlet for groundwater underflow and for surface water outflow from the basin.

Recharge (Replenishment) Areas

The basin is recharged largely by deep percolation of direct rainfall and rainfall runoff captured in the Acton Valley, Santa Clara River and its tributaries. Deep percolation of

water from an excessive irrigation of lawns and agricultural areas, and from private onsite septic tanks and leachfield systems, provide additional amounts of replenishment (UWCD and CLWA, 1996; DWR, 2002).

Groundwater Quantity

The total storage capacity of the basin is estimated at approximately 40,000 to 45,000 acre-feet (af) (UWCD and CLWA, 1996; DWR, 2002). Historically, the estimated amount of groundwater in storage ranged from 14,883 af for a relatively dry period (1965) to 34,395 af for a relatively wet period (1945) (UWCD and CLWA, 1996).

There are several water-supply wells that extract groundwater from the alluvium at rates greater than 100 gallons per minute (gpm), and numerous small-volume domestic water-supply wells scattered throughout the basin region. The major water purveyors are the Los Angeles County Water Works District, Acton Camp, a trailer park, and a few large private wells installed in the southern part of the basin (UWCD and CLWA, 1996).

Historical groundwater elevations within the main alluvial channel of the Upper Santa Clara River have ranged from about 2,570 feet above mean sea level (AMSL) at Acton Camp to 2,997 feet AMSL in the northern portion of the basin during a relatively dry hydrologic period (1964-65), and from 2,616 feet AMSL at Acton Camp to 3,085 feet at the Vincent Fire Station during the 1984-85 wet period (UWCD and CLWA, 1996; Slade, 1990). In general, groundwater levels declined during the 1950s through the mid 1970s, rose during the late 1970s to the mid 1980s, and continued to decline after the 1980s (Slade, 1990).

5.2.4.2 Soledad Canyon Alluvial Channel

The Soledad Canyon Alluvial Channel is approximately 9 miles long. It is bordered by the Acton Valley Groundwater Basin on the east, and by the Santa Clara River Valley Groundwater Basin on the west (UWCD and CLWA, 1996). DWR does not designate the Soledad Canyon Alluvial Channel as a groundwater basin.

The water-bearing formation of the Soledad Canyon Alluvial Channel consists of alluvium deposited in the Santa Clara River bed. Twenty-one private water-supply wells extract groundwater throughout the channel (see Figure 5 in Appendix A for approximate well locations). Groundwater extraction data, groundwater storage, and yield data are not currently available (UWCD and CLWA, 1996).

5.2.4.3 Santa Clara River Valley Basin

The Santa Clara River Groundwater Basin is subdivided into six sub-basins (in downstream order): Santa Clara River Valley East, Piru, Fillmore, Santa Paula, Mound and Oxnard (DWR, 2002). The 2003 DWR evaluation (report currently in preparation) changes the basin boundaries so that the former Montalvo basin is included into the Oxnard sub-basin as the forebay.

Santa Clara River Valley East Subbasin

The Santa Clara River Valley East Groundwater Subbasin was formerly named the Eastern Groundwater Basin (DWR, 1980) and encompasses an area of approximately 103 square miles (DWR, 2002). It is bordered by Piru Mountains on the north, on the west by impervious rocks of the Modelo and lower Saugus Formations, and a constriction in the alluvium (DPW, 1933), by the San Gabriel Mountains on the south and east, and by the Santa Susana Mountains on the south. It is drained by the Santa Clara River, Bouquet Creek, and Castaic Creek (DWR, 2002).

Hydrogeology

The Santa Clara River Valley East groundwater subbasin consists of the following water bearing geologic units: the Holocene age alluvium, the Pleistocene age terrace deposits, and the late Pliocene- early Pleistocene age Saugus Formation. Groundwater in the subbasin is generally unconfined.

Alluvial deposits generally form a relatively thin veneer of sediments that directly overly the Saugus Formation in the SCREMP Area within the subbasin (UWCD and CLWA, 1996). A maximum thickness of 225 feet is reported near Saugus (Slade, 1990; DWR, 1993). Alluvium consists of unconsolidated, poorly bedded, poorly sorted to sorted sand, gravel, silt and clay with some cobbles and boulders (DWR, 2002).

Terrace deposits are found on the low-lying flanks of the foothills and upper reaches of the Santa Clara River tributaries, generally outside the SCREMP Area. They reach the maximum thickness of 200 feet near Saugus (Slade, 1990). They consist of the alluvial detritus of local origin (DWR, 2002).

Terrace and alluvial sediments are deposited on the erosional surface of the underlying Saugus Formation.

The Saugus Formation consists of loosely consolidated, poorly sorted, coarse-grained sandstone, siltstone and pebbly conglomerate in its upper part, and more consolidated siltstone and claystone in its lower part (DWR, 2002). The upper part of the Saugus Formation is the main aquifer, whereas the lower strata are not considered to contain usable groundwater due to the quantity and quality of the water (UWCD and CLWA, 1996).

The Saugus Formation is underlain by older sedimentary, igneous and metamorphic rocks including the Miocene age Pico, Castaic, Towsley and Mint Canyon Formations, and Mesozoic to Precambrian basement rocks. The older rocks are essentially non-water bearing (UWCD and CLWA, 1996).

The northwest trending San Gabriel and Holser faults traverse the region through the communities of Saugus and Castaic. Their effect on the groundwater is not well known.

The San Gabriel fault may form a partial barrier to groundwater flow: in areas of alluvial deposits of the Santa Clara River, the groundwater underflow may flow across the fault zone. It is considered to form a partial barrier to groundwater flow in the alluvium at the Bouquet Junction, and the groundwater data for the Castaic Creek are inadequate for such an evaluation. The fault may form an effective barrier at depth, in the Saugus Formation, especially if the fault gouge is present. The Holser fault appears to act as a groundwater barrier in the western subbasin, where it brings the Saugus Formation into a contact with the Pico Formation. However, it does not appear to form a barrier in the Saugus Formation in the eastern basin or in the alluvium (UWCD and CLWA, 1996).

Groundwater Flow

The groundwater within the alluvial aquifer flows toward the channel of the Santa Clara River, and then follows the river course southward and westward. Average gradient of groundwater in the alluvium is 46 feet per mile based on the 1985 water level data in the river from the Lang gage to the County Line. It generally varies from 25 to 55 feet per mile in the subbasin. The gradient varies seasonally, with the lowest gradient during dry seasons, and the highest during wet seasons (UWCD and CLWA, 1996).

The groundwater flow in the Saugus aquifer, based on the measurements in the wells screened entirely in the Saugus Formation in the Santa Clara River-South Fork area, is to the north-northwest. There is no data outside of that area (UWCD and CLWA, 1996).

Recharge (Replenishment) Areas

The subbasin is recharged largely by infiltration of surface water in the Santa Clara River and deep percolation of precipitation in its tributaries. Surface water flows percolate through the alluvial deposits along the stream channels, recharging the alluvial aquifer, and the underlying Saugus aquifer. The highland areas surrounding the alluvial valley represent an additional source of recharge through direct precipitation and deep percolation of rainfall on the outcrops of the Saugus Formation (UWCD and CLWA, 1996).

Groundwater Quantity

Alluvial Aquifer

The estimated storage capacity of the alluvial aquifer in the subbasin is approximately 239,900 acre-feet (af). Historically, the estimated amount of groundwater in storage ranged from 107,000 af for a relatively dry period (1965) to 201,000 af for a relatively wet period (1945) (UWCD and CLWA, 1996).

The Santa Clarita Water Company, the Valencia Water Company, the Newhall County Water District, and Wayside Honor Rancho extract groundwater from the alluvium and the underlying Saugus Formation for the municipal-supply purposes. Municipal

extractions by these purveyors from the alluvial aquifer ranged between 12,000 and 21,000 af during the 1987-1994 period (UWCD and CLWA, 1996).

Historical groundwater elevations within the main alluvial channel of the Upper Santa Clara River have ranged from about 1,635 feet above mean sea level (AMSL) on the east side of the subbasin to 825 feet AMSL on its west side during a relatively dry hydrologic period (1965), and from 1,696 feet AMSL on the east to 885 feet on the west during the wet (1985) period (UWCD and CLWA, 1996).

Saugus Aquifer

The total quantity of usable groundwater in storage in the Saugus aquifer is estimated as approximately 1,413,000 af. This calculation is based on the estimated 2,500-foot depth of the usable fresh water in the Saugus Formation. Historical amount of groundwater in storage has not been estimated (UWCD and CLWA, 1996).

Municipal extractions from the Saugus aquifer by the major water purveyors (see above) ranged between 8,000 and 14,500 af during the 1987-1994 period (UWCD and CLWA, 1996).

Piru Groundwater Subbasin

The Piru Groundwater Subbasin was formerly delineated as a basin (DWR, 1980) and it encompasses an area of approximately 13.9 square miles (DWR, 2002). Its boundary is marked on the north by impervious rocks of the Topatopa Mountains, on the south by impervious rocks of Oak Ridge and the Santa Susana Mountains, on the east (approximately 0.7 stream miles below the Blue Cut gaging station) by thinning of alluvium and exposures of shale, and on the west by an area of periodic rising water in the vicinity of the Fillmore Fish Hatchery (UWCD and CLWA, 1996, DWR, 2002). It is drained by the Santa Clara River and Piru Creek (DWR, 2002).

Hydrogeology

The Piru groundwater subbasin consists of two water bearing geologic units: the Pleistocene to Holocene age alluvium and the lower Pleistocene age San Pedro Formation. Groundwater in the subbasin is generally unconfined. The estimated specific yield is approximately 17 percent (DWR, 2002, CSWRB, 1956).

Alluvial deposits are encountered to a depth of approximately 60-80 feet throughout the subbasin. They consist of coarse sand and gravel (UWCD and CLWA, 1996). Alluvial sediments are deposited on the erosional surface of the Pleistocene age San Pedro Formation, correlated with the Saugus Formation in the Santa Clara River Valley East groundwater subbasin to the east.

The San Pedro Formation (time-equivalent with the Saugus Formation) consists of finer sands and gravels than the overlying alluvium and extends to a depth of approximately 4,000 to 8,000 feet below ground surface (UWCD and CLWA, 1996, DWR, 2002).

The Piru groundwater subbasin is transected by the San Cayetano fault to the north and the Oak Ridge Fault to the south. These faults juxtapose the San Pedro Formation with the generally non-water-bearing Modelo and Matilija Formations. According to the DWR, the water-bearing gravels are folded by the Santa Clara syncline creating thick aquifer sequence. The warping up of the syncline together with the narrowing of the subbasin to the west creates rising water conditions at the western subbasin boundary (DWR, 1993).

Groundwater Flow

The groundwater flow gradient in the alluvium is westward and parallel to the river channel. Similarly, the groundwater flow gradient in the San Pedro Formation is in the western direction, with a small north-south flow component parallel with the axis of the syncline (UWCD and CLWA, 1996).

Recharge (Replenishment) Areas

The groundwater recharge to the subbasin occurs by percolation of surface flows along the channel of the Santa Clara River and its tributaries (Piru Creek, Hopper Creek) and small amounts of underflow at the eastern boundary, as well as precipitation, return of irrigation waters, natural runoff, and artificial recharge through spreading grounds and State Water Project water releases from Piru Lake. During an annual water conservation release by UWCD (usually in the fall), surface flow is percolated into the alluvium of Piru Creek and the Santa Clara River; also its portion is diverted into the recharge basins near Piru (for the recharge of the Piru subbasin). The average annual spreading at the 44-acre Piru grounds amounts to about 6,600 af per year (UWCD and CLWA, 1996).

Groundwater Quantity

Several calculations available for the storage capacity of the subbasin are based on an average area less than delineated by the DWR. The DWR considered an estimate of 1,979,000 af representative of the subbasin. Of the maximum, an estimated 20,000 af is available storage.

The historic estimated storage depletions in the subbasin include 74,334 af (1931), 110,000 af (1951), 134,000 af (1965), and 78,000 and (1991). The maximum extraction of 15,128 af occurred in 1990, the minimum extraction of 6,335 af took place in 1983, with an average extraction of 11,106 af (UWCD and CLWA, 1996).

UWCD reports the “topping off” phenomenon in the Piru subbasin: when the subbasin reaches its full storage capacity, any additional recharge is discharged at the Santa Clara River at the western (lower) end of the basin. This interpretation is based on the fact that

the maximum groundwater level measured in a well does not exceed a certain elevation (indicating that the basin is full) (UWCD and CLWA, 1996). It is believed that the "topping off" of the basin has occurred several times between the 1980 and 1998 period (DWR, 2002). Historical and current water level records for the subbasin are maintained by the UWCD.

Historical groundwater elevations within the main alluvial channel of the Upper Santa Clara River have ranged from about 420 feet above mean sea level (AMSL) at the fish hatchery (western boundary) to about 780 feet AMSL at the Blue Cut gaging station (eastern boundary) during a relatively dry hydrologic period (Fall, 1951, 1957, 1965), and from about 500 feet AMSL at the fish hatchery to about 790 feet at the Blue Cut gaging station during the relatively wet period (Spring, 1938, 1941, 1969) (UWCD and CLWA, 1996). Hydrographs suggest the quick response of the groundwater levels to precipitation patterns.

Fillmore Groundwater Subbasin

The surface area of the Fillmore Groundwater Subbasin that was formerly delineated as a basin (DWR, 1980) is estimated between approximately 18,580 acres (UWCD and CLWA, 1996) and 20,800 acres (32.5 square miles) (DWR, 2002). The subbasin is bounded by impervious rocks of the Topatopa Mountains and the San Cayetano fault on the north, by impervious rocks of Oak Ridge and the Oak Ridge fault on the south, and by the areas of rising groundwater on the east (at the Fillmore Fish Hatchery) and west (just east of the city of Santa Paula) (DWR, 2002). It is drained by the Santa Clara River and Sespe Creek.

Hydrogeology

As in the adjacent Piru subbasin, the primary water bearing materials in the Fillmore groundwater subbasin are sands and gravels of the Pleistocene to Holocene age alluvium and the lower Pleistocene age San Pedro Formation. Groundwater in the subbasin is generally unconfined. The average well yield is about 700 gpm (Panaro, 2000). The estimated specific yield is approximately 12 percent (DWR, 2002, CSWRB, 1956).

Alluvial deposits consist of the recent sands and gravels of the Santa Clara River and Sespe Creek occupying the southern and eastern parts of the subbasin, and the older alluvial deposits represented by a complex of terrace deposits, older southward-sloping alluvial fan deposits, and the recent alluvial fan deposits occupying its north-central portion (so-called "Sespe Uplands"). Alluvial fan material of the Pole Creek Fan underlies the City of Fillmore (UWCD, 1996b). The younger alluvium extends to a maximum depth of 120 feet in the Bardsdale area, and thins out to 60 to 80 feet near the eastern and western subbasin boundaries. The older alluvium is encountered to a depth of 100 feet at the fish hatchery (UWCD and CLWA, 1996). Alluvial sediments are deposited on the erosional surface of the Pleistocene age San Pedro Formation.

The San Pedro Formation folded into an east-west trending syncline underlies majority of the subbasin (UWCD and CLWA, 1996). It is comprised by finer sands and gravels than the overlying alluvium (DWR, 2002). The thickness of the San Pedro Formation varies from 5,000 to 6,000 feet measured at the western subbasin boundary, to 8,430 feet along the main axis of the syncline. The fresh water is reported to a depth of 7,000 feet (UWCD and CLWA, 1996).

The San Cayetano and Oak Ridge faults place the alluvial deposits against generally non-water-bearing Modelo Formation in the subsurface, and restrict the movement of groundwater in and out of the subbasin (DWR, 2002, CSWRB, 1956). The San Cayetano fault does not appear to cut the subbasin (UWCD and CLWA, 1996).

Groundwater Flow

The groundwater flow gradient is generally westward and decreasing to the west (CSWRB, 1956), except for the Sespe uplands, where it is generally southward (UWCD, 1996a). The groundwater within the Santa Clara River alluvium flows to the west, the groundwater within the Sespe Creek flows southwest toward the channel of the Santa Clara River. The gradient varies seasonally, with the lowest gradient during dry seasons, and the highest during wet seasons (UWCD and CLWA, 1996).

The groundwater flow in the San Pedro Formation is to the west near the axis of the syncline, and to the south in the down-dip direction and beneath the alluvial fan (UWCD and CLWA, 1996).

Recharge (Replenishment) Areas

The subbasin is recharged largely by percolation of surface water in the Santa Clara River, Sespe Creek and minor tributaries. Although UWCD releases from Lake Piru technically constitute surface waters within the Santa Clara River, these are considered a significant source of recharge waters only during releases. Other sources of the subbasin recharge are subsurface flow from the Piru subbasin, direct percolation of precipitation, irrigation returns, and effluent from sewage treatment plants (DWR, 2002, UWCD and CLWA, 1996). The year-around recharge from the Piru subbasin may be responsible for the generally less water level declines in this subbasin, as compared to the Piru subbasin (UWCD, 1996a).

Groundwater Quantity

The DWR considers an estimate of 7,330,000 af (Panaro, 2000) representative of the storage capacity of the subbasin. In 1999, the volume of available storage in the basin was an estimated range of 5,000 to 10,000 af.

The historic estimated storage depletions in the subbasin include 80,571 af (1951) and 79,619 af (1961). The maximum extraction of 61,804 af occurred in 1989, the minimum

extraction of 31,896 af occurred in 1983, and an average extraction was 48,447 af (UWCD and CLWA, 1996).

Historical groundwater elevations within the Santa Clara River channel have ranged from about 410 feet above mean sea level (AMSL) on the east side of the subbasin to 280 feet AMSL on its west side during a relatively dry hydrologic period (1951, 1957, 1965), and from 490 feet AMSL on the east to 290 feet on the west during the wet (1938, 1941, 1969) period (UWCD and CLWA, 1996). The groundwater levels have varied over a range of about 45 feet during the last fifty years and a range of about 30 feet during the last 30 years. As in the Piru subbasin, the groundwater levels tend to return to their historic highs during wet cycles. Recently, the low water levels of approximately 333 feet were observed in one of the wells at the end of 1990, and recovered to the historical high of about 365 feet by 1992 (UWCD, 1996a, DWR, 2002).

Similar to the Piru subbasin, the historic high groundwater levels in the Fillmore subbasin indicate that the subbasin is full and that natural discharge is at a maximum. The discharge can be seen at different locations in the river alluvium, i.e., at the narrows (UWCD, 1996a).

Santa Paula Groundwater Subbasin

The Santa Paula Groundwater Subbasin (formerly delineated as a basin, DWR, 1980) occupies an area of approximately 35.7 square miles (DWR, 2002). Its boundary is marked on the north by impervious rocks of Sulphur Mountain, and on the south by impervious rocks of Oak Ridge and South Mountain, the Oak Ridge fault and the Saticoy fault (CSWRB, 1956). The eastern subbasin boundary is placed at the position of maximum rising water, and its western boundary (with the Mound and Oxnard subbasin) is placed at a distinct change in the slope of the water table (DPW, 1933, CSWRB, 1956). The western boundary of the Santa Paula subbasin is complex, with local uplift, artesian conditions, and faults mapped by some investigators (UWCD, 2001a). The subbasin is created by a continuous uplift along the Oak Ridge and other faults, and contains over 10,000-feet thick Plio-Pleistocene deposits (UWCD and CLWA, 1996). The subbasin is drained by the Santa Clara River and Santa Paula Creek (DWR, 2002).

Hydrogeology

The principal fresh water bearing geologic units in the Santa Paula subbasin are the Pleistocene to Holocene age alluvium and the lower Pleistocene age San Pedro Formation similar to the described for the Fillmore and Piru subbasins. Groundwater is generally unconfined except in the west and northwest parts of the subbasin. The average well yield is about 700 gpm. The estimated average specific yield is about 10 percent (DWR, 2002).

Alluvium consists of recent stream deposits, older alluvium of the ancient Santa Clara River, and alluvial fan deposits flanking the local mountains. (UWCD and CLWA, 1996). Localized lenses of clay are reported in the Saticoy area. Alluvial sediments are

deposited on the erosional surface of the Pleistocene age San Pedro Formation of the composition similar to the previously described. These water-bearing deposits are underlain by relatively impermeable Pliocene and older units (UWCD and CLWA, 1996). The average thickness of the water bearing units is about 325 feet (Panaro, 2000). The observations in the nested monitoring wells indicate that the alluvium is hydraulically disconnected from the underlying San Pedro Formation in the central and western portions (UWCD, 2001b).

The Santa Paula groundwater subbasin is considered to be in hydraulic connection with the Fillmore subbasin to the east. The groundwater movement across its southwestern boundary, however, is restricted by the Oak Ridge and Saticoy faults (DWR, 2002). The Oak Ridge fault places alluvial deposits against older semi-permeable formations. The Saticoy fault creates a 50 to 100-foot drop in the groundwater level between the Santa Paula subbasin and the forebay of the Oxnard subbasin (CSWRB, 1956, DWR, 2002). Although there is general agreement about hydraulic connectivity of the Santa Paula subbasin with the Mound subbasin, the degree of connection is uncertain (UWCD, 2001a). The warping up and constriction of the Santa Clara River syncline create local rising water conditions (DWR, 2002). Water leaves the western boundary as the rising groundwater into the Santa Clara River near Saticoy (UWCD and CLWA, 1996).

Groundwater Flow

The groundwater flow gradient in the subbasin is west- to southwestward, and decreases to the west. The Oak Ridge fault and near-vertical bedding form a partial barrier to movement of the groundwater to the south, restricting the groundwater flow in the San Pedro Formation (UWCD and CLWA, 1996). Artesian (confined flow) conditions are reported in the Saticoy and other areas in the western part of the subbasin due to the local clay lenses and faulting (UWCD and CLWA, 1996). Additional studies are necessary for a better understanding of complex subsurface geology and groundwater flow patterns in the western subbasin, and on the inter-subbasin boundaries.

Recharge (Replenishment) Areas

The groundwater recharge to the subbasin occurs by percolation of surface flows in the Santa Clara River, Santa Paula Creek and other tributaries (especially in the reaches of the river north of the Oak Ridge fault), the underflow at the eastern boundary (from the Fillmore subbasin), percolation of precipitation, and return of irrigation waters (UWCD and CLWA, 1996). The amount of recharge from the river in areas south of the Oak Ridge fault is reduced due to underlying impermeable Santa Barbara Formation.

Groundwater Quantity

Several published calculations of the storage capacity of the subbasin are based on an average area less than delineated by the DWR (2002). The DWR considers an estimate of 754,000 af (Panaro, 2002) reasonable for the subbasin. The volume of available storage in the basin is an estimated range of 10,000 to 20,000 af.

The historic estimated storage depletions in the subbasin include 30,545 af (1991). The maximum extraction of 29,799 af occurred in 1990, the minimum extraction of 15,708 af occurred in 1983, with an average extraction of 23,339 af (UWCD and CLWA, 1996). Panaro (2000) estimated average annual extraction as 21,612 af. He also estimated the other components for his 1997-98 groundwater budget as follows: applied water recharge of 10,393 af, subsurface inflow of 2,400 to 11,500 af, and subsurface outflow of 7,200 af.

Historical groundwater elevations along the main channel of the Santa Clara River are shown on Figure 14 in the Water Resources Report. Hydrographs from the Santa Paula subbasin show up to 55-feet groundwater level fluctuations since 1975, with annual cycle of rise and fall of about 20 feet (DWR, 2002). The long-term groundwater level in the subbasin was relatively stable since 1994.

Mound Groundwater Subbasin

The Mound Groundwater Subbasin (formerly delineated as a basin, DWR, 1980) encompasses an area of approximately 23.1 square miles (DWR, 2002). It is bounded on the north by the Ventura foothills, on the south by the rocks of Oak Ridge and Saticoy faults, on the east by the Santa Paula subbasin, and on the west by the Pacific Ocean (the subbasin extends several miles offshore) (DWR, 2002). It is drained by the Santa Clara River and its tributaries (DWR, 2002).

Hydrogeology

The Mound groundwater subbasin consists of two water bearing geologic units: the Pleistocene to Holocene age alluvium and the lower Pleistocene age San Pedro Formation. Groundwater in the alluvium is generally unconfined. Groundwater in the San Pedro Formation is confined in the west, with wells near the beach flowing occasionally (CSWRB, 1956, DWR, 2002). The average well yield is about 700 gpm. The estimated average specific yield is approximately 8 percent. The average thickness of the water bearing deposits is about 150 feet (DWR, 2002, Panaro, 2000).

Alluvial deposits reach a maximum depth of approximately 500 feet. They consist of silts and clays with lenses of sand and gravel (DWR, 2002). Portions of this alluvium may be correlative with the Mugu aquifer of the Oxnard subbasin. A confining layer of Pleistocene clay approximately 300 feet in thickness overlies portions of the alluvium in the western part of the subbasin. Alluvial sediments are deposited on the erosional surface of the lower Pleistocene age San Pedro Formation.

The San Pedro Formation consists predominantly of fine sand and gravel and extends to a depth of approximately 4,000 feet below ground surface (DWR, 2002).

The groundwater movement along the northern edge of the Oxnard groundwater subbasin is restricted by the Oak Ridge and Saticoy faults. The Oak Ridge fault places alluvial deposits against older semi-permeable geologic units. The Saticoy fault creates a 50 to

100 drop in water level in its eastern portion, but loses effectiveness as a groundwater barrier toward the west (CSWRB, 1956, DWR, 2002).

Groundwater Flow

The groundwater flow gradient in the subbasin is generally to the west and southwest. During periods of drought and increased pumping, some groundwater flows into a pumping trough formed along the southern portion of the basin (UWCD, 2001b).

Recharge (Replenishment) Areas

The groundwater recharge to the Mound subbasin occurs by percolation of surface flows along the channel of the Santa Clara River and its tributaries. Some of the surface flow in the Santa Clara River originates as a release from the Lake Piru. Other sources include direct percolation of the precipitation and natural runoff into the San Pedro Formation outcropping along the northern edge of the subbasin and return of irrigation waters (DWR, 2002). It was suggested that there is underflow to the subbasin from the Santa Paula and Oxnard subbasin, but there is disagreement on the extent of underflow (UWCD, 2001b). Subsurface flow across the border with the Oxnard subbasin may be in either direction depending on the relative groundwater levels (DWR, 2002).

Groundwater Quantity

The total storage capacity of the basin is estimated at approximately 153,000 acre-feet (af) (Panaro, 2000, DWR, 2002). The estimated amount of groundwater in storage was 110,000 in 1999 for a 72 percent full subbasin (Panaro, 2000, DWR, 2002).

Hydrographs from the subbasin show a range of 100 feet in the groundwater elevations since 1980. A typical annual cycle of rise (in the spring) and fall (in the fall) of the water levels is about 20 feet (DWR, 2002).

Oxnard Groundwater Subbasin

The Oxnard Groundwater Subbasin, formerly subdivided into the Montalvo and Oxnard Plain basins (DWR, 1980), encompasses an area of approximately 90.6 square miles (DWR, 2002) (130 square miles according to (UWCD and CLWA, 1996). On the north, the subbasin is bounded by the Oak Ridge fault and the clayey terrace deposits of the Mound subbasin. The southern boundary is the Pacific Ocean. On the east, the subbasin borders the Pleasant Valley and Las Posas Valley Groundwater Basins (DWR, 2002). On the west, it is bordered by the Pacific Ocean.

Hydrogeologically, the subbasin consists of a main recharge area, termed the forebay (former Montalvo basin), and a confined aquifer system that extends throughout the main part of the subbasin and under the Pacific Ocean (former Oxnard Plain) (CSWRB, 1956, DWR, 2002). Calleguas Creek, its tributaries, and Revlon Slough) drain the surface

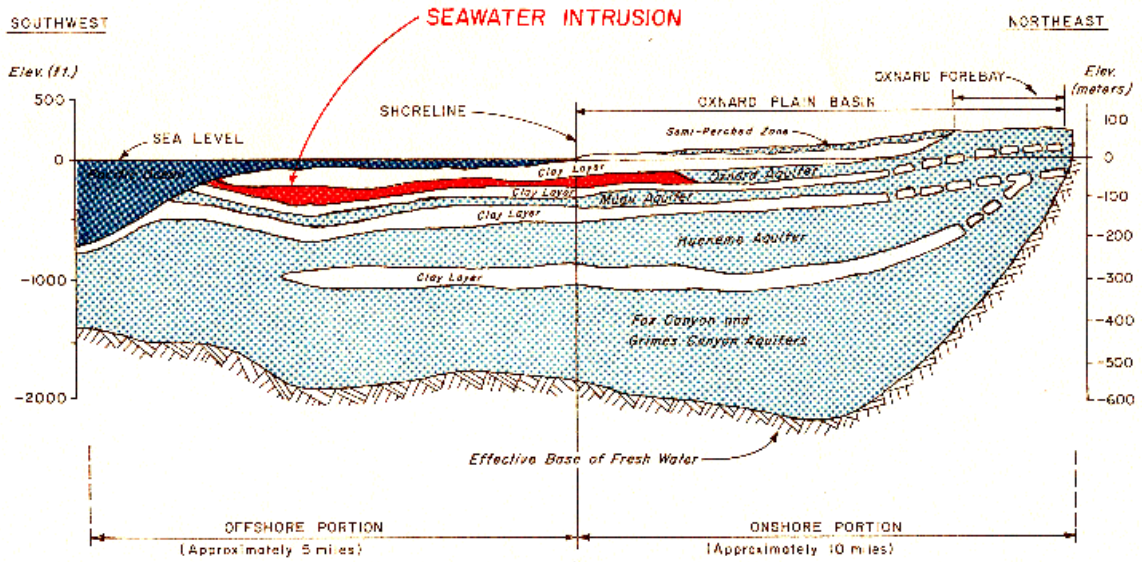
waters of the area into the Pacific Ocean. The Santa Clara River provides recharge along the northern subbasin boundary in the forebay portion (DWR, 2002).

Hydrogeology

The fresh water bearing units of the Oxnard groundwater subbasin are the late Pleistocene to Holocene alluvial deposits along the Santa Clara River channel, and a complex system of five aquifers: the Oxnard and the Mugu aquifers (forming so-called Upper Aquifer System, or UAS), and the Hueneme, Fox Canyon and Grimes Canyon aquifers (forming the Lower Aquifer System, LAS). In the [sub] basins along the Santa Clara River, the deeper aquifer system is generally considered to be the San Pedro Formation (Mann, 1959) or the time-equivalent Saugus Formation, although the U.S. Geological Survey considers this deeper aquifer to be equivalent to the Hueneme aquifer (RASA study, 2003). In any of the basins, the aquifers of the LAS may be isolated from each other vertically by low-permeability units and horizontally by regional fault systems. The LAS is folded and tilted in many areas, and has been eroded along an unconformity that separates the upper and lower aquifer systems (UWCD, 2001b). The fresh water aquifers come into a contact with seawater at the western basin boundary several miles offshore beneath the continental shelf, or closer to the shore at the submarine canyons at Port Hueneme and Point Mugu in the south (UWCD, 2001b).

The Upper Aquifer System (UAS) consists of the flat-lying alluvial deposits up to about 400 feet thick. The Lower Aquifer System (LAS) is characterized by the continental and marine deposits over 1,000 feet thick. The continental deposits are comprised by alternating layers of sand and clays about 5 to 50 feet thick, and the marine deposits consist of over 100-foot thick layers fine sand and silt interbedded with up to 50-foot thick silt and clay deposits (UWCD and CLWA, 1996). The LAS is a part of the Santa Barbara, San Pedro, and Saugus formations of Plio-Pleistocene age (UWCD, 2001b). The upper and lower aquifer systems are separated by a middle Pleistocene erosional unconformity. Geologic cross section through the portion of the subbasin is presented on Figure 5.2.4.3-1, Upper and Lower Aquifer Systems of the Oxnard Groundwater Subbasin.

Figure 5.2.4.3-1 Upper and Lower Aquifer Systems of the Oxnard Groundwater Subbasin



From DWR Bulletin No. 104-8 (1976)

Groundwater is unconfined in the forebay portion of the subbasin, and confined on the Plain. The boundary between the forebay and the Plain approximates the limits of the confining clay cap that exists in the subbasin (UWCD and CLWA, 1996). The average estimated specific yield for all the onshore aquifers is about 16 percent (Panaro, 2000, DWR, 2002).

As in other previously discussed subbasins of the Santa Clara River Valley basin, alluvial deposits along the portions of the Santa Clara River channel represent the uppermost water bearing unit. This unit is not yet recognized as a part of UAS in the published geologic literature (UWCD, 2001b), although is referred to as a part of the Oxnard aquifer by the 1996 UWCD and CLWA study (UWCD and CLWA, 1996).

The Oxnard aquifer consists of late Pleistocene to Holocene age sediment deposited in coalescing alluvial fans that formed the Oxnard alluvial plain (DWR, 2002). These deposits consist of very permeable sand and gravel in the forebay, and the finer sediment on the Plain, toward the coast. The water bearing sand and gravel unit is usually encountered at depths of 100 to 220 feet (UWCD, 2001b). The Oxnard aquifer is the primary source of the water supply in the subbasin. Well yields average about 900 gpm (Panaro, 2000). The specific yield of the deposits of the Oxnard aquifer is about 16 percent in the forebay, and estimated about 10 percent offshore (CSWRB, 1956, DWR, 2002).

On the Oxnard plain, the high permeability sand and gravel of the Oxnard aquifer are capped by the up to 150 feet thick silt and clay deposits of low permeability. Locally, this cap is overlain by sand and gravel layers up to 50 feet thick that form a semi-perched aquifer (CSWRB, 1956, DWR, 2002). Due to a poor quality of its water, this semi-perched aquifer is rarely used for water supply. In the Point Mugu area, the confining clays are absent allowing direct recharge to the gravel deposits in the southern part of subbasin (DWR, 2002).

The Mugu aquifer consists of very coarse sediment of upper Pleistocene to Holocene age, primarily basal conglomerate deposited in the alluvial fans of the Oxnard plain below the Oxnard aquifer. The Mugu aquifer is generally encountered at depths of 255 to 425 feet below the ground surface (UWCD, 2001b).

The Hueneme aquifer is formed by a relatively thin sand and gravel layer that represents the upper section of the lower Pleistocene San Pedro Formation. The Hueneme aquifer is restricted to the Oxnard Plain area (UWCD, 2001b). The underlying middle section of the San Pedro Formation consists of an up to 1,000-foot thick sequence of silts and clays.

The Fox Canyon aquifer is formed by a 100 to 300-foot thick gravel layer that represents the basal member of the San Pedro Formation (CSWRB, 1956). It underlies the Oxnard subbasin, and the Las Posas and Pleasant Valley basins. These deposits are in contact with the upper Pleistocene gravel in the forebay, but overlain by thick middle section of the San Pedro Formation composed of silts and clays in the Plain area. Along with the Oxnard aquifer, Fox Canyon aquifer is the primary freshwater bearing unit in the subbasin.

In the eastern portion of the subbasin, the Fox Canyon member is underlain by the permeable deposits of the upper Santa Barbara Formation. These deposits contain fresh groundwater of minor importance (DWR, 2002).

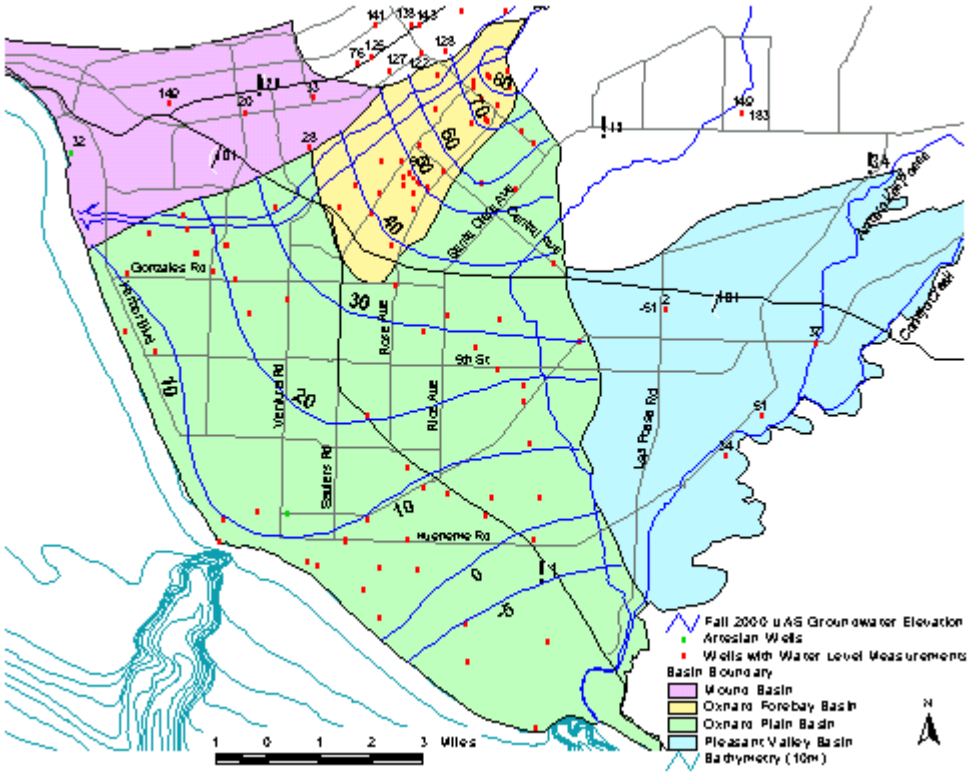
As in the Mound subbasin, the groundwater movement along the northern edge of the Oxnard groundwater subbasin is restricted by the Oak Ridge and Saticoy faults. The Oak Ridge fault places alluvial deposits against older semi-permeable geologic units. The Saticoy fault creates a 50 to 100 drop in water level in its eastern portion, but loses effectiveness as a groundwater barrier toward the west (CSWRB, 1956, DWR, 2002).

Groundwater Flow

The groundwater flow gradient in the alluvium and the Oxnard aquifer is to the southwest in the forebay and the Santa Clara River area along the northern subbasin boundary. Historically, the groundwater flow in the Plain area was from the recharge areas near Santa Clara River and the forebay to discharge areas near the coast. Increased historical groundwater pumping from the UAS on the Plain resulted in the formation of the pumping trough near the center of the basin, and the flow toward the trough. The recent (September-November 2000) groundwater levels are contoured on Figure 5.2.4.3-2, Oxnard Subbasin UAS, Groundwater Elevations Map. The groundwater flows into

pumping troughs and towards the Hueneme and Mugu submarine canyons to the southwest and south. The situation is being remedied through the continuous UWCD aquifer recharge efforts.

Figure 5.2.4.3-2 Oxnard Subbasin UAS, Groundwater Elevations Map



The groundwater flow gradient in the Fox Canyon aquifer is generally to the west towards the Pacific Ocean, and locally to the south toward the heavily pumped areas in Pleasant Valley (UWCD and CLWA, 1996). The gradient of the groundwater flow in the LAS is very low: according to the USGS, "some water from wells in the lower system was recharged more than 25,000 years ago" (UWCD, 2003).

Recharge (Replenishment) Areas

The groundwater recharge to the Oxnard subbasin occurs primarily in the forebay area. The recharge to the forebay comes from percolation of surface flows of the Santa Clara River, artificial recharge from the 370-acre UWCD spreading grounds near Saticoy and El Rio (for that, the portion of the surface flow of the Santa Clara River is diverted at the Freeman Diversion Dam), return of irrigation water and water from wastewater treatment plants, percolation of rainfall, and lesser amounts of underflow from adjacent basins. Due to subsurface geology of the forebay area, both UAS and LAS can be recharged directly. The USGS estimates that about 20% of the water recharged to this area reaches the LAS, with the remainder recharging the UAS (UWCD, 2003).

The primary recharge to the Oxnard Plain area comes from underflow from the hydraulically connected with it forebay rather than the deep percolation of water from surface sources on the Plain. When groundwater levels are below sea level along the coastline, there may also be significant seawater intrusion into the aquifers (UWCD, 2003).

Groundwater Quantity

Several calculations available for the storage capacity of the subbasin are based on a sum of capacities of prior delineated basins (i.e., Oxnard Plain, Oxnard Forebay, Mugu Forebay). The DWR considered an estimate of 7,140,000 af representative of the onshore capacity of the subbasin. Furthermore, it was estimated that the onshore subbasin was 75 percent full in 1999, implying that the amount of groundwater in storage was 5,380,000 at that time (Panaro, 2000, DWR, 2002). UWCD gave a higher estimate of the average storage in the Plain alone: the onshore storage was estimated as 6,000,000 af for the LAS, and 1,200,000 for the UAS, and the offshore storage was estimated as 1,500,000 af for the LAS, and 1,100,000 for the UAS (UWCD and CLWA, 1996).

Historically, the maximum storage depletions in the forebay occurred in 1990 (121,000 af). In the forebay, the maximum extraction of 27,837 af occurred in 1989; the minimum extraction of 22,830 af took place in 1980, with an average extraction of 25,586 af. In the Plain area, the maximum extraction of 81,467 af occurred in 1990, the minimum extraction of 46,938 af took place in 1992, with an average extraction of 67,195 af. (UWCD and CLWA, 1996).

Hydrographs from the subbasin show a range of about 80 feet in the groundwater elevations since 1975. A typical annual cycle of rise (in the spring) and fall (in the fall) of the water levels is about 20 feet (DWR, 2002).

Overdraft and Seawater Intrusion

As a result of the historical extractions groundwater extractions, groundwater levels in the UAS declined below sea levels in some areas, which caused the seawater intrusion into the fresh water aquifers through outcrop areas in the Hueneme and the Mugu submarine canyons. In the 1950, the United Water Conservation District was formed (from the Santa Clara River Water Conservation District) to control the problems of overdraft and seawater intrusion on the Plain. Also this and other problems on the Plain spurred the formation of the Fox Canyon Groundwater Management Agency, which administers a Groundwater Management Plan in the subbasin (UWCD and CLWA, 1996).

To reverse the seawater intrusion process, the aquifers are artificially recharged at the UWCD spreading grounds near Saticoy and El Rio. Over 60,000 af of fresh water is provided annually through the Freeman Diversion Dam, the Pumping- Trough- Pipeline and the State Water importation projects. Additional solutions may include the

importation of additional water and future water reclamation projects (UWCD, 2003). Recent measurements indicate that the seawater intrusion front has receded as a result of the on-going recharge operations, and that the quality of water in intruded wells is improving. An extensive survey by the US Geological Survey, presented at the Irrigation and Drainage Water Forum in 1992, found that most of the water in the upper system was recharged after the early 1950s, but this water has not yet reached the coast (UWCD, 2003).

5.2.5 Rising and Sinking Water Areas

Subsurface geology and structures across the Santa Clara River Eastern groundwater basin are responsible for areas of rising and sinking water locally observed in the narrows of the channel of the Santa Clara River, and its tributary canyons. The monitoring of interactions of the surface water and the underlying aquifers is possible through the water level observations in the wells completed to different depths. The hydraulic interactions between the Santa Clara River stream and underlying aquifers within the UWCD are illustrated on Figures 7, 11, 13, and 15 in Appendix A.

Areas of rising groundwater along the Santa Clara River channel are observed at the mouth of Soledad Canyon (just southwest of Arrastre Canyon), in narrows east of Highway 5 (where the channel is controlled by bedrock topographic high), just west of the Los Angeles- Ventura County line (at the Blue Cut gaging station), at the Fillmore Fish Hatchery, just east of the City of Santa Paula (at the Willard gaging station), and on a bedrock-alluvium contact near the toe of South Mountain east of Saticoy area (near Freeman Diversion Dam) (UWCD and CLWA, 1996). Rising groundwater flows into the river are controlled by the volume of groundwater in storage, or the fullness of the groundwater subbasins.

Documented sinking water occurs in Soledad Canyon where it is entered by Arrastre Canyon, in the Oxnard forebay area west of the Freeman Diversion, and in the eastern upstream portions of the Piru, Fillmore and Santa Paula Basins (UWCD and CLWA, 1996).

5.2.6 Water Quality

General

The quality of surface water and groundwater in the Santa Clara River and hydraulically connected with it aquifers is monitored and evaluated by the DWR and UWCD in accordance with the State water-quality standards. DWR provides periodical assessments of the surface water and groundwater quality conditions on a watershed basis under its water quality evaluation program, and advises the Regional Water Quality Control Board (RWQCB) in preparation of the water quality control plans, to ensure protection of the State's water supply. The UWCD provides local monitoring of water quality conditions within the district boundary, including the Lower Santa Clara River watershed and associated groundwater basin.

Other water quality efforts that have been completed or are in process include development of a chloride TMDL (Total Maximum Daily Load) for the upper reach of the River, a nutrient TMDL, and on-going NPDES permit related monitoring.

The 1996 UWCD and CLWA study conducted in support of the preparation of the SCREMP found that groundwater and surface water quality data were minimal and not consistent within Ventura and Los Angeles Counties.

The SCREMP discourages activities within the Santa Clara River 500-year floodplain that will lead to the degradation of quality of surface water and groundwater. A conjunctive management of surface water and groundwater of the stream-aquifer system in the SCREMP Area and its vicinity is encouraged.

5.2.6.1 Surface Water Quality

Surface Water Quality Records

Surface water quality data for the upper Santa Clara River in Los Angeles County are based on the DWR investigation of water quality and beneficial uses conducted for the Upper Santa Clara River Hydrologic Area (DWR, 1993). The surface water quality data in the upper Santa Clara River are obtained from continuous sampling records at two gaging stations at the Old Highway Bridge and the Los Angeles - Ventura County Line and historical records at two stations near Ravenna and Lang. The period of water quality records for these stations is from 1951 to 1978-90 (UWCD and CLWA, 1996).

Surface water quality data for the lower Santa Clara River in Ventura County are continuously collected by UWCD at four locations along the river: at Blue Cut station at the Los Angeles County Line, at ¼ mile downstream of the Fillmore Fish Hatchery, at Willard Road, and at the Freeman Diversion Facility. These locations generally correspond to areas of "rising" water. The surface water quality data are summarized in Table 35 Summary of Quality Constituents in Surface Waters, in Appendix A. UWCD also conducts regular sampling of tributaries including Piru, Hopper, Pole, Sespe and Santa Paula creeks, and Todd Barranca.

Surface Water Quality Trends

Upper Santa Clara River

Two trends observed in the water quality data collected in the upper Santa Clara River are indicated in UWCD and CLWA (1996):

(1) The increase in concentration of the total dissolved solids (TDS) and sulfate downstream, with the maximum concentrations of TDS and sulfate at the County Line station (the most downstream) about ten times higher than that at Lang station (the most upstream);

(2) The general decrease in concentrations of TDS and sulfate at the stations over their periods of record.

Unfortunately, these data do not reflect recent changes in the surface water quality conditions that, in turn, would reflect changes in the hydrologic conditions in the watershed.

Lower Santa Clara River

The water quality data for common dissolved constituents for the lower Santa Clara River are included in Appendix A, Tables 38-40 and summarized below. These tables do not include information regarding suspended and settleable solids.

(1) A weaker trend of TDS and sulfate concentrations progressively increasing downstream than observed in the upper reaches of the river is observed in the lower reaches. UWCD reported strong correlation between the TDS and sulfate concentrations in the local waters influenced by the presence of marine sediments in the watershed (UWCD, 2001b). Surface waters sampled in the lower Santa Clara River were classified as calcium-sulfate (UWCD and CLWA, 1996).

(2) The concentrations of the common dissolved constituents, reflective of the water quality, vary inversely to the rate of flow (discharge). This results in a "flow dilution" trend of higher quality waters associated with higher flow volumes and lower quality waters associated with lower flow volumes.

(3) Elevated nitrate concentrations are observed at several stations downstream of developed areas within watershed and correlated with land use practices (septic tanks, agricultural, industrial, reclaimed water). In 2000, UWCD reported high nitrate concentrations at Blue Cut station believed to be originated from ammonia in the effluent from Saugus and Valencia water reclamation plants (WRPs) discharged into the Santa Clara River (UWCD, 2001b). The LARWQCB is currently monitoring and updating nitrate concentration data in support of the Board's Nitrate TMDL.

(4) Elevated chloride concentrations displaying trends similar to nitrate. WRPs are the best-documented source of chloride in the area (see Appendix A, Table 36, and Tables 50-55). The larger plants discharge treated effluent directly to the river, and the smaller plants in the watershed usually discharge treated effluent to percolation ponds. In 2000, UWCD reported the chloride concentrations of 148 and 170 mg/L in the effluent from the Saugus and Valencia plants, respectively, and 154 mg/L concentration in the Santa Paula WRP effluent. These concentrations were influenced by chloride from water softeners in the residential homes in the City's water and in water from the State Water Project used by WRPs for their water supply. The LARWQCB is currently monitoring and updating chloride concentration data in support of the Board's Nitrate TMDL.

(5) Potential sources of water quality problems in the lower Santa Clara River include natural oil seeps in the Santa Paula area, impact from urbanization, impacts from agriculture and effects of imported and reclaimed water (UWCD and CLWA, 1996).

Surface water trend evaluation of the Santa Clara River is difficult due to the complex hydrogeology, with numerous areas of sinking and rising groundwater at the subbasin boundaries, and further complicated by the data gaps in the upper reaches.

Santa Clara River Estuary

Several water quality issues associated with the Santa Clara River estuary were identified in the 1996 study:

(1) Water Level Management - As of 1992, the plan allowed for the natural breaching of the sandbar at the lagoon mouth when the water level reached nine feet AMSL.
(2) Mosquito Abatement.
(3) Eutrophication.
(4) Coliform - Bacteria levels exceeding recreational standards have been recorded at receiving stations in the estuary and nearby ocean monitoring stations and believed to result from non-point sources (i.e., birds).
(5) Pesticides.

5.2.6.2 Groundwater Quality

Groundwater quality data for the upper Santa Clara River are based on the DWR investigation of water quality and beneficial uses conducted for the Upper Santa Clara River Hydrologic Area (DWR, 1993) and other compilations of historical data (Slade, 1990).

Groundwater quality data for the lower Santa Clara River are based on the UWCD sampling of water supply and monitoring wells and the records obtained from the DWR (1993, 2002). The monitoring program was recently initiated by UWCD in several subbasins within the District boundary. Since 1997, UWCD performed groundwater quality monitoring of the USGS drilled nested well site and two additional wells in the Piru subbasin, four wells in the Fillmore subbasin, and two nested monitoring well sites in the Santa Paula subbasin. In the year 2000, United Water initiated groundwater monitoring of chlorides in shallow wells near the Santa Clara River in response to the Los Angeles Regional Water Quality Control Board's prospective chloride TMDL (Total Maximum Daily Load) requirements for the Santa Clara River (UWCD, 2001a). UWCD provides monitoring of chloride concentrations in the coastal wells in the Oxnard subbasin since 1991 to determine extent of saline water intrusion.

Acton Valley Groundwater Basin

Characterization

Groundwater in the basin is generally classified as calcium-bicarbonate (DWR, 2002), although groundwater in the broad valley north of Acton exhibited calcium-magnesium-bicarbonate to calcium-magnesium-sulfate character (Slade, 1990). Based on sampling of 5 public water-supply wells, DWR reported TDS concentrations ranged from 424 to 712 mg/L, with an average concentration of 579 mg/L (DWR, 2002). During June 1988-June 1989, the concentrations of TDS ranged from 279 to 480 mg/L, total hardness (TH) ranged from 172 to 271 mg/L, and nitrate concentrations ranged from 3.9 to 24.7 mg/L (Slade, 1990, UWCD and CLWA, 1996). The TDS content is greatly influenced by deep percolation of the rainfall runoff: it increases as rainfall declines and vice versa (UWCD and CLWA, 1996).

Impairments

DWR evaluation (DWR, 2002) indicated high concentrations of TDS, sulfate and chloride in 75 wells in the northern part of the basin, some concentrations exceeding drinking water standards (Slade, 1990, DWR, 1993). Nitrate concentrations in 2 wells were above drinking water standards as well (DWR, 1968).

