Ventura River Watershed Management Plan

Final Draft: Parts 1 & 2

To be Considered for Approval by the Ventura River Watershed Council on November 20, 2014

Because the Ventura River Watershed Management Plan will be such a large document, its approval by the Watershed Council is being handled in stages. At the upcoming November 20 meeting of the Watershed Council, the front sections of the plan—those that comprise what is essentially "the plan" part of the plan—are scheduled for approval. This includes:

- **Executive Summary**
- **Part 1 – Introduction**
- **Part 2 - Watershed Plan, Projects, and Programs**

The final draft of these sections is contained herein. Part 3 - Watershed Characterization, and Part 4 - References and Supporting Material, will be approved at a future meeting.

Reviewing Information and Instructions:

Please note that this version is a low-resolution PDF, so some of the graphics are not sharp. A higher-resolution PDF of the final version will be made available on the website and for print. Also, some of the graphics and design elements in this version are still in flux.

The schedule and budget do not allow for significant revisions at this point. Many opportunities have been provided to review most of this text in draft form. New sections that have not been through review include: Introduction, 1.1 Executive Summary, and 1.3 The Planning Process.

Please do your best to limit comments to the new sections, or to correct important inaccuracies or errors. If you find something you feel should be corrected, contact Lorraine Walter (lorraine@ovlc.org or 649-6852x4) with that information—**by November 17 if possible**.

Newer versions of Adobe Reader have tools (go to View/Comment/Drawing Markups) that let you insert, delete, comment, etc. You can also mark up a hard copy or type your comments in an email, etc.

Introduction

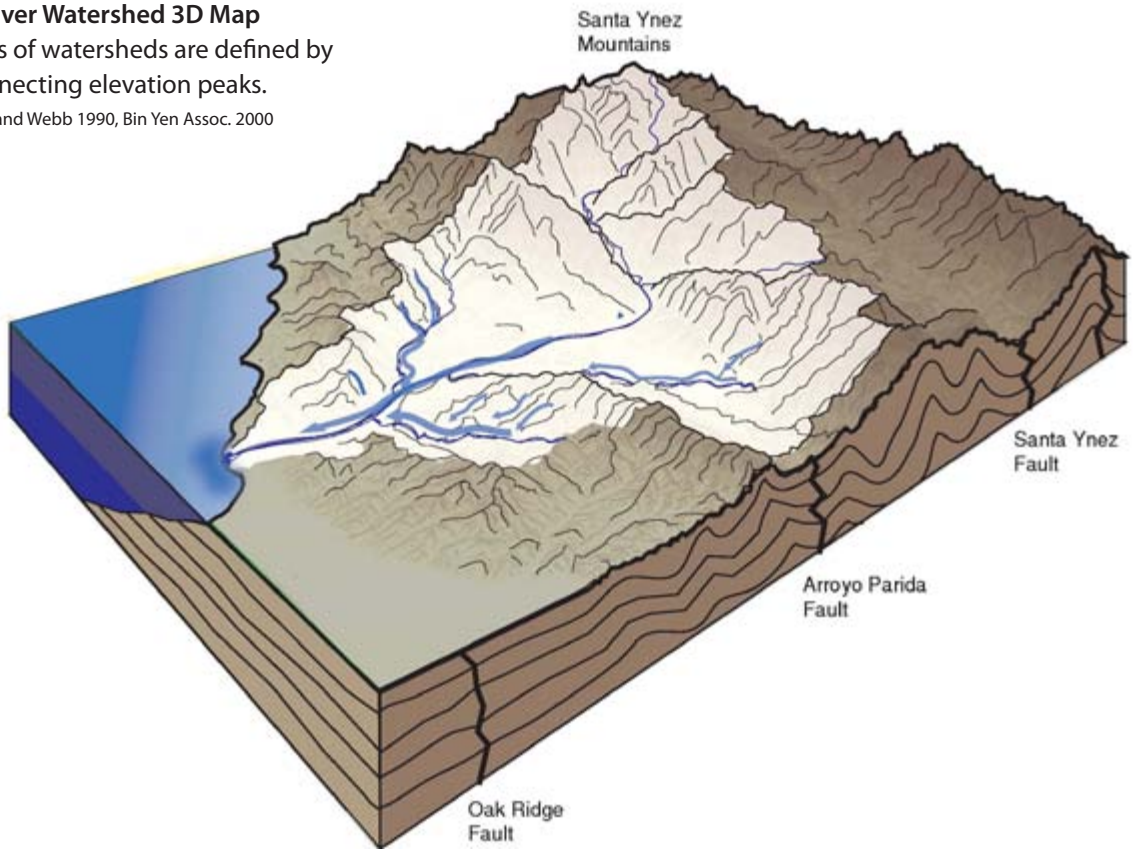
Watersheds and Watershed Management

Watersheds are basins that catch rain and snow and drain into a central water body. Every area of land is part of a watershed; each one separated from the next by elevation peaks. Watersheds come in all shapes and sizes and usually contain smaller "subwatersheds."

Mountain ridges in the Topatopa and Santa Ynez Mountains and the Transverse Ranges form the boundaries of the Ventura River watershed; and all of the watershed's tributaries ultimately drain to the Ventura River.

Each watershed has a unique mix of topography, climate, geology, habitats, and land development, which affects the amount of water available, the nature of flooding, the quality of water, and ecosystem health in that watershed.

Ventura River Watershed 3D Map
Boundaries of watersheds are defined by ridges connecting elevation peaks.
Source: Norris and Webb 1990, Bin Yen Assoc. 2000



Ventura County has three major watersheds—Santa Clara River, Calleguas Creek, and Ventura River, all of which drain to the ocean. At 226 square miles, the Ventura River watershed is the smallest of the three.

There are complex interrelationships among the streams, aquifers, lakes, habitats, people and economies that make up a watershed system, such that changes or impacts to one part of a watershed can ripple through and affect other parts. Pollutants that enter the stream network in Ojai can affect the estuary in Ventura, for example. Modifications to stream channels upstream can cause streambank erosion downstream. The water available to each groundwater pumper can depend upon activity at neighboring wells. Arundo infestations can decrease streamflow and aquatic habitat and increase flooding hazards. A dam erected to address a water supply concern can deprive the downstream riverbed and local beaches of sand. The interrelationships go on and on.

The web of interconnected processes that permeate watersheds do not correspond to the fragmented patchwork of land and water regulatory jurisdictions. The recognition of these interrelationships is the essence of watershed-level planning.

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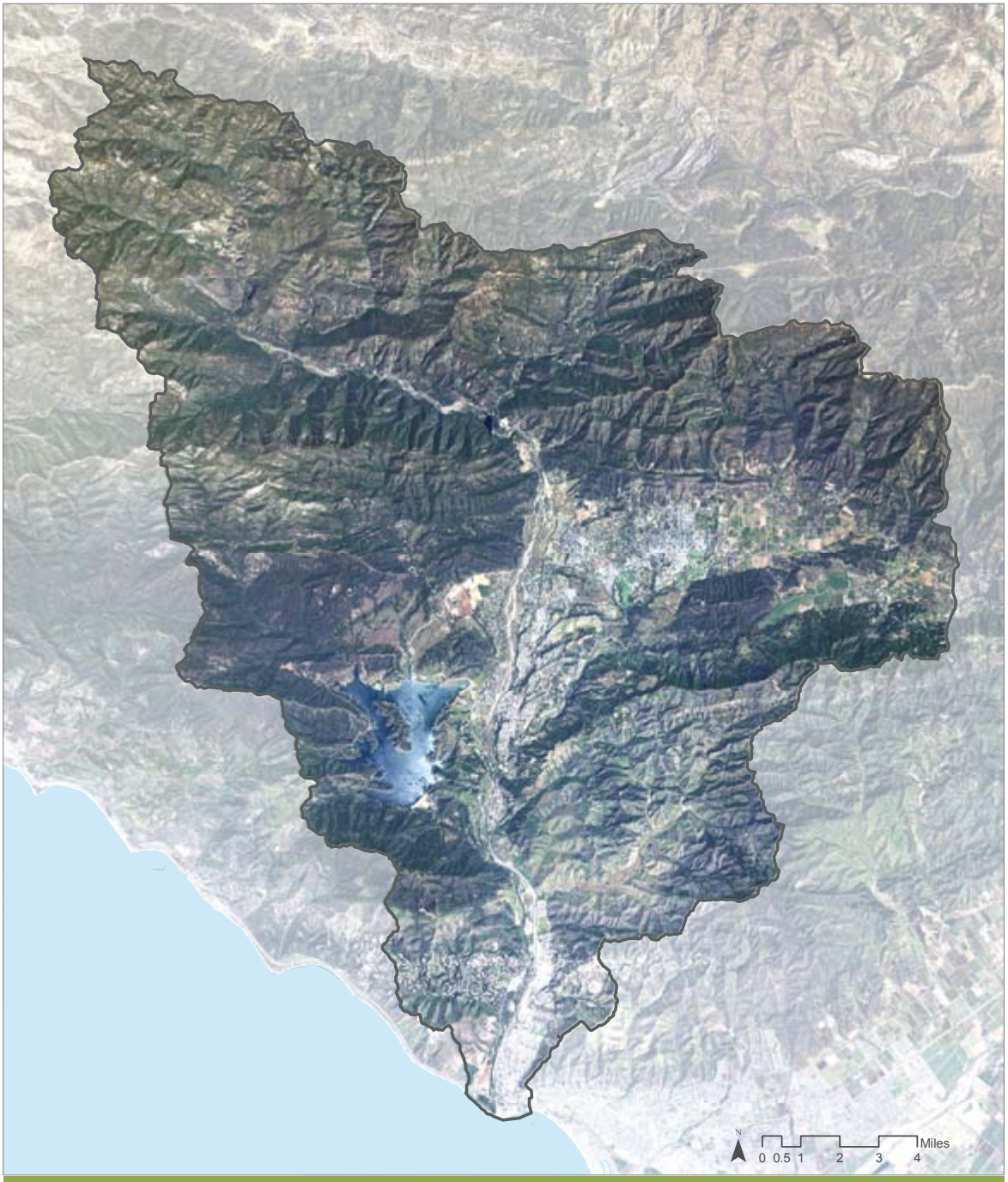
There is no one agency responsible for watershed management planning. The plans are sometimes initiated, lead and funded by citizens, sometimes by local governments, resource conservation districts, or watershed councils.

When the plan development process is inclusive of the broad base of stakeholders, watershed plans are a rare example of a planning effort that places considerable emphasis on what the stakeholders actually care about. Each watershed management plan offers a unique vision for a specific watershed that is rooted in the local community.

Plan Organization

Part 1. Introduction

Part 1 of the plan starts with an Executive Summary—a quick overview of the entire plan, followed by a chapter which chronicles the history and structure of the Ventura River Watershed Council, and a chapter detailing the development process for this management plan.



Aerial View Map

Part 2. Watershed Plan, Projects, and Programs

Part 2 contains the product of the Council's consensus:

2.1 Plan Guiding Framework describes the purpose and values that guided the development of the plan, and outlines the plan's goals and associated objectives and key findings.

2.2 Existing Projects, Programs, and Recent Accomplishments summarizes existing projects and programs and stakeholder accomplishments over a three-year period between 2011 and 2013.

2.3 Campaigns presents the Watershed Council's proposed projects and programs organized into six focused "campaigns," which present desired new projects and programs framed in the context of watershed management work already underway.

Part 3. Watershed Characterization

Each section includes a list of the key documents on that topic where readers can find more detailed and technical information.

Part 3—the Watershed Characterization—starts with a Location and Quick Facts summary overview of the watershed's physical features, followed by six more detailed characterization sections which describe and illustrate the watershed's physical features, geology and climate, surface water and groundwater hydrology, flooding, water supplies and demands, water quality, habitat and species and related issues, opportunities for access to nature, and demographics and local regulations. Characterization sections contain topic history, relevant statistical data, and assessment of current conditions. Each section includes a list of the key documents on that topic where readers can find more detailed and technical information.

Part 4. References and Supporting Material

Part 4 provides a key to the acronyms that appear in the plan, a glossary of technical and local terms, a listing of the source documents used to develop this plan, and a number of appendices that provide data and information that expand on information provided in the body of the plan.

PART 1

Introduction

1.1 Executive Summary

The Ventura River, Looking Towards the Coast

Photo courtesy of Brian Hall of Santa Barbara Channelkeeper, and LightHawk

1.1 Executive Summary

The Ventura River Watershed Management Plan was developed over the course of three years, from 2012 to 2014.

The Ventura River Watershed Council, a large and diverse group of stakeholders, put considerable effort into developing the plan: they met regularly as a group and in subcommittees; conversed in emails and on phone calls; faced disagreements; worked out compromises; edited and re-edited draft language.

This management plan is not mandatory and it has no regulatory teeth. It crosses multiple jurisdictions and authorities. Its implementation success depends upon the priorities and budget conditions of dozens of different organizations, as well as landowners and businesses. Even so, watershed-level planning has taken hold across the globe as understanding grows that water is not bound by arbitrary jurisdictional authorities; water is bound by the watershed. The interconnected biological, chemical, and physical parts and processes that comprise watersheds do not correspond to the fragmented patchwork of land and water regulatory jurisdictions.

In California, watershed-level planning is not yet mandatory, but is "highly encouraged," (for example with preferential access to grant funding) and there is a growing move to institutionalize the watershed-level view. Some water quality regulations are now issued by watershed.

Ventura River Estuary
Photo courtesy of Santa Barbara Channelkeeper

What is a watershed?

A watershed is a basin that catches rain and snow and drains into a central water body—in this case, the Ventura River. Every area of land is part of a watershed. Watersheds come in all shapes and sizes and often contain smaller "subwatersheds." There are complex interrelationships among the streams, aquifers, lakes, habitats, people and economies that make up a watershed system, such that changes or impacts to one part of a watershed can ripple through and affect other parts.

The watershed management plan is intended to serve as a guiding document for the Council and also to inform and guide local decision makers, resource managers, public and private organizations, landowners, other community members, students, and others about the watershed, the factors that influence its conditions, and what the priorities are for maintaining and improving its health and sustainability for the benefit of the people and ecosystems that depend upon it. The plan initiates the integration of the many parts and processes of the watershed through recommendations for projects and programs developed with the complexity of the Ventura River watershed in mind.

The Ventura River, Looking Upstream from Main Street Bridge

Photo courtesy of Santa Barbara Channelkeeper

The Ventura River Watershed Council was formed in 2006 to work on watershed planning. Twenty-one different organizations now serve on the Council's Leadership Committee (voting members), representing a balance of perspectives and interests, including government, water and sanitary districts, land management and recreation organizations, environmental nonprofits, agricultural organizations, and businesses.

Between 2011 and 2014, the Council established its Leadership Committee; developed a mission statement, a logo, and a governance charter; tripled stakeholder involvement and grew member diversity; developed a useful, content-rich website; compiled and inventoried over 500 documents, plans, and policies relevant to the watershed; professionally mapped 36 different aspects of the watershed and posted a Map Atlas online; and developed this plan. Over $400,000 in local support and grant funding has been invested in building the Council's capacity as an organization—and it shows. The Council has built capability; it has built confidence; and it has a plan.

The strengthening of the Council for the purposes of producing this plan is in itself an important achievement. The Council now provides a structure for continued input from and dialogue between all stakeholders. The Council's meetings, website resources, e-newsletters, and other services

offer opportunities for improved community understanding, interest, and leadership in watershed issues. Compiled data and information help reduce duplicative work efforts and efficiently advance new research and analysis. The Council cultivates relationships and facilitates partnerships and collaboration.

The Council identified four primary purposes of the plan:

1. To tell the story of the watershed and its many interdependencies.
2. To identify and prioritize water-related concerns in the watershed.
3. To outline a strategy to collectively solve our shared watershed problems and collectively manage our shared resources.
4. To better position ourselves for funding.

The summary below outlines how these purposes were addressed in the plan.

1.1.1 The Watershed's Story

The Ventura River watershed is a rare and remarkable coastal southern California treasure; it is water-self-reliant, providing clean water to many farms and residents both within and outside its boundaries. Stream networks in surrounding watersheds are often channelized and hard to recognize as streams; in the Ventura River watershed river and streams are largely unchannelized. Urban development dominates much of the landscape of southern California; yet cities comprise only three percent of the Ventura River watershed, and developed land only 13%. A unique set of circumstances has left this small watershed with a relatively healthy ecosystem, containing over 100 special status plant and animal species.

The Ventura River watershed is a rare and remarkable coastal southern California treasure; it is water-self-reliant, providing clean water to many farms and residents both within and outside its boundaries.

At 226 square miles (144,833 acres), the Ventura River watershed is the smallest of Ventura County's three major watersheds. The watershed extends from its Matilija Creek headwaters in the Matilija Wilderness to the Pacific Ocean, 34-miles downstream. The beginning of the Ventura River itself is marked by the confluence of Matilija Creek with North Fork Matilija Creek. The river flows south along the western edge of the Ojai Valley; past the City of Ojai and the communities of Meiners Oaks, Mira Monte, Oak View, Casitas Springs, and through the edge of the City of Ventura. In its final stretch, the river flows through the Ventura River estuary, and if the sandbar is breached, proceeds to the ocean. Along the river's route it picks up water from tributaries, the most significant being San Antonio Creek.

Steep mountains and foothills comprise most of the land area, with altitudes ranging from 6,010 feet to sea level. Valley floors are home to communities and farms.

Figure 1.1.1.1 Watershed Overview Map

Agriculture makes up 5% of the land area, slightly more than residential land uses; about half of the water supply goes to agricultural users. The agricultural economy and the watershed's water supply system grew up together, and have a long history of interdependence. Fifty-four percent of the watershed is federally managed.

Limited land development and large areas of protected habitat help support water that is relatively clean; however, surface waters are still considered "impaired" for a number of factors, including trash, algae, water diversion/pumping, eutrophic conditions, low dissolved oxygen, nitrogen, fish barriers, coliform, bacteria, mercury, and total dissolved solids.

Rainfall varies geographically, seasonally, and from year to year. Cycles of drought and flood are the norm. Since 1906, 67% of the years have had less than average rainfall. Many parts of the stream network are typically dry during much of the year. Surface water readily disappears underground in some stream reaches (segments); in others groundwater regularly feeds streamflow.

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Rainfall in the Matilija Wilderness, the river's headwaters, is the highest in Ventura County, averaging 35.17 inches a year, which is over twice that of rainfall at the coast where the yearly average is 15.46 inches. This rain sometimes comes in large storms, which, when combined with the steep topography, can produce fast-moving floodwaters. Major or moderate floods have occurred in the watershed once every five years on average since 1933.

44,140 people live in the watershed. The population is 58% white, 37% Hispanic or Latino, 2% Asian, and 3% other races. Income varies widely, and several areas qualify as disadvantaged or severely disadvantaged communities. The strength of the community's existing stewardship is one the watershed's greatest assets.

Part 3 of this plan, the "Watershed Characterization," offers a much more detailed story of the watershed. In mostly nontechnical language, and with many photos and illustrations, the various factors influencing the watershed—from geology and climate to local policies and infrastructure—are described. The Watershed Characterization provides a reference for anyone wanting to know more about the watershed.

Chapter 2.3, "Campaigns," also tells the watershed's story—in this case the story of the work already underway to improve conditions in the watershed, the people doing it, the ways they are working together, and some of the key proposed projects and programs that would further advance this work.

1.1.2 Goals and Core Findings

The Council developed and approved seven goals for the watershed management plan. All the goals put together form the Council's "vision" and big-picture priorities for the watershed. Each goal is supported by key findings, which describe the key factors that underlie that goal.

These goals are:

Sufficient Local Water Supplies. Sufficient local water supplies to allow continued independence from imported water and reliably support ecosystem and human (including urban and agricultural) needs in the watershed now and in the future, through wise water management.

Clean Water. Water of sufficient quality to meet regulatory requirements and safeguard public and ecosystem health.

Integrated Flood Management. An integrated approach to flood management that improves flood protection, restores natural river processes, enhances floodplain ecosystems, increases water infiltration and storage, and balances sediment input and transport.

Healthy Ecosystems. Healthy aquatic and terrestrial ecosystem structures, functions, and processes that support a diversity of native habitats.

Access to Nature. Ample and appropriate opportunities for the public to enjoy the watershed's natural areas and open spaces associated with aquatic habitats, to provide educational opportunities, and to gain appreciation of the need to protect the watershed and its ecosystems.

Responsible Land and Resource Management. Land and resources managed in a manner that supports social and economic goals and is compatible with healthy ecosystem goals.

Coordinated Watershed Planning. A Watershed Council that fairly represents stakeholders; collaborates on developing an integrated watershed management plan to guide watershed priorities; facilitates communication between public, private, and nonprofit stakeholders; educates and engages stakeholders; provides a forum for collecting, sharing, and analyzing information about, and creatively and proactively responding to, watershed issues; and maximizes grant funding opportunities.

Each of the seven goals has a set of objectives, which identify the assumptions about what needs to be accomplished in order to achieve the goal.

Core Findings

A set of findings was developed for each goal. These findings are the backstory of each goal; they describe the current watershed characteristics, strengths, challenges, and other factors that give rise to the goal and its objectives. Section 2.1.2 contains the detailed list of findings; the core findings, a subset of the full list, are provided below.

Lake Casitas
Photo courtesy of Michael McFadden

Sufficient Local Water Supplies

- The Ventura River watershed is 100% dependent upon local water sources. Groundwater comprises almost half of the total water produced. The Lake Casitas reservoir is the watershed's main source of surface water and was designed to maintain supplies during a multi-year dry period.
- Surface water and groundwater are closely connected. Subsurface conditions influence instream surface water levels and flows. Groundwater basins can be quickly recharged.
- There are currently 182 active wells in the Ojai Valley Groundwater basin, 64 of which have been drilled since 2000; in the Upper Ventura River Groundwater Basin, there are currently 149 active wells, 44 of which have been drilled since 2000.
- Wastewater is being beneficially reused. There is potential for and stakeholder interest in pursuing opportunities to expand its use.
- There are opportunities and widespread stakeholder support for supplementing water supplies by capturing additional rainwater and surface flows.
- Many large and small water suppliers serve the watershed, most of whom have some dependency on Lake Casitas.
- Because water supplies are 100% local and the amount of rainfall received annually is highly variable, supplies must be managed with caution.
- Water originating in the Ventura River watershed is used both inside and outside of the watershed, and use is divided roughly equally between the agricultural and urban sectors. Data on groundwater use are incomplete.
- State and federal requirements regulating the amount of surface water that must be available for endangered species affect management of the watershed's water resources. Potential requirements to provide increased instream flows could further reduce water available for municipal, agricultural, and other uses.
- Groundwater is estimated to provide almost half of the local water supply; however, the locations and volumes of groundwater

extracted and the effects on streamflow are not accurately known. This data gap inhibits analysis and planning. The Sustainable Groundwater Management Act, signed into law in September, 2014, should result in more groundwater management plans with additional data gathering that will help fill this gap.

- The invasive exotic riparian plant *Arundo donax,* which can be found throughout the watershed, removes scarce water from stream channels at a rate three times that of native riparian plants.
- Increased demand for water has been relatively low; changes in this trend would present management challenges.
- While considerable improvements in conservation and efficiency have been made, significant potential for reducing water demand remains.

Ojai Valley Sanitary District Wastewater Treatment Plant

Clean Water

- Surface water quality is good compared with more developed watersheds in the region and has improved notably in recent decades.
- Despite relatively good water quality, all of the watershed's major waterbodies are on the Clean Water Act Section 303(d) list of impaired waterbodies. Between these waterbodies there are 14 different types of impairments.
- Further efforts are required in order to improve instream water quality conditions and meet water quality regulations.
- The effort and resources devoted to compliance with water quality regulations are considerable and could benefit from better efficiencies, integration, and new funding sources.
- Groundwater quality is generally good enough for drinking and irrigating, though a few parameters exceed standards with some regularity and are monitored and managed accordingly.
- Casitas Municipal Water District and the Bureau of Reclamation maintain proactive programs to maintain good water quality in Lake Casitas.

East Ojai Flooding
Photo courtesy of David Magney

Integrated Flood Management

- Major or moderate floods have occurred once every five years on average since 1933.
- The steep terrain of the Ventura River watershed, coupled with intense downpours that can occur in the upper watershed, result in flash flood conditions where floodwaters rise and fall in a matter of hours.
- Besides riverine flooding, the watershed also experiences alluvial fan, coastal, and urban drainage flooding, and related hazards.

- Flood protection infrastructure, including all three levees, is in need of improvement. Important water and sewer facilities are vulnerable to flood damage because of their location.
- High sediment loads carried and deposited by local streams are a very significant factor in local riverine flood risk and present major challenges to flood management.
- Alterations in natural sediment transport regimes have exacerbated coastal erosion and increased coastal flooding risk.
- Restoring natural floodplain functions where feasible is favored by stakeholders as a least cost/greatest gain strategy for long-term flood management.

Red-Legged Frog
Photo courtesy of Chris Brown

Healthy Ecosystems

- The Ventura River watershed supports a remarkable array of healthy and biodiverse southern California natural habitats.
- The watershed's river and stream network remains largely unchannelized and is supportive of considerable wetland and riparian habitats. These riparian habitats are especially critical in dry southern California.
- The Ventura River estuary, a place where river water and ocean water converge, is an exceptionally valuable wetland habitat and ecological resource.
- Streamflow and pools support aquatic systems in some reaches; other reaches are typically too dry to sustain aquatic habitats.
- The watershed is home to numerous protected species and habitats, including 137 plants and animals protected at either the federal, state, or local level. The watershed is also challenged by invasive, non-native species.
- The federally endangered southern California steelhead is of particular significance. The streamflow and pools, and associated food chain, required for its survival are indicators of healthy aquatic ecosystems. Allocating that "environmental water," given the watershed's often dry and always variable climate, is challenging and a continuing source of stakeholder controversy.
- Controlling *Arundo donax* (giant reed) is a priority for habitat restoration, as well as fire prevention, flood protection, and water supply enhancement.
- Removing Matilija Dam is a priority restoration project with widespread stakeholder support. A coalition of stakeholders has been working to remove Matilija Dam since 1999.

- Local land conservancies have proven to be very effective at acquiring, protecting, and restoring strategic habitats for the benefit of the watershed.
- Facilitating the recovery of the steelhead is important to many stakeholders.
- Lack of funding is preventing the US Forest Service from effectively addressing important management issues of concern, including fish passage barriers, illegal and destructive marijuana farms, and the spread of invasive species.
- A changing climate could modify the biological diversity and viability of the watershed's ecosystems.

Teens Relocating Crawdads, Lower Ventura River

Access to Nature

- Residents and visitors are more likely to gain appreciation of the need to protect the watershed when given the opportunity to visit and learn about the diverse ecosystem processes and services provided by its aquatic habitats. Access to nature is available, though educational opportunities could be substantially improved.
- The watershed is fortunate to have many organizations committed to providing the public with safe access to nature and nature-based recreation opportunities.
- The availability and ease of public access to nature-based activities varies in different parts of the watershed and for different user types.
- The vision of a "Ventura River Parkway"—a network of trails, vista points, and natural areas along the river—is being actively pursued by a coalition of stakeholders.

Ojai Valley's East End

Responsible Land and Resource Management

- Developed land comprises only about 13% of the total land area in the watershed.
- Local policies and physical constraints have effectively limited development on the watershed's privately owned land.
- Agriculture is the dominant land use and is a critical factor in the management and stewardship of the land and water.
- Agriculture plays a critical role in maintaining many services supportive of a healthy watershed.
- The viability of agriculture is seriously threatened by water supply issues, high land costs, continued threats from exotic pests, and the challenges of competing in the modern industrial-scale farming business.

- Residential land use makes up about 4% of the area of watershed, and much of this is rural and low density.
- Oil extraction is a significant commercial land use, making up about 3.5% of the area of the watershed.
- Wildfires can threaten local water quality and supply. Moderate wildfires occur once every 10 years on average, and extreme wildfires once every 20 years.
- The population of the watershed is relatively small and the rate of growth low.
- Employment opportunities are diverse. Leisure and hospitality jobs, which rely on the natural beauty and recreational assets of the watershed to attract visitors, dominate the employment landscape.

Coordinated Watershed Planning

- Coordinated watershed planning offers a wide range of fiscal and management benefits.
- Through their participation, Watershed Council members have demonstrated a commitment to the value of a collective approach.
- While participants clearly value the Watershed Council and understand the benefits of integrated watershed planning, process problems challenge the implementation of such planning.

1.1.3 A Collective Management Strategy

Chapter 2.3, "Campaigns," outlines a strategy to collectively solve shared watershed problems and manage shared resources. As an alternative to focusing on separate individual priority projects or programs, the Council chose to widen the perspective and focus on a short list of six priority regional "campaigns." The campaigns build upon work already underway, and illustrate specific watershed interrelationships and why collaboration is so important at the watershed scale.

Advancing these priority campaigns depends upon implementation of a variety of different types of projects and programs, involving many different stakeholders at many different levels of effort. By presenting the Council's priority projects and programs in this broader perspective, the campaigns offer a realistic framework for collectively achieving improvements.

The Council's six implementation campaigns are:

- **River Connections Campaign.** Seeks to increase understanding, appreciation, and stewardship of the Ventura River and its watershed by connecting people with the river, with information about its history and issues, and with the community working to keep it vital.
- **Resiliency through Infrastructure Campaign.** Seeks to strengthen both infrastructure and local policy in order to reduce the vulnerability of the watershed and its residents to extended droughts, major floods, seismic hazards, and water supply contamination.
- **Extreme Efficiency Campaign.** Seeks to maximize the conservation of water by all water users by continually realizing greater water use efficiency from equipment, technology, and people; pursuing more opportunities to reuse water; and rewarding conservation.
- **Water Smart Landscapes and Farms Campaign.** Seeks to improve and innovate residential and commercial landscape and farm management practices in order to protect, supplement, and extend water supplies, and protect the long-term viability of farms.
- **Arundo-Free Watershed Campaign.** Seeks to remove, and keep at bay, the invasive non-native plant Arundo donax, which consumes excessive amounts of water, poses a major fire hazard, clogs flood control channels, and destroys native habitat.
- **Healthy San Antonio Creek Campaign.** Seeks to increase the flow of clean water in San Antonio Creek, increase recharge of the interconnected Ojai Valley Groundwater Basin, and improve the creek's riparian and instream habitats.

1.1.4 Going Forward

Implementation of this plan through the six campaigns will be achieved by individuals and organizations working both independently and collectively. The extent of implementation will depend upon the availability of grant funds and the priorities and budget conditions of dozens of different organizations, as well as landowners and businesses.

The Council is committed to continuing its work on integrated watershed planning, and building upon the momentum and assets it has established thus far.

1.2 Ventura River Watershed Council

Paul Jenkin, Surfrider Foundation, Leads Tour of Surfers' Point Managed Shoreline Retreat Project

1.2 Ventura River Watershed Council

1.2.1 Participants

The Ventura River Watershed Council is a stakeholder group for watershed planning in the Ventura River watershed. It is an open group with active participation by local, state, and federal government agencies, water and sanitation districts, environmental and educational nonprofits, agricultural organizations, community volunteer groups, as well as engineers, biologists, businesses, students, and other private citizens.

In addition to citizens, landowners, and consultants, the following organizations and businesses regularly participate on the Council:

Aera Energy

California Coastal Conservancy

California Conservation Corps

California Regional Water Quality Control Board

Casitas Municipal Water District

City of Ojai

City of Ventura (Ventura Water)

Farm Bureau of Ventura County

Friends of the Ventura River

Friends Ranch

Meiners Oaks Water District

Ojai Basin Groundwater Management Agency

Ojai Valley Green Coalition

Ojai Valley Land Conservancy

Ojai Valley Sanitary District

Santa Barbara Channelkeeper

Surfrider Foundation

University of California Santa Barbara

Ventura Citizens for Hillside Preservation

Ventura County Agricultural Irrigated Lands Group

Ventura County Cattlemen's Association

Ventura County Coalition of Labor, Agriculture, and Business

Ventura River Watershed Council
Photo courtesy of Lisa Brenneis

Ventura County Environmental Health Division

Ventura County Resource Conservation District

Ventura County Supervisor Steve Bennett's Office

Ventura County Watershed Protection District

Ventura Hillsides Conservancy

Ventura River County Water District

Watersheds Coalition of Ventura County

1.2.2 Council History, Structure, and Governance

The Council was formed to provide a framework for enhancing communication and collaboration among diverse stakeholders in order to better address the Ventura River watershed's many complex and cross-jurisdictional issues.

The Council is also one of three watershed planning subcommittees that comprise the Watersheds Coalition of Ventura County (WCVC). The others are the Santa Clara River Watershed Committee and the Calleguas Creek Watershed Steering Committee.

1.2.2.1 History

The Ventura River Watershed Council has been in existence since May, 2006. The Wetlands Recovery Task Force of Ventura County, a program of the California Coastal Conservancy, had the original idea to form the Council. At the same time, the WCVC was working on developing the countywide Integrated Regional Water Management Plan and needed a stakeholders group from each of the County's three major watersheds

for that process. And so it happened that WCVC's program manager was able to serve as the Council's coordinator during its first five years.

In 2011, the Council was successful in securing grant funding, for three years, for a watershed coordinator. The Ojai Valley Land Conservancy agreed to host the position. The Council's watershed coordinator began in the fall of 2011.

1.2.2.2 Mission Statement

The mission of the Ventura River Watershed Council is to facilitate and support efforts by individuals, agencies, and organizations to maintain and improve the health and sustainability of the Ventura River watershed for the benefit of the people and ecosystems that depend upon it.

1.2.2.3 Strategies

The Council seeks to use the following strategies to accomplish its mission:

1. Collaborate on the development of a comprehensive, integrated watershed management plan to guide priorities and implementation strategies.
2. Facilitate communication between public, private, and nonprofit stakeholders.
3. Provide a forum for collecting, sharing, and analyzing information about, and creatively responding to, watershed issues.
4. Refine understanding—among Council members, decision-makers, and the general public—of the watershed's conditions, processes, interrelationships, and challenges from a variety of perspectives, including scientific, cultural, economic, and regulatory.
5. Identify opportunities for Council members to leverage resources and work together toward common goals.
6. Serve as a subcommittee of the Watersheds Coalition of Ventura County and a contributor to the County's Integrated Regional Water Management Plan.
7. Promote the priorities and projects of the watershed management plan to local, state, and federal officials.
8. Seek funding and other support to implement priority watershed management projects.
9. Monitor the effectiveness of, and regularly update, the watershed management plan.
10. Facilitate coordination of watershed education activities.

1.2.2.4 Governance

In May 2012, before launching work on development of a watershed management plan, the Watershed Council adopted its first governance charter. The charter is intended to ensure that the Council fairly represents the different stakeholders in the watershed, and that a balance of perspectives and interests are represented in its decisions.

As stated in the charter, the Council is a voluntary organization and has no powers or authorities other than those already possessed by its member agencies. The agencies, organizations, and interests represented on the Council are not obligated to adopt or carry out the recommendations of the Council, but have agreed to give due consideration to the recommendations and take actions they consider appropriate.

The charter outlines two categories of members: general members and Leadership Committee members, with the primary difference being that Leadership Committee members are voting members. The Council strives to make its decisions and recommendations by consensus, but when consensus cannot be reached on a given issue, the charter calls for a vote by the Leadership Committee to resolve the issue.

Leadership Committee

The Leadership Committee of the Ventura River Watershed Council comprises the Council's voting members. The Leadership Committee, which has 21 members, was established to ensure that a balance of perspectives and interests are represented in the Council's decisions. Leadership Committee membership is reviewed annually. There are five categories of members: government, water and sanitary, land management/recreation, environmental, and business/landowner.

Profiles of the current members of the Leadership Committee are provided below, organized by category.

(Some of the background information below on the water agency members was taken directly from the *Draft Ventura River Habitat Conservation Plan* produced by Entrix, Inc. and URS Corp. in 2004.)

Government

Ventura County Board of Supervisors District 1, Supervisor Steve Bennett
805/654-2703
www.ventura.org/board-of-supervisors

Ventura County is one of the three local governments in the watershed. About half of the Ventura River watershed is under the jurisdiction of Ventura County. The Ventura County Board of Supervisors is the

five-member governing body that governs Ventura County. Members of the board are elected by members of their respective districts. Supervisor Steve Bennett represents the First Supervisorial District, which includes the entirety of the Ventura River watershed (except for the small piece in Santa Barbara County).

In addition to being the governing body of Ventura County government, the Board of Supervisors also governs the Ventura County Watershed Protection District. Supervisor Bennett is a member of the Board of Directors of the Fox Canyon Groundwater Management Agency.

Ventura County Watershed Protection District
805/654-2001
http://portal.countyofventura.org/portal/page/portal/PUBLIC_WORKS/Watershed_Protection_District

The Ventura County Watershed Protection District (VCWPD), originally named the Ventura County Flood Control District, was formed by state approval of the Ventura County Flood Control Act of 1944.

The primary purposes of the VCWPD as indicated in the Act (as amended) are to: 1) provide for the control and conservation of flood and storm waters; 2) protect watercourses, watersheds, public highways, life, and property from floods; 3) prevent waste or loss of water supply; 4) import water into the district, retain and recycle storm and flood flows, and conserve all such water for beneficial uses; and 5) 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 VCWPD project.

The district is organized into five divisions to administer these broad purposes: Water and Environmental Resources; Design and Construction; Planning and Regulatory; Operations and Maintenance; and Administration. Although VCWPD is a separate legal entity from the County of Ventura, the Ventura County Board of Supervisors also serves as VCWPD's board.

The district is funded through property taxes, benefit assessments, and land development fees paid by property owners within Ventura County. The district is divided into four zones, roughly corresponding to the major watersheds within the County (including Cuyama watershed), and monies raised within a zone support district studies and projects in that zone. Benefit assessment monies collected from each zone are dedicated to support operations and maintenance and NPDES (National Pollutant Discharge Elimination System) permit activities within that zone. Property tax monies raised within a zone are spent on construction projects and to support district planning studies within that zone. The boundaries

of the district's Zone 1 roughly follow the boundaries of the Ventura River watershed.

