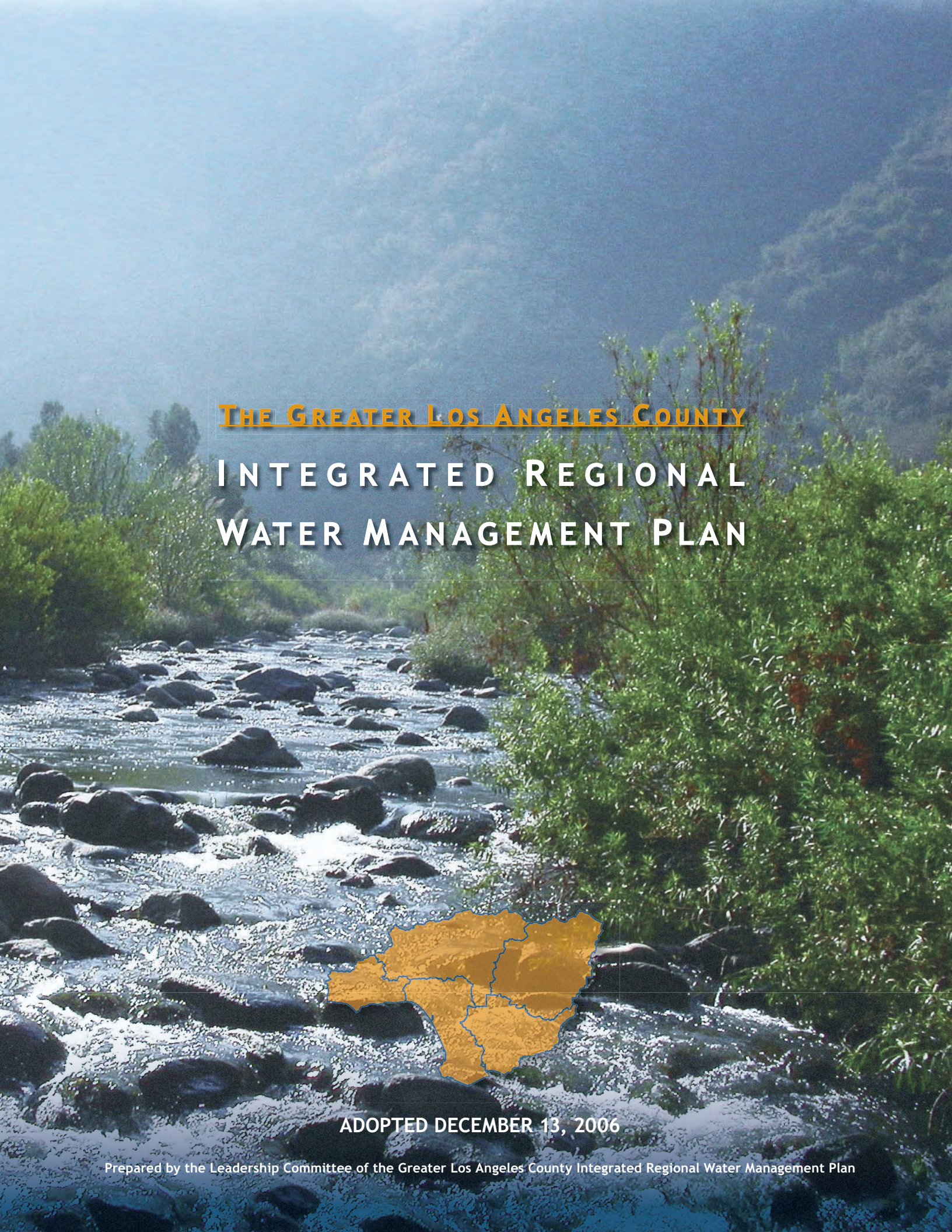

The Greater Los Angeles County

Integrated Regional Water Management Plan

ADOPTED DECEMBER 13, 2006

Prepared by the Leadership Committee of the Greater Los Angeles County Integrated Regional Water Management Plan

Prepared by the Leadership Committee of Greater Los Angeles County Integrated Regional Water Management Plan

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Photo: Headwaters of the San Gabriel River

ACKNOWLEDGEMENTS

The Leadership Committee acknowledges the many steering committee members, representatives of agencies, non-governmental organizations, and community members for their participation in the development of this document. We specifically acknowledge the Department of Water Resources and the State Water Resources Control Board for their guidance and financial assistance in preparing this Plan.