Santa Clara River Valley East Groundwater Subbasin (Santa Clara River Valley Basin)

Characterization

Groundwater in the subbasin varies from calcium-magnesium-bicarbonate to calcium-magnesium-sulfate in alluvial deposits, and classified primarily as calcium-magnesium-sulfate in the Saugus aquifer (UWCD and CLWA, 1996). DWR reported TDS concentrations ranged from 260 to 600 mg/L in the eastern portion of the subbasin, (designated as desirable for domestic use), whereas in its western portion the concentrations of TDS increased up to 2,500 mg/L (DWR, 1968). Based on recent sampling of 59 public water-supply wells, DWR reported TDS concentrations ranged from 300 to 1,662 mg/L, with an average concentration of 695 mg/L (DWR, 2002). UWCD and CLWA (1996) reported TDS and TH in the alluvial deposits ranged from 376 to 750 mg/L and from 236 to 504 mg/L, respectively. TDS and TH in the Saugus Formation ranged from 400 to 1,800 mg/L and from 153 to 919 mg/L, respectively (UWCD and CLWA, 1996).

Impairments

DWR evaluation (DWR, 2002) indicated that nitrate concentrations were above the State maximum contaminant level (MCL) of 45 mg/L in some parts of the subbasin (DWR, 1968, 1977). However it is noted that the 2002 Annual Water Quality Report produced by the Santa Clarita Valley Water Purveyors, have shown that the MCL for nitrate was

never exceeded in 2002 for potable water delivered to their respective customers (see http://www.clwa.org/awqr2002.htm). UWCD and CLWA (1996) reported nitrate concentrations ranged from non-detectable to 57 mg/L in both aquifers. High concentrations of TDS reported in some wells in the western part of the subbasin make the groundwater unsuitable for the domestic use.

Piru Groundwater Subbasin (Santa Clara River Valley Basin)

Characterization

Groundwater in the subbasin is generally classified as calcium-sulfate (UWCD and CLWA, 1996). TDS concentrations range from 608 to 2,400 mg/L, with an average concentration of 1,300 mg/L (UWCD and CLWA, 1996, DWR, 2002). Based on sampling of 3 public water-supply wells, DWR reported TDS concentrations ranged from 930 to 990 mg/L, with an average concentration of 957 mg/L (DWR, 2002).

Impairments

The most prominent natural contaminants in the subbasin are boron and sulfate (UWCD, 1996a). Agricultural return flows may lead to high concentrations of nitrate, especially during dry periods (UWCD, 1996a, DWR, 2002). Urban storm water runoff is high in chloride. Chloride concentrations appear to be distinctively higher throughout the Piru subbasin than in the Fillmore subbasin to the west (UWCD, 2001b). Other potential sources of water quality problems are leaking underground storage tanks and wastewater effluents (DWR, 2002).

Fillmore Groundwater Subbasin (Santa Clara River Valley Basin)

Characterization

Groundwater in the subbasin is generally calcium-sulfate in character, although some groundwater in the Sespe Uplands may be classified as calcium-bicarbonate. TDS concentrations range from 800 to 2,400 mg/L, with an average concentration of 1,100 mg/L (UWCD and CLWA, 1996, DWR, 2002). Based on sampling of 9 public water-supply wells, DWR reported TDS concentrations ranged from 660 to 1,590 mg/L, with an average concentration of 967 mg/L (DWR, 2002). Historically, the eastern Sespe Uplands area has the lowest concentrations of TDS and sulfate in both Fillmore and Piru subbasins (UWCD, 2001a).

Impairments

Elevated nitrate concentrations in the groundwater were observed in two areas within the subbasin: the Bardsdale area near Fillmore and an area on the west side of Sespe Creek west of Fillmore (UWCD and CLWA, 1996). Historically, the eastern Sespe Uplands area has the highest concentrations of nitrate and boron in both Fillmore and Piru subbasins. Nitrates may be naturally occurring in the underlying San Pedro Formation

(UWCD, 2001b). Agricultural return flows may lead to high concentrations of nitrate as well, especially during dry periods (UWCD, 1996a, DWR, 2002). Urban storm water runoff tends to concentrate chloride. Other potential sources of water quality problems are leaking underground storage tanks, wastewater effluents and leaching of contaminants from a nearby Toland Road landfill (DWR, 2002). The possibility of the leaching from the landfill will be reduced after the completion of landfill improvements (including construction of a stability berm) originally proposed for commencement in January 2003 but currently delayed (UWCD, 2001b).

Santa Paula Groundwater Subbasin (Santa Clara River Valley Basin)

Characterization

Groundwater in the subbasin is generally calcium-sulfate in character. TDS concentrations range from 870 to 3,010 mg/L, with an average concentration of 1,190 mg/L (DWR, 2002). Based on sampling of 13 public water-supply wells, DWR reported TDS concentrations ranged from 470 to 1,800 mg/L, with an average concentration of 1,198 mg/L (DWR, 2002).

Impairments

Nitrate concentrations in the groundwater can fluctuate significantly (DWR, 2002). The 2000 TDS and chloride concentrations exceeded groundwater quality objectives established by the RWQCB (UWCD, 2001b).

Mound Groundwater Subbasin (Santa Clara River Valley Basin)

Characterization

TDS concentrations in groundwater in the subbasin ranged from 90 to 2,088 mg/L. Based on sampling of 4 public water-supply wells, DWR reported TDS concentrations ranged from 1,498 to 1,908 mg/L, with an average concentration of 1,644 mg/L (DWR, 2002).

Oxnard Groundwater Subbasin (Santa Clara River Valley Basin)

Characterization

Groundwater in the subbasin is generally calcium-sulfate in character. TDS concentrations reported for the forebay area ranged from 700 to 1,600 mg/L, with an average concentration of 1,200 mg/L, and a generally lower TDS content of groundwater in the Plain area varied from 300 to 1,100 mg/L, with an average concentration of 900 mg/L (UWCD and CLWA, 1996). Based on sampling of 69 public water-supply wells, DWR reported TDS concentrations throughout the subbasin ranged from 160 to 1,890 mg/L, with an average concentration of 1,102 mg/L (DWR, 2002).

Impairments

The primary water quality concern in the subbasin is the saline water encroachment in the Oxnard plain area along the coast between Port Hueneme and Point Mugu. High levels of chloride were first detected on the Plain in 1930s, and became a serious concern in 1950s. In 1950s, UWCD was formed to deal with the problem. UWCD provides monitoring of 17 nested well sites (with three or more wells in a cluster) installed as a part of joint UWCD/USGS Regional Aquifer Systems Analysis (RASA) study since 1991. RASA indicated four major types of chloride degradation (UWCD and CLWA, 1996):

- lateral seawater intrusion;
- movement of poor quality semi-perched zone water down the failed well casings causing cross-contamination of freshwater supplies;
- dewatering of high-chloride content marine clays caused by regional pumping stress; and
- lateral movement of saline water along fault plains.

According to the UWCD (2003), "cross-contamination of aquifers by leakage of near-surface waters through abandoned wells appears to be the largest source of contamination besides seawater intrusion. There are several hundred abandoned wells on the Oxnard plain and priority has been given to locate and properly seal them up. United Water is working with other agencies to properly seal these wells."

Elevated nitrate concentrations in the groundwater exceeding the State MCL are periodically observed in several areas in the forebay near El Rio and near transitional boundary (unconfined to confined conditions) of the forebay and the Plain (UWCD, 2001b). High and variable concentrations of nitrate are of the primary concern in the forebay area, which is the source of drinking water supply for the entire subbasin and recharge area for the Plain. They may be related to the amount of natural and artificial recharge in the forebay, the degree of hydraulic connectivity of the main aquifer with the semi-perched waters of poor quality above, and other processes (UWCD, 2001b).

Elevated levels of DDT and PCB are found near Point Mugu (Panaro, 2000, DWR, 2002), but are not detected in the water supply aquifers.

5.3 Biological Resources

This section provides a summary of the biological resources existing conditions within the 500-year floodplain of the Santa Clara River. This summary is based primarily on the 1996 Biological Resources Technical Report (Volumes I-III) prepared under the direction of the Santa Clara River Project Steering Committee (SCRPSC 1996).

5.3.1 Overview

The Santa Clara River represents one of the last natural river systems in southern California. A variety of upland, riparian, and wetland vegetation types exist within the Santa Clara River floodplain that provide habitat for a diverse assemblage of plant and animal species. The river corridor also acts as a landscape linkage, providing for wildlife movement between and amongst habitat patches from the San Gabriel Mountains to the Pacific Ocean.

5.3.2 Vegetation Types

Table 5.3-1 (see following page) summarizes the acreages of various categories of native and non-native vegetation types, as well as agricultural, active river channel, and beach areas, within the 500-year floodplain. The representative distributions of these vegetation types can be viewed on any of the Overlay series that depict layers for the following categories: Active Channel, Beach/Dune, Giant Cane, Rare Vegetation, Riparian Scrub, Riparian Wood. (i.e., Riparian Woodland), Upland, Wetland, Agricultural Land use, and 500 Year Flood Plain. Comprehensive discussions pertaining to these vegetation types are not presented here but are provided in Volume I of the 1996 Biological Resources Technical Report (1996 Biological Report).

5.3.3 Sensitive Species

The term "sensitive species" as used in this section refers to those taxa of plants and animals that belong to one of the following categories:

- Taxa listed as endangered or threatened by federal and/or State resources agencies
- Taxa that are considered candidates for listing by federal and/or State resources agencies
- Taxa that are listed in the California Fish & Game Code as "Fully Protected Species"
- Taxa that are considered rare or species of concern by federal and/or State resources agencies (e.g., USFWS "Federal Species of Concern"; U.S. Forest Service "Forest Sensitive Species"; Bureau of Land Management (BLM) "BLM Sensitive" species; and CDFG – Natural Diversity Data Base (CNDDB) "California Special Concern" species)
- Taxa that are considered rare or species of concern by private plant and wildlife groups and organizations (e.g., California Native Plant Society (CNPS) "CNPS List B species")
- Taxa considered to be sensitive species by local county and city agencies

Table 5.3-2 (see following page) presents a listing of sensitive species identified in the 1996 Biological Report that are reported to occur, or are considered to have potentials to occur, in the SCREMP Area based on the evaluation of species lists provided by the USFWS, a NDDB records search, and a general literature review. Table 5.3-2 also provides information on the most recent 2003 sensitivity status classifications, the habitat

TABLE 5.3-1
Vegetation Types within the 500-year Floodplain

Vegetation Type	Acreage	%
Elderberry Scrub	0.00	0.00
Cottonwood/Oak Woodland	0.06	0.00
Grassland	0.28	0.00
Valley Freshwater Marsh	2.03	0.02
Freshwater Marsh	4.20	0.04
Disturbed Freshwater Marsh	6.67	0.06
Southern Foredune	7.54	0.07
Alkali Marsh	8.95	0.09
Mulefat Scrub, Very Open Stand	15.17	0.15
Water Cress	16.76	0.16
Great Basin Sage Scrub	16.78	0.16
Arrowweed Scrub, Mature	19.60	0.19
Beach	21.30	0.21
Disturbed Freshwater/Alkali Marsh	25.22	0.24
Ornamental	34.12	0.30
Unknown	34.42	0.33
Agriculture	110.42	1.07
Coastal Sage Scrub	125.06	1.21
Successional Mule Fat Scrub	178.41	1.72
Mule Fat Scrub	206.40	1.99
Mule Fat Scrub, Young; in Floodplain/Floodway	299.19	2.89
Disturbed	379.47	3.66
Southern Cottonwood	399.09	3.85
Southern Willow Riparian Woodland	770.13	7.43
Southern Willow Scrub	839.49	8.10
Giant Cane	921.60	8.90
Alluvial Scrub	1,215.27	11.73
Active Channel	4,705.09	45.42
Total	**10,363.26**	**100.00**

Table 5.3-2
Summary of Habitat Requirements for Sensitive Species and Habitat Types Occurring on the Santa Clara River

Species	Habitat Requirements	Potential Habitat Occurring on the Santa Clara River
Insects		
Sandy beach tiger beetle *Cicindela hirticollis gravida* Fed: FSC State: None	clean, dry, light-colored sand; occur in bright sunlight in open sandy areas on sandy beaches and on open paths or lanes	southern foredune, alluvial scrub
Fish		
Tidewater goby *Eucuclogobius newberryi* Fed: E State: CSC Other: AFS E	benthic, restricted mostly to small coastal lagoons and near stream mouths in the uppermost brackish portions of larger bays	active channel near mouth of river
Southern steelhead trout *Oncorhynchus mykiss* Fed: E State: CSC	Saltwater; spawning occurs in fall/winter in the head-waters of freshwater coastal streams with gravel bottoms	active channel from mouth of river to Piru Creek (including Sespe and Santa Paula creeks)
Arroyo chub *Gila orcutti* Fed: None State: CSC Other: FSS	sand- and mud-bottomed flowing pools and runs of headwaters, creeks, and small to medium rivers. It occasionally can be found in intermittent streams	active channel from mouth of river to Los Angeles County aqueduct crossing
Unarmored threespine stickleback *Gasterosteus aculeatus williamsoni* Fed: E State: E, Fully Protected	weedy pools and backwaters or among emergent plants along the edges of streams where the water stays below 23-24 degrees Centigrade; prefer bottoms of sand or mud	active channel from east of the confluence of Piru Creek and the Santa Clara River to Los Angeles County aqueduct crossing
Santa Ana sucker *Catostomus santaanae* Fed: T State: CSC	clear, cool, rocky, and gravely steams	active channel from Santa Paula east to Acton

Table 5.3-2
Summary of Habitat Requirements for Sensitive Species and Habitat Types Occurring on the Santa Clara River

Species	Habitat Requirements	Potential Habitat Occurring on the Santa Clara River
Amphibians and Reptiles		
Arroyo Toad *Bufo californicus* Fed: E State: CSC	restricted to rivers with shallow, gravelly pools adjacent to sandy terraces	active channel in Sespe and Piru creeks; active channel and riparian woodlands and forests from LA county line east to I-5; active channel and riparian woodlands and forests from mouth of Soledad Canyon to Acton
California red-legged frog *Rana aurora draytonii* Fed: T State: CSC	intermittent cold water streams, especially those with dense cover of cattails, rushes, and willows providing shade over a large portion of the water's surface; Water at least 0.7 m deep must be available	freshwater marsh; active channel and riparian scrubs, woodlands, and forests from mouth of Soledad Canyon east to Acton
Southwestern pond turtle *Clemmys marmorata pallida* Fed: FSC State: CSC Other: FSS BLMS	ponds, small lakes, reservoirs and slow-moving streams, where it may be seen basking on logs or mud banks	active channel, freshwater marsh, and in man-made ponds (e.g., water cress ponds, duck ponds) within the floodplain of the river
Silvery legless lizard *Anniella pulchra pulchra* Fed: FSC State: CSC Other: FSS (Full Species)	herbaceous layers with loose soil in coastal scrub, chaparral, and open riparian habitats; sand of washes and beach dunes are preferred for burrowing, and logs and leaf litter are used for cover and feeding	southern foredune, alluvial scrub, cottonwood/willow forest
San Diego horned lizard *Phrynosoma coronatum blainvillei* Fed: None State: CSC Other: FSS	associated with coastal sage scrub and riparian woodlands, especially areas of level to gently- sloping ground with well-drained, loose or sandy soil	alluvial scrub, coastal sage scrub, riparian woodlands and forests

Table 5.3-2
Summary of Habitat Requirements for Sensitive Species and Habitat Types Occurring on the Santa Clara River

Species	Habitat Requirements	Potential Habitat Occurring on the Santa Clara River
Two-striped garter snake *Thamnophis hammondii* Fed: None State: CSC Other: FSS, BLMS	Highly aquatic; most commonly found in or near permanent water; occasionally found in small and intermittent streams with rocky beds	riparian scrubs, woodlands, forests; freshwater marsh
Coast patch-nosed snake *Salvadora hexalepis virgultea* Fed: None State: CSC	inhabits grasslands, chaparral, sage scrub, and sandy and rocky areas on the lower slopes of mountains	alluvial scrub and coastal sage scrub from Santa Paula Creek east to Acton
Riparian Birds		
Least Bell's vireo *Vireo bellii pusillus* (nesting) Fed: E State: E Other: MNBMC USBC WL (Full Species)	riparian habitat, usually in dense willow-dominated thickets	mule fat scrub, willow scrub, willow riparian woodlands from near river mouth to Bouquet Canyon Road
Southwestern willow flycatcher *Empidonax traillii extimus* (nesting) Fed: E State: E (Full Species) Other: MNBMC USBC WL (Full Species) Audubon WL (Full Species)	riparian habitats along rivers streams, or other wetlands where stands of willows, mule fat, arrow weed, tamarisk, or other riparian plants are present; often with an overstory of cottonwood	willow riparian woodland, cottonwood/willow riparian forest
Western yellow-billed cuckoo *Coccyzus americanus occidentalis* Fed: C State: E Other: MNBMC FSS	restricted to dense riparian woodland during breeding	willow riparian woodland, cottonwood/willow riparian forest
Yellow warbler *Dendroica petechia brewsteri* (nesting) Fed: None State: CSC	require riparian woodland for breeding, but utilize a wide variety of trees during migration	riparian scrubs, woodlands, and forests

Table 5.3-2
Summary of Habitat Requirements for Sensitive Species and Habitat Types Occurring on the Santa Clara River

Species	Habitat Requirements	Potential Habitat Occurring on the Santa Clara River
Loggerhead shrike *Lanius ludovicianus* (nesting) Fed: FSC State: CSC Other: MNBMC	inhabits grasslands, agriculture, chaparral, and desert scrub	riparian scrubs, woodlands, and forests
Yellow-breasted chat *Icteria virens* (nesting) Fed: None State: CSC Other: MNBMC	dense riparian woodlands in the coastal lowlands	riparian scrubs, woodlands, and forests
Birds of Prey		
Sharp-shinned hawk *Accipiter striatus* (nesting) Fed: None State: CSC	woodlands, parks, and residential areas	riparian scrubs, woodlands, and forests
Cooper's hawk *Accipiter cooperi* (nesting) Fed: None State: CSC	breeds in oak woodland habitats and southern cottonwood-willow riparian woodland	riparian scrubs, woodlands, and forests
Northern harrier *Circus cyaneus* (nesting) Fed: None State: CSC	prairie, slough, wet meadow, and marsh habitats; hunts over grassland, agricultural fields, and coastal and freshwater marshes	riparian scrubs, woodlands, and forests up to mouth of Soledad Canyon
White-tailed kite *Elanus leucurus* (nesting) Fed: FSC State: Fully protected Other: MNBMC	nests in riparian woodlands, particularly those comprised of live oaks and sycamores, and forage over open areas and grasslands	riparian scrubs, woodlands, and forests

Table 5.3-2
Summary of Habitat Requirements for Sensitive Species and Habitat Types Occurring on the Santa Clara River

Species	Habitat Requirements	Potential Habitat Occurring on the Santa Clara River
Coastal Birds		
Western snowy plover *Charadrius alexandrinus nivosus* (nesting) Fed: T State: CSC Other: MNBMC	mud flats, sand flats, and sandy marine and estuarine shores	beach, southern foredune
California least tern *Sterna antillarum browni* (nesting colony) Fed: E State: E (Fully protected) Other: MNBMC USBC WL (full species)	barrier sand dunes at river mouths and lagoon entrances; nests are usually scraped depressions on sandy areas or mud flats with sparse vegetation	beach, southern foredune, alkali marsh, active channel areas near the river mouth
Belding's savannah sparrow *Passerculus sandwichensis beldingi* Fed: None State: E	mud flats, beaches, rocks, and low tide coastal strand vegetation; nests low to the ground under a pickleweed canopy; build their nests in the upper littoral zone	alkali marsh near mouth of river
Western least bittern *Ixobrychius exilis* (nesting) Fed: FSC State: CSC Other: BLMS MNBMC	nest in dense emergent wetland vegetation of cattails and tules	alkali marsh, freshwater marsh
Long-billed curlew *Numenius americanus* (nesting) Fed: FSC State: CSC Other: MNBMC USBC WL Audubon WL	large coastal estuaries, salt marshes, tidal flats, upland herbaceous areas, and croplands	active channel near river mouth

Table 5.3-2
Summary of Habitat Requirements for Sensitive Species and Habitat Types Occurring on the Santa Clara River

Species	Habitat Requirements	Potential Habitat Occurring on the Santa Clara River
Elegant tern *Sterna elegans* (nesting colony) Fed: FSC State: CSC Other: MNBMC Audubon WL	inshore coastal waters, bays, estuaries, and harbors	beach, southern foredune, alkali marsh, active channel areas near the river mouth
White-faced ibis *Plegadis chihi* (rookery site) Fed: FSC State: CSC Other: MNBMC	fresh emergent wetland vegetation, shallow lacustrine waters, and the muddy ground of wet meadows and irrigated, or flooded pastures and croplands	alkali marsh, active channel near river mouth
Bank swallow *Riparia riparia* (nesting) Fed: FSC State: T	riparian areas with vertical cliffs and banks with fine-textured or sandy soil	vertical banks; cliffs adjacent to the river
Mammals		
Mountain lion *Puma* [*Felis*] *concolor* Fed: None State: CSC (ssp. *browni*)	riparian and brushland habitats	riverwide, except areas of urban development
Townsend's big-eared bat *Corynorhnus townsendii townsendii* Fed: FSC State: CSC Other: FSS BLMS WBWG: High Priority	mesic habitats; roost in caves, mines, tunnels, and buildings	may forage in riparian woodlands and scrubs along entire river
Western mastiff bat *Eumops perotis* Fed: FSC (ssp. *californicus*) State: CSC Other: BLMS WBMG: High Priority	riparian and brushland habitats; roosts in crevices in cliff faces, high buildings, trees, and tunnels	may forage in riparian woodlands and scrubs along entire river

Table 5.3-2
Summary of Habitat Requirements for Sensitive Species and Habitat Types Occurring on the Santa Clara River

Species	Habitat Requirements	Potential Habitat Occurring on the Santa Clara River
Plants		
Salt marsh bird's beak *Cordylanthus maritimus* ssp. *maritimus* Fed: E State: E Other: CNPS List 1B R-E-D code: 2-2-2	higher reaches of salt marshes where inundation with saltwater occurs only at the higher tides	alkali marsh near mouth of river
Ventura marsh milkvetch *Astragalus pycnostachyus* var. *lanosissimus* Fed: E State: E Other: CNPS List 1B R-E-D code: 3-3-3	coastal salt marshes and coastal seeps below 100 feet elevation	alkali marsh near mouth of river
Slender-horned spineflower *Dodecahema leptoceras* Fed: E State: E Other: CNPS List 1B R-E-D code: 3-3-3	sandy alluvium in coastal sage scrub and chaparral	alluvial scrub from Santa Paula east to Soledad Canyon
Nevin's barberry *Berberis nevinii* Fed: E State: E Other: CNPS List 1B R-E-D code: 3-3-3	sandy and gravelly places in chaparral, cismontane woodlands, coastal sage scrub, and riparian scrub	alluvial scrub from Santa Paula east to Bouquet Canyon Road
Short-jointed beavertail *Opuntia basilaris brachyclada* Fed: None State: None Other: CNPS 1B R-E-D code: 3-2-3	desert slopes of the San Gabriel and San Bernardino Mountains in chaparral, pinyon-juniper woodland, and desert plant communities	uplands adjacent to the upper reaches of the river in Los Angeles County

Table 5.3-2
Summary of Habitat Requirements for Sensitive Species and Habitat Types Occurring on the Santa Clara River

Species	Habitat Requirements	Potential Habitat Occurring on the Santa Clara River
Peirson's morning-glory *Calystegia peirsonii* Fed: None State: None Other: CNPS List 4 R-E-D code: 1-2-3	chaparral, chenopod scrub, cismontane woodland, coastal sage scrub, and lower coniferous forest	uplands adjacent to the river
Ojai fritillary *Fritillaria ojaiensis* Fed: None State: None Other: CNPS List 1B R-E-D code 3-2-3	rocky slopes and river basins at elevations ranging from 900 to 1,500 feet	uplands adjacent to the river in Ventura County

KEY

Federal (Fed)
- **E** = Endangered
- **T** = Threatened
- C = Candidate Species for Listing (former Category 1 candidate)
- **FSC** = Federal Species of Concern

State
- E = Endangered
- T = Threatened
- CSC = California Special Concern Species

Other:

Forest Service
- FSS = Forest Service Sensitive

Bureau of Land Management (BLM)
- BLMS = Bureau of Land Management Sensitive

California Native Plant Society (CNPS)
- List 1B : Plants rare and endangered in California and throughout their range.
- List 2 : Plants rare, threatened or endangered in California but more common elsewhere.
- List 3 : Plants for which more information is needed.
- List 4 : Plants of limited distribution; a "watch list."

(Note: According to CNPS [Smith and Berg 1988], plants on Lists 1B and 2 meet definitions for listing as threatened or endangered under Section 1901, Chapter 10 of the California Fish and Game Code.)

CNPS R-E-D Code:

Rarity
1: Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction or extirpation is low at this time.
2: Occurrence confined to several populations or one extended population.
3: Occurrence limited to one or a few highly restricted populations, or present in such small numbers that it is seldom reported.

Endangerment
1: Not endangered.
2: Endangered in a portion of its range.
3: Endangered throughout its range.

Distribution
1: More or less widespread outside California.
2: Rare outside California.
3: Endemic to California (i.e., does not occur outside California).

American Fisheries Society (AFS)
- E = Endangered

United States Bird Conservation
- **WL = Watch List**

Audubon Society
- **WL = Watch List**

Western Bat Working Group (WBWG)
- *High:* Considered to have the highest priority for conservation. These species are imperiled or at high risk of imperilment.
- *Medium:* Indicates a level of concern that should warrant closer evaluation, additional research, and conservation.
- *Low:* Indicates that most existing data suggest stable populations and major changes in status in the near future are considered unlikely.

requirements for each species, and the areas within the 500-year floodplain where potential habitats may occur. It is acknowledged that the species included in the table may be an incomplete presentation of sensitive species that actually occur within the SCREMP Area; however, it is regarded as adequate for the purposes of qualitatively assessing the richness of sensitive species and their associated habitats that occur in the SCREMP Area. It is outside the current scope and purpose of the SCREMP to comprehensively study and monitor the distributions and status of sensitive species within the 500-year floodplain; however, a long-term biological monitoring program that is identified in Riverwide Recommendation 15. Biological Management, in the 1999 I&R Document, that would facilitate such an effort is identified under Section 7.0, below.

5.3.4 Biological Resources Distributions

The differential distribution of vegetation types and physical features within the 500-year floodplain, the variation in habitat quality attributes of these vegetation types and physical features, and the relationships of these to areas adjacent to the 500-year floodplain, support the expectation that there would be a differential in sensitive and common species distributions and abundances, as well. Table 5.3-3 (see following page) provides an estimate of the potential distributions of sensitive species within the SCREMP Area by SCREMP River Reach and River Segment. The "River Segment" delimitation approach was developed in the 1996 Biological Report. The use of a River Segment approach based upon floodplain characteristics including general similarity and continuity of existing biological resources, biophysical characteristics, and land use context, was considered to be a more realistic means of assessing biological resources than the use of river reaches. This approach was also considered a more suitable means for developing a Conservation Ranking Priorities system for assessing and assigning relative biological values to differential areas within the 500-year floodplain (see Section 5.3.5, below). The inclusion of certain River Reach and River Segment interfaces (e.g., "9/10") in the table indicates that available suitable habitat types occur at those interfaces for the indicated sensitive species. Table 5.3-3 may be cross-referenced to any Overlay Series that depicts layers for the categories "Biological Resources, River Reach, Segment No., and Conservation Rank No., such as Overlay series 6.

5.3.5 Biological Resources - Conservation Ranking Priorities

Biological resources within the SCREMP Area were evaluated for their biological functions and values in the 1996 Biological Report. This evaluation process assessed existing habitat values, ranked the restoration and enhancement potential, assessed the regional conservation value, and set future conservation goals for each River Segment and River Reach. The results of this evaluation are presented in Table 5.3-4 (see following page) according to River Reach. The outcome of this evaluation process was the development of a Conservation Ranking Priorities system that assigns relative biological values to differential areas within the 500-year floodplain and, thereby, provides a priority designation for preservation, conservation, restoration and enhancement opportunities within each River Segment. Conservation Ranking Priorities are indicated on any Overlay Series that depicts layers for the categories "Biological

Table 5.3-3
Potential Distribution of Sensitive Species within the SCREMP Area

SCREMP River Reach	1	2	3	3/4	4	5	5/6	6	7	8	9	9/10	10	11	12	12/13	13
River Segment	1	1	2	2/3	3	3	3	3	4	5	5	5/6	6	6	7	9/10	11
Least Bell's vireo	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Western yellow-billed cuckoo	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Southwestern willow flycatcher	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Non-listed riparian birds	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Sensitive raptors	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Sandy beach tiger beetle	x								x	x	x				x	x	
Tidewater goby	x																
California least tern	x																
Western least bittern	x						x	x									
Long-billed curlew	x																
Elegant tern	x																
White-faced ibis	x																
Western snowy plover	x																
Belding's savannah sparrow	x																
Southern steelhead	x	x	x	x	x	x	x	x	x	x	x						
Unarmored threespine stickleback						x	x	x	x	x	x	x	x	x	x		
Arroyo chub	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
Santa Ana sucker									x	x	x	x	x	x	x	x	x
Arroyo toad									x	x	x		x	x		x	x
California legless lizard	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
San Diego horned lizard	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
California red-legged frog		x		x										x		x	x
Southwestern pond turtle	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Coast patch-nosed snake						x	x	x	x	x	x						x
Two-striped garter snake	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x
Salt marsh bird's-beak	x																
Ventura marsh milkvetch	x																
Slender-horned spineflower									x	x	x				x	x	
Nevin's barberry									x	x	x				x		
Total number of Species	**22**	**12**	**11**	**12**	**11**	**13**	**14**	**14**	**18**	**18**	**17**	**12**	**12**	**14**	**15**	**14**	**13**

TABLE 5.3-4
Biological Resources Evaluation by Reach
Santa Clara River

River Reach	Reach Location	Existing Habitat Values[1]	Future Conservation Goals	Restoration and Enhancement Potential[2]	Regional Conservation Value[3]
1	Pacific Ocean to Harbor Blvd.	Very High	Maintain existing habitat values	Riparian restoration: Limited Enhancement: Moderate	Significant Conservation Value
2	Harbor Blvd. To Highway 101	High	Maintain existing habitat values	Riparian restoration: Limited Enhancement: Moderate	Significant Conservation Value
3	Highway 101 to Freeman Diversion	Moderate	Maintain existing habitat values Maintain river channel connectivity	Riparian restoration: Limited Enhancement: Limited	Connectivity Value
4	Freeman Diversion to Adams Barranca	High	Develop restoration and enhancement opportunities Maintain river channel connectivity	Riparian restoration: High Enhancement: High	Significant Conservation Value
5	Adams Barranca to Willard Road	High	Develop restoration and enhancement opportunities Maintain river channel connectivity	Riparian restoration: High Enhancement: High	Significant Conservation Value

River Reach	Reach Location	Existing Habitat Values[1]	Future Conservation Goals	Restoration and Enhancement Potential[2]	Regional Conservation Value[3]
6	Willard Road to Sespe Confluence	High	Develop restoration and enhancement opportunities Maintain river channel connectivity	Riparian restoration: High Enhancement: High	Significant Conservation Value
7	Sespe Confluence to Fillmore Fish Hatchery	High	Control arundo Maintain existing habitat values	Riparian restoration: Moderate Enhancement: Moderate	Connectivity Value
8	Fillmore Fish Hatchery to Piru Creek Confluence	High	Control arundo Maintain existing habitat values Maintain river channel connectivity	Riparian restoration: Moderate Enhancement: Moderate	Connectivity Value
9	Piru Creek Confluence to Newhall Boundary	High	Maintain existing habitat values Maintain river channel connectivity	Riparian restoration: Moderate Enhancement: Moderate	Connectivity Value
10	Newhall Boundary to County Line	High	Maintain existing habitat values Maintain river channel connectivity	Riparian restoration: Moderate Enhancement: Moderate	Significant Conservation Value
11	County Line to Interstate 5	High	Maintain existing habitat values Maintain river channel connectivity	Riparian restoration: Moderate Enhancement: Moderate	Significant Conservation Value

River Reach	Reach Location	Existing Habitat Values[1]	Future Conservation Goals	Restoration and Enhancement Potential[2]	Regional Conservation Value[3]
12	Interstate 5 to Lang USGS Gage	Very High	Maintain existing habitat values Maintain river channel connectivity	Riparian restoration: Limited Enhancement: Limited	Significant Conservation Value
13	Above Lang USGS Gage	High	Maintain river channel connectivity	Riparian restoration: Limited Enhancement: Limited	Significant Conservation Value

[1]This analysis was habitat-based and used wildlife habitat relationships to determine the potential distribution of species of special concern and therefore habitat value. Point location data was not uniformly available across the study corridor and tended to bias the evaluation of habitat value. The entire river system has the potential to support a variety sensitive and listed plant and wildlife species. This analysis ranks the river reaches based on the number of special status species potentially occurring there and the endangerment of those species.

[2]Restoration potential based on the quality of the existing riparian vegetation, the hydrological conditions, and the channel characteristics in each reach. The enhancement potential was based primarily on the degree of infestation of *Arundo donax* in each reach. Site-specific potential may differ from that reported here.

[3]Regional conservation value based is an evaluation of the reach resources in the context of regional open space and landscape connections.

Resources, River Reach, Segment No., and Conservation Rank No., such as Overlay series 6. As indicated in the Overlay Legend, Conservation Rank 5 ("CR5") denotes highest value/highest priority and "CR1" the lowest.

5.4 Aggregate Resources

This section describes the current conditions of aggregate resources in the SCREMP Area.

5.4.1 Information Development Method

In order to document existing conditions and analyze issues/impacts regarding aggregate resources/mining, various existing data sources were consulted. These sources include published reports from the California Division of Mines and Geology (CDMG) and the June 1996 *Aggregate Resources Report*. Regional maps were prepared as appropriate to summarize existing data. Where data gaps were found to exist, additional information sources were identified and assessed including, for example, sources that identify the aggregate needs of both counties.

5.4.2 Summary of Resource Report

The 500-year floodplain of the river (floodplain) has been the primary source of sand and gravel (aggregate) for several decades. The majority of the floodplain was designated by the California Geological Survey (former Department of Conservation, Division of Mines and Geology) as Mineral Resources Zone 2 indicating the presence of significant portland cement concrete (PCC)-grade aggregate (high enough quality for use in portland cement concrete). Abundance of state-designated aggregate resources within the floodplain, and the significant market demand for this material necessitated the inclusion of the mineral resource management and surface mining policies in the SCREMP.

Documentation of the existing conditions and analysis of issues associated with aggregate resources development and surface mining was based on review of published reports from the California Geological Survey, and the June 1996 *Aggregate Resources Report* prepared by the Aggregate Subcommittee (Aggregate Subcommittee, 1996).

5.4.3 Aggregate Occurrence and Quality

The river 500-year floodplain is located in two production-consumption regions designated by the California Geological Survey (CGS) based on the geological inventory of selected important mineral commodities. Upper Santa Clara River is located in the Saugus-Newhall production-consumption region (PCR) in Los Angeles County. The Lower Santa Clara River is located in the Western Ventura PCR in Ventura County. These two production-consumption regions are also two marketing regions, defined by the CGS as areas within which material is usually mined and marketed (Aggregate Subcommittee, 1996).

The majority of the floodplain is designated as zone MRZ-2, as established by the State Geologist in areas of significant mineral deposits, considered by the Mining and Geology Board as being of prime importance to the future needs of the study region and available from a land use perspective (CDMG, 1987). The mineral land classification, the process of inventory of the non-fuel mineral resources of the State, is mandated by the Surface Mining and Reclamation Act of 1975 (SMARA) and provided through the CGS Mineral Resources Project. Areas assigned classification MRZ-2 are known to have significant PCC-grade aggregate resources.

Aggregate is a naturally occurring resource resulting from earth's processes and widely recognized as a non-renewable resource. Man cannot induce the production of aggregate, cannot replicate the processes that generate aggregate, and have no way of manufacturing a reliable synthetic source as an alternate material (Aggregate Subcommittee, 1996). It occurs in unique geological settings and, therefore, must be mined where it is found.

The fluvial (stream) sediments are products of erosion of bedrock and surficial materials that underwent subsequent river transport, abrasion, rounding and sorting of the particles, and were deposited in the stream channel and on adjacent floodplain. Due to the dynamics of the river system, these deposits consist of sand and gravel in some areas, silt and clay in the others. The sand and gravel deposits are extracted for use as aggregate in the process that in California is generally referred to as surface mining. Surface mining is a $6 to $8 billion component of the State economy (Aggregate Subcommittee, 1996). The most important requirement of a concrete aggregate is that it should be durable and chemically inert under the conditions to which it will be exposed (McMillan and Tuthill, 1987).

Based on the California Geological Survey studies, the highest quality PCC-grade aggregate resources in the area are found within the Santa Clara River floodplain and adjacent to it. Continuous linear sand and gravel fluvial deposits ranging from 1 to 5 miles in width and up to 500 feet in depth are reported (CDMG, 1981). The CGS identified areas where construction-grade aggregate is available (CDMG 1981, 1994). The MRZ-2 zone in Los Angeles County is restricted to Santa Clara River and its tributaries. In Western Ventura County PCR, large areas are designated as MRZ-2 and MRZ-2a. The MRZ-2 area of the Santa Clara River extends from Agua Dulce Creek in Los Angeles County, to just west of El Rio in Ventura County (see Figures 3 and 4 in Appendix A; and Overlay series 9).

The California Geological Survey estimates aggregate resources in the Santa Clara River floodplain and in adjacent areas of the Saugus-Newhall PCR as 900 million tons (CDMG, 1987). All of the aggregate is suitable for PCC, but some require the addition of the coarse material for the production of concrete.

Aggregate resources in the Western Ventura County PCR, a majority of which are found in the Santa Clara River floodplain and adjacent to it, are estimated as 4,077 million tons (CDMG, 1981, updated 1993). Large amounts of these resources are not available for harvesting due to the "red line" restrictions imposed by a joint resolution of the Board of

Supervisors of the Ventura County and Ventura County Flood Control District (Board of Supervisors, 1985). These restrictions are estimated to reduce available resources to 141 million tons. In addition, extraction depth is limited to above the historic or projected high groundwater table at out-of-river (i.e., floodplain) sites.

5.4.4 Existing and Projected Aggregate Demand

Aggregate demand estimates and the fifty-year projections are prepared by the California Geological Survey and reported in the mineral land classification reports. In its studies, the CGS gives a special emphasis to construction aggregate recognizing that it is the state's most important mineral commodity in terms of tonnage, value, and societal infrastructure. The amount of each construction material mineral resource needed for the next fifty years is projected using past consumption rates, adjusted for anticipated changes in the market conditions and mining technology. However, the CGS estimates utilize the linear regression model and do not correlate its population projections to the annual estimates of the State Department of Finance or to the local general plan population projections (Aggregate Subcommittee, 1996).

In 1987, the CGS estimated that the Saugus-Newhall PCR would require over 54 million tons of aggregate for the next 50 years to supply public agencies and the construction industry with the material (CDMG, 1987). Subsequent updates to the 1987 data published by the CGS (CDMG, 1993, 1994) indicated that aggregate reserves were adequate for the region through approximately 2016[1] (Aggregate Subcommittee, 1996). These revised estimates, however, did not anticipate that much of the aggregate mined in the region would be exported to the San Fernando Valley market region, where depletion of both reserves and resources was predicted to occur in 2002 (Aggregate Subcommittee, 1996).

The 1993 CGS estimate of the 50-year aggregate demand projection for the Western Ventura PCR was 241 million tons. Due to the redline restrictions discussed in Section 5.4.3, available resources for the region were calculated by the CGS as approximately 141 million tons, with the deficit of aggregate of approximately 100 million tons. The anticipated 50-year consumption of the aggregate for the entire Ventura County was estimated to be 415 million tons, of which 40 per cent, or 166 million tons must be of PCC-grade quality (CDMG, 1993).

It should be noted that the CGS estimates and projections are based on the naturally occurred aggregate and do not take into consideration the availability and use of the recycled aggregate.

5.4.5 Existing Mining Operations

Active mining operations producing the PCC-grade aggregate were evaluated in the 1996 Aggregate Resource Report (Aggregate Subcommittee, 1996).

[1] The 1994 CGS update report (CDMG, 1994) also revised per capita consumption projection from 10 tons to 9.9 tons compare to the 1987 report (CDMG, 1987).

In-River Mining Operations

With the exception of Curtis Sand & Gravel (see Table 5.4.5-1, below), no other in-river aggregate mining activities are identified as currently operational in-river. There is one active in-river operation in the Saugus-Newhall PCR section of the Santa Clara River approved by the County of Los Angeles, Department of Regional Planning, and eight inactive or depleted in-river operations in the Western Ventura County PCR section of the Santa Clara River, approved by the Ventura County Planning Division. The list of approved mining permits is summarized in Table 5.4.5-1, below:

Table 5.4.5-1 Surface Mining Permits in the Saugus-Newhall and the Western Ventura Production-Consumption Regions (Aggregate Subcommittee, 1996)

Approved Surface Mining Permits, Saugus-Newhall PCR, Los Angeles County		
Operator	**Last Mining Activity**	**SMP Number**
Curtis Sand & Gravel	In-river: Active	86357
P. W. Gillibrand (now Vulcan Materials)	Out-of-river: Active	960016
CalMat Co. (now Vulcan Materials)	Out-of-river: 1993	85610
Surface Mining Conditional Use Permits, Western Ventura County PCR, Ventura County		
Operator	**Last Mining Activity**	**CUP Number**
Sespe Rock Products	In-river: 1989	4185
Granite Construction Co.	In-river: 1989	3390
S. P. Milling Company (now Hanson)	In-river: 1988	85-20
	In-river: 1988 Out-of-river: (In Reclamation)	1942
	In-river: 1988 Out-of-river: 1993	245-1812
	In-river: 1986	80-16
S. P. Milling	In-river: 1988	1524
CalMat Co. (now Vulcan Materials)	In-river: 1976	2006
	Out-of-river: (In Reclamation)	4623
	Out-of-river: Completed	4292

As indicated in the Table 5.4.5-1, the last in-river mining activity in the Los Angeles County segment of the SCREMP Area had occurred in 1993, but which is now active, and the majority of the in-river mining in its Ventura County segment ceased in the late 1980s.

Prior to reinstatement of any in-river mining activities authorized under a Ventura County Conditional Use Permit (CUP), additional permits would be required from the State and federal agencies. Such additional permits could severely reduce the available aggregate resources (Aggregate Subcommittee, 1996).

Out-of-River Mining Operations

In 1996, there was one active out-of river mining operation in the Saugus-Newhall PCR:

P. W. Gillibrand (Surface Mining Permit 960016)

As of 1996, the sole suppliers of PCC-grade aggregate in the Western Ventura County PCR were two out-of-river operations:

CalMat Co.'s Rose Avenue site (Conditional Use Permit 4623), and
Southern Pacific Milling Company's El Rio site (Conditional Use Permit 4623)

The 1993 CGS estimated reserves in the Western Ventura County PCR would be depleted in 1996. This estimate was confirmed during the preparation of the 1996 Aggregate Resources Report (Aggregate Subcommittee, 1996). Specific reserve figures were not reported by the CGS, as the information is proprietary to the two mining companies in this market region. All of the Western Ventura County reserves have been depleted.

Potential extraction sites for aggregate resources are indicated in Overlay series 9.

Proposed/Disputed Mining Operations

CEMEX/Transit Mixed Concrete Project

CEMEX, a Mexican based cement company, recently purchased Southdown Corporation. Southdown's subsidiary Transit Mixed Concrete is planning to open an aggregate mine on 460 acres of public land just east of Santa Clarita's city limits in Soledad Canyon. Part of this mine project site is within the 500-year floodplain of the River. The proposed mining operation is planned to span 20 years in its initial phase and process 78 million tons of material. Excavation is planned to be six days a week, sixteen hours a day. Blasting is planned to occur twice a week for 10 years, then double for the subsequent 10 years. Materials transport is an estimated 694 trips per day mostly via the 14 Freeway. Currently there are about 9,600 residential units within a five-mile radius of the site.

5.4.6 Conclusions

"Although land-use competition between mining and other interests is inevitable, it need not be contentious if adequate planning based on objective and accurate mineral resource data are made available to local land-use planners, elected decision makers, the mining industry, and the public" (CGS).

"Over 90% of these essential construction resources are transported by truck because unit trains and marine transport, although used, are currently uncommon in the state. Because such high-volume low-cost construction minerals are expensive to transport, and in order to minimize the environmental affects of trucking these resources from distant sources, it is beneficial - both economically and environmentally - that sand, gravel, and crushed stone resources be mined in reasonable proximity to growing communities" (CGS).

Specific areas for mining

The "red line" profile and width policy generally limits mining to the aggradational reaches of river, with the constraints of protecting structures. It limits extraction depth in the Santa Clara River to the "red line" standards determined by the Ventura County Watershed Protection District. Therefore, the most appropriate area of mining is upstream of Santa Paula. Only lateral mining is allowed between Saticoy and Santa Paula. It is noted that the redline regulations were not intended to address all effects of aggregate mining; accordingly, considerations in addition to the redline regulations should include the potentials to affect fish passage and water quality for the endangered southern steelhead. Specific considerations should include assessing effects of removal of natural stream channel features such as gravel bars and shoals that constrain moderate to low stream flows in a more confined channel that promotes fish passage.

Specific areas where mining will be prohibited

The red line regulations state that "No mining is permitted in the degraded areas downstream of Highway 118."

Potential Affects of Mining Within the 500-year Floodplain

Mining of aggregates within the Santa Clara River 500-year floodplain has the potential to affect substrates, vegetation communities, surface waters, and groundwaters. Direct affects can include the removal of vegetation and changes in surface and groundwater flows. Indirect affects can include siltation, modification of channel capacity during floodflows, and impairment of wildlife species movement and migration opportunities and behaviors. It should be noted that any future planning for aggregate mining within the 500-year floodplain will need to fully assess the potential for impacts to the southern steelhead which is a federal listed endangered species.

NPDES and WDR Permitting

To protect the beneficial uses of the surface waters and groundwater basins within the SCREMP Area, the California Regional Water Quality Control Board – Los Angeles Region regulates discharges from aggregate mining and sand washing facilities through issuance of National Pollutant Discharge Elimination System (NPDES) permits and Waste Discharge Requirements (WDR). NPDES regulated discharges include: (1) effluent from wastewater treatment facilities, such as settling ponds, sand and gravel filter systems, etc.; (2) storm water runoff from the aggregate mining and sand washing facilities that commingled with other wastewater from the facilities; and (3) water used for sand screening and washing. WDRs regulate the discharge of liquid and solid wastes to land, which could affect the quality of waters of the State. NPDES permits and WDR have limits for and require monitoring of pollutants including total dissolved solids (TDS), pH, settleable solids, turbidity, and acute toxicity. These limit parameters are specified in the Basin Plan and are periodically revised in response to updated water

quality objectives as well as the availability of effluent monitoring data that allows Board staff to conduct reasonable potential analysis.

Anti-degradation policies according to Federal Regulations (40 CFR 131.12) and State Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California" requires that any increase in pollutant loading to a receiving water shall be consistent with the following:

a. Existing in-stream water uses and the level of water quality necessary to protect existing beneficial uses shall be maintained and protected; and

b. Where the quality of the waters exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, the quality shall be maintained and protected unless the State finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the State's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located.

5.5 Cultural Resources

Introduction

The existing condition of cultural resources within the Cultural Resources Study Area (Study Area) is presented in the "Final Cultural Resources Report for the Santa Clara River and Enhancement Plan" dated April 30, 1996 (1996 Cultural Report). The archival and site records check in the 1996 Cultural Report are considered adequate for the immediate purpose of SCREMP development; however, potential data gaps are acknowledged for the intervening years 1996 to 2003. Data gaps would include, for example, discovery of new cultural resources sites and designation of new historic sites. Accordingly, the SCREMP considers it prudent to update the cultural resources information on a regular basis. For the purpose of this section, however, the information in the 1996 Cultural Report is regarded as the existing condition.

The cultural resources inventory for the Study Area captured sites out as far as 2 miles perpendicular to the 500-year floodplain limits, which constitute the limits of the SCREMP Area. Accordingly, some of the information in the 1996 Cultural Resources is outside the SCREMP Area. However, all the information presented in the 1996 Cultural Report is considered relevant to the SCREMP because it provides a broad overview of the types of cultural resources within the environmental setting of the river floodplain.

Information Development Methods

The 1996 Cultural Report summarizes the results of archival and a site records check for the Study Area and the methods used to research applicable data. Two State agencies were contacted for the 1996 Cultural Report: the Native American Heritage Commission

in Sacramento (Commission) and the South Central Information Center of the Historical Resources Information System at the University of California, Los Angeles (UCLA Information Center). These agencies were contacted in late December 1994 and several times during January 1995. The Commission provided assistance with archival research pertaining to identification of known Native American sacred sites, sacred lands, and/or traditional use areas in the Study Area. In addition, the Commission provided names of "Most Likely Descendents" pertinent to the Study Area. The UCLA Information Center conducted an archival search of the National Record of Historic Places, the California State Historic Resources Inventory, listings of the California Historical Landmarks, and listings of the California Points of Historical Interest. They also provided a list of previous cultural resources investigative studies. The locations of the archival and previous studies information were plotted by the UCLA Information Center on USGS topographic maps. These information sets were combined with archaeological investigations conducted by CH2MHill.

Results and Analysis

The existing condition of cultural resources within the Study Area is generally described below. Specific site information including attributes (e.g., small campsite, burial site, structural foundation, rock shelters, California historical landmark, adobe, historical archaeological site, mano, metate, and lithic debitage) and locations are not included in the discussion. This is determined appropriate non-disclosure for the purposes of protecting these sites from potential destruction and vandalism because the SCREMP will be a publicly reviewed document. As such, the SCREMP will exercise responsible custodianship of this information.

The existing condition of cultural resources within the Study Area includes:

- 48 prehistoric archaeological sites
- 15 prehistoric archaeological isolates
- 25 historic archaeological sites
- 4 National Register of Historic Places
- 7 California State Historic Resources Inventory
- 12 California Historical Landmarks
- 2 California Points of Historical Interest

In addition, there are 3 Sacred Lands, as listed by the Native American Heritage Commission that occur in the Study Area but outside of the SCREMP Area.

The analysis of results in the 1996 Cultural Report included a relative ranking of their importance (high, moderate, low). The majority of the sites in the Study Area are moderately high-to-high value cultural resources. The rankings are subjective and do not represent a formal determination of site significance as would be provided by federal or state law or regulation during environmental review.

Summary and Conclusions

The Study Area, which includes the SCREMP Area, is richly endowed with cultural resources, as described under Results and Analysis, above. Because much of the Study Area is relatively undeveloped, the potential for the occurrences of undiscovered cultural resources is high. The 1996 Cultural Report estimates that less than 20 percent of these lands have been examined for the presence or absence of cultural resources. It is outside the purpose of the SCREMP to propose policies and programs that will promote Riverwide Recommendation #12, i.e., that cultural resources within the SCREMP area will be identified and preserved. However, a Cultural Resources Management Plan has been developed in Section 6.9.1 for SCREMP Stakeholders to use as a reference to identify methods required for compliance with federal, State, and local laws and regulations that pertain to the protection of cultural resources.

5.6 Recreation

This section describes the current condition of recreation facilities and opportunities in the SCREMP Area.