The list of watershed-related programs and services that the district administers/supports is far too long to enumerate here; below are just some highlights:

- Lead role in the Ventura Countywide Stormwater Quality Management Program, a group of partners that work together to improve stormwater quality, monitor watershed health, and comply with water quality requirements;
- Design, construction, and maintenance of levees, debris basins, channels, and other drainage and flood control structures;
- Lead role in monitoring and collection of precipitation, weather, and streamflows data;
- Management, permitting, and planning of floodplain activities;
- Flood emergency planning and response;
- Hydrologic modeling and forecasting;
- Environmental restoration efforts, including removal of Matilija Dam and invasive species;
- Lead grant applicant/administrator in support of watershed partner projects;
- Groundwater well permitting, groundwater data, and basin condition assessments; and
- Public education on watershed issues.

City of Ventura (Ventura Water)
805/667-6500
www.cityofventura.net/water

The City of Ventura is one of the three local governments in the watershed. The western part of the City (1,798 acres) lies within the watershed, including the Ventura River estuary and adjacent beaches, the Ventura Avenue area, and downtown Ventura to Oak Street.

Ventura Water is the name of the City of Ventura's department that treats and supplies water, collects and treats wastewater, supplies recycled water, and collaborates with the Public Works Department to manage stormwater. This department has historically been most engaged with the Council. Ventura Water's service area encompasses the incorporated land of the City, with a population of over 109,000 people.

Water Supplies

The City of Ventura obtains water supplies from five sources: Casitas MWD, Ventura River Foster Park facilities, Mound Groundwater Basin, Oxnard Plain Groundwater Basin, and Santa Paula Groundwater Basin. Ventura also produces recycled water from the Ventura Wastewater Reclamation Facility.

The City of Ventura has been using water from the Ventura River watershed since its founding in 1782. The Foster Park Subsurface Diversion, built on the Ventura River in 1906, was acquired by Ventura in 1923. When Casitas Municipal Water District was originally formed, its service area included the entire City of Ventura boundary, as it existed at that time. The City also operates shallow groundwater wells in the Foster Park area. The Ventura Avenue Treatment Plant is owned and operated by the City to treat water from the Foster Park facilities. The City has approximately 31,000 service connections; about 3,500 of these connections are within the Ventura River watershed; however, water from the watershed is served to City residents outside of the watershed.

Wastewater Treatment

Ventura Water provides wastewater treatment services to approximately 98% of the City's residences. In the Ventura River watershed, the City's sewer lines begin at the City limits on upper Ventura Avenue, and deliver wastewater to the Ventura Water Reclamation Facility located in the Ventura Harbor area near the mouth of the Santa Clara River. The facility uses a tertiary, or advanced, treatment method. In the past, most of the treated wastewater was discharged into the Santa Clara River estuary after flowing through a series of wildlife ponds for about four days; however, a legal settlement will change how the City uses its reclaimed water in the future.

Stormwater Management

The City of Ventura is a member of the Ventura Countywide Stormwater Quality Management Program, a group of partners that work together to improve stormwater quality, monitor watershed health, and comply with water quality requirements. The City responds to illicit discharges to storm drains, inspects construction sites and commercial and industrial facilities to insure implementation of stormwater pollution prevention controls, reviews development plans for stormwater mitigation control, conducts outreach to residents and school-age children, and maintains the City's storm drains and flood control conduits.

City of Ojai
805/646-5581
www.ci.ojai.ca.us

The City of Ojai is one of the three local governments in the watershed. The entire City, comprising 2,795 acres, is within the watershed.

The City's Public Works department, which addresses stormwater management and water quality issues, is engaged with the Council. The City of Ojai is a member of the Ventura Countywide Stormwater Quality Management Program, a group of partners that work together to improve stormwater quality, monitor watershed health, and comply with water quality requirements. The City responds to illicit discharges to storm drains, inspects construction sites and commercial and industrial facilities to insure implementation of stormwater pollution prevention controls, reviews development plans for stormwater mitigation controls, conducts public outreach, and maintains the City's storm drains and flood control conduits.

California Coastal Conservancy
510/286-4092
http://scc.ca.gov

The California Coastal Conservancy, established in 1976, is a state agency that uses entrepreneurial techniques to purchase, protect, restore, and enhance coastal resources, and provide access to the shore.

The Legislature created the Conservancy as a unique entity with flexible powers to serve as an intermediary among government, citizens, and the private sector in recognition that creative approaches would be needed to preserve California's coast for future generations. A seven-member board of directors, appointed by the Governor and Legislature, governs the Conservancy.

The Conservancy:

- Protects and improves the quality of coastal wetlands, streams, watersheds, and near-shore ocean waters;
- Helps people get to coast and bay shores by building trails and stairways and acquiring land and easements. The Conservancy also assists in the creation of low-cost accommodations along the coast, including campgrounds and hostels;
- Revitalizes urban waterfronts;
- Helps to solve complex land-use problems;
- Purchases and holds environmentally valuable coastal and bay lands;
- Protects agricultural lands and supports coastal agriculture;

- Accepts donations and dedications of land and easements for public access, wildlife habitat, agriculture, and open space.

The Conservancy also administers state park and water bond funds (e.g., Propositions 50 and 84) and awards these funds in the form of grants.

Millions of dollars in grant funding have been awarded by the Conservancy for projects in the watershed. For example, the Conservancy has played a key role in funding projects related to the removal of Matilija Dam and has funded a number of land acquisitions in support of a Ventura River Parkway.

Water and Sanitary

Casitas Municipal Water District

805/649-2251
www.casitaswater.org

Casitas Municipal Water District is a special district formed in 1952 to develop and supply water for agricultural and urban uses in the Ojai Valley and Ventura areas. Casitas is the largest water supplier in the watershed, serving close to 70,000 people and hundreds of farms. Their service area encompasses 150 square miles and includes the City of Ojai, Upper Ojai, the Ventura River Valley area, the City of Ventura south to about Mills Road, and the coastal Rincon area to the Santa Barbara County line. Casitas has approximately 3,200 service connections, including 300 agricultural connections; for a number of these connections Casitas is the "backup" supply, used only when groundwater supplies become depleted. A five-member elected board of directors governs the district.

The primary source of Casitas's water is Lake Casitas, built by the U.S. Bureau of Reclamation in 1959 along with Robles Diversion and Robles Canal.

Nine public and private water agencies use Casitas water, including the City of Ventura, Golden State Water Company, Ventura River Water District, and Meiners Oaks Water District. All of these water agencies rely on water from Casitas when their groundwater supplies are depleted.

In addition to operating and maintaining the reservoir and associated facilities, Casitas also operates and maintains a fish passage facility at the Robles Diversion and the Lake Casitas Recreation Area. Lake Casitas Recreation Area is a popular destination site with over 750,000 visitors each year. Recreational facilities at the lake include a lazy river water park, camping, picnicking, motor boating, sailing, canoeing, and fishing. Swimming or other body-contact recreational activities are not

permitted in the lake. In the past Casitas also managed releases of water from Matilija Dam, but this practice was discontinued in 2011.

Ventura River Water District
805/646-3403
www.venturariverwd.com

The Ventura River Water District (VRWD) is a special district formed in 1956 to provide water in the neighborhoods from Casitas Springs to the City of Ojai at the Vons shopping center. The district is governed by an elected five-member board of directors. VRWD's service encompasses about 2,220 acres, and includes residential and commercial customers. VRWD has approximately 2,100 service connections and serves a population of about 5,700 people.

VRWD obtains water from four wells adjacent to the Ventura River within the Upper Ventura River Groundwater Basin. Casitas Springs customers are always supplied from Lake Casitas. VRWD also has an agreement to purchase water from Casitas during emergencies and drought conditions.

Meiners Oaks Water District
805/646-2114
http://meinersoakswater.com

Meiners Oaks Water District (MOWD) is a special district formed in 1949 to provide water in the Meiners Oaks community on the east side of the Ventura River. The district is governed by an elected five-member board of directors. MOWD's service area encompasses approximately 1,300 acres, and includes residential, commercial, and agricultural customers. MOWD has approximately 1,200 service connections, serving about 4,200 people.

MOWD obtains water from five wells located adjacent to the Ventura River and within the Upper Ventura River Groundwater Basin. The district has an arrangement to purchase water from Casitas during emergencies and drought conditions.

Ojai Valley Sanitary District
805/646-5548
www.ojaisan.org

The Ojai Valley Sanitary District (OVSD) was formed in 1985 to provide sewer-related services to much of the urban areas of the watershed—from the City of Ojai and the Ojai Valley down to Ventura city limits. The district was created as a consolidation of the Ventura Avenue, Oak View, and Meiners Oaks Sanitary Districts, and the Sanitation

Department of the City of Ojai. They are governed by an elected seven-member board of directors.

The service area of the OVSD is approximately 5,660 acres and includes about 20,000 residents. The district maintains 120 miles of sewer main-lines, five pump stations, and the treatment plant. Wastewater is collected and delivered to the OVSD Treatment Plant located five miles from the ocean, and one mile downstream from Foster Park on the east bank of the Ventura River. The treatment plant has the capacity to treat three million gallons a day.

The facility uses a tertiary, or advanced, treatment method, typically using no chemicals—just microbes, oxygen, and ultraviolet light. Treated effluent is discharged into the Ventura River and provides water to the lower Ventura River and the river ecosystem. Biosolids, the byproduct of the treatment process, are composted onsite by OVSD and the compost is made available free to the public.

Ojai Basin Groundwater Management Agency
805/646-1207
www.obgma.com

The Ojai Basin Groundwater Management Agency (OBGMA) was created to manage the groundwater within the Ojai Groundwater Basin for the protection and common benefit of agricultural, municipal, and industrial water users.

Creation of the Ojai Basin Groundwater Management Agency required a special act of the state legislature. The act became law in 1991 in the fifth year of a drought, amidst concerns of local water agencies, water users, and well owners about potential overdraft of the basin. The OBGMA is one of only 13 special act districts with legislative authority to manage groundwater in California (CDWR 2003).

There are five seats on the OBGMA board, which are filled by representatives from the City of Ojai, Casitas Municipal Water District, Golden State Water Company, Ojai Water Conservation District and mutual water companies (one director is elected to represent three mutual water companies).

The OBGMA oversees the management of the Ojai Basin, and is required by law to have a groundwater management plan to guide its operations. Elements of OBGMA's Groundwater Management Plan are implemented in the form of policies, rules, regulations, and ordinances. Water drawn from the basin is divided roughly equally between urban and agricultural users.

Land Management/Recreation

Ojai Valley Land Conservancy

805/649-6852
www.ovlc.org

The Ojai Valley Land Conservancy (OVLC) is a nonprofit organization formed in 1987 to protect the Ojai Valley's views, trails, water, wildlife, and working agricultural lands. The OVLC also provides educational enrichment for the community on its open space preserves. OVLC has roughly 1,200 members and is governed by an 11-member board of directors.

OVLC receives funding from member dues and donations, as well as grants and mitigation fees. Working only with willing landowners on a voluntary basis, OVLC protects land in perpetuity through purchase or by donation of either land or conservation easements (which convey only the development rights to the OVLC, not the title). OVLC has permanently protected 13 properties totaling over 2,300 acres, including roughly 1,900 acres of publically accessible open space preserves, and several conservation easements totaling over 200 acres. The Ventura River Preserve, OVLC's largest property, protects nearly 1,600 acres in and adjacent to the Ventura River, including three miles of the river. Over 25 miles of trails are maintained for the public's enjoyment on the six preserves that are open for public access.

Habitat restoration and enhancement is ongoing on many of OVLC's properties, including *Arundo* removal; and native grassland, oak woodlands, and wetland habitat restorations.

OVLC offers a number of ongoing education programs, leads hikes and hosts docents on its preserves, provides hands-on volunteer opportunities for students and interested community members of all ages, and is actively engaged with local partners for watershed protection. OVLC hosts, on behalf of the Ventura River Watershed Council, the Ventura River watershed coordinator—a grant-funded staff position serving the Watershed Council.

Ventura Hillsides Conservancy

805/643-8044
www.venturahillsides.org

Formed in 2003, the Ventura Hillsides Conservancy (VHC) is a land trust operating in the Ventura region to protect and conserve open space resources through acquisition of land and easements, stewardship of protected lands, and public education about local natural resources. VHC has over 700 members and is governed by a 10-member board of trustees.

VHC receives funding from member dues and donations, grants, and events. VHC owns seven properties totaling nearly 30 acres; 25 of these acres are located in or adjacent to the Ventura River.

VHC's most recent land acquisition, the Willoughby Preserve, located near downtown Ventura, had been known for decades as "hobo jungle." With lots of help from volunteers, social service organizations, local government, and businesses, VHC has reclaimed the property to make it a clean and safe place where the community can enjoy rare access to the lower Ventura River.

VHC enjoys a strong volunteer base, organizes many community events, and is especially dedicated to creating opportunities for youth to experience and connect with nature.

Ventura County Resource Conservation District
805/764-5130
www.vcrcd.org

The Ventura County Resource Conservation District (RCD) is a special district that provides assistance to help rural and urban communities in Ventura County conserve, protect, and restore natural resources. A seven-member board of directors governs the RCD; directors must be landowners or agents of landowners residing within the district. The RCD is one of 99 resource conservation districts in California, and is primarily funded by grants.

The RCD's function is to make available technical, financial, and educational resources, whatever their source, and focus or coordinate them so that they meet the needs of the local land managers for the conservation of soil, water, and related natural resources.

Priority issues for the RCD include preservation of agriculture, open space advocacy, outreach and education on water resources, watershed protection, watershed restoration, control and/or eradication of invasive species, evaluating the potential impacts of loss of wildlife habitat, and maintaining air quality.

Some of the RCD's programs in the Ventura River watershed include the Mobile Lab Irrigation Efficiency Evaluation Program and the Stormwater Quality Best Management Practices Program, which includes staff support for the Horse and Livestock Watershed Alliance, and horse and livestock property best management practice education.

Environmental

Surfrider Foundation, Ventura County Chapter

http://ventura.surfrider.org
www.venturariver.org

The Surfrider Foundation, formed in 1984, works for the protection and enjoyment of oceans, waves, and beaches through an activist network. The Ventura County chapter was formed in 1991 by local ocean enthusiasts who were concerned by the threat of beach armoring at Surfers' Point, which would have destroyed the surf break and the beach. The local chapter is governed by a five-member board of directors.

With over 800 members, many volunteers, and dedicated and persistent leadership, the local chapter is known for effectively working on integrated solutions to a number of local issues threatening the ocean, waves, and beaches.

Current programs and campaigns include Ocean Friendly Gardens, an education program that uses conservation, permeability, and retention to protect the environment and reduce polluted runoff; Rise Above Plastics, an education program aimed at reducing the impact of plastics in the marine environment by raising community awareness about the dangers of plastic pollution and presenting alternatives; Matilija Dam Ecosystem Restoration, an effort to remove the dam that is blocking sediment flow to local beaches and preventing migration of anadromous steelhead to their historic spawning grounds; Ventura River Parkway, an effort to restore the Ventura River ecosystem and recreate the human connection to the river that once existed; and Surfers' Point Managed Retreat, an ecosystem-based approach to managing the erosion at Surfers' Point as an alternative to building a seawall.

Santa Barbara Channelkeeper

805/563-3377
www.sbck.org

Santa Barbara Channelkeeper is a grassroots nonprofit organization, founded in 1999, whose mission is to protect and restore the Santa Barbara Channel and its watersheds through science-based advocacy, education, field work, and enforcement. Channelkeeper is advised by a 13-member board of directors.

Channelkeeper works on the water and in the communities along the Santa Barbara Channel to monitor water quality, restore aquatic ecosystems, advocate for clean water, enforce environmental laws, and educate and engage citizens in implementing solutions to water pollution and aquatic habitat degradation.

A member of both the international Waterkeeper Alliance and the California Coastkeeper Alliance, Channelkeeper is part of a large network of groups working to patrol and protect watersheds and defend their communities' right to clean water.

In the Ventura River watershed, Channelkeeper collects and analyzes surface water samples from the Ventura River on a monthly basis with their Ventura River Stream Team. Over a decade's worth of data have been collected and studied thus far, representing one of the best long-term datasets that exists on the river's water quality. These data are used by regulators to inform regulations (such as TMDLs) for the watershed. Channelkeeper also acts as a watchdog for environmental impacts in the watershed, engages many volunteers through their water sampling program, and educates hundreds of local students about the Ventura River watershed and water quality testing techniques.

Ojai Valley Green Coalition, Watershed Council
805/669-8445
http://ojaivalleygreencoalition.com

The Ojai Valley Green Coalition (OVGC) is a nonprofit organization established in 2007 to advance a green, sustainable and resilient Ojai Valley. OVGC has over 800 members and is governed by a nine-member board of directors.

OVGC works on a variety of fronts, with three separate issue-focused councils: renewables, energy efficiency, and appropriate lighting; local food; and watershed literacy and water security.

Education about ecological issues and sustainable practices is central to the work of OVGC. The group organizes an annual Green Home and Building Tour; hosts numerous educational meetings, films, and events; and maintains a green resources lending library.

OVGC advocates for changes in local policy, including initiatives to ban plastic bags and reduce excessive nighttime lighting. OVGC facilitates environmental responsibility by making it easier: it organizes waste collection and recycling events, secures discounts on solar systems, and provides bicycle valet parking at events. OVGC also works on restoring creekside habitats.

Friends of the Ventura River
805/620-7001
http://friendsofventurariver.org

Friends of Ventura River has a long history of advocating for the Ventura River. The group was established in 1974 to provide an independent organized means of addressing the multitude of threats to the Ventura River and to actively promote the preservation and restoration of its natural resources, including its unique fish and wildlife resources, for the benefit of present and future generations.

Since its inception, the Friends have actively participated in a wide variety of planning and regulatory processes affecting the Ventura River watershed at the local, state, regional, and federal levels. They have also pursued and supported research of the botanical and fishery resources of the Ventura River, producing important studies of the estuary and steelhead habitats of the Ventura River watershed. These reports have stimulated further scientific investigations, which have contributed to the management of the river's biological resources.

Through active participation in land-use and water management programs, the Friends, in collaboration with other local groups, have helped shape local, state, and federal plans, including the Ventura County General Plan, Ojai General Plan, city and county Local Coastal Plans, Ventura County Water Management Plan, and the Ventura River Trail Plan. Over the years, the Friends have reviewed countless land use decisions affecting the Ventura River.

The Friends contributed to the establishment of the U.S. Bureau of Reclamation's Teague Memorial Watershed to protect the Lake Casitas water supply, and to both the Ventura River Preserve and the Confluence Preserve, which are now owned and managed by the Ojai Valley Land Conservancy.

In 1999, with support from Patagonia and the Environmental Defense Center, the Friends organized the first multi-agency symposium to consider the removal of Matilija Dam.

The Friends were also instrumental in getting the Tidewater goby and the southern California steelhead listed as endangered under the U.S. Endangered Species Act in 1994 and 1997.

Recent work includes advocating for a Ventura River Parkway to advance protection and public enjoyment of the Ventura River, developing a watershed resources document library, and ongoing advocacy and education about the river and its watershed.

Business/Landowner

Farm Bureau of Ventura County

805/289-0155
www.farmbureauvc.com

Founded in 1914, the Farm Bureau of Ventura County is an independent, nonpartisan organization that is not affiliated with any government entity. It acts as an advocate for Ventura County's agricultural industry, promoting policies and fostering community action intended to preserve that industry's sustainability and vitality.

For decades, the Farm Bureau has played an important role in the effort to ensure an adequate, reliable, and affordable supply of water for Ventura County. It has worked with local water agencies to manage rivers, reservoirs, and aquifers equitably and efficiently, and to defend local water supplies against degradation and depletion.

In recent years, the Farm Bureau has taken a leadership role in helping farmers and ranchers comply with water-quality regulations aimed at agriculture. The most prominent of these efforts has been the creation and administration of the Ventura County Agricultural Irrigated Lands Group, or VCAILG. VCAILG is a program that allows participating growers to achieve compliance with state and federal water quality requirements by working collectively as a "discharger group"—a much more cost-effective approach than individual farm compliance. The Farm Bureau administers the VCAILG program, with input and assistance from a VCAILG Steering Committee. It also partners with numerous public agencies, including municipalities, water purveyors, and state and county entities to coordinate watershed-wide initiatives to address water-quality issues.

Friends Ranch, Emily Ayala

808/646-2871
http://friendsranches.com

The Friends Ranch family has been growing citrus in the Ojai Valley for over 100 years. Five generations of the Friends family have lived and farmed in the valley.

Friends Ranch owns the roadside packinghouse familiar to travelers up Highway 33 near the mouth of the Ventura River. They pack citrus for wholesale markets and pack fruit and juices for farmers' markets.

Friends Ranch is a member of the Ojai Pixie Growers Association, a group of almost 40 family-scale tangerine growers in the Ojai Valley who get together to share information about growing and selling the specialty Pixie tangerine—a exceptionally sweet, off-season tangerine particularly well suited to the Ojai Valley's climate.

In addition to serving on the Ventura River Watershed Council, Emily Ayala of Friends Ranch sits on the Ojai Valley Water Conservation District and is active with other growers in the valley in educating about protection of the agricultural industry in the Ojai Valley.

Oil Extraction – Aera Energy
661/665-5000
www.aeraenergy.com/ventura.asp

Aera Energy LLC is one of California's largest oil and gas producers, accounting for over 25% of the state's production. Formed in June 1997 and jointly owned by affiliates of Shell and ExxonMobil, it is operated as a stand-alone company through its own board of managers.

The Ventura County oil and gas operations of Aera cover approximately 4,300 acres located largely in the Ventura River watershed just to the northwest of the City of Ventura. Production averages 13,900 barrels per day of crude oil and 7.8 million cubic feet per day of natural gas. Oil is transported to refineries in the Los Angeles basin. Natural gas is shipped to Southern California Gas Co.

Aera and its forerunner companies have been actively producing crude oil in Ventura County since the 1920s. Much of the operation is now in secondary recovery water injection. Aera is the largest onshore oil producer in Ventura County.

Aera and its employees are actively involved in the local community, providing support to programs that benefit local students, charities, police programs, and economic development.

Over 110 employees work directly for Aera in Ventura, and over 600 contractors are employed at Aera's sites for daily operations and development. In addition, the company directly supports many local businesses, such as service providers on Ventura Avenue.

Ventura County Coalition of Labor, Agriculture, and Business
805/633-2291
www.colabvc.org

Ventura County Coalition of Labor, Agriculture, and Business, or VC COLAB, is a 501c(6) nonprofit formed in 2010 to work with public agencies and decision makers in Ventura County to provide regulatory solutions that support business and private property owners. VC COLAB is governed by a 14-member board of directors. The local group cooperates with the COLAB groups in Santa Barbara and San Luis Obispo counties.

VC COLAB seeks to provide a balance between environmental, regulatory, and economic concerns. Its goal is to facilitate a coalition of agricultural and other businesses to identify and research issues that impact business, work with regulatory agencies, and propose solutions.

Through active participation in land-use management policy development, VC COLAB has helped shape local policy and regulations, including the Ventura County Initial Study Assessment Guidelines for assessing biological impacts from development projects under the California Environmental Quality Act, the County's grading ordinance, and the Algae TMDL (Total Maximum Daily Load) state-promulgated water quality regulation.

VC COLAB is also working with the Ventura County Resource Conservation District, Horse and Livestock Watershed Alliance, and the Ventura County Cattlemen's Association to draft "Waivers" with the Regional Water Board that will help horse, cattle, and other livestock owners preserve their lifestyles and livelihoods.

1.2.3 Council Milestones

The following list includes milestones in the Council's development as an organization, as well as projects and grant awards that depended on the Council's involvement or support.

May 2006

Ventura River Watershed Council formed. The California Coastal Conservancy's Wetland Recovery Project launched the Watershed Council. Shortly thereafter leadership transferred to the Watersheds Coalition of Ventura County. A big part of the Council's early work was helping to develop a regional, integrated water management plan for Ventura County. These plans are a prerequisite for receiving water bond funding under Proposition 50 (2002) and Proposition 84 (2006).

January 2008

$3,349,000 in Proposition 50 funding awarded for three projects: 1) a Ventura River Watershed Protection Project (largely surface water hydrology modeling to inform flood control), 2) the San Antonio Creek Spreading Grounds (groundwater recharge), and 3) Senior Canyon Mutual Water Company Equipment Upgrades (to reduce water demand) on Lake Casitas.

April 2010

"Watershed U – Ventura River" was held, a comprehensive educational series for the community that was coordinated by the University of California's Cooperative Extension office and supported by Watershed Council participants. This popular program provided 18 hours of educational presentations by local experts on a wide variety of watershed topics.

January 2011

$500,000 in Proposition 84 funding awarded for the Ojai Meadows Ecosystem Restoration Project.

February 2011

$75,000 in Proposition 84 funding awarded for a Biodigester Feasibility Study as a potential manure management option.

September 2011

Watershed coordinator hired. The watershed coordinator position was funded by a grant ($277,906) from the California Department of Conservation, with additional support provided by several Watershed Council partners. Development of a Ventura River watershed management plan was a key objective of the watershed coordinator position. The Ojai Valley Land Conservancy generously offered to host the staff position.

January 2012

Organizational identity strengthened. Developed a mission statement, logo, and website for the Council. (www.venturawatershed.org)

April 2012

Evening meetings. The first evening meeting of the Council was held to accommodate the schedules of those who cannot attend daytime meetings. Evening meetings are typically held twice a year, in April and October.

May 2012

Governance Charter adopted. A governance charter was adopted, which outlines the organization's purpose, objectives, membership, and decision-making structure. The charter makes explicit the stakeholders' commitment to the work of the Watershed Council and helps give credibility to the Council's work.

October 2012

$48,833 grant awarded from the Bureau of Reclamation to expand the Watershed Council and help with the development of a watershed management plan.

October 2012 – July 2013

Built watershed management plan foundations; expanded information availability. Expanded stakeholder involvement; developed a Council brochure; held a Public Scoping Meeting about the plan; developed the plan's goals and objectives; added an interactive map viewer, map atlas, and video page to the Council's website; added Spanish-language materials to the website; compiled a comprehensive Document Inventory of watershed-related documents, reports, plans, and policies; and developed a master list of project and program ideas.

July 2013

$49,687 grant awarded from the Bureau of Reclamation, a second year of the grant to expand the Watershed Council and help with the development of a watershed management plan.

October 2013

$1,500,000 in Prop 84 funding awarded for *Arundo* removal and public recreation and access improvements along Ventura River.

April 2014

Watershed coordinator grant extended. In response to the drought, the California Department of Conservation allowed a six-month extension for the watershed coordinator position (extending the grant to December of 2014). A small amount of additional funding was provided, with the rest coming from unspent grant balances.

December 2014

Watershed management plan completed. After two and half years in development, the Ventura River Watershed Management Plan was completed.

1.2.4 Council Funding

Since the fall of 2011, the primary support for the Watershed Council has been from the following two grants:

California Department of Conservation (DOC), Watershed Coordinator Grant: $280,844

Bureau of Reclamation, WaterSMART Cooperative Watershed Mgmt. Program Grant: $98,520

The required 25% matching funds for the DOC grant were provided by seven local organizations:

Ventura County Watershed Protection District

Casitas Municipal Water District

City of Ventura

Ojai Valley Sanitary District

Ojai Valley Land Conservancy

Ventura Hillsides Conservancy

Surfrider Foundation

These grants and matching funds supported a full-time watershed coordinator, office equipment/supplies, plus contractor support with map development, webpage development, administration, writing, editing, and graphics.

In addition to grant funding, the Watershed Council has been assisted since its inception with staff support by the Watersheds Coalition of Ventura County.

1.3 The Planning Process

~~[[Placeholder photo. Actual photo to come]]~~

1.3 The Planning Process

The Watershed Council's process for developing the management plan was, by design, very broad, inclusive, and transparent.

The Watershed Council's process for developing the management plan was, by design, very broad, inclusive, and transparent. The Council started with a rough idea of what a watershed management plan was and could do. This idea evolved as stakeholder input was received, as the Council grew in understanding, and as the plan took shape. With the guidance of a full-time watershed coordinator, the Council worked together for two and a half years to develop a plan that fits the watershed's and the Council's specific circumstances and constraints, and clearly reflects the voices of its many and diverse stakeholders.

The watershed management plan is intended to serve as a guiding document for the Council and also to inform and guide local decision makers, resource managers, public and private organizations, landowners, community members, students, and others about the watershed, the factors that influence its conditions, and the priorities for maintaining and improving its health and sustainability for the benefit of the people and ecosystems that depend upon it.

The plan is just one element of this process, however. The relationships established along the way, together with the ongoing communication and exchange of information that comes with those relationships, are the most valuable legacy of this Watershed Council's first Ventura River Watershed Management Plan. The Council's new strength has already had an impact on watershed management. The following sections describe the steps taken to successfully complete the plan.

1.3.1 Strengthen Organizational Capacity/Ensure Committed Leaders

Once the Council had committed to the development of a watershed management plan, they moved to strengthen the organizational capacity of the Council and to ensure the Council had committed leaders. Key aspects of these steps are briefly described below.

Funding for the Watershed Coordinator. Funding for watershed planning is not easy to come by, but the Council succeeded in securing grant funding from the California Department of Conservation in order to hire a full-time watershed coordinator for a three-year term. The Ojai Valley Land Conservancy agreed to host the position and six local agencies provided matching grant funds. The watershed coordinator began in

Lorraine Walter, Watershed Coordinator, in her office

Ventura River Watershed Council's Logo

the fall of 2011. In October of 2012, the coordinator was able to secure additional funding from the US Bureau of Reclamation to further support the watershed management plan's development. One year of funding was awarded, with the potential for a second year based on performance. In July 2013 the Council was awarded a second year of funding.

Mission Statement, Logo, and Website. As part of building organizational identity, the Council defined its mission statement and approved a logo design that reflected the specific nature and characteristics of the watershed—dry, rocky and mountainous. The Council's website, http://www.venturawatershed.org, was launched in 2012.

Governance Charter. During the first half of 2012, the Council and an ad hoc committee worked on the language of a governance charter. While many in the group liked the informal nature of the group, people understood that development of a watershed management plan was a new undertaking and that there would likely be issues of substance that would benefit from having an established decision-making structure. The governance charter identifies the Leadership Committee—the voting members of the Council; by having participants agree to serve on the Leadership Committee, the Council was assured of the active and ongoing participation of members. The charter, which makes explicit the requirement for fair and balanced representation, lends an important authority and respect to the group. The Council's first charter was approved in May 2012, and is reviewed annually.

1.3.2 Expand Stakeholder Involvement/Gather Stakeholder Ideas

In its beginnings, Watershed Council meetings were attended primarily by representatives of public agencies—cities, counties, and water and sanitary districts, along with several long-standing environmental and nonprofit groups. A big focus of the group early on was helping the Watersheds Coalition of Ventura County write the Ventura County Integrated Water Management Plan and related grant proposals in order to secure some of the state's water bond funding.

Before beginning the development of the watershed management plan, considerable effort went in to reaching out to a broader range of stakeholders and inviting them to the table. As a result of the outreach efforts summarized below, Council meeting participation increased from an average of 15 to 20 people per meeting to an average closer to 30 to 40 people per meeting. Watershed Council meetings are held about nine times a year. The Council's email distribution list, which stood at 120 contacts in late 2011, has 370 contacts in late 2014.

One-on-One Outreach. Stakeholders from a much broader range of interests were invited to participate in the Council. Large landholders were approached, including growers, ranchers, and representatives from the oil industry. Personal contact was made with a wide range of agencies, organizations, and interests, including resource agencies, chambers of commerce, local government departments (fire, land use planning, environmental health, parks, public works, flood management, stormwater management), agricultural organizations, environmental groups, universities, consultants, water districts, water organizations, and land managers.

Evening Meetings. In 2012, the Council started holding one or two evening meetings per year for the benefit of stakeholders unable to attend daytime meetings. These meetings have been very well received and well attended, and succeeded in getting more participation by interested citizens, landowners, and businesses.

Stakeholder-Targeted Meetings. The Council publicized and held several topic-focused Council meetings in order to attract a wider variety of potential stakeholders: a public scoping meeting (to identify issues and concerns) for the watershed management plan, a meeting focused on agriculture, and a bilingual meeting to reach out to the watershed's Spanish speakers. At each of these targeted meetings, as well as at regular meetings of the Council, watershed-related concerns and ideas were gathered for integration into the watershed management plan.

Public Scoping Meeting. A public scoping meeting for the watershed management plan was held in October, 2012. Meeting outreach included direct mail invitations to streamside property owners; press releases; newspaper, radio and cable TV announcements; announcements by other groups including Association of Water Agencies of Ventura County, Ojai Valley Land Conservancy, Friends of Ventura River, and Ojai Valley Green Coalition. Sixty people attended, including 28 new participants. At the meeting, participants had the opportunity to provide written input on their five "biggest concerns" and "best ideas" with regard to the watershed. These concerns and ideas were recorded and distributed after the meeting, and were used in the development of the watershed management plan.

Agriculture-Focused Council Meeting. An agriculture-focused meeting was held in October 2013; 69 people participated.

Spanish-Speakers Outreach Meeting. A special meeting was held in January of 2014 to bring information about watershed planning and improvements to Spanish speakers on Ventura's Westside, and to gather their ideas and input. The event was called "Exploring Your Backyard: Healthy Water, Healthy Communities."

The meeting was presented in both English and Spanish. Childcare and children's activities were provided. Topics included an overview of the watershed, where local water comes from, the watershed planning process, the drought, and access to the Ventura River near Ventura's Westside.

A representative from the California Coastal Conservancy described the importance of river parkways to surrounding communities. Representatives from Friends of Ventura River and Ventura Hillsides Conservancy talked about local opportunities to enjoy nature. The new Spanish language version of the Ventura River Parkway map was unveiled, and special guests from the community spoke about their connections with the Ventura River and how they are helping to build a healthy watershed.

1.3.3 Define Plan Purpose, Goals and Objectives, and Values

The writing of the watershed management plan began with clarifying its purpose, goals and objectives, and the overall values that would guide the development and implementation of the plan. This was done in a series of Council, Technical Advisory Committees (TACs), and ad hoc meetings between May and December of 2012. The process steps included:

- Based on input from the Public Scoping Meeting and research of other watershed management plans, the watershed coordinator prepared draft language for the plan's purpose, goals, objectives, and values as a starting point.
- After a general discussion of the draft language, the Council decided to form a TAC for each goal to refine the language.
- A special Agriculture/Economics Subcommittee meeting was held to work out whether supporting local agriculture should be included as a separate plan goal. The group recommended the addition of language specific to supporting agriculture in the other watershed management plan goals and objectives.
- The six TACs met and developed recommended goal and objective language for the Council's consideration.
- The Council approved the purpose, goals, objectives, and values language. See "2.1 Plan Guiding Framework" for this final language.

1.3.4 Educate Participants/Compile Reference Information

Much has been done already to understand and manage the watershed; and one of the most important outcomes of the watershed management planning effort was the sharing of that information with and among stakeholders.

The Ventura River watershed might be one of the most studied small watersheds in the nation. At just 226 square miles, the number of reports and studies that analyze watershed-related issues is remarkably large. Much has been done already to understand and manage the watershed; and one of the most important outcomes of the watershed management planning effort was the sharing of that information with and among stakeholders. Making that information readily accessible, translating technical data with visuals and slideshows, providing engaging videos—these efforts, described below, helped elevate the understanding of stakeholders so that discussions about issues could be clearer and more productive. These benefits continue with ongoing Council meetings.

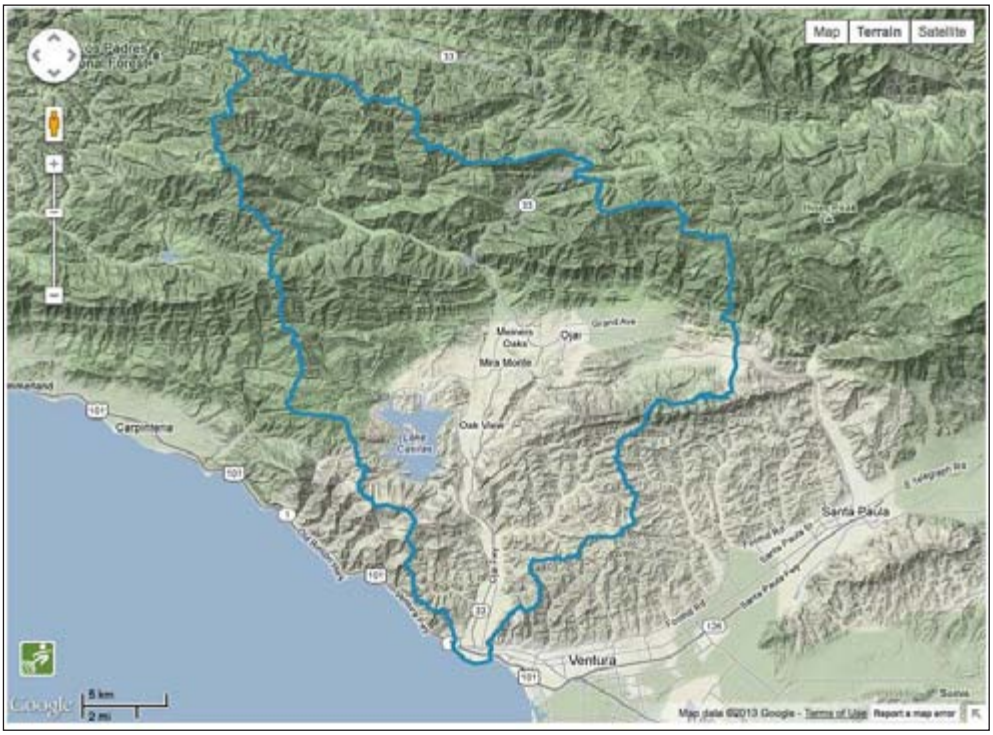
Meeting Presentations. At most Watershed Council meetings, at least one presentation is provided by a watershed stakeholder. This is a means of keeping the meetings relevant and interesting while also increasing understanding and appreciation among Council members of the issues and subtleties involved in different areas of focus. These presentations are a rich source of current information about the watershed that becomes available to the public when they are posted on the Council's website after meetings. Forty-nine stakeholder presentations can now be found on the website.