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LIST OF ACRONYMS

ASBS	Area of Special Biological Significance
ASCE	American Society of Civil Engineers
BMP	Best Management Practice
BPTCP	Bay Protection and Toxic Cleanup program
CAMMPR	California Management Measures for Polluted Runoff
CCA	Critical Coastal Area
CCC	California Conservation Corps
CCL	Containment Candidate List
CCR	Covenants, Conditions, and Restrictions
CEQA	California Environmental Quality Act
CERES	California Environmental Resource Evaluation System
cfs	cubic feet per second
CMOM	Capacity assurance, Management, Operation, and Maintenance
Corps	United States Army Corps of Engineers
COG	Council of Governments
CREST	Cleaner Rivers through Effective Stakeholder TMDLs
CUWCC	California Urban Water Conservation Council
DAC	Disadvantaged Community
DDT	Dichloro-diphenyl-trichloroethane
DHS	Department of Health Services (State of California)
DONE	Department of Neighborhood Empowerment
DWR	Department of Water Resources
DWSAP	Drinking Water Source Assessment and Protection
EJCW	Environmental Justice Coalition for Water
EPA	United States Environmental Protection Agency
GAMA	Groundwater Ambient Monitoring and Assessment
GOPR	Governor's Office of Planning and Research
IRP	Integrated Resources Plan
IRWM	Integrated Regional Water Management
IRWMP	Integrated Regional Water Management Plan
JPA	Joint Powers Authority
JWPCP	Joint Water Pollution Control Plant
LACDPW	Los Angeles County Department of Public Works
LACFCD	Los Angeles County Flood Control District
LACSD	Los Angeles County Sanitation District
LADWP	City of Los Angeles Department of Water and Power
LANI	City of Los Angeles Neighborhood Initiative
LASGRWC	Los Angeles and San Gabriel Rivers Watershed Council
LAWGE	City of Los Angeles Working Group on the Environment
MCLs	Maximum Contaminate Limit
mgd	million gallons per day
MHI	median household income
MOU	Memorandum of Understanding
MRCA	Mountains Recreation and Conservation Authority
MTBE	Methyl Tertiary Butyl Ether
MWD	Municipal Water District
NCCP	Natural Community Conservation Plans
NDMA	Nitrosodimethylamine
NPDES	National Pollutant Discharge Elimination System

NPS	Nonpoint Source
O&M	Operations and Maintenanace
OPR	Govenor's Office of Planning and Research
PAH	Polycyclic Aromatic Hydrocarbon
PCBs	Polychlorinated Biphenyls
Plan	Integrated Regional Water Management Plan
POTWs	Publicly Owned Treatment Works
PPIC	Public Policy of California
QSA	Quantification Settlement Agreement
Region	Greater Los Angeles County Region
RMC	San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy
RWMG	Regional Water Management Group
RWQCB	Regional Water Quality Control Board
SCAG	Southern California Association of Governments
SCCWRP	Southern California Coastal Water Research Project
SCMI	Southern California Marine Institute
SDWA	Safe Drinking Water Act
SEAs	Significant Ecological Areas
SEATAC	Significant Ecological Area Technical Advisory Committee
SMBRA	Santa Monica Bay Restoration Authority
SMBRC	Santa Monica Bay Restoration Commission
SMBRP	Santa Monica Bay Restoration Project
SMMC	Santa Monica Mountain Conservancy
SSMP	Sewer System Management Plan
SUSMP	Standard Urban Stormwater Mitigation Plan
SQMP	Stormwater Quality Management Plan
SWAMP	Surface Water Ambient Monitoring Program
SWAP	Source water Assessment Program
SWP	State Water Project
SWRCB	State Water Resources Control Board
TBT	Tributyltin
TCE	Trichloroethylene
TDS	total dissolved solids
TM	Technical Memoranda
TMDL	total maximum daily loads
USCOE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
UWMP	Urban Water Management Plan
UV	Ultraviolet (Light)
VOCs	Volatile Organic Compounds
VOS	Volunteer Observing Ship
WCA	Watershed Conservation Authority
WEF	Water Environment Federation
WMA	Watershed Management Area
WPD	Watershed Protection Division
WQA	Water Quality Authority

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PREFACE

San Gabriel River

"In just a few short months with unprecedented levels of cooperation and commitment, the leaders of many organizations have produced a plan that will guide us for the next 20 years."