Overall, as a watershed, jurisdictions surveyed during the preparation of the Public Access and Recreation Report in 1996 noted deficiencies in local park land to meet their Federal Plan or National Recreation and Park Association's standards. The unincorporated areas of Ventura and Los Angeles Counties were noted as in need of regional park land. The total need for local park land by 2010-2020 was estimated at 2,193 additional acres for the incorporated cities' expected population growth (Public Access and Recreation Report, 1996).

The Santa Clara River is recognized as providing potential opportunities for linear trails and public parks, while respecting the rights of private landowners. In public workshops held in Los Angeles County and Ventura Counties, participants arrived at a consensus recommending the Santa Clara River as a means of linking the cities along the river geographically, culturally, and environmentally.

5.6.1 Existing Conditions by Jurisdiction

Using information provided from a land use survey and digitized into GIS maps, an estimated three-percent of the land area within the 500-year flood plain, or 658 acres, is developed recreational land. This includes those portions of four public golf courses lying within the 500-year flood plain. The largest park land component in the SCREMP Area is located in the Angeles National Forest. Table 5.6-1 displays the name and approximate acreage of existing recreational facilities within the SCREMP Area by jurisdiction. This land area does not include existing informal trails that the public use to access the north and/or south sides of the river.

Table 5.6-1 Existing Parkland within the SCREMP Area by Jurisdiction and Reach

Site	Reach #	Location	Park Name	Size within 500-year floodplain	Jurisdiction
Santa Clara River Estuary	1	Spinnaker Drive at Santa Clara River Bridge	McGrath State Beach	92.38 acre	City of Ventura (north side) and State of California Parks Department (south side)
Ventura County Watershed Protection District (VCWPD) Levees along south side of Santa Clara River	2 & 3	South side of river from Hwy. 101 to Los Angeles Avenue	Informal trails on VCWPD road maintenance easements, generally used without permission	Varies, estimated at 5 miles	Ventura County and City of Oxnard
Olivas Park Golf Course	2	North side of river, east of Harbor Boulevard	Olivas Park Golf Course	3.23 acres	City of Ventura
Ventura Municipal Golf Course	2	North side of river, west of Hwy. 101	Ventura Municipal Golf Course	96.15 acres	City of Ventura
River Ridge Golf Course	2	South side of river, west of Hwy. 101	River Ridge Golf Course	9.29 acres	City of Oxnard
Bristol Bay Linear Park	3	North side of river, south of Bristol Road	Bristol Bay Linear Park	3.35 acres	City of Ventura
Northbank Linear Park	3	North side of river, south of North Bank Drive.	Ventura Linear Park, along Northbank Drive	11.41 acres	City of Ventura
Mountain View Golf Course	5	South side of river	Mountain View Golf Course	0.73 acres	City of Santa Paula
Rancho Los Amigos Acton Camp	13		Rancho Los Amigos Acton Camp	59.97 acres	Los Angeles County
Angeles National Forest	13		Angeles National Forest	276.06 acres	United States Forest Service

Ventura County

At Reach 1, the Santa Clara River Estuary at McGrath State Beach is recognized as a major birding area all year around. It is accessible from Harbor Boulevard, near the Santa Clara Bridge, where a trail leads to the river bottom, or by Spinnaker Drive and walking across sand. Parking and public facilities are available at McGrath State Park campground. The City of Ventura is proposing the Ventura Harbor Wetlands Public Art project in the vicinity of Reach 1, at the Ventura Water Reclamation Facility.

Existing recreational opportunities in Reach 2 include the Olivas Park Golf Course, Old Olivas Adobe, and Ventura Municipal Golf Course on the north side of the river and the River Ridge Golf Course on the south of the river. The 4,600-acre Oxnard-Ventura agricultural greenbelt extends on both sides of the river in this area.

The extensive, but largely undeveloped, "Saticoy-to-the-Sea Trail" is shown on maps proceeding through Reaches 1, 2, and 3, west of the town of Saticoy on the south side of the Santa Clara River; and on the north side of the Santa Clara River, west of Highway 101. In Reach 2, trails designated on the south side of the river cross to the north side at Los Angeles Avenue (Highway 118) near the Saticoy wastewater treatment plant (WWTP). As a mapped trail, the regulatory opportunity exists to acquire dedications of trail easements as conditions of approvals in land use permits processed by the City of Ventura, City of Oxnard, and County of Ventura.

City of Oxnard

An annexation of land into the City of Oxnard for the proposed 323-acre Northwest Golf Course Community Specific Plan would add a substantial number of residential units, including an elementary school site and a new golf course to the area abutting the existing River Ridge Golf Course.

Located where Highway 101 crosses the Santa Clara River in the City of Oxnard is a proposed 702-acre new community, Riverpark, consisting of 2,805 single-family and multi-family dwelling units and up to 2,485,000 square feet of retail, hotel/convention and office uses. In this area, on the south side of the river, are extensive levees, groins, and access roads necessary for flood control maintenance that are used by the public, however they are not designed for pedestrian use. It would be desirable for the flood control access roads to be designed for pedestrian and bicycle trail access due to the high residential densities proposed nearby.

City of Ventura

Located on the north side of the river, north of its intersection with Highway 101, in the Montalvo area of the City of San Buenaventura (Ventura), is the Bristol Bay Linear Park. East of Bristol Bay Linear Park, but located in the unincorporated area of Ventura County, the Nature Conservancy acquired a site bounded by the Southern Pacific Railroad tracks (SPRR). East of the Nature Conservancy property, the City of Ventura's existing Ventura Linear Park and trail is located on North Bank Drive. It appears possible to connect the Bristol Bay Linear Park with the Ventura Linear Park by using a linear alignment generally corresponding to the former Southern Pacific Santa Paula Branch Line right-of-way. Now owned by the Ventura County Transportation Commission (VCTC), the Santa Paula Branch Line trail was evaluated in the Santa Paula Branch Line Recreational Trail Master Plan EIR (VCTC 2000). However, due to significant unavoidable impacts to agricultural resources and public controversy, this plan was not adopted. Indeed, a contract signed between agricultural landowners and the Ventura County Board of Supervisors and Transportation Commission prevents the building of the trail in unincorporated areas of the County before March 1, 2015 (Ventura County Bicycle Coalition 2003). Using a portion of the VCTC corridor on or adjacent to the Nature Conservancy site would potentially allow the Bristol Bay Linear Park and Northbank Linear Park to be connected. The Santa Paula Branch Line Recreational Trail,

also referred to as the Santa Clara Rail Trail, is the primary proposed trail alignment throughout the remaining river reach segments in Ventura County.

The Ventura County Regional Trails and Pathways Master Plan described the Santa Clara River Pathway as suitable for a major trail (Ventura County, 1995). Subsequently, the Santa Clara River Parkway project utilizing the VCTC corridor was evaluated in an EIR, but not pursued based on agricultural conflicts. Since Ventura County did not adopt an implementation plan as recommended in a Regional Trails Plan prepared in 1995, no trails are presently under consideration for development (Lubin, 2003). Without an approved parks, recreation, and trails map, no exactions for trails can occur as conditions of approval of tract maps. However, under adopted assessment guidelines, Ventura County has the ability to condition large developments at a ratio of 2.5 miles of multipurpose Class I, bicycle and equestrian trails, per 1,000 population. These trails are typically 25 feet in width, with a 10' minimum dirt trail and a 10' minimum asphalt paved surface, separated by a two-foot wide median divided by a split rail fence line.

City of Santa Paula

An informal network of trails exists along the Santa Clara River. A proposed trail is designated on the City's Circulation Element Map, Bicycle and Trail Plan. Property controlled by the Santa Paula Airport property lies within the 500-year flood plain. Adopted General Plan policies generally support open space designations along the Santa Clara River and the establishment of public space easements, long-term leases, cooperative agreements, and property acquisitions as funding sources permit. Trail alignments following existing paths, fencelines, and previously disturbed areas are to be used to minimize grading and the removal of native vegetation.

5.6.2 Plans & Policies

The following Plans and Policies were identified for the indicated jurisdictions.

Ventura County

One of the five major purposes of the Ventura County Watershed Management District, formed by the Ventura County Flood Control Act of 1944 is to "provide for recreational use and beautification as part of the flood control and water conservation objectives by acquiring or constructing recreational facilities or landscaping as part of any district project." Impediments to providing public access along with flood control improvements include public safety and concerns regarding trespass on private lands. River flows in the Santa Clara can vary from non-existent in the summer to over 100,000 cubic feet per second during winter storms. The river is characterized as "flashy" and is, therefore, potentially unsafe. Commercial agricultural operations along the river are extensive and there are concerns regarding theft, litter, and transport of soil borne diseases should public access be allowed. While jurisdictions may have required dedications of open space south of the Public Levee and Bank Protection Line, these areas may not be suitable for public access or trails. In addition, any development of recreational

opportunities along the river are not likely to be afforded 100-year flood protection (Wilkinson, 1999).

Los Angeles County

The jurisdictions of Los Angeles County and the City of Santa Clarita are working through the Santa Clarita Valley Trails Advisory Committee (SCVTAC) on a comprehensive update to the 1994 Parks, Recreation, and Trails Master Plan (Lay, 2003). Other on-going planning efforts on hiking, biking, and equestrian trails include the Antelope Valley Trail Recreation Advisory Committee (AVRTAC) and the Pacific Crest National Scenic Trail Crossing.

City of Santa Clarita

The City of Santa Clarita's River Corridor Plan and policies contained in their General Plan, Parks and Recreation Element, are noted in the American Heritage River Application as setting an example for other cities along the river. The following adopted policies relate to the development of public access and trails along the Santa Clara River (Public Access and Recreation Report).

5.1 Establish the Santa Clara River as a central recreational corridor.
5.2 Encourage multiple uses of public easements and public lands, such as the flood inundation areas of the Santa Clara River and its tributaries, for recreational purposes.
5.3 Promote the implementation of the Santa Clara River Recreation and Water Features Study.
5.5 Encourage the development of compatible uses next to the Santa Clara River and the inclusion of development features that provide for public access and use of the river.
5.6 Investigate new funding sources to pay for the implementation of the Santa Clara River recreation and water feature study.
5.8 Encourage the development of a regional plan for the Santa Clara River that incorporates trails to the ocean.
7.8 Utilize the Santa Clara River as a focal point for development of an integrated system of trails, parks, and open space.

The River Corridor Plan and the City of Santa Clarita's trail element of the Santa Clara River Enhancement and Management Plan have focused on the acquisition and development of a 12-mile Class I trail system, along with a series of river parks located along the Santa Clara River corridor.

Typical projects undertaken by the City of Santa Clarita within the flood plain of the Santa Clara River have included:

- Rip rap and soil cement bank stabilization
- Trail development and maintenance road construction

- Debris removal
- Natural area revegetation projects
- Landscaping and irrigation projects

Town of Acton

Responding to AMEC's land use questionnaire, the Acton Town Council noted that the Acton Community Standards District was established to, among other goals, "ensure reasonable access to public riding and hiking trails, and to minimize the need for installation of infrastructure such as sewers, streetlights, concrete sidewalks and concrete flood control systems that would alter the community's rural, equestrian and agricultural character, while providing for adequate drainage and other community safety features (Billet, 2003)."

5.7 Flood Control

5.7.1 Introduction

In nature, flooding is a part of the dynamic equilibrium of the river systems. In the human mind, flooding is a high flow of water that often results in loss of life and property. This section discusses the flooding and floodplains as relevant to the potential economic loss or loss of life, identifies flood protection needs, and offers flood control improvement options.

Documentation of the existing conditions and analysis of issues associated with the river floodplain and its protection needs was based on review of the June 1996 *Flood Protection Report* prepared by the Ventura County Watershed Protection District (formerly Ventura County Flood Control District) and the Los Angeles County Department of Public Works (VCWPD and LACDPW, 1996), and the April 1996 *Water Resources Report* prepared by United Water Conservation District and Castaic Lake Water Agency (UWCD and CLWA, 1996).

5.7.2 Floodplain

5.7.2.1 Definitions

Floodplain

The floodplain is the low land adjacent to a natural watercourse which is subject to inundation during a given flood event (VCWPD and LACDPW, 1996).

Topographically and geologically, a floodplain is the relatively flat surface occupying much of the river valley bottom and normally underlain by unconsolidated sediment. In terms of hydrology, the floodplain may be defined as the water level attained in some particular stage of the river (Ritter and others, 1995). Accordingly, the 500-year floodplain is the area that would be inundated by the 500-year flood, or the peak flow that

has 0.2% chance of being equaled or exceeded in any given year. A 100-year floodplain is an area along the river corridor that would be inundated during a 100-year flood event (an event that has a 1% probability of occurrence in any given year).

Floodway

The floodway is the channel of a stream, plus adjacent floodplain areas, that must be reserved to discharge the base 100-year flood without cumulatively increasing the water surface elevation more than one foot, provided hazardous velocities are not produced. Development of this area is carefully managed and restricted to uses that do not obstruct the natural flow of water (VCWPD and LACDPW, 1996).

The floodway fringe is the portion of a 100-year floodplain that is not within the floodway. Some forms of encroachment may be permitted in this area (VCWPD and LACDPW, 1996). These definitions are illustrated on the Figure F-1, in Appendix A.

5.7.2.2 Floodplain/ Floodway Determination

The Santa Clara River floodplain and floodway determination was performed by LACDPW and VCWPD for the Los Angeles County and Ventura County reaches, respectively. The floodplain delineation was produced by the automatic hydraulic modeling using the HEC-2 software, recommended by the Federal Emergency Management Agency (FEMA) for floodplain and floodway studies (see also Section 5.2.3.4). The water surface elevations along selected cross-sections were computed from the hydraulic model and compared to the topographic maps (VCWPD) or digital terrain data to identify inundated areas. The floodplain boundaries between cross sections were interpolated.

After the floodplain boundaries have been established, the floodway limits were determined by analytically narrowing the flow path of the floodplain until either (a) flow velocities reached erosive limits, or (b) the water surface have risen one foot. Furthermore, a maximum erosive flow velocity threshold of 10 feet per second was defined for the floodway determination in Los Angeles County (VCWPD and LACDPW, 1996).

The floodplain boundaries for the 25-, 100- and 500-year floods, and the 100-year floodway are depicted on Overlay series 6. Floodplain conditions by reach are discussed in the following section.

5.7.2.3 Floodplain Conditions by Reach

The character and geomorphology of the Santa Clara River changes from its headwaters in the San Gabriel Mountains to its mouth at the Pacific Ocean, as was previously discussed (see Section 5.2.3.3). The narrow river channel incised into the hard bedrock that formed the mountains of the upper watershed widens up as the river exits the mountains and becomes a braided stream. Similarly, the upper reaches are characterized

by absent or narrow floodplain along the mountain stream and broad floodplain associated with braided stream. This wide floodplain becomes a prominent geomorphic feature along the lower reaches of the river in Ventura County.

The frequency of flooding and the abundance of engineered and non-engineered flood control structures also increase downstream. The floodplain conditions were previously discussed within the broader discussion of the fluvial geomorphology of the river (Section 5.2.3.3). They are also summarized in Table 5.7-1, Fluvial Conditions by Reach (see following page), along with discussion of the protective measures (based on the June 1996 VCWPD and LACDPW *Flood Protection Report*). The VCWPD-used reach numbering increases from the river mouth upstream.

5.7.3 Past Flood Protection Efforts

The first public flood protection facility on the Santa Clara River was a 25,000-foot long levee constructed by USACE/ VCWPD along the south bank of the river east of Highway 101 in 1961. It is presently owned and maintained by VCWPD, with all modifications subject to approval by USACE. The information regarding this and other facilities constructed since 1961 for flood protection and/or bank erosion control, and as a part of emergency flood protection projects together with the U. S. Department of Agriculture, Soil Conservation Service (USDA-SCS) within the SCREMP Area is summarized in Table 5.7-2, Existing Public Flood Protection Facilities (see following page). In Ventura County, the majority of the facilities are owned and maintained by VCWPD.

Table 5.7-1. Fluvial Conditions by Reach
Santa Clara River
(based on VCWPD and LACDPW, 1996)

REACH			MILES	FLUVIAL CONDITIONS (Fluvial Geomorphology, Floodplain Width, Flow Rate, Water Depth, Flood Protection Structures etc.)
No.	From	To		
Upper Santa Clara River (Los Angeles County)				
13	Acton	Lang Gaging Station		"Due to the mountainous terrain, the river is well entrenched and is less the 500 feet wide for nearly the entire length. In the Acton area, the floodplain changes to a broad shallow plain varying in width from 1000 to 2000 feet. Private property owners have built some levees to protect recreational areas" (VCWPD and LACDPW, 1996).
12	Lang Gaging Station	Freeway I-5		"A major segment of this reach meanders through the City of Santa Clarita. The floodplain varies in width from 500 feet at the 1-5 Freeway to 2000 feet near Bouquet Canyon Road. West of Whites Canyon Road to the 14 Freeway, the 100-year floodplain is contained with levees on either one side or both sides of the river. East of the 14 Freeway, the flood plain widens to an average of 1000 to 1500 feet. At Lang Station, it narrows down to less than 500 feet. Between Oak Springs Canyon and Sand Canyon, there are some permitted levees on the south bank of the river" (VCWPD and LACDPW, 1996).
11	Freeway I-5	County Line		Shallow floodplain from 500 to 2500 feet in width; "The Santa Clara River passes primarily through privately owned land. Property owners have built some levees to protect farming areas. Newhall Land and Farming Company is proposing a 'Natural River Concept', currently under review by the Los Angeles County, for the portion of the river within their property" (VCWPD and LACDPW, 1996).
Lower Santa Clara River (Ventura County)				
10	County Line	Newhall Road		"The river changes from a wide floodplain with braided channels to a well incised river in this reach; with an average depth of 13 feet and an average flow velocity of about 10 fps. Historically, severe deposition has occurred at the Newhall Bridge, and the bridge capacity is likely to diminish slowly as deposition continues to occur at this location. The USGS stream gage, located about 0.8 miles downstream of the County line, is placed at one of the narrowest reaches of the river in Ventura County. However, severe sedimentation and bank erosion has occurred here over the years. The on-site peak flow measurements indicate that elevations of the sandy river bottom may vary as much as 10 feet during a flood event" (VCWPD and LACDPW, 1996).
9	Newhall Road	Piru Creek		"The flow in the Santa Clara River is increased by about 60 to 70 percent because of Piru Creek. This causes a major change in the width of the river from less than 1000 feet at Newhall Bridge to over 3000 feet just above the Piru confluence" (VCWPD and LACDPW, 1996).
8	Piru Creek	Fish Hatchery		"The width of the river varies from 2000 feet to 5000 feet for major flood events, with an average flow depth of about 9 feet" (VCWPD and LACDPW, 1996).

REACH			MILES	FLUVIAL CONDITIONS (Fluvial Geomorphology, Floodplain Width, Flow Rate, Water Depth, Flood Protection Structures etc.)
No.	From	To		
7	Fish Hatchery	Highway 23		"The main development in this subreach is adjacent to Pole Creek and the State Fish Hatchery. New developments have been considered along the left bank between the bridge and Pole Creek" (VCWPD and LACDPW, 1996).
	Highway 23	Sespe Creek		"There is a major backwater effect from the Sespe Creek confluence in this subreach. Severe erosion along the north bank has necessitated construction of groins" (VCWPD and LACDPW, 1996).
6	Sespe Creek	Willard Road		"This is the widest flood plain area of the river, where the width varies from 3000' to about 7000'. The small berms and levees constructed by property owners and the Flood Control District … are of an interim nature and do not provide even 25-year protection particularly since they are flooded from the upstream end" (VCWPD and LACDPW, 1996).
5	Willard Road	12th Street		"This subreach is affected by the hydraulics at the Santa Paula Creek confluence, and the 12th Street bridge (which has a sloping bridge deck). In this subreach both banks are subject to erosion" (VCWPD and LACDPW, 1996).
	12th Street	Adams Barranca		"There are numerous equalizers through the freeway for the passage of flood flows from the north side of the freeway to the south side. However, the extent of flooding of the City of Santa Paula north of the freeway due to Santa Clara River has not been analyzed or identified … Except when protected by groins, the south bank is susceptible to severe erosion. On the other hand, most of the north bank is highly subject to deposition" (VCWPD and LACDPW, 1996).
4	Adams Barranca	Haines Barranca		"This reach of the river acts as a constriction causing backwater effect upstream to Santa Paula Creek" (VCWPD and LACDPW, 1996).
	Haines Barranca	Freeman Diversion		"The diversion structure constructed in 1991 has resulted in restoration of the flow line to approximately 1967 levels. …Severe deposition and vegetation growth upstream of the structure" (VCWPD and LACDPW, 1996).
3	Freeman Diversion	Highway 118		"All of the flood flows are contained in this subreach of the river. The US Army Corps of Engineers (USACE) levee ends about 0.6 miles upstream of Highway 118 on the right bank. However, there is potential for extensive bank erosion, particularly on the north bank" (VCWPD and LACDPW, 1996).
	Highway 118	Highway 101		"USACE levee on the south bank provides flood protection for the entire Oxnard plain area. However, the flooding on the south bank between the Highway 101 and the Southern Pacific Railroad (SPRR) bridges, results in minor flooding behind the USACE levee. The entire south bank area below the bluff is in the 100-year flood plain" (VCWPD and LACDPW, 1996).

Table 5.7-2. Existing Flood Protection Facilities
Santa Clara River
(VCWPD and LACDPW, 1996)

Reach	Station Nos.	Facility	Limits	Constructed	Comments
Lower Santa Clara River (Ventura County)					
2	110+00 to 137+60	Bank Protection	2760 ft. along south bank of river: along Bailard landfill	1986-96	Owned and maintained by VCWPD. Bank protection consists of ¼ ton rock rip-rap and rock filter blanket. Recent (May 1996) improvements included raising the top of bank protection for a 100-yr. flood protection
2	150+00 to 234+30	Bank Protection and Groins	South bank of river from Victoria Ave. bridge to downstream of State Highway 101. Eight groins along the bend in the south bank near Ventura Road	1961-76 (bank protection) 1983-93 (groins)	Owned and maintained by VCWPD. Groins constructed to reduce bed scour near the south bank
2	150+00	Victoria Avenue Bridge Abutment Slope Protection	50 ft. along north and south banks of river in Victoria Avenue right-or-way	1978	Constructed and maintained by County of Ventura. Bank protection consists of rock rip-rap within the road right-of-way.
3	240+00 to 490+00	USACE Levee	25,000 ft. along south bank of river: from Highway 101 to west end of South Mountain Rd.	1961	Constructed by USACE, owned and maintained by VCWPD. Installed to protect the Oxnard Plain: the stone revetted, compacted earth embankment 4-13 feet high, with 18-foot wide top and 2:1 slopes, protected by groins at locations subject to stream erosion (near stream meander)
3	360+00 to 375+00	Bank Protection at Sudden Barranca	North bank of river from Sudden Barranca to Saticoy Auxiliary Dike	1984	Owned and maintained by VCWPD. Bank protection constructed in response to severe bank erosion during the 1983 flood
3	375+00 to 400+00	Saticoy Auxiliary Dike	2500 ft. from Saticoy lemon grove & elementary school along north bank of river	1961	Owned and maintained by VCWPD. Auxiliary Dike provides protection to a residential community.
4	490+00 to 510+00	Freeman Diversion Dam & Ponding Facility	Dam built across river upstream of State Highway 118 bridge overcrossing, with ponding facility located on the south bank of the river	1989-91	Owned and maintained by UWCD. Flood protection facilities include a Roller Compacted Concrete (RCC) structure that functions as a stabilizer in the alluvial sand bottom river and a desilting basin with rock rip-rap bank protection along south river bank
4	665+00	Groins	Across Haines Barranca	1969	Owned and maintained by VCWPD
5	750+00	Groins	Fagan Canyon	1979	Owned and maintained by VCWPD

Reach	Station Nos.	Facility	Limits	Constructed	Comments
6	1110+00	Groins	Four groins across Sespe Creek	1969	Owned and maintained by VCWPD
5	785+00 to 800+00	Groins	At Santa Paula Airport	1970	Three groins owned and maintained by VCWPD
6	930+00	Groins	Along south bank of the river upstream of Willard Canyon	1970	Two groins owned and maintained by VCWPD
7	1110+00 to 1160+00	Bank Protection, Groins and Levee	Across from Sespe Creek, along south bank of the river	1973-79	Levee, bank protection & four groins owned and maintained by VCWPD
7	1180+00 to 1210+00	Groins	Along south bank of the river in Bardsdale area	1973	Four groins owned by VCWPD, privately maintained
7	1235+00 to 1285+00	Fillmore WWTP Groins	Along north bank of river	1993	Fourteen groins and sand berm east of groins constructed and maintained by the City of Fillmore
Upper Santa Clara River (Los Angeles County)					
11	NI	Bank Protection	From approximately 6,500 to approximately 11,500' east of Castaic Creek along north bank of the river	NI	Private - OWNERSHIP TO BE DETERMINED
12	NI	Bank Protection	Approximately 1100 ft. west of Sierra Highway along north bank of the river	NI	OWNERSHIP TO BE DETERMINED
12	NI	Bank Protection	2700 ft. east from McBean Pkwy. along south bank of the river	NI	OWNERSHIP TO BE DETERMINED
12	NI	Bank Protection	Approximately 4500 ft. from Honby Avenue to Soledad Canyon Road along south bank of the river	NI	OWNERSHIP TO BE DETERMINED
12	NI	Bank Protection	Approximately 600 ft. along north bank of river: from Sierra Highway to Mint Canyon	NI	OWNERSHIP TO BE DETERMINED
12	NI	Bank Protection	2700 west from Sierra Highway along south bank of the river	NI	OWNERSHIP TO BE DETERMINED
12	NI	Bank Protection	Approximately 900 ft. south from Sierra Highway bridge along the west side of Sierra Highway on south bank of the river	NI	OWNERSHIP TO BE DETERMINED
12	NI	Bank Protection	Approximately 1400 ft. west from 14 Freeway along north bank of the river	NI	OWNERSHIP TO BE DETERMINED

Reach	Station Nos.	Facility	Limits	Constructed	Comments
12	NI	Bank Protection	Approximately 3400 ft. along south bank of the river: from Sierra Highway to 14 Freeway	NI	Transferred to County? - OWNERSHIP TO BE DETERMINED
12	NI	Bank Protection	Approximately 2200 ft. east from Sand Canyon Road along south bank of the river	NI	OWNERSHIP TO BE DETERMINED

Note: NI = Not Identified

Section 6.0

Issues and Recommendations

6.0 ISSUES AND RECOMMENDATIONS

Method for Development of Goals, Policies, and Programs

The method used for the development of the goals, policies, and programs in Section 6.0, inclusive, is described below. The method facilitated taking the SCREMP Vision Statement, the "Summary of Riverwide Issues and Riverwide Recommendations" (1999 I&R Document), guidance from the SCREMP Consultant Coordinating Committee (CCC), and the best-available scientific and factual data, and using these inputs to develop the goals, policies, and programs presented under the various resources categories, below.

Section 6.0 is organized according to the following resources categories:

6.1 Private Property Rights
6.2 Agricultural Land Use Preservation
6.3 Regulatory Agency Permit Streamlining
6.4 Flood Protection Needs
6.5 Conservation, Preservation, and Enhancement of Species Habitat
6.6 Aggregate Harvesting
6.7 Coastal Beaches Erosion and Replenishment
6.8 Recreation
6.9 Cultural (i.e., Historic and Archaeological) Resources
6.10 Groundwater Recharge, Water Rights, Water Supply, and Water Quality

These ten resources categories were developed from the 10 Riverwide Issues and the 20 Riverwide Recommendations presented in the 1999 I&R Document (included as Appendix B).

The development and presentation of the information for the resources categories in Sections 6.1 through 6.10 proceeded, in most cases, according to the methodology discussed below. The methodology is illustrated in Figure 6.0-1 (see following page).

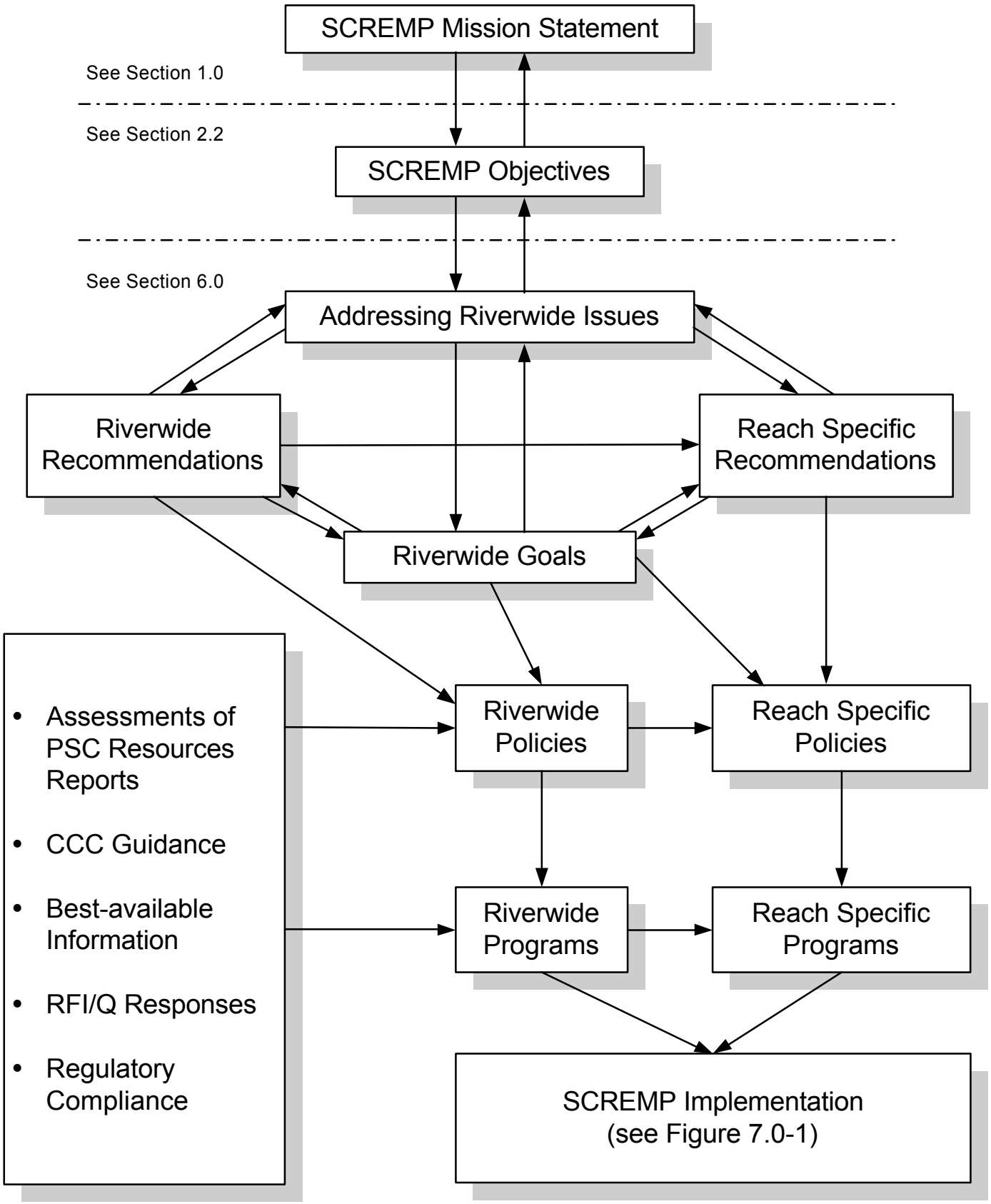
Riverwide Issues

Issue statements were considered as presented in the 1999 I&R Document and included verbatim in the sections. The 1999 I&R Document is included in Appendix B.

Riverwide Recommendations

Riverwide Recommendation statements were considered as presented in the 1999 I&R Document and included verbatim in the sections. It should be noted that some Riverwide Recommendations are applicable under a few different resources categories. For example, Riverwide Recommendation 3.C. Private Property Rights is relevant to Section 6.1 Private Property Rights, Section 6.2 Agricultural Land Use Preservation, and Section 6.3 Regulatory Agency Permit Streamlining and, accordingly, is reiterated in each of

Figure 6.0 - 1
Methodology for Developing the Information Presented in Sections 6.1 Through 6.10



these sections. It should also be noted that some of the Riverwide Recommendations under certain resources categories were the subject of Stakeholder review comments. For these cases, the Riverwide Recommendation is augmented from its strict 1999 I&R Document verbatim text and format and indicated in enclosed double brackets [[ ]] to assist Stakeholder review. Technically, these constitute comments on the 1999 I&R Document and not on the SCREMP, per se. As an example, see the text within double brackets under Section 6.2.1 RR3.C. Private Property Rights, below.

Riverwide Goals

A goal statement was developed that acknowledges the Riverwide Issue in the context of concepts presented in those Riverwide Recommendations that appear to be most relevant to the Riverwide Issue. This process included cross-referencing each Riverwide Issue to all 20 Riverwide Recommendations to determine relevancy.

Riverwide Policies

Policies were developed based on the SCREMP Vision Statement, the SCREMP Objectives Statements, the Riverwide Issues Statements, the Riverwide Goals Statements, and the relevant Riverwide Recommendations; then proceeding to incorporate language and concepts contained in the various Project Steering Committee Resources Reports; reviews of SCREMP administrative documents that provided CCC guidance (e.g., meeting minutes, work plan); consideration of the current environmental regulatory environment; and a review of the best-available scientific and factual data (e.g., other reports, website information, the RFI/Q responses, etc.). This was an iterative process that involved synthesis and cross-referencing for relevancy and consistency. It is acknowledged that the strength of any stated policy will reflect the rigor with which the process was applied. It should be noted that exceptions to this approach do occur in the SCREMP that reflect a hybridization of policy and program. An example of this is Section 6.9.1, Cultural Resources, where the Cultural Resources Management Plan provided in that section may be adopted as a SCREMP policy pertaining to preservation of Cultural Resources within the SCREMP Area, and implemented as a program, as well.

Riverwide Programs

Riverwide Programs were developed based on Policies, however, not necessarily as a 1:1 Policy-to-Program correspondence. Riverwide Programs that embody one, or more than one, Policy are considered acceptable and practical for the purposes of SCREMP implementation. In most cases, a Policy may constitute a “statement of support” for something (e.g., an activity, process, practice, etc.) but does not lend itself to implementation as a defined SCREMP Program. A hypothetical example of this is a policy statement supporting the efforts of other entities engaged in the control of exotic and nuisance plant and wildlife species in the SCREMP Area, yet the SCREMP does not propose establishing a stand-alone program to accomplish this.

A best attempt was made to identify and develop Riverwide Programs that incorporate feasible and practical means and/or provide SCREMP support services to enhance and manage the identified resources categories and serve the interests of the Stakeholders, as well. It is noted that Riverwide Programs are not developed for some resources categories because it is considered more appropriate to address a reach specific resource category under a Reach Specific Program (see below). The process for implementation of Riverwide Programs will be developed by the SCREMP Project Steering Committee and is described under Section 7.0, SCREMP Implementation Process, below.

Riverwide Projects

The development and inclusion of information regarding Riverwide Projects was based on: (1) the information on "planned projects" and "probable future projects" as provided by those Stakeholders who responded to the Request for Information letter and Questionnaire (RFI/Q letter) forwarded on January 21, 2003 by courier to the Stakeholders; and (2) the best-available factual information that could be obtained from other sources (e.g., community plans, resource management plans, website information, etc.). Riverwide Projects are included as an Excel file in the attached CD to this SCREMP. It should be noted, as well as expected, that few of the projects identified are classifiable as "riverwide projects" because projects, by their very nature, tend to be reach specific based on land ownership patterns and the jurisdictional boundaries of governmental entities. In Figure 6.0-1, Riverwide Projects are synonymous with "RFI/Q responses."

Reach Specific Recommendations

Reach Specific Recommendations were considered, as presented, in the 1999 I&R Document and included verbatim in the sections. In some cases, Reach Specific Recommendations are augmented to reflect Stakeholder review comments and are indicated in enclosed double brackets, as was described previously. As specified in the 1999 I&R Document, Riverwide Issues and Riverwide Recommendations apply to all river reaches. Accordingly, these are considered to be incorporated *de facto* and are not reiterated under Reach Specific Recommendations, Policies and Projects. It is noted that the 1999 I&R Document does not specify Reach Specific Recommendations for all the identified resources categories for all the river reaches. It is also noted that no Reach Specific Recommendations have been identified for Reach 6 in the 1999 I&R Document.

Reach Specific Policies

Reach Specific Policies were established from the relevant Reach Specific Recommendations to provide guidance to the participating SCREMP Stakeholders who possess authority to make land use planning decisions and/or to approve actions and activities that have the potential to affect the identified resources categories within specific reaches of the SCREMP Area.

Reach Specific Programs

Reach Specific programs were developed in consideration of Riverwide Programs but with applicability focused toward given river reaches. The process for implementation of Reach Specific Programs is described under Section 7.0, SCREMP Implementation.

Reach Specific Projects

The exercise described above under Riverwide Projects mostly identified projects that are classifiable as "reach specific" and projects that may overlap a few contiguous river reaches because of their linear designs (e.g., flood protection facilities). Accordingly, most of the "planned projects" and "probable future projects" identified in the SCREMP are Reach Specific Projects. In Figure 6.0-1, Reach Specific Projects are synonymous with "RFI/Q responses." Reach Specific Projects are included as an Excel file in the attached CD to this SCREMP.

Integrated Programs

For some categories of resources, it was considered practical and appropriate to combine Riverwide Programs and Reach Specific Programs and call these Integrated Programs.

6.1 Private Property Rights

Issues

The issues pertaining to maintaining private property rights that are relevant to the SCREMP are given in the "Summary of Riverwide Issues and Riverwide Recommendations" document dated April 27, 1999 (1999 I&R Document) under Issue No. 1 Private Property Rights, which states:

A large majority of the land within the 500-year floodplain of the Santa Clara River is privately owned and may or may not include existing surface water rights. The SCREMP acknowledges and respects the existing property and water rights of private property owners and encourages purchase of property from willing sellers for the preservation of existing resources.

Goal

Accordingly, the goal statement for the purposes of the SCREMP is:

To acknowledge and respect the private property and water rights of private property owners (including those land trusts and conservancies that are private entities); provide that the exercise of private property rights will occur in such a manner as to promote strategies for the preservation, enhancement, and sustainability of physical, biological, and economic resources; encourage the exercise of best management practices and resources stewardship by private property owners; provide a mechanism for the

reclaiming of private property uses lost as a consequence of catastrophic flooding events and/or progressive bank destabilizations up to the 25-year protection and encroachment limit line; and encourage the procurement of private lands from willing sellers for the purposes of resources management, preservation and/or enhancement.

6.1.1 Riverwide Recommendations

Riverwide Recommendations (RR), as presented in the 1999 I&R Document, that are considered most relevant to Private Property Rights include the following:

RR 3.A. Private Property Rights: Preservation of existing resources and establishment of mitigation banks could be accomplished through the purchase of private property from willing sellers.

RR 3.B. Private Property Rights: Property owners will be encouraged to remove Arundo to reduce spread of exotic vegetation. This will also reduce inappropriate human use such as homeless encampments.

RR 3.C. Private Property Rights: Establish a streamlined regulatory process covering situations when existing stream dependent agricultural operations are destroyed by flood flows: those uses/operations may be replaced to pre-flood conditions in accordance with the conditions of the permit.

RR 5. Water Rights: Preserve and enhance in-stream and riparian beneficial uses, as identified in the Basin Plan, while respecting existing water rights, licenses, and permits for use of water resources (e.g., agricultural or municipal uses and groundwater replenishment). [Need integration with the Biological Sub-Committee, especially as related to Steelhead recovery]

RR 14. Habitat Conservation Priorities: Acquire property from willing sellers in those areas identified for restoration and/or enhancement. The conservation rankings and linkages to natural habitats outside of the planning area, identified by the biological subcommittee, will be used as guides to prioritize conservation efforts (e.g. off-site mitigation efforts, conservation easements/purchases, mitigation banks, etc.). Segments of the river with high conservation rank (5) or high connectivity to uplands will be in the first focus of such efforts. Such prioritization is only guidance and conservation of areas in lower ranking segments will proceed as specific opportunities and funding arise.

Recommendations for upland connectivity by segment are identified in Table 4-1 (page 4-12) of the Biological Resources Report, Vol. 1. Conservation rankings are identified on the most recent biological resources coverage mapped by CH2MHill/Psomas dated February 1998.

RR 19. Recreational Property Acquisition: Where there are willing sellers and available funding, local, county and state agencies will acquire land (via fee title or easement) within the 100-year floodplain for recreation/education purposes.

Riverwide Policy

It is SCREMP policy to acknowledge and respect the rights of property owners to exercise the full beneficial uses of their properties as entitled under law and within the setting of existing local, State, and federal regulatory authorities. Accordingly, it is not SCREMP policy to adopt any policy or program for achieving SCREMP goals that would deny or restrict private property rights or conflict with existing local, State and federal laws, codes and ordinances. Therefore, the SCREMP endorses the achievement of SCREMP goals through the process of actively engaging the support of landowners regarding the following actions and activities: (a) purchase of property from willing sellers for the preservation of existing resources and for recreational & educational opportunities; (b) securing conservation easements from willing parties for the purposes of (a), as previously stated; (c) implementing best management practices (BMPs) to reduce soil erosion and water contamination; and (d) practicing land stewardship for the benefit of biological resources.

It is SCREMP policy to support SOAR (Save Open-space and Agricultural Resources) actions in Ventura County to the extent that such actions pertain specifically to the SCREMP Area and are consistent with the SCREMP goal and recommendations contained within Section 6.1 Private Property Rights.

Riverwide Program

The above-described SCREMP policy will be facilitated under programs for biological resources as described in Section 6.5.3, Integrated Riverwide and Reach Specific Programs, and under programs for recreational resources as described in Section 6.8, Recreation.

Riverwide Projects

Riverwide Projects are included as an Excel file in the attached CD to this SCREMP.

6.1.2 Reach Specific Recommendations

The Riverwide Recommendation, presented above, apply to all reaches. Reach Specific Recommendations include procuring conservation easements as a tool for habitat management for Reach numbers 7, 8, 9, 10, and 13, as stated:

Biological enhancement, restoration and preservation within the 100-year floodplain shall be carried out (implemented) as identified by the biological mapping. Areas with a Conservation Ranking of 5 will be considered the highest priority for conservation. Within those areas, conservation easements will be pursued as a tool for habitat management. There will be an equitable benefit that accompanies conservation easements granted by the property owners for those types of habitat management approaches.

Reach Specific Policy

SCREMP policy, as stated previously under Riverwide Policy, is to support this recommendation.

Reach Specific Program

The above-described SCREMP policy will be facilitated under programs for biological resources as described in Section 6.5.3, Integrated Riverwide and Reach Specific Programs.

Reach Specific Projects

Reach Specific Projects are included as an Excel file in the attached CD to this SCREMP.

6.2 Agricultural Land Use Preservation

Issues

The issues pertaining to the preservation of important land uses such as agriculture that are relevant to the SCREMP are given in the "Summary of Riverwide Issues and Riverwide Recommendations" document dated April 27, 1999 (1999 I&R Document) under Issue no. 2 Agricultural/Land Use Preservation, which states:

One of the largest land uses, other than open space, within the Santa Clara River corridor is agriculture. To preserve this land use, the SCREMP acknowledges and respects existing uses of land between the 500-year floodplain boundary and the proposed 25-year flood protection limit line.

Goal

Accordingly, the goal statement for the purposes of the SCREMP is:

To acknowledge and respect the private property and water rights of private property owners belonging to the Agricultural Community; provide that the exercise of private property rights and the conducting of agricultural practices will occur in such a manner as to promote strategies for the preservation, enhancement, and sustainability of physical, biological, and economic resources; encourage the exercise of agricultural best management practices (BMPs) and resources stewardship by private property owners; provide a mechanism for the reclaiming of private property agricultural uses lost as a consequence of catastrophic flooding events and/or progressive bank destabilizations up to the 25-year protection and encroachment limit line; and facilitate the procurement of private agricultural lands from willing sellers for the purposes of resources management, preservation and/or enhancement under those circumstances when it is highly probable that there is a net benefit for resources that outweighs the net loss of agricultural lands.

6.2.1 Riverwide Recommendations

Riverwide Recommendations (RR), as presented in the 1999 I&R Document, that are most relevant to Agricultural Land Use Preservation include the following:

RR 3.C. Private Property Rights: Establish a streamlined regulatory process covering situations when existing stream dependent agricultural operations are destroyed by flood flows: those uses/operations may be replaced to pre-flood conditions [[up to the 25-year protection and encroachment limit line]] in accordance with the conditions of the permit.

[[It is noted that regulatory projects or activities that could potentially affect endangered species must be reviewed under Section 7 or Section 10 of the federal Endangered Species Act (FESA). Accordingly, development of a permit streamlining vehicle by the Corps of Engineers will require a coordination with the U.S. Fish & Wildlife Service regarding endangered wildlife species and with the National Marine Fisheries Service regarding the endangered southern steelhead]].

RR 4.A. Water Quality: Manage water quality (point and non-point sources) to protect beneficial uses. The Water Resources Subcommittee will act in an advisory capacity to the Los Angeles Regional Water Quality Control Board.

RR 4.B. Water Quality: The California Regional Water Quality Control Board, Los Angeles Region is charged with the responsibility of (1) assessing water quality, (2) identifying impairments, (3) identifying sources of impairments, and (4) developing solutions that will restore water quality and protect beneficial uses. In concert with other Stakeholders involved in the water aspects of the Plan, the Regional Board will be implementing the above activities and will be seeking assistance in supplying data and other information to complete the effort. The Regional Board will identify gaps (both geographic and types of constituents) that need to be measured to assess the health of the watershed. During fiscal year 2001-2002, the Regional Board will focus efforts on renewing permits in the watershed. This will be a crucial time period for input from those interested in the water quality of the river.

RR 5. Water Rights: Preserve and enhance in-stream and riparian beneficial uses, as identified in the Basin Plan, while respecting existing water rights, licenses, and permits for use of water resources (e.g., agricultural or municipal uses and groundwater replenishment). [Need integration with the Biological Sub-Committee, especially as related to Steelhead recovery]

RR 6. Saltwater Intrusion: Address saltwater intrusion problems on the Oxnard Plain through regulating groundwater pumping and continuation of water conservation and recharge activities.

Explanation:
Use of the river channel for transporting water for recharge of the Oxnard Plain is recognized as a vital element in combating seawater intrusion. During the 1960s, '70s and early '80s, Oxnard Plain groundwater use increased to the point where the overdraft was creating a serious seawater intrusion problem. The State Water Resources Control Board (SWRCB) declared the basin in "critical overdraft" and mandated the local agencies to address the problem. The Fox Canyon Groundwater Management Agency was formed to regulate pumping. The SWRCB assisted United Water in obtaining funding for construction of the Freeman Diversion Dam to increase groundwater recharge and in lieu deliveries of surface water to reduce pumping. This delicate balance must be managed closely in order to protect both the valuable surface and groundwater resources of the river.

RR 7. Water Supply: Maximize use of existing water supplies and encourage recycled water use as a supplemental local water supply by constructing delivery systems and actively promoting the use of locally produced recycled water to replace drinking quality water for nonpotable applications.

Explanation:
The Santa Clara valley region is one of the fastest growing areas in the state, and is dependent on imported water to supplement its limited groundwater resources. Increased population growth, potential droughts and uncertainties over the availability of imported water will very likely result in future water shortages. The development of this local supplemental water supply will help reduce the negative impacts on the local economy and the quality of life as statewide demand grows and/or supplies decrease and cause local water shortages.

RR 11. Private Flood Protection: The 25-year protection and encroachment limit line indicated in the Flood Protection Report (for Ventura County only) will be used as the basis for development of a regional general permit that will allow property owners to protect their property from flooding and bank erosion from more frequent floods. The intention is to develop a general permit that would allow owners to construct "soft" protection facilities, to the level of the existing bank, and restore land or damaged pre-existing flood protection facilities up to the limit line without submitting justifications and alternative analyses or performing mitigation if the restoration is performed within nine months of the flood event which caused the damage. Initial installation of protection structures would be subject to the required permits. Whenever possible, the regional general permit will seek to allow restoration or reclamation of storm related damage to be covered by the initial installation permit with only written notification required. Routine maintenance of the facility, including any repair work and preventative maintenance, shall be addressed in the original permit or be consistent with the regional general permit. Land lost in past floods could not be reclaimed. These private facilities for the protection of land shall be limited to Q25 level of protection. (Replacement of stream dependent agricultural operations is covered under Recommendation 3C above.).

Explanation:
The maximum level of flood protection that may be justified for agricultural land is the present condition 25-year frequency discharge (Q25), indicated in the Flood Protection Subcommittee Report m Table 4:2. In most cases, areas of currently cultivated land appear to be at, or above, the 25-year flood plain. Accordingly, protection to 25-year flood frequency level is recommended for private facilities, as well as for interim public facilities when appropriate. Installation of flood protection for larger storm, will, in most cases, violate the Flood Plain Ordinance. "Soft" protection facilities include, but are not limited to, willow plantings, compacted cohesive soil bank protection, willow post bank protection, gabion basket bank protection, articulated block, pipe/rail and wire revetment, and cable groins. All of the above listed "soft" protection facilities, excluding cable groins, are summarized in the Flood Protection Report.

[SCVPOA and the Biological Subcommittee will comment on and, if necessary, further develop this recommendation. The Biological Subcommittee may want to specify how, when, and what could be covered under a general permit process.]

[[It is acknowledged that the 25-year flood limit is not currently well-defined. A sediment transport study and model is proposed that would be used to define the various flood limits for use in development of a permit for the protection and repair of agricultural properties impacted by flooding.]]

[[It is noted that implementing this recommendation will require that it be consistent with the requirements of the Section 9 Incidental Take Provisions of the federal Endangered Species Act.]]

Riverwide Policy

It is SCREMP policy to encourage, support, and facilitate the preservation of agricultural land uses and the amount and quality of agricultural water supplies. This policy favors the following nine elements (i.e., a through i).

Element (a): Regulatory Agency permit streamlining, as described at Section 6.3.1, for the preservation of existing stream-dependent agricultural operations when destroyed by floods.

Element (b): The SCREMP supports the LA RWQCB's specified impairment objectives and criteria, existing and scheduled TMDLs, implementation of BMPs under Municipal Storm Water Permits, implementation of NPDES permit conditions, and various monitoring and assessment programs, as the appropriate means for addressing water quality factors that pertain to agriculture.

Element (c): The SCREMP supports the watershed beneficial uses identified in the LA RWQCB 1994 Basin Plan, as amended, that pertain to agricultural supply, groundwater recharge, and freshwater replenishment and supports the Agricultural Community's

entitlement to these beneficial uses in the form of existing water rights, licenses, and permits.

Element (d): The SCREMP supports the use of the Santa Clara River channel for transporting water to the Freeman Diversion Dam so that it may accomplish it's vital functions for supporting the Agricultural Community in the Oxnard Plain, replenish over-drafted groundwater supplies, and reverse trends of seawater intrusion and land subsidence. These functions should be executed in full consideration of other in-stream needs and such that down-stream users needs are also met.

Element (e): The SCREMP supports the conservation and efficient utilization of groundwater and surface water supplies through the implementation of on-farm irrigation water conservation practices and system-wide improvements, including furrow irrigation to drip-irrigation conversions, and routine irrigation system maintenance and repair.

Element (f): The SCREMP supports the conservation of groundwaters and surface waters through the use of reclaimed water for urban landscaping, golf course, and park lawn irrigations, and for production of feed and fiber.

Element (g): Regulatory Agency permit streamlining, as described at Section 6.3.1, for the reclaiming of agricultural land uses lost as a consequence of catastrophic flooding events and/or progressive bank destabilizations up to the 25-year protection and encroachment limit.