Document Inventory. As part of research for the watershed management plan, and in order to make watershed data and information more accessible, a comprehensive document inventory was compiled. The inventory spreadsheet includes primarily watershed-specific documents, although some countywide documents are also included where appropriate. Reports, studies, plans, policy documents, and relevant educational materials are included in the inventory. Subjects include agriculture, climate change, coast and ocean, demographics, emergencies/hazards, flood management, geology, groundwater, hydrology, land use, Matilija Dam, recreation, resource conservation, restoration, habitat, San Antonio Creek, sediment, steelhead, water quality, water supply, and watershed-wide concerns.

The inventory spreadsheet includes many fields for convenient sorting, such as subject, date developed, who prepared the document and for whom it was prepared, and spatial area covered. The website URL is also provided when the document is available on the internet.

The document inventory contains over 500 entries, and the file is available for download on the Watershed Council's website.

Interactive Map Viewer



Map Atlas and Interactive Map Viewer. It was important to the Council that the watershed management plan be interesting and user-friendly, so graphics, such as maps, photos and charts, were developed to help tell the story whenever possible. With this in mind, a comprehensive watershed Map Atlas was developed. The atlas is comprised of 36 high-quality maps covering a wide range of topics, all of which are posted on the Council's website and available for download. In addition, an online interactive map viewer was added to the website, which allows users to scroll and zoom in on the watershed map to get finer-scale information on several types of watershed data.

Video Library. Many Council stakeholders have produced valuable videos on a variety of topics related to the Ventura River watershed. To ensure that visual and oral information about the watershed is readily available, the Council's website was expanded to include a page devoted to videos about the watershed. Forty-five different videos with a wide variety of topics, from Arundo to water conservation, are featured on the page, along with a few videos produced by and for the Council itself.

E-Newsletters. The watershed coordinator assembles and distributes e-newsletters to the Council's distribution list several times each month. E-newsletter content includes Council meeting reminders, along with articles and announcements about other events, news, reports or happenings relevant to the watershed. These e-newsletters are posted to the Council's website as announcements and available for public view.

The newsletters were an important communication tool in development of the plan; they provided updates on the plan's progress and announced the availability of draft sections for review to a wide audience.

Website. In addition to the document archive, map atlas, and map viewer mentioned above, the Council's website contains a variety of other helpful information, such as the "Save More Water" page, a comprehensive reference for water conservation focused on Ventura County, background information about the Council and links to other organizations and data sources. The website was also an important communication tool in the development of the plan; meeting announcements, draft sections for review, and copies of the e-newsletters were posted there.

1.3.5 Characterize the Watershed

An important component of this watershed management plan process is the assembly of the watershed characterization. The characterization describes and illustrates the watershed's features such as geology, climate, surface water and groundwater hydrology, flooding, water supplies and demands, water quality, habitat and species and related issues, opportunities for access to nature, and demographics and local regulations.

Water Quality Technical Advisory Committee Meeting

The process for developing these sections varied based on the nature of the topic, but typically involved the watershed coordinator developing a first-pass draft of a section, using all of the existing documents available, and often in collaboration with local experts on the given topic. The first-pass draft was then circulated to the appropriate TAC for comments.

Once comments were integrated, a second-pass draft was sometimes issued to the TAC, or to a larger general list of stakeholders who had registered interest in reviewing drafts. Some topics, such as water quality, were not only technical but also raised sensitive policy issues and required several meetings of the TAC to work out acceptable language. In some cases ad hoc TACs were called for focused work on topic, such as developing a map of priority fish passage barriers.

A password-protected page on the Council's website was established and first-and second-pass drafts were posted there and made available to reviewers. This was especially important for draft files that were too large for emailing.

Work on characterizing the watershed went on simultaneously with work on other parts of the plan.

1.3.6 Develop List of Projects and Programs

The next step in writing the watershed management plan was developing a preliminary list of the projects and programs that stakeholders would like to see implemented to help achieve the goals and objectives.

As with the development of the goals and objectives, this process began with the watershed coordinating compiling a draft, which the Council's six TACs—one for each of the first six goals—then revised. The TACs met twice during this process. Work on the list started in February of 2013, and a working draft list of projects and programs was approved in June of 2013. The list contains almost 200 potential project and program ideas.

This process is further detailed in "2.4.1 Priority Project and Program List Development."

1.3.7 Develop Implementation Strategy

Perhaps the most challenging part of developing the watershed management plan was crafting an approach for a loose group of separate organizations—which all report to their own boards/members and are governed by their own budgets/priorities—to agree to some level of collective action and implementation.

Initially, the Council tried to develop a "Short-Term Action Plan" strategy that would prioritize projects and programs that might realistically be completed or worked on within a three-year time frame. In trying to craft

such an approach, the limitations became clear. Specific commitments by individual organizations could not be secured as this would require approval by each organization's governing board on projects/programs would need to be in line with that board's current priorities, etc.

What could be secured, however, was the commitment of each organization to work towards improving the health and sustainability of the watershed—individually, and where feasible, together. This work was in fact already occurring.

In November of 2013, a revised strategy, focused around six "campaigns," was crafted that offered a more realistic approach to the plan's implementation. Instead of focusing on separate individual priority projects or programs, the campaigns widened the perspective and focused on a short list of priority regional issues. Addressing those priority issues would depend upon implementation of a variety of different types of projects and programs, involving many different stakeholders at many different levels of effort. The campaigns were also structured to build upon work already underway.

Instead of focusing on separate individual priority projects or programs, the campaigns widened the perspective and focused on a short list of priority regional issues.

By presenting the Council's priority projects and programs in this broader perspective, and by starting from work already underway, the campaigns offer a realistic framework for collectively achieving measurable improvements.

The Council's six implementation campaigns are:

- River Connections Campaign
- Resiliency through Infrastructure Campaign
- Extreme Efficiency Campaign
- Water Smart Landscapes and Farms Campaign
- Arundo-Free Watershed Campaign
- Healthy San Antonio Creek Campaign

See "2.3.1 The Campaign Approach" for more background on the campaign idea.

1.3.8 Approve the Plan

The Watershed Council approved Parts 1 and 2 of the plan—essentially "the plan" part of the plan—at their November 2014 meeting. Approval of Parts 3 and 4—the watershed characterization and supporting information—was approved in […to be completedxx].

1.3.9 Implement the Plan

Implementation of this plan through the six campaigns will be achieved by individuals and organizations working both independently and collectively. The extent of implementation will depend upon the availability of grant funds and the priorities and budget conditions of dozens of different organizations, as well as landowners and businesses.

An important factor in implementation success will be the continuation of the Watershed Council as a group. Council meetings cultivate the collaboration, information sharing, and partnerships that will advance the Council's goals for the watershed. The Council has secured modest programmatic support from 16 different local organizations that will fund part-time staff to keep meetings going through 2015. This will allow the group to maintain its momentum, build on the assets it has established, and continue to demonstrate its value.

PART 2

Watershed Plan, Projects, and Programs

2.1 Plan Guiding Framework

Upper Ojai Walnut Grove
Photo courtesy of Michael McFadden

2.1 Plan Guiding Framework

The Ventura River Watershed Management Plan's guiding framework serves as the plan's foundation and was constituted by the Watershed Council to guide its current and future watershed planning and management efforts. This guiding framework includes:

- A description of the purpose of the plan and a set of guiding values.
- Seven goals and 44 associated objectives that are supported by key findings.

2.1.1 Purpose and Values

Because watershed boundaries are inherently geophysical and not political, watershed management plans typically range over multiple political jurisdictions, water and sanitary districts, and many other boundaries and jurisdictions of organizations involved in the watershed's management. In California, local watershed management plans do not currently have any regulatory teeth. They are not mandated and they grant no special powers. Even so, the planning process itself—gathering diverse stakeholders in a watershed to come together and write a plan—has demonstrated widespread benefit in watersheds across the world. The purpose of the Ventura River Watershed Management Plan, as approved by the Watershed Council, is:

1. To tell the story of the watershed and its many interdependencies.
2. To identify and prioritize water-related concerns in the watershed.
3. To outline a strategy to collectively solve our shared watershed problems and collectively manage our shared resources.
4. To better position ourselves for funding.

The Watershed Council established eight values to guide the development and implementation of the watershed management plan. These guiding values answer the question, "What kind of management plan do we want?"

1. **Our watershed management plan will be pragmatic and actionable.**

   While striving toward the larger watershed goals, our watershed management plan shall nonetheless have a highly pragmatic and financially realistic orientation. Our work will build upon and leverage work already done. Our recommendations shall be feasible so that we can celebrate success. We will use common sense, creatively

leverage existing resources and data, look for low-hanging fruit, and consider how to get the most "bang for the buck."

2. **Our watershed management plan will be accessible to the general public.**

   We will strive to produce a watershed management plan, and other associated written materials, in a manner that conveys technical information in an interesting and easy to understand format so that it is readily accessible to members of the general public.

3. **Our watershed management plan will be unique.**

   Our watershed management strategies shall acknowledge the unique circumstances of our particular watershed. We will not mimic language or strategies that do not make sense here. We will encourage innovative ideas and solutions.

4. **Our watershed management plan will acknowledge the triple bottom line.**

   A healthy and sustainable watershed requires not only vibrant and well-functioning ecological systems, but also vibrant and well-functioning social and economic systems. Our watershed plan will include humans and their social and economic needs as part of an integrated and balanced approach to watershed management.

5. **Our watershed management plan will address prevention.**

   Damaged habitats need restoration, but equally important is prevention of further damage. This applies not only to habitats, but also to water supply, water quality, and flood management. We will give due attention to long-term, proactive strategies, such as land use planning policies, that may be more difficult to implement in the short-term but have the potential for significantly greater and longer-lasting benefit.

6. **Our watershed management plan will address policy.**

   While the watershed management plan in itself is not a regulatory document, it is our intention to nonetheless outline, for the benefit of regulators, the specific manner in which regulations are hindering or could benefit the watershed.

7. **Our watershed management plan will be technically strong.**

   We hold high expectations for the technical understanding that underlies our watershed management plan. Whether in the area of science, policy, civic engagement, economics, infrastructure management, or education, we expect to rely upon analyses that are sophisticated, thorough, and endure scrutiny.

8. **Our watershed management plan will be a living document.**

   It is our intention to regularly update our watershed management plan as new information becomes available and priorities change so that it continues to be relevant and useful.

2.1.2 Goals, Objectives, and Findings

The Watershed Council approved seven major goals for the watershed management plan. These goals are brief, visionary statements about the big-picture results the Council is working to achieve. The goals answer the question, "What do we want for our watershed?" All the goals put together form the Council's "vision" for the watershed. These goals:

- serve as a reference or touchstone to guide future projects and programs,
- imply a wide perspective and a long view, and
- address a primary watershed threat or need.

Because the goals address water and the many issues with which water intersects, the goals naturally overlap and are interdependent.

The findings provide a rich, condensed story about the watershed and its current conditions.

The objectives identify the assumptions about what needs to be accomplished in order to achieve each goal. Objectives, with their greater specificity, are also the measuring sticks against which progress can be gauged.

Each goal and its objectives are supported by key findings. These findings summarize those Ventura River watershed characteristics, strengths, and challenges that Watershed Council stakeholders find to be most significant. The findings provide a rich, condensed story about the watershed and its current conditions.

Together, the findings, goals, and objectives form the foundation and justification for the implementation campaigns, as well as the project and program list found later in this section.

Lake Casitas
Photo courtesy of Michael McFadden

2.1.2.1 Sufficient Local Water Supplies

Goal

Sufficient local water supplies to allow continued independence from imported water and reliably support ecosystem and human (including urban and agricultural) needs in the watershed now and in the future, through wise water management.

Objectives

a. Improve water supply reliability for human needs through increased water use efficiency and capture, water system resiliency and efficiency, knowledge, conservation practices, reuse, and recycling.

b. Protect existing water supplies from harm and losses.

c. Continue to look for new and innovative water sources and storage areas in the watershed.

d. Improve coordinated management of surface water and groundwater supplies to protect aquatic ecosystems while meeting water demands.

e. Manage water supply costs to sustain our watershed's mixed land uses.

f. Track the potential impacts of climate change on local water supplies so that adaptation strategies can be developed.

Findings

Sources

- **The Ventura River watershed is 100% dependent upon local water sources. Groundwater comprises almost half of the total water produced. The Lake Casitas reservoir is the watershed's main source of surface water and was designed to maintain supplies during a multi-year dry period.**
  - On average, surface water comprises about 54% of the water recovered from the watershed and groundwater comprises about 46%.
  - Lake Casitas reservoir is the watershed's main source of surface water supplies and serves as backup for many groundwater users, including other water districts.
  - Lake Casitas stores runoff collected from the lake's surrounding watershed and diverted from the Ventura River.
  - The reservoir is carefully managed to maintain supplies during a repeat of the 21-year dry period from 1945 to 1965 (the longest dry period on record). The most severe test of the reservoir's function since its construction was the dry period from 1984 to 1991, when water storage dropped to nearly 50% capacity. The last time the reservoir was at near full capacity was in 2006.
  - The City of Ventura and Casitas Municipal Water District own and pay for allocations of water from the State Water Project (10,000 AF and 5,000 AF respectively); however no connecting distribution system is in place.
- **Surface water and groundwater are closely connected. Subsurface conditions influence instream surface water levels and flows. Groundwater basins can be quickly recharged.**
  - Groundwater basins are primarily "unconfined," and can be quickly recharged by rain, stream and river flows, and water applied to overlying lands (e.g., through irrigation).
  - Groundwater rises and becomes surface water in places, often in association with underground faults and other geologic constrictions and in-river springs; just as surface water seeps into the ground in certain reaches, leaving sections of the riverbed dry during all but very wet years.
  - Ojai Valley Groundwater Basin subsurface underflow is an important contributor of streamflow to San Antonio Creek.
  - Surface water or groundwater withdrawals in one area can potentially have significant impacts on water users in other areas.

- **There are currently 182 active wells in the Ojai Valley Groundwater basin, 64 of which have been drilled since 2000; in the Upper Ventura River Groundwater Basin, there are currently 149 active wells, 44 of which have been drilled since 2000.**
- **Wastewater is being beneficially reused. There is potential for and stakeholder interest in pursuing opportunities to expand its use.**
  - Some wastewater from the watershed is reused to offset potable water demands. Wastewater that enters the sewer within the City of Ventura is treated by the City's Ventura Water Reclamation Facility; 700 AF of that treated wastewater is reused for landscape irrigation within the City and the rest is discharged to the Santa Clara River estuary.
  - Treated wastewater from Ojai Valley Sanitary District (OVSD) is discharged into the Ventura River. This effluent provides downstream habitat for the endangered southern California steelhead trout, and also recharges the Lower Ventura River Groundwater Basin.
  - If OVSD's effluent were to be repurposed, the City of Ventura, as property owner of the OVSD wastewater treatment plant site, holds first rights to that water. A feasibility study was completed in 2007 analyzing the potential to reuse OVSD's effluent.
  - Current regulations and local agreements on water reuse are complex and must be addressed in order to expand reuse projects.
  - Exploring the feasibility of reusing wastewater for irrigation higher in the watershed is of interest to some stakeholders.
  - Reuse of residential graywater offers an opportunity to extend local water supplies and is being actively promoted.
- **There are opportunities and widespread stakeholder support for supplementing water supplies by capturing additional rainwater and surface flows.**
  - Rainwater capture, infiltration, and groundwater recharge—through large projects such as recharge basins, and small projects such as bioswales and berms—are of interest to stakeholders as a means to increase water supplies.
  - The restored San Antonio Creek spreading grounds will divert surface water for recharge of the Ojai Valley Groundwater Basin: an estimated average of 126 acre-feet up to a maximum of 914 acre-feet per year.

- **Many large and small water suppliers serve the watershed, most of whom have some dependency on Lake Casitas.**
  - Casitas Municipal Water District is the main water supplier, and acts primarily as a wholesale and agricultural water supply agency. Casitas serves a small number (2,715) of residential customers directly; about 40% of their water is sold directly to agricultural customers (~250 customers), and the district serves the critical role of backup water supply for dozens of customers whose primary water source is groundwater.
  - The City of Ventura and Golden State Water Company are the largest retail water suppliers. The City of Ventura obtains wholesale water from Casitas, pumps directly from City-owned wells, and utilizes surface and subsurface water diversions from the Ventura River in the Foster Park area when available. Golden State relies primarily on groundwater and secondarily on Casitas.
  - Two other urban water suppliers, 11 small to medium mutual water companies, and several small private water companies also supply water. Most of these suppliers provide groundwater while it is available and have the ability to switch to Casitas water if necessary.
  - Many agricultural users have their own wells, and are also connected to Casitas for backup water.
- **Because water supplies are 100% local and the amount of rainfall received annually is highly variable, supplies must be managed with caution.**
  - Cycles of drought and flooding occur regularly. Annual rainfall in downtown Ojai has ranged from a low of 7 inches to a high of 49 inches—a sevenfold variation.
  - Lake Casitas is managed conservatively to ensure adequate supplies during extended dry periods.
  - The variability in rainfall could likely be magnified by climate change.
  - Increased wildfire risk due to climate change could also negatively impact water supply reliability.

Water Uses & Conservation

- **Water originating in the Ventura River watershed is used both inside and outside of the watershed, and use is divided roughly equally between the agricultural and urban sectors. Data on groundwater use is incomplete.**
  - Lake Casitas and the Ventura River also supply water to adjacent coastal watersheds: the Rincon area to the west and portions of the City of Ventura to the east.
  - Dry years see increased agricultural demand relative to urban demand.
  - Because there are so many groundwater wells with unreported extractions, data on the amount of water used and the relative amounts used by each sector are incomplete.
- **State and federal requirements regulating the amount of surface water that must be available for endangered species affect management of the watershed's water resources. Potential requirements to provide increased instream flows could further reduce water available for municipal, agricultural, and other uses.**
  - The amount of water that Casitas must allow to bypass their water diversion in the Ventura River increases during the fish passage season.
  - Modifications of existing conditions that could affect the steelhead, such as improvements to or repairs of the City of Ventura's wells in the Foster Park area, or a reduction in the amount of treated wastewater that is now discharged into the Ventura River, would likely be subject to approval by the federal agencies that enforce the federal endangered species act.
- **Groundwater is estimated to provide almost half of the local water supply; however, the locations and volumes of groundwater extracted and the effects on streamflow are not accurately known. This data gap inhibits analysis and planning. The Sustainable Groundwater Management Act, signed into law in September, 2014, should result in more groundwater management plans with additional data gathering that will help fill this gap.**
  - Of the watershed's four groundwater basins, only one—the Ojai Valley Groundwater Basin—has a management plan and governing body.
  - State funding for groundwater projects is generally restricted to those basins with groundwater management plans.

  - Outside of the Ojai Valley Groundwater Basin, data from groundwater extraction reporting is incomplete. This data gap inhibits development of precise groundwater hydrology models and water budgets for the watershed.
  - The links between groundwater pumping and reduced streamflow are not well understood.

- **The invasive exotic riparian plant Arundo donax, which can be found throughout the watershed, removes scarce water from stream channels at a rate three times that of native riparian plants.**
  - *Arundo* is estimated to consume up to 4.8 million gallons per acre a year. This is 3.2 million gallons *more* water than native riparian plants, enough water to support 16 households or four acres of citrus—all year.
  - Significant and successful efforts to control *Arundo* infestations are ongoing in some portions of the watershed, but require continual maintenance to be effective. Large areas of *Arundo* remain untouched.
- **Increased demand for water has been relatively low; changes in this trend would present management challenges.**
  - The rate of population growth and development has been low in recent decades.
  - Even with the addition of a couple of large groundwater-dependent agricultural operations, the acreage of irrigated agriculture is trending downward. Irrigated agricultural acreage using Casitas water (either in full or supplemental) has gradually dropped from 6,276 acres in 2000 to 5,264 acres in 2013—a reduction of 1,012 acres, or 16%.
  - Significant changes in the watershed's economic, environmental, or regulatory conditions could significantly shift water demand.
- **While considerable improvements in conservation and efficiency have been made, significant potential for reducing water demand remains.**
  - Because of water scarcity and cost, most growers in the watershed irrigate efficiently and stay current with improvements in technology. The volume of agricultural water use suggests, however, that ongoing support of agricultural efficiency can continue to reduce water demand.
  - Improving the irrigation efficiency of large landscapes, and retrofitting existing landscapes to be lower-water using, offers great potential water savings.

- Over half of the housing stock in the watershed was built before 1970. Therefore, programs aimed at improving water use efficiency in new/newer homes have less potential for reducing water demand than those aimed at retrofitting existing, older homes (and their landscapes).
- Established rebate and incentive programs for high efficiency fixtures and equipment continue; they have been effective and could be expanded to realize additional savings.
- Leaks from pipes and plumbing fixtures waste a considerable amount of water. Ongoing education and monitoring for leaks is very worthwhile and could be improved.
- Important savings could be realized through improvements to older water distribution infrastructure and use of more sophisticated leak detection technology.

Ojai Valley Sanitary District wastewater treatment plant

2.1.2.2 Clean Water

Goal

Water of sufficient quality to meet regulatory requirements and safeguard public and ecosystem health.

Objectives

a. Protect all beneficial uses of surface water and groundwater in the watershed by preventing and reducing pathogens, nutrients, salinity, trash, fine sediment, and other water quality impairments.

b. Protect in-stream beneficial uses of surface water in the Ventura River and tributaries, within weather and geologic constraints.

c. Improve and protect near-shore ocean water quality by preventing and reducing pathogens, trash, and other water quality impairments.

d. Increase the amount of developed property that retains and treats runoff onsite.

e. Improve understanding of the sources and causes of water quality impairments.

f. Reduce the burden and cost of compliance with water quality regulations through collaboration and innovation.

g. Improve the usefulness of water quality monitoring data collected through data availability and statistical analysis.

Findings

- **Surface water quality is good compared with more developed watersheds in the region and has improved notably in recent decades.**
  - Trash pollution, a long-standing problem, has improved significantly in recent years. Keeping ahead of this issue will require ongoing vigilance and resources.
  - Efforts to reduce nutrient pollution have been underway for decades: since the 1970s, the level of nitrogen in the Ventura River has been reduced by about 85% largely by changes in agricultural practices and upgrades to the Ojai Valley Sanitary District's wastewater treatment plant.
- **Despite relatively good water quality, all of the watershed's major waterbodies are on the Clean Water Act Section 303(d) list of impaired waterbodies. Between these waterbodies there are 14 different types of impairments.**
  - Two TMDL (Total Maximum Daily Load) regulations, which require considerable ongoing compliance effort, have been approved for the watershed to date: the "Ventura River Trash TMDL," and the "Algae, Eutrophic Conditions, and Nutrients TMDL for Ventura River and its Tributaries."
  - Water quality data show that San Antonio Creek has some of the most compromised surface water quality in the watershed, with especially high levels of nutrient pollution. The creek is on the Section 303(d) list for bacteria, nitrogen, dissolved oxygen, and total dissolved solids.
  - Indicator bacteria concentrations in urban runoff and in streamflow typically exceed standards for human contact following a rainstorm large enough to produce runoff. Cañada Larga, the Ventura River estuary, San Antonio Creek, and a stretch of

the Ventura River are on the Section 303(d) list for bacteria or coliform.

- Low levels of streamflow exacerbate water quality problems, and lack of instream water is itself considered to be an impairment to the "beneficial use" of the river by the endangered southern California steelhead. Much of the Ventura River, from just below Foster Park on up, is on the Section 303(d) list for water diversion and pumping for this reason. The extent to which water diversions and groundwater pumping contribute to low flows needs further study.
- The water quality impairments for algae and related effects, and trash are being addressed through TMDL regulations. The water quality aspects of the diversion and pumping impairment have been considered addressed through the Algae TMDL.

- **Further efforts are required in order to improve instream water quality conditions and meet water quality regulations.**
  - Water pollutants in the watershed come primarily from diverse sources (non-point sources) rather than from large single sources (point sources).
  - Nutrient pollution needs to be reduced in order to improve instream water quality and meet regulatory requirements. Excess instream nutrient levels are associated with problems of algae growth, excessive aquatic plant growth, and low dissolved oxygen. Fertilizers used on landscapes and farms, septic systems (many homes are still on septic), waste from horse/livestock operations, and urban runoff have been identified as human-generated sources of nutrients. Additional research is needed to identify the sources of greatest concern.
  - Discharge from the Ojai Valley Sanitary District wastewater treatment plant, below Foster Park, is the primary "point source" of nutrients to the Ventura River. Although the plant discharges relatively high quality water, the latest regulatory clean water targets are more stringent and will require significant treatment plant upgrades.
  - Stormwater runoff from natural and urban areas contributes to instream water pollution. Runoff from urban areas is covered under a stormwater NPDES permit, and continuous improvements to reduce stormwater pollution are being made.
  - There is a high level of interest among stakeholders in retrofitting existing urban stormwater systems to capture and treat runoff before it enters the stream drainage network, thereby reducing instream pollutants. Several new private and public bioswale systems have appeared in the past five years.

  - Runoff from the watershed causes near-shore oceanic pollution, especially from unsafe levels of fecal bacteria after storms.
  - Sewer mainlines are located in or immediately adjacent to the Ventura River and San Antonio Creek, and remain at risk from breaks and spills.

- **The effort and resources devoted to compliance with water quality regulations are considerable and could benefit from better efficiencies, integration, and new funding sources.**
  - Many stakeholders report that the staff time and the money spent annually on required water quality monitoring and reporting strain their budgets and impact their ability to manage effectively.
  - The watershed would benefit by additional analysis of the considerable amount of water quality data already collected, and by making the findings of these analyses more readily available to the general public.
- **Groundwater quality is generally good enough for drinking and irrigating, though a few parameters exceed standards with some regularity and are monitored and managed accordingly.**
  - Levels of nitrate exceed standards in some wells, so this water must be blended with lower nitrate water to be suitable for drinking.
  - Total dissolved solids—a constituent of concern primarily to agricultural water users—is typically elevated in the Lower Ventura River Groundwater Basin due to the easily dissolved mineral content of the underlying rocks within these basins.
  - Groundwater in the Lower Ventura River Groundwater Basin is minimally used, likely because of high total dissolved solids and other quality issues.
  - Because most of the watershed's aquifers are unconfined, groundwater is vulnerable to contamination from surface pollution.
  - The risk of groundwater contamination from hydraulic fracking is a growing concern among some stakeholders.
- **Casitas Municipal Water District and the Bureau of Reclamation maintain proactive programs to maintain good water quality in Lake Casitas.**
  - The 6,641 acres immediately surrounding the lake are federally protected to prevent land uses that could threaten lake water quality.
  - Strict controls are in place to prevent Lake Casitas from being invaded by exotic quagga and zebra mussels, which can have a significant adverse effect on water quality. These filter-feeding

mussels exacerbate problems with algal blooms and would have major cost implications for water treatment and delivery.

East Ojai Flooding
Photo courtesy of David Magney

2.1.2.3 Integrated Flood Management

Goal

An integrated approach to flood management that improves flood protection, restores natural river processes, enhances floodplain ecosystems, increases water infiltration and storage, and balances sediment input and transport.

Objectives

a. Minimize risks to human life and property due to flooding adjacent to Ventura River, its tributaries, and the ocean, and on alluvial fans, through traditional and nontraditional means.

b. Maximize low-cost nonstructural flood protection through natural floodplain restoration.

c. Integrate ecologic value into channel designs that accommodate natural geomorphic processes.

d. Address the lack of funding for flood management in the watershed.

e. Improve integration among the various regulatory agencies to advance streamlined permitting.

f. Track the potential impacts of climate change on local flood risk so that adaptation strategies can be developed.

Findings

- Major or moderate floods have occurred once every five years on average since 1933.
  - Since 1962, there have been eight Presidentially-declared major flood disasters in Ventura County.
  - Of the 49 "repetitive loss" structures (insurable buildings for which a flood insurance claim was made within a 10-year period) in Ventura County as of 2004, 19 (39%) are located in the Ventura River watershed.
  - Flood maps identify multiple areas where homes are located in floodplains.
- **The steep terrain of the Ventura River watershed, coupled with intense downpours that can occur in the upper watershed, result in flash flood conditions where floodwaters rise and fall in a matter of hours.**
  - During the flood of 1992, the rate of flow in the Ventura River increased nearly 500-fold within about three hours.
- **Besides riverine flooding, the watershed also experiences alluvial fan, coastal, and urban drainage flooding, and related hazards.**
  - The watershed is subject to alluvial fan flooding in Ojai's East End and coastal flooding near the shore.
  - With two significant dams (Casitas and Matilija), there is also a risk, though small, of dam failure and inundation flooding.
  - Other hazards associated with flooding include mudslides, landslides, and liquefaction.
- **Flood protection infrastructure, including all three levees, is in need of improvement. Important water and sewer facilities are vulnerable to flood damage because of their location.**
  - Flood protection is provided by three major levees along the Ventura River: Ventura River Levee, Casitas Springs Levee, and Live Oak Levee.
  - All three levees need improvements to fully meet current FEMA standards. The required upgrades are being pursued by the Ventura County Watershed Protection District; however additional sources of funding are needed to complete the necessary engineering and structural improvements.
  - Matilija Reservoir is full of sediment and no longer serves a significant flood control function.

  - Critical water-related infrastructure, including sewer mainlines and water supply wells, are located in river channels and are thereby exposed to damage from floodwaters and erosion.
  - *Arundo donax* has invaded many drainage channels and increases flooding hazards by clogging infrastructure and reducing flow capacity.
- **High sediment loads carried and deposited by local streams are a very significant factor in local riverine flood risk and present major challenges to flood management.**
  - The watershed's mountains are composed of erodible rocks lying on very steep slopes with exceedingly high rates of erosion.
  - The river system is characterized by years of riparian vegetation and sediment buildup followed by scouring during floods.
  - Property owners have found it unreasonably expensive and time consuming to secure permits for preventative channel maintenance.
  - At four to five year intervals, a scouring flood typically occurs on the Ventura River that transports an average of 42 times more sand to the coast than in the drier years between floods. These pulses of sand augment local beaches and help buffer coastal areas from coastal flooding.
- **Alterations in natural sediment transport regimes have exacerbated coastal erosion and increased coastal flooding risk.**
  - Significant armoring of the coastline west of the Ventura River has further reduced the amount of sand delivered to beaches via the longshore littoral current.
  - The need for costly "armoring" and repair of coastal structures is reduced when such natural processes are allowed to exist. The Surfers' Point Managed Retreat Project is a model project that has given beach sand more room to behave like a natural seasonally growing and shrinking beach.
  - The watershed's dams, Robles Diversion structure, and debris basins intercept some of the natural downstream flow of sediment from the mountains to the coast.
- **Restoring natural floodplain functions where feasible is favored by stakeholders as a least cost/greatest gain strategy for long-term flood management.**
  - The watershed's primary stream network remains largely unchannelized, with stream shape and hydrologic patterns relatively natural in many reaches. In a few areas, however, development

has been allowed in or very close to the floodway and requires costly ongoing protection.

- Little flood control funding is available: limited land development in the watershed restricts the source of revenues that typically fund flood protection projects (property taxes, land development fees, and benefit assessment fees).
- Restoring *Arundo*-invaded habitats will support restoration of natural floodplains.
- A changing climate could increase flooding risk: new data on atmospheric rivers and superstorms indicate that the watershed could be at risk from more frequent extreme flood events—and events exceeding the magnitude of past floods. Sea level rise also poses an increased flooding risk on the coast.

Red-Legged Frog
Photo courtesy of Chris Brown

2.1.2.4 Healthy Ecosystems

Goal

Healthy aquatic and terrestrial ecosystem structures, functions, and processes that support a diversity of native habitats.

Objectives

a. Protect and enhance the ecosystem services, functions, and values of riparian, wetland, and aquatic habitats in the watershed.

b. Increase southern California steelhead populations in the watershed through improvements to both the habitat available for spawning, rearing, and over-summering, and fish passage.

c. Protect native species' mobility and survival by improving and protecting habitat connectivity.

d. Protect and restore habitat for species with special status at the local, state, or federal level.

e. Improve the natural transport of sediment in the Ventura River and the associated replenishment of coastal beach sands.

f. Improve understanding of the Ventura River estuary system and feasible options to restore this ecosystem's functions and habitat values.

g. Improve the overall biodiversity and ecosystem resiliency of the watershed.

Findings

Habitat

- **The Ventura River watershed supports a remarkable array of healthy and biodiverse southern California natural habitats.**
  - Most of the land in the north half of the watershed is in a national forest and boasts habitats that are relatively undisturbed. A significant amount of the remaining unprotected land comprises steep hillsides and undeveloped floodplain, which also support native habitats.
  - The watershed's diverse geography—from steep mountains to coastal delta—supports a diverse array of natural habitats, including grassland, coastal sage scrub, chaparral, oak woodlands and savannas; coniferous woodlands; riparian scrub, woodlands and wetlands; alluvial scrub; freshwater aquatic habitats; estuarine wetlands; and coastal cobble, dune and intertidal habitats.
  - The watershed is located within the California Floristic Province, one of the world's biodiversity hotspots, where species diversity and numbers of endemic species, as well as threats to diversity are all particularly high.
  - The Ventura River and its associated drainages provide important wildlife connections between wilderness areas of the Santa Ynez foothills, the Los Padres National Forest, Sulphur Mountain, and the Pacific Ocean.
  - Lake Casitas provides high-quality habitat for migrating waterfowl and other birds and wildlife.

- **The watershed's river and stream network remains largely unchannelized and is supportive of considerable wetland and riparian habitats. These riparian habitats are especially critical in dry southern California.**
  - Stream shape and hydrologic patterns are relatively natural in many reaches.
  - The river and its many tributaries support hundreds of miles, and approximately 5,100 acres, of riverine and river-associated wetlands, and riparian habitats.
  - These wetlands and their associated riparian habitats are among the region's most biologically diverse and sensitive ecosystems; and given the dry nature of the climate, they provide critical wildlife habitat.
- **The Ventura River estuary, a place where river water and ocean water converge, is an exceptionally valuable wetland habitat and ecological resource.**
  - The diversity of habitats within the estuary supports an abundance and diversity of species, including endangered species.
  - The estuary serves as important feeding, spawning, and nursery habitat for many aquatic animals, and is the entry point for the anadromous (sea-going) steelhead.
- **Streamflow and pools support aquatic systems in some reaches, other reaches are typically too dry to sustain aquatic habitats.**
  - The reach of the Ventura River from the Robles Diversion down to below the Santa Ana Boulevard Bridge, and the alluvial wash area of the San Antonio Creek and its tributaries on Ojai's East End, are commonly only flowing during and shortly after storms.
  - Groundwater extraction can affect flow in streams; the extent to which this is the case needs further study.
  - Drainages that maintain flowing water in most years include some higher elevation tributaries, lower San Antonio Creek, the Ventura River above Robles Diversion, and the Ventura River from its confluence with San Antonio Creek down to the coast.
  - The discharge of highly treated wastewater effluent into the lower Ventura River below Foster Park contributes instream flows to the river that provide important support of riverine and estuarine habitats and species. In dry years, these discharges comprise most of the lower river's flow.

Plants & Animals

- **The watershed is home to numerous protected species and habitats, including 137 plants and animals protected at either the federal, state, or local level. The watershed is also challenged by invasive, non-native species.**
  - 25,397 acres and 48 miles of river and tributaries are designated as "critical habitat" (areas of habitat believed to be essential to the species' conservation) for five federally endangered and threatened species: southern California steelhead, California red-legged frog, California condor, tidewater goby, and southwestern willow flycatcher.
  - 137 special status plant and animal species can be found in the watershed: species protected at either the federal, state, or local level. This includes 15 species listed as endangered, threatened, or fully protected at the state or federal level.
  - Problems posed by invasive species include outcompeting native species for habitat, increasing fire hazard, flooding, high water demands, and potentially increasing the management costs of Lake Casitas.
- **The federally endangered southern California steelhead is of particular significance. The streamflow and pools, and associated food chain, required for its survival are indicators of healthy aquatic ecosystems. Allocating that "environmental water," given the watershed's often dry and always variable climate, is challenging and a continuing source of stakeholder controversy.**
  - Historically, steelhead spawned in the Ventura River and its tributaries.
  - Dams, diversions, and road crossings have blocked steelhead from reaching some of their historic spawning habitat.
  - Less groundwater and surface water reaching the river system is a steelhead recovery factor of unknown magnitude.
  - Today, steelhead access remaining spawning habitat up Matilija Creek (below the Matilija dam), North Fork Matilija Creek, and San Antonio Creek.
  - Considerable effort goes into monitoring and studying steelhead and its habitat each year.

Restoration & Protection

- **Controlling Arundo donax (giant reed) is a priority for habitat restoration, as well as fire prevention, flood protection, and water supply enhancement.**
  - There have been significant efforts to control Arundo donax. Public agencies, land conservancies, nonprofits, and private landowners have all taken a leadership role in this important restoration task.
  - The regulatory burden and cost involved in undertaking these projects is considered a significant obstacle. Grant funding and a cooperative management effort among stakeholders has helped with local program success.
- **Removing Matilija Dam is a priority restoration project with widespread stakeholder support. A coalition of stakeholders has been working to remove Matilija Dam since 1999.**
  - The dam blocks migration of endangered steelhead to prime historical spawning habitat.
  - The dam prevents sand originating upstream from entering the Ventura River and potentially becoming beach sand. Removing Matilija Dam will increase sediment delivery from the watershed by about 50%.
  - Altered sediment transport has increased channel erosion.
  - While a project scope has been approved by Congress, the US Army Corps of Engineers, and the Ventura County Watershed Protection District, and an EIR/EIS and Biological Opinion completed, work continues on refining elements of the dam removal project design.
  - The most challenging remaining dam removal issue is management of the seven million cubic yards of sediment behind the dam, including the potential for natural sediment transport.
  - Once a feasible approach to remove the dam and manage the sediment that meets with stakeholder acceptance is found, the challenge will be securing funding for the dam's removal and other project components.
  - In the meantime, bridge improvements and other downstream mitigation that will be required if the dam is removed are being proactively pursued.