—Donald L. Wolfe, Chair of the Leadership Committee

The purpose of this Integrated Regional Water Management Plan (IRWMP or Plan) is to define a clear vision and direction for the sustainable management of water resources in the Greater Los Angeles County Region (Region) for the next 20 years, present the basic information regarding possible solutions and the costs and benefits of those solutions, and to inspire the Region and potential funding partners outside this Region. Moreover, it is to adopt solutions that make sense, are good for the community, and are economically feasible.

The IRWMP Leadership Committee (Committee) acknowledged in early 2006 an intention to develop a plan which identified a comprehensive set of solutions and associated cost estimates to achieve quantitative targets in the next 20 years for water supply (including reduced dependence on imported water supply and cleanup of local groundwater and stormwater), in-stream water quality, habitat improvement, and additional parks and open space, particularly in disadvantaged communities. The Committee also acknowledged that the local economy will benefit from solutions that provide clean water, clean beaches, and the sustainable management of water resources. These solutions, and the magnitude of the potential costs, will require development of a significant (i.e., multi-billion dollar) local funding source, and this IRWMP can serve as the basis to support development of this funding source and help local jurisdictions comply with regulatory mandates such as total maximum daily loads (TMDL). Outside funding sources, such as the state and federal government, are more likely to support and fund this Plan because it demonstrates an intent to solve local problems, rather than simply look for others to solve those problems. As this planning process has included the creation of quantitative goals for measurable progress and accountability, it will lead to the identification of solutions and partnerships to implement these solutions.

Many of the stakeholders that have participated in Steering Committees, attended workshops, or otherwise assisted in the development of this IRWMP recognize that today's challenges are in part due to the historical approach of addressing water resource management from a single-purpose perspective. For example, this Region has one of the most effective flood control systems in the world that protects millions of people from the impacts of flooding in a Region where the flow in its rivers can increase from 200 cubic feet per second (cfs) to over 200,000 cfs within 48 hours. This system routes much of the stormwater runoff into the ocean, water that historically recharged local groundwater basins, making this Region even more dependent on imported water supplies. As regulatory pressures to clean up polluted dry and wet weather stormwater runoff continue, this source of water supply is becoming attractive once again. Developing and funding the appropriate multipurpose solutions over the next 20 years will require extensive stakeholder commitment. Although no single funding source will be sufficient to meet the Region's needs, outside funding partners will be attracted if local agencies take the lead and make commitments to solving these problems. Therefore, this Plan includes an implementation cost analysis to help support development of a local funding measure which can be used to leverage a combination of other local, state and federal funding sources.

In addition, water resources must be planned in concert with the other issues that make up the urban context. Therefore, the Plan's recommendations and strategies have been developed such that they can be integrated into the strategic planning for other important urban issues such as transportation, public education, land use, economic development, and health and safety. Because of the importance of these things to every community, there are many opportunities for win-win relationships that help create more functionally integrated communities and improve quality of life as the population of our Region continues to grow. The Southern California Association of Governments (SCAG) Compass Growth Vision Report (SCAG, 2004) suggests concentrating future growth on only two percent of the SCAG region's land area. This will lead to more varied development and density patterns, create a greater sense of place, and enhance infrastructure function (e.g., increased density around transportation hubs, or adjacent to river greenway corridors). The concepts that are emerging out of the first phase of this IRWMP process support this strategy by providing a variety of project approaches for different density and land use situations, that can unify and connect these diverse areas, such as a strategy for creating green corridors around the Region's rivers and creeks. The solutions in the IRWMP respond to statewide priorities, allow for local variation, while also creating a unified and coherent ecological system across the Region.

This Plan is intended to be a tool for the development of solutions that achieve the planning targets identified for the Region and improve the sustainability of water resources and ecological health of local watersheds. The residents of the Region will benefit from the projects and opportunities identified in this Plan, as more sustainable water resources can improve the quality of life for all communities. The residents of the state will benefit from this Plan, as any gallon of water saved in this Region, is a gallon saved for the entire state. New partnerships have arisen out of Subregional and Regional stakeholder meetings and workshops during the preparation of this document and many more partnerships are expected to develop and grow. This Plan should be considered a living document. The vision, ideas and project concepts contained in this Plan will only become a reality if stakeholders remain engaged as this process continues.

1. INTRODUCTION

San Gabriel Mountains

The San Gabriel Mountains are a significant source of water supply for the Region.