Element (h): The SCREMP supports investigating a policy that addresses BMPs for agriculture for silt and sediment management on the lower flood plains of tributaries just above their confluences with the River.

Element (i): It is SCREMP policy to support SOAR (Save Open-space and Agricultural Resources) actions in Ventura County to the extent that such actions pertain specifically to the SCREMP Area and are consistent with the SCREMP goal and recommendations contained within Section 6.2 Agricultural Land Use Preservation.

Riverwide Programs

The nine elements described above have varying levels of applicability for development as SCREMP programs. Elements (b), (c), (d), (e), (f), (h), and (i) are statements of support for the indicated activities, processes, and practices (see discussion under Section 6.0). However, Elements (a) and (g) constitute permit streamlining, the facilitation of which, the SCREMP is actively involved in. Accordingly, Elements (a) and (g) receive further consideration under Section 6.3, Regulatory Agency Permit Streamlining.

Riverwide Projects

Riverwide Projects are included as an Excel file in the attached CD to this SCREMP.

6.2.2 Reach Specific Recommendations

The 1999 I&R Document identifies the following Reach Specific Recommendation relating to Agricultural Land Use Preservation in Reach 2:

Identify a range of options to comprehensively address bank habitat loss and flooding of agricultural lands upstream of the Harbor Blvd. Bridge.

Reach Specific Policy

It is SCREMP policy to support the recommendation, above, as stated.

Reach Specific Program

A program to facilitate the recommendation, as stated, is developed under Section 6.4.2, Flood Protection Needs.

Reach Specific Projects

Reach Specific Projects are included as an Excel file in the attached CD to this SCREMP.

6.3 Regulatory Agency Permit Streamlining

Issues

The issues pertaining to facilitating permit streamlining relevant to the SCREMP are given in the "Summary of Riverwide Issues and Riverwide Recommendations" document dated April 27, 1999 (1999 I&R Document) under Issue no. 3 Permit Streamlining, which states:

Projects on the Santa Clara River typically involve permits from federal, state, and local agencies. These agencies include the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, the California Department of Fish and Game, the California Regional Water Quality Control Board – Los Angeles Region, and Ventura and Los Angeles Counties. Navigating through the permit process can be difficult and may involve costly delays for both private and public entities, including cities and counties. The regulatory agencies are committed to permit streamlining and will work together to clarify, coordinate, and simplify the acquisition of permits for activities consistent with the SCREMP, while at the same time protecting public resources.

Goal

Accordingly, the goal statement for the purposes of the SCREMP is:

To provide a clear and concise matrix table of the permitting process for certain identified categories of public agency and private citizen actions occurring specifically within the 500-year floodplain that require compliance with relevant federal, state, and county laws, codes, regulations, ordinances, policies, and/or programs, including, but not limited to the National Environmental Policy Act (NEPA); the Federal Endangered Species Act (FESA); the National Historic Preservation Act (NHPA); Section 401, Section 402, and Section 404 of the Clean Water Act; the California Environmental Quality Act (CEQA); the California Endangered Species Act (CESA); and Sections 1601-07 of the California Fish and Game Code. Where streamlined permitting processes have been developed, or will be developed in the reasonably foreseeable future, these too will be included in the matrix table.

6.3.1 Riverwide Recommendations

Riverwide Recommendations (RR), as presented in the 1999 I&R Document, that are most relevant to the facilitation of Regulatory Agency Permit Streamlining include:

RR 3.C. Private Property Rights: Establish a streamlined regulatory process covering situations when existing stream dependent agricultural operations are destroyed by flood flows: those uses/operations may be replaced to pre-flood conditions in accordance with the conditions of the permit.

RR 10. Maintenance of Design Flow Capacity: When the effectiveness and adequacy of public flood protection facilities is reduced below the design and/or FEMA required levels and upon submittal of documentation on the hydraulic impact to the facility to regulatory agencies, sediment deposition removal will be allowed to the level of the pre-determined design flow line. The sediment deposition removal would be subject to all laws, regulations and permit requirements including mitigation. The mitigation for sediment deposition removal for future facilities will be addressed in the original permit. However, the requirement for alternative analyses and justifications shall be waived where legally possible or minimized in accordance with available regional general permits.

[[It is acknowledged that generating the design flow line based on historic bed changes does not represent a true equilibrium condition because the sediment transport in the River has been greatly affected by upstream reservoirs and other activities. Accordingly, a sediment transport study is proposed for the purposes of developing a sediment transport model that will provide a more accurate design flow line.]]

RR 11. Private Flood Protection: The 25-year protection and encroachment limit line indicated in the Flood Protection Report (for Ventura County only) will be used as the basis for development of a regional general permit that will allow property owners to protect their property from flooding and bank erosion from more frequent floods. The intention is to develop a general permit that would allow owners to construct "soft" protection facilities, to the level of the existing bank, and restore land or damaged pre-existing flood protection facilities up to the limit line without submitting justifications

and alternative analyses or performing mitigation if the restoration is performed within nine months of the flood event which caused the damage. Initial installation of protection structures would be subject to the required permits. Whenever possible, the regional general permit will seek to allow restoration or reclamation of storm related damage to be covered by the initial installation permit with only written notification required. Routine maintenance of the facility, including any repair work and preventative maintenance, shall be addressed in the original permit or be consistent with the regional general permit. Land lost in past floods could not be reclaimed. These private facilities for the protection of land shall be limited to Q25 level of protection. (Replacement of stream dependent agricultural operations is covered under Recommendation 3C above.).

Explanation:
The maximum level of flood protection that may be justified for agricultural land is the present condition 25 year frequency discharge (Q25), indicated in the Flood Protection Subcommittee Report m Table 4:2. In most cases, areas of currently cultivated land appear to be at, or above, the 25-year flood plain. Accordingly, protection to 25-year flood frequency level is recommended for private facilities, as well as for interim public facilities when appropriate. Installation of flood protection for larger storm, will, in most cases, violate the Flood Plain Ordinance. "Soft" protection facilities include, but are not limited to, willow plantings, compacted cohesive soil bank protection, willow post bank protection, gabion basket bank protection, articulated block, pipe/rail and wire revetment, and cable groins. All of the above listed "soft" protection facilities, excluding cable groins, are summarized in the Flood Protection Report.

[SCVPOA and the Biological Subcommittee will comment on and, if necessary, further develop this recommendation. The Biological Subcommittee may want to specify how, when, and what could be covered under a general permit process.]

[[It is noted that implementing this recommendation will require that it be consistent with the requirements of the Section 9 Incidental Take Provisions of the federal Endangered Species Act.]]

[[In the 1999 I&R Document, Riverwide Issue No. 3. Permit Streamlining identifies private and public entities, including cities and counties, as being the beneficiaries of a permit streamlining process. It identifies the Corps of Engineers (Corps), U.S. Fish & Wildlife Service, The National Marine Fisheries Service, the California Department of Fish & Game, the California Regional Water Quality Control Board – Los Angeles Region, and Ventura and Los Angeles counties as being regulatory agencies that are committed to permit streamlining who will work together to clarify, coordinate, and simplify the permit streamlining process. Riverwide Recommendation No. 20. Permit Streamlining, stated that recommendations were under development by an ad-hoc committee on regulatory streamlining chaired by the Corps. The results of that work effort was a draft Regional General Permit (RGP) dated April 14, 1999. Development of the final RGP is anticipated to be executed concurrent with the Final SCREMP development by the reconvened ad-hoc committee on regulatory streamlining chaired by the Corps. Accordingly, the SCREMP is considered a catalyst for the development of the

RGP; however, implementation and administration of the RGP will be the responsibility of the Corps as is required under the Corps of Engineers Regulatory Program Regulations, 33 CFR Parts 320 – 330 (Corps Regulations). Specifically, Part 322, Section 322.2 (f) states:

"(h) The term "general Permit" means a Department of the Army authorization that is issued on a nationwide or regional basis for a category or categories of activities when:

> (1) Those activities are substantially similar in nature and cause only minimal individual and cumulative environmental impacts; or
>
> (2) The general permit would result in avoiding unnecessary duplication of regulatory control exercised by another Federal, state, or local agency provided it has been determined that the environmental consequences of the action are individually and cumulatively minimal. (See 33 CFR 325.2(e) and 33 CFR Part 330).

Part 325, Section 325.2 (e)(2) of the Corps Regulations further defines Regional Permits:

> "(2) Regional permits. Regional permits are a type of general permit as defined in 33 CFR 322.2(f) and 33 CFR 323.2(n). They may be issued by a division or district engineer after compliance with the other procedures of this regulation. After a regional permit has been issued, individual activities falling within those categories that are authorized by such regional permits do not have to be further authorized by the procedures of this regulation. The issuing authority will determine and add appropriate conditions to protect the public interest. When the issuing authority determines on a case-by-case basis that the concerns for the aquatic environment so indicate, he may exercise discretionary authority to override the regional permit and require an individual application and review. A regional permit may be revoked by the issuing authority if it is determined that it is contrary to the public interest provided the procedures of Section 325.7 of this Part are followed. Following revocation, applications for future activities in areas covered by the regional permit shall be processed as applications for individual permits. No regional permit shall be issued for a period of more than five years."

As described above, the Final RGP will identify categories of covered activities along with qualifying thresholds and conditions; accordingly, the full range of covered activities will be identified by the reconvened ad-hoc committee on regulatory streamlining chaired by the Corps. It is anticipated that the Final RGP will be consistent with the Corps Nationwide Permit Program.]]

[[It is also anticipated that the California Regional Water Quality Control Board – Los Angeles Region will work with the Corps to develop a regional general water quality permit that is consistent with the actions covered under the Corps RGP. Elements of the Board RGP may include, but are not limited to a general NPDES permit, a general WDR, a Municipal Stormwater 4 Permit, and a monitoring program funded under a federal

205(J) Grant. The Corps RGP and Board RGP would likely adopt a synchronized reach-specific approach that would have terms and conditions for categories of identified permitted actions and activities.]]

Riverwide Policy

It is SCREMP policy to encourage, support, coordinate, and facilitate in a "partnership of interests" capacity the development of permitting vehicles that will be to the overall benefit of all involved parties including, but not limited to: participating Stakeholders; the regulated Public; the concerned Public; and federal, State, and local governmental Regulatory Agencies; and that these permitting vehicles will facilitate SCREMP objectives to promote the preservation, enhancement, and sustainability of the physical, biological, and economic resources within the 500-year floodplain. In the furtherance of this policy, the SCREMP favors the following four Elements:

Element (a): Development of a Corps Regional General Permit (RGP) that authorizes the construction and maintenance of certain bank protection structures which do not encroach into the River beyond the 25-year "flood protection and encroachment limit line" (25-year line). The 25-year line is indicated on Overlay series 1, 2, 3, and 6.

Element (b): Development of a Corps and CDFG permitting vehicle pertaining to RR 3.C., as stated, above.

Element (c): Development of a Corps and CDFG permitting vehicle pertaining to RR 10., as stated, above.

[It is noted that coordination for developing the permitting vehicles stated under Elements (a), (b), and (c) will require coordination with other State and federal agencies including, but not limited to, the California Regional Water Quality Control Board – Los Angeles Region, the U.S. Fish and Wildlife Service, and the National Marine Fisheries Service.]

Element (d): Support application of the approach for analyzing project impacts within the 500-year floodplain based on the "Guide to Watershed Project Permitting for California" developed by the California Association of Resource Conservation Districts (CARCD) (web address: http://www.carcd.org/permitting/analyze.htm) (see following page).

Riverwide Programs

On the basis of the policy Elements stated above, two Riverwide Programs (RProg) pertaining to permit streamlining are identified:

RProg (1): Any Corps Regional General Permits, as well as any Memorandum of Understandings regarding Sections 1601-1607 et. Seq (i.e., Streambed Alteration Agreement), will be included on the SCREMP website along with the additional information pertaining to applicability within the SCREMP Area and relationship to other

Table 6.3-1
REGULATORY AGENCY PERMIT STREAMLINING

	Does Your Project:																				
	Involve bank stabilization or erosion control?	Require the removal of trees or riparian vegetation?	Involve planting riparian vegetation?	Affect native plants, wildlife or fisheries?	Result in stormwater discharge into the creek?	Divert or obstruct the natural flow; or change the natural bed or bank of the creek?	Involve repair, rehabilitation or replacement of any structure or fill adjacent to creek?	Involve building any structure adjacent to the creek?	Involve fish and wildlife enhancement, attraction or harvesting devices and activities?	Use materials from a streambed (including but not limited to boulders, rocks, gravel, sand and wood debris)?	Require the disposal or deposition of debris, waste, or any material containing crumbled, flaked, or ground pavement with a possibility that such material could pass into the stream?	Involve the removal of any materials from a stream or adds fill to the stream?	Involve grading or fill near the creek?	Involve a bridge or culvert?	Involve utility pipe lines?	Involve a septic leach filed near the creek?	Require a water well near the creek?	Involve work within historic or existing coastal wetlands?	Remove water from creek for storage or direct use on non-riparian land?	Require that hazardous materials be generated and/or stored on site?	Involve a land disturbance of five acres or more?	Involve a creek or stream with species listed as endangered or threatened?
State Reclamation Board	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
USFWS				○		○			○			○									
NEPA	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
CCC								●									●				
USACOE	●				●	●	●	●	●	●	●	●	●	●	●		●	●			
NMFS	○	○	○	●	○	○	○		●	○	○	○	○	○			○				●
RWQCB	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
SWRCB						●												●		●	
DFG	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Water/Irrigation Flood control District	●		●		●	●				●	●	●	●					●			
City/County Environmental Health Dept.						●			●						●	●	●		●		
City/County Planning Dept.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	

○ Action may requie regulatory compliance

● Action will most likely require regulatory compliance

DFG - Department of Fish & Game **SWRCB - State Water Resources Control Board**

NMFS - National Marine Fisheries Ser **RWQCB - Regional Water Quality Control Board**

USACOE -US Army Corps of Enginee **USFWS - US Fish and Wildlife Service**

NEPA - National Environmental Policy **CCC - California Coastal Commission**

types of regulatory permitting (see below). This service will be available to Stakeholders as well as the General Public and will most likely be included as a component of the Public Outreach Program consistent with Riverwide Recommendation 2 Public Outreach in the 1999 I&R Document and described under Section 7.0, below.

RProg (2): The SCREMP will provide a support service for permit streamlining specific to actions proposed within the 500-year floodplain based upon the aforementioned CARCD Guide under Element (d) most likely as a component of the Public Outreach Program consistent with Riverwide Recommendation 2 Public Outreach in the 1999 I&R Document and described under Section 7.0, below. The program will be available to Stakeholders as well as the General Public. Support will likely include posting information on the SCREMP website. The SCREMP will coordinate with federal, State, and local governmental agencies to ensure that regulatory permitting information is up-to-date and accurate. RProg (2) is developed to assist Stakeholders and the General Public in facilitating their individual permitting actions by disseminating information about the current and future permitting environments. It is not developed to function in a permitting applicant capacity nor in a permit processing capacity.

Riverwide Projects

Riverwide Projects are included as an Excel file in the attached CD to this SCREMP.

6.3.2 Reach Specific Recommendations

The 1999 I&R Document identifies the following Reach Specific Recommendation relating to Regulatory Agency Permit Streamlining in Reach 11 and Reach 12:

Activities within this reach shall comply with the Section 404 Permit and Section 1603 Streambed Alteration Agreement pursuant to the Natural River Management Concept for Valencia Company and Newhall Ranch projects.

Reach Specific Policy

The SCREMP supports the notification procedures and environmental mitigation measures that are stated in the Corps Section 404 permit and the CDFG 1603 Streambed Alteration Agreement pursuant to the "Natural River Management Plan", November 1998, Valencia Company for Reach 11 and Reach 12; and that a continuation or betterment of these procedures and measures be included in the Natural River Management Concept that would pertain to the 500-year floodplain area within the Newhall Ranch Specific Plan area.

Reach Specific Programs

No Reach Specific Programs are identified; however, Riverwide Programs (1) and (2), as stated under Section 6.3.2, above, apply to all reaches.

Reach Specific Projects

Reach Specific Projects are included as an Excel file in the attached CD to this SCREMP.

6.4 Flood Protection Needs

The policies, programs and projects discussions, below, are developed separately for Ventura County and Los Angeles County under Section 6.4.1 and Section 6.4.2, respectively. This approach was used because it considers the two major geopolitical jurisdictional authorities within the SCREMP area, namely, the Ventura County Watershed Protection District (VCWPD) and the Los Angeles Department of Public Works - Watershed Management Division (LADPW-WMD).

The current condition of State and federal regulations, as well as funding constraints, substantially limit the ability of public agencies and private entities to alter conditions within the SCREMP 500-year floodplain area, even if these conditions affect the capacity or adequacy of flood protection facilities. It is, therefore, critical that any SCREMP policies and programs that address the long-term viability of flood protection facilities consider the ever-changing conditions of the SCREMP Area to ensure that facilities, particularly publicly owned facilities, are designed in a manner that guarantees their effectiveness during the design flood event and minimizes operation and maintenance (O&M). Although not mandated for privately installed interim facilities, the same polices and programs should be considered to ensure the long-term viability of the private investment. It is expected that implementing policies and programs in this manner will help minimize activities in the SCREMP Area, thus promoting the preservation of the natural physical and biological environment. In furtherance of achieving a harmony among the needs for flood protection, maintaining the natural floodplain of the River for transporting flood flows and sediments, and maintaining the natural processes that create and sustain riverine habitats, the employment of sound and responsible floodplain management strategies is recognized.

Issues

The issues pertaining to maintaining flood protection that are relevant to the SCREMP are given in the "Summary of Riverwide Issues and Riverwide Recommendations" document dated April 27, 1999 (1999 I&R Document) under Issue no. 4 Flood Protection Needs, which states:

Flood protection along the Santa Clara River is needed for the protection of life and property from flood hazards through floodplain management activities and flood control improvements. The SCREMP will address the protection of life and property. Flood protection needs and options are discussed in the Flood Protection Report dated June 1996.

Goals

Accordingly, the goal statement for the purposes of the SCREMP is:

It is of utmost concern to protect the lives of people and their properties that afford shelter or the basis for their economic livelihood, and all measures to achieve this protection will be implemented in full consideration of the other resources but will not be constrained to such an extent as to place the lives of people or their properties at foreseeable undue risk.

6.4.1 Recommendations – Ventura County

Riverwide Recommendations, as presented in the 1999 I & R Document, that are relevant to Flood Protection Needs in Ventura County include the following:

RR 8. River Gradient: In Ventura County, the design flowline, presented in the Flood Protection Report Figures 2-8 through 2-15, shall be used in the design of all flood protection facilities.

Explanation:
Figures 2-8 through 2-15 presented in Appendix 2 of the Flood Protection Report and discussed in Section 2 under "Historic Bed Profile Fluctuation" in that report, indicate the significant fluctuations of the river flow line (thalweg) in the recent past. These fluctuations are the result of natural occurrences and human activities in the river and the watershed and cannot be accurately predicted. However, they do indicate that the use of a flow line, current at the time the design of the facility is being prepared, may not be appropriate. Accordingly, the flow line elevations, shown in Figures 2-8 through 2-15 as "Design Flow Line" shall be utilized for design purposes in conjunction with the most recent topographic configuration of the river; thus if the flow line, at the time the design of the facility is being performed, is lower than the design flow line, an artificial level flow line shall be inserted; on the other hand, if the flow line is higher, then the most recent cross-section and flow line shall be used. Except where provided for elsewhere in the flood projection report, an excavated streambed at the elevation of the design flow line shall not be used in the hydraulic analysis.

Additional design goal:
In the future, criteria for the design of flood protection facilities shall consider the ever-changing conditions of the river (vegetation growth, etc.) to guarantee their effectiveness during the design flood, minimize O&M (thereby minimizing activity in the river and preserving the natural habitat) and protect the long-term viability of investment. In addition, the design shall allow natural sediment to move throughout the facility without either scouring the existing earth bottom or causing significant sediment to be deposited which would reduce the level of flood hazard protection provided by such a facility and as to not impair sediment transport to the beach.

[[It is acknowledged that generating the design flow line based on historic bed changes does not represent a true equilibrium condition because the sediment transport in the River has been greatly affected by upstream reservoirs and other activities. Accordingly, a sediment transport study is proposed for the purposes of developing a sediment transport model that will provide a more accurate design flow line.]]

RR 9. Public Flood Protection Facilities: Future construction of flood protection facilities, as proposed within the spheres of influence for the cities in the Flood Protection Report, shall be publicly owned and be subject to all laws, regulations and permit requirements including mitigation for the project impact; however, the requirement for alternative analyses and justifications shall be waived where legally possible.

Whenever possible restoration or reclamation of storm related damage shall be covered by the initial installation permit with only written notification required. Routine maintenance of the facility, including any repair work and preventative maintenance, shall be addressed in the original permit or in the streamlining process.

RR 10. Maintenance of Design Flow Capacity: When the effectiveness and adequacy of public flood protection facilities is reduced below the design and/or FEMA required levels and upon submittal of documentation on the hydraulic impact to the facility to regulatory agencies, sediment deposition removal will be allowed to the level of the pre-determined design flow line. The sediment deposition removal would be subject to all laws, regulations, and permit requirements including mitigation. The mitigation for sediment deposition removal for future facilities will be addressed in the original permit. However, the requirement for alternative analyses and justifications shall be waived where legally possible or minimized in accordance with available regional general permits.

RR 11. Private Flood Protection: The 25-year protection and encroachment limit line indicated in the Flood Protection Report (for Ventura County only) will be used as the basis for development of a regional general permit that will allow property owners to protect their property from flooding and bank erosion from more frequent floods. The intention is to develop a general permit that would allow owners to construct "soft" protection facilities, to the level of the existing bank, and restore land or damaged pre-existing flood protection facilities up to the limit line without submitting justifications and alternative analyses or performing mitigation if the restoration is performed within nine months of the flood event which caused the damage. Initial installation of protection structures would be subject to the required permits. Whenever possible, the regional general permit will seek to allow restoration or reclamation of storm related damage to be covered by the initial installation permit with only written notification required. Routine maintenance of the facility, including any repair work and preventative maintenance, shall be addressed in the original permit or be consistent with the regional general permit. Land lost in past floods could not be reclaimed. These private facilities for the protection of land shall be limited to Q25 level of protection. (Replacement of stream dependent agricultural operations is covered under Riverwide Recommendation 3C above.)

Explanation:
The maximum level of flood protection that may be justified for agricultural land is the present condition 25-year frequency discharge (Q25), indicated in the Flood Protection Subcommittee Report in Table 4.2. In most cases, areas of currently cultivated land appear to be at, or above, the 25-year flood plain. Accordingly, protection to 25-year flood frequency level is recommended for private facilities, as well as for interim public facilities when appropriate. Installation of flood protection for a larger storm, will, in most cases, violate the Flood Plain Ordinance. "Soft" protection facilities include, but are not limited to, willow plantings, compacted cohesive soil bank protection, willow post bank protection, gabion basket bank protection, articulated block, pipe/rail and wire revetment, and cable groins. All of the above listed "soft" protection facilities, excluding cable groins, are summarized in the Flood Protection Report.

[SCVPOA and the Biological Subcommittee will comment on and, if necessary, further develop this recommendation. The Biological Subcommittee may want to specify how, when, and what could be covered under a general permit process.]

In addition, the following Reach-specific Recommendations (RSR) within Reach 2 are identified:

RSR 1: Replace the Harbor Boulevard Bridge to accommodate the 100-year flood flow.

RSR 2: Remove or protect the Montalvo Treatment Plant.

RSR 4: Identify a range of options to comprehensively address bank habitat loss and flooding of agricultural lands upstream of the Harbor Boulevard Bridge.

Policy

The SCREMP supports the Program presented below as the reasonable and appropriate means to achieve the SCREMP Goal Statement within the Ventura County portion of the SCREMP Area.

The SCREMP supports the Reach 2 Reach Specific Recommendations #1, #2 and #4, above, as stated; however, no Programs are proposed at this time.

Program

The SCREMP proposes that the following 8 criteria for the design, consideration of river dynamics and sediment transport, facilities siting, encroachment limits, environmental and legal compliance, and facilities maintenance, be used for public and/or private facilities construction and operation within the 500-year floodplain in Ventura County. The Ventura County Watershed Protection District (VCWPD) will coordinate and administer this Program.

Criteria (1): Hydrologic Criteria – The criteria presented should be considered as a minimum and should be used in conjunction with information presented elsewhere in Section 6.4.1. The use of FEMA flood insurance studies and rate maps for design of flood protection facilities, which will be owned and maintained by the Ventura County Watershed Protection District (VCWPD), or any other public agency, will not be allowed.

Public Facilities

Public Flood Protection facilities owned and operated by the VCWPD or other public agencies, such as cities, sanitation and water districts, shall be designed for the 50-year frequency ultimate condition discharge (Q50) plus freeboard or 100-year frequency ultimate condition discharge (Q100), whichever results in higher deposition above the flow line. The 50- and 100-year frequency design discharges are indicated in Table 6.4.1-1.

Table 6.4.1-1 Santa Clara River – Ventura County
Ultimate Condition Flood Flows (cfs) (for design purposes)

Location	Drainage Area (sq. mi.)	25-yr. Flood	50-yr. Flood	100-yr. Flood
@ Ocean	1,634	120,000	170,000	220,000
@ Montalvo	1,594	120,000	170,000	220,000
d/s of Sespe Creek	1,500	115,000	166,000	216,000
@ Fillmore	1,164	52,000	76,000	108,000
@ County Line	640	30,000	47,000	66,000

Private Facilities

Although actual data is not available, it is generally believed that the maximum level of flood protection that may be justified for agricultural land is the present condition 25-year frequency discharge (Q25), indicated in Table 6.4.1-2 (see following page). Also, in most cases, areas of currently cultivated land appear to be at, or above, the 25-year flood plain. Accordingly, protection to 25-year flood frequency level is recommended for private facilities, as well as for interim public facilities when appropriate.

Criteria (2): Design Cross-Section and Design Flow Line Criteria – Extensive fluctuations in the Santa Clara River bed and river flow line (thalweg) in Ventura County have occurred in the recent historic past. These fluctuations are the result of natural occurrences and human activities in the river and the watershed and cannot be accurately predicted. Profiles of the flow line for the years 1929, 1949, 1967, 1968, 1971, 1978, 1979, 1980, 1983, 1986, 1989, 1992 and 1993 are presented as Figures 2-8 through 2-15 in Appendix 2 of the Flood Protection Report, June 1996. While not a complete data set, they are considered as representative of the normal flow regime and are used to define the "design flow line" for use in the design of future flood protection facilities in Ventura County. However, these fluctuations do indicate that the use of a flow line, current at the

Table 6.4.1-2. Hydraulic Properties by Reach in Ventura County

REACH		Length in Miles	Average Slope	Present Cond. 25-yr Average thru Reach			Present Cond. 100-yr Average thru Reach			Present Cond. 500-yr Average thru Reach		
From	To			Discharge (cfs)	Flow Depth (ft)	Flow Velocity (fps)	Discharge (cfs)	Flow Depth (ft)	Flow Velocity (fps)	Discharge (cfs)	Flow Depth (ft)	Flow Velocity (fps)
Pacific Ocean	Harbor Blvd.	0.5	0.0011	110,000	6.8	9.0	200,000	7.2	9.9	325,000	8.1	10.4
Harbor Blvd.	Victoria Ave.*	2.4	0.0019	110,000	11.5	8.6	200,000	13.1	9.9	325,000	14.9	11.1
Victoria Ave.	Highway 101	1.7	0.0020	110,000	12.4	9.8	200,000	16.3	11.0	325,000	20.9	12.3
Highway 101	Highway 118	3.7	0.0023	110,000	11.3	11.4	200,000	15.2	13.2	325,000	19.7	14.6
Highway 118	Freeman Diversion	2.4	0.0030	110,000	13.2	10.6	200,000	17.1	12.5	325,000	21.0	14.5
Freeman Diversion	Adams Barranca	2.1	0.0024	110,000	11.6	11.4	200,000	15.2	12.1	325,000	18.7	12.7
Adams Barranca	12th Street	2.6	0.0034	110,000	14.7	11.7	200,000	18.8	12.8	325,000	22.5	13.2
12th Street	Santa Paula Creek	0.3	0.0040	110,000	15.0	11.0	200,000	21.4	10.0	325,000	28.0	10.0
Santa Paula Creek	Willard Road	1.2	0.0039	105,000	12.0	8.7	196,000	16.5	10.4	318,000	19.0	12.0
Willard Road	Sespe Creek	5.0	0.0033	105,000	10.1	7.2	196,000	12.4	8.5	318,000	14.7	9.8
Sespe Creek	Highway 23	1.6	0.0049	47,000	6.4	7.1	98,000	8.4	7.8	194,000	10.7	9.2
Highway 23	Fish Hatchery	1.9	0.0042	47,000	5.4	6.5	98,000	7.3	8.8	194,000	9.6	9.6
Fish Hatchery	Piru Creek	6.0	0.0053	47,000	6.7	7.7	98,000	8.9	9.3	194,000	11.1	109.0
Piru Creek	Newhall Road	2.4	0.0059	27,000	5.4	7.7	60,000	8.0	10.3	82,000	10.8	11.9
Newhall Road	County Line	3.6	0.0047	27,000	8.5	8.5	60,000	13.2	8.9	82,000	17.4	10.9

*Breakout occurs in this reach – Top width at the main river section varies from 1,300’ to 3,300’

time the design of the facility is being prepared, may not be appropriate. Accordingly, the flow line elevations, shown on the cited figure series and designated as the "Design Flow Line" will be used in Ventura County for proposed designs in conjunction with the most recent topographic configurations of the river. Thus, if the flow line, at the time the design of the facility is being performed, is lower than this design flow line, an artificial level flow line will be inserted. Alternative, if the flow line is higher, then the most recent cross-section and flow line will be used. Except where provided for elsewhere in Section 6.4.1, an excavated streambed at the elevation of the design flow line will not be used in the hydraulic analysis.

Criteria (3): River Dynamics and Sediment Transport Criteria – Criteria for the design of flood protection facilities will consider the ever-changing conditions of the river (vegetation growth, etc.) to guarantee their effectiveness during the design flood, minimize O&M (thereby minimizing activity in the river and preserving the natural habitat) and protecting the long-term viability of investments. In addition, the design will allow natural sediment to move throughout the facility without either scouring the existing earth bottom or causing significant sediment to be deposited which would reduce the level of flood hazard protection provided by such a facility and as to not impair sediment transport to the Pacific Ocean.

Criteria (4): Hydraulic Criteria

Public Facilities

Hydraulic analysis of public facilities will be performed using the most recent version of the Hydrologic Engineering Center (HEC) Waste Surface Profiles (HEC-2) model. Design water surface determination and elevation of protection facilities will be determined using the following criteria, whichever is greater:

1. Ultimate Condition Q50 plus freeboard; where freeboard = 1.0 + 0.4d
   d = maximum depth at thalweg
2. Future Condition Q100
3. Water surface elevation published in the most current FEMA flood insurance study
4. If the water surface in 2 and 3 above is higher than the adjacent ground along the bank, add 3 feet (4 feet at bridges) to the water surface elevation in 2 and 3

Velocity used for the design of bank protection will be 1.25 times the average velocity for Q50 in the entire cross section to account for meandering impinging flows.

Private Facilities

The water surface elevation for the Present Condition Q25 may be obtained from the flood plain maps, Figures 4-1 through 4-14 in Appendix 4 of the cited 1996 Flood Protection Report, unless a significant variation in topography is indicated at the time the improvements are proposed.

Criteria (5): Public Facilities Siting Criteria – The locations of proposed public facilities are indicated on Overlay Series 1, 2, and 3 for sites within Ventura County. The exact location of flood protection facilities will be determined based on final design and detailed topographic information and will conform to the criteria described herein for public facilities and VCWPD design criteria and standards. However, in no instance will these facilities be located within the existing or ultimate condition floodway.

Criteria (6): Legal and Environmental Compliance Criteria – Pertaining to those cities that have spheres of influence that overlap the SCREMP Area, future construction of flood protection facilities will be publicly owned and be subject to all laws, regulations, and permit requirements including mitigation for the project impact; however, the requirement for alternative analysis and justifications will be waived where legally possible.

Whenever possible, the initial installation permit will cover repair of storm related damage with only written notification required. Routine maintenance of the facility, including any repair work and preventative maintenance, will be addressed in the original permit or in the streamlining process.

Criteria (7): Facilities Maintenance Criteria – When the effectiveness and adequacy of public flood protection facilities is reduced below the design and/or FEMA required levels and upon submittal to regulatory agencies of documentation on the hydraulic impact to the facility, sediment deposition removal will be allowed to the level of the pre-determined design flow line. The sediment deposition removal would be subject to all laws, regulations and permit requirements including mitigation. The mitigation for sediment deposition removal for future facilities will be addressed in the original permit. However, the requirement for alternative analyses and justifications will be waived where legally possible or minimized in accordance with available regional general permits.

Criteria (8): Private Facilities Encroachment Limit Criteria – The 25-year protection and encroachment limit line indicated in the Overlay Series 1 through 3 will be used as the jurisdictional boundary in the Corps of Engineers, Regulatory Branch, Regional General Permit developed for the SCREMP. This permit is described under Section 6.3, Regulatory Agency Permit Streamlining.

Reach Specific Projects

Reach Specific Projects are included as an Excel file in the attached CD to this SCREMP.

6.4.2 Recommendations – Los Angeles County

Riverwide Recommendations (RR), as presented in the 1999 I & R Document, that are relevant to Flood Protection Needs in Los Angeles County include the following:

RR 9: Public Flood Protection Facilities
RR 10: Maintenance of Design Flow Capacity

These have been stated under Section 6.4.1, and will not be reiterated here.

In addition, the following Reach Specific Recommendation is stated similarly for Reach 11 and Reach 12:

> Activities within this reach shall comply with the Section 404 Permit and Section 1603 Streambed Alteration Agreement pursuant to the Natural River Management Concept for Valencia Company and Newhall Ranch projects.

Policy

The SCREMP supports the 3 Program Components presented below as the reasonable and appropriate means to achieve the SCREMP Goal Statement within the Los Angeles County portion of the SCREMP Area.

Program

The SCREMP proposes that the following three Components for the design, maintaining river dynamics and sediment transport, and environmental permitting, be used for public and/or private facilities construction and operation within the 500-year floodplain in Los Angeles County. The Los Angeles Department of Public Works - Watershed Management Division (LADPW-WMD) will coordinate and administer this Program.

Component (1): The SCREMP proposes that the following standards, as adopted by the LADPW-WMD, be followed so as to maintain the existing environmental condition within the Santa Clara River 500-year floodplain, to the fullest possible extent.

> Design Standards – Permanent flood protection facilities design should be based on the following:
> a. LADPW-WMD's Capital Flood flow rates.
> b. Soft-bottom waterways with levees to maintain recharge of the groundwater basins by streambed percolation.
> c. Protective levees, drop structures, and invert stabilizers should be designed using LADPW-WMD design criteria.
> d. Drop structures, invert structures, and/or soft-bottomed waterways should be designed to maintain an equilibrium between sediment supply to the waterway and sediment transport through the waterway.
> e. Compatibility among flood control improvements of mainstream confluence and/or tributary components within the 500-year floodplain.
> f. Employment of (b) and (c), above, for major tributaries of the river that have been mapped by LADPW-WMD as floodways or have a flow-rate of 2,000 cubic feet per second (banned and bulked Q) or greater as determined by the Capital Flood hydrology per (a), above.

Component (2): The SCREMP proposes that the Corps Regional General Permit for Streambank Protection to the 25-year flood limit be applicable to the entire 500-year floodplain.

Component (3): The SCREMP supports the notification procedures and environmental mitigation measures that are stated in the Corps Section 404 permit and the CDFG 1603 Streambed Alteration Agreement pursuant to the "Natural River Management Plan," November 1998, Valencia Company for Reach 11 (partial) and Reach 12; and that a continuation or betterment of these procedures and measures be included in the Natural River Management Concept that would pertain to the 500-year floodplain area within the Newhall Ranch Specific Plan area.

Reach Specific Projects

Reach Specific Projects are included as an Excel file in the attached CD to this SCREMP.

6.5 Conservation, Preservation, and Enhancement of Species Habitat

Issues

The issues pertaining to the conservation, preservation, and enhancement of native species and native habitats that are relevant to the SCREMP are given in the "Summary of Riverwide Issues and Riverwide Recommendations" document dated April 27, 1999 (1999 I&R Document) under Issue no. 5 Conservation, Preservation, and Enhancement of Species Habitat, which states:

The SCREMP addresses the preservation of a dynamic river system which: 1) continues to support all native habitat types; 2) maintains viable populations of all native species; and 3) maintains physical, ecological, and evolutionary processes by ensuring:

1. *Preservation of a continuous riparian corridor on the river with connections to adjacent native habitats. (Preservation of existing resources and establishment of mitigation banks could be accomplished through the purchase of property from willing sellers.)*
2. *Restoration of degraded resources.*
3. *Management of the river to maintain the existing and restored resource values.*

Criteria for use in the evaluation of the Plan, with respect to how it deals with these objectives, are identified on pages 1-2 of the Biological Resources Report.

Goal

Accordingly, the goal statement for the purposes of the SCREMP is:

To manage the resources of the river for the net benefit of native wildlife and plant species through the preservation, enhancement, and restoration of native plant communities, and aquatic and wetland habitats; protection, maintenance, and improvement of water quality parameters of the aquatic habitats; and management of water supplies to enhance prolonged seasonal flow regimes for support of anadromous and other native fish and aquatic wildlife species.

6.5.1 Riverwide Recommendations

The Riverwide Recommendations (RR), as presented in the 1999 I&R Document, that are most relevant to the conservation, preservation, and enhancement of native species and native habitats, include the following:

RR 3.A. Private Property Rights: Preservation of existing resources and establishment of mitigation banks could be accomplished through the purchase of property from willing sellers.

RR 3.B. Private Property Rights: Property owners will be encouraged to remove Arundo and other non-native invasive plants to reduce spread of exotic vegetation within the 500-year floodplain. This will also reduce inappropriate human use such as homeless encampments.

RR 4.A. Water Quality: Manage water quality (point and non-point sources) to protect beneficial uses. The Water Resources Subcommittee will act in an advisory capacity to the Los Angeles Regional Water Quality Control Board.

RR 4.B. Water Quality: The California Regional Water Quality Control Board, Los Angeles Region is charged with the responsibility of (1) assessing water quality, (2) identifying impairments, (3) identifying sources of impairments, and (4) developing solutions that will restore water quality and protect beneficial uses. In concert with other Stakeholders, involved in the water aspects of the Plan, the Regional Board will be implementing the above activities, and will be seeking assistance in supplying data and other information to complete the effort. The Regional Board will identify gaps (both geographic and types of constituents) that need to be measured to assess the health of the watershed. During fiscal year 2001-2002, the Regional Board will focus efforts on renewing permits in the watershed. This will be a crucial time period for input from those interested in the water quality of the river.

RR 5. Water Rights: Preserve and enhance in-stream and riparian beneficial uses, as identified in the Basin Plan, while respecting existing water rights, licenses, and permits for use of water resources (e.g., agricultural or municipal uses and groundwater replenishment). [Need integration with the Biological Sub-Committee, especially as related to Steelhead recovery]

RR 8. River Gradient: (See the text of this Riverwide Recommendation under Section 6.4.1, Recommendations – Ventura County, and note the discussion following: "Additional design goal").

RR 13. Fish Passage: Maintain fish passage [specifics to be developed by NMFS and USFWS regarding when, where, how, minimum flows, cover, holding areas, etc.]. Information in the Plan will be used to assist in the development of a steelhead restoration and recovery plan. NMFS will coordinate with Santa Clara River Enhancement and Management Plan participants in the development of the recovery plan.

RR 14. Habitat Conservation Priorities: Acquire property from willing sellers in those areas identified for restoration and/or enhancement. The conservation rankings and linkages to natural habitats outside of the planning area, identified by the biological subcommittee, will be used as guides to prioritize conservation efforts (e.g., off-site mitigation efforts, conservation easement/purchases, mitigation banks, etc.). Segments of the river with high conservation rank (5) or high connectivity to uplands will be the first focus of such efforts. Such prioritization is only guidance and conservation of areas in lower ranking segments will proceed as specific opportunities and funding arise.

Recommendations for upland connectivity by segment are identified in Table 4-1 (page 4-12) of the Biological Resources Report, Vol. 1. Conservation rankings are identified on the most recent biological resources coverage mapped by CH2MHill/Psomas dated February 1998.

RR 15. Biological Management: Evaluate river health in coordination with the long-term management committee by generating a long-term monitoring program, focusing on habitat quality and wildlife population trends that will lead to a better understanding of population maintenance requirements. This monitoring should include benthic bioassessments and periodic evaluation of fish tissue for accumulation of pollutants. To support this effort, comprehensive surveys (similar to those completed for the biological resources report) will be conducted at appropriate intervals.

RR 16. Control of Exotics: Develop and implement a program to control exotics, with an emphasis on Arundo, using the techniques identified in the Biology Report, Appendix 5. Such a program will be coordinated with existing efforts currently spearheaded by the Angeles National Forest. The program will be flexible to address other exotic species such as salt cedar (*Tamarisk* spp.), that are established in the river but currently not as widespread as Arundo.

RR 17. Biological Mitigation: All activities on the river will be designed to avoid and/or minimize ecological impacts to the maximum extent feasible. These impacts will be mitigated appropriate to the magnitude of the impact and the ecological value of the resources. To help preserve the distribution and continuity of native habitats along the river, impacts to native habitats will generally be mitigated on-site and be designed such that the habitat type lost will return to the site. If mitigation on-site is not possible, or off-

site mitigation is determined to be environmentally preferable, off-site mitigation will occur in areas with high conservation rankings or with potential for restoration.

[Mitigation guidelines are described in the report of the Biological Subcommittee dated June 1996.]

Riverwide Policies

The following 8 Riverwide Policies (RPol) are identified for the purposes of encouraging, supporting, and facilitating the conservation, preservation, and enhancement of native species and native habitats, including aquatic habitats and wetland habitats, within the SCREMP Area:

RPol (1) Preservation of Existing Native Habitats
RPol (2) Restoration and Enhancement of Habitats
RPol (3) Aquatic Habitat and Wetland Habitat Preservation and Enhancement
RPol (4) Protection and Recovery of Sensitive Species
RPol (5) SCREMP Consistency With Other Conservation Efforts
RPol (6) Identifying and Evaluating Potential Impacts to Biological Resources
RPol (7) Avoidance and Mitigation of Impacts to Biological Resources
RPol (8) Help Establish Land Conservation Entities

Each of these policies are presented below.

RPol (1) Preservation of Existing Native Habitats

It is SCREMP policy to encourage, support, and facilitate the preservation of existing high quality native riparian and upland habitats sites within the 500-year floodplain that demonstrate relatively high native species richness and abundance and/or use by species considered to be sensitive by federal, State, and local governmental entities and/or provides movement and migration routes for native species. Accordingly, this policy favors the following 3 elements:

Element (a): This element considers a two-tiered approach that is based upon opportunity and available funding considerations. *Tier 1*: Acquisition of the above-described habitat sites from willing sellers and establishment of these sites as preserves that are managed by a governmental or private resources conservation entity. Ensure that preserve management operations are funded through an endowment or other secure source. The SCREMP recommends that acquisition prioritization follow the Conservation Ranking system for highest value (CR5) and (CR4) areas within River Segments as depicted on Overlay series 4, 5, 6, and 7. *Tier 2*: Site acquisition prioritization should also consider areas between preserve sites for the purpose of linking preserve sites to provide continuous reach riparian corridors, and wildlife movement linkages, that are contiguous with adjacent high quality upland habitats outside of the 500-year floodplain. Even if such areas have existing lower on-site habitat functions and values, the potential for restoration and enhancement, and the potential for wildlife

movement and migration use, warrant consideration for acquisition. See, also, RPol (2)(a), below.

The SCREMP recommends that proposed acquisitions be coordinated with the Long-term River Management Committee (LTRMC) that is described in Section 7.0, below, so that preserves, riparian corridor connections, and floodplain – adjacent uplands connections, are orchestrated in a manner that considers the entire SCREMP Area. In addition, the SCREMP acknowledges that the Conservation Ranking system and connectivity assessments should be based upon the best-available scientific information and, therefore, the LTRMC will need to update and revise these periodically.

Element (b): Establishment of conservation easements or conservation agreements with willing landowners for the above-described sites. The conservation agreement would restrict the type and amount of development that may take place on the property and entitle the enforcement of those restrictions to a governmental or private conservation entity, in a legal document. The granting of conservation easements and the entering into of conservation agreements will be accompanied by an equitable benefit to the willing landowner.

Element (c): Encourage voluntary preservation of the above-described sites on private lands through the development of a "Practice Land Stewardship" component of the SCREMP Public Outreach Program (see Section 7.0, below).

An example of a local governmental entity that is implementing a planning activity that is consistent with RPol (1) Preservation of Existing Native Habitats, is the City of Santa Clarita's Open Space Acquisition Plan that defines and prioritizes acquisition of open space, giving high priority to riparian resources in the Santa Clara River.

RPol (2) Restoration and Enhancement of Habitats

It is SCREMP policy to encourage, support, and facilitate the restoration and enhancement of biological habitats on degraded sites within the 500-year floodplain. Existing lands that provide beneficial uses for the General Public including agricultural production, flood protection, groundwater recharge, public transportation, and public utilities, are not considered here under this policy as degraded sites. The SCREMP views this policy as a means to restore habitat functions and values that have been lost historically as well as those that will be lost in the future as human activities continue to impact the 500-year floodplain. Accordingly, the SCREMP considers this policy as a means to maintain an overall no net loss of habitat functions and values within the entire 500-year floodplain over the life of the SCREMP. The SCREMP also views this policy as a means to restore and enhance connectivity between, and among, existing high quality riparian habitats, preserve sites, and adjacent uplands, and for maintenance of wildlife movement and migration corridors, as was described under RPol (1)(a), above. This policy favors the following 4 elements:

Element (a): Acquisition of sites that have favorable restoration and enhancement potentials from willing sellers. Such sites should display one or more of the following characteristics:

- Substantially disturbed by human activities
- Predominately vegetated by non-native plants
- Moderate level of non-native plant infestation of native habitat

Similar to RPol (1)(a), above, the SCREMP recommends that acquisition prioritization follow the guidance provided in the Conservation Ranking system and considerations of potentials for floodplain – adjacent uplands connections. It is anticipated that site selection for the purposes of restoration and enhancement would be within River Segments with lower CR values (<CR4) as depicted on Overlay series 4, 5, 6, and 7. It is advisable that an acquisition be premised on the timely development of a restoration plan or enhancement plan. Also, that plan implementation be funded by grant monies or other reliable sources. Sites that, in time, achieve the high-quality resources functions and values described under RPol (1), above, deserve consideration for establishment as preserve sites.

The SCREMP recommends that proposed acquisitions be coordinated with the LTRMC so that preserves, riparian corridor connections, and floodplain – adjacent uplands connections, are orchestrated in a manner that considers the entire SCREMP Area. In addition, the SCREMP acknowledges that the Conservation Ranking system and connectivity assessments should be based upon the best-available scientific information and, therefore, the LTRMC will need to update and revise these periodically.

Element (b): Acquisition of sites that have favorable restoration and enhancement potentials from willing sellers for the establishment of mitigation banks. See RPol (2)(a), above, for relevant discussion regarding site characteristics and acquisition prioritization.

Element (c): Support a coordinated floodplain approach to removal and control of Arundo and other invasive exotic plants such as castor bean, tamarisk, tree-of-heaven, fennel, pampas grass, and bull thistle.

Element (d): Encourage landowner participation in federal and State programs that promote restoration and enhancement of habitats within the SCREMP Area. The U.S. Fish & Wildlife Service's "Partners for Fish and Wildlife Program" is cited as an example (see Section 3.2.10). The SCREMP will remain knowledgeable regarding such programs and opportunities and will provide information and guidance to Stakeholders and the General Public.

RPol (3) Aquatic Habitat and Wetland Habitat Preservation and Enhancement

It is SCREMP policy to encourage, support, and facilitate the preservation and enhancement of aquatic habitats and wetland habitats within the 500-year floodplain and, thereby, the sensitive and common wildlife species that use these habitats. It is noted that

aquatic habitats and wetland habitats are elements of the larger upland/riparian/aquatic/wetlands complex within the 500-year floodplain. However, for the purposes of the SCREMP, four general categories of sensitive wildlife species aquatic and wetlands habitats are identified and addressed in the discussions below which reflect species life history and niche use parameters (e.g., migration, spawning, breeding, foraging, escape cover, etc.). The four categories of aquatic and wetland habitats within the 500-year floodplain include:

- Southern steelhead migration and movement habitat
- Non-anadromous sensitive fish species habitat (e.g., unarmored three-spine stickleback, tidewater goby, Santa Ana sucker, arroyo chub)
- Aquatic/wetland habitat-dependent sensitive amphibian and reptile species (e.g., arroyo toad, California red-legged frog, two-striped garter snake, southwestern pond turtle)
- Sensitive shore bird, wading bird, and waterfowl species aquatic habitat

This policy favors the following 4 elements with regard to preservation and enhancement of aquatic and wetland habitats:

Element (a): Maintaining current or better levels of fish passage in the active channels (mainstem and tributaries) within the 500-year floodplain to support maintaining a viable Santa Clara River system population of southern steelhead and the continuation of its evolutionary processes. Support and assist the effort by the National Marine Fisheries Service (NMFS) and the USFWS toward developing a Steelhead Restoration and Recovery Plan for Evolutionarily Significant Unit (ESU) No. 11 (Steelhead Recovery Plan) that includes the Santa Clara River system population and provide specific guidance pertaining to water management parameters and criteria that support fish passage. NMFS has a process for developing a formal recovery plan for all listed Pacific salmonids, including southern steelhead. This process is generally divided into two phases. Phase I will be the identification of specific biologically-based recovery objectives and will be conducted by a Technical Recovery Team under the supervision of the NOAA Fisheries Science Center. Phase II will be the identification of specific recovery measures necessary to achieve the recovery objectives identified in Phase I and will involve a range of stakeholders under the direction of a NOAA Fisheries Recovery Coordinator. The SCREMP is regarded by NMFS as a potential vehicle for identifying some of the necessary recovery measures and providing the framework for implementing such measures. Maintenance of adequate water quantity, quality, and aquatic habitat continuity between the Pacific Ocean and known spawning areas including Santa Paula, Sespe, Piru, and Hopper creeks, are recognized as the 3 main component of maintaining fish passage. It is acknowledged that southern steelhead recovery will require the operation of dams and diversions in a manner that will allow adequate passage between the ocean and upstream spawning and rearing areas. The California Department of Fish & Game's "Steelhead Restoration and Management Plan for California", February 1996, should be fully considered and integrated into this effort. Reconcile issues and integrate into the Steelhead Recovery Plan measures for: (i) the preservation and enhancement of in-stream and riparian beneficial uses, as identified in the LA-RWQCB 1994 Basin Plan,

as amended; and (ii) respecting existing water rights, licenses, and permits for use of water resources (e.g., agricultural uses, municipal uses, and groundwater replenishment).

The SCREMP would endorse the application of new technologies, BMPs, and the installation of "fish-friendly devises" at water diversion, flood control, and/or water impounding facilities that promote bi-directional fish passage and still maintain existing water management and supply programs.

The SCREMP supports the watershed (Estuary and Above Estuary) beneficial uses identified in the LA-RWQCB 1994 Basin Plan, as amended, and supports the specified impairments objectives and criteria, existing and scheduled TMDLs, implementation of BMPs under Municipal Storm Water Permits, implementation of NPDES permit conditions, and various monitoring and assessment programs, as the appropriate means for addressing water quality factors that may affect the southern steelhead recovery effort specifically within the SCREMP Area. The SCREMP would also support annual monitoring of southern steelhead in the estuary and in the River mainstem as an appropriate means to assess River health and the effectiveness of conservation measures undertaken in accordance with the SCREMP.