- **Local land conservancies have proven to be very effective at acquiring, protecting, and restoring strategic habitats for the benefit of the watershed.**
  - Over 2,300 acres of land is being protected in perpetuity by local land conservancies and their supporters.
  - Much of the protected lands are in the floodplain of the Ventura River and therefore support natural floodplain functions.
  - Conservancies continue their efforts to acquire high-value habitat, watershed, and recreation lands.
- **Facilitating the recovery of the steelhead is important to many stakeholders.**
  - Regulators consider Ventura River watershed steelhead to be at the highest level of priority ("Core 1") for recovery actions.
  - Improving oversummering pool habitats and removing fish passage barriers and impediments are recovery priorities. Barriers can block adult access to spawning areas and the migration of young fish back to the ocean.
  - San Antonio Creek offers the most important spawning and rearing habitat in the watershed now accessible to steelhead. The creek generally flows for longer periods of time than other accessible streams, contains a significant amount of gravel needed for spawning, and steelhead are known to grow faster in the San Antonio Creek than elsewhere in the watershed.
  - Several impediments to steelhead migration have been removed in recent years.
  - The Robles Fish Passage Facility, which became operational in 2006, provides for the passage of steelhead up and down the Ventura River past the Robles Diversion.
  - The Matilija Dam and road crossings on the North Fork Matilija Creek and Bear Creek in the Wheeler Gorge campground are some of the priority barriers that need to be removed.
- **Lack of funding is preventing the US Forest Service from effectively addressing important management issues of concern, including fish passage barriers, illegal and destructive marijuana farms, and the spread of invasive species.**
- **A changing climate could modify the biological diversity and viability of the watershed's ecosystems.**
  - Longer extended droughts, more intense rainfall, higher temperatures, rising sea levels, and more severe wildfires are some of the threats facing local ecosystems from climate change.

Teens Relocating Crawdads, Lower Ventura River

2.1.2.5 Access to Nature

Goal

Ample and appropriate opportunities for the public to enjoy the watershed's natural areas and open spaces associated with aquatic habitats, to provide educational opportunities, and to gain appreciation of the need to protect the watershed and its ecosystems.

Objectives

a. Increase the amount of permanently protected, accessible, high quality, safe, public, open, natural areas (particularly near the river, creeks, and wetlands) available for enjoyment by all community members.

b. Provide a multimodal trail network between and within open, natural areas that is connected to population centers, and that is proportional in size and scope to the open natural areas available while not harming sensitive habitat.

c. Increase the number of permanently protected, vehicle-accessible, natural or semi-natural parks and picnic areas for the enjoyment of all community members.

d. Provide interpretive opportunities, including signs, docent-led tours, visitor centers, and/or other educational opportunities, to enhance visitor understanding of the watershed and its resources.

e. Protect and maintain existing public access amenities, including trails, open space, parks, picnic areas, and interpretive features.

Findings

- **Residents and visitors are more likely to gain appreciation of the need to protect the watershed when given the opportunity to visit and learn about the diverse ecosystem processes and services provided by its aquatic habitats. Access to nature is available, though educational opportunities could be substantially improved.**
  - Over 100 miles of trails are accessible and maintained on tens of thousands of acres of protected natural habitats.
  - The variety of natural landscapes in the watershed offer a wide range of nature-based activities including walking, hiking, wildlife viewing, picnicking, camping, cycling, horseback riding, fishing, boating, canoeing, kayaking, swimming, and surfing.
  - In locations where the public has direct access to the aquatic habitats, there are too few interpretive signs.
  - The watershed has been thoroughly characterized, in non-technical language, as part of development of this management plan. Descriptions of its features—such as geology, hydrology, ecosystems, and water quality—illustrated with a comprehensive atlas of maps, are now available for use in interpretive materials (www.venturawatershed.org/map-atlas).
- **The watershed is fortunate to have many organizations committed to providing the public with safe access to nature and nature-based recreation opportunities.**
  - Land conservancies are actively acquiring land, providing interpretive signs and opportunities, and establishing new trails and access points.
  - Increased access to nature brings increased impacts and maintenance, which must be monitored for and mitigated.
  - Federal, state, and local agencies maintain and interpret for the public significant natural land resources.
  - In response to clean water regulations, local agencies have committed to keeping the lower Ventura River clean of trash and illegal camps, making this important aquatic habitat safer and more accessible.

- **The availability and ease of public access to nature-based activities varies in different parts of the watershed and for different user types.**
  - Abundant access opportunities are available in the northern half of the watershed in the Los Padres National Forest; in the Ojai Valley and the Ventura River corridor above Foster Park; around the Ventura River estuary and associated coastal habitats; and at the beach.
  - The river corridor below Foster Park offers fewer access opportunities. The Highway 33 freeway and the Ventura Levee block access to the river in an area of the watershed that has the highest population density and lowest median household income—the City of Ventura's Westside.
  - To better serve all sectors of the community, more opportunities to enjoy the watershed's natural aquatic habitats are needed to serve families and those traveling by bicycle or bus.
  - Information about the watershed's access opportunities needs to be better communicated to the public through a variety of different media in English and Spanish.
- **The vision of a "Ventura River Parkway"—a network of trails, vista points, and natural areas along the river—is being actively pursued by a coalition of stakeholders.**
  - The river parkway would create a continuous network of publicly accessible trails, vista points, and natural areas along the river, from the coast to Matilija Canyon. Existing trails form the beginnings of the parkway.
  - By working with willing landowners on a voluntary basis over time, supporters hope that a parkway will take shape that will yield the many health, quality of life, and economic benefits seen in other communities that have established river parkways.

Ojai Valley's East End

2.1.2.6 Responsible Land and Resource Management

Goal

Land and resources managed in a manner that supports social and economic goals and is compatible with healthy ecosystem goals.

Objectives

a. Improve the economic strength, viability, and resiliency of the community through consistent integration of economic and social perspectives in watershed management discussions and decisions.

b. Support a viable agricultural industry that is compatible with watershed management goals.

c. Advance watershed management goals in local land use and resource management decisions through active engagement with policy makers and land managers.

d. Develop and distribute information on land use sustainability and resource stewardship to improve land and resource management practices.

e. Track the potential impacts of climate change on local land uses and resources so that adaptation strategies can be developed.

Findings

Land Use

- **Developed land comprises only about 13% of the total land area in the watershed.**
  - The northern half (48%) of the watershed lies within the Los Padres National Forest.
  - The Bureau of Reclamation owns 9,401 acres (6.5%) of the watershed surrounding Lake Casitas.
  - Another 3,655 acres (2.5%) is protected as natural habitat, open space, or parkland.
  - Cities comprise 3.17% of the watershed (1.24% City of Ventura; 1.93% City of Ojai). The City of Ojai lies entirely within the watershed and 13% of the City of Ventura lies within the watershed. The rest of the watershed is in unincorporated Ventura County.
  - Developed land uses comprise about 13% of the watershed. Of this 13%, agriculture (excluding grazing lands) makes up about 5%, residential land 4%, oil and mineral extraction 1.5%, and commercial, industrial, and miscellaneous land uses the remaining 2.5%.
- **Local policies and physical constraints have effectively limited development on the watershed's privately owned land.**
  - Steep terrain restricts widespread development. Only 35 out of the total 226 square miles in the watershed have a slope of 10% or less.
  - Ventura County land use policies—the Guidelines for Orderly Development (1969), Ojai Valley Area Plan (1979), large-lot zoning, and the more recent SOAR ordinances (Ventura County, 1998; City of Ventura 1995)—have served to ensure that the rate of growth is kept within resource constraints and that development preserves agriculture and the rural character of the area.
  - The City of Ojai's residential and commercial growth control policies (1979, 1991) have preserved the City's small town size and character.
  - The Ojai Valley Clean Air Ordinance, adopted in 1982 to limit emissions of pollutants by limiting the increase in the number of dwelling units, and the Ojai Valley Area Plan (an element of the Ventura County General Plan) have significantly restricted development.

  - Casitas Municipal Water District's Water Efficiency and Allocation Program has effectively kept water demand within the lake's safe yield since its adoption in 1992.

- **Agriculture is the dominant land use and is a critical factor in the management and stewardship of the land and water.**
  - Including cattle grazing, 18.5% of the watershed's land area is used for agriculture.
  - Water from the watershed irrigates over 6,000 acres of agricultural land, including some land outside and adjacent to the watershed (in the Rincon area).
  - Citrus and avocado are the primary crops grown; citrus comprises about 43% of the acreage, and avocados 25%.
  - Approximately 21,000 acres of land is used for cattle grazing. The majority of this land is privately held.
- **Agriculture plays a critical role in maintaining many services supportive of a healthy watershed.**
  - Open agricultural and grazing lands provide expanses of permeable land that infiltrates rainwater and slows flood flows; serve as wildlife corridors and habitat; and provide attractive views and local food.
  - The Ojai Valley is a growth-restricted area due to water limitations and land use policies. There are few economic options that would be as watershed-friendly as the agriculture now in place.
- **The viability of agriculture is seriously threatened by water supply issues, high land costs, continued threats from exotic pests, and the challenges of competing in the modern industrial-scale farming business.**
  - The Ojai Valley is remote from the centers of Ventura County's agricultural infrastructure. Packing houses, agricultural supplies, and support services are miles away. Farm labor crews are also based closer to the center of agricultural production, which makes it more expensive to farm in the watershed.
  - The Asian citrus psyllid (ACP), an exotic insect that is a host to the Huanglongbing (HLB) bacteria, poses a very significant threat to agriculture. HLB is lethal to citrus and has decimated citrus production in areas where it has become established. There have been three ACP detections so far in the Ojai Valley.
  - The soil in the Ojai Valley's East End, where the bulk of the farming occurs, is extremely rocky. Tilling the soil is not an option, which significantly limits the type of crops that can be grown in that area should current crops become untenable.

  - Some growers have no backup water when their wells run dry, such as in the 2014 drought. To purchase a new water allocation is prohibitively expensive, and according to Casitas's Water Efficiency and Allocation Program, less than 1 acre-foot of water remains available to allocate to the agricultural water user category.
  - A great majority of the established wells and water distribution systems in place now are old, in some cases inefficient, and in need of costly upgrades.
  - Agricultural operators face difficult and time-consuming processes required to secure multiple permits for many regular maintenance or improvement activities, such as clearing debris from channels. New water quality requirements and monitoring have added additional and considerable costs.
  - A changing climate threatens to magnify the threats that agricultural operators face: longer droughts, increased pest threats, increased risk of fires, and weather anomalies that interfere with fruit setting and plant growth.
- **Residential land use makes up about 4% of the area of watershed, and much of this is rural and low density.**
  - The watershed's most densely populated area is in the City of Ventura's Westside. The next highest population density is in the City of Ojai and the unincorporated community of Meiners Oaks.
- **Oil extraction is a significant commercial land use, making up about 3.5% of the area of the watershed.**
  - The Transverse Ranges, of which the watershed is part, is one of the important oil-producing areas in the United States.
  - There are over 700 active oil wells in the watershed.
  - The major oil field is the Ventura Oil Field, an area that covers approximately 3,400 acres on both sides of Highway 33 in the lower watershed near the coast. The Ojai Oil Field comprises another 1,780 acres of active recovery.
- **Wildfires can threaten local water quality and supply. Moderate wildfires occur once every 10 years on average, and extreme wildfires once every 20 years.**
  - Fifty-four percent of the watershed burned in the 1985 Wheeler Fire.
  - Wildfires threaten water supplies largely by causing damaging sedimentation and siltation of reservoirs. Equipment damage, interrupted power supply, ash deposits, and use of water for fire suppression are other potential impacts.

Demographics

- **The population of the watershed is relatively small and the rate of growth low.**
  - As of the 2010 Census, the estimated population of the watershed was about 44,140, including 22,940 people residing in County of Ventura unincorporated areas, 13,740 people in the City of Ventura, and 7,461 in the City of Ojai.
  - Between 2000 and 2014, the population has decreased in the City of Ojai by 3.4%, increased in the City of Ventura by 8.0%, and increased in unincorporated Ventura County by 4.5%. (The last two figures do not necessarily reflect growth within the watershed however.)
  - Between 2003 and 2012, the number of new residential customers increased by 23 for Casitas, by 634 for the City of Ventura (citywide), and decreased by 1 for Golden State Water.
  - Between 2000 and 2012, total K-12 public school enrollment for schools within the watershed decreased by 1,149, or 28%. The decrease in the City of Ojai was 53.6% percent.
  - The population is 58% white, 37% Hispanic or Latino, 2% Asian, and 3% other races.
- **Employment opportunities are diverse. Leisure and hospitality jobs, which rely on the natural beauty and recreational assets of the watershed to attract visitors, dominate the employment landscape.**
  - There is a wide range of incomes, and several areas qualify as disadvantaged or severely disadvantaged communities.
  - The watershed supported an estimated 17,916 jobs in 2012, 708 fewer jobs than in 2008.
  - The four largest job sectors according to SCAG are leisure and hospitality (art/entertainment) (3,860 jobs in 2012); education and health services (3,750 jobs in 2012); professional and business services jobs (1,493 jobs in 2012); and retail trade jobs (1,323 jobs in 2012). Note: the jobs provided by key watershed industries, such as agriculture and mining, are often provided by support services that come from outside the watershed or that fall into a different job category, so may not be reflected in these numbers.

2.1.2.7 Coordinated Watershed Planning

Goal

A Watershed Council that fairly represents stakeholders; collaborates on developing an integrated watershed management plan to guide watershed priorities; facilitates communication between public, private, and nonprofit stakeholders; educates and engages stakeholders; provides a forum for collecting, sharing, and analyzing information about, and creatively and proactively responding to, watershed issues; and maximizes grant funding opportunities.

Objectives

a. Maintain and administer open and transparent Watershed Council meetings as a forum for information sharing, collaborative planning, networking, and problem solving.

b. Develop and maintain working relationships with partners, stakeholders, and governments in order to improve the Watershed Council's capacity for innovation, efficiency, and effectiveness.

c. Characterize the watershed and its issues, and prioritize collaborative watershed projects to address those issues, through development of a comprehensive watershed management plan.

d. Secure funding to support the Watershed Council's ongoing meetings, staff, and operations; the implementation of priority watershed management plan projects and programs; and the development, monitoring, and updating of the watershed management plan.

e. Facilitate implementation of collaborative multi-partner watershed projects and programs.

f. Facilitate public education about, engagement with, and stewardship of the watershed.

g. Maintain high standards of data quality and credibility; and improve and maintain the availability of up-to-date, user-friendly data and information about the watershed in a variety of formats, media, and venues, and targeting stakeholders of different ages and backgrounds.

h. Monitor the implementation of collaborative watershed projects and programs in order to track success and improve on strategies and tactics.

Findings

- **Coordinated watershed planning offers a wide range of fiscal and management benefits.**
  - Coordinated watershed planning and management acknowledges the complexity, interconnectedness, and cross-jurisdictional nature inherent in a water resource environment.
  - Regulators are increasingly using a watershed model, and grant funders are increasingly rewarding integrated watershed planning.
  - Consolidation and sharing of data and information enhances access and usability for watershed partners, and promotes the education of individuals, organizations, and agencies with the most current information.
  - Coordinated watershed planning provides a forum for evaluating and better understanding current and historical watershed conditions.
  - Watershed-level planning provides a way to address the scale and complexity of water issues with a larger group of community partners.
  - Cross-sector coordination and communication provides the opportunity to achieve shared watershed goals more efficiently and effectively, and to minimize disagreements.
  - The outreach component of coordinated watershed management offers opportunities for coordination between watershed groups and for garnering cost-effective support of local efforts. Getting effective information to homeowners, land managers, businesses, and agricultural operators about conservation practices, best management practices that reduce nutrient pollution, invasive species, and other issues is a critical need throughout the watershed. Visitors to the watershed's natural habitats also need

information on what they can do to protect the resources they have come to enjoy.

  - Through the Watershed Council, and its partnership with the Watersheds Coalition of Ventura County, over $5,700,000 in grant funding has been brought into the watershed for a variety of projects.

- **Through their participation, Watershed Council members have demonstrated a commitment to the value of a collective approach.**
  - Participation on the Watershed Council has expanded since its start in 2006 and continues to grow in both numbers and diversity.
  - The Watershed Council benefits from a high level of relevant experience and expertise among its participants, as well as a generally high level of civic engagement among community members. For a variety of reasons, many residents in the watershed like it as a place to live and call home, and demonstrate a willingness to actively protect it in their own way.
  - Council participants attend Council meetings to learn and share knowledge, establish relationships, support one another's efforts, and present differing perspectives.
  - Grant funding, and matching support from local organizations, has supported a watershed coordinator staff position to build the Watershed Council's capacity and develop a watershed management plan. The plan tells the story of the watershed and its many interdependencies; identifies and prioritizes water-related concerns; and identifies projects and programs that could improve watershed conditions.
- **While participants clearly value the Watershed Council and understand the benefits of integrated watershed planning, process problems challenge the implementation of such planning.**
  - There are institutional barriers to integration. Without a watershed planning mandate, the separate mandates of the individual organizations involved take precedence.
  - Participants are not neutral: each has preferences and motives; each comes with a different level of authority, funding, and political position. Maintaining an environment of trust and cooperation requires that stakeholders invest significant time for planning and meeting.

2.2 Existing Projects, Programs, and Recent Accomplishments

Brian Stark, Ojai Valley Land Conservancy,
Explains the Ojai Meadow Preserve's
Flood Control Features

2.2 Existing Projects, Programs, and Recent Accomplishments

Watershed stakeholders are already making great advances individually and in some cases together. Table 2.2.1 summarizes existing projects and programs in the watershed and their accomplishments over a three-year period between 2011 and 2013. The list includes 111 different projects and programs that have either been accomplished or are underway. The length and breadth of the list clearly demonstrates that there is already a remarkable level of effort going towards improving water-related concerns in the watershed.

Accomplishments are listed by goal in this section; and many of these same accomplishments are further described and illustrated with photos in the context of the Council's implementation campaigns in following section, "2.3 Campaigns."

Table 2.2.1 List of Accomplishments, 2011 to 2013

ID#	Years	Primary Lead (PL) Other Leads (OL)*	Project/Program
			Sufficient Local Water Supplies
1	2011–2012	Casitas	**Free Landscape and Indoor Water Use Surveys.** Conducted 147 free onsite water-use surveys (indoor and/or landscape) at residences and businesses. The indoor survey includes a test of showerhead and faucet flow rates, an estimate of toilet flush volumes, a review of all water-using appliances, and a test for leaks. The landscape survey includes a review of the irrigation system, irrigation design, and watering schedules. The survey also includes reading the meter to reveal possible system leaks in the customer's system. Large landscapes were prioritized for outreach.
2	2011–2012	Casitas	**Free Leak Detection Surveys.** Conducted 189 free leak detection surveys for direct customers.
3	2012–2013	Casitas	**Water Infrastructure Improvements – Casitas Municipal Water District.** Made repairs and upgrades to pump electrical equipment to improve safety and operational efficiency. Made repairs and seismic improvements to Casitas's only water tank in Upper Ojai.
4	2011	Casitas	**Demonstration Landscape.** Installed a demonstration low-water-using landscape at Casitas Municipal Water District headquarters.
5	2011–2012	PL: Casitas OL: VRWD, MOWD	**Water Efficient Equipment – Distributed for Free and Rebated**. Promoted rebate programs for residential and commercial high-efficiency clothes washers and high-efficiency toilets; provided rebates on SMART irrigation controllers. Provided free equipment to direct and indirect customers, including 1,018 showerheads, 1993 faucet aerators, 34 toilet flappers, and 14 leak detection kits. Provided rebates on equipment to direct and indirect customers, including rebates on 108 residential high-efficiency washing machines, 170 residential and commercial high-efficiency toilets, 97 residential and commercial weather-based irrigation controllers.

Table 2.2.1 List of Accomplishments, 2011 to 2013

ID#	Years	Primary Lead (PL) Other Leads (OL)*	Project/Program
6	2011–2013	Casitas	**Water Conservation and Efficiency Workshops/Classes and Education.** Hosted eight education workshops on various aspects of water use efficiency and conservation. Provided classroom and field trip water education presentations. Provided informational materials to customers through newsletters, website, and at local events. Continued to sponsor the "Water Wise Gardening in Ventura County" website.
7	2007–2014	PL: Casitas OL: Senior Canyon MWC	**Water Infrastructure Improvements – Senior Canyon.** Casitas facilitated the installation of new pipes and automation equipment at the Senior Canyon Mutual Water Company in order to "fine-tune" the use of groundwater vs. surface water and thereby increase overall water supply reliability.
8	2011–2014	MOWD	**Water Infrastructure Improvements – MOWD.** Installed variable frequency drive electric motors and new motor controllers on pumps to reduce energy demand and associated costs. Began rehabilitation of an old well.
9	2012	MOWD	**Surface and Groundwater Interaction Preliminary Study, Ventura River Groundwater Basin.** Commissioned a preliminary analysis of the interaction between groundwater pumping in the Ventura River Basin and surface flows in the Ventura River.
10	2011–2013	MOWD	**Water Conservation and Efficiency Education.** Provided informational materials to customers through website and information on bills.
11	2011	Ojai Basin GMA	**Groundwater Model.** Developed a groundwater model for the Ojai Basin to advance understanding of the basin for improved management. The model was developed using the MODFLOW-SURFACT computer code.
12	2013	OVG Coalition	**Water Awareness Month Exhibits.** During Water Awareness Month, installed a greywater exhibit at Ojai City Hall and a water conservation exhibit at Ojai Library.
13	2013	OVG Coalition	**Educational Workshops.** Provided two workshops (Greywater: Rehydration for a Thirsty Land) during Water Awareness Month. Also organized a Rainwater Harvesting presentation.
14	2007–2012	RCD	**Mobile Lab Irrigation Efficiency Evaluations.** Conducted 19 agricultural irrigation evaluations in the watershed. This program assists growers by evaluating the efficiency of their irrigation systems and implementing Best Management Practices (BMP) to improve system efficiency. The burden of BMP expenses is reduced through use of various cost-sharing opportunities.
15	2013	PL: UCSB OL: Surfrider	**Bren School Study "Sustainable Water Use in the Ventura River Watershed."** This study sought to identify water management strategies that effectively reduce water demand and increase water supply. A water budget model of the watershed was created using the WEAP Model System. This model, combined with economic analysis, was used to assess the impact of water management strategies, land use change, and climate change on local water resources.
16	2011–2014	PL: VCWPD OL: Ojai Basin GMA	**San Antonio Creek Spreading Grounds Rehabilitation Preliminary Work.** Installed a depth-discrete monitoring well; completed the CEQA document for the project; and secured required permits from Calif. Dept. of Fish and Wildlife, Los Angeles Regional Water Quality Control Board, U.S. Army Corps of Engineers, and the State Water Resources Control Board (Water Rights Division). Began construction of project facilities (access road, intake structure, 24-inch recharge pipeline, pond transfer channels, and 4 passive recharge wells) in September 2013. Project was completed in 2014. This project is intended to capture seasonal high-flows from San Antonio Creek to increase groundwater recharge in the Ojai Valley Groundwater Basin.

Table 2.2.1 List of Accomplishments, 2011 to 2013

ID#	Years	Primary Lead (PL) Other Leads (OL)*	Project/Program
17	2011–2013	VRWD	**Water Infrastructure Improvements – Ventura River CWD.** Made repairs, improvements, and seismic retrofits to water tanks, valves, fire hydrants, and pumps. The installation of isolation valves helps limit the amount of water and property loss in the case of a mainline leak.
18	2012	PL: VRWD OL: OVG Coalition	**Demonstration Landscape.** Installed a demonstration low-water-using and ocean-friendly landscape at Ventura River Water District headquarters.
19	2011–2013	VRWD	**Water Conservation and Efficiency Education.** Provided informational materials to customers through newsletters and website.
20	2011–2013	Ventura	**Water Efficient Equipment – Distributed for Free and Subsidized**. Provided free showerheads and toilet flappers to customers. Provided rain barrels at half price.
21	2013	Ventura	**Report – "Comprehensive Water Resources."** This report provided the City Council with a comprehensive evaluation of current and projected water supply needs.
22	2011	Ventura	**Plan – Water Efficiency Plan.** Plan developed to address the City's increased water supply risks, including drought, potential environmental restrictions, groundwater quality concerns, and litigation actions. The plan provides a road map to buffer the City from these potential impacts and improve reduction targets.
23	2011–2013	Ventura	**Water Conservation and Efficiency Education.** Provided a free Water Wise Gardening series of classes. Provided informational materials to customers through paid advertising, bill inserts, bills showing water usage in comparison to the previous year's usage, media events, an active website, and media events. Provided water conservation programs to elementary school students and large group assemblies, field trips, and children's water events. Continued to sponsor the "Water Wise Gardening in Ventura County" website.
24	2011–2013	VCWPD	**Groundwater Elevation Monitoring.** Monitored water levels of all the groundwater basins in Ventura County.
			Clean Water
25	2011–2013	Casitas, Ventura, Channelkeeper, OVSD, Farm Bureau, VCEHD, VCWPD, VCSQMP	**Water Quality Monitoring.** Thousands of water quality samples were collected throughout the watershed (some monthly, quarterly, annually, and biannually), analyzed and results provided to regulatory agencies. Includes both surface waters and groundwater.
26	2011–2013	Al Leydecker (biologist studying Ventura River water quality)	**Water Quality Reports/Analysis.** Produced over 10 analyses of different water quality constituents and associated patterns and relationships within the watershed.
27	2012	PL: Casitas OL: Watershed Council	**Water Awareness Month Promotion.** Coordinated watershed-wide promotion of various water-related educational activities, ongoing rebate programs, waste collection events, irrigation efficiency evaluations, and related programs during Water Awareness Month.
28	2012	PL: Ojai OL: OVG Coalition	**Single-Use Bag Ban.** Ojai City Council passed a single-use bag ban, with considerable advocacy and support by the Green Coalition.
29	2011–2013	Farm Bureau	**Agricultural Water Quality Classes**. Thirty water quality educational opportunities were offered to growers in Ventura County, amounting to 100 hours of education. Ventura County Agricultural Irrigation Lands Group (VCAILG) members completed 9,540 hours of water quality education

Table 2.2.1 List of Accomplishments, 2011 to 2013

ID#	Years	Primary Lead (PL) Other Leads (OL)*	Project/Program
30	2011	OVSD	**Study – "(Corrected) Source Assessment Report: Nitrogen and Phosphorus in the Ventura River Watershed."** The purposes of this report were to provide a summary of the sources of nutrients in the Ventura River watershed; compile existing source data from local, regional, or relevant national sources; estimate loadings from the sources using gathered data; and prepare separate dry and wet weather loadings (if feasible) for the sources.
31	2011–2013	OVSD	**Educational Tours.** Provided 18 educational tours of the wastewater treatment plant to students from third grade to college level, as well as to Council members and other adults.
32	2012	OVSD	**Water Infrastructure Improvements – Vulnerable Sewer Pipe.** Replaced and relocated an 800-foot section of underground sewer pipe that ran along the edge of San Antonio Creek. This pipe was vulnerable to damage during floods, which could lead to sewage spills.
33	2012	OVSD	**Plant of the Year Award.** Won Small Plant of the Year award from the California Water Environment Association.
34	2012	OVSD	**Water Infrastructure Improvements – Ventura Avenue Sewer.** Completed $6.5 million Ventura Avenue Sewer Improvement Project to update aging infrastructure and reduce energy demand.
35	2013	PL: RCD OL: VC CoLAB	**Horse and Livestock Watershed Alliance Formed.** Through the Stormwater Quality Best Management Program, provided staff support to launch and administer a new group representing horse and livestock owners in the watershed. The group is focused on horse and livestock property best management practice education, and working with regulators for effective compliance with water quality requirements. The group met on a regular basis and responded to the proposed TMDL regulations.
36	2011–2013	PL: Responsible Parties – Trash TMDL OL: CCC	**Trash Reduction – Cleanups and Monitoring.** Contracted with the Calif. Conservation Corps to conduct several cleanup events in the estuary, and to conduct weekly and monthly trash monitoring events.
37	2011–2013	Channelkeeper	**Engaged Volunteers in Water Quality Monitoring**. Trained and engaged 101 distinct volunteers in the Ventura River watershed. These volunteers contributed over 1,200 hours to monitoring the Ventura River Watershed.
38	2013	Channelkeeper	**Began Water Quality Monitoring in Ventura Estuary.** Added the estuary to the list of water quality sampling locations in the watershed. This filled an important data gap, as no other entity regularly monitors the water quality of the estuary.
39	2011	Channelkeeper	**Report – "Ventura River Stream Team Trash Surveys."** This document uses maps and photographs to summarize trash conditions observed during a survey conducted by Stream Team volunteers in March 2011. The survey area was from the Highway 101 bridge to the ocean.
40	2013	Channelkeeper	**Continuous Data Loggers.** Upgraded the quality of water quality monitoring data through the deployment of an array of sensors and continuous data loggers.
41	2012–2013	PL: Surfrider OL: Ventura, OVG Coalition	**Ocean Friendly Gardens Program.** Ocean Friendly Gardens (OFG) is a national Surfrider program for transforming landscapes and hardscapes to prevent water pollution. This is done through education, hands-on training events, and policy work. The Ventura County Surfrider chapter, the City of Ventura, the Ojai Valley Green Coalition, and others partnered to advance OFG in the watershed. Over 300 people were trained in OFG practices, with two training events for professionals; three private and two public landscapes were retrofitted; and a demonstration parkway curb cut/bioswale was installed. Trainings and retrofits received media attention. OFG garden signs were also installed to help promote OFGs.

Table 2.2.1 List of Accomplishments, 2011 to 2013

ID#	Years	Primary Lead (PL) Other Leads (OL)*	Project/Program
42	2011–2013	Taylor Ranch (farm along lower Ventura River)	**Illegal Encampment Removal/Ongoing Enforcement – Taylor Ranch.** On 56 acres of property in the lower Ventura River, removed trash and numerous illegal encampments. 58 tons of trash removed since 2008. Regularly patrolled the property to ensure that camps were not rebuilt.
43	2011–2013	VC Public Works, Ventura, Ojai	**Trash Reduction – Event Trash Collection Requirements.** Required permittees of public events to provide for adequate trash collection and disposal facilities.
44	2012	VC Public Works	**Trash Reduction – Increased Fines for Littering.** Amended Ventura Co. Stormwater Quality Management Ordinance (Ord. No. 4450) to prohibit litter and trash discharge or deposition that may enter the county's storm drain system or receiving waters. The revision increased civil penalties for violations and provisions for issuing administrative fines, recovery of costs and misdemeanor violations.
45	2011–2013	VC Public Works, Ventura, Ojai	**Trash Reduction – Stormwater Pollution Prevention Site Inspections.** Conducted commercial, industrial, and construction facility site inspections to ensure that proper pollutant prevention BMPs are applied and conduct educational outreach and employee trainings to educate on pollution prevention.
46	2011–2013	PL: VCWPD OL: VC Behavioral Health	**Trash Reduction – Illegal Encampment Removal**. Implemented two *Arundo* / homeless encampment / trash removal projects on Watershed Protection District-owned properties. 300 tons of trash was collected in 2012 and over two tons in 2013. County of Ventura Behavioral Health Dept. used $100,000 for a pilot program to provide motel vouchers for homeless individuals living in the Ventura River estuary bottom.
47	2011–2012	PL: VCSQMP OL: VC Public Works, Ventura, Ojai	**Trash Reduction – Single-Use Bag Ban EIR.** Endorsed a pro-rata share of funding for a regional Environmental Impact Report (EIR), which is required under the California Environmental Quality Act before a model single-use bag ban can be adopted. With the EIR, other cities and the county can move forward with consideration of adoption of a single-use plastic bag ban.
48	2013	PL: VCSQMP OL: VC Public Works, Ventura, Ojai	**Watershed Signs.** Erected six "Ventura River Watershed – Keep it Clean" signs near drainages in the watershed.
49	2011	Ojai	**Drains to Ocean Signs.** Erected 10 "Do Not Dump, Drains to Ocean" signs near drainages within the city.
50	2013	PL: VCWPD OL: Waste 2 Energy collaborative	**Biodigester Feasibility Study.** Produced a feasibility study on the use of a biodigester to convert organic wastes generated in the Ventura River watershed to energy and other useful byproducts. This was pursued in part as a manure management strategy to address nitrogen and algae water quality problem.
51	2011–2012	Ventura County Fairgrounds	**Trash Reduction – New Trash Cans Along Beach.** Instituted daily trash pickup for six new trash cans placed along the bike path and installed several recycling bins targeting beverage containers in the same area.
52	2011–2013	PL: VCSQMP OL: VC Public Works, Ventura, Ojai	**Trash Reduction – General Public Education.** Provided bilingual outreach and education programs advocating proper trash disposal. This program made over 5,980,000 countywide media impressions (TV, radio, internet, transit shelters) in 2012.
53	2011–2013	PL: VCSQMP OL: VC Public Works, Ventura, Ojai	**Trash Reduction – Cleanups.** Sponsored two cleanup events: Earth Day Beach Cleanup and Coastal Cleanup Day; and conducted two cleanup events in the lower Ventura River (under Main Street bridge and near Front Street storm drain).

Table 2.2.1 List of Accomplishments, 2011 to 2013

ID#	Years	Primary Lead (PL) Other Leads (OL)*	Project/Program
54	2011–2012	Ventura	**Trash Reduction – Enforcement of No Camping/Trespassing in River Bottom.** Ventura City Council established a plan to eliminate encampments in the Ventura River and to implement an ongoing enforcement program by March 2013. Includes organizing stakeholder partners, conducting civic engagement, developing an action plan and follow-up steps, posting camps, conducting camp removal, and launching post-camp-removal strategies. The project was initiated in Sept. 2012. Since then, over 45 camps and 100 individuals have been relocated and over 250 tons of trash and *Arundo* have been removed from the river bottom.
55	2011–2012	Ventura	**Trash Reduction – Trash Excluders.** Installed 103 full-capture trash devices (excluders) in the watershed. Installed full-capture devices at 100% of city-owned or city-managed conveyances discharging into the estuary.
56	2011	PL: VCSQMP OL: VCWPD, VC Public Works, Ventura, Ojai	**Plan – "Ventura County Technical Guidance Manual for Stormwater Quality Control Measures" Manual Update 2011.** This plan was updated to incorporate new stormwater retention and treatment requirements for new development and redevelopment projects as required by the Ventura Municipal Stormwater Permit.
57	2011–2013	VC Public Works, Ventura, Ojai	**Stormwater Retention and Treatment Requirements for Development Projects.** As required by the Municipal Stormwater Permit, new development and redevelopment projects were required to integrate stormwater retention and treatment requirements.
58	2011–2013	VC Public Works, Ventura, Ojai	**Stormwater Construction Best Management Practices (BMPs) and Inspection Program.** As required by the Municipal Stormwater Permit, public and private construction, demolition, and other projects causing soil disturbance were required to implement erosion and sediment control BMPs.
59	2011–2013	VC Public Works, Ventura, Ojai	**Illicit Discharge and Illicit Connection (ID/IC) Elimination Program.** Maintained Stormwater Hotlines 805/650-4064 or 805/652-4582 or http://vcstormwater.org and responses to the ID/IC reports.
60	2011–2013	VC Public Works, Ventura, Ojai	**Storm Drain, Flood Channel and Catch Basin Cleaning.** Municipal storm drains, flood control channels, and catch basins were inspected and cleaned (annually, more often in some cases).
61	2011–2013	VC Public Works, Ventura, Ojai	**Stormwater Pollution Prevention Training – Municipal Employees/Contractors.** Ventura Municipal Stormwater Permittees provided annual stormwater pollution prevention trainings to employees and contractors.
62	2013	Ojai	**Pressure Washer Water Pickup Equipment.** A boom and vacuum system to collect runoff from pressure washing of sidewalks, trash cans, etc., was purchased and use of equipment initiated.
63	2013	Ojai	**Fulton Street Parkways and Bioswales.** As part of new street construction, parkway bioswales using native grasses were installed. Native grass should reduce watering and mowing needs and the bioswales will retain and infiltrate water.
			Integrated Flood Management
64	2008–2011	VCWPD	**Watershed Hydrology Model.** Developed a "continuous" simulation (HSPF) model that provides the ability to: 1) Produce real-time estimates of flow during storms and thus identify locations at risk of flooding; 2) Evaluate the effects of development or changes in land use practices on water supply or runoff volumes; and 3) Evaluate the effects of changes in land use or management practices on surface water quality. Made various refinements to the model based on updated information for specific areas/drainages, such as Ojai's East End and Cañada de San Joaquin.