1.1 Background

To meet the demand for water in the Greater Los Angeles County Region (or Region, as depicted in Map 1-1) over the last century, federal, state, and local agencies developed creative plans and implemented large projects to move vast quantities of water great distances. Therefore, the Region is now reliant on supplies that vary with the climate fluctuations across numerous states. At the same time, the quantity and quality of local supplies are threatened with degradation over time. The need to protect lives and property from flooding resulted in extensive channelization and modification of the rivers and streams on the coastal plain and inland valleys. The flood protection system quickly transports runoff to the ocean but provides limited opportunities for percolation of runoff and hinders the potential for natural processes to reduce or transform pollutants. As a result, most of the trash, metals, bacteria, and organic chemicals from developed areas are transported directly to inland water bodies and downstream coastal bays. This results in impairments that hinder the designated beneficial uses of surface water bodies. In some areas, land practices, inadequate disposal of industrial materials, and leaking underground storage tanks have contaminated soils and percolated to groundwater basins, reducing the ability to use these supplies.

Historically, water agencies in the Region have tapped a variety of sources, implemented new technologies, responded to evolving regulatory requirements, and navigated changing political conditions to deliver ample supplies in most years. As a result, the Region has one of the broadest and most diverse water supply portfolios in California. However, the long-term sustainability of the Region's water supply faces increasing challenges. As noted in the California Water Plan Update 2005 (Bulletin No. 160):

> "Like many regions in the state, water quality and water supply challenges are intertwined. The… region must manage for uncertainties caused by population and economic growth. Growth will not only affect demand, but it will add contamination challenges from increases in wastewater discharges and urban runoff, as well as increased demand for water-based recreation… The region must also assess and plan for impacts of climate variations and global climate change, as well as the cost of replacing aging infrastructure.
>
> Given the size of the region and the diverse sources of water supply, the challenges to the region's water quality are varied. Surface water quality issues… are dominated by stormwater and urban runoff, which contribute contaminants (including trash) to local creeks and rivers…" (Department of Water Resources [DWR], 2005).

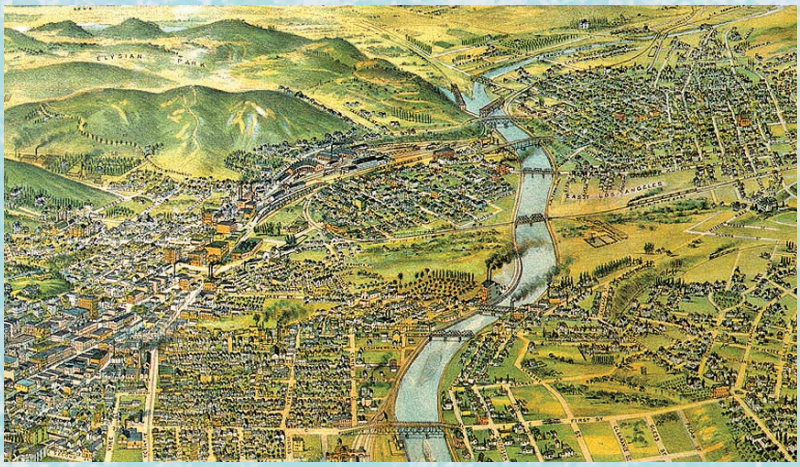
To ensure the delivery of clean and reliable water in this century, agencies and jurisdictions in the Region will benefit from a visionary plan that integrates water supply, water quality, and open space strategies; and maximizes the utilization of local water resources. This IRWMP is the next step in the Region's collaborative efforts to ensure a sustainable water supply through the more efficient use of water, the protection and improvement of water quality, and environmental stewardship including habitat restoration. This Plan also provides an opportunity to provide information on the region's needs and future at a scale that can contribute to the California Water Plan.

1.2 Context

Cooperation at a Regional scale is not new. Flood control districts, sanitation districts, and wholesale water agencies have a long tradition of working across jurisdictional boundaries to implement projects that have multiple benefits. However, most resource management agencies were originally formed with single-purpose missions, which limit their ability to develop and implement multi-purpose programs and projects. Yet, in recent years, the potential for a transformation of the watersheds in this Region has emerged, beginning with visions of restoring the Los Angeles and San Gabriel Rivers, development of watershed management plans on most of the major tributaries and creeks, and the preparation of Integrated Resources Plans (IRPs) by large water and sanitation agencies. These plans promote integrated efforts to manage resources and recognize that water and watershed

Map 1-1. Greater Los Angeles County Region

PAST AND PRESENT



Historic illustrated map of the Los Angeles Basin

"The River" (courtesy of the San Gabriel Mountains Regional Conservancy)

Local stormwater runoff is collected in a comprehensive set of groundwater recharge basins throughout the Region.