The SCREMP commends the actions taken by Stakeholders and their affiliates to enhance fish passage opportunities for southern steelhead, including:

- City of Santa Paula in 1995 allocating funding to restore the fish ladder at Harvey Dam located on Santa Paula Creek. The Corps of Engineers completed the construction in 2002.
- United Water Conservation District's maintenance and operation of the Freeman Diversion dam fish ladder to promote passage of southern steelhead.

Furthermore, the SCREMP supports the following:

- Those proposed management activities for the protection and enhancement of the Santa Clara River estuary that would facilitate southern steelhead recovery as identified in the 1990 document titled "McGrath State Beach, Santa Clara River Estuary Natural Preserve, Restoration and Management Plan."
- Those actions that would enhance habitats crucial to maintaining sustainable fisheries and the recovery of endangered species including southern steelhead, such as the partnership between The Nature Conservancy and the National Oceanic and Atmospheric Administration's (NOAA), as described in Section 3.2.2.

Element (b): Maintain and enhance existing aquatic habitats for the preservation and recovery of non-anadromous fish species including unarmored threespine stickleback, tidewater goby, Santa Ana sucker, and arroyo chub. Support and assist the efforts by the USFWS, United States Forest Service (USFS), and CDFG towards developing preservation and recovery strategies that provide specific guidance pertaining to water management parameters and water quality criteria. Coordinate with these agencies to

promote the adoption of preservation and recovery strategies that integrate: (i) the preservation and enhancement of in-stream and riparian beneficial uses, as identified in the LA-RWQCB 1994 Basin Plan, as amended; and (ii) respecting existing water rights, licenses, and permits for use of water resources (e.g., agricultural uses, municipal uses, and groundwater replenishment).

The SCREMP supports the watershed (Estuary and Above Estuary) beneficial uses identified in the LA-RWQCB 1994 Basin Plan, as amended, and supports the specified impairments objectives and criteria, existing and scheduled TMDLs, implementation of BMPs under Municipal Storm Water Permits, implementation of NPDES permit conditions, and various monitoring and assessment programs, as the appropriate means for addressing water quality factors that may affect the preservation and recovery of non-anadromous fish species specifically within the SCREMP Area.

The SCREMP supports those proposed management activities for the protection and enhancement of the Santa Clara River estuary that would facilitate the preservation of suitable quality aquatic habitat for tidewater goby and arroyo chub as identified in the 1990 document titled "McGrath State Beach, Santa Clara River Estuary Natural Preserve, Restoration and Management Plan."

Element (c): Maintain, enhance and restore wetland habitats in conjunction with SCREMP policy given at (a) and (b), above, to promote the likelihood that net benefits will also be realized for aquatic/wetland/riparian habitat-dependent sensitive amphibian and reptiles, including arroyo toad, California red-legged frog, two-striped garter snake, and southwestern pond turtle. In concert with the preservation, restoration, and enhancement of riparian and upland habitats that occur within the 500-year floodplain that are specified under RPol (1) and RPol (2), above, the SCREMP considers it likely that a comprehensive approach for conservation of all sensitive species habitats will be achieved.

Element (d): SCREMP policy given at (a), (b), and (c), above, promotes the likelihood that net benefits to sensitive bird species that use aquatic and wetland habitats (e.g., shore birds, wading birds, and waterfowl) within the 500-year floodplain will also be realized. In conjunction with the preservation, restoration, and enhancement of riparian and upland habitats that occur within the 500-year floodplain that are specified under RPol (1) and RPol (2), above, the SCREMP considers it likely that a comprehensive approach for conservation of all sensitive species habitats will be achieved.

RPol (4) Protection and Recovery of Sensitive Species

It is SCREMP policy to encourage, support, and facilitate: (i) the protection and recovery of federal and State listed Endangered and Threatened species in accordance with the provisions in FESA and CESA, respectively, to such a condition that listed species recovery warrants de-listing the species; (ii) the protection of State Fully Protected species as specified in the Fish & Game Code; and (iii) the protection of all other categories of species regarded as "sensitive species" by federal and State resources

management agencies, and local governmental entities in accordance with the provisions in CEQA. In conjunction with SCREMP policies that focus on preserving species habitats as given under RPol (1), RPol (2), and RPol (3), above, the SCREMP considers it likely that a comprehensive approach for the protection and recovery of all sensitive species within the 500-year floodplain will be achieved.

In furtherance of this policy, the SCREMP supports programs for the control of exotic and noxious plant and wildlife species that pose threats to sensitive species. Examples of such threats include:

- Degradation of sensitive riparian bird habitat due to Arundo invasion.
- Brood parasitism of sensitive riparian birds by brown-headed cowbirds.
- Predation of sensitive aquatic/wetland species by African clawed toads and bullfrogs.

RPol (5) SCREMP Consistency With Other Conservation Efforts

It is SCREMP policy to establish, to the fullest extent possible, that the goals, policies, and programs as stated in the SCREMP for the protection, preservation, enhancement, and recovery of biological resources, are consistent with the conservation goals developed by other entities. These include, but are not limited to, species recovery plans, Significant Environmental Area plans, Forest Plans, etc.

RPol (6) Identifying and Evaluating Potential Impacts to Biological Resources

It is SCREMP policy to encourage, support, and facilitate the exercise of due diligence by Lead Agencies when conducting an environmental review and evaluating the significance level of potential impacts to native species, native habitats, and the ecological processes that sustain both, within the 500-year floodplain, according to all applicable environmental laws, codes, regulations and ordinances, and based on the best-available scientific and factual data. In furtherance of this policy, the SCREMP provides the following 4 criteria for consideration:

- Impacts to areas of high quality native habitat within River Segments with high Conservation Ranking values (CR5 and CR4) should generally be considered significant and not easily mitigable.
- Impacts to areas of habitat within River Segments with moderate Conservation Ranking values (CR3 and CR2) that are also considered to have favorable potentials for restoration or enhancement should generally be considered significant but potentially mitigable.
- Impacts to habitat areas within River Segments considered to have high riparian and/or riparian – adjacent upland connectivity values and/or high potentials as wildlife movement and migration routes, should generally be considered significant and not easily mitigable.
- Impacts to areas of habitat within River Segments that are considered to have favorable potentials for restoration or enhancement to establish wildlife

movement and migration linkages should be considered significant but potentially mitigable.

RPol (7) Avoidance and Mitigation of Impacts to Biological Resources

It is SCREMP policy to encourage, support, and facilitate that all projects will be designed, and all activities will be conducted, in the SCREMP Area in such a manner so as to avoid and/or minimize ecological impacts to the maximum extent feasible, and that impacts will be mitigated appropriate to the magnitude of the impact and the ecological value of the resources. In furtherance of this policy, the SCREMP provides the following general mitigation guidelines for consideration:

- Impacts to biological resources should be avoided wherever possible through alternative project designs and/or modification of activities (e.g., conducting routine maintenance outside of sensitive bird breeding seasons).
- Where impacts are unavoidable, projects should be designed and activities should be modified (e.g., by having a biological monitor present on-site), to minimize impacts to the maximum extent possible.
- Where impacts are unavoidable, these impacts should be mitigated appropriate to the magnitude of the impact and the ecological value of the resources.
- Mitigation that occurs within the SCREMP Area should be consistent with the preservation, conservation, restoration, and enhancement goals, policies, and programs described in the SCREMP.
- Impacts to areas with high Conservation Ranking values, such as major blocks of riparian habitat, should be avoided. Impacts that do occur to these resources should be mitigated through restoration of the same habitat type and value on, or near, the site of the impact. Mitigation acreage ratios should be determined in consultation with federal and State resources agencies on a case-by-case basis that considers: (i) the actual functions and values of the impacted site; (ii) the potential for establishing full functions and values habitat on the mitigation site; and (iii) and temporal losses of habitat availability to wildlife species during the interim habitat establishment period. Mitigation acreage ratios would be expected to be greater than 1:1 (replacement-to-impacted acreages).
- Impacts to areas that have favorable potentials for restoration and enhancement should be mitigated on-site with appropriate native habitats for the site or with appropriate native habitats in off-site, high-priority restoration or enhancement areas within the SCREMP Area. See the previous discussion regarding determination of mitigation acreage ratios. Mitigation acreage ratios would be expected to be on the order of 1:1 (replacement-to-impacted acreages).
- Impacts to areas that have low potentials for restoration and enhancement should be mitigated by restoration or enhancement of relatively higher value habitat types in high-priority restoration or enhancement areas. See the previous discussion regarding determination of mitigation acreage ratios. Mitigation acreage ratios would be expected to be less than 1:1 (replacement-to-impacted acreages).

RPol (8) Help Establish Land Conservation Entities

It is SCREMP policy to encourage, support, and facilitate the establishment of land conservation entities (e.g., JPAs, Land Trusts, and Conservancies) that support SCREMP enhancement and conservation goals, policies and programs.

Riverwide Programs

Riverwide Programs and Reach Specific Programs are developed as an Integrated Program under Section 6.5.3, below.

Riverwide Project

Riverwide Projects are included as an Excel file in the attached CD to this SCREMP.

6.5.2 Reach Specific Recommendations

The Reach Specific Recommendations (RSR), as presented in the 1999 I&R Document, that are most relevant to the conservation, preservation, and enhancement of native species and native habitats, include the following:

RSR Reach 1: Develop a comprehensive water level management plan for the estuary.

RSR Reach 2: Identify a range of options to comprehensively address bank habitat loss and flooding of the agricultural lands upstream of the Harbor Blvd. Bridge.

RSR Reach 3: Create, restore, and maintain habitat along south side of river between levee and active river channel (Ventura County Watershed Protection District currently has easement)

RSR Reach 4: In accordance with original permits, once reviewed, if necessary, for Endangered Species Act concerns, United Water Conservation District will be allowed to manage area on the north side of the river up to 2,000 feet upstream of the Freeman Diversion to maintain the function of the Diversion. [[It is noted that this proposed action has the potential to affect riparian, aquatic and wetland habitats that are possibly occupied by listed species and that the disturbance of these habitats will require a Section 7 or Section 10 consultation with the NMFS.]]

RSR Reach 10: Maintain and enhance the function of Salt Creek drainage within the planning area as a wildlife linkage between Salt Creek watershed and the Santa Clara River.

RSR Reaches 3, 5, 7, 8, 9, 13: Aggregate harvesting in this reach will be evaluated as a means to restore channel capacity and enhance degraded biological resources through reclamation activities. [[It is noted that any such proposed action has the potential to

affect riparian and aquatic habitats that are possibly occupied by listed species and that the disturbance of these habitats will require a Section 7 or Section 10 consultation with the USFWS and NMFS.]]

RSR Reaches 7, 8, 9, 10, 13: Biological enhancement, restoration, and preservation within the 100-year floodplain shall be carried out (implemented) as identified by the biological mapping. Areas with a Conservation Ranking of 5 will be considered the highest priority for conservation. Within those areas, conservation easements will be pursued as a tool for habitat management. There will be an equitable benefit that accompanies conservation easements granted by the property owners for those types of habitat management approaches.

RSR Reaches 11, 12: Activities within this reach shall comply with the Section 404 Permit and Section 1603 Streambed Alteration Agreement pursuant to the Natural River Management Concept for Valencia Company and Newhall ranch projects.

Reach Specific Policies

The following eight Reach Specific Policies (RSPol) are identified for the purposes of encouraging, supporting, and facilitating the conservation, preservation, and enhancement of native species and native habitats, including aquatic habitats, within the SCREMP Area:

RSPol (1) Reach 1: Assist the efforts of those organizations and entities currently involved in developing a plan that will address the preservation, enhancement, and sustainability of the estuary environment for the full achievement of its beneficial uses that include aquatic habitat and fish passage.

RSPol (2) Reach 2: Promote a cooperative effort among flood control, biological resources, and Agricultural Community entities to employ the best-available streambank erosion protection and rehabilitation technologies to fulfill flood protection needs that are also functionally and aesthetically integrated into the natural environment.

RSPol (3) Reach 3: Coordinate an effort with The Nature Conservancy to create, restore, and maintain habitat along the south side of river between the levee and the active river channel in this reach within the VCWPD's easement.

RSPol (4) Reach 4: Assist in the development of an operations and management program for the Freeman Diversion that includes a 2,000-foot-long upstream reach on the north side of the River, that is integrated with RPol (3)(a) for the preservation and enhancement of aquatic habitat including the maintenance of fish passage, and that accomplishes the Diversion's vital purposes for supporting the Agricultural Community in the Oxnard Plain, replenishing overdrafted groundwater basins, and reversing trends of seawater intrusion and land subsidence.

RSPol (5) Reach 10: Promotion of Reach Specific Recommendation RSR Reach 10, above, in accordance with the riverwide policies given at RPol (1)(b) and RPol (2)(d), above.

RSPol (6) Reaches 3, 5, 7, 8, 9, 13: Establish a process to assist the Aggregate Mining Industry entities in the identification of areas within the 500-year floodplain that have existing low biological resources functions and values but have moderate to high potentials for reclamation and restoration.

RSPol (7) Reaches 7, 8, 9, 10, 13: Promotion of Reach Specific Recommendation RSR Reaches 7, 8, 9, 10, 13, above, in accordance with the riverwide policies given at RPol (1)(a) and RPol (2)(a), above.

RSPol (8) Reaches 11, 12: Acknowledge as being appropriate the notification procedures and environmental mitigation measures that are stated in the Corps Section 404 permit and the CDFG 1603 Streambed Alteration Agreement pursuant to the "Natural River Management Plan" November 1998, Valencia Company; and that a continuation or betterment of these procedures and measures be included in the Natural River Management Concept that would pertain to the 500-year floodplain area within the Newhall Ranch Specific Plan area.

Reach Specific Programs

Reach Specific Programs and Riverwide Programs are developed as an Integrated Program under Section 6.5.3, below.

6.5.3 Integrated Riverwide and Reach Specific Programs

Riverwide Programs and Reach Specific Programs for the Conservation, Preservation, and Enhancement of Species Habitats need to be integrated for implementation in a manner that considers the entire 500-year floodplain and areas adjacent to it. This integration can be accomplished under the direction of the SCREMP Long-term River Management Committee (LTRMC) identified under Riverwide Recommendation No. 1, Long Term River Management in the 1999 I&R Document. This recommendation specifies the establishment of a committee for long-term management and SCREMP implementation. The SCREMP Project Steering Committee will be responsible for the development of the organizational structure, functions and responsibilities of the LTRMC, as discussed in Section 7.0, below.

Integrated Programs

On the basis of the 7 Riverwide Policies (RPol) and the 8 Reach Specific Policies (RSPol) presented above, 12 Integrated Programs (IP) pertaining to the Conservation, Preservation, and Enhancement of Species Habitats in the SCREMP Area are identified:

IP (1): The LTRMC will assist acquisition efforts in support of RPol (1)(a), above, by providing information on preserved land status, conservation priority sites, potential willing sellers, and by identifying opportunities in the SCREMP Area.

IP (2): The LTRMC will assist in providing information on identifying conservation priority sites and opportunities for the establishment of conservation easements or conservation agreements with willing landowners in support of RPol (1)(b), above.

IP (3): The LTRMC will develop and include a "Practice Land Stewardship" component in the Public Outreach Program in support of RPol (1)(c), above. This program component will present information about the values of the SCREMP Area biological resources and ways to promote their preservation and enhancement. This component will be supported as printed literature, workshops, and on the SCREMP website. The Public Outreach Program is described under Section 7.0, below.

IP (4): The LTRMC will provide assistance to help identify sites that have favorable restoration and enhancement potentials in support of RPol (2)(a) and RSP (6), above. The LTRMC will provide guidance on the practicality of a proposed site-specific restoration or enhancement action and assess the potential benefits to biological, and other, resources categories, based on the best-available scientific and factual data. Accordingly, the proponents of an action should consider providing, at a minimum, the following types of information to the LTRMC:

- Biological Resources Study
- Hydrology Study
- Cultural Resources Study
- Site Reclamation & Restoration Plan
- Feasibility Assessment

With regard to the Biological Resources Study, the LTRMC will recommend that where an existing level of utilization by a sensitive species resource is identified, the restoration or enhancement action should be appropriately modified to avoid and/or minimize impacts. The LTRMC will also assist in identifying regulatory permitting requirements per the Riverwide Program (2) described under Section 6.3, Regulatory Agency Permit Streamlining, above.

With specific regard to sites that are proposed for aggregate harvesting, Aggregate Mining Industry entities would be responsible for developing a feasibility assessment and a proposed Site Reclamation & Restoration Plan that would be subject to review by the LTRMC. Consistent with Section 4 of the 1996 Aggregate Resources Report, the Site Reclamation & Restoration Plan should fully describe the types and degrees of enhancements expected to be achieved for the benefit of flood protection and for river habitats. The LTRMC would provide recommendations regarding the assessment and plan and an opinion regarding whether or not, the assessment and plan would be consistent with SCREMP objectives, goals, policies, and programs.

IP (5): The LTRMC will provide assistance to help identify sites that have favorable restoration and enhancement potential for the establishment of mitigation banks in support of RPol (2)(b), above, as was described previously under IP (4). Additional discussion that is relevant to the establishment of mitigation banks under this IP follows.

Restorable and enhanceable areas within the 500-year floodplain could be set aside by landowners or local, State, or federal agencies as mitigation bank sites, as encouraged in the "Federal Guide for the Enhancement, Use and Operation of Mitigation Banks," a memorandum to the Field dated November 20, 1995, and jointly issued by the Departments of the Army, Agriculture, Interior, Commerce, and the U.S. Environmental Protection Agency. Restoration and enhancement activities within areas identified as mitigation banks could be used to offset impacts to biological resources from projects within the SCREMP Area. The SCREMP does not currently propose mitigation within the SCREMP Area for actions taking place outside of it. Project proponents could receive mitigation credit by restoring or enhancing habitat on the mitigation bank sites. This does not include purchase of sites that already possess high habitat functions and values since no restoration or enhancement would be necessary. The area of the mitigation site to be restored and the amount of credit acquired would depend upon the value of the habitat impacted by the proposed project relative to the value of the habitat on the mitigation bank site. The assessment of habitat value would be coordinated with federal and State resources management agencies. The value of the site would also be based on its contribution towards achieving riverwide and regional conservation goals.

IP (6): The LTRMC will support the efforts by the Ventura County Arundo Task Force, the L.A. County Arundo Task Force, the Corps of Engineers, the Friends of the Santa Clara River, the Angeles National Forest, The Nature Conservancy, and all other involved entities, to control Arundo and other invasive plants within the SCREMP Area. The SCREMP will designate a representative to participate in and to coordinate meetings, workshops, and Public Outreach efforts in conjunction with these entities, as appropriate. The Public Outreach Program will include a "Control of Invasive Plants" component for the benefit of Stakeholders, as well as for the General Public to assist in the effort to control invasive and noxious plants in the SCREMP Area. This component will be supported as printed literature and on the SCREMP website.

IP (7): The LTRMC will provide information to Stakeholders and the General Public on the types of habitat restoration and enhancement programs that exist and are sponsored by federal, State, and other resources management organizations, in support of RPol (2)(d), above. This information will be available on the SCREMP website.

IP (8): The LTRMC will support efforts by the NMFS and USFWS in the development of a Steelhead Restoration and Recovery Plan that includes the Santa Clara River, per RPol (3)(a), above. LTRMC assistance may include, but is not limited to, the following:

- Historic and existing mainstem and tributary streamflow information.
- Assessments of conjunctive water use strategies (i.e., conservation, reclaimed water, seasonally-timed water releases) to support steelhead water needs.

- Assessments to identify potential additional water supplies from available and/or opportunistic outside sources.
- Economic assessments of the above.

IP (9): The LTRMC will support efforts by the USFWS and CDFG in developing preservation and recovery strategies for non-anadromous sensitive fish species per RPol (3)(a); aquatic habitat dependent sensitive amphibians and reptiles per RPol (3)(c); and aquatic habitat and wetland habitat dependent sensitive bird species per RPol (3)(d), above.

IP (10): The LTRMC will support efforts by federal and State resources management entities, as well as local governmental entities in accordance with the provisions in CEQA, to protect and promote the recovery of Endangered, Threatened, State Fully-Protected, and other categories of sensitive species, per RPol (4), above.

IP (11): The LTRMC will ensure that SCREMP goals, policies and programs are periodically reviewed for consistency with those of other entities, and revised as appropriate, in accordance with RPol (5).

IP (12): The LTRMC consistent with RPol (3), Element (b) and RSPol (1) Reach 1, above, will assist the efforts of those organizations and entities currently involved in developing a plan that will address the preservation, enhancement, and sustainability of the estuary environment for the full achievement of its beneficial uses that include water quality, aquatic habitat, and fish passage.

Reach Specific Projects

Reach Specific Projects are included as an Excel file in the attached CD to this SCREMP.

6.6 Aggregate Harvesting

Issues

The issues pertaining to development of aggregate harvesting opportunities that are relevant to the SCREMP are given in the "Summary of Riverwide Issues and Riverwide Recommendations" document dated April 27, 1999 (1999 I&R Document) under Issue No. 6 Aggregate Harvesting, which states:

The Santa Clara River and its adjacent floodplain have been primary sources of sand and gravel (aggregate) for several decades. The need for inclusion of surface mining policies in the SCREMP is due to the abundance of state-designated aggregate resources still remaining within the 500-year floodplain of the river, and the significant market demand for this material. The SCREMP will identify areas wherein aggregate harvesting could occur with minimum impact to biological resources or areas where harvesting could actually enhance habitat, while providing for flood protection, site enhancement, aquifer

recharge, etc. Objectives and criteria relating to aggregate harvesting are discussed in the Aggregate Resources Report dated June 1996.

Goal

Accordingly, the goal statement for the purposes of the SCREMP is:

To support opportunities for siting aggregate harvesting operations in the future that are consistent with the other stated goals of the SCREMP and to provide guidance pertaining to minimization of environmental impacts, as well as the phased implementation of restoration actions.

6.6.1 Riverwide and Reach Specific Recommendations

The 1999 I&R Document does not present a riverwide recommendation that is specific to the identified issue of Aggregate Harvesting; however, the Issue Statement itself does contain the following clause that may be interpreted as equivalent to being a riverwide recommendation:

The SCREMP will identify areas wherein aggregate harvesting could occur with minimum impact to biological resources or areas where harvesting could actually enhance habitat, while providing for flood protection, site enhancement, aquifer recharge, etc.

In addition, the following Reach Specific Recommendation (RSR) is identified in the 1999 I&R Document:

RSR Reaches 3, 5, 7, 8, 9, 13: Aggregate harvesting in this reach will be evaluated as a means to restore channel capacity and enhance degraded biological resources through reclamation activities.

On the basis of the above, the Integrated Policy and the Integrated Program pertaining to Aggregate Harvesting are identified below.

Integrated Policy

It is SCREMP policy to support the establishment of a process to assist Aggregate Mining Industry entities in the identification of areas within the 500-year floodplain that have existing low biological resources functions and values but have moderate to high potentials for reclamation and restoration. It should be noted that this integrated policy is equivalent to Reach Specific Policy **(**RSP) (6) Reaches 3, 5, 7, 8, 9, 13, as presented in Section 6.5.2, above.

Integrated Program

The LTRMC will provide assistance to help identify sites that have favorable restoration and enhancement potentials in support of the Issue Statement and RSR Reaches 3, 5, 7, 8, 9, 13, above. The LTRMC will provide guidance on the practicality of a proposed site-specific restoration or enhancement action and assess the potential benefits to biological, and other, resources categories, based on the best-available scientific and factual data. Accordingly, the proponents of an action should consider providing, at a minimum, the following types of information:

- Biological Resources Study
- Hydrology Study
- Cultural Resources Study
- Site Reclamation & Restoration Plan
- Feasibility Assessment

It is noted that any proposed gravel mining operation must fully assess potentials for impacting federal and State listed species under FESA and CESA, respectively. For example, the NMFS has adopted a policy on aggregate removal (National Gravel Extraction Policy) which identifies a range of potential affects to riverine and aquatic habitats including migration blockages, channel widening, shallowing, ponding, loss of hydrologic and channel stability, loss of pool riffle structure, increased turbidity and sediment transport, increased bank erosion, streambed downcutting, lowering of the groundwater table, and loss of riparian habitat. The potentials for such affects and mitigation to offset these affects would have to be assessed and developed in the studies mentioned above.

With regard to the Biological Resources Study, the LTRMC will recommend that where an existing level of utilization by a sensitive species resource is identified, the restoration or enhancement action should be appropriately modified to avoid and/or minimize impacts. The LTRMC will also assist in identifying regulatory permitting requirements per the Riverwide Program (2) described under Section 6.3, Regulatory Agency Permit Streamlining, above.

With specific regard to sites that are proposed for aggregate harvesting, Aggregate Mining Industry entities would be responsible for developing a feasibility assessment and a proposed Site Reclamation & Restoration Plan that would be subject to review by the LTRMC. Consistent with Section 4 of the 1996 Aggregate Resources Report, the Site Reclamation & Restoration Plan should fully describe the types and degrees of enhancements expected to be achieved for the benefit of flood protection and for river habitats. The LTRMC would provide recommendations regarding the assessment and plan and an opinion regarding whether or not the assessment and plan would be consistent with SCREMP objectives, goals, policies, and programs.

It should be noted that this Integrated Program for Aggregate Harvesting is equivalent to Integrated Program IP (4), as presented in Section 6.5.3, above.

Riverwide Project

Riverwide Projects are included as an Excel file in the attached CD to this SCREMP.

Reach Specific Projects

Reach Specific Projects are included as an Excel file in the attached CD to this SCREMP.

6.7 Coastal Beaches Erosion and Replenishment

Issues

The issues pertaining to beach erosion and beach replenishment that are relevant to the SCREMP are given in the "Summary of Riverwide Issues and Riverwide Recommendations" document dated April 27, 1999 (1999 I&R Document) under Issue no. 7 Beach Erosion and Replenishment, which states:

In the recent past, river sediments transported to the Pacific Ocean by the Santa Clara River have been reduced thus impacting coastal beaches. The SCREMP encourages activities that tend to restore the natural sediment balance of the river.

Goal

Accordingly, the goal statement for the purposes of the SCREMP is:

To develop a long-term water and substrate management strategy for implementation within the 500-year floodplain that is consistent with the goal statements given at Section 6.4 and Section 6.10 and provides for a reasonable allocation of waters above a given threshold sediment carrying capacity to be conveyed unhindered to the Pacific Ocean; and discretionary actions by the County of Ventura Watershed Protection District and the Los Angeles Department of Public Works - Watershed Management Division in consultation with the Corps of Engineers, the Los Angeles Regional Water Quality Control Board, and the California Department of Parks and Recreation to make available for the purpose of beach replenishment, excess substrates that are excavated for the purposes of maintaining river gradient, maintenance of design flow capacity, and construction of public flood protection facilities.

6.7.1 Riverwide Recommendations

The 1999 I&R Document does not present a riverwide or any reach specific recommendations specific to the identified issue of Coastal Beaches Erosion and Replenishment; however, a recommendation may be inferred from the second sentence of the Riverwide Issue Statement, above: "The SCREMP encourages activities that tend to restore the natural sediment balance of the river." Accordingly, this statement is

reiterated as a Riverwide Policy below and used as the basis for development of a Riverwide Program, as described below.

In further support of this approach, the SCREMP Project Steering Committee recognizes the need for the development of a sediment yield and sediment transport model of the Santa Clara River to evaluate the impacts of urbanization and water quality changes on the river system and how these factors affect beach sand supply. The model will most likely be one component of a larger watershed-based study that will also include a hydrology model and hydraulics model (see Section 3.2.5). The sediment transport model will be a critical tool for the Santa Clara River Watershed Protection Plan. It will evaluate issues such as sediment generation, channel aggradation and degradation trends, impacts of reservoirs on channel scour and transport, and sediment delivery to the ocean. The sediment yield component of the model can be used to evaluate the fate and transport of pollutants that are often carried by the fine sediment. The model can be used to evaluate the impacts of proposed projects on the sediment equilibrium. Three main sediment generation and transport conditions are recommended for study: the pre-European settlement, existing, and future conditions. The pre-European settlement condition provides insight into the long-term equilibrium and delivery conditions in the channel, while the existing condition will provide a baseline to evaluate the impacts of changes in land use and hydrology on sediment and pollutant loads. It will also allow the stakeholders to manage the river system by evaluating the effects of wastewater treatment plant discharges, wetland restoration projects, and changes in water quality.

Riverwide Policy

It is SCREMP policy to encourage, support, and facilitate the replenishment of coastal beaches through activities that tend to restore the natural sediment balance of the River which includes sand supply to the Pacific Ocean.

Riverwide Program

It has been estimated that the Santa Clara River contributes up to 60 percent of the beach sand sediments to Ventura County beaches (Ventura County General Plan). In consideration of the importance of this source, the SCREMP proposes the development of a long-term water and substrate management study and program for implementation within the 500-year floodplain that is consistent with the goal statements given at Section 6.4 and Section 6.10. The study should assess the flow rate required to provide the desired sediment transport for beach sand replenishment. The study should identify a range of options to comprehensively address sand supply to the Pacific Ocean. Subjects that merit attention include, but are not limited to:

- Existing, historic, and projected fluvial dynamics of the river.
- Consistency evaluation with the Goal Statements given at Section 6.4 and Section 6.10.

- Potential for use of excess substrates that are excavated for the purposes of maintaining river gradient, maintenance of design flow capacity, and construction of public protection facilities.
- Potential for allocation of a beach-grade sand supply from aggregate harvesting operations as a condition specified in conditional use permits (CUP) for authorizing activities within the 500-year floodplain.
- Consistency evaluation for developing a comprehensive water level management plan for the estuary.

The SCREMP proposes that the study scope be coordinated by participating interests that include, but are not limited to:

- Corps of Engineers
- California Department of Parks and Recreation, McGrath State Beach
- California Department of Boating and Waterways
- City of Ventura Public Works Department
- Ventura County Watershed Protection District
- Los Angeles Department of Public Works - Watershed Management Division
- Los Angeles Regional Water Quality Control Board
- California Coastal Commission
- Ventura County Wetlands Recovery Task Force
- The Coastal Conservancy
- The Nature Conservancy
- Friends of the Santa Clara River
- Friends of the Channel Coast State Parks
- California Coastal Coalition
- Surfrider Foundation
- Beach Erosion Authority for Clean Oceans and Nourishment (BEACON)
- VULCAN Materials Company

Riverwide Projects

Riverwide Projects are included as an Excel file in the attached CD to this SCREMP.

6.7.2 Reach Specific Recommendations

While not directly consequential to the subject of beach replenishment, the following Reach 1 Reach Specific Recommendation would be incorporated into the Riverwide Program: “Develop a comprehensive water level management plan for the estuary." See Section 6.7.1, above.

Riverwide Policy

The Riverwide Policy, stated above, applies to all reaches; accordingly, a Reach Specific Policy is not currently identified.

Programs

The Riverwide Program described above applies to all reaches; accordingly, no Reach Specific Programs are currently identified.

Projects

Reach Specific Projects are included as an Excel file in the attached CD to this SCREMP.

6.8 Recreation

Issues

The issues pertaining to development of recreation opportunities that are relevant to the SCREMP are given in the "Summary of Riverwide Issues and Riverwide Recommendations" document dated April 27, 1999 (1999 I&R Document) under issue No. 8 Recreation, which states:

The Santa Clara River corridor, particularly the reaches within Ventura County, currently affords limited opportunities for public access and recreation. While respecting private property rights, the Plan addresses the enhancement of recreation and public access along the entire Santa Clara River and encourages use of public rights-of-way for recreational use. Additional information regarding recreation can be found in the Recreation Subcommittee Report dated April 1996.

Goal

The document titled "Public Access and Recreation Report, Santa Clara River Enhancement and Management Plan" dated July 8, 1996, provides the following goal statement:

It is a goal to foster the greater population's understanding of natural resources, valley history, agriculture, and land uses. In the long-term vision, existing public access provided at local, regional, state and federal park lands, and privately managed recreational facilities could be linked together by a system of trails, bicycle routes, and scenic driving opportunities. Existing land use and ownership patterns may preclude a continuous system in the short-term period, but as land uses continue to be dynamic, new opportunities may arise. Thoughtful planning, analysis of opportunities and constraints, and the participation of involved landowners and citizens will ensure that public access and recreation is compatible with the various land uses throughout the valley.

Additional guidance is provided in the "Summary of Riverwide Issues and Riverwide Recommendations" document dated April, 27, 1999 (1999 I&R Document) under Riverwide Recommendation (RR) No. 18, Public Access and Recreation, and No. 19 Recreational Property Acquisition which state, respectively:

Future development along the river will provide recreation and public access opportunities. Protection of adjacent properties (e.g., fencing, police patrol efforts) will be in place at the time river property is made available to the public. Whenever possible, public access and recreation will be positively integrated with other river uses, like, but not limited to, flood control structure for non-motorized multi-use trails and restoration projects having educational and interpretive opportunities.

And,

Where there are willing sellers and available funding, local, county and state agencies will acquire land (via fee title or easement) within the 100-year floodplain for recreation/education purposes.

Accordingly, the goal statement for the purposes of the SCREMP is:

To enhance public access for recreation, nature study, and cultural/historic experiences at appropriate sites along the Santa Clara River by encouraging the use of public rights-of-way for recreational use.

6.8.1 Riverwide Recommendations

The Riverwide Recommendations (RR), as presented in the 1999 I&R Document, that are most relevant to Recreation include the following:

RR 18. Public Access and Recreation: Future development along the river will provide recreation and public access opportunities. Protection of adjacent properties (e.g. fencing, police patrol efforts, signage) will be in place at the time river property is made available to the public. Whenever possible, public access and recreation will be positively integrated with other river uses, like, but not limited to, flood control structures for non-motorized, multi-use trails and restoration projects having educational and interpretive opportunities.

RR 19. Recreational Property Acquisition: Where there are willing sellers and available funding, local, county and state agencies will acquire land (via fee title or easement) within the 100-year floodplain for recreation/education purposes.

Riverwide Policy

It is SCREMP policy to support the 2 Riverwide Recommendations, above, as stated.

Riverwide Programs

The SCREMP proposes that the following 3 Riverwide Programs (RProg) for the enhancement of recreational, educational, and public access opportunities in the SCREMP Area:

RProg (1). Provide for recreational use and beautification as part of flood control and water conservation objectives by acquiring or constructing recreational facilities or landscaping as part of any district project.

RProg (2). As part of the SCREMP, adopt a set of Parks, Recreation and Trails (PRT) maps. Proposed development within the SCREMP Area should be reviewed for consistency with proposed SCREMP PRT trail maps. Dedications of land for the future development of trails should be made a condition of approval, unless specifically waived by the permitting agency.

RProg (3). Encourage local jurisdictions to develop Joint Agreements with the VCWPD and LADPW-WMD to allow joint use of flood control maintenance roads with hiking and biking opportunities, particularly on existing flood control levees on the south side of the river in the cities of Oxnard and Ventura.

Riverwide Project

Riverwide Projects are included as an Excel file in the attached CD to this SCREMP.

6.8.2 Reach Specific Recommendations

The Reach Specific Recommendations (RSR) as presented in the 1999 I&R Document, that are most relevant to Recreation include the following:

RSR Reach 1: Incorporate the new recreation and public access trails plan into this reach.

RSR Reach 2: Incorporate the new recreation and public access trails plan into this reach.

RSR Reach 3: As development occurs, recreational trails and public access will be considered as a part of the land use entitlement process.

RSR Reach 5: As development occurs, recreational trails and public access will be considered as a part of the land use entitlement process.

RSR Reach 7: As development occurs, recreational trails and public access will be considered as a part of the land use entitlement process.

RSR Reach 11: The Pico Canyon trail will be connected to any future river trail at the County line.

Reach Specific Policy

It is SCREMP policy to support the 6 Reach Specific Recommendations, above, as stated.

Reach Specific Programs

The SCREMP proposes that the following 6 Reach Specific Programs (RSProg) for the enhancement of recreational, educational, and public access opportunities in the specified reaches of the SCREMP Area:

RSProg (1) Reach 2: Establish a Joint Agreement between the Ventura County Watershed Protection District and the City of Oxnard to allow recreational use of Watershed Protection District Rights-of-Way along the south bank of the Santa Clara River levee.

RSProg (2) Reach 3: Establish a Joint Agreement between the Ventura County Watershed Protection District and the City of Oxnard to allow recreational use of Watershed Protectionl District Rights-of-Way along the south bank of the Santa Clara River levee. Work with the Nature Conservancy to develop a public trail across their property that would allow access between the existing Bristol Bay Linear Park and Northbank Linear Park.

RSProg (3) Reach 5: Support efforts of City of Santa Paula to develop publicly-owned land south of the Santa Paula Airport for passive recreational opportunities.

RSProg (4) Reach 9: Establish a Joint Agreement between the Ventura County Watershed Protection District and the Newhall Ranch to allow recreational use of Watershed Protection District Rights-of-Way.

RSProg (5) Reach 10: Establish a Joint Agreement between the Ventura County Watershed Protection District and the Newhall Ranch to allow recreational use of Watershed Protection District Rights-of-Way.

RSProg (6) Reaches 11, 12, 13: Support the City of Santa Clarita's Open Space Acquisition Plan as an appropriate method by which potential land is acquired for open space/recreation public uses.

Reach Specific Projects

Reach Specific Projects are included as an Excel file in the attached CD to this SCREMP.

6.9 Cultural Resources

Issues

The issues pertaining to the identification and preservation of cultural resources relevant to the SCREMP are given in the "Summary of Riverwide Issues and Riverwide Recommendations" document dated April, 27, 1999 (1999 I&R Document) under issue No. 9 Cultural Resources, which states:

For centuries before the arrival of the Spanish Missionaries, the Santa Clara River and its tributaries were attractive locations for Native American habitation. The Plan addresses the identification, preservation, and management of cultural resources that include prehistoric and historic archaeological sites. Additional information on cultural resources can be found in the Final Cultural Resources Report for the Santa Clara River Enhancement and Management Plan dated April 30, 1996.

Goal

Accordingly, the goal statement for the purposes of the SCREMP is:

To establish a methodology for public entities when discharging their mandates and private land owners when exercising use of their holdings for maintaining compliance with existing federal and state laws pertaining to the protection of cultural resources.

6.9.1 Cultural Resources Management Plan

The purpose of this section is to outline a proposed methodology for implementing a Cultural Resources Management Plan (CRM Plan) as a component of the Santa Clara River Enhancement and Management Plan (SCREMP). The CRM Plan is separated into two sections. The first section will address cultural resource issues on projects where federal agencies act as "lead" agencies. In this case any undertaking would fall under the scope of federally driven statues such as Section 106 of the National Historic Preservation Act (NHPA), Native American Graves Protection and Repatriation Act (NAGPRA), Archaeological Resource Protection Act (ARPA), and the National Environmental Protection Act (NEPA). The second section will propose methodology on projects conducted by state and local agencies as well as private parties. These projects would be subject to review under the California Environmental Quality Act (CEQA), which is the principal, statute mandating environmental assessment of projects in California.

The cultural resource management process will identify the methods required for compliance with federal, state and local laws and regulations associated with the long term management and protection of archaeological sites within the project area.

6.9.1.1 Federal Projects

National Historic Preservation Act (NHPA) and Section 106

Under Section 106 of the National Historic Preservation Act, Federal agencies must take into account the potential of an undertaking, which it is intending to enable, to harm cultural resources that could be listed, or are already listed on the National Register of Historic Places. To do that, the entirety of the area of potential effects be examined to see if such properties are present.

The federal agency, serving as the lead agency, determines whether an undertaking is made. The lead agency, under federal law, is responsible for compliance with Section 106 and other federal mandates. An undertaking is defined as any project or activity using federal funds, requiring federal permits or involving federal properties (36 CFR 800.16).

Federal guidelines require that change in physical property, be it ownership or construction, or occurring on or in Federal property, first have the property checked to see if elements important to the history or prehistory of the United States will be threatened. This is done to make sure that cultural remains, that the society would like to preserve, or at least document, are not inadvertently lost.

Historic properties, as defined in 36 CFR 800.16 (l), refer to the following:

> *any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. It also includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register Criteria*.

If it has been determined that the proposed project is in fact an undertaking, a federal agency must take on the role of lead agency and will ultimately be responsible for compliance with cultural resources laws. If the project requires a specific permit, such as a "404 Wetlands Permit" from Section 404 of the Federal Water Pollution Control Act of 1972, then the U. S. Army Corps of Engineers shall serve as the lead federal agency. Consequently, if the project requires permits that would have to be approved through either Los Angeles or Ventura County, or one of the county agencies, then the project will follow cultural resource guidelines as specified in the California Environmental Quality Act (CEQA). See "State/County Projects" section of this document.

The following steps should be taken once the lead agency makes the initial determination on the nature of the project:

Once a federal undertaking is enabled, the lead agency will determine whether the project has the potential to cause adverse effects to historic properties. Adverse effects to historic properties include, but are not limited to, physical destruction of or damage to all or part of the property; alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation that is not consistent with the Secretary's Standards for the Treatment of Historic Properties and applicable guidelines; removal of property from its historic location; change in the character of the property's use or physical features within the property's setting that contribute to its historic significance; introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant features; neglect of property which causes degradation; transfer, lease, or sale of property out of Federal ownership or control

without any restrictions or conditions to ensure long-term preservation of the property's historic significance (36 CFR 800 (a)(2)).

Projects requiring construction, ground disturbance in developed and undeveloped areas, bridge retrofits, etc., have the potential to cause adverse effects to recorded and unrecorded cultural resources. Projects where park benches may need to be upgraded or existing streets may need to be resurfaced for instance may not have the potential to impact cultural resources. However, the nature and scope of work on each project varies greatly, and these need to be evaluated on an individual basis.

If it is determined that the proposed federal project does not have the potential to cause adverse effects, the Section 106 process would end as the agency has no further obligations under Section 106. A letter to the State Historic Preservation Officer (SHPO) would be drafted informing the SHPO about proposed action and that the action would have no effect on historic properties within the project area. The SHPO has 30 days to review the document, and if the SHPO does not respond to the agency's conclusion, the SHPO is presumed to agree with the agency ("Agree without comment").

However, if the determination is made and the proposed federal project has the potential to cause adverse effects on historic properties then the lead agency should:

(1) Notify the State Historic Preservation Officer about the proposed undertaking addressing the fact that the project has the potential to cause adverse effects on historic properties; and

(2) Identify consulting parties such as the Native American tribe(s) that attach religious or ceremonial importance to the property affected by the proposed undertaking. A list of Native American contacts is provided in the *Final Cultural Resources Report for the Santa Clara River Enhancement and Management Plan*. Additionally, local governments would be consulted if the undertaking would occur in their jurisdiction. Lastly, the applicant applying for Federal funding or permits should be included in the process as well.

A public notice should be sent out to inform the public about the nature of the proposed project. This would be done through a proposed project's public scoping meetings.

The lead agency would develop the Area of Potential Effects (APE). APE as defined includes any geographic area or areas within an undertaking that may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The extent of APE is influenced by the scale of the project and may vary in terms of effects caused by the undertaking (36 CFR 800.16 (d)). Thus the project may have areas of direct and indirect impacts. The APE would be developed to include area in which the proposed undertaking may cause direct or indirect effects on historic properties. An area of potential effect may extend beyond the actual area where the construction is planned and would include access routes, areas prone to vibrations, flooding and other areas where impact to cultural resources may occur.

Once the APE has been defined, a Phase I archaeological survey would be conducted to identify archaeological resources that may be located within the project area but have not been previously identified. *The Final Cultural Resources Report for the Santa Clara River Enhancement and Management Plan* indicates that there are thirty-seven prehistoric archaeological sites and twenty historic sites located within the 500-year floodplain of the Santa Clara River. Additionally, there are four historic properties listed on the National Register of Historic Places, seven properties are listed on the California State Historic Resources Inventory, twelve historic properties are registered as California Historical Landmarks, and there are two California Points of Historical Interest. While these have been identified and recorded through previous cultural resource investigations within the project area, additional surveys would have to be conducted to determine whether there are cultural resources *potentially* eligible for listing in the National Register of Historic Places within the APE.

After the field identification effort has been completed, cultural resources identified during this task shall be evaluated or tested by the lead agency in consultation with SHPO and "any Native American tribe" that attaches religious and cultural significance to that area, to see if the resource is eligible for listing on the National Register.

This effort is also known as Phase II or "testing and evaluation phase." The purpose of Phase II is to determine whether archaeological site(s) satisfies the criteria for listing on the National Register of Historic Places. The eligibility criteria for nomination of archaeological resources are twofold. First, the potentially eligible site has to be:

- associated with important persons;
- associated with important events;
- exemplifies well the craftsmanship of a master, or design of a period or craft; or
- contributes to the understanding of the period or culture represented (36 CFR 60.4).

Most archaeological sites will fall under the very last criteria required for eligibility. Furthermore, the eligible site has to have integrity (remaining as intact as possible) in order for it to be nominated to the NRHP.

If there are archaeological sites that are eligible for nomination, the lead agency would apply criteria for adverse effects in order to determine whether the proposed project would impact sites eligible for nomination. If the lead agency determines that the project would have no adverse effect on sites eligible for nomination, and the SHPO and Native American group(s) concur with the decision, then the Section 106 process comes to an end. If the lead agency determines that the project would have no effect, but either the Native American group or the SHPO do not agree, the Advisory Council for Historic Preservation (ACHP) shall be contacted in order to determine the effects of the proposed project. If the ACHP agrees with the lead agency, then the Section 106 process comes to an end. If the ACHP concurs that the proposed project would have an adverse impact, a Memorandum of Agreement would be developed on how to mitigate adverse impacts on

sites eligible for listing in the NRHP. It is important to note that projects having adverse effects on historic properties already listed on federal, state, local registers shall be mitigated through a Memorandum of Agreement (MOA).

If the Phase I investigations do not reveal any sites potentially eligible for nomination, and there are no records of existing historic properties located within the APE, the Section 106 process would end, but the SHPO would be notified with the findings by the lead agency.

If there are historic properties listed on various federal/state/local registers, and it has been determined that the proposed project would have effect on these properties, the SHPO would be consulted, and MOA should be developed on how to mitigate impacts to these properties.

Once the MOA has been developed, all of the consulting parties as identified in the Section 106 process must agree on the mitigation process and should sign the MOA. In cases where either the lead agency or SHPO or Native American group refuse to sign, the ACHP must be contacted and ultimately cast the deciding vote. If the MOA calls for mitigation of resolution through adverse effects through archaeological data recovery, then the Phase III archaeological data recovery process would begin with acceptance of the MOA.

The above Section 106 process can be summarized as follows:

1. Identify consulting parties.

2. Develop a plan to include public (this is usually done through project's scoping meetings).

3. Review existing information on potential historic properties in the area. This step has already been done and it has been incorporated into *The Final Cultural Resources Report for the Santa Clara River Enhancement and Management Plan*. However, the existing information is out of date and includes projects and sites that have been recorded prior to 1995.

4. Determine any Areas of Potential Effects and consult with appropriate Native American group(s).

5. Make a good faith effort to physically check APE for unrecorded properties through an intensive archaeological survey (Phase I). If the survey results are:

    A. No sites or historic properties within APE.
        1. Notify SHPO, Section 106 process ends.

    B. No archaeological sites present, but historic properties listed on various registers are present within APE

1. Apply criteria of adverse effect, and determine that there is:
   a. **no adverse effect** on historic properties, SHPO/Native American group *agree*, then the Section 106 process ends.
   b. **adverse effect** on historic properties, provide consulting parties with documentation, develop MOA on how to mitigate adverse effects.
   c. **no adverse effect** on historic properties, but either SHPO or Native American group *disagree* with determination of effect/no effect, then, consult with Advisory Council of Historic Preservation.
      - ACHP agrees with agency, Section 106 process ends.
      - ACHP agrees with SHPO and/or Native American group, then provide documentation to consulting parties and develop MOA on how to mitigate adverse effects.

C. If archaeological sites are found, but there are no historic properties listed on various federal/ state/local registers within APE:
   1. Determine whether archaeological resources are eligible for National Register (Phase II):
      a. Yes, there are archaeological sites eligible for listing, then proceed to B-1.
      b. No, there are no sites eligible, then B-1(a). In case one of the consulting parties disagree, then B-1(c).

D. Develop the MOA to mitigate effects and consulting agencies:
   1. Agree and sign the document, mitigation begins.
   2. Either agency or SHPO refuses to sign, then ACHP must be consulted and ultimately cast the deciding vote regarding the treatment and mitigation of cultural resources on project-by-project basis.

Other project related issues

Burials

If there is a potential for disturbance to Native American burial remains, at least one Native American monitor should be selected from among the most likely descendants of the site's population. *The Final Cultural Resources Report for Santa Clara River Enhancement and Management and Program* includes a list of most likely descendants for the Santa Clara River project area. Furthermore, projects where Native American burials are encountered should be treated with accordance to the Native American Graves Protection and Repatriation Act of 1990.

Monitors

Projects where the potential for unearthing or disturbing of Native American burial remains shall be monitored by at least one Native American selected from the list

included in *The Final Cultural Resources Report for the Santa Clara River Enhancement and Management Plan*. Furthermore, Native Americans listed in the document shall be consulted with regard to disposition and treatment of remains unearthed during projects. Additionally, the County Coroner as well as the Native American Heritage Commission in Sacramento shall be consulted if human remains are found within project area.

Reports and Document Determination

The lead agency will determine the appropriate document for this process. However, Section 106 documents include, but are not limited to, Historic Property Survey Report (HPSR), Archaeological Survey Reports, Archaeological Data Recovery Reports; however, every effort should be made to ensure that a determination, finding, or agreement under the Section 106 is supported by sufficient documentation as to enable any reviewing parties to understand its basis (36 CFR 800.11). Archaeological reports will be submitted and filed at the South Central Coastal Information Center, Department of Anthropology, California State University, P.O. Box 6846, Fullerton, CA 92834.

National Environmental Policy Act (NEPA)

The National Environmental Policy Act of 1969 (NEPA) declares a national policy to protect the environment through evaluating proposed federally enabled projects/actions. Section 101 (b) (4) states that it is the responsibility of the Federal Government to use all practicable means to preserve important historical, cultural, and natural aspects of our national heritage. Therefore, NEPA expands the scope of federal protection to include sites having local and regional importance but lacking a national significance on projects requiring Federal EISs. NEPA actions are initiated through federal agencies bringing Section 106 process into force in terms of cultural resources. Therefore, Section 106 process has statutory precedence over NEPA in the area of cultural resource compliance. In order to satisfy the cultural resource section in an Environmental Impact Statement (EIS), Section 106 requirements shall be satisfied as well.

6.9.1.2 State and County Projects

California Environmental Quality Act (CEQA)

The California Environmental Quality Act (CEQA) is the principal statute mandating environmental assessment of projects in California. CEQA's goal is to evaluate whether a proposed action or project will have adverse effect on the environment and, if so, if that effect could be reduced or eliminated by proposing or pursuing alternative action through mitigation. If a given project requires approval from more than one agency, one of these public agencies must act as the lead agency. Companies seeking permits or other actions that may have effect on the environment and are issued through one of the public agencies must go through CEQA process in order to evaluate potential impacts the project may have.

A project conducted as part of the SCREMP, where a federal permit, or federal involvement is not required will have to complete the environmental review process required by CEQA.

Once the lead agency determines that the project is subject to CEQA, it must also consider whether the project is exempt from CEQA. It is recommended that for projects requiring permits issued by either Los Angeles or Ventura County, agency issuing the permit should act as lead agency.

Statutory Exemptions

There are two types of exemptions: statutory and categorical. Statutory exemptions are projects excluded from CEQA review as defined by State Legislature, and these are delineated in PRC 21080 et seq. These exemptions apply to any project that falls under its definition regardless of the project's impact to the environment.