Table 2.2.1 List of Accomplishments, 2011 to 2013

ID#	Years	Primary Lead (PL) Other Leads (OL)*	Project/Program
65	2013	VC Public Works, VCWPD	**FEMA Flood Maps for Ojai's East End Preliminarily Updated.** Based on a study by the Ventura County Watershed Protection District, the Federal Emergency Management Agency released updated preliminary maps of Ojai's East End that would remove 133 properties from the 100-year (1% annual exceedance probability) flood zone. Being in the flood zone makes property owners with federally backed mortgages subject to flood insurance requirements.
66	2011–2013	VCWPD	**Levee Improvements.** Began levee evaluation, design engineering, California Environmental Quality Act compliance, and improvements required to certify the existing levees in the watershed.
67	2011–2012	PL: VC Public Works OL: VCWPD	**Implemented Various Projects to Reduce Flood Risk in Unincorporated Areas to Reduce Insurance Policy Premiums.** Implemented 32 flood protection and community flood risk awareness projects throughout unincorporated Ventura County as part of the National Flood Insurance Program's Community Rating System program; as a result floodplain property owners in unincorporated Ventura County receive a reduction (up to 20%) in their annual flood insurance premiums.
68	2013	VCWPD	**Fresno Canyon/Casitas Springs Flood Mitigation Project Launched.** Initiated planning for a new bypass storm drain facility to transport floodwaters, sediment, and debris from Fresno Canyon to Ventura River in order to reduce the risk of flooding in Casitas Springs. Preparation of an Environmental Impact Report is underway.
69	2013	PL: VCSQMP OL: VCWPD, VC Public Works, Ventura, Ojai	**Plan – "Ventura County Hydromodification Control Plan."** Prepared the Hydromodification Control Plan to minimize hydromodification (changes to runoff patterns) impacts associated with applicable new development and redevelopment in Ventura County.
			Healthy Ecosystems
70	2011	California Coastal Conservancy	**Report – "Historical Ecology of the lower Santa Clara River, Ventura River, and Oxnard Plain: an analysis of terrestrial, riverine, and coastal habitats."** This study used history—namely, the interpretation and integration of historical documents with environmental sciences—to provide a new perspective on how the Ventura County landscape has changed since the early 19th century. Synthesizing over two centuries of local documents, the report and accompanying maps help to improve understanding of the natural forces that have shaped the local landscape.
71	2011–1012	PL: VC Parks OL: VCWPD, California Coastal Conservancy	**Fish Passage Barrier Removed at San Antonio Creek Confluence.** Built a 500-foot bridge over San Antonio Creek near the Ventura River confluence, replacing a 1980s concrete, culvert/dry-weather crossing that lay in the bed of the creek. The bridge provides an all-weather crossing for people using the Ojai Valley Trail, and greatly improves passage for migrating steelhead. As part of the project, planted one acre with native hydroseed mix, 0.38 acres with willow stakes and .05 acres of cottonwood and sycamore seedlings. Restoration included removing 0.5 acre of *Arundo*.
72	2011–2012	VC Parks	**Riparian Restoration at County Parks.** Installed 102 native trees along the Thacher Creek riparian corridor that runs through Soule Park golf course and day use park. Installed 72 native trees in the riparian corridor of Foster Park and 44 in Camp Comfort.
73	2009–2013	PL: OVG Coalition OL: CREW	**Ojai Creek Riparian Habitat Restoration.** Restored 1.4 acres of Ojai Creek behind Libbey Park in Ojai. Many volunteers were involved in this project, which removed thick brambles of invasive plants and replanted the riparian corridor with natives.

Table 2.2.1 List of Accomplishments, 2011 to 2013

ID#	Years	Primary Lead (PL) Other Leads (OL)*	Project/Program
74		OVLC	**Ecosystem Restoration – Ojai Meadows.** Installed approximately 5,000 native plants around the drainage channels and associated wetlands. Weed management has been underway on an additional 30 acres in preparation of seeding with native grasses and wildflowers of these areas. Once seeding is complete, approximately 500 new oak trees will be planted. The primary measure of success for this project is the number and diversity of bird species. Over 100 new bird species are utilizing the site that were not observed to be present prior to restoration activities.
75	2013	PL: OVLC OL: CCC, CREW	**Fox Canyon Barranca and Stewart Canyon Creek Restoration.** Removed over 200 Mexican fan palms from the Fox Canyon Barranca and Stewart Canyon Creek. This project continues the work begun on Ojai Creek in Libbey Park.
76	2012–13	OVLC	**Ecosystem Restoration – Ventura River Preserve.** Initiated a riparian habitat restoration project to relocate Rice Creek back to its historical channel, which traversed Ventura River's upper floodplain before gradually meeting the channel of the Ventura River. Orchard trees were removed, thousands of native plants were planted, and earthmoving equipment resculpted the former channel.
77	2011	PL: Surfrider OL: CDFW	**Report – "Steelhead Population Assessment in the Ventura River/Matilija Creek Basin – 2011 Data Summary."** Field sampling was conducted to assess the distribution and abundance of steelhead in the Ventura/Matilija Basin. The primary objectives were to reassess the distribution and abundance of steelhead throughout the Ventura River basin, and compare 2011 results from similar surveys conducted in 2006–2010.
78	2011–2013	Taylor Ranch	***Arundo* Removed – Taylor Ranch.** Removed *Arundo*, largely in monoculture stands, on 13.5 acres. Those acres, plus 32 acres where *Arundo* was previously removed (in 2008), were monitored and re-treated as needed.
79	2011	VC Public Works	**Fish Passage Barrier Removed on Old Creek Road/San Antonio Creek.** Built a 210-foot bridge over San Antonio Creek, stretching from Highway 33 to Old Creek Road near Casitas Springs. The bridge replaced a concrete dry-weather crossing that lay in the bed of the creek and became impassable for cars during heavy storms. The bridge also removes a passage barrier for migrating steelhead.
80	2011–2013	PL: VCWPD OL: USACE, California Coastal Conservancy	**Matilija Dam Removal Project – Pre-Construction Project Elements.** Completed pre-construction elements of the project to remove Matilija Dam and restore the ecosystem, including work to prepare detailed design reports for several project elements; work on design of Santa Ana Boulevard and Camino Cielo Bridges; sediment studies; and purchase of Matilija Hot Springs.
81	2013	VHC	**Acquired Willoughby Preserve.** Acquired an eight-acre property on the lower Ventura River and created the Willoughby Preserve.
82	2012–2013	PL: VHC OL: CREW	**Ecosystem Restoration – VHC Big Rock Preserve.** Removed two acres of *Arundo* and planted willows within a 23.18 acre area. Re-treatments ongoing.
83	2011–2013	VCWPD	***Arundo* Removal and Re-treatment.** Removed (in 2009–2011) approximately six acres of *Arundo* (within a 212-acre area) from upper San Antonio Creek and its tributaries; re-treated some of these areas. Also re-treated parts of the 1,200-acre area on Matilija Creek and the upper Ventura River where approximately 200 acres of *Arundo* were previously removed.
			Access to Nature
84	2013	Friends	**Ventura River Parkway Trail Guide.** Produced and distributed a printed guide and map of the trails and recreational opportunities along the Ventura River corridor from the river mouth to Matilija Dam.

Table 2.2.1 List of Accomplishments, 2011 to 2013

ID#	Years	Primary Lead (PL) Other Leads (OL)*	Project/Program
85	2011	PL: Friends OL: Surfrider, VHC	**Ventura River Parkway Community Picnic.** The Ventura River Parkway concept was launched publicly with a community picnic at the river, which included tours of the river, educational exhibits, children's education, and hands-on activities. The "Picnic at the River" became an annual event.
86	2013	OVLC	**Acquired Valley View Preserve.** Acquired a 195-acre property within the City of Ojai and created the Valley View Preserve. Reclaimed two historic trails on the property that connect with existing trails, expanding the trail network and creating shorter loop options. The new trails are accessible from the City of Ojai.
87	2011	PL: OVLC OL: California Coastal Conservancy	**Acquired Steelhead Preserve.** Acquired a 65-acre property (Hollingsworth Ranch) located along one mile of the Ventura River, and created the Steelhead Preserve—so named because it includes some of the best steelhead habitat on the river. This preserve will become open to the public after site improvements have been made.
88	2011–2013	PL: OVLC OL: Once Upon a Watershed	**Organized Hikes and Hosted Field Trips.** Led or organized dozens of hikes and topical walks (i.e., birds, wildflowers, herbs), and hosted many school field trips on the OVLC's various preserves.
89	2012	PL: OVLC OL: Ojai Valley Lions Club	**New Bridge/Accessible Interpretive Loop.** Built a wheelchair-accessible bridge on the Ojai Meadows Preserve, allowing people of all mobility levels to complete an interpretive loop.
90	2011	PL: VCWPD OL: OVLC	**New Trailhead/Trails – Old Baldwin Road.** Installed a new trailhead at Old Baldwin Road, including horse trailer accessibility, a 1,500-foot-long wheelchair-accessible trail, 2.5 miles of new trails, and an interpretive kiosk.
91	2013	PL: VHC OL: Friends, CCC, Surfrider	**Trash Reduction – Willoughby Preserve Cleanup.** Removed the trash, illegal encampments, and much of the *Arundo* from the newly acquired Willoughby Preserve in order to make the preserve safe for public access, and to restore habitat. *Arundo* re-treatments ongoing.
			Responsible Land and Resource Management
92	2013	VCEHD	**Advanced the Petrochem Site Cleanup**. Requested USEPA oversight of some of the cleanup operations at the Petrochem abandoned refinery along the lower Ventura River. Preliminary investigation and cleanup has occurred.
93	2011	VC Planning	**Ventura County Initial Study Assessment Guidelines (ISAG) for Biological Resources Updated.** The County of Ventura's ISAGs provide "thresholds of significance" for use in assessment of potential environmental impacts from new developments, per the California Environmental Quality Act (CEQA). The biological resources ISAGs specifically address impacts to wetlands and sensitive species. The update helped to standardize and clarify methodologies followed in making CEQA potential impact determinations; to make the ISAG consistent with CEQA and other state, federal, and local regulations. Clear and consistent procedures help to effectively and fairly implement the County's General Plan policies that call for strong protection of wetlands and other significant biological resources.
94	2011	Friends	**Watershed Document Online Library.** Compiled a watershed document library on the Friends's website, which contains a historical record of information related to the Ventura River watershed, including newspaper articles, policy statements, minutes, and other data. The library is searchable by keyword or topic. Many historic documents were scanned for inclusion in the library.

Table 2.2.1 List of Accomplishments, 2011 to 2013

ID#	Years	Primary Lead (PL) Other Leads (OL)*	Project/Program
95	2012	PL: Friends of VR OL: California Coastal Conservancy, Surfrider, VHC	**Ventura River Parkway Concept Approved by Board of Supervisors.** Calif. Coastal Conservancy, Trust for Public Land, Friends of the Ventura River, Surfrider Foundation, and VHC worked with Supervisor Steve Bennett to gain conceptual support from the Ventura County Board of Supervisors for a Ventura River Parkway. The idea of a parkway is to provide more public access, trails, and recreational opportunities along the river to make the river a more visible and valued community asset.
96	2013	OVG Coalition	**Green Resources Lending Library.** Opened a Resource Lending Library that makes books and DVDs on sustainability and other environmental issues available for browsing or borrowing.
97	2011–2013	OVLC	**Provided Educational Workshops.** Provided 15 educational workshops for the public through the "Wild About Ojai" educational series, many on natural history and watershed-related topics.
98	2011–2013	Once Upon a Watershed	**Student Education.** Taught over 3,600 4th-, 5th-, and 6th-grade students from public and private schools in the Ventura River watershed to awaken wonder, discovery, and connection with the natural world. Using preserves in the watershed and the estuary, students investigated their environment using watershed curriculum linked to the California Science Standards and participated in hands-on conservation projects.
99	2011–2013	PL: Channelkeeper OL: VHC, Ventura, Ventura College	**Student Education.** Educated over 1,500 students about the Ventura River watershed, often through partnerships with the VHC, City of Ventura, Ventura College, and local Brownie troops.
100	2012–2013	VC CoLAB	**Engaged Businesses in Watershed Issues and Planning**. Expanded channels of communication between local businesses and those working on watershed-related planning efforts. Facilitated a proactive response to water quality regulations, specifically the Algae TMDL, by local horse and livestock owners.
101	2012	VHC	**Watershed Mural.** Beautified the Ventura River Trail with a watershed mural designed by local students and painted by local artist. The mural says, "The Health of our Watershed is in our Hands."
102	2011–2013	PL: Ventura OL: Surfrider, California Coastal Conservancy	**Surfers' Point Managed Retreat.** Implemented a multi-part, ecosystem-based project designed to manage erosion at Surfers' Point and restore the beach profile to natural conditions, as an alternative to building a seawall. The project included beach/dune restoration, beach widening, a new multi-use bike path, and new stormwater filtration system and bioswale. Maintenance of the native plants on the dunes is ongoing.
103	2012	PL: Ojai Unified School District Green Team OL: Ojai Valley Garden Club	**Demonstration Landscape.** Installed a demonstration low-water-using, ocean friendly, and habitat friendly native landscape at Matilija Jr. High.
			Coordinated Watershed Planning
104	2012	VCWPD	**Report – "Ventura River Watershed Protection Plan Report."** This report summarized existing information and reports prepared for the Ventura River watershed.
105	2013	Watershed Council	**Watershed Atlas and Maps.** Created an interactive map viewer and 32 maps of the watershed, which are available to the public on the website. The maps include information on physical features, water features, water supply and demand, water quality, ecosystems, and people in the watershed.

Table 2.2.1 List of Accomplishments, 2011 to 2013

ID#	Years	Primary Lead (PL) Other Leads (OL)*	Project/Program
106	2011	Watershed Council	**Watershed Coordinator Hired.** The new watershed coordinator position is funded by a three-year grant, with additional support provided by several Watershed Council partners. The Ojai Valley Land Conservancy generously hosts the staff position.
107	2012	Watershed Council	**Watershed Council Organizational Identity Strengthened.** Developed a mission statement, logo, brochure, and website for the Council. (www.venturawatershed.org)
108	2012	Watershed Council	**Evening Watershed Council Meetings Launched**. The first evening meeting of the Watershed Council was held to accommodate the schedules of those who cannot attend daytime meetings. Evening meetings are held twice a year, in April and October.
109	2012	Watershed Council	**Watershed Council Governance Charter Adopted.** A basic governance charter was adopted, which outlines the organization's purpose, objectives, membership, and decision-making structure. The charter makes explicit the stakeholders' commitment to the work of the Watershed Council and helps give credibility to the Council's work.
110	2012–2013	Watershed Council	**Watershed Document Inventory.** Compiled a comprehensive inventory of watershed-related documents, reports, presentations, plans and policies; and developed a master list of project and program ideas. The indexed inventory spreadsheet can be filtered by subject, and is posted on the Council's website. Over 300 documents are in the inventory, which continues to grow.
111	2012	Watershed Council	**Watershed Management Plan Goals and Objectives.** Approved a set of seven goals and corresponding objectives to serve as the framework for the watershed management plan.

*The organization listed is the Primary Lead (PL) unless otherwise indicated.

Acronyms and Abbreviations:

CCC—California Conservation Corps

Casitas—Casitas Municipal Water District

CDFW—California Department of Fish and Wildlife

Channelkeeper—Santa Barbara Channelkeeper

Farm Bureau— Farm Bureau of Ventura County

MOWD—Meiners Oaks Water District

Ojai—City of Ojai

Ojai Basin GMA—Ojai Basin Groundwater Management Agency

OVG Coalition—Ojai Valley Green Coalition

OVLC—Ojai Valley Land Conservancy

OVSD—Ojai Valley Sanitary District

RCD—Resource Conservation District, Ventura County

Senior Canyon MWC—Senior Canyon Mutual Water Company

Surfrider—Surfrider Foundation

UCSB—University of California Santa Barbara

USACE—United States Army Corps of Engineers

VCSQMP—Ventura Countywide Stormwater Quality Management Program

VC Behavioral Health—Ventura County Behavioral Health Department

VC CoLAB—Ventura County Coalition of Labor, Agriculture and Business

VCEHD—Ventura County Environmental Health Division

VC Parks—Ventura County Parks Department

VC Planning—Ventura County Planning Division

VC Public Works—Ventura County Public Works Department

VCWPD—Ventura County Watershed Protection District

Ventura—City of Ventura

VRWD—Ventura River Water District

2.3 Campaigns

Ventura Hillsides Conservancy Volunteers Removing *Arundo* by the Main Street Bridge

Photo courtesy of Ventura Hillsides Conservancy

2.3 Campaigns

2.3.1 The Campaign Approach

This section presents the Watershed Council's proposed projects and programs organized into six focused "campaigns." The campaign structure allows the Council to present desired new projects and programs framed in the context of the considerable watershed management work already underway. Council members have been actively pursuing their work for decades and are determined to continue that work.

The campaign structure allows the Council to present desired new projects and programs framed in the context of the considerable watershed management work already underway.

Each campaign proposal is structured to:

- State the campaign's intent.
- Describe the conditions—the threat, opportunity, or necessity of continued management.
- Identify the campaign's specific targets.
- Highlight some of the projects, programs, and practices underway in this campaign area, including ways in which stakeholders are already working together and complementing one another's work.
- Present the Council's proposed projects and programs that undertake to achieve that campaign's intent.

Watershed management tasks and projects are cyclical by nature: infrastructure must be constantly monitored, repaired and replaced. Stream habitats must be continually protected from trash, pollutants, and invasive plants. Every year, another group of kids take their first trip down to the creek. The campaigns described here acknowledge the ongoing, cyclic work of watershed management.

Finally, the campaign approach was deemed to be the best way to meet the purpose of the watershed management plan. The purpose of the plan, as adopted by the Watershed Council, is to:

- **To tell the story of the watershed and its many interdependencies.** Each campaign tells a story. It puts the projects and programs that can advance integrated watershed management into a context that stakeholders, and policy makers, and grantors can understand and appreciate. These stories amplify the interconnected and interdependent nature of watersheds. What happens upstream affects conditions downstream.
- **To identify and prioritize water-related concerns in the watershed.** The campaigns focus attention in six targeted areas. These areas are not, by any means, the only areas where important work is happening, but these are priority areas that Council members are prepared to take action on.
- **To outline a strategy to collectively solve our shared problems and collectively manage our shared resources. The campaigns each include a list of proposed projects and programs, many of which require coordinated action.**
- **To better position ourselves for funding; some grant programs give preference to projects identified in regional plans.** By demonstrating our existing collaboration and accomplishments, and the desire to build upon those assets, the campaigns convey strength and competency—qualities that instill confidence in funders.

__The River Connections Campaign__ seeks to increase understanding, appreciation, and stewardship of the Ventura River and its watershed by connecting people with the river, with information about its history and issues, and with the community working to keep it vital.

2.3.2 River Connections Campaign

2.3.2.1 The Issue

Getting your feet wet is one of the best ways to get to know the Ventura River, but public access to the river as a source of recreation and learning is limited. This is especially true downstream of Foster Park in the river's lower section, an area of high population density, low household income, and limited recreational opportunities. A freeway, a levee, and private property have largely cut off access to the river in this area.

More opportunities to visit and learn about the watershed's natural aquatic habitats are necessary to better serve all sectors of the

community. The needs of families and visitors traveling by bicycle or bus should also be planned for.

The Ventura River watershed is a remarkable place for so many reasons—water self-reliance, biodiversity, geology, watershed protections in place, the number of organizations working to care for it—but information about this watershed and its remarkable attributes is under-developed and under-distributed.

In locations where the public has direct access to the river and other aquatic habitats, there are too few interpretive signs that offer the general public an opportunity to learn about the watershed, its hydrology, and the diverse ecosystem processes and services provided by its natural habitats. Web based information is often not easy to find or too technical for the general public. Significant educational opportunities remain untapped.

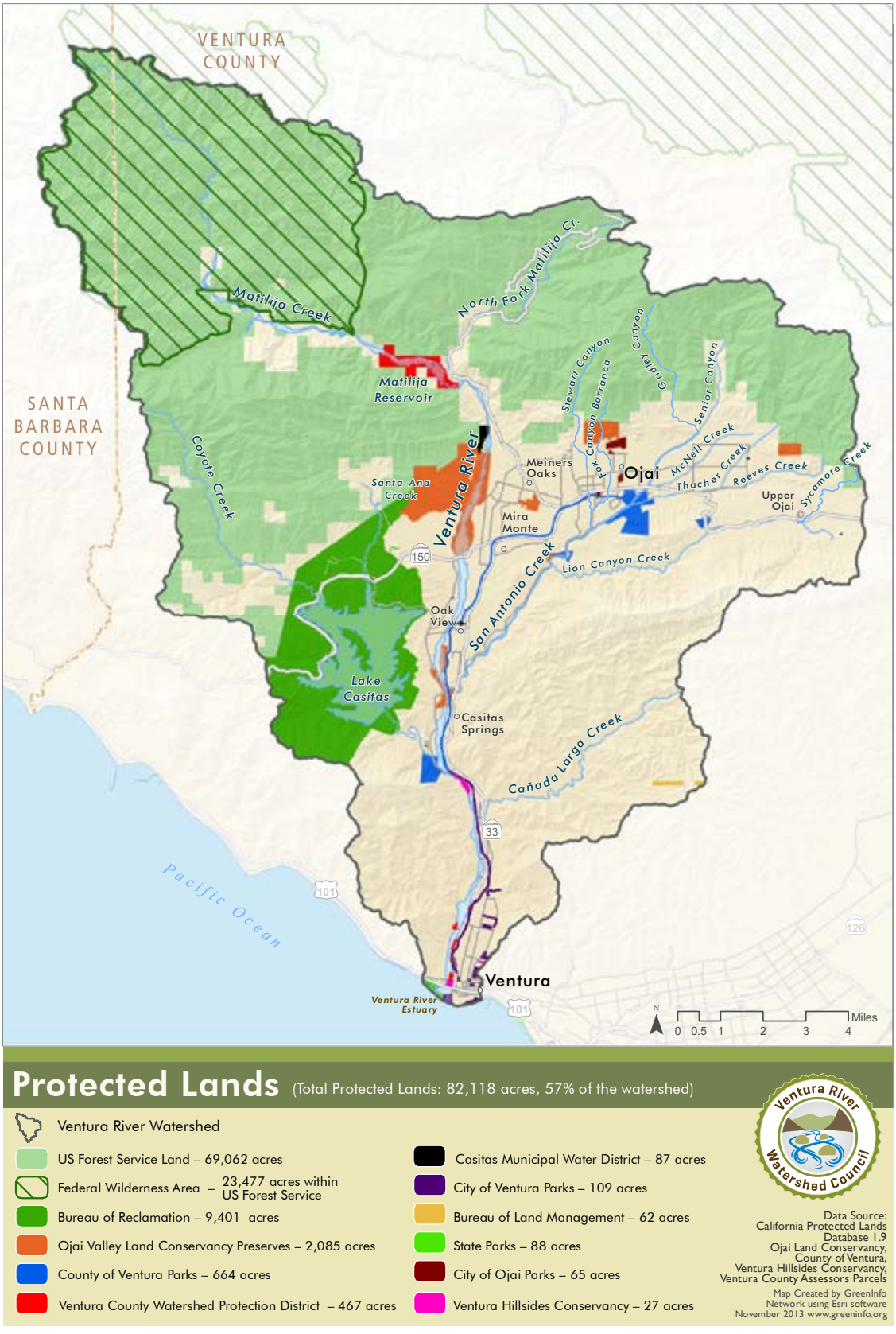
2.2.1.2 Targets

More people knowledgeable about and engaged with the river and watershed

People in the community who know about the watershed—how it works, how it is managed, its strengths and challenges—are more likely to see themselves as stewards of this watershed. Residents, business operators, resource managers, policy makers, students, and tourists can all take positive actions in support of a healthy watershed. Readily accessible information makes this more likely.

More well-used trails and river access points, especially in underserved areas

Residents and visitors are more likely to gain appreciation of the need to protect the watershed and its ecosystems when given the opportunity to visit and learn about its natural aquatic habitats. Opportunities to enjoy natural habitats also contribute to health and well-being and quality of life, as well as property values.



Considerable habitat is already protected and waiting to be interpreted. With 57% of the watershed in protected status, and much of that in a natural state, there are many opportunities to tell the watershed's story on new and enhanced signs and kiosks.

Land conservancies are actively acquiring land and establishing new access opportunities.

Over 2,300 acres of land is now protected in perpetuity by two local land conservancies, the Ojai Valley Land Conservancy and the Ventura Hillsides Conservancy, and the acreage of land protected by conservancies continues to grow.

The California Coastal Conservancy has been a strong supporter of land acquisition and public access projects in the watershed.

Both Ojai Valley Land Conservancy and Ventura Hillsides Conservancy place high importance on educating community members about their protected lands and the values they offer.

Land conservancy held properties support over 25 miles of trails.

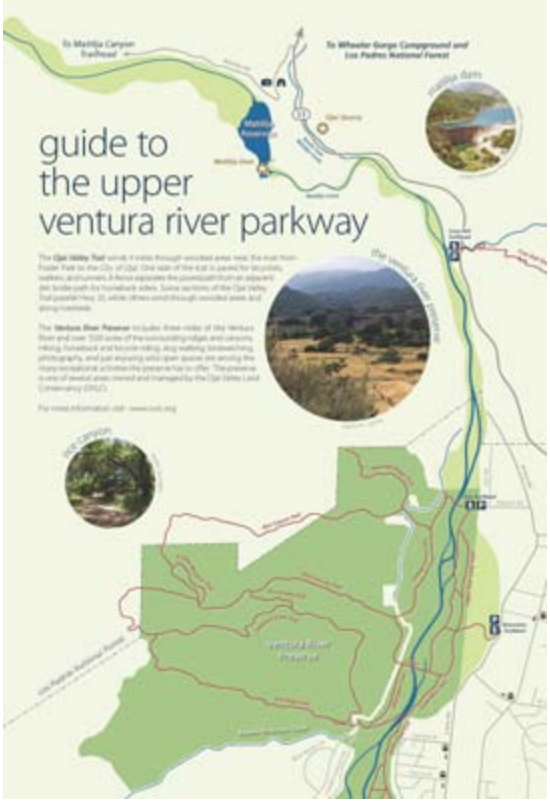
The conservancies provide ongoing support to protect and maintain these lands and trails. These photos are from the Ventura River Preserve.

The Ventura River Preserve (above photos) includes 2.6 miles and 655 acres of the upper Ventura River floodplain.

The Ojai Valley Land Conservancy recently built a wheelchair-accessible bridge on their Ojai Meadows Preserve, allowing people of all mobility levels to complete an interpretive loop.

With help from the Ventura County Watershed Protection District and the California Coastal Conservancy, Ojai Valley Land Conservancy installed a new trailhead on the Ventura River Preserve at Old Baldwin Road, including horse trailer accessibility, a 1,500-foot-long wheelchair-accessible trail, 2.5 miles of new trails, and an interpretive kiosk.

California State Parks, Ventura County Parks, City of Ventura Parks, Lake Casitas Municipal Water District, and the US Forest Service protect and maintain almost 80,000 acres of open space and natural habitat. These lands support an additional 80 miles of trails (photos above and on previous page).



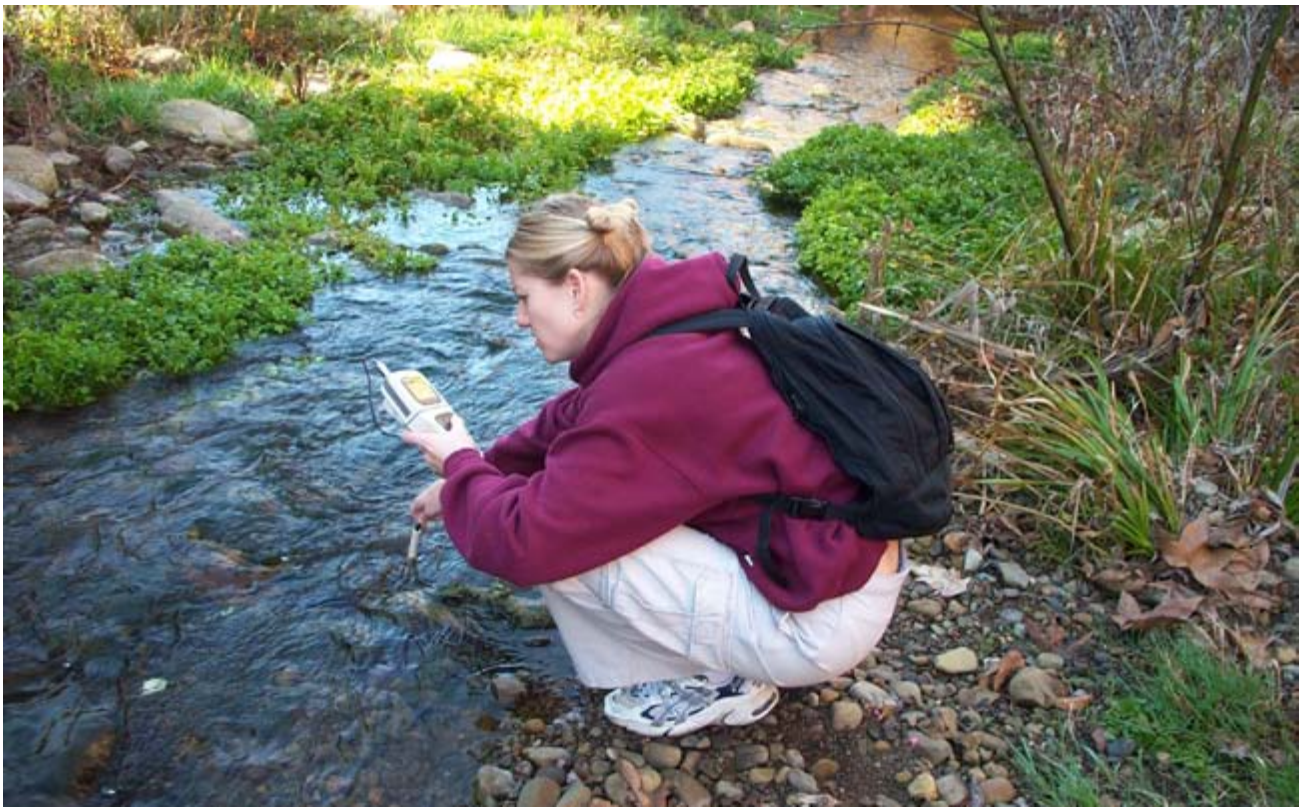
A plan for the Ventura River Parkway, led by Friends of the Ventura River, continues to take shape. A visioning document, developed by college students, helped generate ideas about the potential for a parkway along the river. A coalition of local groups and individual has produced a "Ventura River Parkway Map," (detail left) a beautiful guide to the parkway's existing trails and recreation amenities.

The parkway coalition organizes an annual "Picnic on the River" (photo above) to bring attention to the parkway vision and existing access and stewardship opportunities.

In 2012, the Ventura County Board of Supervisors approved the parkway concept, and in 2014 the parkway was awarded National Recreation Trail (NRT) status. State Senator Hannah Beth Jackson recognized the organizations, Friends of the Ventura River and Ventura Hillsides Conservancy, for their role in getting the NRT status.

The Ventura County chapter of the Surfrider Foundation has a long tradition of engaging the community in watershed issues. They played a key role in the implementation of the Surfers' Point Managed Shoreline Retreat Project, and involved many volunteers in the dune restoration (photo above) and other aspects of that project.

Photo courtesy of Paul Jenkin.



Santa Barbara Channelkeeper's Ventura River Stream Team has been getting people's feet wet in the Ventura River and its tributaries for over a decade. Volunteers participate in Channelkeeper's monthly water quality monitoring events at sampling locations throughout the watershed. Participants get an intimate introduction to the river system, its hydrology, and water quality concerns. Channelkeeper also provides education on the Ventura River watershed to students, often in partnership with other local organizations.

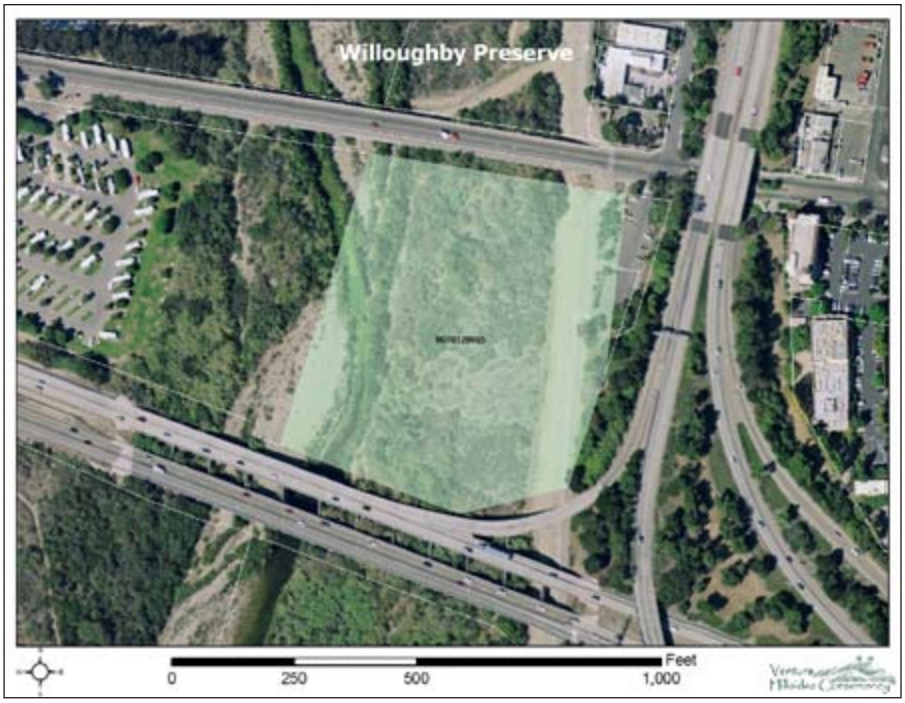
Photo courtesy of Santa Barbara Channelkeeper.

Friends of the Ventura River founding members Gayland Taylor (L) and Mark Capelli (R) at the confluence of the Ventura River and San Antonio Creek, June 30, 1976.
Photo courtesy of Mark Capelli.

Established in 1974, the Friends of Ventura River has a long history of citizen advocacy on behalf of the Ventura River. Since its inception the Friends have actively participated in planning and regulatory projects at the local, state, regional, and federal levels and produced important studies of the estuary and the steelhead habitats of the Ventura River watershed. These reports have stimulated further scientific investigations, which have contributed to the management of the river's biological resources.

The Friends contributed to the establishment of the Ventura River Preserve and Confluence Preserve, which are now owned and managed by the Ojai Valley Land Conservancy. In 1999, with support from Patagonia and the Environmental Defense Center, the Friends organized the first multi-agency symposium to consider the removal of Matilija Dam. Recent work includes advocating for a Ventura River Parkway to advance protection and public enjoyment of the Ventura River, developing a watershed resources document library, and ongoing advocacy and education about the river and its watershed.
Photo courtesy of Mark Capelli.

The watershed has been thoroughly characterized, in non-technical language, as part of development of this management plan. Descriptions of it features—such as geology, hydrology, ecosystems, and water quality—illustrated with a comprehensive atlas of maps, are now available for use in interpretive and other educational materials. The Watershed Council's website (above) makes maps, videos, data, and information available, including a comprehensive inventory of watershed-related documents, reports, plans, and policies.



The Ventura Hillside Conservancy's Willoughby Preserve includes 8 acres of the lower Ventura River floodplain.

In response to clean water regulations, local agencies have committed to keeping the lower Ventura River clean of trash and illegal camps. This photo (above) shows the Ventura County Watershed Protection District participating in a major, multi-partner coalition cleanup effort. The presence of river bottom encampments has discouraged public use of the lower river for many decades. Tons of trash has been removed in recent years and the area is now regularly patrolled.

Photo courtesy of Ventura County Watershed Protection District.

Once Upon a Watershed, in partnership with local land conservancies, provides hands-on watershed education, restoration, and stewardship experience to 4th, 5th and 6th grade students in the Ventura River Watershed. This includes students in the Ojai (upper watershed) and Ventura (lower watershed) communities. Using preserves in the watershed and the estuary, students investigated their environment using watershed curriculum linked to the California Science Standards and participated in hands-on conservation projects.

Photo courtesy of Once Upon a Watershed.

Signs and murals encourage stewardship. The Ventura County Watershed Protection District erected six "Ventura River Watershed – Keep it Clean" signs near drainages in the watershed. The City of Ojai erected 10 "Do Not Dump, Drains to Ocean" signs near drainages within the City. The Ventura Hillsides Conservancy facilitated the installation of a beautiful mural along the bike path—a reminder that the health of the watershed is in our hands.

2.3.2.3 Highlights from Existing Projects, Programs, and Practices

Here are a few selected highlights from the watershed's ongoing projects, programs, and practices connecting the community with the Ventura River—and with each other.

2.3.2.4 Proposed Projects and Programs

The types of projects and programs below would advance the intent of the River Connections Campaign. Some of these projects are planned and some are already being implemented to some degree. These projects and programs can also be found summarized in table format in "2.4.2 Priority Projects and Programs."

Establish New/Upgrade Existing River Access Opportunities

- **Ventura River Parkway.** The vision of a "Ventura River Parkway" is being pursued by a number of stakeholders. The Parkway would create a continuous network of publicly accessible trails, vista points, and natural areas along the river, from the coast to Matilija Canyon. Much of the land that would be involved is in private ownership. Parkway supporters hope that by working with willing landowners on a voluntary basis over time a parkway will take shape that will yield the many health, quality of life, and economic benefits seen in other communities that have a river parkway.
- **Prevent Illegal River Bottom Camps.** Continue the effort to ensure that river bottom camps in the lower river are not established. Collaborators include the City of Ventura's Community Development Dept., Public Works Dept., Fire Dept. & Police Dept.; Ventura County Sheriff, Ventura County Watershed Protection District, Taylor Ranch, State Parks, and Ventura Hillsides Conservancy.
- **Cleanup Petrochem.** The blighted and abandoned oil refinery has marred the view and threatened the water quality of the lower Ventura River for decades. Work to have the facility removed and cleaned up by the responsible parties.
- **Land Protection & Public Access.** Acquire land or conservation easements from willing landowners that can provide public access to the river's habitats. As part of this effort, work with the Ventura County Planning Division to help make the conservation subdivision process as efficient and inexpensive as possible.
- **New Trails.** Install sustainably designed new trails and look for appropriate opportunities to serve different types of trail users (walkers, hikers, ADA, bicycle, equestrian).

- **New Family Picnic Areas.** Look for opportunities to install vehicle-accessible parks and picnic areas that offer family access to aquatic habitats.
- **Maintain and Improve Existing Trails and Access Locations.** Make improvements to existing trails and access locations, such as by expanding access by different types of trail users (walkers, hikers, ADA, bicycle, equestrian). Continue to keep trails accessible and safe, and increase efforts to reduce erosion and related sediment inputs into waterways.

Engage the Community and Encourage Stewardship

- **Interpretive Signs**. Install and maintain watershed interpretive signs at special/high profile watershed locations and easily accessible river viewpoints.
- **Trail Guides.** Create and distribute trail guides that describe not only the trails and access points, but also the watershed's ecosystems and the important services and values they provide.
- **Ventura River Stream Team Citizen Monitoring Program.** Continue this citizen water quality monitoring program that provides important long-term water quality data throughout the watershed, while empowering, educating and engaging residents.
- **Steelhead Preserve Education and Conservation Center.** Develop a comprehensive watershed education center at the 70-acre historic Hollingsworth Ranch along the Ventura River between Ventura and Ojai. At the Center, displays and demonstrations will interpret and animate the natural and cultural history of the watershed, and community and educational events will be hosted. The center will also be a place for students, groups, researchers and agencies to collaborate on and conduct scientific studies.
- **Watershed Literacy**. Continue and expand education programs that improve understanding of watershed issues (e.g., hydrology, source water, regulations, functions and value of healthy ecosystems, value of agriculture).
- **Youth Education.** Continue to engage youth in the watershed, such as the "Once Upon a Watershed" education program and youth camps that take youth out to nature.
- **Watershed Curriculum.** Develop a Ventura River watershed curriculum using the maps and information developed for the watershed management plan. Distribute to local public and private schools.
- **Watershed Stewardship Opportunities.** Continue and expand opportunities for citizens to learn about good stewardship and participate directly in stewardship projects.

Work Together

Facilitate communication and collaboration among those already working on efforts to engage the community with the river and its issues, and to provide more direct experiences with the river. Look for opportunities to support one another's work, learn from each other, leverage resources and craft a smarter, more integrated approach to the task.

2.3.2.5 Organizations

The following organizations and entities are actively supportive of the intent of the River Connections Campaign.

California Coastal Conservancy

California State Parks

Casitas Municipal Water District

City of Ventura/Ventura Water

County of Ventura

Friends of the Ventura River

Ojai Valley Green Coalition

Ojai Valley Land Conservancy

Santa Barbara Channelkeeper

Surfrider Foundation

Resource Conservation District

United States Forest Service

Ventura County Watershed Protection District

Ventura Hillsides Conservancy

Lake Casitas intake structure under construction, December 1958. The intake structure is on the reservoir side of the dam, and moves water from the reservoir to the treatment plant.

Photo courtesy of Casitas Municipal Water District.

2.3.3 Resiliency through Infrastructure and Policy Campaign

2.3.3.1 The Issue

Old Infrastructure

Aging infrastructure—water and sewer pipes, water storage tanks, water wells, flood control channels and levees, debris basins, water treatment systems—is a critical problem challenging water, wastewater, and

flood control managers across the state. Old system equipment, often installed 50 to 100 years ago, is reaching the end of its useful life, and managers are encountering new complicating factors surrounding equipment replacement that did not exist when the infrastructure was initially installed.

In the Ventura River watershed for example, a number of key sewer pipelines were originally sited beneath San Antonio Creek when they were installed in the early 1960s. Floods have exposed and damaged these pipelines, but to relocate the pipes today would involve right-of-way issues, changes to slope and associated pumping requirements, and enormous costs related to environmental review, permitting, and mitigation. Some key pipelines remain exposed to flood risk today.

***The Resiliency through Infrastructure and Policy Campaign** seeks to strengthen both infrastructure and local policy in order to reduce the vulnerability of the watershed and its residents to extended droughts, major floods, seismic hazards, and water supply contamination.*

The issue of infrastructure repair and upgrading costs is being actively discussed and debated in California, with the realization that the rate schemes put in place long ago did not adequately account for the cost of infrastructure replacement in today's complicated regulatory environment. This is a major issue. Water, wastewater, and flood control agencies are facing enormous repair and retrofit bills.

New infrastructure also means new approaches, and today there is greater understanding of the value of managing water on small-scales as well as large-scales, and making better use of free "ecosystem services." That can mean onsite rainwater harvesting or stormwater treatment, or the use of natural or engineered "green" infrastructure—from bioswales to natural floodplains.

Approaches to water management might also need updating. The need to understand exactly how surface water and groundwater interact has grown as water managers are now tasked with considering the needs of fish and aquatic habitats as well as water customers. More information and better analyses are needed to know more precisely what the needs are of the aquatic habitats, and how and where water management adjustments might be beneficial.

Old Policies

As pipes get outdated, sometimes policies do too. There are opportunities to use local policies to more effectively realize the goals and objectives of the watershed management plan. For example, the ban against single-use plastic bags passed by the City of Ojai in 2012 (and being considered by other local jurisdictions), is helping to reduce trash pollution in local waterways. Similarly, the state of California's easing of regulations regarding "laundry to landscape" graywater systems has made this important water reuse option more available to many residents.

Watershed stakeholders have identified the potential for policies to better address floodplain management, stormwater management, manure management, and other watershed concerns. Besides the need for adopting new or updated policies, significant gains could be realized by streamlining existing regulatory procedures and requirements and, in some cases, by improving the enforcement of existing regulations.

A Vulnerable Watershed

In the Ventura River watershed, dependable infrastructure is especially critical. The watershed is characterized by great variability: cycles of drought and flood are the norm. Infrastructure takes a beating in the major and moderate floods that occur about every 5 years, and cyclic droughts challenge water supply managers to build resiliency and

Golden State Water Company's water main burst under the Ojai Playhouse theater in downtown Ojai in 2014. The flooded theater had to be evacuated. "The cause of the water main break is unknown, other than the age of the pipe," stated a press release from Golden State.

Water supply wells for the City of Ventura, located in the river bottom in the Foster Park area, have seen repeated flood-related damage.

redundancy into their systems. With the water supply 100% local, this prudence is all the more important. The location of the watershed in the Transverse Ranges, one of the most folded, faulted, and rapidly rising regions on Earth, presents earthquake and land movement hazards that must be planned for and considered in emergency response planning.

New Threats from Climate Change

Weather extremes have always been a part of this watershed, and our systems have been designed to anticipate drought, flood, and fire. Even so, current systems may not withstand the extreme events the watershed may face due to climate change: longer extended droughts, megafloods, massive wildland fires, and sea level rise. New system design needs state-of the-art thinking on survivability to contend with uncertain future conditions.

2.3.3.2 Targets

Durable, reliable, and efficient water supply system

Water supply equipment and facilities that are up-to-date, strategically located, built for seismic safety, and adaptable to changing hydrologic conditions will increase the safety of the watershed's water supply systems. Complementing centralized infrastructure with smaller-scale, decentralized systems—such as for rainwater harvesting or groundwater recharge—will build important resiliency into the water supply system.

More water in storage

System improvements that reduce leaks and inefficiencies, and increase water capture, storage or reuse will improve water supply resiliency, whether the water is captured in Lake Casitas, groundwater basins, new storage tanks or in rain barrels. Improvements may be physical, such as more efficient wells or distribution systems—or technology-driven, i.e., sophisticated water metering and electronic sensing and control systems. Improvements may also be achieved through skilled use of management schemes, such as conjunctive water use or conservation pricing.

Improved safety of people and property from flooding

Reduce flood damage, risk, and vulnerability by improvements to existing flood control channels, levees and other infrastructure, and by restoring floodplains and other lands integral to flood management.

Reliably clean water

Protect water quality by investing in more sophisticated surface water and wastewater treatment equipment. Pursue improvements that capture and treat more urban stormwater runoff before it reaches river/streams; and better protect sewer system mainlines from damaging flood flows.

Reduced beach erosion

The restoration of a more natural sediment transport regime, primarily by removing Matilija Dam, could reduce beach erosion and associated management costs.

Effective, efficient, enforced local policies and regulations

The goals and objectives of the watershed management plan could be productively supported through current policies that reflect current information and challenges, streamlined permitting processes that encourage rather than discourage beneficial actions (such as removing *Arundo*), and enforcement of existing regulations protective of watershed health.

2.3.3.3 Highlights from Existing Projects, Programs, and Practices

Here are a few selected highlights from the watershed's complex and varied infrastructure: from mountain headwaters to dune restoration on Ventura's beaches—a portfolio of reservoirs, levees and habitats, all of which require active management.

Water Supply

Lake Casitas is a remarkable asset. The reservoir was designed to maintain supplies during a repeat of the 21-year dry period from 1945 to 1965 (the longest drought on record at the time of design), and the lake's managers have established careful policy controls to keep water demand within the 21-year safe yield. In multi-year dry periods, Lake Casitas' reserves are typically more robust than local supply reservoirs found in neighboring watersheds.

Photos courtesy of Casitas Municipal Water District.

The watershed benefits from having established water supply backup systems in place. Most users of groundwater are also connected to Casitas, either for regular or emergency backup. In extended dry periods, the majority of these backup connections are activated, replacing groundwater supplies.

Groundwater basins in the watershed recharge quickly. With basins that are alluvial and largely unconfined, and with plenty of open, unpaved landscapes and drainage channels, recharge of the watershed's groundwater supplies occurs relatively quickly in years of high rainfall.

Photo courtesy of Ventura County Watershed Protection District.

Casitas Municipal Water District secured grant funding on behalf of Senior Canyon Mutual Water Company to upgrade old leaking pipes and replace inefficient manually controlled pumping equipment with an efficient automated system. By making better use of local supplies, these improvements reduced the water company's dependence on Lake Casitas.

Clean Water

Ojai Valley Sanitary District replaced and relocated an 800-foot section of underground sewer pipe that ran along the edge of San Antonio Creek. This pipe was vulnerable to damage during floods, which could lead to sewage spills. The district also completed a $6.5 million Ventura Avenue Sewer Improvement Project (photo above) to update aging infrastructure and reduce energy demand.

Photo courtesy of Ojai Valley Sanitary District.

The City and County of Ventura have installed "full capture" trash excluders on storm drains throughout the watershed. The devices prevent trash from entering the storm drain system and are helping to reduce the amount of trash that reaches the estuary and other parts of the river.

Photo courtesy of Ventura County Watershed Protection District.

Flood

The Ventura County Watershed Protection District developed a watershed hydrology model to better identify locations at risk of flooding and understand how development or other changes in land use could affect water supply or runoff volumes.

The Ventura County Watershed Protection District is pursuing improvements to the watershed's three levees that are required to fully meet current FEMA standards. The district is conducting levee evaluations, design engineering, and CEQA compliance, as well as exploring options for funding the upgrades. Pictured below is the Ventura River Levee, which protects the City of Ventura and lower Highway 33.

Photo courtesy of Rick Wilborn.

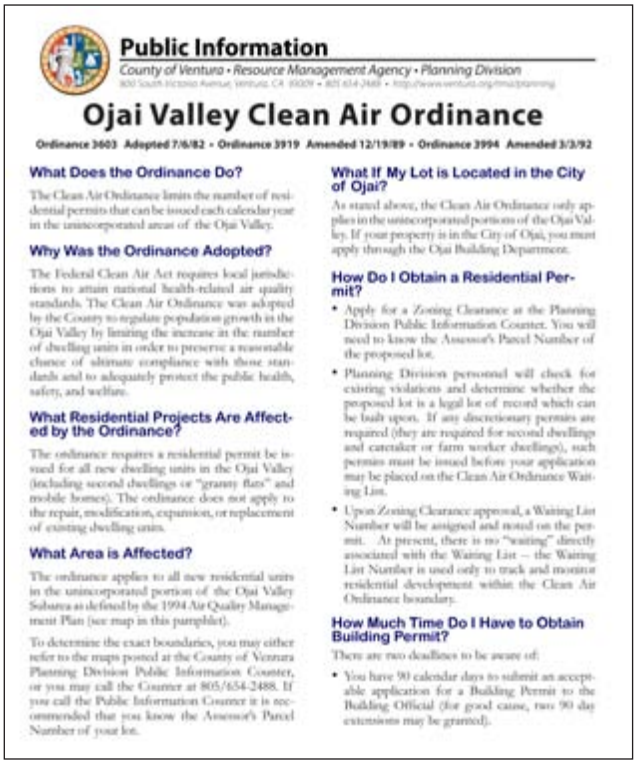
Pre-construction elements of the project to remove Matilija Dam and restore the ecosystem are underway, including redesign of Santa Ana Boulevard Bridge (photo above) and Camino Cielo Bridge, sediment studies, and purchase of Matilija Hot Springs.

The City of Ventura, Surfrider Foundation, and California Coastal Conservancy implemented the innovative Surfers' Point Managed Shoreline Retreat Project as an ecosystem-based approach to coastal erosion. The multi-part project was designed to restore the beach profile to natural conditions as an alternative to building a seawall. It included beach/dune restoration, beach widening, a new multi-use bike path, and new stormwater filtration system and bioswale. The photos above show the area before (2008) and after (2013) the project.

The plan at right shows the parking areas removed in order to allow for the "retreat."

Surfers' Point Managed Shoreline Retreat Project

Policy



Public Information
County of Ventura • Resource Management Agency • Planning Division

Ojai Valley Clean Air Ordinance

Ordinance 3603 Adopted 7/6/82 • Ordinance 3919 Amended 12/19/89 • Ordinance 3994 Amended 3/3/92

What Does the Ordinance Do?

The Clean Air Ordinance limits the number of residential permits that can be issued each calendar year in the unincorporated areas of the Ojai Valley.

Why Was the Ordinance Adopted?

The Federal Clean Air Act requires local jurisdictions to attain national health-related air quality standards. The Clean Air Ordinance was adopted by the County to regulate population growth in the Ojai Valley by limiting the increase in the number of dwelling units in order to preserve a reasonable chance of ultimate compliance with those standards and to adequately protect the public health, safety, and welfare.

What Residential Projects Are Affected by the Ordinance?

The ordinance requires a residential permit be issued for all new dwelling units in the Ojai Valley (including second dwellings or "granny flats" and mobile homes). The ordinance does not apply to the repair, modification, expansion, or replacement of existing dwelling units.

What Area is Affected?

The ordinance applies to all new residential units in the unincorporated portion of the Ojai Valley Subarea as defined by the 1994 Air Quality Management Plan (see map in this pamphlet).

To determine the exact boundaries, you may either refer to the maps posted at the County of Ventura Planning Division Public Information Counter, or you may call the Counter at 805/654-2488. If you call the Public Information Counter it is recommended that you know the Assessor's Parcel Number of your lot.

What If My Lot is Located in the City of Ojai?

As stated above, the Clean Air Ordinance only applies in the unincorporated portions of the Ojai Valley. If your property is in the City of Ojai, you must apply through the Ojai Building Department.

How Do I Obtain a Residential Permit?

- Apply for a Zoning Clearance at the Planning Division Public Information Counter. You will need to know the Assessor's Parcel Number of the proposed lot.
- Planning Division personnel will check for existing violations and determine whether the proposed lot is a legal lot of record which can be built upon. If any discretionary permits are required (they are required for second dwellings and caretaker or farm worker dwellings), such permits must be issued before your application may be placed on the Clean Air Ordinance Waiting List.
- Upon Zoning Clearance approval, a Waiting List Number will be assigned and noted on the permit. At present, there is no "waiting" directly associated with the Waiting List – the Waiting List Number is used only to track and monitor residential development within the Clean Air Ordinance boundary.

How Much Time Do I Have to Obtain Building Permit?

There are two deadlines to be aware of:

- You have 90 calendar days to submit an acceptable application for a Building Permit to the Building Official (for good cause, two 90 day extensions may be granted).

A combination of county and city land use policies (the Guidelines for Orderly Development, Ojai Valley Area Plan, large-lot zoning, growth control policies, SOAR [Save Open space and Agricultural Resources] ordinances), air quality policies (Ojai Valley Clean Air Ordinance), water management policies (Casitas Municipal Water District's Water Efficiency and Allocation Program), and citizen activism have served to keep development within the resource constraints of the watershed.

All local jurisdictions in Ventura County now require new development and redevelopment projects to integrate stormwater retention and treatment into their project design. Bioswales help to capture stormwater and filter pollutants. This bioswale is in the parking lot at Oak Street and Santa Clara Avenue in the City of Ventura. (Oak Street marks the boundary of the Ventura River watershed.)

The Casitas Municipal Water District Board of Directors has established and implements various policies, such as their Water Efficiency and Allocation Program, to help ensure that water supplies are safe and available during extended dry periods.

Lake Casitas is one of the relatively few water supply facilities in California that are operated on a "safe yield" basis. Safe yield is the rate at which the water supply can be "safely" depleted. The designers of the lake determined that "safe" in this case meant that the water in the lake should be managed to last during another 21-year dry period, such as occurred from 1945 to 1965, which was the longest drought on record at the time of the reservoir's design. As long as annual demand on Lake Casitas is less than its 21,630 acre-feet per year safe yield, it should not go dry during a repeat of the 21-year dry period.

In contrast, most water supply facilities in California are operated on an "as available" basis. During wet years, a greater amount of water is delivered to customers than would be allowed under a safe-yield scenario. However, during dry spells, deliveries to customers are reduced, and they must seek other supplies. Delivering water on an "as available" basis allows greater deliveries on the average, but reduces reliability during droughts.

2.3.3.4 Proposed Projects and Programs

The types of projects and programs below could advance the intent of the Resiliency Through Infrastructure Campaign. Some of these projects are planned and some are already being implemented to some degree. These projects and programs can also be found summarized in table format in "2.4.2 Priority Projects and Programs."

Establish new/upgrade existing facilities/functions (conventional and natural)

Water Supply

- **Existing Water Supply Infrastructure Reliability Improvements.** Replace or retrofit aging or threatened water supply tanks, wells, pipes, and other conveyance and storage equipment to reduce water losses, ensure supply reliability, and bring up to earthquake standards.
- **Contingency Water Storage.** Install decentralized contingency water storage.
- **Ventura Water - Casitas Conduit Intertie.** Install a new 5.5 mile pipeline from Lake Casitas to the City of Ventura, and a pump station, to provide Casitas with a backup for potential water service delivery interruption to the Rincon area and to improve the City of Ventura's water supply reliability and system operational abilities.
- **Ventura Water Foster Park Wellfield Restoration.** Install additional wells in the Foster Park area to allow the City of Ventura to produce more water from the river when flows are high.
- **Ventura Water North-Side Satellite Wastewater Treatment Plant.** Install a small (2 million gallons per day) tertiary wastewater treatment plant near the Fairgrounds to treat wastewater from the Westside of Ventura for agricultural and urban reuse.
- **Reclaimed Water Analysis.** Investigate the opportunities for and feasibility of using reclaimed water from the Ojai Valley Sanitary District, such as during winter flows when the water is not so critical in the river.
- **Surface Water-Groundwater Interaction Analysis.** Increase understanding about the interaction between groundwater extractions and surface flows. Install surface flow monitors at key locations, such as along San Antonio Creek at the Ventura River Basin-Ojai Basin boundary, and within the Ojai Basin. Look for correlations between pumping extractions and changes in surface flow.
- **Continuous Groundwater Level and Quality Monitoring Equipment.** Install in wells in the watershed's basins instruments that

allow for continuous monitoring of water level and/or water quality parameters.

Water Quality

- **Sewer Trunk Relocation.** Relocate a sewer line in the Ventura River threatened by river flow. A sewer line break here would affect water companies, instream uses, and ocean water quality.
- **Septic System TMDL Special Study.** Conduct a study to identify those septic systems, either individually or by geographic area, that are contributing to the impairment of surface waters in the watershed. This will facilitate a focused application of available resources to reduce or eliminate the contribution of these systems to water quality impairments.
- **Stormwater Retrofit Plan (LID and Green Streets).** Develop a plan that inventories, assesses and prioritizes opportunities to retrofit impervious surfaces with alternative approaches (e.g., low impact development [LID] and green streets) that capture, treat, and infiltrate urban stormwater runoff. (Green streets integrate landscapes or other facilities designed to capture, clean, and store stormwater.)
- **Stormwater Retrofit Demonstrations (LID and Green Streets).** Retrofit impervious surfaces with alternatives (e.g., low impact development and green streets) that capture, treat, and infiltrate urban stormwater runoff in order to demonstrate the use of bioretention systems, permeable surfaces, and runoff treatment and infiltration in urban areas. Prominent public locations will be prioritized when feasible.
- **Dry Weather and/or First Flush Diversions.** Install devices to capture dry weather and/or first flush contaminated stormwater and send directly to the wastewater treatment plant.
- **Stormwater Parking Lot Retrofits.** Retrofit parking lots to improve stormwater capture and infiltration, where feasible, as they come up for rehabilitation.
- **Trash Excluders.** Retrofit catch basins with trash excluders to filter trash from storm flows.

Matilija Dam

- **Matilija Dam Removal – Studies and Mitigation.** Studies will take another look at dam removal and sediment transport options. Various improvements are required to mitigate for the dam's removal.
- **Matilija Dam Removal.** Remove dam to restore sediment transport and access for migrating steelhead, and eliminate the dam failure hazard.

Flooding

- **Bring Levees up to FEMA Standards.** Complete levee improvements required to meet FEMA certification requirements.
- **Channel, Stormdrain, and Culvert Improvements.** Make various improvements to address channel erosion and flooding problems.
- **Debris Basin Installation/Maintenance - Fresno Canyon Flood Mitigation.** Construct a reinforced concrete pipe diversion from upstream of Highway 33 to Ventura River. The purpose of this project is to protect the community of Casitas Springs from a 100-year (or 1% annual exceedance probability) flood in Fresno Canyon.
- **Flood Modeling - Thacher Creek Flood Mitigation.** Use modeling to plan improvements to Thacher Creek, which is undersized and carries a heavy sediment load.

Natural/Other

- **Riparian Habitat and Wetland Restoration.** Restore riparian habitats and wetlands to promote attenuation of flood flows, capture of sediments, treatment of runoff, infiltration and to deter algae growth.
- Increase the emergency preparedness of service providers.
- **Extended Drought/Climate Change Preparation.** Facilitate ambitious, coordinated planning, preparedness, and response for extended droughts.
- **Megastorm (ARkStorm) Scenario Drill.** Develop response plans for a megastorm hitting the watershed and test the plans with a full-scale real-time exercise. Work with emergency services, water and sanitary districts, the media, and local and state government.

Monitor policy changes and implementation, and promote policy updates that advance the watershed's resiliency

- **Single-Use Bag Ban.** Promote adoption of a single-use bag ban by the County of Ventura and City of Ventura (already adopted by City of Ojai).
- **Efficient Conservation Subdivision Permit Process.** Work with the Ventura County Planning Division to help make the conservation subdivision process as efficient and inexpensive as possible. A conservation subdivisions is a special exemption from Ventura County zoning and subdivision regulations for the purposes of donating or selling land to a conservation organization.
- **Mixed Use Zoning.** Amend Ventura County's and the City of Ojai's zoning ordinances to allow appropriate mixed use zoning in urban

communities in order to advance our watershed goals, such as minimizing impervious cover and open space loss.

- **North Ventura Avenue Area Plan.** Update Ventura County's North Ventura Avenue Area Plan (integrate appropriate mixed use, LID, Parkway access, mobility, etc.).

Work Together

- **Coordinated Water Quality Monitoring.** Investigate opportunities to coordinate the various water quality monitoring programs to reduce redundancy, and improve the cost-effectiveness and utility of the data, such as by sharing monitoring locations, standardizing protocols and formats, and sharing data.
- **Integrated and Accessible Water Quality Monitoring Data.** Maximize the usefulness of the water quality monitoring data collected by different organizations by compiling and interpreting the data, and offering user-friendly access to it.
- **Flood Control Project Design.** Participate in the Watershed Protection District's pre-design stakeholder process for flood control projects.

2.3.3.5 Organizations

The following organizations and entities are actively supportive of the intent of the Resiliency Through Infrastructure and Policy Campaign.

California Coastal Conservancy

Casitas Municipal Water District

City of Ojai

City of Ventura/Ventura Water

Meiners Oaks Water District

Ojai Basin Groundwater Management Agency

Ojai Valley Green Coalition

Ojai Valley Land Conservancy

Ojai Valley Sanitary District

Resource Conservation District

Surfrider Foundation

Ventura County Environmental Health Division

Ventura County Planning Division

Ventura County Public Works Department

Ventura County Watershed Protection District

Ventura Hillsides Conservancy

Ventura River Water District

The Extreme Efficiency Campaign *seeks to maximize the conservation of water by all water users by continually realizing greater water use efficiency from equipment, technology, and people; pursuing more opportunities to reuse water; and rewarding conservation.*

2.3.4 Extreme Efficiency Campaign

2.3.4.1 The Issue

Cyclical dry periods are a permanent part of the landscape here, so water users in the Ventura River watershed have pursued water conservation and use efficiency for decades. New technologies do appear, however, and existing systems age out and require replacement, so the potential for greater conservation and efficiency remains significant. Water users can do more to conserve, and water suppliers can help them. Some efficiency improvements employ new high efficiency technology that can offer easy water savings. Other changes may take a bit more effort, such as changing landscapes or behavior.

Water users continue to pursue water use efficiency because the benefits of conservation are real and immediate: Reduced demand can help keep water bills low and conserves groundwater supplies. Higher groundwater levels could supply more water to local streams, supporting healthy

aquatic habitats and swimming holes. In multi-year dry periods, conserved water helps extend precious lake supplies.

2.3.4.2 Targets

State-of-the-art water use efficiency by all sectors, indoors and outdoors

Make our water using fixtures, equipment, and practices more efficient with more advanced systems together with better education and incentives that effectively change behavior.

Increased water reuse

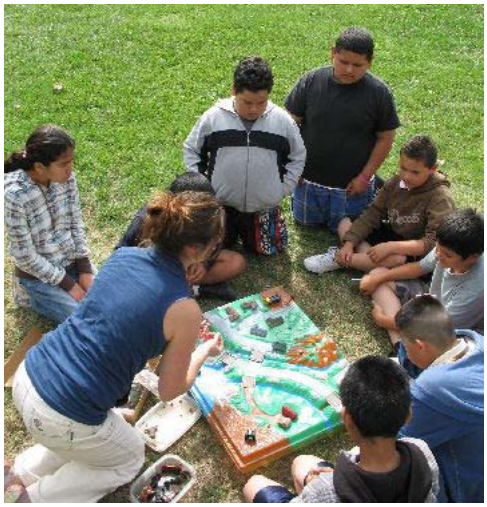
Expand and encourage large-scale and small-scale water reuse. Reused water reduces not only water demand but also energy demand. Every gallon of water that doesn't need to be further treated or pumped saves energy.

2.3.4.3 Highlights from Existing Projects, Programs, and Practices

Here are a few selected highlights from the watershed's ongoing commercial and residential water use efficiency projects, programs, and practices.

The Casitas Municipal Water District offers a variety of water conservation and water use efficiency programs, which are available to all water uses within Casitas's wholesale service area (whether a customer of Casitas's or not). Their programs include free water saving showerheads, toilet flappers, and faucet aerators; residential and commercial water use surveys and leak detection; hobby farm irrigation evaluations (and equipment rebates); and rebates on residential and commercial high-efficiency toilets, washing machines, and weather-based irrigation controllers. Casitas hosts free educational classes on various ways to save water, such as landscaping with natives or installing a graywater system. Classroom and field trip water education is also provided.

Photo courtesy of Casitas Municipal Water District.



Ventura Water (City of Ventura) offers their customers rebates on rain barrels, promotes Ocean-Friendly Gardens, provides school water education, and hosts classes and events.

The City of Ventura produces educational videos on a variety of water saving topics (above), such as how to use rain barrels or how to check your water meter for leaks. They make active use of their website and social media (right) for outreach and education.

The Ojai Valley Green Coalition (OVGC) is an important voice for water conservation in the watershed. OVGC seeks out many opportunities to educate the public, including classes and member meetings, an annual Green Living Home Tour, displays at public venues, newsletter promotions, and distribution of free water saving equipment on behalf of Casitas Municipal Water District. The OVGC has an extensive lending library with books, videos, and literature at its downtown Resource Center. The group is active in advancing policies to protect local resources.

The Ventura River Watershed Council's SAVE MORE WATER website, hosted on the main Watershed Council site, serves as a clearinghouse of information on saving water throughout the watershed. The site features many videos, lists of upcoming classes and events, and links to water saving resources provided by local water suppliers and organizations—free equipment, rebates, free on-site irrigation surveys, and more. SAVE MORE WATER is aimed at motivating and informing residential, commercial, and agricultural water users to conserve.

The Ventura County Building and Safety Division has been actively promoting graywater systems since the state of California's easing of regulations regarding "laundry to landscape" graywater systems has made this important water reuse option more available to many residents.

2.3.4.4 Planned Projects and Programs

The Extreme Efficiency Campaign proposes solutions aimed at equipment and technology improvements, together with improved and ongoing education aimed at motivating behavioral changes, and includes all sectors—residential, commercial, and institutional. The projects and programs below could advance the intent of the Extreme Efficiency Campaign. Some of these projects are planned and some are already being implemented to some degree. These projects and programs can also be found summarized in table format in "2.4.2 Priority Projects and Programs."

Promote and Incentivize the Use of High Efficiency Fixtures and Equipment, and Graywater Systems

- **Water Use Efficiency and Reuse Education Program.** Promote and incentivize water use efficiency and reuse (e.g., low-water-using landscapes; replacement of hobby orchards with lower-water-using landscapes; use of local, woody mulch; use of graywater systems; high-efficiency plumbing retrofits, fixing leaks, efficient use of agricultural water). Install demonstration landscapes.
- **Landscape Irrigation Efficiency Audits/Upgrades.** Continue to promote the availability of Casitas Municipal Water District's free landscape irrigation efficiency surveys; continue or expand subsidies for equipment upgrades.
- **Native and Climate-Appropriate Plant Education.** Develop and implement an education program that promotes landscaping with natives and other climate-appropriate plants.
- **Agricultural and Hobby Orchard Irrigation Efficiency Evaluations.** Continue to promote the availability of the Resource Conservation District's free irrigation efficiency evaluation program (Mobile Irrigation Lab) for farms and hobby orchards; continue or expand subsidies for equipment upgrades.

Consider Rate Incentives

- **Water Rate Analysis.** Research creative water rate model options that strongly incentivize conservation while covering district costs. Analyze the relative amount of funding spent by local water suppliers on conservation.

Use Policies

- **Plumbing Fixture Retrofit Policy Enforcement.** Monitor enforcement of the Ojai Area Plan policy that stipulates that new development must not add any net increase demand to existing water supplies. This is achievable through mitigation such as off-site plumbing retrofits.

Work Together

Facilitate communication and collaboration among those working to advance water conservation and water use efficiency. Look for opportunities to support one another's work, learn from each other, leverage resources and craft a smarter, more integrated approach to the task.

2.3.4.5 Organizations

The following organizations and entities are actively supportive of the intent of the Extreme Efficiency Campaign.

Casitas Municipal Water District

City of Ventura/Ventura Water

Meiners Oaks Water District

Ojai Basin Groundwater Management Agency

Ojai Valley Green Coalition

Resource Conservation District

Surfrider Foundation

Ventura River Water District

The Watershed-Smart Landscapes and Farms Campaign *seeks to improve and innovate residential and commercial landscape and farm management practices in order to protect, supplement, and extend water supplies, and protect the long-term viability of farms.*

2.3.5 Watershed-Smart Landscapes and Farms Campaign

2.3.5.1 The Issue

Irrigated agriculture is a major land use in the watershed, and local farms are an important and valued part of the economic and cultural history of the watershed. In 1956, Congress authorized the construction of Lake Casitas. The bill's language emphasized that the new water supply was needed for agricultural and economic opportunities. Today, agricultural

water accounts for about 45% of the water use from Lake Casitas, and growers are a major user of groundwater in the watershed.

Agriculture plays a critical role in maintaining many services supportive of a healthy watershed. The citrus and avocado orchards that embody the rural character of the watershed also provide expanses of unpaved land that infiltrates rainwater and slows flood flows; serve as wildlife corridors and habitat; and provide attractive views and local food. Should these orchards become unviable, the character of the watershed would change dramatically.

Landscapes, especially in the Ojai Valley, are also a significant land use. The watershed is home to several golf courses, many public and private schools with ball fields, and large residential properties and estates. Residential landscapes throughout the Ojai Valley are planted with small citrus orchards, which are irrigated, but may never be harvested. Landscape water generally accounts for at least half of residential water demand, but can run much higher when landscapes are on the large side, like in the Ojai Valley.

Efficient irrigation is already widely practiced in the watershed, but there is still considerable room for reducing the water demand of landscapes and farms. Agricultural and landscape irrigation together can account for as much as two-thirds of local water use. With such a large volume of water involved, many small improvements in efficiency can result in significant savings— extending limited water supplies and reducing water costs for irrigators.

Landscapes and farms also serve the important function of infiltrating rainwater for groundwater recharge. Better land contouring, use of mulch, and other practices could capture and infiltrate much more of the watershed's rainfall and stormwater runoff.

Fertilizers used by landscapes and farms are one of the sources of nutrients that can cause water quality impairments in the watershed. Reducing this load of nutrients on water supplies may be required to improve water quality and meet regulatory requirements.

2.3.5.2 Targets

Reduced demand for landscape and farm irrigation water

With improved irrigation efficiency and less-water-demanding landscapes, the amount of water used for irrigation in the watershed could be significantly reduced.

Increased groundwater recharge

Through better land contouring and diversion of stormwater to landscaped swales, landscapes and farms could capture and infiltrate more of the watershed's rainfall and stormwater runoff, thereby improving recharge of groundwater basins.

Cleaner groundwater and surface water

With better management of fertilizers and livestock waste, nutrient concentrations in groundwater and surface water could be reduced.

A viable agricultural industry

Reducing water costs through improved efficiency, helping growers meet regulatory requirements, and studying options in the face of pest threats would help keep local farms viable.

2.3.5.3 Highlights from Existing Projects, Programs, and Practices

Irrigation efficiency in agriculture and landscape has been pursued in the Ventura River watershed ever since the first local farmers faced down a 21-year dry period between 1945 and 1965. Water conservation is a constant priority. Growers and landscape managers keep abreast of the latest

Mulch is widely used in watershed orchards to save water, but it has other benefits as well. The mulch cover holds moisture in the soil, reduces soil temperature, and suppresses weeds. Mulch cover slows and absorbs rainfall and applied irrigation water, improving infiltration and preventing erosive runoff. By preventing fertilizers and other nutrients from traveling off-site in runoff, mulch cover is a recommended BMP for protecting water quality.

It is very important to use locally sourced mulch in order to prevent the spread of exotic pests from mulch imported from outside the area. Ojai Valley Organics can supply locally-sourced mulch in the Ojai Valley.

Row crop growers in the watershed use drip tape to produce food with the minimum water necessary. Narrowly focusing irrigation reduces weed growth as well.

Ocean Friendly Gardens (OFG) is a national Surfrider Foundation program for transforming landscapes and hardscapes to prevent water pollution. Landscapes that use rainwater as a resource and employ conservation, permeability, and retention practices are promoted. The Ventura County Surfrider chapter, the City of Ventura, the Ojai Valley Green Coalition, and others have partnered to advance OFG in the watershed through training workshops, landscape retrofits, demonstration projects, and educational videos.

The Ojai Community Demonstration Garden, located next to Ojai City Hall, provides a forum for educating residents about landscape management techniques which conserve water and reduce waste. Water conservation is demonstrated through the use of drought-tolerant plantings appropriate to Ojai's microclimate, mulching, and drip irrigation systems. Workshops are offered at the garden, such as the one pictured above on how to landscape with native plants.

Photo courtesy of Les Dublin.

Casitas Municipal Water District (CMWD) offers free onsite landscape surveys throughout their wholesale service area. The surveys include a review of the irrigation system, irrigation design, and watering schedules. CMWD also offers rebates on selected residential and commercial weather-based irrigation controllers.

Photo courtesy of CMWD.

Throughout the year, Casitas Municipal Water District (CMWD) hosts water use efficiency and conservation workshops. In this photo, Dr. Ben Faber of the University of California Cooperative Extension lectures growers on irrigation efficiency.

Photo courtesy of CMWD.

Graywater workshops have been provided by the Ventura County Building and Safety Division, Casitas Municipal Water District, and Ojai Valley Green Coalition (OVGC). This photo is of an OVGC hands-on workshop.

Photo courtesy of OVGC.

Through their "Mobile Irrigation Lab," the Ventura County Resource Conservation District (RCD) provides free on-site agricultural irrigation system analysis and technical assistance to improve water use efficiency. Included is a cost share program to help fund "best management practice" (BMP) implementation for irrigation systems of orchard, row crop, and nursery operations.

Photos at right courtesy of the RCD.

Ventura County Agricultural Irrigation Lands Group (VCAILG), administered by Farm Bureau of Ventura County, offers a number of educational workshops for growers each year. The classes focus on various aspects of water quality, and attendance by VCAILG participating growers helps meet water quality regulations.

Photo courtesy of UC Cooperative Extension.

HORSE AND LIVESTOCK WATERSHED ALLIANCE

The recently formed Horse and Livestock Watershed Alliance represents horse and livestock owners in the Ojai Valley. The group works with horse and livestock owners to improve manure management practices that affect water quality, and works with water quality regulators to help craft fair regulatory schemes that minimize economic impacts.

techniques and equipment to get the most out of the limited supply of local water. Managing fertilizers and animal wastes is also an important part of being watershed-smart, and educational programs are in place to help make further improvements to these management practices. Below are selected highlights from the watershed's existing landscape and farm projects, programs and practices.

2.3.5.4 Proposed Projects and Programs

The Watershed-Smart Landscapes and Farms Campaign proposes a wide range of solutions to this issue, from small-scale backyard improvements to large-scale institutional retrofits. Improvements can be made at residences, businesses, and farms. The projects and programs listed below—some in the planning stage and others already underway—could advance the intent of the Watershed-Smart Landscapes and Farms Campaign. These projects and programs can also be found summarized in table format in "2.4.2 Priority Projects and Programs."

Increase Landscape and Farm Irrigation Efficiency

- **Landscape Irrigation Efficiency Audits/Upgrades.** Continue to promote the availability of Casitas Municipal Water District's free landscape irrigation efficiency surveys; continue or expand subsidies for equipment upgrades.
- **Agricultural and Hobby Orchard Irrigation Efficiency Evaluations.** Continue to promote the availability of the Resource Conservation District's free irrigation efficiency evaluation program (Mobile Irrigation Lab) for farms and hobby orchards; continue or expand subsidies for equipment upgrades.

Decrease Water Demand through Better Plant Selection, Landscape/Farm Design and Maintenance, and Water Reuse

- **Landscape Water Use Efficiency and Reuse Education Program.** Promote and incentivize replacement of turf and hobby orchards with lower-water-using landscapes; use of local, woody mulch; and use of graywater and rain barrel/cistern water for irrigation. Install demonstration landscapes.
- **Ocean/River-Friendly Gardens Education Program.** Expand the Ocean/River-Friendly Gardens program (which promotes conservation, rain harvesting, and non-polluting methods) watershed-wide; integrate incentives.