Categorical Exemptions

Categorical exemptions are classes of projects that are considered not to have potential impacts on the environment. These are defined in CEQA guidelines (14 CCR 15300-15331). It is important to note that categorical exemptions are not applicable to projects that have the potential to cause a substantial adverse change in the significance of a historical resource (14 CCR 15300.2 (f)). Therefore, the lead agency must determine if the proposed project has the potential to impact historical resource and whether these impacts could be adverse before a categorical exemption is utilized.

Historical Resource

A project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment. Under CEQA guidelines a historical resource is defined as "a resource listed in, or determined to be eligible for listing in, the California Register of Historical Resources." Historical resources included in a local register of historical resources are presumed to be historically or culturally significant, unless the preponderance of the evidence demonstrates otherwise. Any object building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be a historical resource, including the following:

- It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- It is associated with lives of persons important to our past;
- It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- It has yielded, or may be likely to yield information to prehistory or history.

Historical resources that are listed automatically in the California Register include:

1. Resources listed in the National Register of Historic Places (NRHP);
2. Resources that have been formally determined eligible for listing in the NRHP (determination of eligibility conducted during the Section 106 process);
3. California Historical Landmarks (beginning with #770); and
4. California Points of Historical Interest (those that were designated after January 1998).

When a project will affect state-owned historical resources, any state lead agency must consult with the SHPO. Consultation must be coordinated in a timely manner with the preparation of the environmental document. It is also recommended that local Lead Agencies consult with SHPO as well. (15064.5 (b) (5)).

Archaeological Resource

Archaeological sites considered ***unique*** are defined as an archaeological artifact, object, or site about which it can be clearly demonstrated that there is a high probability that it meets any of the following criteria:

- It contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
- It has a special and particular quality such as being the oldest of its type or the best example of its type.
- It is directly associated with scientifically recognized important prehistoric or historic person.

A "***non-unique***" archaeological resource means an archaeological artifact, object or site which does not meet the above criteria. A non-unique archaeological resource need be given no further consideration, other than the simple recording of its existence by the lead agency, if the agency elects to do so.

Once the lead agency determines that the project will impact archaeological site(s), the lead agency makes a determination whether the site is a historical resource. If determined that,

The site is a historical resource: the agency will refer to the provisions of Section 21084.1 of the Public Resource Code, and Section 15126.4 of the California Code of Regulations. The limits including the time and cost limitations for implementing mitigation do not apply in this case. In practice most archaeological resources that meet the definition of a "unique" will also meet the definition of an historic resource.

The site is not a historical resource, but it is unique: the site shall be treated in accordance with provisions of section 21083.2. The time and cost limitations (21083.2 (c-f)) do not apply to surveys and site evaluations but apply to mitigation measures.

The site is neither unique nor a historical resource: the effects of the proposed project on these resources shall not be considered significant effects on the environment. They shall be noted in the Initial Study or EIR, but there is no need to address these resources further in the CEQA process.

Native American Human Remains

If there is a likelihood of, or an environmental document identifies the existence of, Native American human remains within a project area, the lead agency will take steps to coordinate with the most likely descendants as indicated by the Native American Heritage Commission in Sacramento. (15064.5(d))

Accidental Discovery of Resources

It is vital that the Lead Agency should make provisions for archaeological and historical resources to be accidentally discovered during ground disturbing activities. 15064.5 (e)

Confidential Site Information

Any information about specific location of archaeological sites and sacred land should not be included in the EIR.

Mitigation and Historical Resources

A lead agency will identify all potentially feasible measures to mitigate adverse changes in the significance of a historical resource. Furthermore, any adopted mitigation measures will be fully enforceable through permits, conditions and/or agreements (15064.5(b) (3-5)). Measures that do not reduce or avoid impact to historical resources are not acceptable under CEQA guidelines. However, a project shall be considered as mitigated to a level less-than-significant if it seeks to improve a historical resource in accordance with:

- Secretary of Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings; or
- Secretary of Interior's Standards for Rehabilitations and Guidelines for Rehabilitating Historic Buildings. (15064.5(b) (3).

Mitigation Measures and Archaeological Resources

CEQA Guidelines state that public agencies must, whenever possible, seek to avoid damaging effects to archaeological resources. Preservation of such resources is accomplished by:

- Planning construction to avoid archaeological sites.
- Incorporating sites within parks, greenspace, or other open space.
- Covering sites with a layer of chemically stable soil.

- Deeding sites into a permanent conservation easement.

When the above measures are not feasible, data recovery through excavation will be necessary. A data recovery plan, which makes provisions for adequately recovering and storing the scientifically consequential information about the site, shall be implemented prior to any excavation being undertaken. Furthermore, per CEQA guidelines, excavation as mitigation shall be restricted to those parts of the unique archaeological resource that would be damaged or destroyed by the project. Excavation as mitigation is not necessary if the lead agency determines that testing or studies already completed have adequately recovered the scientifically consequential information about the resource if this determination is documented in the environmental impact report.

CEQA imposes cost and time limitations on the amount of mitigation that can be required of project applicants. These limitations are clearly defined in CEQA (21083.2 (e-f)).

Project Data Gaps

A records search completed by CH2MHill was conducted at the South Central Coastal Information Center, California State University, Fullerton in 1995. Other records searches are highly recommended to account for sites that may have been recorded and archaeological surveys that may have been conducted between 1995 and 2002.

Programmatic Agreement

Since numerous projects on the Santa Clara River involve permits from federal, state, and local agencies it would be extremely beneficial to develop a PA between the stakeholders and the State Historic Preservation Officer (SHPO) in Sacramento. The PA should focus on federal and state projects and should include items such as categorical exclusions or a list of projects that would require federal and state permits but would unlikely impact cultural resources within the project area. This would streamline the Section 106 process without neglecting the importance of preservation and conservation of cultural resources within the project area.

Riverwide Project

Riverwide Projects are included as an Excel file in the attached CD to this SCREMP.

Reach Specific Projects

Reach Specific Projects are included as an Excel file in the attached CD to this SCREMP.

6.10 Groundwater Recharge, Water Rights, Water Supply, and Water Quality

Issues

The issues pertaining to groundwater recharge, water rights, water supply, and water quality that are relevant to the SCREMP are given in the "Summary of Riverwide Issues and Riverwide Recommendations" document dated April 27, 1999 (1999 I&R Document) under issue no. 10 Groundwater Recharge/Water Rights/Water Supply/Water Quality, which states:

For the Santa Clara River, the issues of water supply, water quality, water rights, and groundwater recharge are intertwined. The SCREMP will address the management of water quality and river quantity to protect, enhance, and restore all beneficial uses (inland and coastal) of the river. The seawater intrusion problem on the Oxnard Plain must also continue to be addressed. A comprehensive review of the river's water issues must be evaluated in order to accomplish this – this includes the recognition of existing water rights, permits, and water needs (in and out of the stream) of the region. Existing water supplies must be both protected and used wisely and efficiently in order to guarantee a viable resource for future generations. Additional information on water supply, water quality, water rights, and groundwater recharge can be found in the Water Resources Report for the Santa Clara River dated April 1996.

Goal

Accordingly, the goal statement for the purposes of the SCREMP is:

To support the development of a long-term water management strategy for implementation within the 500-year floodplain that provides for the sustainability of the water supply; maintenance and, potentially, enhancement of water quality; reasonable allocation to achieve the best possible balance of beneficial uses among the various resources categories; and acknowledging and respecting the water rights of private property owners.

6.10.1 Riverwide Recommendations

The Riverwide Recommendations (RR) as presented in the 1999 I&R Document that are most relevant to the subjects of Groundwater Recharge, Water Rights, Water Supply, and Water Quality include the following:

RR 3.A. Private Property Rights: Preservation of existing resources and establishment of mitigation banks could be accomplished through the purchase of property from willing sellers.

RR 4.A. Water Quality: Manage water quality (point and non-point sources) to protect beneficial uses. The Water Resources Subcommittee will act in an advisory capacity to the Los Angeles Regional Water Quality Control Board.

RR 4.B. Water Quality: The California Regional Water Quality Control Board, Los Angeles Region is charged with the responsibility of (1) assessing water quality, (2) identifying impairments, (3) identifying sources of impairments, and (4) developing solutions which will restore water quality and protect beneficial uses. In concert with other stakeholders, involved in the water aspects of the Plan, the Regional Board will be implementing the above activities and will be seeking assistance in supplying data and other information to complete the effort. The Regional Board will identify gaps (both geographic and types of constituents) that need to be measured to assess the health of the watershed. During fiscal year 2001-2002, the Regional Board will focus efforts on renewing permits in the watershed. This will be a critical time period for input from those interested in the water quality of the river.

RR 5. Water Rights: Preserve and enhance in-stream and riparian beneficial uses, as identified in the Basin Plan, while respecting existing water rights, licenses, and permits for use of water resources (e.g. agricultural or municipal uses and groundwater replenishment).

[Need integration with the Biological Sub-Committee, especially as related to Steelhead recovery].

[[It should be noted that the United Water Conservation District (UWCD) is currently going through a Section 7 consultation with NOAA Fisheries regarding southern steelhead for the operation of the Freeman Diversion. UWCD is also in the process of obtaining a FERRIC relicense for the operation of the Santa Felicia Dam at Lake Piru which also considers southern steelhead. The National Marine Fisheries Service has reviewed southern steelhead issues with regard to the other small diverters on the river.]]

RR 6. Saltwater Intrusion: Address saltwater intrusion problems on the Oxnard plain through regulating groundwater pumping and continuation of water conservation and recharge activities.

Explanation:
Use of the river channel for transporting water for recharge of the Oxnard Plain is recognized as a vital element in combating seawater intrusion. During the 1960s, ‘70s and early ‘80s, Oxnard Plain groundwater use increased to the point where the overdraft was creating a serious seawater intrusion problem. The State Water Resources Control Board (SWRCB) declared the basin in "critical overdraft" and mandated the local agencies to address the problem. The Fox Canyon Groundwater Management Agency was formed to regulate pumping. The SWRCB assisted United Water in obtaining funding for construction of the Freeman Diversion Dam to increase groundwater recharge and in lieu deliveries of surface water to reduce pumping. This delicate balance must be managed closely in order to protect both the valuable surface and groundwater resources of the river.

RR 7. Water Supply: Maximize use of existing water supplies and encourage recycled water use as a supplemental local water supply by constructing delivery systems and

actively promoting the use of locally produced recycled water to replace [[the use of]] drinking quality water for nonpotable applications.

The Santa Clara Valley region is one of the fastest growing areas in the State and is dependent on imported water to supplement its limited groundwater resources. [[In August 2002, DWR released its Draft State Water Project Delivery Reliability Report that is intended to assist State Water Project (SWP) contractors in assessing the adequacy of the SWP component of their overall supplies. Results from the report indicate that the SWP is capable of delivering at least 70% of full SWP supplies in most years. Agencies in the SCREMP region, such as the Castaic Lake Water Agency, are developing projects and programs to firm up the reliability of their SWP water supplies as local demands increase.]]

Riverwide Policies

The seven Riverwide Policies presented below, were developed based on the preceding recommendation statements and with reference to existing county plans and policies. It is, therefore, SCREMP policy to encourage, support, and facilitate these Riverwide Policies (RP) for the purposes of preserving, enhancing, and sustaining water supply, water quality, water rights, and groundwater recharge within the 500-year floodplain of the Santa Clara River.

RP (1): Promote the acquisition of property from willing sellers in an effort to preserve and enhance beneficial uses of water within the Santa Clara River 500-year floodplain, improve quality of groundwater, and restore the diminished groundwater supplies.

RP (2): The Santa Clara River is the single most important source of water in northern Los Angeles County and in western Ventura County water and its water quality largely controls the quality of the groundwater within the groundwater basins. Therefore, it is a SCREMP policy to encourage, support, and facilitate the management of water quality to protect beneficial uses within the 500-year floodplain. Groundwater and surface water management agencies in the Santa Clara River Valley should continue to coordinate their efforts to preserve this resource. This policy also supports the concept of conducting benthic bioassessments and fish tissue assays for evaluating the accumulation of pollutants in the physical environment as well as in biological food web components.

RP (3): The California Regional Water Quality Control Board, Los Angeles Region (LA RWQCB) is mandated under various federal Clean Water Act and California Water Code statutes with the responsibility of (1) assessing water quality, (2) identifying impairments, (3) identifying sources of impairments, and (4) developing solutions that will restore water quality and protect beneficial uses. The LARWQCB also reviews the water quality data developed by other entities that conduct water quality monitoring. In concert with other Stakeholders involved in the water aspects of the SCREMP, the LARWQCB will be implementing the above activities and will be seeking assistance in supplying data and other information to complete the effort. It is SCREMP policy to support this effort by

the LARWQCB. The latest information regarding Total Maximum Daily Loads (TMDLs) for several pollutants are available for review on the LARWQCB website at www.swrcb.ca.gov/rwqcb4/.

RP (4): Promote activities that will preserve and enhance the beneficial uses, including in-stream uses, riparian uses, as well as the ability of existing diverters to appropriate surface waters, and the ability to recharge groundwater supplies. Discourage activities that lead to the degradation of water quality and alterations of the river that will significantly adversely impact the natural recharge of underlying aquifers from the river channel. The SCREMP recognizes and respects existing water rights, licenses, and permits for use of Santa Clara River water resources.

RP (5): Long-term overdraft has caused serious seawater intrusion of the Oxnard aquifer. It is SCREMP policy to support the regulation of groundwater pumping and continuation of water conservation and recharge activities as the feasible and appropriate means to address the saltwater intrusion problems on the Oxnard Plain.

RP (6): Promote efficient use of water resources and maximize use of existing water supplies through water conservation. Encourage recycled water use as a supplemental local water supply by constructing delivery systems and actively promoting the use of locally produced recycled water to replace drinking quality water for nonpotable applications. Promote reclamation and reuse of wastewater for recreation, irrigation, and aquifer recharge.

RP (7): The SCREMP supports enforcement of State Uniform Building Code, Chapter 70 (Excavation and Grading) by the Ventura County Public Works Agency and the Los Angeles County Department of Public Works will continue (with County amendments, as applicable), to ensure that any proposed grading in a waterway or wetland is adequately investigated and that any development incorporates appropriate design provisions to protect waterways or wetlands.

Riverwide Programs

There are many agencies that are responsible for the management of water resources at the Federal, State and local levels. Federal agencies include the Forest Service, Army Corps of Engineers, Bureau of Reclamation and the Environmental Protection Agency; State agencies include the Resources Agency and its many departments, the State Department of Public Health, Department of Water Resources and the Regional Water Quality Control Board; and local agencies include the County Departments of Public Works, Environmental Health, Planning, Flood Control/Watershed Protection Districts, Sanitation Districts, Fox Canyon Groundwater Management Agency, United Water Conservation District, cities, and water retailers and wholesalers. The SCREMP identifies a need for a comprehensive management of water resources within the 500-year floodplain through the coordinated efforts of the participating SCREMP jurisdictions and Stakeholders that is based on the SCREMP recommendations and policies and implemented through Riverwide Programs.

The SCREMP proposes the following Riverwide Program as a reasonable and practicable means to preserve, enhance, and sustain the water resources within the SCREMP Area.

RP (1): Riverwide Water Quality Management Program

The 1996 Water Resources Report identified inconsistencies and gaps in the water quality data within Ventura and Los Angeles portions of the Santa Clara River 500-year floodplain. Riverwide Recommendation 4.A. Water Quality, above, also specifies that water quality (point and non-point sources) be managed to protect beneficial uses. Accordingly, a Riverwide Water Quality Management Program should be developed as the reasonable and practical means to accomplish this in accordance with RP (2), above. The logical entity to develop and manage the program is the Los Angeles – Regional Water Quality Control Board (LA RWQCB). The program may be developed as an amendment to the 1994 Basin Plan, as amended. Specific tasks would include assessing water quality, identifying impairments, identifying sources of impairments, and developing solutions to the identified problems. Water quality can be estimated through the concentration of total dissolved solids (TDS), as well as concentrations of individual constituents in accordance with the State standards. The Board is currently developing TMDLs for nutrients and chloride. The latest information regarding Total Maximum Daily Loads (TMDLs) for several pollutants are available for review on the LARWQCB website at the following address: www.swrcb.ca.gov/rwqcb4/. The data would be collected through the statewide GeoTracker system. The data gaps would be identified and supplemented with the data collected by the Department of Water Resources, local agencies, and cities that discharge urban run-off and treated waters to the river and floodplain. Other information developed by the Board that is applicable to the SCREMP Area includes:

1. A Watershed Management Initiative Chapter document at the web address: www.swrcb.ca.gov/rwqcb4/docs/wmi/webchapter02.pdf; and
2. The Water Quality Control Plan at: http://www.swrcb.ca.gov/rwqcb4/html/meetings/tmdl/Basin_plan/basin_plan_doc.html.

To promote the success of the program, the LTRMC would facilitate a collaboration and exchange of information among the Stakeholders. The SCREMP would also promote the program as a component of the Public Outreach Program. This component will be supported as printed literature and on the SCREMP website. Subject matter would include information about the types of water quality impairments identified in the SCREMP Area and specification of BMPs for improving water quality that would be relatively feasible for urban dwellers and farmers to practice.

Riverwide Project

Riverwide Projects are included as an Excel file in the attached CD to this SCREMP.

6.10.2 Reach Specific Recommendations

The 1999 I&R Document identifies the following 2 Reach Specific Recommendations (RSR) pertaining to the preservation, enhancement, and sustaining of water resources:

RSR Reach 1: Develop a comprehensive water level management plan for the estuary.

RSR Reach 11 and Reach 12: Activities within this reach shall comply with the Section 404 Permit and Section 1603 Streambed Alteration Agreement pursuant to the Natural River Management Concept for Valencia Company and Newhall Ranch projects.

Reach Specific Policies

The following 2 Reach Specific Policies (RSPol) are identified for the purposes of encouraging, supporting, and facilitating the preservation, enhancement, and sustainability of water resources within the SCREMP Area:

RSPol (1) Reach 1: Assist the efforts of those organizations and entities currently involved in developing a plan that will address the preservation, enhancement, and sustainability of the estuary environment for the full achievement of its beneficial uses that includes water quality.

RSPol (2) Reach 11 and Reach 12: The SCREMP supports the notification procedures and environmental mitigation measures that are stated in the Corps Section 404 permit and the CDFG 1603 Streambed Alteration Agreement pursuant to the "Natural River Management Plan," November 1998, Valencia Company for Reach 11 (partial) and Reach 12 (inclusive); and that a continuation or betterment of these procedures and measures be included in the Natural River Management Concept that would pertain to the 500-year floodplain area within the Newhall Ranch Specific Plan area.

Reach Specific Programs

RSProg (1) Reach 1: IP (12): The LTRMC in support of RSPol (1) Reach 1, above, and IP (12) under Section 6.5, above, will assist the efforts of those organizations and entities currently involved in developing a plan that will address the preservation, enhancement, and sustainability of the estuary environment for the full achievement of its beneficial uses that include water quality, aquatic habitat, and fish passage.

No Reach Specific program is identified for RSPol (2) Reach 11 and Reach 12, above.

Reach Specific Projects

Reach Specific Projects are included as an Excel file in the attached CD to this SCREMP.

Non-SCREMP Programs, Plans & Projects – Ventura County

The following programs, plans, and projects are currently taking place within Ventura County under the authorities of various entities that are SCREMP Stakeholders; however, these are not SCREMP Programs. They are described here in this section for information purposes. The SCREMP supports these programs as being consistent with SCREMP objectives, goals, and policies for the preservation, enhancement, and sustainability of water resources.

Wastewater Reuse (201) Plan

This countywide plan proposed by Ventura County identifies reclaimed water from sewage treatment facilities as being a potential source of 18,000-acre feet/year. The County is pursuing funding to implement this plan.

Seawater Intrusion Abatement Project

This project is carried out on the Oxnard Plain by the United Water Conservation District and Ventura County with the support of local cities. It includes removal of wells from the intruded Oxnard aquifer and operation of the Freeman Diversion Structure on the Santa Clara River which, together with new wells in the Fox Canyon zone and the new pumping trough pipeline, will deliver water to users on the Oxnard Plain.

Per the Ventura County General Plan, new wells in the Oxnard Plain pressure basin will not be allowed if they would increase seawater intrusion in the Oxnard or Mugu aquifers.

AB3030 Groundwater Management Plan for Piru and Fillmore Groundwater Basins

In 1992, the Groundwater Management Act was established as part of the California Water Code (Section 10750, et seq.). The Groundwater Management Act was enacted as Assembly Bill 3030. In 1995, a Memorandum of Understanding was signed between United Water Conservation District (UWCD), the City of Fillmore, water companies and other pumpers on how a groundwater management plan would be formulated for the Piru and Fillmore basins. This MOU established that the Management Plan would be a cooperative plan for the basins. The Plan outlines the roles of the various parties in implementing a groundwater management program. After the adoption of the MOU, the Groundwater Management Plan was formulated and adopted in 1996.

UWCD, as the lead agency, publishes an annual report on the groundwater conditions of the Piru and Fillmore basins at the end of each water year (September 30).

Fox Canyon Groundwater Management Agency Plan

The Fox Canyon Groundwater Management Agency was formed in response to the problems on the Oxnard Plain. The Plan administered by the agency is supported by

Ventura County for both the Upper and Lower Aquifer Systems.

County of Ventura – General Plan

"The County Environmental Health Division will take all administrative, fiscal, and legal measures necessary to provide the services of County Service Area 32.

The Planning Division and Public Works Agency will continue to coordinate with water districts and other appropriate agencies to establish a data base on actual available supply, projected use factors for types of land use and development, and threshold limits for development within available water resources.

The Planning Division will continue to promote the efficient use of water through the Landscape Design Criteria Program.

The Public Works Agency, in cooperation with the Environmental Health Division, will continue to pursue the use of reclaimed water for agricultural irrigation.

The Environmental Health Division will continue to monitor, inspect, and regulate underground storage tanks.

The Environmental Health Division will continue to identify waste disposal sites and seek to mitigate impacts to water resources.

The Planning Division will prepare, for the consideration of the Board of Supervisors, a Countywide water conservation retrofit program to fund the installation of water conservation fixtures (defined as 1.6 gallons per flush toilets, one gallon per flush urinals and 2.5 gallons per minute showerheads) for businesses and residents located within Ventura County."

Memorandum of Understanding Between the Santa Clara River Valley Upper Basin Water Purveyors and United Water Conservation District

In 2001, United Water Conservation District entered into a Memorandum of Understanding with the Upper Basin Water Purveyors that includes Castaic Lake Water Agency, CLWA's Santa Clarita Water Division, Newhall County Water District, Valencia Water Company, and the Los Angeles County Waterworks District No. 36. The memorandum specifies that it is in the best interests of the parties and the future beneficial water resources management in the Upper Basin and Lower Basin to enter into a cooperative working relationship and that the memorandum is the best format for establishing a program that would be implemented over time for purposes of agreeing upon overall water resources management techniques and maintaining an information database. The memorandum also states that a cooperative joint water resources monitoring program in both Basins is desirable to protect and enhance the conjunctive use of imported water, groundwater, and surface water resources within the region. The monitoring program includes monitoring and testing, database management, groundwater

flow modeling, assessment of groundwater basin conditions (operational yield), and report preparation and presentation.

Non-SCREMP Programs, Plans & Projects – Los Angeles County

Natural River Management Plan (NRMP), Valencia Company

The Natural River Management Plan is currently being implemented within Los Angeles County by the Valencia Company - Newhall Land & Farming Company, a SCREMP Stakeholder. However, the NRMP is not a SCREMP Program. The NRMP is described in this section for information purposes and because of references to it under Section 3.2.7, above). The SCREMP supports the reach-specific statements in the 1999 I&R Document that activities within Reach 11 and Reach 12 shall comply with the Section 404 Permit and Section 1603 Streambed Alteration Agreement.

The Natural River Management Plan (NRMP) proposed as the basis for its development of a Regional Development Plan was reviewed and approved by the County, the Corps of Engineers, the California Department of Fish and Game (CDFG), and other regulatory agencies. The approved NRMP for the Santa Clara River includes the portion of the river from Castaic Creek Confluence to 2.5 miles upstream of the Bouquet Canyon development. All projects and maintenance activities in the NRMP are subject to the notification procedures and environmental mitigation measures described in the 404 Permit and 1601/1603 Agreement. Components of the NRMP that pertain to the preservation, enhancement, and sustainability of water resources are described below.

Drainage Water Quality Management Plan (Drainage Plan)

A Drainage Plan was prepared by the Valencia Company for the Corps Section 404 permit and the CDFG 1603 Streambed Alteration Agreement that included a program to manage the quality of stormwater runoff discharged to the Santa Clara River from the construction phase through the life of the lands proposed for development, including commercial, residential, industrial, and recreational lands. The Drainage Plan covers all undeveloped lands owned by the Valencia Company that drain into the SCREMP Area. The Drainage Plan does not provide for the management of stormwater quality of drainage from upstream areas not owned by the Valencia Company, nor from lands developed before December 1998 and owned by the Valencia Company.

As required under state law, the Valencia Company will file a Notice of Intent (NOI) with the State Water Resources Control Board and prepare a Storm Water Pollution Prevention Plan (SWPPP) for all construction projects greater than five acres. The proposed SWPPP will contain the following sections: (1) material storage and handling procedures; (2) equipment operation, storage, maintenance, and repair procedures; (3) construction site cleanliness; and (4) erosion control measures. The SWPPP will be prepared to meet the specific requirements of the NPDES General Construction Permit

(as amended over time) and will incorporate all mitigation measures included in the Section 404 Permit and 1601/1603 Agreement.

The Valencia Company will implement the following source control BMP:

The developer of each new Valencia Company development within the [Drainage Plan] area will be responsible for providing educational materials to the initial purchaser of each home or business building. Thereafter, the educational materials for succeeding owners will be available through the LACDPW 's or City's NPDES Management Officer.

The Valencia Company will implement the following permanent treatment control BMPs in all new areas of development associated with the NRMP:

Water Quality Filters. A water quality filter is typically a 50- to 100-foot long reach of open channel near the end of a storm drain just upstream of the discharge point. The bottom of the filter typically is 10 to 15 feet wide and is earthen, gravel, or grass-lined. Much of the non-storm flows carried by the storm drain system will percolate through the bottom of the filter. The velocity of storm flows through the filter will be reduced, causing sediments carried in the flow to deposit in the bottom of the filter. Water quality filters will be used, in addition to source control BMPs, for discharge points downstream of Bouquet Canyon Road Bridge with first-flush volumes between 2 and 4 acre feet, and for discharge points upstream of Bouquet Canyon Road Bridge with first flush volumes of 4 acre-feet or greater.

Water Quality Wetlands. A water quality wetland is a wetland area where nuisance and first-flush flows are collected. The wetlands will function similar to the filter except that the wetland has a larger storage capacity, and in many cases, will be located off-line from the storm drain. An off-line or bypass wetland is desirable since it experiences less disruption during large storms than with a flow-through wetland. Water quality wetlands will be used, in addition to source control BMPs, for discharge points downstream of Bouquet Canyon Road Bridge with first flush volumes of 4 acre-feet or greater.

Soft-bottom Channels. Soft-bottom channels will be integrated into golf courses, parks, and other open space areas. The channel bottoms may be earthen, gravel, or grass lined. They provide a water quality benefit by percolating nuisance flows and filtering out pollutants.

The above facilities will be located outside the riverbed boundaries in upland areas. The number and location will be dependent on final grading and drainage plans for individual projects. An estimate of the minimum number and approximate locations are provided in the Final EIS/EIR dated August 1998.

The BMPs described above will be implemented by the Valencia Company in conjunction with new development. Construction BMPs, as required by the General

Construction Permit, will be implemented at the commencement of construction. The property owner will be responsible for implementing all BMPs. Most of the proposed projects will occur on the Valencia Company property; however, in the event of a property sale in the project area, the new owners will be responsible for the BMPs.

Construction BMPs will be monitored in accordance with the SWPPP prepared by the Valencia Company. Appropriate records will be maintained at the construction site.

Maintenance and monitoring of all permanent source control BMPs will be the responsibility of Los Angeles County or City of Santa Clarita, as appropriate.

All water quality filters and wetlands will be transferred to Los Angeles County or the City of Santa Clarita for operations and maintenance. The latter will include regular inspections on a quarterly basis, sediment and vegetation removal on an as-needed basis to ensure suitable percolation rates, sediment removal to prevent unacceptable accumulations of pollutants, and vector control. It is anticipated that every five to ten years, the wetlands will need to be drained and cleared of sediments. This procedure will be completed in a phased manner, such that only one section of each wetland basin is disturbed in any one year in order to maintain existing wetland habitats in all basins all the time. The basins will be allowed to revegetate naturally; no active revegetation program is proposed.

A Section 404 permit and 1603 Agreement will not be necessary for maintenance or repairs of these facilities. However, the Corps and CDFG reserve the right to make such a determination on a case-by-case basis.

Regional Urban Water Management Plan

In 2000, the Castaic Lake Water Agency and the Upper Basin water purveyors (Newhall County Water District, Los Angeles County Waterworks District No. 36, Santa Clarita Water Company, Valencia Water Company) produced a regional Urban Water Management Plan. The plan contains detailed information about current and future water supply and demand, water conservation, water recycling, and reliability planning within the Agency's service area. The plan constitutes a management tool that generally guides the actions of the Agency and provides a framework for action but does not function as a detailed project development or action plan.

2002 Santa Clarita Valley Water Report

This document contains a year-by-year annual review of water supply and use in the Santa Clarita Valley.

AB3030 Groundwater Management Plan

Castaic Lake Water Agency is in the process of producing this plan for its service area. The draft plan will be made available for public review and comment and is expected to be completed by December 2003.

Section 7.0

SCREMP Implementation

7.0 SCREMP IMPLEMENTATION PROCESS

This section identifies the need for the development of a process to enable SCREMP Implementation. The process will be developed by the SCREMP Project Steering Committee (PSC) for the purpose of promoting the SCREMP Vision Statement; the Objectives of the SCREMP as stated in Section 2.2; the Riverwide Recommendations and Reach Specific Recommendation presented in the 1999 I&R Document; and the goals, recommendations, and policies as presented inclusively within Section 6.0. It is envisioned that the outcome of the process will be the establishment of a committee that will be directly responsible for SCREMP implementation. The guidance and authorization for establishing such a committee is given under Riverwide Recommendation 1. Long Term River Management, in the 1999 I&R Document, which states the following:

"Establish a committee for long-term river management and Plan implementation. This will include a process for collection of data and updating the Plan as new information becomes available (for example through yearly aerial surveys completed by flood control/watershed protection districts, project-specific survey information, and species-specific monitoring funded by the resource agencies)."

The 1999 I&R Document does not proceed further in describing the organizational structure of the LTRMC.

SCREMP Public Outreach Program Components

Riverwide Recommendation 2. Public Outreach in the 1999 I&R Document states the following:

"Develop a public information and education program about the values of the river including an information brochure. Specifically, such a program might target development of press releases and general information to coincide with the release for public review of a draft SCREMP document."

In addition, the Public Outreach Program can serve to promote SCREMP implementation and information exchange with Stakeholders and the General Public. SCREMP Programs, including Riverwide Programs (RP) and Reach Specific Programs (RSP), are identified and described under Section 6.0, inclusive, for the various resources categories. Discussions in some of those sections identified that several of the RP and RSP would be coordinated and implemented under a SCREMP Public Outreach Program that consisted of various components. The following 5 Components are identified and briefly explained:

Component (1) Regulatory Agency Permit Streamlining: Information pertaining to Corps Regional General Permits, as well as any Memorandum of Understandings regarding Sections 1601-1607 et. Seq (i.e., Streambed Alteration Agreement), will be

included on the SCREMP website along with the additional information pertaining to applicability within the SCREMP Area, and relationship to other types of regulatory permitting (see below). This service will be available to Stakeholders as well as the General Public. The LTRMC will facilitate this component.

The SCREMP will provide a support service for permit streamlining specific to actions proposed within the 500-year floodplain based upon the "Guide to Watershed Project Permitting for California" developed by the California Association of Resource Conservation Districts (http://www.carcd.org/permitting/analyze.htm). The service will be available to Stakeholders as well as the General Public. Support will include posting information on the SCREMP website and assistance from the LTRMC, as needed. The LTRMC will coordinate with federal, State, and local governmental agencies to ensure that regulatory permitting information is up-to-date and accurate.

Component (2) "Practice Land Stewardship": This component will present information about the values of the SCREMP Area biological resources and ways to promote their preservation and enhancement. This component will be supported as printed literature, workshops, and on the SCREMP website and will be facilitated by the LTRMC. This component will also encourage landowner participation in federal and State programs that promote restoration and enhancement of habitats within the SCREMP Area. The U.S. Fish & Wildlife Service's "Partners for Fish and Wildlife Program" is cited as an example (see Section 3.2.10). The LTRMC will remain knowledgeable regarding such programs and opportunities and will provide information and guidance to Stakeholders and the General Public.

Component (3) Control of Invasive Plants: This component will provide information on the types of invasive plants and noxious plants within the SCREMP Area, threats, control methods, and contacts for coordinating and participating in control activities. This component will be supported as printed literature and on the SCREMP website for the benefit of Stakeholders, as well as for the General Public. The LTRMC will facilitate this component.

Component (4) Acquisition and Conservation Easement Coordination: The SCREMP recommends that Stakeholders and the General Public provide information regarding proposed acquisitions and conservation easement arrangements to the LTRMC so that preserves, riparian corridor connections, and floodplain – adjacent uplands connections, are orchestrated in a manner that considers the entire SCREMP Area. The LTRMC will maintain a database to support the efforts of conservation organizations and will periodically update and revise information on the Conservation Ranking system and connectivity assessments, based upon the best-available scientific and factual information consistent with Riverwide Recommendation 1. Long Term River Management in the 1999 I&R Document. Accordingly, coordination will both guide the riverwide conservation approach and augment the resources database as additional studies information is developed (see Section 6.5.3 IP (4), above). This support service also pertains to other SCREMP resources categories including, for example, coordination with the LTRMC regarding identifying easements for recreational opportunities.

Component (5) River Water Quality Management Program: If developed and managed by the Los Angeles – Regional Water Quality Control Board (LA RWQCB) (see Section 6.10.1, above), the SCREMP would promote the program as a component of the Public Outreach Program. This component will be supported as printed literature and on the SCREMP website. Subject matter would include information about the types of water quality impairments identified in the SCREMP area and specification of BMPs for improving water quality that would be relatively feasible for urban dwellers and farmers to practice.

Long-term Biological Monitoring Program

Riverwide Recommendation 15. Biological Management, in the 1999 I&R Document states the following:

"Evaluate river health in coordination with the long-term management committee by generating a long-term monitoring program, focusing on habitat quality and wildlife population trends that will lead to a better understanding of population maintenance requirements. This monitoring should include benthic bioassessments and periodic evaluation of fish tissue for accumulation of pollutants. To support this effort, comprehensive surveys (similar to those completed for the biological resources report) will be conducted at appropriate intervals."

In addition, Riverwide Recommendation 1. Long-term River Management, in the 1999 I&R Document states the following:

"Establish a committee for long-term river management and Plan implementation. This will include a process for collection of data and updating the Plan as new information becomes available (for example through yearly aerial surveys completed by flood control/watershed protection districts, project-specific survey information, and species-specific monitoring funded by the resource agencies)."

On the basis of the above statements, the following two elements are identified for establishing and operating a Long-term Biological Monitoring Program which will be the responsibility of the LTRMC to coordinate:

Element (1) Monitoring habitat quality:

(a) Conduct benthic bioassessments.
(b) Conduct fish tissue assays.
(c) Review of yearly photo aerial surveys and interpretation of habitat distributions.
(d) Reviews of project-specific biological survey reports.
(e) Include a process for collection and management of data.
(f) Conduct comprehensive biological surveys at appropriate intervals.

Element (2) Monitoring wildlife population status and trends

(a) Reviews of species-specific monitoring funded by the resource agencies.
(b) Reviews of project-specific biological survey reports.
(c) Review of yearly photo aerial surveys and interpretation of habitat distributions.
(d) Include a process for collection and management of data.
(e) Conduct comprehensive biological surveys at appropriate intervals.
(f) Produce biological evaluation reports that include recommendations for wildlife population maintenance requirements.

The LTRMC will be responsible for establishing and operating the Long-term Biological Monitoring Program. This will include identifying and obtaining information from existing sources to fulfill data requirements. The LTRMC will identify data gaps and authorize studies, as needed, to develop the information. The recommendation may be for conducting the study with "in-house" personnel or for contracting a consulting firm, academic institution, or other type of organization, to fulfill the information requirements. An example of the range of potential actions includes obtaining a records search of sensitive species from the California Natural Diversity Data Base per Element (2)(d), above, to contracting comprehensive field surveys per Element (2)(e), above. The approach to operating the Long-term Biological Monitoring Program will be adaptive so as to allow the LTRMC the flexibility required to meet the purpose and needs of SCREMP Implementation.

GLOSSARY

The terminology used in this SCREMP was developed from many technical sources but is intended to be consistent with the definitions contained in the document titled "Ventura County Resource Management Agency, Ventura County Non-Coastal Zoning Ordinance, Article 2, Definitions, September, 1999.

Aggradation - The continued *long-term* natural filling of the bed of a watercourse by deposition of sediment carried by flowing water; often accompanied by channel widening (MCWA, 1984).

Aggregate - In building and construction industry, a mixture of mineral substances, i.e., sand, gravel, crushed rock, stone etc., which, when cemented, forms concrete, mastic, mortar, plaster etc.

Agriculture - Farming, including animal husbandry and the production and management of crops (including aquatic crops) for food, fiber, fuel and ornament.

Anthropogenic - Applied to processes, substances, etc. of human origin, or that result from human activity (Allaby and Allaby, Dictionary of Earth Sciences, 1999).

Areas of Special Biological Significance - Those areas designated by the State Water Resources Control Board as requiring protection of species or biological communities to the extent that alteration of natural water is undesirable.

Average Slope - The mean slope of an entire parcel of land before grading has commenced. Average slope is measured by the formula detailed in the Coastal Open Space (C-O-S) or Coastal Agricultural (C-A) Zones, and, in part, determines minimum parcel size(s) for proposed subdivisions.

Beach Erosion - The removal and wearing away of the beach area by wave, wind, or storm action.

Bedload - A sediment transported close to or at the channel bottom by rolling, sliding or bouncing (Ritter and others, 1995).

Best Management Practices (BMP) - Practices and installed devices that reduce the potential for the release of contaminating substances into the physical and biological environments.

Buffer Areas - Areas within 100 feet of the boundary of all environmentally sensitive habitats.

Building - Any structure having a roof supported by columns or walls, and intended for the shelter, housing or enclosure of persons, animals, or personal property of any kind.

Building Envelope - The one area of a proposed parcel which shall contain all structures, including but not limited to the primary residential structure, other accessory residential structures, barns, garages, swimming pools, and storage sheds. Specifically excluded are fences and walls.

Camp - A rural facility with permanent structures for overnight accommodation and accessory structures and buildings, which is used for temporary leisure, recreational, or study purposes, and provides opportunities for the enjoyment or appreciation of the natural environment (AM.ORD.3882-12/20/88).

Campground - A rural facility without permanent structures for overnight accommodation, but with limited accessory structures and buildings, which is used for temporary leisure or recreational purposes and provides opportunities for the enjoyment or appreciation of the natural environment (ADD.ORD. 3882-12/20/88).

Catchment - The area from which a surface watercourse or a groundwater system derives its water. In the U. S. usage, a catchment is often termed a watershed.

Coastal Zone - That portion of the land and water area of Ventura County as shown on the "Coastal Zone" maps adopted by the California Coastal Commission.

Decision, Discretionary - Discretionary decisions involve cases which require the exercise of judgment, deliberation, or decision on the part of the decision-making authority in the process of approving or disapproving a particular activity, as distinguished from situations where the decision-making authority merely has to determine whether there has been conformity with applicable statutes, ordinances, or regulations. Examples of cases requiring discretionary decisions to be made by the Board of Supervisors, Planning Commission and Planning Director include all those not classified as "ministerial" such as Conditional Use Permits, Variances, Zone Changes, Planned Development Permits, Tentative Subdivision Maps and Time Extensions thereto, General Plan Amendments and appeals, modifications and revocations, where applicable, of the above referenced decisions.

Decision, Ministerial - Ministerial decisions are approved by a decision-making authority based upon a given state of facts in a prescribed manner in obedience to the mandate of legal authority. In such cases, the authority must act upon the given facts without regard to its own judgment or opinion concerning the property or wisdom of the act although the statute, ordinance, or regulation may require, in some degree, a construction of its language by the decision-making authority. In summary, a ministerial decision involves only the use of fixed standards or objective measurements without personal judgment.

Degradation - The removal or undersupply of streambed material through erosion and transportation by flowing water often accompanied by narrowing and deepening of the channel (MCWA, 1984).

Decision-Making Authority - An individual or body vested with the authority to make recommendations or act on application requests. The final decision-making authority is the one which has the authority to act on a request by approving or denying it.

Development - Shall mean, on land or in or under water, the placement or erection of any solid material or structure; discharge or disposal of any dredged material or of any gaseous, liquid, solid, or thermal waste; grading, removing, dredging, mining, or extraction of any materials; change in the density or intensity of use of land, including, but not limited to, subdivision pursuant to the Subdivision Map Act (commencing with Section 66410 of the Government Code), and any other division of land, including lot splits, except where the land division is brought about in connection with the purchase of such land by a public agency for public recreational use; change in the intensity of use of water, or of access thereto; construction, reconstruction, demolition, or alteration of the size of any structure, including any facility of any private, public, or municipal utility; and the removal or harvesting of major vegetation other than for agricultural purpose, kelp harvesting, and timber operations which are in accordance with a timber harvesting plan submitted pursuant to the provisions of the Z'berg-Nejedly Forest Act of 1973 (commencing with Section 4511).

As used in this section, "structure" includes, but is not limited to, any building, road, pipe, flume, conduit, siphon, aqueduct, telephone line, and electrical power transmission and distribution line.

Discharge - A measure of the water flow at a particular point, i.e. at a river gaging station. Here, the rate of flow or the quantity of water flowing past cross-section of a stream in a unit of time.

Dwelling - A building or portion thereof designed for or occupied exclusively for residential purposes.

Environmentally Sensitive Habitat - Any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or harmed by human activities and development, including: Areas of Special Biological Significance as identified by the State Water Resource Control Board; rare and endangered species habitats identified by the State Department of Fish and Game; all coastal wetlands and lagoons; all marine, wildlife, and education and research reserves; nearshore reefs; stream corridors; lakes; tidepools; seacaves; islets and offshore rocks; kelp beds; significant coastal dunes; indigenous dune plant habitats; and wilderness and primitive areas.

Fence - Any type of fence, wall, hedge, or thick growth of shrubs used as screens, but not including windbreaks for the protection of orchards or crops.

Fence, See-Through - A fence, such as the chain link type, which permits at least 50 percent open visibility throughout the fence.

Fill - Earth or any other substance or material, including pilings placed for the purposes of erecting structures thereon, placed in a submerged area.

Flash flood - A brief but powerful surge of water either over a surface ('sheet flood') or down a normally dry stream channel ('stream flood'). Usually it is caused by heavy convectional rainfall of short duration and is typical of semi-arid and desert environments (Allaby and Allaby, Dictionary of Earth Sciences, 1999).

Floodplain - The part of a river valley that is made of unconsolidated fluvial sediment, and periodically flooded. It is built up of a relatively coarse debris left behind as a stream channel migrates laterally, and of relatively fine sediment deposited when bankfull discharge is exceeded (Allaby and Allaby, Dictionary of Earth Sciences, 1999).

Fluvial - Pertaining to a river.

Groundwater Basin - An area underlain by permeable materials capable of furnishing a significant supply of groundwater to wells or storing a significant amount of water (DWR, 1980).

Habitat - The natural environment of a plant or animal species.

High Fire Hazard Areas - Certain areas in the unincorporated territory of the County classified by the County Fire Protection District and defined as any areas within 500 feet of uncultivated brush, grass, or forest-covered land wherein authorized representatives of said District deem a potential fire hazard to exist due to the presence of such flammable material.

Inundation - The state of temporary flooding of normally dry land area caused or precipitated by an overflow or accumulation of water on or under the ground or the existence of unusual tidal conditions.

Lateral Access - A recorded dedication or easement granting to the public the right to pass and repass over dedicator's real property generally parallel to, and up to 25 feet inland from, the mean high tide line, but in no case allowing the public the right to pass nearer than ten feet to any living unit on the property.

Local Coastal Program (LCP) - The County's certified Coastal Land Use Plan, zoning ordinances, and zoning district maps.

Major Vegetation - Grassland, coastal scrub, riparian vegetation, and native and non-native trees, other than landscaping with development.

Mineral Resources - Naturally occurring mineral deposits in such amounts or concentrations that can be mined now or in the future (i.e., all available aggregate deposits within a given area, either permitted (reserves) or not yet permitted).

Nonconforming Structure - A structure or portion thereof which was lawfully erected or altered and maintained, but which, solely because of revisions in development standards dealing with lot coverage, lot area per structure, height, and setbacks, no longer conforms.

Nonprime Agricultural Land - Other agricultural lands not defined as prime but which are suitable for agriculture.

Overdraft - Pumping in excess of the average annual recharge (Fetter, 1988).

Parcel - The word "parcel" shall have the same meaning as the word "lot" and the two words shall be synonymous.

Periodic Outdoor Sporting Events - Recreational events or activities, other than spectator-type animal events, which require a natural environment, are carried on by one or more groups of people, and do not involve structures, motorized vehicles, aircraft or firearms (ADD.ORD.3787-8/26/86).

Preserve – As used in this document, an area of land that is set aside for the protection and preservation of biological resources.

Prime Agricultural Land - Means of any of the following:

- All land which qualifies for rating as Class I or Class II in the Soil Conservation Service land use capability classifications.
- Land that qualifies for rating 80 through 100 in the Storie Index Rating.
- Land that supports livestock used for the production of food and fiber and which has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the United States Department of Agriculture.
- Land planted with fruit- or nut-bearing trees, vines, bushes or crops which have a nonbearing period of less than five years and which will normally return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than two hundred dollars ($200) per acre.
- Land which has returned from the production of unprocessed agricultural plant products an annual gross value of not less than two hundred dollars ($200) per acre for three of the previous five years.

Public Road or Street - Any road or street or thoroughfare of whatever nature that is publicly maintained and open to the use of the public for the purpose of vehicular travel.

Public Works - means the following:

(A) All production, storage, transmission, and recovery facilities for water, sewerage, telephone, and other similar utilities owned or operated by any public agency or by a utility subject to the jurisdiction of the Public Utilities Commission, except for energy facilities.

(B) All public transportation facilities, including streets, roads, highways, public parking lots and structures, ports, harbors, airports, railroads, and mass transit facilities and stations, bridges, trolley wires, and other related facilities.
(C) All publicly-financed recreational facilities, all projects of the State Coastal Conservancy, and any development by a special district.
(D) All community college facilities.

Recharge - The volume of water added to the total amount of groundwater in storage in a given period of time (Allaby and Allaby, Dictionary of Earth Sciences, 1999).

Reclamation - The combined process of land treatment that minimizes water degradation, air pollution, damage to aquatic or wildlife habitat, flooding, erosion, and other adverse effects from surface mining operations, including adverse surface effects incidental to underground mines, so that mined lands are reclaimed to a usable condition which is readily adaptable for alternate land uses and create no danger to public health or safety. The process may extend to affected lands surrounding mined lands and may require backfilling, grading, resoiling, revegetation, soil compaction, stabilization, or other measures." (Public Resources Code Section 2733).

"Red line" - A longitudinal profile and channel width beyond which mining is not permitted in the Santa Clara River (per joint resolution of the Ventura County and Ventura County Flood Control District, 222/IE CUP-1812, adopted 28 May, 1985).

Resources - As used in this document, any physical, biological, or economic category regarded as valuable including: private property rights, agricultural lands, waters, biological, mineral (aggregates), recreational opportunities, flood protection, historic, and archaeological.

Resources Agencies - As used in this document, any federal or State governmental agency empowered by law to manage a program for the protection of a physical or biological resource.

Reserves - Mineral resources which can be mined legally and profitably under existing conditions (i.e., aggregate deposits controlled by a mining company and permitted for extraction by a lead agency).

Residential (or "R") Zone - A base zone classification which contains the letter "R" in its abbreviation.

Riding Stable - A facility where there are stables for horses, and where the latter are rented to members of the public for recreational purposes, including riding lessons, whether or not the facility is advertised or promoted as such, and whether or not the riding occurs on the property on which the horses are kept.

Riparian Habitat - An area adjacent to a natural watercourse, such as a perennial or intermittent stream, lake or other body of fresh water, where related vegetation and associated animal species live or are located.

Shall and May - "Shall" is mandatory; "May" is permissive.

Shoreline Protective Devices - Seawalls, revetments, breakwaters, and other such construction that alters natural shoreline processes.

Slope - The relationship between the change in elevation (rise) of land and the horizontal distance (run) over which that change in elevation occurs and measured along a straight line. The percent of any given slope is determined by dividing the rise by the run on the natural slope and multiplying by 100.

Stable, Private - An accessory building or structure used for the keeping of horses owned by the occupants of the premises and not kept for remuneration, hire or sale.

Stream - A perennial or intermittent watercourse mapped by the U.S. Geologic Survey or identified in the LCP.

Structure - Anything constructed or erected on the ground, or that requires location on the ground, or is attached to something having a location on or in the ground. Also see "Development."

Underflow - The flow of groundwater in alluvial sediments, parallel to and beneath a river channel. It forms a significant fraction of the total river flow in coarse gravel alluvium (Allaby and Allaby, Dictionary of Earth Sciences, 1999).

Unique Vegetation - Plants found in the Santa Monica Mountains and elsewhere in the coastal zone which are considered either rare and endangered, rare but not endangered, or rare in California but not elsewhere.

Upland Development - All development found in the valleys and mountain areas beyond the coastal shelf.

Use - The purpose for which land or a building or structure is arranged, designed, or intended to be used, or for which it is or may be used, occupied, or maintained.

Vertical Access - A recorded dedication or easement granting to the public the privilege and right to pass and repass over dedicator's real property from a public road to the mean high tide line.

Waste Treatment and Disposal - Public or private disposal facilities or transfer stations operated for the purpose of recycling, reclaiming, treating or disposal of garbage, sewage, rubbish, offal, dead animals, oilfield wastes, hazardous waste, or other waste material originating on or off the premises (ADD.ORD. 3946-7/10/90).

Water balance (Water Budget) - A method of assessing the size of future water resources in an aquifer, watershed, or geographical region, which involves an evaluation of all sources of supply or recharge in comparison with all know discharges (Allaby and Allaby, Dictionary of Earth Sciences, 1999).

Wetland - Land which may be covered periodically or permanently with shallow water. Included are saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens.

Zoning Clearance - A permit which certifies that a proposed structure and/or use of land meets all requirements of the Ventura County Zoning Code and, if applicable, the conditions of any previously approved permit.