- **Native and Climate Appropriate Plant Education.** Educate and motivate people about landscaping with natives and other climate-appropriate plants.
- **Water Efficient Crop Study.** Research the feasibility of alternative crops in the watershed that are economically sustainable and low-water using. This could serve as an Asian Citrus Psyllid contingency plan.
- **Stormwater Parking Lot Retrofits.** Retrofit parking lots and their landscapes to improve stormwater capture and infiltration, where feasible (given clay soils and high groundwater) as they come up for rehabilitation.

Improve Water Capture and Infiltration

- **Slow It/Spread It/Sink It Campaign.** Coordinate an educational program to advance onsite rain/stormwater harvesting at residences, churches, schools and businesses; integrate incentives, demonstration projects, and showcase individual examples.
- **On-Farm Water Detention/Retention Analysis.** Investigate opportunities for small-scale on-farm stormwater detention and storage options (e.g., swales, contours, wet ponds, rainwater harvesting, underground storage).

Improve Nutrient Management

- **Farm and Stable Nutrient Management Program.** Promote farm and/or stable nutrient management best management practices (BMP) (e.g., filter strips, rainwater collection, manure management, erosion control, off-stream watering); offer on-farm/stable evaluations, BMP design, and technical assistance; identify priority parcels for livestock BMP implementation. Include Spanish-language component and demonstration projects. Showcase individual examples.
- **Water Pollution Prevention Campaign.** Develop and implement an educational program to prevent water pollution from fertilizers and other nutrients, pesticides, and herbicides.
- **Livestock Nutrient Management Program.** Promote livestock nutrient best management practices (BMP) (e.g., rotational grazing, off-stream water facilities, salt/supplement feeders, the installation of stream/river exclusionary fencing where appropriate, and erosion control); offer water quality assessments, BMP design, and technical assistance.

Work Together

Facilitate communication and collaboration among those already working on efforts that help make landscapes and farms more watershed-smart. Look for opportunities to support one another's work, learn from each other, leverage resources and craft a smarter, more integrated approach to the task.

2.3.5.5 Organizations

The following organizations and entities are actively supportive of the intent of the Watershed-Smart Landscapes and Farms Campaign.

Casitas Municipal Water District

City of Ojai

City of Ventura/Ventura Water

Farm Bureau of Ventura County

Meiners Oaks Water District

Ojai Basin Groundwater Management Agency

Ojai Valley Green Coalition

Resource Conservation District

Santa Barbara Channelkeeper

Surfrider Foundation

UC Cooperative Extension

Ventura County Coalition of Labor, Agriculture and Business

Ventura County Watershed Protection District

Ventura River Water District

2.3.6 Arundo-Free Watershed Campaign

The Arundo-Free Watershed Campaign *seeks to remove, and keep at bay, the invasive non-native plant Arundo donax, which consumes excessive amounts of water, poses a major fire hazard, clogs flood control channels, and destroys native habitat.*

2.3.6.1 The Issue

Every day during the watershed's warm season, a single acre of the invasive, non-native plant *Arundo donax* can take 39,000 gallons of precious stream and ground water—up to three times as much water as the native streamside plants that it outcompetes. Each acre infested removes 4.8 million gallons of water, or 3.2 million gallons of water more than native streamside plants, every year. That's an annual water supply for 16 households or four acres of citrus. It is estimated that there are over 180 acres infested with Arundo in the watershed.

Arundo donax, or giant reed, is a bamboo-like plant that is among the fastest growing terrestrial plants—growing up to four inches a day during the warm months, and reaching heights of up to 30 feet.

Just like Bermuda grass, *Arundo* grows by sending out underground vegetative shoots, or rhizomes, that take root and send up new stalks. It spreads when pieces of rhizome fragments break off, travel downstream and take root in moist soil. *Arundo* forms massive thickets of vegetation that can cover many acres, virtually eliminating all other plant species, along with the critical wildlife habitat of streamside ecosystems.

Besides consuming so much water and crowding out native habitat, *Arundo* also poses a severe fire risk: the plant contains volatile oils that make it highly flammable; and infestations along streams can act like wicks, quickly spreading fires to new areas. During floods *Arundo* can also create hazards when uprooted plants clog flood control infrastructure.

Hundreds of acres of *Arundo* have already been removed in the watershed. By completing the job of removing remaining major infestations, the watershed can realize the water savings, and the many other benefits of having the plant gone. The need for ongoing monitoring and retreatment will always remain, but relative to the cost of other water supply projects, *Arundo* control is considered a bargain.

2.3.6.2 Targets

Increased groundwater supplies and summertime streamflow

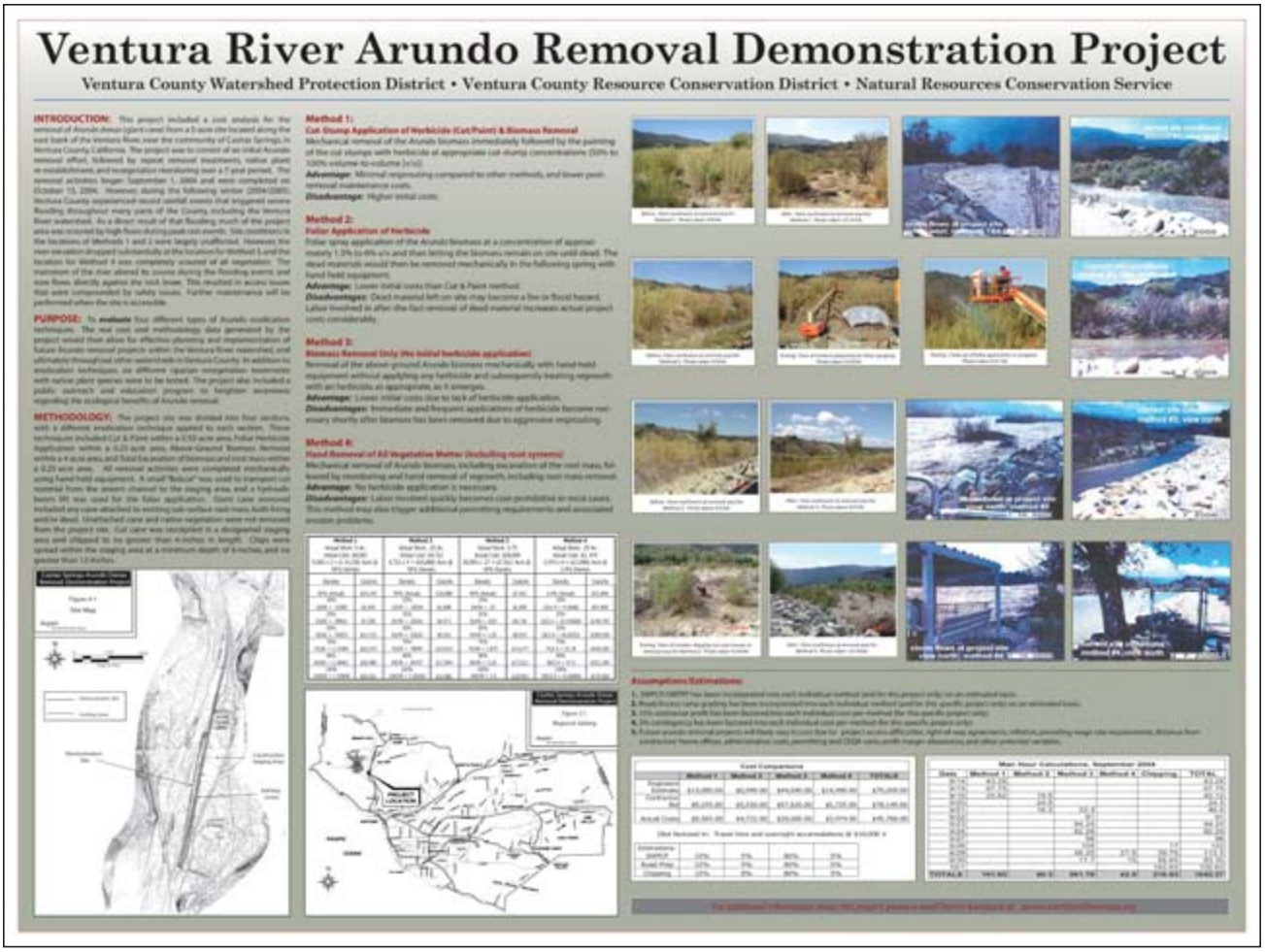
Less *Arundo* means less water consumed along streams, leaving more water in streams and groundwater basins.

Improved habitat

As soon as *Arundo* is removed, native plants and animals begin returning and the watershed's abundant natural biodiversity begins to reestablish itself.

2.3.6.3 Highlights from Existing Projects, Programs, and Practices

Thanks to extraordinary and persistent efforts by agencies, private property owners, and hundreds of volunteers organized by local non-profit organizations, *Arundo* control in the watershed has made great progress—especially in the last 10 years. About 270 acres of Arundo have been removed, and much of this acreage is being monitored for regrowth. Once established, *Arundo* can be persistent, but by removing the big stands and controlling regrowth, the massive stands that choke out habitat and consume so much water can be prevented. Here are a few selected highlights from the watershed's ongoing *Arundo donax* removal projects, programs, and practices.

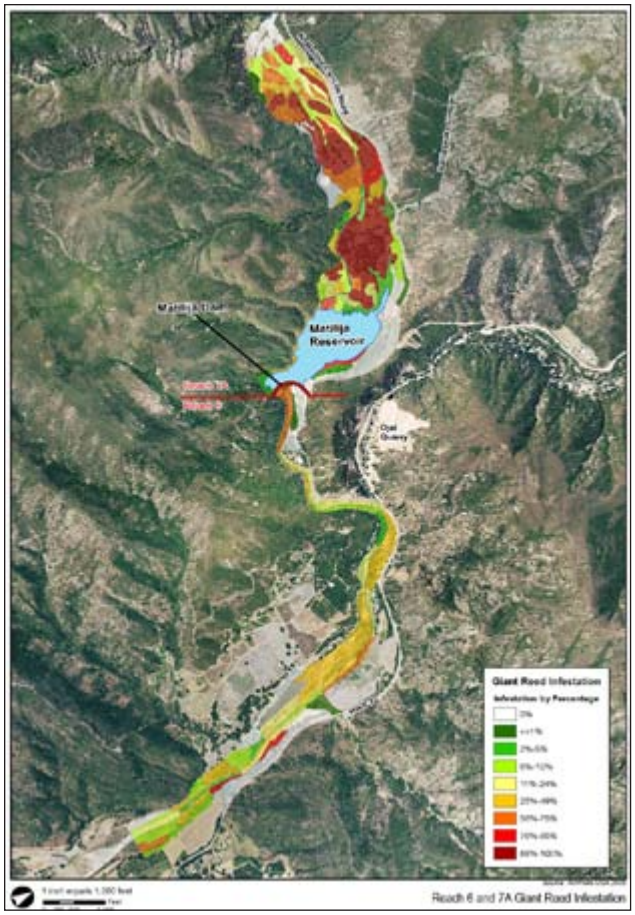

Ventura River Arundo Removal Demonstration Project

Ventura County Watershed Protection District • Ventura County Resource Conservation District • Natural Resources Conservation Service

The Ventura County Watershed Protection District (VCWPD) has played a lead role in *Arundo* control efforts—starting with a demonstration project in 2004. The project was designed by the Ventura County Arundo Task Force to evaluate the cost-effectiveness of four different methods of eradication and to improve public support for future *Arundo* removal. The VCWPD administered the demonstration project on a five-acre section on the east bank of the Ventura River near Casitas Springs. Severe flood flows in 2005 scoured much of project area and interfered with the trials, but valuable information was gained nonetheless.

Since the first 2004 project, the VCWPD has launched several ongoing *Arundo* removal projects on the lower Ventura River, upper San Antonio Creek and its tributaries, and other VCWPD land holdings.

Photo courtesy of VCWPD.



The watershed's largest VCWPD *Arundo* removal project started in 2008 on Matilija Creek and the upper Ventura River. 200 acres of Arundo in a 1,200-acre area were removed. The map shows the areas of *Arundo* (giant reed) infestation above and below Matilija Dam prior to removal.

The project to remove *Arundo* above and below Matilija Dam was part of mitigation associated with the project to remove Matilija Dam and restore the ecosystem. Ongoing monitoring and retreatment continues on VCWPD's projects. Photos show the Arundo infestation above Matilija Reservoir, before, during removal, and after.

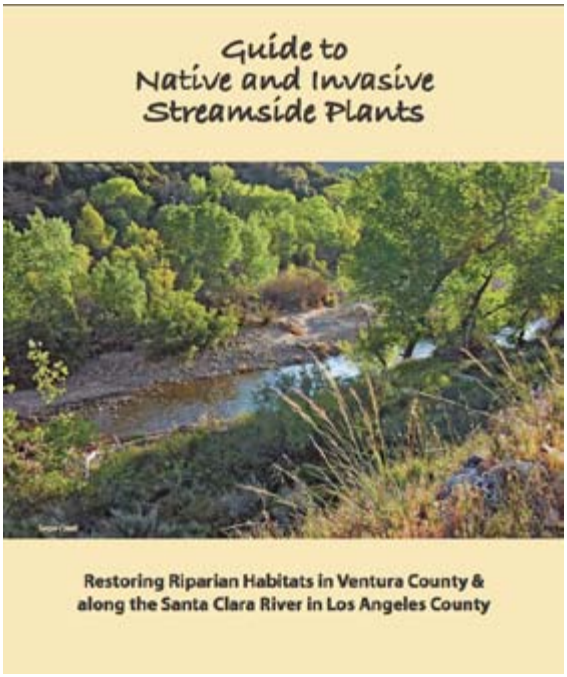
Photos courtesy of VCWPD.

Private property owners are actively helping to control *Arundo.* The owners of Taylor Ranch in the lower watershed removed over 45 acres of *Arundo* in the riverbed of the lower river area.

On the Taylor Ranch on the lower Ventura River, *Arundo* had grown into monoculture stands that had choked out most other vegetation and provided makeshift illegal camp shelters. With the *Arundo* removed, native vegetation is returning, and the property owners continue to monitor and retreat the area as needed.

The Ojai Valley Land Conservancy has facilitated some large *Arundo* removal projects on its properties, and continues to monitor and control. These photos show removal and revegetation on the Ventura River Preserve in 2006.

Ventura Hillsides Conservancy is removing *Arundo* on their properties, using hand tools and lots of volunteer hours.



The Ventura County Watershed Protection District and the Ventura County Planning Division produced a *Guide to Native and Invasive Streamside Plants* booklet to help educate residents about the problems that invasive plants, including *Arundo*, pose to streamside habitats.

2.3.6.4 Proposed Projects and Programs

The types of projects and programs below could advance the intent of the Arundo-Free Watershed Campaign. Some of these projects are planned and some are already being implemented to some degree. These projects and programs can also be found summarized in table format in "2.4.2 Priority Projects and Programs."

Remove and Continue to Control *Arundo*

Continue to remove *Arundo* infestations and monitor and retreat regrowth as necessary. Key infestations targeted for removal include areas along San Antonio Creek and the Ventura River floodplain from the Highway 150 Bridge south.

Reduce Permitting Time and Costs

Pursue strategies to reduce the cost and burden of securing permits for *Arundo* removal. Clustering projects into one permit may be one strategy.

Engage the Community and Encourage Stewardship

Develop an education and outreach program that explains the problems that *Arundo* presents in the watershed and encourages property owners and land managers to proactively prevent its spread.

Work Together

Facilitate communication and collaboration among those already working on efforts to remove and monitor *Arundo.* Look for opportunities to support one another's work, learn from each other, leverage resources and craft a smarter, more integrated approach to the task.

2.3.6.5 Organizations

The following organizations and entities are actively supportive of the intent of the *Arundo*-Free Watershed Campaign.

Aera Energy

California Coastal Conservancy

City of Ventura

Ojai Valley Land Conservancy

Taylor Ranch

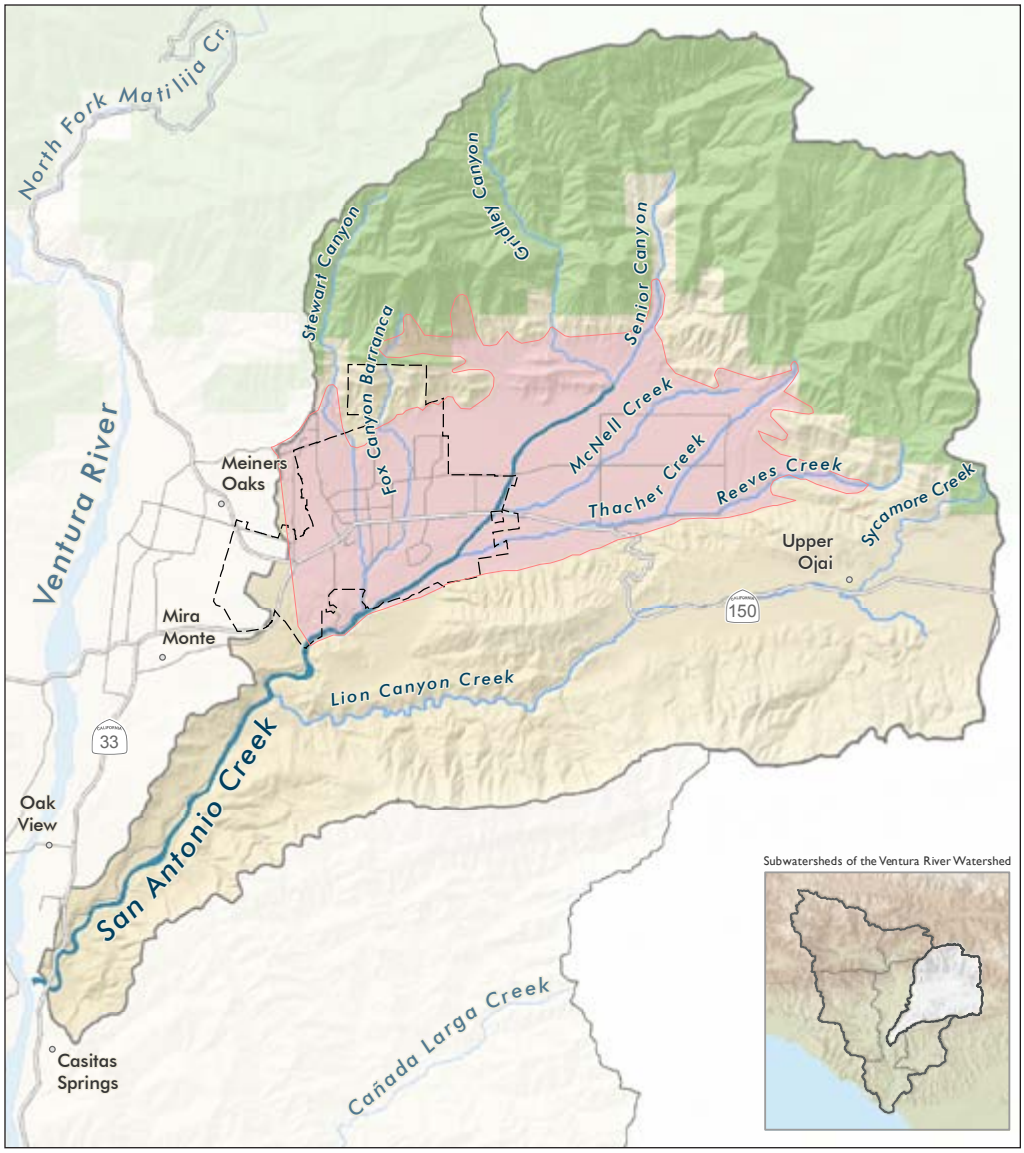
Ventura County Parks Department

Ventura County Resource Conservation District

Ventura County Watershed Protection District

Ventura County Weed Management Area

Ventura Hillsides Conservancy



2.3.7 Healthy San Antonio Creek Campaign

2.3.7.1 The Issue

San Antonio Creek subwatershed is a key drainage in the Ventura River watershed. One of the two principle drainages in the watershed, it carries 34% of the watershed's median annual runoff.

The Ojai Valley Groundwater Basin drains into San Antonio Creek. For much of the year, flow in the lower half of San Antonio Creek is groundwater from the basin. Demands on or impacts to the groundwater basin directly affect the creek.

The San Antonio Creek subwatershed drains the largest urban area in theVentura River watershed—the City of Ojai and surrounding unincorporated areas. The population density adjacent to much of the creek is the highest of any tributary in the watershed. San Antonio Creek also drains the most intensively farmed area in the watershed—the Ojai Valley's East End.

Contaminants that make their way from urban and agricultural areas to San Antonio Creek not only pollute the creek and its aquatic habitats, but also the water in the Ventura River all the way down to the sensitive fisheries in the Ventura River estuary at the coast. Nutrient pollution, which can contribute to algae blooms, is a significant contaminant that local agencies must address. The highest in-stream nutrient concentrations in the watershed are found in San Antonio Creek.

Rhizome fragments from infestations of the invasive, water-thirsty plant *Arundo donax* travel downstream from San Antonio Creek, creating a constant source of new *Arundo* infestations all the way down the Ventura River.

***The Healthy San Antonio Creek Campaign** seeks to increase the flow of clean water in San Antonio Creek, increase recharge of the interconnected Ojai Valley Groundwater Basin, and improve the creek's riparian and instream habitats.*

San Antonio Creek also offers some of the watershed's most important spawning and rearing habitat accessible to the endangered southern California steelhead. Migratory steelhead using San Antonio Creek benefit from more reliable flow, and avoid the "dry reach"—the wide, alluvial section of the Ventura River upstream of the San Antonio Creek confluence that is dry most of the year. The creek generally flows longer than other accessible streams and contains gravel needed by steelhead for spawning. Steelhead have been found to grow faster in the San Antonio Creek than elsewhere in the watershed.

2.3.7.2 Targets

Increased groundwater recharge and summertime streamflow

With improved water conservation, and water capture and infiltration, groundwater levels in the Ojai Valley Groundwater Basin could remain higher for longer, thus improving the amount of summertime streamflow (relative to rainfall) in San Antonio Creek. Additionally, removal of the invasive, non-native plant *Arundo donax* would significantly reduce the amount of water used by streamside plants.

Cleaner groundwater and surface water

With better management of fertilizers, septic systems, and horse and livestock wastes, nutrient concentrations in groundwater and surface water could be reduced.

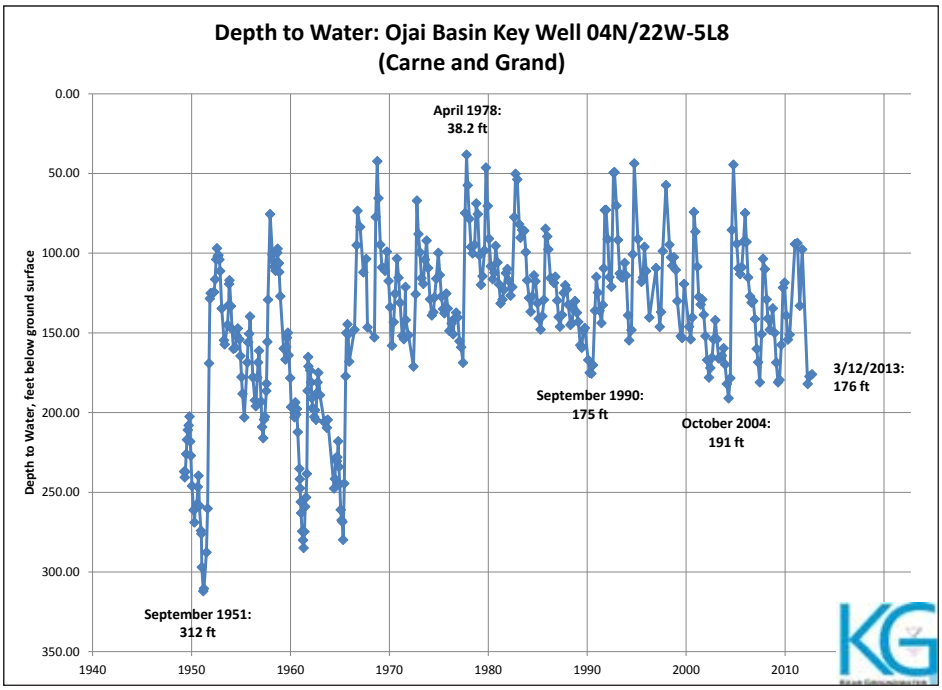
Thriving steelhead

With structural in-stream improvements, such as the addition of more over-summering pools, together with increased summertime streamflow, steelhead recovery could be dramatically enhanced.

2.3.7.3 Highlights from Existing Projects, Programs, and Practices

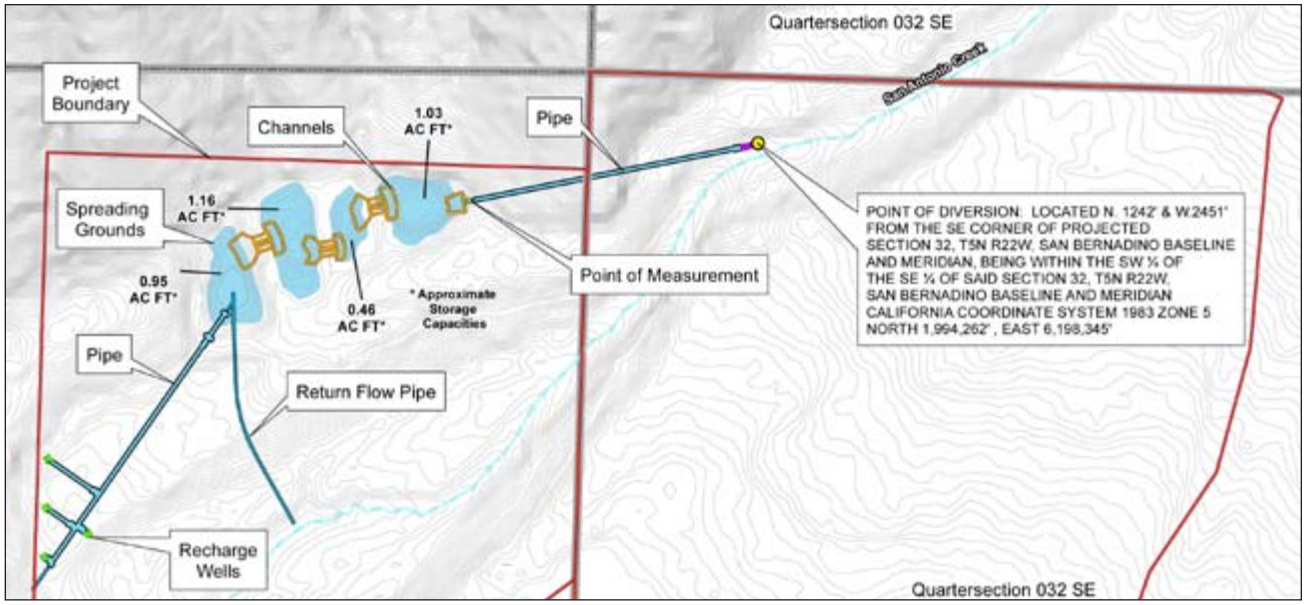
Many of the existing projects, programs, and practices described in the other campaigns are also relevant to the Healthy San Antonio Creek Campaign. In addition, here are some highlights specific to the San Antonio Creek subwatershed.

The Ojai Basin Groundwater Management Agency (OBGMA) is a special-act district that manages the water of the Ojai Valley Groundwater Basin. Formed by state legislation in 1991, OBGMA is one of only 13 such districts with groundwater management authority in California. The agency was established in the fifth year of a drought, amidst concerns of local water agencies, water users, and well owners about potential groundwater basin overdraft. The OBGMA is administered collaboratively by key stakeholders: the 5-seat board includes the City of Ojai, Casitas Municipal Water District, Golden State Water Company, Ojai Water Conservation District, and one mutual water company representative.



The OBGMA monitors groundwater levels through key monitoring wells (graph, right) and develops models to better understand and manage the basin.

The Ojai Valley Groundwater Basin underlies the City of Ojai and Ojai Valley's East End, where the majority of the watershed's agriculture is located.



Constructed in 2014, the San Antonio Creek Spreading Grounds project was designed to divert surface water from upper San Antonio Creek for recharge of the Ojai Valley Groundwater Basin using passive injection wells. Annual recharge is estimated to average 126 acre-feet of water with a maximum of 914 acre-feet per year. The project was a collaboration between the OBGMA and the Ventura County Watershed Protection District, with state grant funding secured through the Watersheds Coalition of Ventura County. Casitas Municipal Water District is also a project partner helping with facility maintenance. Top photo: spreading grounds intake structure; bottom photo: holding basins.

Photos courtesy of Ventura County Watershed Protection District.

Ideal steelhead spawning habitat has cool, oxygen-rich water with clean gravel along the channel bottom and in-stream vegetative cover. Steelhead spawning surveys show that the lower reaches of the San Antonio Creek have these habitat characteristics and that fish are spawning there. There is a potential to expand these habitats and improve the quality of existing habitats with the addition of more rearing habitats, such as deep pools, removal of invasive plants, and revegetation of bare stream banks. Pictured at right is ideal steelhead habitat on lower San Antonio Creek.

A 20-inch adult steelhead in San Antonio Creek, about a half-mile above its confluence with the Ventura River, April 2012.

Photos courtesy of Scott Lewis.

The Ojai Valley Green Coalition and the C.R.E.W. (Concerned Resource and Environmental Workers), along with lots of volunteers, have teamed up to restore the West Barranca, located behind Libbey Park in downtown Ojai. The barranca is a tributary of Ojai Creek, which eventually drains into San Antonio Creek. Team members have removed the invasive plant thickets that had smothered the creek and installed native plants.

The Ojai Valley Land Conservancy collaborated with the California Conservation Corps and The C.R.E.W. to remove over 200 Mexican fan palms from Fox Canyon Barranca and Stewart Canyon Creek. This project continues the work begun on Ojai Creek in Libbey Park.

The Ventura County Parks Department installed 44 native trees along the San Antonio Creek riparian corridor in Camp Comfort; 102 native trees along Thacher Creek, which runs through Soule Park golf course and day use park; and 72 native trees in the riparian corridor of Foster Park.

Between 2009 to 2011, the Ventura County Watershed Protection District (VCWPD) removed approximately six acres of *Arundo* (within a 212-acre area) from upper San Antonio Creek and its tributaries: McNell, Thacher and Reeves Creeks. Grant funding for this project was secured through the Watersheds Coalition of Ventura County.

Photo courtesy of VCWPD.

The Farm Bureau of Ventura County administers VCAILG (Ventura County Agricultural Irrigated Lands Group) on behalf of farmers in Ventura County. The program is a "Conditional Waiver" program, an approach to complying with required water quality regulations collectively rather than individually. Landowners and growers are asked to provide VCAILG with information on their management practices, participate in educational workshops, and implement best management practices to reduce or eliminate contaminated discharges.

Photo courtesy of University of California Cooperative Extension-Ventura.

VCAILG performs water quality monitoring and reporting. The photo at right is an excerpt from a VCAILG report that describes one of their two monitoring sites in the watershed.

VRT_SANTO

This monitoring site is located on San Antonio Creek just upstream of Grand Avenue in Ojai. San Antonio Creek is a tributary of the Ventura River.

Site Map

View downstream at the Grand Ave. bridge

This site remained dry during the 2012 monitoring events. Table 47 includes the number and types of trash observed at the monitoring site. Citrus and avocados are the predominant crop types associated with this site.

Several impediments to fish passage in the San Antonio Creek watershed have been removed in recent years through the construction of bridges. The bridges allow the natural channel bottom to reestablish and remove low flow impediments to fish migration.

In 2010, this bridge replaced a "fair weather crossing" (a road crossing that allows a waterway to run over a road) on Lion Canyon Creek, a major tributary of San Antonio Creek. The bridge improved steelhead access to over nine miles of upstream habitat.

Photos courtesy of South Coast Habitat Restoration.

A beautiful bridge for pedestrians and bicyclists using the Ojai Valley Bike Trail was installed in 2012 at the very end of San Antonio Creek, just before it merges with the Ventura River. The bridge replaced an old concrete crossing over some box culverts that frequently became plugged with woody debris during storms.

Photos courtesy of Ventura County Star (left) and Santa Barbara Channelkeeper (right).

A fair weather crossing in lower San Antonio Creek at Old Creek Road was replaced with a multi-span bridge in 2012.
Photo (right) courtesy of Ventura County Public Works Transportation Department.

A clear span bridge was constructed in 2013 on San Antonio Creek near the confluence with Stewart Canyon Creek, just south of the City of Ojai. The bridge replaced a fair weather crossing on private property.
Photo courtesy of Bill O'Brien.

2.3.7.4 Proposed Projects and Programs

The Healthy San Antonio Creek Campaign focuses all the work described in the Council's other campaigns in a targeted subwatershed because efforts focused on San Antonio Creek can yield great benefits throughout the watershed. This campaign is an integrated campaign that works on many fronts. The projects and programs listed below—some in the planning stage and others already underway—could advance the intent of this campaign. These projects and programs can also be found summarized in table format in "2.4.2 Priority Projects and Programs."

Target Implementation of Projects and Programs from the Council's Other Campaigns in the San Antonio Subwatershed

The San Antonio Creek campaign takes a holistic and comprehensive approach, drawing ideas from project and program solutions described for the Council's entire slate of campaigns.

- Watershed-Smart Landscapes and Farms Campaign
- Extreme Efficiency Campaign
- Resiliency Through Infrastructure and Policy Campaign
- Arundo-Free Watershed Campaign
- River Connections Campaign

Protect the Groundwater Basin

- **Land Subsidence Monitoring.** Establish a land subsidence monitoring network using real time kinematic GPS to measure changes in ground elevation due to groundwater pumping-related subsidence.

Restore and Protect Habitats

- **Steelhead Restoration Plan.** Consolidate existing watershed-specific steelhead data (e.g., habitat, population and monitoring data). Identify priority limiting factors for all life stages of the steelhead (e.g., lack of over-summering pools for smolts and older fish, rearing habitats for younger age classes, spawning habitats.) Describe a suite of project types to address these limiting factors. Prioritize stream reaches for steelhead habitat restoration based upon least cost/greatest gain.
- **Steelhead Pool Development/Maintenance on San Antonio Creek.** Surveys and monitoring of San Antonio Creek over the years have revealed the need for over-summering pools in the creek as a priority for steelhead recovery. Support steelhead survival by developing

and maintaining over-summering pools in strategic, least cost/greatest gain, perennial flow locations.

- **Fish Passage.** Modify priority fish passage barriers (e.g., Camp Comfort and Fraser Street).

Engage the Community and Encourage Stewardship

- **Friends of San Antonio Creek.** Coordinate meetings of residents/landowners along San Antonio Creek to foster and facilitate increased knowledge about watershed issues and stewardship. Address topics such as invasive plant removal, habitat restoration, steelhead habitat protection, permeable surfaces, stormwater retention, flooding awareness and preparation, and livestock BMPs.

2.3.7.5 Organizations

The following organizations and entities are actively supportive of the intent of the Healthy San Antonio Creek Campaign.

Casitas Municipal Water District

City of Ojai

City of Ventura/Ventura Water

The Concerned Restoration and Environmental Workers

Farm Bureau of Ventura County

Meiners Oaks Water District

Ojai Basin Groundwater Management Agency

Ojai Valley Green Coalition

Ojai Valley Land Conservancy

Resource Conservation District

Santa Barbara Channelkeeper

Surfrider Foundation

UC Cooperative Extension

Ventura County Coalition of Labor, Agriculture and Business

Ventura County Parks Department

Ventura County Resource Conservation District

Ventura County Watershed Protection District

Ventura County Weed Management Area

Ventura River Water District

2.4 Complete List of Priority Projects and Programs

2.4 Complete List of Priority Projects and Programs

2.4.1 Priority Project and Program List Development

The first step in developing a priority list of projects and programs for achieving the watershed management plan's goals and objectives was to create a master list of ideas. This master archive of projects and programs (MAPP) represents an unedited, unranked repository of ideas large and small.

The creation of the MAPP began with a draft list of project and program ideas compiled by the watershed coordinator. Ideas were gleaned from a variety of sources: Watershed Council meetings, stakeholder conversations, past reports and plans, and other watershed management plans. Six technical advisory committees (TACs) of the Watershed Council held a series of meetings in March 2013 and again in May 2013 to further develop and refine this list.

Project/Program List Development Process

Step 1: Create Master Archive of Projects and Programs

Step 2: Filter Projects and Programs into Tier 1 or Tier 2

Step 3: Filter Tier 1 Projects and Programs by Those with Leads and Those Without Leads

The MAPP is maintained in a comprehensive spreadsheet that indicates a variety of features about each project or program idea, such as the goals and objectives it could satisfy, the general project type, estimated cost, and the organizations that are willing to lead or support the project. The MAPP is intended to be a living document that the Watershed Council can continue to add to over time.

The second step in developing a priority project and program list was to categorize the projects assembled in the MAPP archive into one of two "tiers":

Tier 1 projects and programs are those that

1. Meet one or more of the plan objectives,
2. Are feasible,
3. Have clear benefit,
4. Have general stakeholder support, and
5. Have a project lead or supporter.

The third step in developing a priority project and program list was to categorize the Tier 1 projects and programs by whether they had a committed project lead or not. The Tier 1 projects and programs that have at least one lead represent the priority and "potentially ready" projects and programs. Those Tier 1 projects and programs with only supporters represent priority, but not quite ready, projects and programs.

Tier 2 projects and programs are all those that do not meet all Tier 1 criteria, and therefore are not yet ready to move forward with Council support, but remain on the MAPP as concepts.

Leads and Supporters

Tier 1 projects and programs must have either a lead (Tier 1S) or a supporter (Tier 1L). A *lead* is defined is an organization that is willing and able to lead and/or be the grant applicant of the project/program. Being a lead does not represent a commitment to implement the project; lead status simply indicates a big enough interest in seeing the project implemented that the organization would consider leading it or pursuing funding under the right circumstances. A *supporter* is an organization willing to actively advance a project/program, but that is not in a position to be the lead.

The project and program list is not static. As circumstances and needs change, Council members may wish to elevate a project's status, such as from a Tier 1S to a Tier 1L, or add a new project or program. The list can be updated at any time with Council approval, and the most current list will be maintained on the Council's website.

2.4.2 Priority Projects and Programs

Table 2.4.2 represents the Council's Tier 1L list of projects and programs. The Tier 1L list describes those projects and programs that Council members are prepared to act on if funding becomes available. These are the projects/programs that are the most developed conceptually, the most feasible, and that have Council member support. Some of these projects are already occurring and would benefit from expansion or enhancement; and some of the projects are new. The implementation campaigns, discussed previously in this chapter, combine projects and programs from the Tier 1L list into coherent thematic strategies that reflect the on-the-ground integration of these various projects and programs.

The list of Tier 1S and Tier 2 Projects and Programs can be found in "4.4 Appendices."

Table 2.4.2.1 Tier 1L Priority Projects and Programs

ID#	Tier 1L Project or Program	Fill Data Gaps / Analyze	Make Physical Improvements	Educate/Engage/ Incentivize	Improve/Use Regulations & Policies	Plan/Collaborate Regionally	Leads (L) Supporters (S)
	Goal 1: Sufficient Local Water Supplies						
1	**Surface Water-Groundwater Interaction Analysis.** Increase understanding about the interaction between groundwater extractions and surface flows. Install surface flow monitors at key locations, such as along San Antonio Creek at the Ventura River Basin-Ojai Basin boundary, and within the Ojai Basin. Look for correlations between pumping extractions and changes in surface flow.	x					L: Ventura Water, MOWD
5	**Water Use Efficiency and Reuse Education.** Promote and incentivize water use efficiency and reuse (e.g., low-water-using landscapes; replacement of hobby orchards with lower-water-using landscapes; use of local, woody mulch; use of graywater systems and cisterns/rain barrels; high efficiency plumbing retrofits, fixing leaks, efficient use of agricultural irrigation water). Continue to promote the availability of large landscape irrigation efficiency survey and ag/hobby orchard irrigation efficiency evaluations. Continue/expand subsidies for equipment upgrades.			x			L: Ventura Water, RCD, OVGC
7	**Casitas MWD Reservoir Tank Seismic Retrofit.** Bring two Casitas MWD reservoir tanks up to earthquake standards to prevent potential seismic damage.		x				L: Casitas

Table 2.4.2.1 Tier 1L Priority Projects and Programs

ID#	Tier 1L Project or Program	Fill Data Gaps / Analyze	Make Physical Improvements	Educate/Engage/ Incentivize	Improve/Use Regulations & Policies	Plan/Collaborate Regionally	Leads (L) Supporters (S)
8	**Water Supply Infrastructure Reliability Improvements.** Replace or retrofit aging or threatened water supply tanks, wells, pipes, and other conveyance and storage equipment to reduce water losses, ensure supply reliability, and bring up to earthquake standards. Install backup equipment to improve the watershed's resiliency to emergencies.		x				L: Casitas, MOWD S: Ventura Water
11	**On-Farm Water Detention/Retention Analysis**. Investigate opportunities for small-scale on-farm stormwater detention and storage options (e.g., swales, contours, wet ponds, rainwater harvesting, underground storage).	x					L: RCD S: RWQCB
12	**Contingency Water Storage**. Install decentralized contingency water storage.		x				L: Ventura Water
14	**Water Supply System Loss Minimization.** Reduce water supply losses from leaking pipes or inefficient equipment.		x				L: Casitas, Ventura Water, RCD
15	**Additional Flow Gauges.** Install streamflow gauges in key locations, such as on San Antonio Creek, to improve understanding about surface flow patterns relative to groundwater levels.	x					L: OBGMA
16	**Water Rate Analysis.** Research creative water rate model options that strongly incentivize conservation while covering district costs. Analyze the relative amount of funding spent by local water suppliers on conservation.	x					L: Casitas
17	**Reclaimed Water Analysis**. Investigate the opportunities for and feasibility of using reclaimed water from the Ojai Valley Sanitary District, such as during winter flows when the water is not so critical in the river. (Per state policy, recycled water cannot be used until a Salt and Nutrient Management Plan is completed.)	x					L: Ventura Water S: OVSD
18	**Conjunctive Use Study**. Investigate opportunities for maximizing the efficiency of use and storage between surface and groundwater.	x					L: Casitas, Ventura Water
19	**Ocean/River Friendly Gardens Education Program.** Expand the Ocean/River-Friendly Gardens program (conservation, rainwater harvesting, non-polluting) watershed-wide; integrate incentives.			x			L: OVGC, Surfrider S: Ventura Water
22	**Large Landscape Irrigation Efficiency Surveys/Upgrades**. Continue to promote the availability of Casitas's free landscape irrigation efficiency surveys; continue or expand subsidies for equipment upgrades.			x			L: Casitas
23	**Ventura Water - Casitas Conduit Intertie.** Install a new 5.5 mile pipeline from Lake Casitas to the City of Ventura, and a pump station, to provide Casitas with a backup for potential water service delivery interruption to the Rincon area and to improve the City of Ventura's water supply reliability and system operational abilities.		x				L: Ventura Water S: RWQCB

Table 2.4.2.1 Tier 1L Priority Projects and Programs

ID#	Tier 1L Project or Program	Fill Data Gaps / Analyze	Make Physical Improvements	Educate/Engage/ Incentivize	Improve/Use Regulations & Policies	Plan/Collaborate Regionally	Leads (L) Supporters (S)
25	**OVSD Sewer Main Lining Study.** Prevent infiltration of groundwater into sewer lines by lining existing sewer pipes. Up to 7.5 million gal/day of groundwater infiltrate the sewer pipes during storm events. That's 23 acre-feet of water a day.	x					L: OVSD S: OBGMA
26	**Casitas MWD Exposed Main Line (San Antonio Creek) Burial.** Bury this important gravity main line for improved protection.		x				L: Casitas
27	**Ventura Water Foster Park Wellfield Restoration**. Install additional wells in the Foster Park area to allow the City of Ventura to produce more water from the river when flows are high. Ventura faces the challenge of meeting water demands in ways that protect and enhance the steelhead. New wells at Foster Park will allow the City to better assure that adequate surface flow is available at critical times to support steelhead migration, spawning, and rearing.		x				L: Ventura Water
29	**Ventura Water North-Side Satellite Wastewater Treatment Plant.** Install a small, 2 million gallons/day (mgd) tertiary wastewater treatment plant near the Fairgrounds to treat wastewater from the Westside of Ventura for reuse. The recycled water could meet ag demand (1 mgd avg., 1.8 mgd max/mo.) and urban demand (0.23 mgd avg., 0.33 mgd max/mo.). Provides a small water supply benefit by offsetting potable demands for urban irrigation. Ag recycled water use would reduce groundwater extractions. While the supply/demand is relatively small, there are advantages to this alternative: the availability of city-owned property at the Seaside Pump Station for treatment facilities, the low chloride and TDS concentrations in the wastewater, and the similarity between the available supply of recycled water and the demand in the vicinity of the Seaside Pump Station. (Per state policy, recycled water cannot be used until a Salt and Nutrient Management Plan is completed.)		x				L: Ventura Water
31	**Native and Climate Appropriate Plant Education.** Develop and implement an education program that promotes landscaping with natives and other climate-appropriate plants.			x			L: Casitas
34	**Plumbing Fixture Retrofit Policy Enforcement:** Monitor enforcement of the Ojai Area Plan policy that stipulates that new development must not add any net increase demand to existing water supplies. This is achievable through mitigation such as off-site plumbing retrofits. "New discretionary development shall be required to retrofit existing plumbing fixtures or provide other means so as not to add any net increased demand on the existing water supply. This policy shall be applicable until such time as a groundwater basin study is completed and it is found that the available groundwater, or other sources of water, could adequately provide for cumulative demand without creating an overdraft situation."				x		L: Council
35	**Meiners Oaks WD Replacement Water Well.** Replace a potable water well built in the 1950s.		x				L: MOWD

Table 2.4.2.1 Tier 1L Priority Projects and Programs

ID#	Tier 1L Project or Program	Fill Data Gaps / Analyze	Make Physical Improvements	Educate/Engage/ Incentivize	Improve/Use Regulations & Policies	Plan/Collaborate Regionally	Leads (L) Supporters (S)
36	**Meiners Oaks WD Standby Electric Generator.** Install a standby generator to maintain water supply and fire flows in a critical zone during an extended power outage.		x				L: MOWD
37	**Meiners Oaks WD Water Tank Replacement.** Replace an aging bolted steel 500,000-gallon water tank with a welded steel tank with concrete ringwall.		x				L: MOWD
39	**Agricultural and Hobby Orchard Irrigation Efficiency Evaluations**. Continue to promote the availability of the Resource Conservation District's free irrigation efficiency evaluation program (Mobile Irrigation Lab) for farms and hobby orchards; continue or expand subsidies for equipment upgrades.			x			L: RCD, Casitas S: Colab
41	**Foster Park Infrastructure and Bank Protection and Restoration.** Prevent critical infrastructure loss (such as in the 2005 storms) and support the development of steelhead habitat by building groins, revegetating the banks and preventing bank erosion. This reach, which is critical riparian habitat for steelhead, includes the city of Ventura's wellfield, a portion of Ojai Valley Sanitary District's sewer trunk line and a Casitas MWD main water line - all critical infrastructure that needs protection from storms. A bank protection design has been developed, with input from resource agencies, which would allow habitat to re-establish on its own and support steelhead spawning.		x				L: Ventura Water S: OVSD
42	**Groundwater Data Loggers**. Install and maintain data loggers in key wells to continuously track water level and other parameters.	x					L: OBGMA
43	**Direct Installation of High Efficiency Irrigation Equipment on Large Landscapes.** Provide irrigation surveys for large landscapes along with installation of appropriate water-saving technologies (e.g., low-precipitation rate nozzles, rain shut-off sensors, weather-based controllers) by a professional installer.		x				L: Casitas
46	**Land Subsidence Monitoring.** Establish a land subsidence monitoring network using real time kinematic GPS to measure changes in ground elevation due to groundwater pumping-related subsidence.	x					L: OBGMA
	Goal 2: Clean Water						
49	**OVSD Sewer Trunk Relocation - Ventura River.** Relocate a sewer line in the Ventura River threatened by river flow. A sewer line break here would affect water companies, instream uses, and ocean water quality.		x				L: OVSD
51	**OVSD Sewer Trunk Relocation - Ventura River/Meiners Oaks**. Remove an old sewer line that crosses the river that could become a dam and steelhead impediment if the level of the riverbed drops.		x				L: OVSD
52	**Livestock Nutrient Management Program.** Promote livestock nutrient best management practices (BMP) (e.g., rotational grazing, off-stream water facilities and salt/supplement feeders, the installation of stream/river exclusionary fencing where appropriate, and erosion control); offer water quality assessments, BMP design, and technical assistance.			x			L: RCD S: RWQCB, CCC, SBCK

Table 2.4.2.1 Tier 1L Priority Projects and Programs

ID#	Tier 1L Project or Program	Fill Data Gaps / Analyze	Make Physical Improvements	Educate/Engage/ Incentivize	Improve/Use Regulations & Policies	Plan/Collaborate Regionally	Leads (L) Supporters (S)
53	**Slow It/Spread It/Sink It Campaign.** Coordinate an educational program to advance onsite rain/stormwater harvesting at residences, churches, schools and businesses; integrate incentives, demonstration projects, and showcase individual examples.			x			L: OVGC, SBCK, S: Ventura, CCC, RCD
54	**Farm and Stable Nutrient Management Program**. Promote farm and stable nutrient management best management practices (BMP) (e.g., filter strips, rainwater collection, manure management, erosion control, off-stream watering); offer on-farm/stable evaluations, BMP design, and technical assistance; identify priority parcels for livestock BMP implementation. Include Spanish-language component and demonstration projects. Showcase individual examples.			x			L: RCD S: RWQCB
55	**Coordinated Water Quality Monitoring.** Investigate opportunities to coordinate the various water quality monitoring programs to reduce redundancy, and improve the cost-effectiveness and utility of the data, such as by sharing monitoring locations, standardizing protocols and formats, and sharing data.					x	L: OVSD, WPD S: RWQCB, SBCK
56	**Adopt-a-River Program.** Coordinate a program that enlists service organizations, youth groups, businesses, and others to commit to river/stream/channel/trail cleanup, such as collection events on Calif. Coastal Cleanup Day, ongoing dog mitt dispenser/maintenance on major trails, and ongoing horse manure collection on major trails.			x			L: VHC, SBCK, County of Ventura, Ventura S: OVGC
57	**Friends of San Antonio Creek.** Coordinate meetings of residents/ landowners along San Antonio Creek to foster and facilitate increased knowledge about watershed issues, and stewardship. Address invasive plant removal, habitat restoration, steelhead habitat protection, permeable surfaces, stormwater retention, flooding awareness and preparation, livestock BMPs, etc.			x			L: RCD S: Ojai, SBCK
58	**Stormwater Retrofit Plan (LID and Green Streets).** Develop a plan that inventories, assesses and prioritizes opportunities to retrofit impervious surfaces with alternative approaches (e.g., low impact development [LID] and green streets) that capture, treat, and infiltrate urban stormwater runoff. This may include public properties - such as public rights-of-way, street medians, sidewalks, parking lots and parks - as well as private properties, where public-private partnerships are possible. This planning will include soils investigations and development of preliminary retention calculations and design volumes based on prioritized ranking of parcel size, soil percolation rates and depths to groundwater.	x					L: Ventura, County of Ventura, SBCK S: RWQCB, OVGC
59	**Water Pollution Prevention Campaign.** Coordinate an educational program to prevent nonpoint source pollution (nutrients, pesticides/ herbicides, trash, pharmaceuticals, etc.).			x			L: Ventura, WPD, SBCK S: RCD
60	**Prevent Illegal River Bottom Camps.** Support the work of the City of Ventura, County of Ventura, law enforcement, and social service organizations to prevent illegal activities in the river.					x	L: Ventura, SBCK S: Friends, County of Ventura

Table 2.4.2.1 Tier 1L Priority Projects and Programs

ID#	Tier 1L Project or Program	Fill Data Gaps / Analyze	Make Physical Improvements	Educate/Engage/ Incentivize	Improve/Use Regulations & Policies	Plan/Collaborate Regionally	Leads (L) Supporters (S)
61	**In-Situ Water Quality Monitoring Equipment.** Install multi-parameter monitoring equipment to continuously monitor water quality in the river system, including dissolved oxygen.	x					L: SBCK S: OVSD
63	**Stormwater Retrofit Demonstrations (LID and Green Streets).** Retrofit impervious surfaces with alternatives (e.g., low impact development and green streets) that capture, treat, and infiltrate urban stormwater runoff in order to demonstrate the use of bioretention systems, permeable surfaces, runoff treatment, infiltration and the restoration of natural hydrological functions in urban areas. May include public properties - such as public rights-of-way, street medians, sidewalks, parking lots and parks - as well as private properties, where public-private partnerships are possible. Prominent public locations will be prioritized when feasible.		x				L: Ventura, County of Ventura S: RWQCB, SBCK
64	**Ventura River Stream Team Citizen Monitoring Program.** Continue this citizen water quality monitoring program that provides important, long-term water quality data throughout the watershed, while empowering, educating, and engaging residents.	x					L: SBCK
65	**Manure/Composting Storage Demonstration Site.** Install a manure/composting bunker or similar system, as a demonstration site at a horse facility.			x			L: RCD
66	**Dry Weather and/or First Flush Diversions.** Install devices to capture dry weather and/or first flush contaminated stormwater and send directly to the wastewater treatment plant.		x				L: Ventura S: Ojai, RWQCB, OVSD
72	**Ventura Water San Jon/Prince Barranca Urban Stormwater/Flood Control Retrofit Pilot Project.** Retrofit parking and recreation areas, construct detention basins, and upgrade storm drains in order to enhance infiltration, water conservation, stormwater reuse, and urban flood protection. (In IWPP as channel/drainage improvements. Technically outside of the watershed proper.)		x				L: Ventura, WPD S: Surfrider
73	**Brownfield Project Remediation.** There are 30 brownfield sites in the Westside and North Ventura Avenue areas of the city of Ventura that are potentially contaminated with hazardous substances and that could pose a threat to groundwater. Assist property owners with securing funding to clean up these sites.		x				L: Ventura
74	**Single-Use Bag Ban.** Promote adoption of a single-use bag ban by the County of Ventura and City of Ventura (already adopted by City of Ojai).				x		L: SBCK S: Matilija C, Surfrider, OVGC, County of Ventura

Table 2.4.2.1 Tier 1L Priority Projects and Programs

ID#	Tier 1L Project or Program	Fill Data Gaps / Analyze	Make Physical Improvements	Educate/Engage/ Incentivize	Improve/Use Regulations & Policies	Plan/Collaborate Regionally	Leads (L) Supporters (S)
75	**Septic System TMDL Special Study.** Conduct a study to identify those septic systems, either individually or by geographic area, that are contributing to the impairment of surface waters in the watershed. This will facilitate a focused application of available resources to reduce or eliminate the contribution of these systems to water quality impairments, and more effectively meet the requirements of the state's AB 885 policy and TMDL requirements.	x					L: EHD S: Ojai, RWQCB, SBCK, OVSD
76	**Geologic Nitrogen Sources - TMDL Special Study.** Conduct a special study to determine the extent to which the natural Monterey Formation contributes nutrients to water systems.	x					L: CoLab S: RWQCB
77	**Stormwater Parking Lot Retrofits.** Retrofit parking lots and their landscapes to improve stormwater capture and infiltration, where feasible (given clay soils and high groundwater) as they come up for rehabilitation.		x				L: Ojai
78	**Trash Excluders.** Retrofit catch basins with trash excluders to filter trash from storm flows.		x				L: Ojai
186	**Cleanup Petrochem.** The blighted and abandoned oil refinery has marred the view, threatened the water quality, and impaired recreational values of the lower Ventura River for decades. Work to have the facility removed and cleaned up by the responsible parties.		x				L: County RMA
	Goal 3: Integrated Flood Management						
79	**Bring Levees up to FEMA Standards - Casitas Springs Levee. (Also Matilija Dam Removal Mitigation)** Complete levee improvements required to meet FEMA certification requirements and as part of the Matilija Dam Ecosystem Restoration Project.		x				L: WPD S: Coastal Cons.
80	**Bring Levees up to FEMA Standards - Live Oaks Levee. (Also Matilija Dam Removal Mitigation)** Complete levee improvements required to meet FEMA certification requirements and as part of the Matilija Dam Ecosystem Restoration Project.		x				L: WPD S: Coastal Cons.
82	**Matilija Dam Removal - Mitigation: Meiners Oaks Levee**. Construct new Meiners Oaks Levee/floodwall - part of the Matilija Dam Ecosystem Restoration Project.		x				L: WPD
84	**Matilija Dam Removal - Mitigation: Santa Ana Bridge Upgrades**. Widen and upgrade Santa Ana Bridge - part of the Matilija Dam Ecosystem Restoration Project.		x				L: WPD S: OVSD
85	**Matilija Dam Removal - Mitigation: Camino Cielo Bridge Replacement**. Replace Camino Cielo Bridge - part of the Matilija Dam Ecosystem Restoration Project.		x				L: WPD
86	**Bring Levees up to FEMA Standards - Ventura River Levee and Parkway Enhancement.** Complete levee improvements required to meet FEMA certification requirements, and create safe access to the lower river for recreation.		x				L: WPD S: Coastal Cons.

Table 2.4.2.1 Tier 1L Priority Projects and Programs

ID#	Tier 1L Project or Program	Fill Data Gaps / Analyze	Make Physical Improvements	Educate/Engage/ Incentivize	Improve/Use Regulations & Policies	Plan/Collaborate Regionally	Leads (L) Supporters (S)
87	**Canada de San Joaquin Bank Stabilization.** Fix severe bank erosion and degrading invert. Service road is threatened, followed by homes above bank. Construct grade stabilizers; protect banks from erosion; acquire right-of-way. (IWPP)		x				L: WPD
91	**Channel Improvements - Canada Larga.** Make creek shortcut (from 2005 flood) permanent. Excavate 1,500' long channel and/or build levees to provide flood protection. (IWPP)		x				L: WPD
92	**Debris Basin Installation/Maintenance - Coyote Creek.** Excessive debris and sediment in channel. Implement routine debris clean out; build debris basin at mouth of Red Mountain Canyon. (IWPP)		x				L: WPD
93	**Right-of-Way Acquisition - Coyote Creek.** ROW needed to get access for repairs and maintenance. (IWPP)		x				L: WPD
94	**Channel Improvements - Dent Drain Outlet.** Ventura River bank erosion threatening headwall and flapgate. Construct upstream rock riprap groin. (IWPP)		x				L: WPD
95	**Debris Basin Installation/Maintenance - Dron Creek.** Very high sediment yield; fills channel and causes flooding. Develop design that minimizes downstream erosion. Construct debris basin in canyons north of Gridley Rd. (IWPP)		x				L: WPD
96	**Channel Improvements - Rebuild East Ojai Drain.** Undersized drain needs enlarging. (IWPP)		x				L: WPD
97	**Channel Improvements - Fox Barranca.** Replace the existing concrete channel and increase flow capacity. (IWPP)		x				L: WPD
98	**Right-of-Way Acquisition - Fox Canyon Debris Basin.** ROW needed to get access for maintenance. (IWPP)		x				L: WPD
99	**Right-of-Way Acquisition- Fresno Canyon Flood Mitigation.** ROW needed to get to levee and end of Fresno Cnyn from Edison Drive. (IWPP)		x				L: WPD
100	**Debris Basin Installation/Maintenance - Fresno Canyon Flood Mitigation.** Construct a reinforced concrete pipe diversion from upstream of Highway 33 to Ventura River. The purpose of this project is to protect the community of Casitas Springs from a 100-year flood in Fresno Canyon. (IWPP)		x				L: WPD
101	**Channel Improvements - Howard Ave. Drain.** No access road to maintain earth channel. Extend 36" pipe upstream 1060 feet. (IWPP)		x				L: WPD
102	**Right-of-Way Acquisition - Manuel Canyon.** ROW needed to get access for repairs and maintenance. (IWPP)		x				L: WPD
103	**Flood Modeling - McNell Creek Flood Mitigation.** Creek is undersized and carries a heavy sediment load. Use modeling to plan improvements. (IWPP)	x					L: WPD

Table 2.4.2.1 Tier 1L Priority Projects and Programs

ID#	Tier 1L Project or Program	Fill Data Gaps / Analyze	Make Physical Improvements	Educate/Engage/ Incentivize	Improve/Use Regulations & Policies	Plan/Collaborate Regionally	Leads (L) Supporters (S)
104	**Flood Modeling - Thacher Creek Flood Mitigation.** Creek is undersized and carries a heavy sediment load. Use modeling to plan improvements. (IWPP)	x					L: WPD
105	**Right-of-Way Acquisition - Parkview Drain**. ROW needed to get access for maintenance. (IWPP)		x				L: WPD
106	**Debris Basin Installation/Maintenance - Senior Canyon.** Crossings are undersize and debris deposition a problem. Design and construct a new debris/detention basin at the abandoned basin site. (IWPP)		x				L: WPD
108	**Channel Improvements - Skyline Drainage Rock RipRap Stabilizer**. Erosion at outlet threatening adjacent bank and trail/access road. Reconstruct concrete rock outlet. (IWPP)		x				L: WPD
109	**Channel Improvements - Thacher Creek - Grand Ave.** Calif crossing (bridgeless stream crossing) interrupts sediment transport; local flooding. Replace crossing with a bridge. (IWPP)		x				L: WPD
110	**Channel Improvements - Thacher Creek @ Siete Robles.** Community subject to flooding from inadequate channel. Replace. (IWPP)		x				L: WPD
111	**Ventura River Integrated Watershed Protection Plan Annual Update.** Update the IWPP and include a comprehensive survey and engineering analysis of the watershed's drainage infrastructure and cost/ benefit of improvements. Consider infrastructure needs in light of megastorm scenarios. Ensure integration of the watershed management plan's flood management priorities in the IWPP. (IWPP)	x					L: WPD
112	**Channel Improvements - Vince Street Drain Outlet to Ventura River.** Make improvements to prevent Ventura River flooding and sedimentation of earth channel and inlet to culvert. (IWPP)		x				L: WPD
113	**ARkStorm Scenario Drill.** Develop response plans for a megastorm hitting the watershed and test the plans with a full-scale real-time exercise. Work with emergency services, water and sanitary districts, the media, and local and state government.					x	
114	**100-Year Flood Event Drill.** Work with Watershed Protection District, Public Works Transportation, water and sanitary districts, and local governments to stage a 100-year flood event exercise in the watershed.					x	L: WPD
115	**Flood Control Project Design**. Participate in the Watershed Protection District's pre-design stakeholder process for flood control projects.					x	L: Council
116	**Stormdrain Improvements - Ojai Avenue (Eastside).** Area subject to flooding.		x				L: Ojai
117	**Culvert Improvements - Maricopa Hwy at Besant Meadow.** Area subject to flooding.		x				L: Ojai

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	Goal 4: Healthy Ecosystems						
118	**Matilija Dam Removal - Interim Notch of Matilija Dam.** Notch the dam down to the existing sediment level.		x				L: WPD S: Coastal Cons., Matilija
119	**Matilija Dam Removal**. Remove dam to restore sediment transport and access for migrating steelhead, and eliminate the dam failure hazard.		x				L: WPD, Coastal Cons. S: Matilija C.,
120	**Matilija Dam Removal - Desilting Basin**. Construct a desilting basin for diverted surface water before it enters Casitas Reservoir - part of the Matilija Dam Ecosystem Restoration Project.		x				L: WPD Coastal Cons.
121	**Matilija Dam Removal - Mitigation: Robles Diversion High Flow Bypass.** Construct three additional gates and appurtenant work to allow expected additional sediment to pass by the Robles Diversion -part of the Matilija Dam Ecosystem Restoration Project.		x				L: WPD S: Coastal Cons.
124	**Matilija Dam Removal - Sediment Removal**. Remove and dispose of sediment behind the dam - part of the Matilija Dam Ecosystem Restoration Project.		x				L: WPD, Coastal Cons.
125	**Matilija Dam Removal - Mitigation: Invasive Plant Removal and Retreatment.** Retreat areas where *Arundo* and other invasive species have been removed, from Matilija down to Hwy 150 - part of the Matilija Dam Ecosystem Restoration Project.		x				L: WPD S: Coastal Cons., OVSD
126	**Confluence Wetland Mitigation.** Casitas Springs Levee runs through natural wetland at confluence of Ventura River and San Antonio Creek. Lower and realign levee so wetland can be restored. (IWPP)		x				L: WPD
127	**Invasive Plant Task Force.** In collaboration with the County Weed Mgmt. Area, establish an invasive plant task force in the watershed to share knowledge/resources, prioritize areas for removal, ensure state-of-the-art procedures are employed, study innovative alternatives, streamline permitting, establish protocols that ensure pesticide use is minimized and maximally effective, and to develop public information materials on the dangers of *Arundo* and other invasives.					x	L: Council
128	**Invasive Plant Removal.** Remove and monitor *Arundo* and other invasive non-native species that threaten aquatic habitats.		x				L: OVLC, VHC S: Coastal Cons., Ojai
129	**Steelhead Habitat Enhancement.** Support steelhead recovery by creating and maintaining in-stream habitat that supports all life stages of the steelhead. Examples include large woody debris, spawning gravel, riffles, riparian cover and rock outcroppings. Where feasible start with strategic, perennial flow, least cost/greatest gain locations.		x				L: VHC, OVLC, CCC S: Casitas, Ventura Water

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ID#	Tier 1L Project or Program	Fill Data Gaps / Analyze	Make Physical Improvements	Educate/Engage/ Incentivize	Improve/Use Regulations & Policies	Plan/Collaborate Regionally	Leads (L) Supporters (S)
130	**Fish Passage.** Remove fish passage barriers (e.g., Matilija Dam; barriers at Wheeler Campground, Ojai Rock Quarry, Camp Comfort and Fraser Street).		x				L: RCD S: Coastal Cons, CCC, Casitas, Matilija
132	**Steelhead Pool Development/Maintenance on San Antonio Creek.** Support steelhead survival by developing and maintaining over-summering pools in strategic, least cost/greatest gain, perennial flow locations. San Antonio Creek (SAC) offers some of the best habitat for relatively quick improvements to the recovery of steelhead in the watershed.		x				L: OVLC, CCC S: Coastal Cons, Casitas, Ventura Water
133	**Steelhead Restoration Plan.** Consolidate existing watershed-specific steelhead data (e.g., habitat, population and monitoring data). Identify priority limiting factors for all life stages of the steelhead (e.g., lack of over-summering pools for smolts and older fish, rearing habitats for younger age classes, spawning habitats.) Describe a suite of project types to address these limiting factors. Prioritize stream reaches for steelhead habitat restoration based upon least cost/greatest gain.	x					L: CDFW S: Ventura Water
135	**Land Protection Plan.** Establish land acquisition priorities that best serve the goals and objectives of the watershed management plan (e.g., integrated flood management, water infiltration, public access to nature, habitat connectivity, healthy ecosystems, natural water treatment).	x					L: OVLC, VHC S: TPL
138	**Land and Public Access Protection.** Acquire land or conservation easements from willing landowners that provide important watershed functions and values (e.g., integrated flood management, water infiltration, public access to nature, habitat connectivity, healthy ecosystems, natural water treatment).		x				L: OVLC, VHC S: Coastal Cons., TPL
140	**Wildlife Connectivity Study.** Identify and map wildlife connectivity hot spots.	x					L: VHC
141	**Protected Tree Mitigation Fees.** Amend Ventura County procedures to allow tree protection mitigation fees to go directly to local conservation entities for restoration work.				x		L: VHC, County Planning S: OVLC
142	**Efficient Conservation Subdivision Permit Process.** Work with those seeking a conservation subdivision and the Ventura County Planning Division to help make the conservation subdivision process as efficient and inexpensive as possible.				x		L: OVLC, VHC
143	**Riparian Habitat and Wetland Restoration.** Restore (conservancy-, publicly-, and privately-owned) riparian habitats and wetlands to promote native vegetation growth to benefit fish and wildlife, promote attenuation of flood flows, capture of sediments, treatment of runoff, infiltration and to deter algae growth.		x				L: OVLC, VHC, CCC S: RWQCB, Casitas, Coastal Cons., OVGC

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ID#	Tier 1L Project or Program	Fill Data Gaps / Analyze	Make Physical Improvements	Educate/Engage/ Incentivize	Improve/Use Regulations & Policies	Plan/Collaborate Regionally	Leads (L) Supporters (S)
144	***Arundo* Removal in San Antonio Creek at Camp Comfort.** Remove *Arundo* growing within the 2,500-foot stretch of the San Antonio Creek that runs through Camp Comfort.		x				L: OVLC S: Parks, RCD
146	**San Antonio Creek Restoration at Soule Park Golf Course.** Restore this stretch of creek by stabilizing the bank and reestablishing riparian vegetation.		x				L: Parks S: Casitas
147	**Invasive Plant Removal and Retreatment - San Antonio Creek.** Retreat, for 10 years, areas where *Arundo* and other invasive plants were removed on San Antonio Creek.		x				L: WPD
148	**Mitigation Bank.** Develop a local mitigation bank as a means to protect and restore existing or degraded wetlands or other sensitive habitats, while providing a mechanism for effective mitigation of development-related impacts.				x		L: Colab
149	**Steelhead Preserve Education and Conservation Center.** Develop a comprehensive watershed education center at the 70-acre historic Hollingsworth Ranch along the Ventura River between Ventura and Ojai. Include displays and demonstrations that interpret and animate the natural and cultural history of the watershed, and community and educational events will be hosted.			x			L: OVLC S: Coastal Cons.
150	**Ventura River Parkway Plan.** Develop and implement a phased Ventura River Parkway Plan that will improve public access to the river and trail opportunities along the river by working with willing landowners on a voluntary basis.	x					L: Coastal Cons., OVLC S: RWQCB, Friends
	Goal 5: Access to Nature						
151	**Trail Guides.** Create and distribute trail guides that describe the trails and access points, as well as information on the watershed's ecosystems and the important services and values they provide.			x			L: Friends S: Coastal Cons.
156	**New Family Picnic Areas/Parks.** Install vehicle-accessible parks and picnic areas that offer family access to aquatic habitats.		x				L: OVLC S: Coastal Cons.
157	**New Trails.** Install sustainably designed new trails and look for appropriate opportunities to serve different types of trail users (walkers, hikers, ADA, bicycle, equestrian).		x				L: OVLC S: Coastal Cons., VHC
159	**Easements and Acquisitions for Lower Ventura River Public Access.** Where appropriate, secure public access to the lower Ventura River, such as access to the levee and the under-freeway culvert (now used illicitly) that connects the levee to Ventura Avenue.		x				L: Coastal Cons., VHC, Friends
163	**Interpretive Signs.** Install and maintain watershed interpretive signs at special/high profile watershed locations and easily accessible river viewpoints.			x			L: OVLC S: Coastal Cons., CCC, VHC, OVGC, Friends

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164	**Maintain and Improve Existing Trails and Access Locations.** Make improvements to existing trails and access locations, such as by expanding access by different types of trail users (walkers, hikers, ADA, bicycle, equestrian). Continue to keep trails accessible and safe, and increase efforts to reduce erosion and related sediment inputs into waterways.		x				L: OVLC S: VHC
	Goal 6: Responsible Land and Resource Management						
165	**Development Project and New Policy Monitoring.** Review and comment on proposed land use projects and policies - by the three local governments in the watershed - on an ongoing basis.				x		L: Council
167	**Extended Drought/Climate Change Preparation.** Facilitate ambitious, coordinated emergency planning, preparedness, and response for extended droughts.					x	L: Casitas S: Ventura
169	**Mixed Use Zoning.** Amend Ventura County's and the City of Ojai's zoning ordinances to allow appropriate mixed use zoning in urban communities in order to advance our watershed goals, such as minimizing impervious cover and open space loss.				x		L: Ojai, County Planning
171	**Water Efficient Crop Study.** Research the feasibility of alternative crops in the watershed that are economically sustainable and low-water using. (Asian Citrus Psyllid contingency plan.)	x					L: RCD
172	**North Ventura Avenue Area Plan.** Update Ventura County's North Ventura Avenue Area Plan (integrate appropriate mixed use, LID, Parkway access, mobility, etc.).				x		L: County Planning
173	**Agricultural Best Management Practices.** Promote agricultural best management practices (e.g., efficient irrigation and nutrient management, use of mulch or compost, swales and grassed drainages, habitat protection, pollution prevention).			x			L: Casitas, RCD S: Coastal Cons.,CCC, Colab
	Goal 7: Coordinated Watershed Planning						
174	**Watershed and River Signs.** Install and maintain "Entering Ventura River Watershed" highway signs and watercourse crossing signs along major roads crossing the Ventura River and its tributaries.			x			L: WPD S: OVGC
175	**Watershed Education Center.** Support the efforts of the Ojai Valley Land Conservancy to develop a comprehensive watershed education center to serve as a center of learning on all aspects of the watershed and its management. Include education/stewardship for youth and Spanish-speakers; facilitate student and low-income access to the center; integrate Chumash information.			x			L: OVLC
178	**Watershed Council - Council and Coordinator.** Develop ongoing funding for the watershed coordinator and Watershed Council, or form a different organizational vehicle to achieve watershed management goals. Maintain Council website and serve as a data and information clearinghouse. Coordinate the implementation campaigns.					x	L: Council S: RCD

Table 2.4.2.1 Tier 1L Priority Projects and Programs

ID#	Tier 1L Project or Program	Fill Data Gaps / Analyze	Make Physical Improvements	Educate/Engage/ Incentivize	Improve/Use Regulations & Policies	Plan/Collaborate Regionally	Leads (L) Supporters (S)
179	**Watershed Council - Watershed Management Plan.** Maintain a "living" watershed management plan by updating and redistributing the plan every 3 to 5 years.					x	L: Council
182	**Watershed Council - Watershed Management Plan Performance Evaluation.** Develop an annual performance evaluation program to track the performance and effectiveness of the watershed management plan.					x	L: Council
183	**Youth Education.** Support programs that engage youth in the watershed, such as the "Once Upon a Watershed" education program and youth camps that take youth out to nature.			x			L: Casitas, OVLC, Friends S: WPD, Ventura Water, Ventura
184	**Watershed Stewardship Opportunities.** Continue and expand opportunities for citizens to learn about good stewardship and participate directly in stewardship projects.			x			L: Council
185	**Watershed Curriculum.** Develop a Ventura River watershed curriculum using the maps and information developed for the watershed management plan. Distribute to local public and private schools.			x			L: Council

Note: "ID#" in the table is only a reference number and does not indicate priority.

1L = A Tier 1 project or program which has a "lead"—an entity or organization willing to lead the project or be the grant applicant.

Abbreviations:

CCC—California Conservation Corps
Casitas—Casitas Municipal Water District
Coastal Cons.—California Coastal Conservancy
Colab—Ventura County Coalition of Labor, Business, and Agriculture
Council—Ventura River Watershed Council
County of Ventura—County of Ventura, Public Works
County Planning—Ventura County Planning Division
County RMA—Ventura County Resource Management Agency
EHD—Ventura County Environmental Health Division
Friends—Friends of Ventura River
Matilija C.—Matilija Coalition
MOWD—Meiners Oaks Water District
OBGM—Ojai Basin Groundwater Management Agency
Ojai—City of Ojai
OVGC—Ojai Valley Green Coalition
OVLC—Ojai Valley Land Conservancy
OVSD—Ojai Valley Sanitary District
Parks—Ventura County Parks Department
RCD—Ventura County Resource Conservation District
RWQCB—California Regional Water Quality Control Board – Los Angeles District
SBCK—Santa Barbara Channelkeeper
SCC—State Coastal Conservancy
Surfrider—Ventura Chapter of the Surfrider Foundation
TPL—Trust for Public Lands
WPD—Ventura County Watershed Protection District
Ventura—City of Ventura
Ventura Water—City of Ventura's Water Division
VHC—Ventura Hillsides Conservancy