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3.1 SCREMP History (Joanne Lortie)
3.2 Involved Parties (Joanne Lortie)
3.3 Information Development (Joanne Lortie)
3.4 Identification of Issues and Recommendations (Joanne Lortie)
3.5 Other Planning and Conservation Efforts (Joanne Lortie; Don Mitchell)

4.0 HISTORICAL OVERVIEW OF THE SANTA CLARA RIVER (Joanne Lortie)
4.1 Historical Overview (Joanne Lortie)
4.2 Natural Floods (Joanne Lortie; David Laak)
4.3 Floods (Joanne Lortie)
4.4 Fires (Joanne Lortie)
4.5 Human Uses of River Resources (Joanne Lortie)

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5.2 Water Resources (Anna Fyodorova)
5.3 Biological Resources (Don Mitchell)
5.4 Aggregate Resources (Anna Fyodorova)
5.5 Cultural Resources (Don Mitchell)
5.6 Recreation (Lisa Burns)
5.7 Flood Control (Anna Fyodorova)

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6.2 Agricultural Land Use Preservation (Don Mitchell)
6.3 Regulatory Agency Permit Streamlining (Don Mitchell)
6.4 Flood Protection Needs (Don Mitchell)
6.5 Conservation, Preservation, and Enhancement of Species Habitat (Don Mitchell)
6.6 Aggregate Harvesting (Don Mitchell)
6.7 Coastal Beaches Erosion and Replenishment (Don Mitchell)
6.8 Recreation (Lisa Burns)
6.9 Cultural Resources (Hubert Switalski)
6.10 Groundwater Recharge, Water Rights, Water Supply, and Water Quality (Anna Fyodorova)

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APPENDIX A

Figures to Accompany Sections 5.2, 5.4, and 5.7 and GIS CD Directory

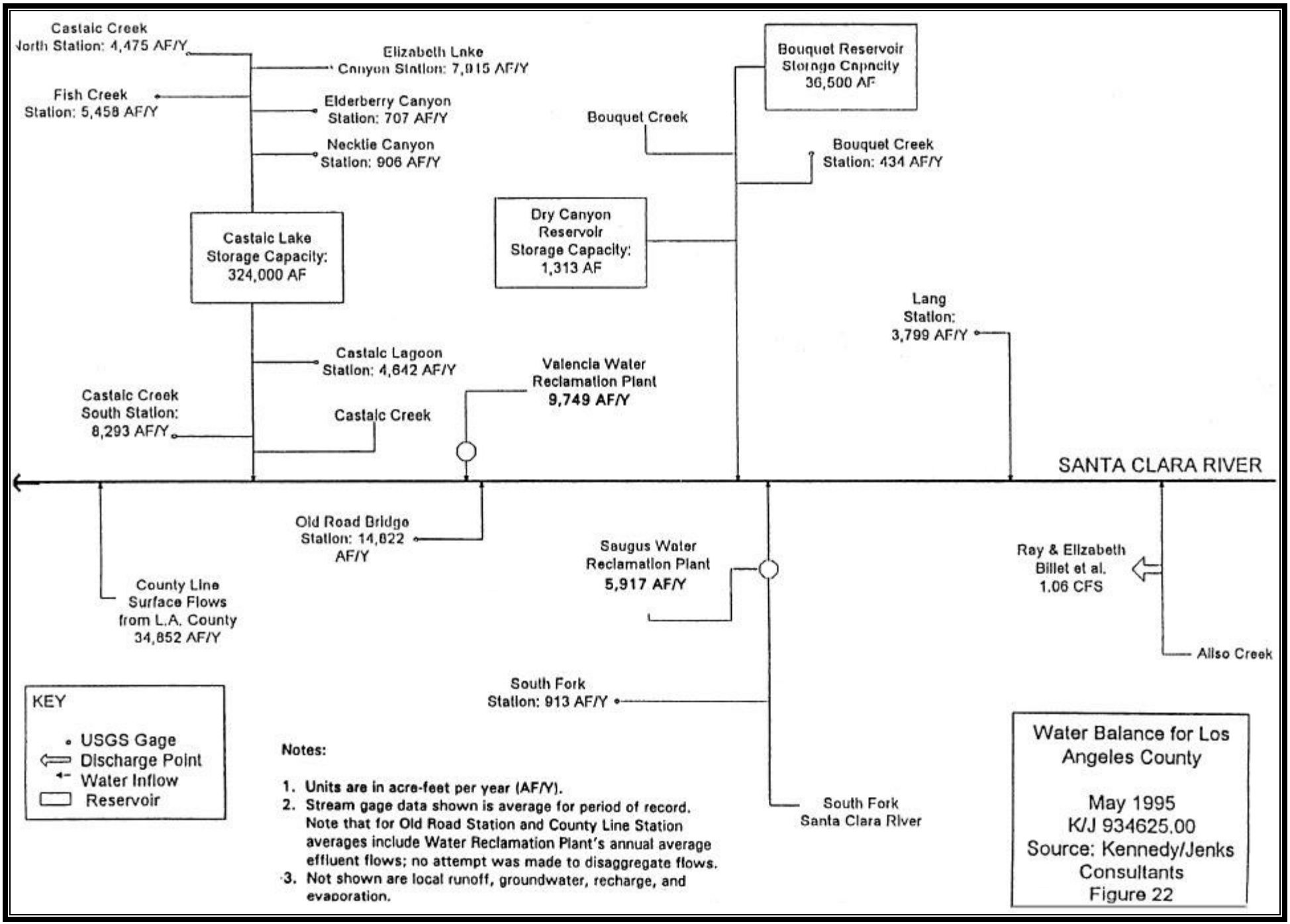
Part I – Section 5.2 Water Resources

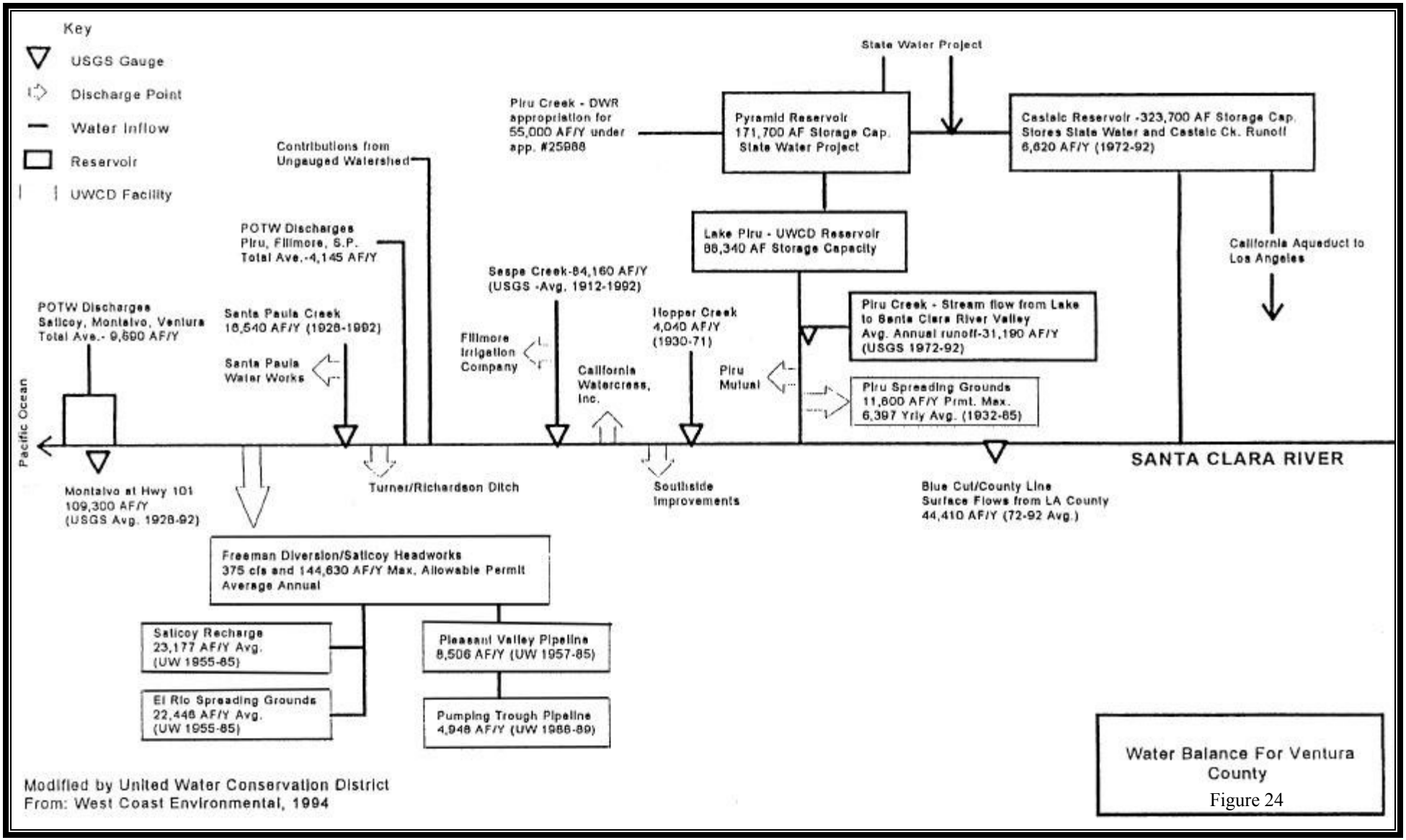
Part II – Section 5.4 Aggregate Resources

Part III – Section 5.7 Flood Control

Part IV – GIS Series Overlay CD Directory

Part I – Section 5.2 Water Resources


Castaic Creek
North Station: 4,475 AF/Y
Elizabeth Lake
Canyon Station: 7,915 AF/Y
Fish Creek
Station: 5,458 AF/Y
Elderberry Canyon
Station: 707 AF/Y
Necktie Canyon
Station: 906 AF/Y
Bouquet Reservoir
Storage Capacity
36,500 AF
Bouquet Creek
Bouquet Creek
Station: 434 AF/Y
Dry Canyon
Reservoir
Storage Capacity:
1,313 AF
Castaic Lake
Storage Capacity:
324,000 AF
Lang
Station:
3,799 AF/Y
Castaic Lagoon
Station: 4,642 AF/Y
Valencia Water
Reclamation Plant
9,749 AF/Y
Castaic Creek
South Station:
8,293 AF/Y
Castaic Creek
SANTA CLARA RIVER
Old Road Bridge
Station: 14,822
AF/Y
Saugus Water
Reclamation Plant
5,917 AF/Y
Ray & Elizabeth
Billet et al.
1.06 CFS
County Line
Surface Flows
from L.A. County
34,852 AF/Y
Aliso Creek
South Fork
Station: 913 AF/Y
South Fork
Santa Clara River
KEY
USGS Gage
Discharge Point
Water Inflow
Reservoir
Notes:
1. Units are in acre-feet per year (AF/Y).
2. Stream gage data shown is average for period of record. Note that for Old Road Station and County Line Station averages include Water Reclamation Plant's annual average effluent flows; no attempt was made to disaggregate flows.
3. Not shown are local runoff, groundwater, recharge, and evaporation.
Water Balance for Los Angeles County
May 1995
K/J 934625.00
Source: Kennedy/Jenks Consultants
Figure 22



Modified by United Water Conservation District
From: West Coast Environmental, 1994

Water Balance For Ventura County

Figure 24

TABLE 3-1

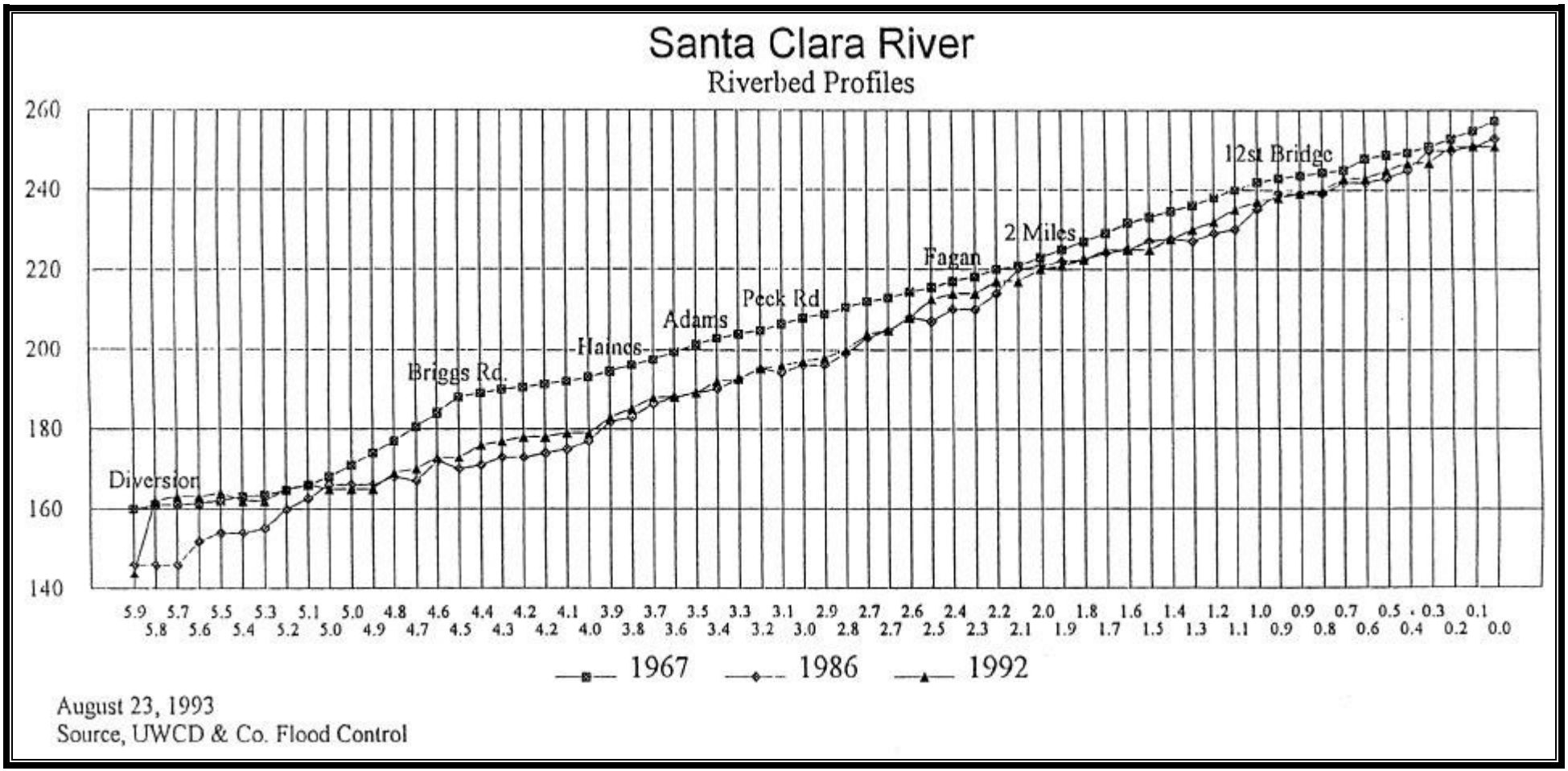
SANTA CLARA RIVER

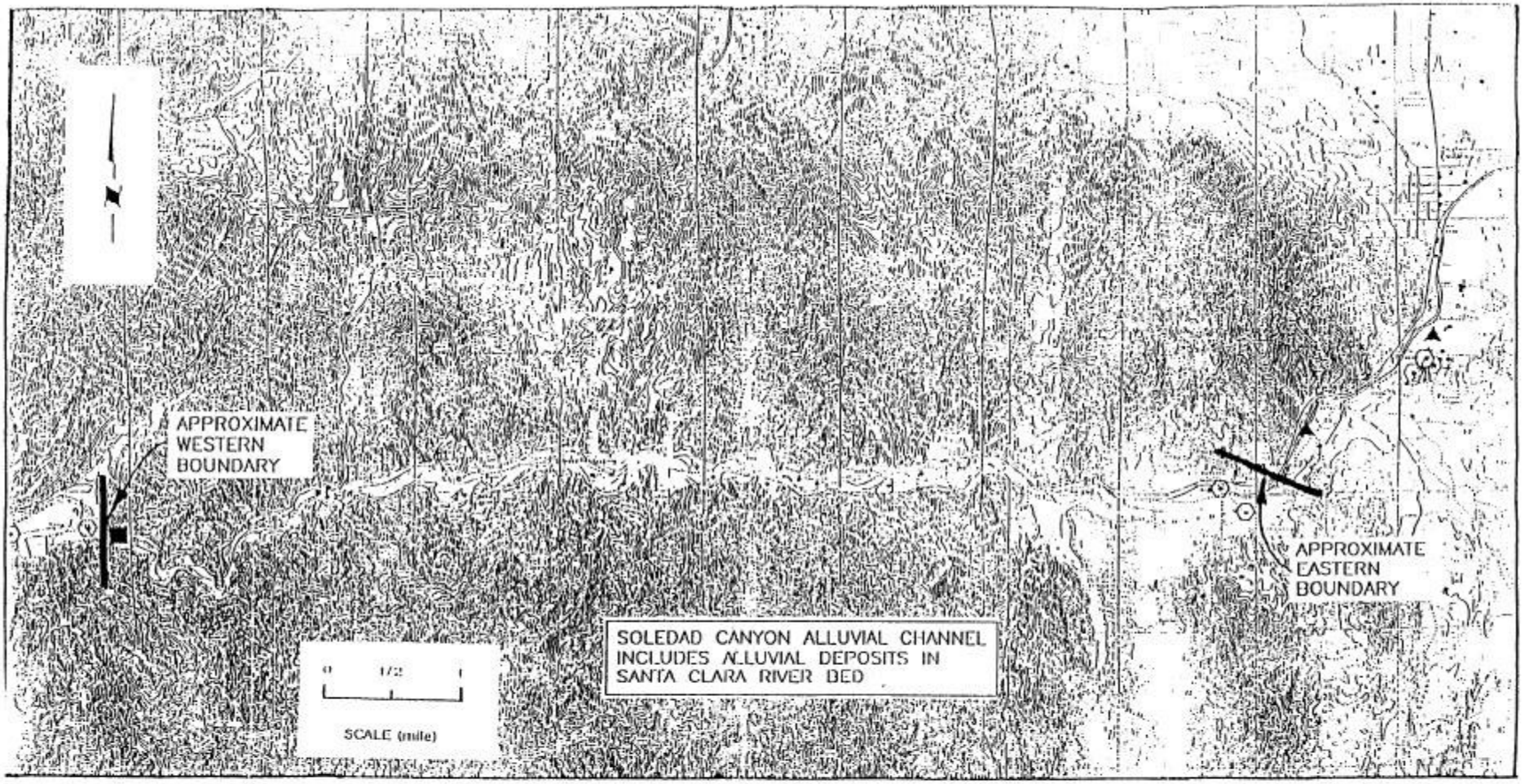
Present Conditions Flood Flows (cfs)

(not for design purposes)

SANTA CLARA RIVER	PRESENT CONDITION							
LOCATION	Drainage Area (sq mi)	2-yr Flood	10-yr Flood	25-yr Flood	50-yr Flood	100-yr Flood	Standard Project Flood	500-yr Flood
@ Ocean	1,634	12,500	67,000	110,000	154,000	200,000	226,000	325,000
@ Montalvo	1,594	12,500	67,000	110,000	154,000	200,000	226,000	325,000
d/s of Sespe Creek	1,500	12,200	65,400	105,000	151,000	196,000	221,000	318,000
@ Fillmore	1,164	4,000	25,000	47,000	69,000	98,000	140,000	194,000
@ County Line	640	2,600	15,400	27,000	42,400	60,000	86,000	119,000
@ I-5	410	1,720	9,500	17,000	27,500	40,300	81,000	88,100
d/s Bouquet	310	1,300	7,400	13,200	21,400	31,300	63,000	68,500
d/s Mint Canyon	225	900	5,200	9,300	15,000	22,000	44,000	48,000
d/s Oak Spring Canyon	178	760	4,200	7,600	12,200	18,000	36,000	39,000
@ Lang	157	670	3,700	6,700	10,700	15,600	31,000	34,000
@ Action	73	250	2,000	3,900	6,300	9,300	14,600	20,100
Aliso Creek @ Gage	23.7	130	1,000	1,900	3,190	4,720	7,400	10,200

Figure 23


Santa Clara River
Riverbed Profiles
260
240
220
200
180
160
140
Diversion
Briggs Rd.
Haines
Adams
Peck Rd
Fagan
2 Miles
12st Bridge
5.9 5.7 5.5 5.3 5.1 5.0 4.8 4.6 4.4 4.2 4.1 3.9 3.7 3.5 3.3 3.1 2.9 2.7 2.6 2.4 2.2 2.0 1.8 1.6 1.4 1.2 1.0 0.9 0.7 0.5 0.3 0.1
5.8 5.6 5.4 5.2 5.0 4.9 4.7 4.5 4.3 4.2 4.0 3.8 3.6 3.4 3.2 3.0 2.8 2.7 2.5 2.3 2.1 1.9 1.7 1.5 1.3 1.1 0.9 0.8 0.6 0.4 0.2 0.0
1967
1986
1992
August 23, 1993
Source, UWCD & Co. Flood Control



- Well Location
- Well Location for Hydrograph Data
- Rainfall Gage Data
- Stream Gage Data

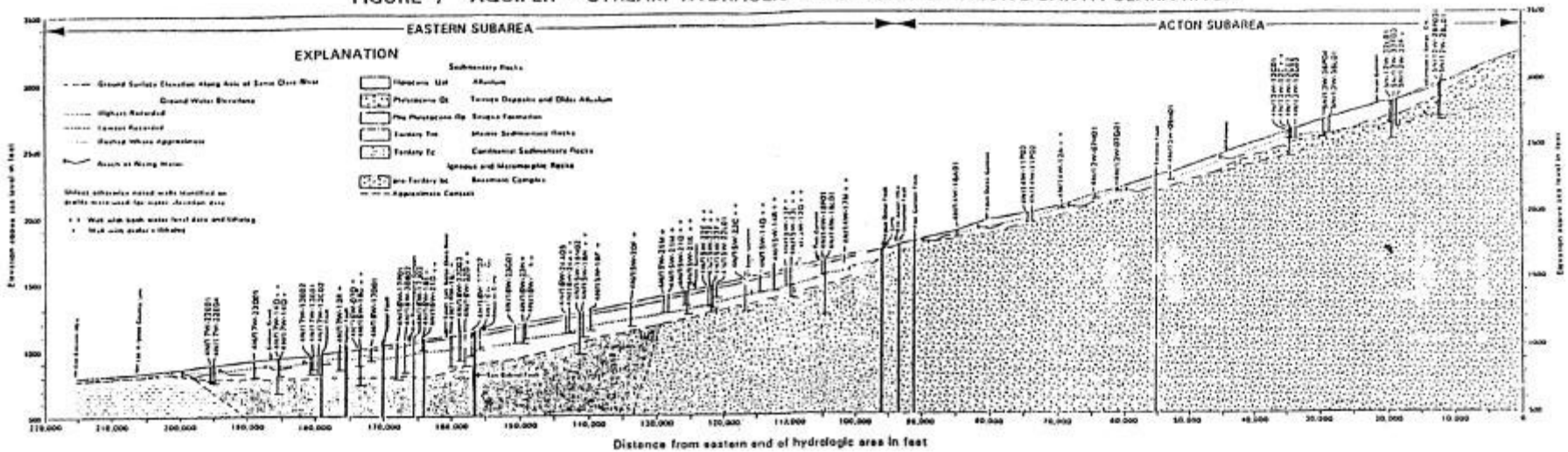
Location of Soledad Canyon Alluvial Channel

April 1996

Source: Kennedy/Jenks Consultants

Figure 5

FIGURE 7 AQUIFER - STREAM HYDRAULIC INTERRELATION ALONG SANTA CLARA RIVER



Aquifer–Stream Hydraulic Interrelation
Along Santa Clara River

Source: Investigation of Water Quality and Beneficial Uses, Upper Santa Clara River Hydrologic Area by DWR Dated 1993.

April 1996

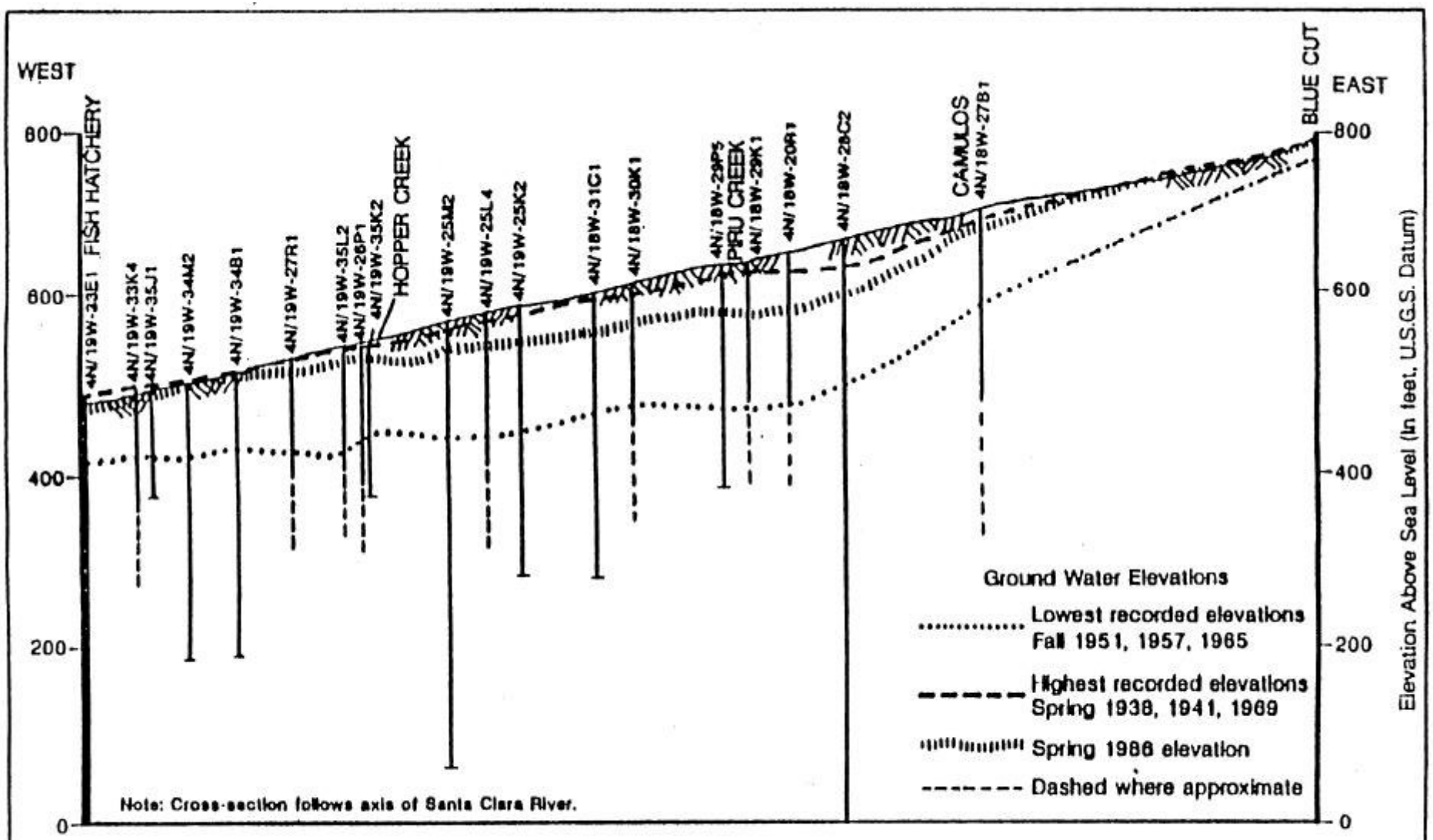


FIGURE 11 PROFILE OF STREAM - AQUIFER HYDRAULIC INTERCONNECTION ALONG THE SANTA CLARA RIVER, SANTA FELICIA HYDROLOGIC SUBAREA (PIRU)

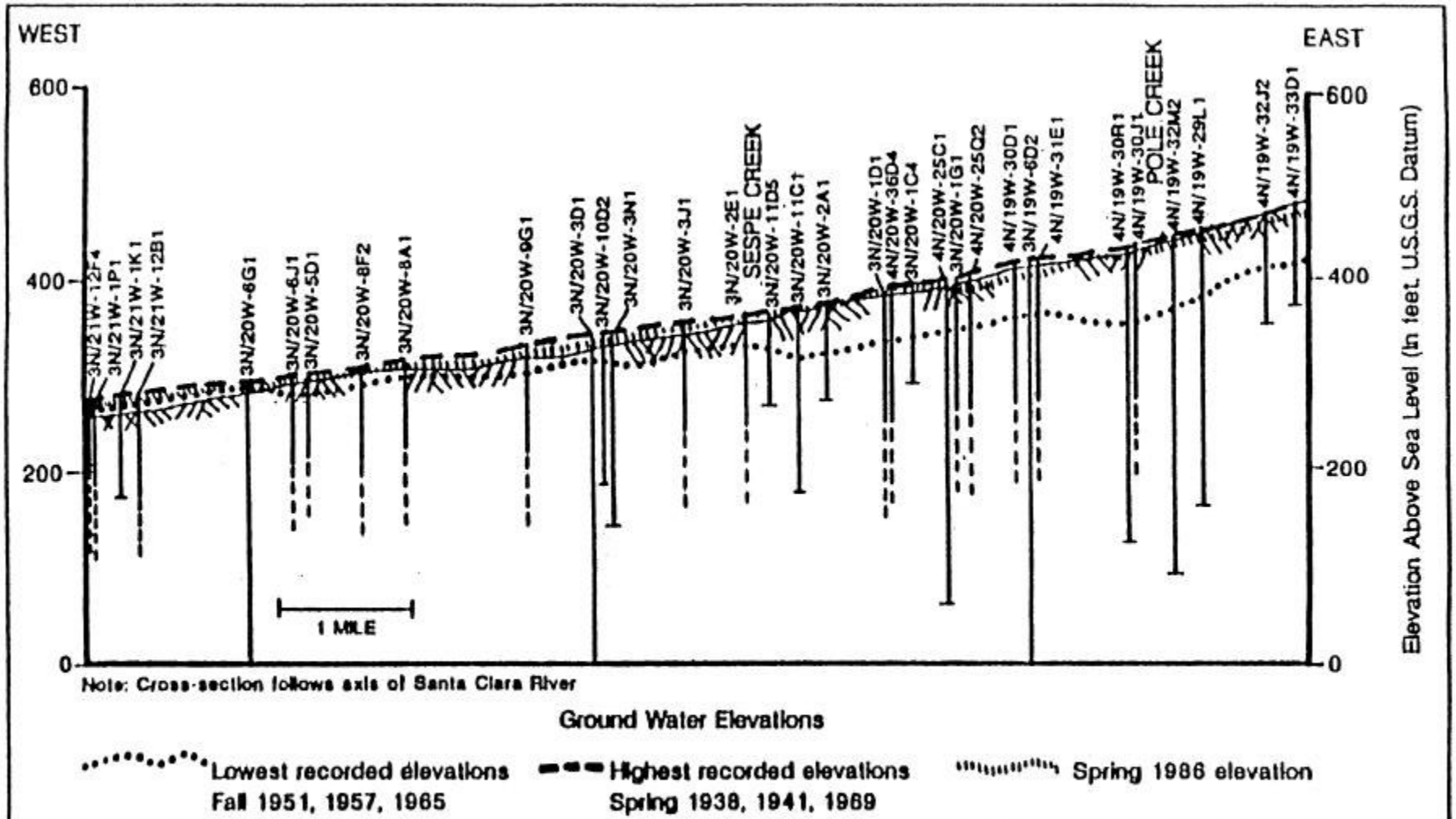


FIGURE 13 PROFILE OF STREAM - AQUIFER HYDRAULIC INTERCONNECTION ALONG THE SANTA CLARA RIVER, FILLMORE HYDROLOGIC SUBAREA

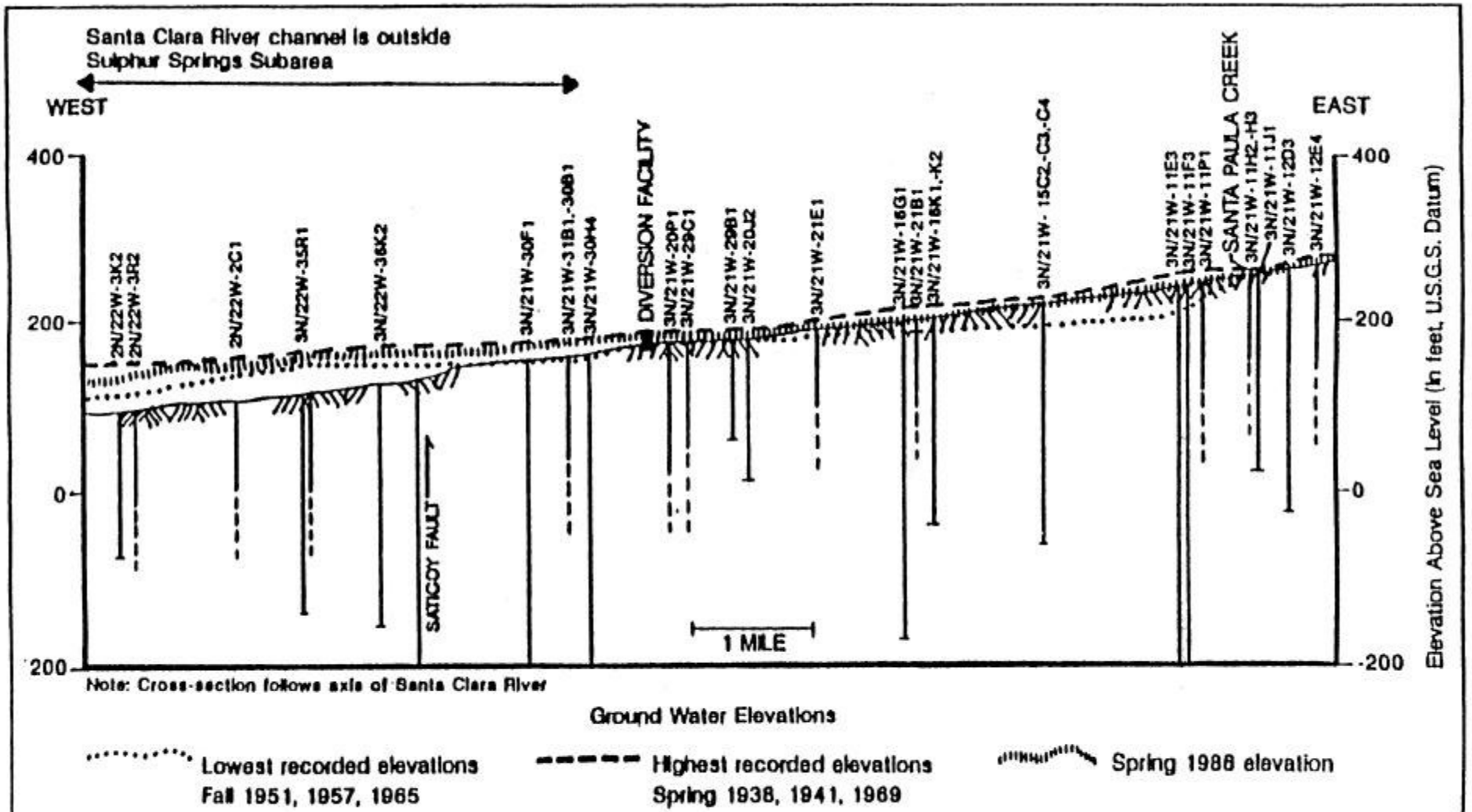


FIGURE 15 PROFILE OF STREAM - AQUIFER HYDRAULIC INTERCONNECTION ALONG THE SANTA CLARA RIVER, SULPHUR SPRINGS HYDROLOGIC SUBAREA (SANTA PAULA)

TABLE 35

SUMMARY OF QUALITY CONSTITUENTS IN SURFACE WATERS
UPPER SANTA CLARA RIVER HYDROLOGIC AREA

In mg/L, unless otherwise noted

Constituent	Santa Clara River LA-Ventura Co. Line 1951-1988		Santa Clara River Old Highway Bridge 1951-1990		Santa Clara River near Lang 1951-1978		Santa Clara River near Ravenna 1951-1976		Mint Canyon Creek 1958-1978		Bouquet Canyon Creek 1958-1992		San Francisquito Creek 1958-1992	
	n[a]	Range	n[a]	Range	n[a]	Range	n[a]	Range	n[a]	Range	n[a]	Range	n[a]	Range
Calcium	263	419-53	256	268-12	42	121-36	20	98-26	2	33-26	6	61-28	3	88-42
Magnesium	261	352-20	256	124-3	42	30-12	20	45-0	2	5-4	6	20-6	3	47-13
Sodium	308	1,081-38	256	228-5	42	79-17	20	59-23	2	27-25	6	137-24	3	52-12
Potassium	220	18.0-0	256	29.4-0.8	39	5.0-0.3	19	5.6-1.0	2	4.7-3.0	6	61-3.5	3	4.0-2.6
Bicarbonate	385	438-89.[c]	144	454-11	34	381-162	22	342-156	2	146-110	6	409-134	3	405-139
Sulfate	325	3,368-128	270	989-20	42	177-23	20	121-0.5	2	33-19	6	69-13	3	170-42
Chloride	445	585-14	269	200-5	42	60-15	22	55-2	2	14-13	6	148-15	3	33-4
Nitrate	175	42.0-0	202	63.0-0	34	14-0	20	32.2-0.7	2	9.0-0.5	7	7.4-0	4	14.0-ND
Fluoride	252	2.2-0.2	132	1.5-0	33	0.8-0	16	0.6-0.2	2	0.7-0.3	6	0.8-0.3	3	0.9-0.3
Boron	309	3.20-0	116	2.4-0	42	0.70-0.08	20	0.66-0	2	0.36-0.32	6	0.90-0.16	3	0.20-0.12
TDS	318	5,986-387	241	1,939-134	44	650-213	28	552-183	2	232-215	7	750-227	3	621-238
Total Hardness	148	1,160-42	253	1,180-43	42	403-147	18	328-88	2	102.88	6	235-95	3	440-157
pH[a]	410	8.6-7.0	270	8.6-6.8	43	8.4-7.0	28	8.4-7.1	3	7.8-7.7	8	8.3-7.4	3	7.9-7.4
Electrical Conductivity[a]	438	7,620-668	271	2,450-101	47	1,030-334	30	850-267	4	460-270	8	1,240-362	3	880-357
Iron	31	39.00-0.240	115	117.00-0	8	1.000-0.030	-	-	-	-	2	58.00-0.10	1	ND
Manganese	31	0.71-0.030	118	4.75-0	8	0.040-0	-	-	-	-	2	1.00-0.030	1	0.20
Discharge [a]	448	13,500-0	73	2,000-2	43	400-0	28	100-0.1	3	100-0.2	7	400-0.25	3	300-0.25

TABLE 38
SURFACE WATER QUALITY, SANTA FELICIA SUBAREA

In mg/L, unless otherwise noted*

Parameter	Piru Creek Near Piru*	Hopper Creek**	Tapo Canyon Creek***	Santa Clara River		
				At LA-Ventura Co. Line+ (4N/17W-30K)	West of Blue Cut++ (4N/18W-25F)	Near Fish hatchery++ (4N/19W-34F)
Calcium	69-283	110-168	118	139	131	157
Magnesium	26-86	56-118	191	50	41	58
Sodium	42-180	51-243	755	142	141	94
Potassium	1.9-7.8	3.0-9.0	11	6.6	5.5	4.8
Bicarbonate	148-222	219-483	1,087	--	325	296
Sulfate	211-924	610-871	1,200	152-1,370	350	481
Chloride	22-80	12-51	448	65-182	91	48
Nitrate	0-2.8	0-0.3	5.0	21.6	19	9.6
Fluoride	0.6-1.3	0.4-0.8	1.2	0.9	1.0	1.0
Boron	0.24-1.07	0.3-0.6	--	0.8	0.8	0.9
Total dissolved solids	548-1,610	1,098-1,720	3,328	603-2,800	982	1,075
Electrical conductivity (umhos/cm)	786-1970	1,370-2,050	4,300	916-3,330	1,450	1,175
Hydrogen ion concentration (pH)	7.3-9.1	8.0-8.2	7.8	7.2-11.5	7.9	7.6
Iron	0-1	0	ND	0.1	ND	ND
Manganese	ND	0	ND	--	ND	ND
Nitrite	--	--	--	--	0.5	0.1
Total phosphate (as P)	0.43	0.04	0.17	--	--	0.07
Discharge (cubic feet per second)	0.8-526	0.5-5.0	0.33	2-150	--	--

ND=not detected

*Data represent 34 analyses from 4N/18W-15N in 1975-86, one analysis from 4N/18W-20C in September 1987, and two from 4N/18W-200 one in September 1987 and one in May 1988.

**Data represent 4 analyses from 1977-88.

***Board sampled 4N/18W-36C in March 1988.

+ Data represent 42 partial analyses from 1975-86 and 1 complete analysis from November 1981.

++Board sampled Fall 1987.

TABLE 39
SURFACE WATER QUALITY, FILLMORE SUBAREA

In mg/L, unless otherwise noted

Parameter	Pole Creek*	Sespe Creek**	Near Santa Paula*** (3N/21W-12P)	Santa Clara River		
				At Atmore Rd+ (3N/20W-3A)	At Chambersburg RD++ (4N/19W-31E)	Near fish hatchery+++ (4N/19W-34F)
Calcium	152-186	82-139	92-207	106	134	157
Magnesium	83-98	22-53	33-81	32	53	58
Sodium	78-138	50-97	52-150	56	85	94
Potassium	3.4-7.0	2.0-5.0	1.9-6.8	2.3	4.5	4.8
Bicarbonate	216-384	143-249	227-325	215	245	296
Sulfate	648-780	190-449	276-759	280	431	481
Chloride	15-18	11-123	25-67	26	40	48
Nitrate	0-1.4	0-8.6	1.7-24.0	2.0	6.0	9.6
Fluoride	0.7-1.9	0.8-1.3	0.6-1.5	0.9	0.9	1.0
Boron	0.5-1.0	0.5-2.6	0.4-2.3	--	--	0.9
Total dissolved solids	719-1,430	260-968	598-1,549	649	938	1,075
Electrical conductivity (umhos/cm)	1,080-1,700	370-1,260	867-2,059	900	1,200	1,175
Hydrogen ion concentration (pH)	8.0-8.3	7.5-8.2	7.4-8.5	8.2	8.0	7.6
Iron	0-1.0	0-0.1	--	ND	ND	ND
Manganese	0	0	--	ND	ND	ND
Nitrite	ND	ND	--	--	--	0.1
Total phosphate (as P)	0.4	--	--	0.03	0.07	0.07
Discharge (cubic feet per second)	0.4-30.0	0.3-1,480	6.5-750	20	1	--

ND=not detected
*Data represent 1 partial and 3 complete analyses from 4N/19W-30J and -19R for 1977-87.
**Data represent 59 partial analyses and 6 complete analyses from three sites for 1975-88.
***Data represent 22 complete analyses and 7 analyses complete except for bicarbonate for 1976-87.
+Board sampled May 1988.
++Board sampled March 1988.
+ ++Board sampled November 1987.

TABLE 40
SURFACE WATER QUALITY, SULPHUR SPRINGS SUBAREA

In mg/L, unless otherwise noted

Parameter	Santa Paula Creek*	Wheeler Cyn Creek** (3N/22W-13L)	Barrancas***	Santa Clara River		
				Near Santa Paula+ (3N/21W-12P)	Above Santa Paula WR Plant** (3N/21W-15P)	Near Saticoy** (2N/22W-01K)
Calcium	83-95	141	279-338	92-207	195	176
Magnesium	19-30	96	114-260	33-81	76	61
Sodium	16-72	242	210-1,005	52-150	140	176
Potassium	0.6-2.0	6.4	10-25	1.9-6.8	5.7	8.5
Bicarbonate	167-228	384	503-536	218-325	325	360
Sulfate	133-265	730	1,000-3,300	276-750	700	583
Chloride	4-73	100	125-255	25-67	65	102
Nitrate	0.5-2.0	3.9	44-115	1.7-24.0	12	1.6
Fluoride	0.3-0.5	0.8	0.7-1.2	0.6-1.5	0.8	0.7
Boron	0.2-0.4	0.9	--	0.4-2.3	0.6	0.9
Total dissolved solids	197-1,110	1,546	2,144-5,772	598-1,549	1,400	1,318
Electrical conductivity (umhos/cm)	291-1,480	1,700	--	867-2,059	1,702	1,492
Hydrogen ion concentration (pH)	7.7-8.8	8.2	7.4-8.1	7.4-8.5	8.1	7.7
Iron	0-0.04	0.1	ND-0.3	--	ND	0.3
Manganese	ND	ND	ND-0.08	--	ND	0.09
Nitrite	ND	0.1		--	ND	0.1
Total phosphate (as P)	0.02-0.12	0.09		--	0.03	2.7
Discharge (cubic feet per second)	2-855	--	0.33-2.0	6.5-750	--	--

ND=not detected
*Data represent 6 complete plus 18 partial analyses, 1975-88 from three sites.
**Board sampled November 1987.
***Board sampled Ellsworth, Todd, and Brown Barrancas in January 1988.
+Data represent 23 complete analyses and 6 analyses complete except for bicarbonate for 1976-87.

TABLE 36

EFFLUENT QUALITY AND WATER RECLAMATION REQUIREMENTS
SAUGUS AND VALENCIA WRPs

CONSTITUENT (UNITS)	AVERAGE EFFLUENT QUALITY [1] FOR 1992		MAXIMUM LIMITATIONS [2]
	SAUGUS WRP	VALENCIA WRP	
Total Dissolved Solids (mg/L)	686	772	1,000
Chloride (mg/L)	126	148	100[3]
Sulfate (mg/L)	137	167	450-550
Coliform Group (MPN/100 ml)	<1.0	<1.0	2.2
Nitrate + Nitrate (mg/L)	3.28	7.19	10
Turbidity (NTU)	1.4	1.4	2
pH (pH units)	7.10	7.04	6.0-8.5
Arsenic (mg/L)	.002	.002	0.05
Barium (mg/L)	<.02	<0.02	1.0
Cadmium (mg/L)	<.009	<.009	0.010
Total Chromium (mg/L)	<.02	<.02	0.05
Copper(mg/L)	<.02	<.02	1.0
Lead (mg/L)	<.04	<.04	0.05
Mercury (mg/L)	<.0001	<.0004	0.002
Selenium (mg/L)	<.001	<.001	0.01
Silver (mg/L)	<.005	<.005	0.05
Zinc (mg/L)	.04	.10	5.0
Fluoride (mg/L)	.38	.38	1.6
Radioactivity (pCi/L) (gross alph + gross beta)	<10.4	<13.53	65
Total Identifiable Chlorinated Hydrocarbons (ug/L)	.02	.02	NS
Phenols (mg/L)	004	.005	NS

(1) Arithmetic mean effluent analytical data (CSDLAC, Annual Monitoring Report for 1992, 15 march 1993.)

(2) Reclaimed water limitations specified in RWQCB-LA Order No. 89-129 (Valencia WRP) and RWWCB-LA Order No. 89-130 (Saugus WRP). Trace constituent concentration limits obtained from California Department of Health Services, California Administrative Code, Title 22, Division 4, Chapter 15, "Domestic Water Quality and Monitoring" (1989).

(3) Pursuant to Los Angeles County Regional Water Quality Control Board Resolution No. 90-004, readopted on February 3, 1995 for two years, during this period the effluent limitation for chloride will not be considered to be violated unless the effluent concentrations exceed 250 mg/L or water supply concentrations plus 85 mg/L, whichever is less.

NS: Not Specified.
mg/L: milligrams per liter.
MPN/100 ml: Most probable number per 100 milliliters.
NTU: Nephelometric turbidity units.
pCi/L: picouries per liter.
µg/L: micrograms per liter

Table 50

Effluent from Piru Water Treatment Plant

Year	avg. mgd	Total AF	avg. TDS (mg\L)
1980	0.090*	101*	1300*
1981	0.091*	102*	1300*
1982	0.093*	104*	1300*
1983	0.094*	105*	1300*
1984	0.095*	106*	1300*
1985	0.096*	108*	1300*
1986	0.098*	110*	1300*
1987	0.099*	110*	1300*
1988	0.100*	112*	1300*
1989	0.101	113	1273
1990	0.111	124	1462
1991	0.106	119	1506
1992	0.123	138	1445

Table 51

Effluent from Fillmore Water Treatment Plant

Year	avg. mgd	Total AF	avg. TDS (mg\L)
1980	0.750*	840*	1200*
1981	0.756*	847*	1200*
1982	0.762*	854*	1200*
1983	0.768*	861*	1200*
1984	0.774*	867*	1200*
1985	0.780*	874*	1200*
1986	0.786*	881*	1200*
1987	0.792*	888*	1200*
1988	0.798*	894*	1200*
1989	0.800*	896*	1200*
1990	0.843	945	1306
1991	0.794	890	1255
1992	0.890	997	1143

Table 52

Effluent from Santa Paula Water Treatment Plant

Year	avg. mgd	Total AF	avg. TDS (mg\L)
1980	2.03	2274	1300*
1981	1.88	2110	1300*
1982	2.00	2237	1300*
1983	2.01	2254	1300*
1984	2.03	2272	1300*
1985	2.10	2357	1300*
1986	2.25	2517	1300*
1987	2.09	2346	1300*
1988	2.14	2399	1300*
1989	2.14	2394	1300*
1990	2.05	2294	1300*
1991	2.05*	2297*	1300*
1992	2.03	2272	1353

Table 53

Effluent from Saticoy Water Treatment Plant

Year	avg. mgd	Total AF	avg. TDS (mg\L)
1980	0.120*	135*	1800*
1981	0.120*	135*	1800*
1982	0.120*	135*	1800*
1983	0.120*	135*	1800*
1984	0.120*	135*	1800*
1985	0.120*	135*	1800*
1986	0.120*	135*	1800*
1987	0.120*	135*	1800*
1988	0.124	139	1973
1989	0.126	141	1824
1990	0.113	127	1743
1991	0.086	96	1666
1992	0.116	130	1978

Table 54

Effluent from Montalvo Wastewater Treatment Plant

Year	avg. mgd	Total AF	avg. TDS (mg\L)
1980	0.230*	258*	1700*
1981	0.230*	258*	1700*
1982	0.230*	258*	1700*
1983	0.230*	258*	1700*
1984	0.230*	258*	1700*
1985	0.230*	258*	1700*
1986	0.230*	258*	1700*
1987	0.230*	258*	1700*
1988	0.232	260	1883
1989	0.243	272	1703
1990	0.215	241	1683
1991	0.196	220	1759
1992	0.206	231	1884

Table 55

Effluent from Ventura Wastewater Treatment Plant

Year	avg. mgd	Total AF	avg. TDS (mg\L)
1980	7.34	8,225	1451
1981	8.12	9,099	1330
1982	6.99	7,833	1452
1983	8.24	9,233	1367
1984	8.70	9,749	1398
1985	9.40	10,533	1380
1986	8.64	9,682	1411
1987	9.07	10,163	1309
1988	8.42	9,435	1457
1989	8.45*	9,469*	1424
1990	8.50	9,525	1561
1991	8.50	9,525	1583
1992	7.60	8,516	1569

Part II – Section 5.4 Aggregate Resources

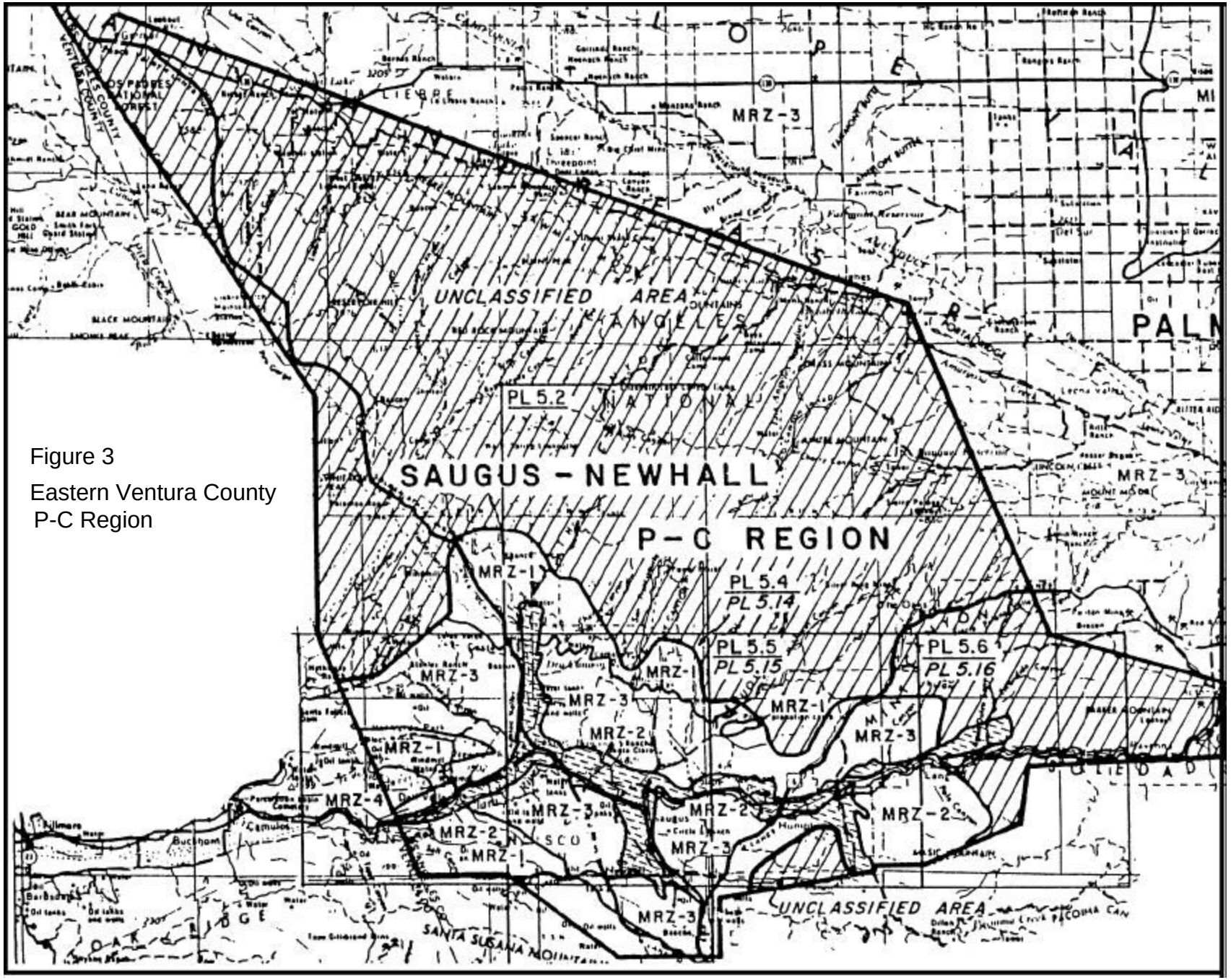


Figure 3

Eastern Ventura County
P-C Region

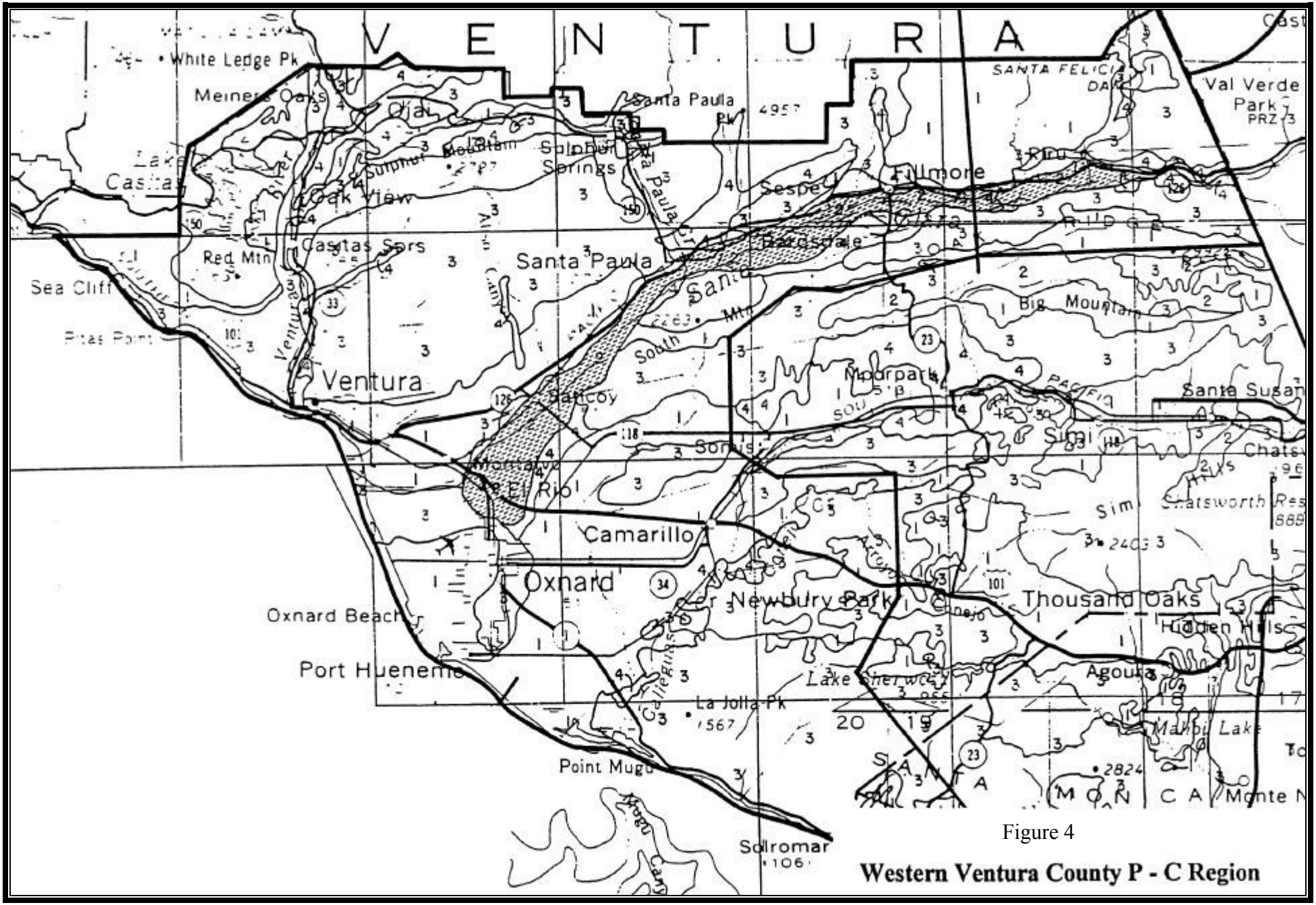


Figure 4

Western Ventura County P - C Region

Part III – Section 5.7 Flood Control

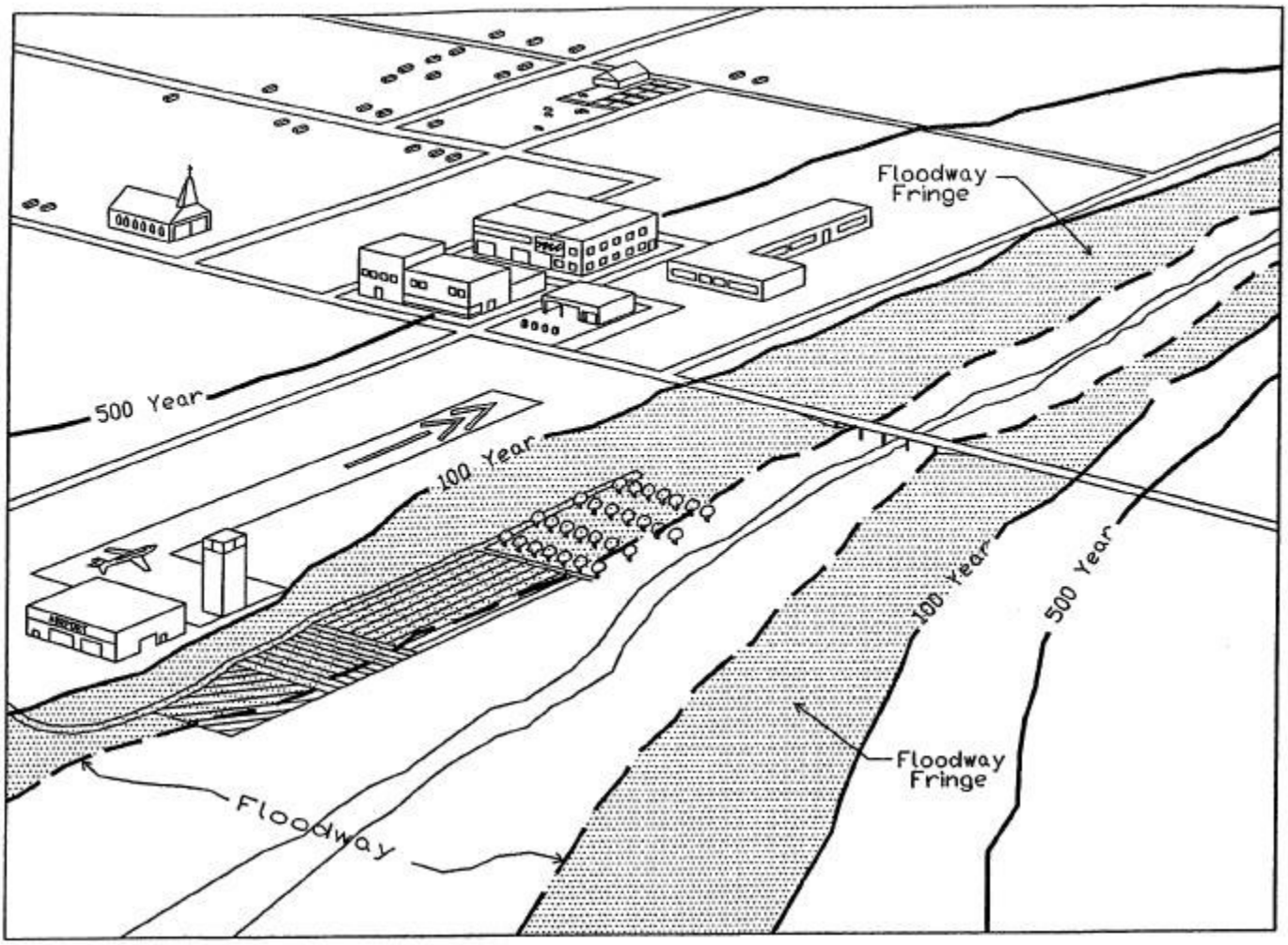
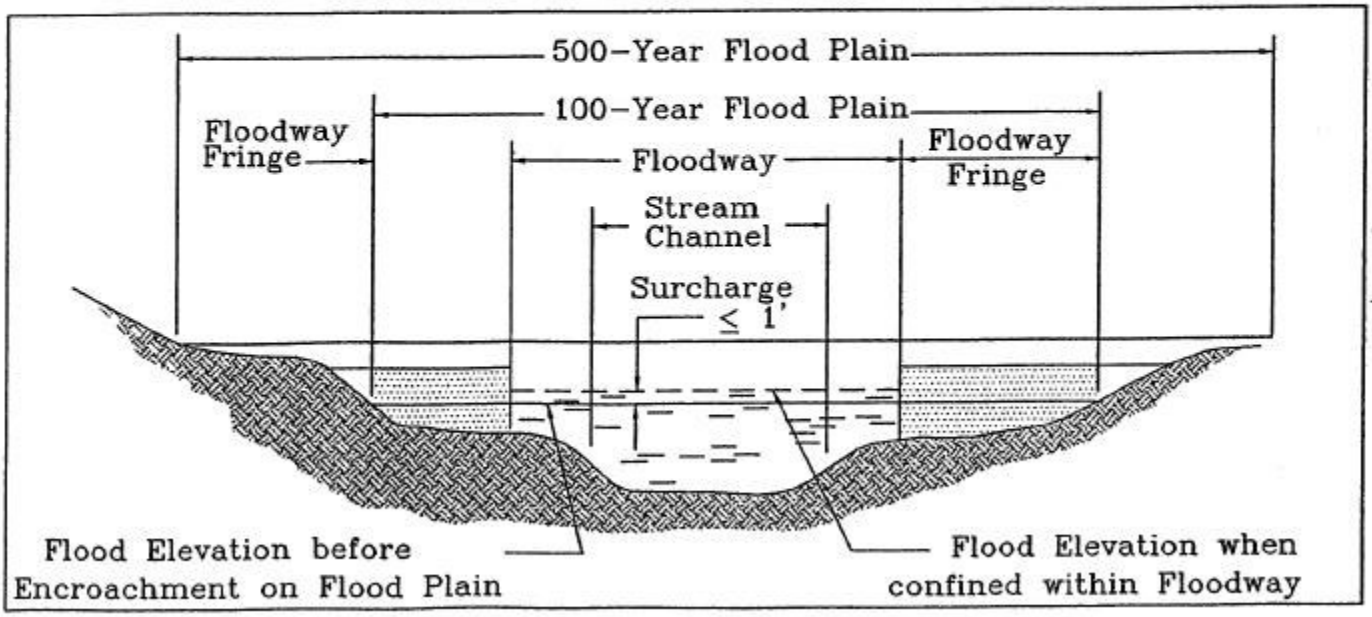


Figure 1 Examples of Floodplain Boundaries



Part IV – GIS Series Overlay CD Directory

Title	Format	Size
SCREMP-Full Report	Adobe Acrobat Document	33.2 MB
New Projects within the 500 Floodplain of Santa Clara River.xls	Microsoft Excel Worksheet	26 KB
Overlays Folder Contents:		
Overlay1:		
RFI/Q Results, Flood Protection, Land Uses and Spheres of Influence		
Sheet1.pdf	Adobe Acrobat Document	486 KB
Sheet2.pdf	Adobe Acrobat Document	471 KB
Sheet3.pdf	Adobe Acrobat Document	448 KB
Sheet4.pdf	Adobe Acrobat Document	434 KB
Sheet5.pdf	Adobe Acrobat Document	447 KB
Sheet6.pdf	Adobe Acrobat Document	417 KB
Sheet7.pdf	Adobe Acrobat Document	409 KB
Overlay2:		
RFI/Q Results, Flood Protection, Biological Resources, and Agricultural Resources		
Sheet1.pdf	Adobe Acrobat Document	506 KB
Sheet2.pdf	Adobe Acrobat Document	491 KB
Sheet3.pdf	Adobe Acrobat Document	461 KB
Sheet4.pdf	Adobe Acrobat Document	430 KB
Sheet5.pdf	Adobe Acrobat Document	460 KB
Sheet6.pdf	Adobe Acrobat Document	414 KB
Sheet7.pdf	Adobe Acrobat Document	405 KB
Overlay3:		
RFI/Q Results, Flood Protection, Water Resources, Aggregate Resources and Recreation		
Sheet1.pdf	Adobe Acrobat Document	459 KB
Sheet2.pdf	Adobe Acrobat Document	448 KB
Sheet3.pdf	Adobe Acrobat Document	427 KB
Sheet4.pdf	Adobe Acrobat Document	408 KB
Sheet5.pdf	Adobe Acrobat Document	440 KB
Sheet6.pdf	Adobe Acrobat Document	409 KB
Sheet7.pdf	Adobe Acrobat Document	400 KB
Supporting Documents Folder Contents:		
A History of the Santa Clara River, April 1995	Adobe Acrobat Document	3.34 MB
Biological Resources Volume I, March 1996	Adobe Acrobat Document	4.23 MB
Biological Resources Volume II, March 1996	Adobe Acrobat Document	6.07 MB
SCREMP Aggregate Resources Report, June 1996	Adobe Acrobat Document	8.29 MB
SCREMP Bibliography, December 1993	Adobe Acrobat Document	1.81 MB
SCREMP Flood Protection Report, June 1996	Adobe Acrobat Document	115 MB
SCREMP Water Resources, April 1996	Adobe Acrobat Document	7.07 MB
SCREMP Cultural Resources, April 1996	Adobe Acrobat Document	1.01 MB

APPENDIX B

1999 Issues and Recommendations Document

Santa Clara River
Enhancement and Management Plan

Summary of Riverwide Issues and Riverwide Recommendations

10 RIVERWIDE ISSUES

1. Private Property Rights

A large majority of the land within the 500-year floodplain of the Santa Clara River is privately owned and may or may not include existing surface water rights. The Plan acknowledges and respects the existing property and water rights of private property owners and encourages purchase of property from willing sellers for the preservation of existing resources.

2. Agricultural/Land Use Preservation

One of the largest land uses, other than open space, within the Santa Clara River corridor is agriculture. To preserve this land use, the Plan acknowledges and respects existing uses of land between the 500-year floodplain boundary and the proposed 25-year flood protection limit line.

3. Permit Streamlining

Projects on the Santa Clara River typically involve permits from federal, state, and local agencies. These agencies include the U. S. Army Corps of Engineers, the U. S. Fish and Wildlife Service, the National Marine Fisheries Service, the California Department of Fish and Game, the Regional Water Quality Control Board, and Ventura and Los Angeles Counties. Navigating through the permit process can be difficult and may involve costly delays for both private and public entities, including cities and counties. The regulatory agencies are committed to permit streamlining and will work together to clarify, coordinate, and simplify the acquisition of permits for activities consistent with the Plan, while at the same time protecting public resources.

4. Flood Protection Needs

Flood protection along the Santa Clara River is needed for the protection of life and property from flood hazards through floodplain management activities and flood control improvements. The Plan will address the protection of life and property. Flood protection needs and options are discussed in the Flood Protection Report dated June 1996.

5. Conservation, Preservation, and Enhancement of Species Habitat

The Plan addresses the preservation of a dynamic river system which: 1) continues to support all native habitat types; 2) maintains viable populations of all native species; and 3) maintains physical, ecological and evolutionary processes by ensuring:

1. Preservation of a continuous riparian corridor on the river with connections to adjacent native habitats. (Preservation of existing resources and establishment of mitigation banks could be accomplished through the purchase of property from willing sellers).
2. Restoration of degraded resources.
3. Management of the river to maintain the existing and restored resource values.

Criteria for use in the evaluation of the Plan, with respect to how it deals with these objectives, are identified on page 1-2 of the biological resources report.

6. Aggregate Harvesting

The Santa Clara River and its adjacent floodplain have been primary sources of sand and gravel (aggregate) for several decades. The need for inclusion of surface mining policies in the Plan is due to the abundance of state-designated aggregate resources still remaining within the 500-year floodplain of the river, and the significant market demand for this material. The Plan will identify areas wherein aggregate harvesting could occur with minimum impact to biological resources or areas where harvesting could actually enhance natural habitat, while providing for flood protection, site enhancement, aquifer recharge, etc. Objectives and criteria relating to aggregate harvesting are discussed in the Aggregate Resources Report dated June 1996.

7. Beach Erosion and Replenishment

In the recent past, river sediments transported to the Pacific Ocean by the Santa Clara River have been reduced thus impacting coastal beaches. The Plan encourages activities that tend to restore the natural sediment balance of the river.

8. Recreation

The Santa Clara River corridor, particularly the reaches within Ventura County, currently affords limited opportunities for public access and recreation. While respecting private property rights, the Plan addresses the enhancement of recreation and public access along the entire Santa Clara River and encourages use of public rights-of-way for recreational use. Additional information regarding recreation can be found in the Recreation Subcommittee Report dated April 1996.

9. Cultural Resources

For centuries before the arrival of the Spanish Missionaries, the Santa Clara River and its tributaries were attractive locations for Native American habitation. The Plan addresses the identification, preservation, and management of cultural resources that include prehistoric and historic archeological sites. Additional information on cultural resources can be found in the Final Cultural Resources Report for the Santa Clara River Enhancement and Management Plan dated April 30, 1996.

10. Groundwater Recharge/Water Rights/Water Supply/ Water Quality

For the Santa Clara River, the issues of water supply, water quality, water rights, and groundwater recharge are intertwined. The Plan will address the management of water quality and water quantity to protect, enhance and restore all beneficial uses (inland and coastal) of the river. The seawater intrusion problem on the Oxnard Plain must also continue to be addressed. A comprehensive view of the river's water issues must be evaluated in order to accomplish this – this includes the recognition of existing water rights, permits and water needs (in and out of stream) of the region. Existing water supplies must be both protected and used wisely and efficiently in order to guarantee a viable resource for future generations. Additional information on water supply, water quality, water rights, and groundwater recharge can be found in the Water Resources Report for the Santa Clara River dated April 1996.

RIVERWIDE RECOMMENDATIONS

1. Long Term River Management

Establish a committee for long term river management and Plan implementation. This will include a process for collection of data and updating the Plan as new information becomes available (for example through yearly aerial surveys completed by flood control districts, project-specific survey information, and species-specific monitoring funded by the resource agencies).

2. Public Outreach

Develop a public information and education program about the values of the river including an informational brochure. Specifically, such a program might target development of press releases and general information to coincide with the release for public review of a draft SCREMP document.

3. Private Property Rights

A. Preservation of existing resources and establishment of mitigation banks could be accomplished through the purchase of property from willing sellers.

B. Property owners will be encouraged to remove Arundo to reduce spread of exotic vegetation. This will also reduce inappropriate human use such as homeless encampments.

C. Establish a streamlined regulatory process covering situations when existing stream dependent agricultural operations are destroyed by flood flows: those uses/operations may be replaced to pre-flood conditions in accordance with the conditions of the permit.

4. Water Quality

A. Manage water quality (point and non-point sources) to protect beneficial uses. The Water Resources Subcommittee will act in an advisory capacity to the Los Angeles Regional Water Quality Control Board.

B. The California Regional Water Quality Control Board, Los Angeles Region is charged with the responsibility of (1) assessing water quality, (2) identifying impairments, (3) identifying sources of impairments, and (4) developing solutions which will restore water quality and protect beneficial uses. In concert with other stakeholders, involved in the water aspects of the Plan, the Regional Board will be implementing the above activities, and will be seeking assistance in supplying data and other information to complete the effort. The Regional Board will identify gaps (both geographic and types of constituents) that need to be measured to assess the health of the watershed. During fiscal year 2001-2002, the Regional Board will focus efforts on renewing permits in the watershed. This will be a critical time period for input from those interested in the water quality of the river.

5. Water Rights

Preserve and enhance in-stream and riparian beneficial uses, as identified in the Basin Plan, while respecting existing water rights, licenses, and permits for use of water resources (e.g. agricultural or municipal uses and groundwater replenishment).

[Need integration with the Biological Sub-Committee, especially as related to Steelhead recovery]

6. Saltwater Intrusion

Address saltwater intrusion problems on the Oxnard plain through regulating groundwater pumping and continuation of water conservation and recharge activities.

Explanation:
Use of the river channel for transporting water for recharge of the Oxnard Plain is recognized as a vital element in combating seawater intrusion. During the '60s, '70s and early '80s, Oxnard Plain groundwater use increased to the point where the overdraft was creating a serious seawater intrusion problem. The State Water Resources Control Board (SWRCB) declared the basin in "critical overdraft" and mandated the local agencies to address the problem. The Fox Canyon Groundwater Management Agency was formed to regulate pumping. The SWRCB assisted United Water in obtaining funding for construction of the Freeman Diversion Dam to increase groundwater recharge and in lieu deliveries of surface water to reduce pumping. This delicate balance must be managed closely in order to protect both the valuable surface and groundwater resources of the river.

7. Water Supply

Maximize use of existing water supplies and encourage recycled water use as a supplemental local water supply by constructing delivery systems and actively promoting the use of locally produced recycled water to replace drinking quality water for nonpotable applications.

Explantion:
The Santa Clara valley region is one of the fastest growing areas in the state, and is dependent on imported water to supplement its limited groundwater resources. Increased population growth, potential droughts and uncertainties over the availability of imported water will very likely result in future water shortages. The development of this local supplemental water supply will help reduce the negative impacts on the local economy and the quality of life as statewide demand grows and/or supplies decrease and cause local water shortages.

8. River Gradient

In Ventura County, the design flowline, presented in the Flood Protection Report Figures 2-9 through 2-15, shall be used in the design of all flood protection facilities.

Explanation:
Figures 2-9 through 2-15 presented in Appendix 2 and discussed in Section 2 of the Flood Protection Report, under "Historic Bed Profile Fluctuation", indicate the significant fluctuations of the river flow line (thalweg) in the recent past. These fluctuations are the result of natural occurrences and man's activities in the river and the watershed, and cannot be accurately predicted. However, they do indicate that the use of a flow line, current at the time the design of the facility is being prepared, may not be appropriate. Accordingly, the flow line elevations, shown in Figures 2-9 through 2-15 as "Design Flow Line" shall be utilized for design purposes in conjunction with the most recent topographic configuration of the river. Thus if the flow line, at the time the design of the facility is being performed, is lower than the design flow line, an artificial level flow line shall be inserted; on the other hand, if the flow line is higher, then the most recent cross-section and flow line shall be used. Except where provided for elsewhere in the flood protection report, an excavated streambed at the elevation of the design flow line shall not be used in the hydraulic analysis.

Additional design goal:
In the future, criteria for the design of flood protection facilities shall consider the ever-changing conditions of the river (vegetation growth, etc.) to guarantee their effectiveness during the design flood, minimize O&M (thereby minimizing activity in the river and preserving the natural habitat) and protect the long-term viability of investment. In addition, the design shall allow natural sediment to move throughout the facility without either scouring the existing earth bottom or causing significant sediment to be deposited which would reduce the level of flood hazard protection provided by such a facility and as to not impair sediment transport to the beach.

9. Public Flood Protection Facilities

Future construction of flood protection facilities, as proposed within the spheres of influence for the cities in the Flood Protection Report, shall be publicly owned and be subject to all laws, regulations and permit requirements including mitigation for the project impact; however, the requirement for alternative analyses and justifications shall be waived where legally possible.

Whenever possible restoration or reclamation of storm related damage shall be covered by the initial installation permit with only written notification required. Routine maintenance of the facility, including any repair work and preventative maintenance, shall be addressed in the original permit or in the streamlining process.

10. Maintenance of Design Flow Capacity

When the effectiveness and adequacy of public flood protection facilities is reduced below the design and/or FEMA required levels and upon submittal of documentation on the hydraulic impact to the facility to regulatory agencies, sediment deposition removal will be allowed to the level of the pre-determined design flow line. The sediment deposition removal would be subject to all laws, regulations and permit requirements including mitigation. The mitigation for sediment deposition removal for future facilities will be addressed in the original permit. However, the requirement for alternative analyses and justifications shall be waived where legally possible or minimized in accordance with available regional general permits.

11. Private Flood Protection

The 25-year protection and encroachment limit line indicated in the Flood Protection Report (for Ventura County only) will be used as the basis for development of a regional general permit that will allow property owners to protect their property from flooding and bank erosion from more frequent floods. The intention is to develop a general permit that would allow owners to construct "soft" protection facilities, to the level of the existing bank, and restore land or damaged pre-existing flood protection facilities up to the limit line without submitting justifications and alternative analyses or performing mitigation if the restoration is performed within nine months of the flood event which caused the damage. Initial installation of protection structures would be subject to the required permits. Whenever possible, the regional general permit will seek to allow restoration or reclamation of storm related damage to be covered by the initial installation permit with only written notification required. Routine maintenance of the facility, including any repair work and preventative maintenance, shall be addressed in the original permit or be consistent with the regional general permit. Land lost in past floods could not be reclaimed. These private facilities for the protection of land shall be limited to Q25 level of protection. (Replacement of stream dependent agricultural operations is covered under Recommendation 3C above)

Explanation:
The maximum level of flood protection that may be justified for agricultural land is the present condition 25-year frequency discharge (Q25), indicated in the Flood Protection Subcommittee Report in Table 4-2. In most cases, areas of currently cultivated land appear to be at, or above, the 25-year flood plain. Accordingly, protection to 25-year flood frequency level is recommended for private facilities, as well as for interim public facilities when appropriate. Installation of flood protection for larger storm, will, in most cases, violate the Flood Plain Ordinance. "Soft" protection facilities include, but are not limited to, willow plantings, compacted cohesive soil bank protection, willow post bank protection, gabion basket bank protection, articulated block, pipe/rail and wire revetment, and cable groins. All of the above listed "soft" protection facilities, excluding cable groins, are summarized in the Flood Protection Report.

[SCVPOA and the Biological Subcommittee will comment on and, if necessary, further develop this recommendation. The Biological Subcommittee may want to specify how, when, and what could be covered under a general permit process.]

12. Cultural Resource Preservation

Cultural resources within the Plan area will be identified and preserved.

13. Fish Passage

Maintain fish passage [specifics to be developed by NMFS and USFWS regarding when, where, how, minimum flows, cover, holding areas, etc.]. Information in the Plan will be used to assist in the development of a steelhead restoration and recovery plan. NMFS will coordinate with Santa Clara River Enhancement and Management Plan participants in the development of the recovery plan.

14. Habitat Conservation Priorities

Acquire property from willing sellers in those areas identified for restoration and/or enhancement. The conservation rankings and linkages to natural habitats outside of the planning area, identified by the biological subcommittee, will be used as guides to prioritize conservation efforts (e.g. off-site mitigation efforts, conservation easements/purchases, mitigation banks, etc.). Segments of the river with high conservation rank (5) or high connectivity to uplands will be the first focus of such efforts. Such prioritization is only guidance and conservation of areas in lower ranking segments will proceed as specific opportunities and funding arise.

Recommendations for upland connectivity by segment are identified in table 4-1 (page 4-12) of the Biological Resources Report, Vol. 1. Conservation rankings are identified on the most recent biological resources coverage mapped by CH2MHill/Psomas dated February 1998.

15. Biological Management

Evaluate river health in coordination with the long term management committee by generating a long term monitoring program, focusing on habitat quality and wildlife population trends that will lead to a better understanding of population maintenance requirements. This monitoring needs to include benthic bioassessments and the periodic evaluation of fish tissue for accumulation of pollutants. To support this effort comprehensive surveys (similar to those completed for the biological resources report) will be conducted at appropriate intervals.

16. Control of Exotics

Develop and implement a program to control exotics, with an emphasis on Arundo, using the techniques identified in the Biology Report, appendix 5. Such a program will be coordinated with existing efforts currently spearheaded by the Angeles National Forest. The program will be

flexible to address other exotic species such as salt cedar (*Tamarix spp*.), that are established in the river but currently not as widespread as Arundo.

17. Biological Mitigation

All activities on the river will be designed to avoid and/or minimize ecological impacts to the maximum extent feasible. These impacts will be mitigated appropriate to the magnitude of the impact and the ecological value of the resources. To help preserve the distribution and continuity of native habitats along the river, impacts to native habitats will generally be mitigated on-site and be designed such that the habitat type lost will return to the site. If mitigation on-site is not possible, or off site mitigation is determined to be environmentally preferable, off-site mitigation will occur in areas with high conservation rankings or with potential for restoration.

[Mitigation guidelines are described in the report of the Biological Subcommittee dated June 1996.]

18. Public Access and Recreation

Future development along the river will provide recreation and public access opportunities. Protection of adjacent properties (e.g. fencing, police patrol efforts) will be in place at the time river property is made available to the public. Whenever possible, public access and recreation will be positively integrated with other river uses, like, but not limited to, flood control structures for non-motorized multi-use trails and restoration projects having educational and interpretive opportunities.

19. Recreational Property Acquisition

Where there are willing sellers and available funding, local, county and state agencies will acquire land (via fee title or easement) within the 100-year floodplain for recreation/education purposes.

20. Permit Streamlining

[These recommendations are under development by the ad-hoc committee on regulatory streamlining chaired by the Corps.]

RECOMMENDATIONS BY REACH

NOTE: Riverwide issues and riverwide recommendations apply to all reaches.

REACH 13

1. Biological enhancement, restoration and preservation within the 100-year floodplain shall be carried out (implemented) as identified by the biological mapping. Areas with a Conservation Ranking of 5 will be considered the highest priority for conservation. Within those areas, conservation easements will be pursued as a tool for habitat management. There will be an equitable benefit that accompanies conservation easements granted by the property owners for those types of habitat management approaches.
2. Aggregate harvesting in this reach will be evaluated as a means to restore channel capacity and enhance degraded biological resources through reclamation activities.

REACH 12

1. Activities within this reach shall comply with the Section 404 Permit and Section 1603 Streambed Alteration Agreement pursuant to the Natural River Management Concept.

REACH 11

1. The Pico Canyon trail will be connected to any future river trail at the County line.
2. Activities within this reach shall comply with the Section 404 Permit and Section 1603 Streambed Alteration Agreement pursuant to the Natural River Management Concept for Valencia Company and Newhall Ranch projects.

REACH 10

1. Biological enhancement, restoration and preservation within the 100-year floodplain shall be carried out (implemented) as identified by the biological mapping. Areas with a Conservation Ranking of 5 will be considered the highest priority for conservation. Within those areas, conservation easements will be pursued as a tool for habitat management. There will be an equitable benefit that accompanies conservation easements granted by the property owners for those types of habitat management approaches.
2. Maintain and enhance the function of Salt Creek drainage within the planning area as a wildlife linkage between the Salt Creek watershed and the Santa Clara River.

REACH 9

1. Aggregate harvesting in this reach will be evaluated as a means to restore channel capacity and enhance degraded biological resources through reclamation activities.
2. Biological enhancement, restoration and preservation within the 100-year floodplain shall be carried out (implemented) as identified by the biological mapping. Areas with a Conservation Ranking of 5 will be considered the highest priority for conservation. Within those areas, conservation easements will be pursued as a tool for habitat management. There will be an equitable benefit that accompanies conservation easements granted by the property owners for those types of habitat management approaches.

REACH 8

1. Biological enhancement, restoration and preservation within the 100-year floodplain shall be carried out (implemented) as identified by the biological mapping. Areas with a Conservation Ranking of 5 will be considered the highest priority for conservation. Within those areas, conservation easements will be pursued as a tool for habitat management. There will be an equitable benefit that accompanies conservation easements granted by the property owners for those types of habitat management approaches.
2. Aggregate harvesting in this reach will be evaluated as a means to restore channel capacity and enhance degraded biological resources through reclamation activities.

REACH 7

1. Biological enhancement, restoration and preservation within the 100-year floodplain shall be carried out (implemented) as identified by the biological mapping. Areas with a Conservation Ranking of 5 will be considered the highest priority for conservation. Within those areas, conservation easements will be pursued as a tool for habitat management. There will be an equitable benefit that accompanies conservation easements granted by the property owners for those types of habitat management approaches.
2. As development occurs, recreational trails and public access will be considered as a part of the land use entitlement process.
3. Aggregate harvesting in this reach will be evaluated as a means to restore channel capacity and enhance degraded biological resources through reclamation activities.

REACH 6

- No specific reach recommendations have been identified for this reach.

REACH 5

1. Aggregate harvesting in this reach will be evaluated as a means to restore channel capacity and enhance degraded biological resources through reclamation activities.
2. As development occurs, recreational trails and public access will be considered as a part of the land use entitlement process.

REACH 4

1. In accordance with original permits, once reviewed, if necessary, for Endangered Species Act concerns, United Water Conservation District will be allowed to manage the area on the north side of the river up to 2,000 feet upstream of the Freeman Diversion to maintain the function of the Diversion.

REACH 3

1. Implement recreational use of the existing levee on south bank of the river. (Ventura County Flood Control District owns this section, approximately 2 miles)
2. Create, restore and maintain habitat along South side of river between levee and active river channel. (Ventura County Flood Control District currently has easement)
3. Aggregate harvesting in this reach will be evaluated as a means to restore channel capacity and enhance degraded biological resources through reclamation activities.
4. As development occurs, recreation trails and public access will be considered as a part of the land use entitlement process.

REACH 2

1. Replace the Harbor Boulevard bridge to accommodate the 100-year flood flow.
2. Remove or protect the Montalvo treatment plant.
3. Incorporate the new recreation and public access trails plan into this reach.
4. Identify a range of options to comprehensively address bank habitat loss and flooding of agricultural lands upstream of the Harbor Blvd. bridge.

REACH 1

1. Develop a comprehensive water level management plan for the estuary.
2. Incorporate the new recreation and public access trails plan into this reach.

APPENDIX C

Public Review Comment Letters

Terry Tamminen
Secretary for Environmental Protection

Over 51 Years Serving Coastal Los Angeles and Ventura Counties
Recipient of the 2001 *Environmental Leadership Award* from Keep California Beautiful

320 W. 4th Street, Suite 200, Los Angeles, California 90013
Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: http://www.swrcb.ca.gov/rwqcb4

Arnold Schwarzenegger
Governor

July 14, 2004

Sergio Vargas
Ventura County Watershed Protection Agency
800 South Victoria Ave.
Ventura, California, 93009

DRAFT SANTA CLARA RIVER ENHANCEMENT AND MANAGEMENT PLAN

Dear Mr. Vargas

Thank you for the opportunity to review the Draft version of the Santa Clara River Enhancement Plan (SCREMP). We especially appreciate your efforts to arrange consultation between our two agencies on the future uses of the SCREMP plan.

Our common understanding of the SCREMP plan, based on our discussions on May 13, 2004, is that it is a historic document describing the conditions in the watershed that existed within the last decade. It is not a watershed planning document, nor is it an authoritative source of regulatory requirements or water quality, nor does it adequately identify the areas of the Santa Clara River where beneficial uses may be impacted.

As per our discussion, we would like to have a disclaimer added to the beginning of the document that states:

> *The SCREMP document is not a fully accurate representation of the condition of the watershed in or after 2004 and does not fully reflect the regulatory requirements that may govern modifications to the Santa Clara River.*

Because of these concerns, we also suggest that the document be made more credible through the removal of the implementation section.

Further, we would like some specific comments deleted as they inaccurately reflect what our agency can contribute to management of the river, as follows:

6.3.1 RR11 "Private Flood Protection " should be removed in its entirety or the sections that refer to the Regional Boards participation should be removed. As an example, the paragraph

stating "It is also anticipated that the California Regional Water Quality Control Board- Los Angeles Region..." does not describe options which would be legal. The document states that several general permits will be developed with the Army Corp of Engineers (Corp), including a general permit for NPDES, MS-4 (storm water), WDR and 401 certification. While Board staff has agreed to explore a general 401 certification for some areas and projects, it has not been developed to date. Other general permits mentioned above have not been considered.

Pg. 97: "The agencies are committed to streamlining" should be changed to "The agencies are committed to evaluating streamlining to the extent allowed by law and regulation, and that water quality is protected." And pg. 99: RWQCB is "committed to permit streamlining" should be changed to "will evaluate permit streamlining." Permit streamlining has not been evaluated to date. The development of a Corp Regional General Permit does not preclude a decision by the LARWCQB to require individual 401 certifications for every streambed modification sufficient to administer our objective of protecting water quality. Stream modifications without individual or general 401 certifications would not be allowed.

PR10 The discussion containing the words "sediment deposition removal will be allowed to the level... of the flow line." should be removed. Certification through 401 is required for each change and it is not provided by this document. Similarly, pg. 99: Delete the first and second paragraphs, which overstate the stream modification options that are authorized and on pg. 100: strike the last paragraph that overstates the stream modification options that are authorized.

Pg. 70: Remove the statement that aggregates "occurs in a unique setting and must be mined where it is found." This does not reflect LARWQCB basin plan guidance that says that protection of all beneficial uses, including habitat and water quality, must be ensured if aggregate is to be mined. Pg. 74: Add a statement "The LARWQCB does not necessarily concur that aggregate should be removed from the listed sites, nor does that agency's participation in SCREMP infer an expectation that any aggregate removal from the Santa Clara River could protect water quality, habitat protection and the anti-degradation requirements of the Basin Plan.

Finally, we would ask that you correct the following technical or grammatical errors.

5.2.6.1(2) The discussion of surface water quality trends is misleading. The following statement might be added "the long term average decreases, but the individual peaks are higher." In addition the following sentences should be removed due to lack of evidence: " unfortunately these data do not reflect changes..." and "strong correlation with marine..."

Pg. 61: The last line has a typographical error. Nitrate should be replaced by chloride

Pg. 64: Remove the statement "nitrates may be naturally occurring in the San Pedro Formation" due to insufficient evidence.

Thank you again for your comments and discussion of these points. We anticipate the final version of the document and further discussion of how we can collectively advance efforts to protect the Santa Clara River, one of our most valuable natural resources in Southern California.

Sincerely,

Deborah Smith
Assistant Executive Officer
Los Angeles Regional Water Quality Control Board

Friends of the Santa Clara River

660 Randy Drive, Newbury Park, California 91320-3036 • (805) 498-4323

March 22, 2004

AMEC
3120 Chicago Avenue Suite 110
Riverside, CA 92507
Attention: Don Mitchell

Re: Comments on SCREMP Public Review Document

Dear Mr. Mitchell,

Friends of the Santa Clara River submits the following comments on the Santa Clara River Enhancement and Management Plan (SCREMP) Public Review Document.

1. The SCREMP website should be listed on the title page.

2. Page 13, first sentence: "Use" should be "Using".

3. Page 29, sixth line from bottom: "1,000 feet and 4,000." should read "1,000 and 4,000 feet".

4. Under 5.2.4, a figure showing a cross-section of the groundwater basins would help greatly in understanding this section.

5. Page 60, under "Surface Water Quality Trends" the Regional Board should put in a summary of recent data and trends. Relying on a 1996 report makes the SCREMP appear outdated the day it is published.

6. Page 63, no mention is made of ammonium perchlorate contamination of the Saugus Aquifer. This is a serious problem affecting water supply to Santa Clarita and an object of study by the Army Corps of Engineers and others as to a cleanup solution. A summary is needed.

7. Table 5.7-1 has no information on Reaches 1 and 2.

8. Page 102, "Reach Specific Policy": The PSC has never discussed the mitigation measures in the Corps Section 404 permit and CDFG 1603 Streambed Alteration Agreement for the NRMP. Therefore, SCREMP cannot state support for these measures.

9. Page 124, RSPol (8) Reaches 11, 12: Ditto, comment 8. SCRERMP cannot adopt a policy on mitigation measures it has never discussed.

10. Page 136, RSProg (3) Reach 5: "Santa Clarita" should read "Santa Paula".

11. Page 153, RSPol (2) Reach 11 and Reach 12: Ditto, comment 9 above. SCREMP cannot adopt a policy on measures it has never discussed.

12. Appendix A, Part 1, Section 5.2, Water Resources: Tables 35, 38, 39, 40, 36, 50, 51,52, 53, 54, 55 are badly in need of updates. Placing these in the SCREMP makes it outdated the day it is published. It might be better to just reference more recent results than to put these tables in the SCREMP.

13. Appendix A, Part III, Section 5.7 Flood Control, Figure F-1, bottom drawing: Not clear, appears to be incorrectly drawn and labelled as to the floodway fringe.

Friends appreciates the opportunity to comment on the SCREMP Public Review Document.

Sincerely,

Ron Bottorff

Ron Bottorff, Chair

March 24, 2004

Don Mitchell c/o AMEC
3120 Chicago Ave., #110
Riverside, CA 92507

Subject: Surfrider Comments on SCREMP

Mr. Mitchell;

The Surfrider Foundation, Ventura County Chapter is pleased to present our comments on the February 2004, Santa Clara River Enhancement and Management Plan (SCREMP) Public Review Document. Our representative, Richard Sweet, participated in the development of the SCREMP, from the beginning of the process, as a member of Friends of the Santa Clara River (FSCR).

- 3. Background, .3 Informational, Page 10 – FSCR participated in the Project Steering Committee, the Consultant Coordinating Committee, and Biological and Recreational committees.
- 5. Current, .2 Water Resources, .3 Surface Water Hydrology, .1 Stream Flow P. 36 & 37 – The 2nd paragraph is a repeat of part of the 1st paragraph and conflicts with it; are there 13 or 14 gauging stations? Also in 1st paragraph, change Land to Lang.
- 5. Current, .4 Aggregate, .5 Existing Mining, In-River, P. 72 – It appears that the Saugus-Newhall PCR was mistakenly included here. It appears correctly shown in Table 5.4.5-1 and on P. 73 in Out-of-River Mining.
- 5. Current, .4 Aggregate, 6 Conclusions P. 75 – It is odd that the water quality anti-degradation statement in b. is included here. We would vigorously oppose any suggestion that the economic health of the aggregate mining industry is more important than the quality of water of the state.
- 6. Issues and Recommendations (I&R), .1 Private Property Rights, .1 Riverwide Recommendations, Policy, Programs and Projects, P. 91 and 6.2 Agricultural Landuse Preservation, PP 95-97 – It would be beneficial to mention the USDA, Natural Resources Conservation Service (NRCS) & the Ventura County Resource Conservation District (VCRCD). They should be asked to describe what they offer to property owners and to provide an addendum for SCREMP. Also, they should also be asked to participate in the Long Term River Management Committee (LTRMC), proposed elsewhere in SCREMP. Agricultural development right up to the edge of the bank occurs too often and is not a good idea, for many reasons.
- 6.4 Flood Protection Needs – The advantages of broadening the flood plain and the potential benefits to flood control, e.g. storage, sinuosity, decreased velocity, sedimentation opportunities etc. should have been included.
- 6.4.1 Ventura County, RR 8 Gradient, P 104 and 6.4.1 Program, Public Facilities, Criteria (3) P 108 - We commend the additional design goal of allowing natural

sediment to move throughout facilities without scouring or deposition and to not impair transport to the beach.

- 6.4.1, V. Co. RR 9 Public Flood Protection Facilities, P 105 – stating that alternative analysis "shall be waived" may be problematic, e.g. as demonstrated by the current proposed narrowing of the floodplain in Fillmore and raising the levee one foot. This could increase velocity and scour both at that point and on the opposite bank.
- 6.4.1 V. Co Program, Public Facilities, Criteria (4): Hydraulic Criteria, Public Facilities, P 108 – Is the V. Co. Watershed Protection District (WPD) considering the use of a different model than HEC-2 for the full SCR Watershed model?
- 6.4.1 V. Co Program, Criteria (5): Public Facilities Sitting Criteria, P 109 – Where is "floodway" defined?
- 6.5 Conservation, .1 Riverwide Policies, RPol (5) Consistency with other Conservation Efforts, P 120 and Riverwide Policies, P 122 - It would be beneficial to mention the USDA, Natural Resources Conservation Service (NRCS) & the Ventura County Resource Conservation District (VCRCD). They should be asked to describe what they offer to property owners and to provide an addendum for SCREMP.
- 6.5.3 Integrated Riverwide & Reach Specific Programs, Integrated Programs, P 124 – There are 8, not 7 Riverwide Policies listed. Also the Ca. Coastal Conservancy's Santa Clara River Parkway and the Wetlands Recovery Project-Ventura and LA Task Forces should be mentioned.
- 6.6 Aggregate Harvesting, .1 Recommendations, P 128 – FSCR may want to harvest aggregate in conjunction with non-native invasive plant removal from the floodplain, for use onsite. FSCR's property is in Reach 6.
- 6.7 Coastal Beaches Erosion and Replenishment, PP 130-133 – We commend the inclusion of this section.
- 7 SCREMP Implementation – We fully support implementation of the SCREMP. Get it funded and get the LTRMC and the web site going. The GIS data should be converted to NAD83 and metadata compiled. Participation in the Channel Islands Regional GIS Consortium (CIRGIS) is also encouraged. We look forward to participating.

Thank you for the opportunity to comment on this document. We look forward to continuing our participation through Friends of the Santa Clara River. If we may be of further assistance, contact Richard Sweet at 805-644-2802 or rsweet46@hotmail.com or Paul Jenkin, Surfrider Foundation, Ventura County Chapter, Environmental Coordinator at 805-648-7255 or pjenkin@sbcglobal.net.

Sincerely, _____

Richard A. Sweet, FSCR Board Member, Surfrider Member

San Gabriel & Lower Los Angeles
RIVERS AND MOUNTAINS CONSERVANCY

CALIFORNIA RESOURCES AGENCY

May 24, 2004

Mr. Andri Krylov
AMEC
3120 Chicago Ave., Suite 110
Riverside, CA 92507

RE: Comments for the Santa Clara River Enhancement & Management Plan – Public Review Draft

Dear Mr. Krylov:

Thank you for the opportunity to comment on the Santa Clara River Enhancement & Management Plan (SCREMP) – Public Review Draft. The RMC is very supportive of watershed planning efforts, and commends the development of a proactive plan that would protect watershed resources.

The use of the word "enhancement" should be carefully qualified throughout the document as it is used in different context. While enhancement may be desired via restoring a degraded habitat community, other types of "enhancement" are not in sync with protecting native habitat diversity. Many "enhancement" projects in general involve introducing more water to a dry river system, type converting the existing ecosystem to a less diverse but wetter system, at the expense of the original ecosystem. Alternatively, "enhancing" a river by widening the channel and adding more vegetation can have very negative consequences (i.e. erosion, vegetation out of balance for a "natural river", etc.) on the function of the river far outside of the footprint of the "enhancement' project.

The words "enhancement", "preservation", and "creation" should be defined in the plan as well as the pro's and con's to each approach outlined. This will allow users of this document to make educated, informed decisions as to project appropriateness as well as how the project will affect the river both downstream and upstream. This is one of the biggest benefits of a watershed document, it allows users to

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step outside of their small area, and focus on the bigger picture.

This document does not adequately address the many tributaries to the Santa Clara River. Studies have shown that smaller tributaries, even ephemeral headwater tributaries, contribute significantly more than larger channels to improving water quality (Meyer, 2003). Additionally, smaller tributaries help maintain desynchronization of flood events within the watershed, reduce and retard the peak of the hydrograph (Leopold, 1968), provide an important habitat niche within the watershed, as well as help distribute recreational opportunities.

This watershed management plan should incorporate strategies, both with existing development as well as new, to protect the intermittent nature of the watershed. As a watershed becomes more urbanized, the tendency is for more water to be introduced into the rivers, making them perennial in nature. This has a chain reaction as it type converts the dynamic intermittent system into a more stable, entrenched channel system. This process also changes the habitat dynamic of the channel, often allowing much more vegetation to grow than would naturally be found in the channel. The type of vegetation is often different than what would naturally be found in the system as there is now year round water available. Additionally, more water means non-native species are able to move in and often out compete the native species who have evolved to thrive in our arid landscape. These changes may seem small, but when you consider that more vegetation reduces "channel capacity" or in a natural river, broadens the floodplain further out potentially impacting existing development, one can see the importance of addressing these issues now.

An additional comment is that we would encourage out of the box watershed management solutions, which often means augmenting the traditional engineering framework and cost benefit analysis process. The fact that this river system is the largest river system in a natural state in southern California should make its value priceless. Traditional cost benefit analysis needs to be brought up to speed as to assessing the unique value of this river system, the dynamic irreplaceable habitat and recreation it supports, natural flood protection it provides, and the economic value it provides the community (tourism, bird watching, hiking, etc.).

We would also advocate placing equal importance on the valuable resources in the upper Santa Clara River watershed as is being placed on the lower portions of the watershed. If the upper watershed is not sufficiently protected, the lower portion will degrade over time. Many efforts are being expended to protect the lower Santa Clara River, but maintaining these protected and enhanced areas could be an uphill battle if the upper watershed is not managed in a way that continues to support the river as a system. What is done upstream as far as

water management, planting, species introduction or eradication, channelization, water quality, etc. all have a direct impact on the health and function of the entire river system down to the ocean.

Thank you for the opportunity to comment on this important document. We look forward to working together to protect and preserve the Santa Clara River Watershed. If you have any questions, feel free to contact Kelly Schmoker at (626) 458-7187.

Sincerely,

Belinda Faustinos,
Executive Officer

References

Leopold, Luna. (1968). *Hydrology for Urban Planning,* U.S. Geologic Survey Circular 554, Washington, D.C.

Meyer, Judy L. Ph.D., et al. (2003). *Where Rivers are Born: The Scientific Imperative for Defending Small Streams and Wetlands.* American Rivers and Sierra Club.

cc:

LA County Department of Public Works, Watershed Management Division – Marty Moreno