Figure 1-1. Region History. While the Region's rivers historically provided ample water supply, exponential population growth over the last century has required creative solutions to meet demands.

The mission of The Greater Los Angeles County Integrated Regional Water Management Plan is **"to address the water resources needs of the Region in an integrated and collaborative manner."**

resources are interconnected. Thus, the concept of integrated resource management in this Region is not new.

This IRWMP is an outgrowth of ongoing efforts to develop plans, projects, and programs at regional levels, and utilize an integrated approach to water and other resource management issues and acknowledges that for the Region to meet its future needs, water supply planning must be integrated with other water resource strategies. These consist of urban stormwater runoff management, wastewater quality improvements, maintenance of flood protection, and other environmental needs including habitat and open space conservation and the provision of sufficient park space. In a region facing significant urban challenges such as population growth, densification, traffic congestion, poor air quality, and quality of life, water resource management also must be integrated with other urban planning issues. This IRWMP suggests a proactive approach to addressing the Region's water resource needs, based on a vision established through extensive stakeholder input that is consistent with some of the planning principles identified in regional planning documents such as the SCAG Compass Growth Vision Report (SCAG, 2004).

To define benchmarks for a more sustainable water future, an 11-agency Leadership Committee (which guided development of the Plan) has established quantifiable planning targets for water supply, urban runoff, flood protection, habitat, and open space. These targets identify the magnitude of the Region's major water resource management issues and also provide a basis for estimating the cost of implementing projects and programs to meet these targets.

In the coming decades, water supply and conservation projects and programs will compete for limited fiscal resources with concurrent efforts to improve urban and stormwater runoff quality. With the cost of compliance with surface water quality regulations estimated to range from $43 to $284 billion (Brown and Caldwell, 1989 and Gordon, et al, 2002), jurisdictions and agencies in the Region face difficult funding choices.

The integration of multiple water management strategies via multipurpose projects creates opportunities to meet regional water resource needs, efficiently use fiscal resources, and provide the public with tangible community benefits. It is within this context that the following Plan is presented.

1.3 Mission and Purpose

The Leadership Committee developed the Plan's mission statement through a collaborative process with input from five Subregional Steering Committees and stakeholders at both Regional and Subregional workshops.

The purpose of this IRWMP is to improve water supplies, enhance water supply reliability, improve surface water quality, preserve flood protection, conserve habitat, and expand recreational access in the Region. This Plan is also intended to define a comprehensive vision for the Region which will generate local funding, position the Region for future state bonds, and create opportunities for federal funding.

1.4 IRWMP Process

In response to the release of the Integrated Regional Water Management Grant Program Guidelines (DWR, 2004), six Regional groups within Los Angeles County submitted grant applications (in May 2005) to support development of an IRWMP, including the Santa Monica Bay Restoration Commission, the City of Los Angeles, the Watershed Conservation Authority, the Upper San Gabriel Municipal Water District (MWD), the West Basin MWD, and the City of Downey. Although DWR initially recommended funding only one application, DWR ultimately expanded the funding pool and proposed a single grant of $1.5 million, on the condition that the six original applicants prepare a single plan for the Region. In December 2005, a consultant team was selected to consolidate the previous efforts and develop a single plan.

The IRWMP Region includes approximately 10.2 million residents, portions of 4 counties, 92 cities, and hundreds of agencies and districts. To make stakeholder outreach manageable, the IRWMP was organized to solicit input from five Subregions (depicted on Map 1-2) which acknowledge variation in geographic and water management strategies in a region of 2,058 square miles. The five Subregions include:

- Lower San Gabriel and Los Angeles Rivers Watersheds;
- North Santa Monica Bay Watersheds;
- South Bay Watersheds;
- Upper Los Angeles River Watershed; and
- Upper San Gabriel River and Rio Hondo Watersheds.

The organizational structure for the IRWMP is defined by a Leadership Committee and five Subregional Steering Committees. The Leadership Committee was chaired by the Los Angeles County Flood Control District (LACFCD) and included representatives of five Subregional Steering Committees and five additional seats representing specific water management focus areas (including groundwater, sanitation, surface water supply, recreation and habitat, and stormwater). Each Subregional Steering Committee included agency,

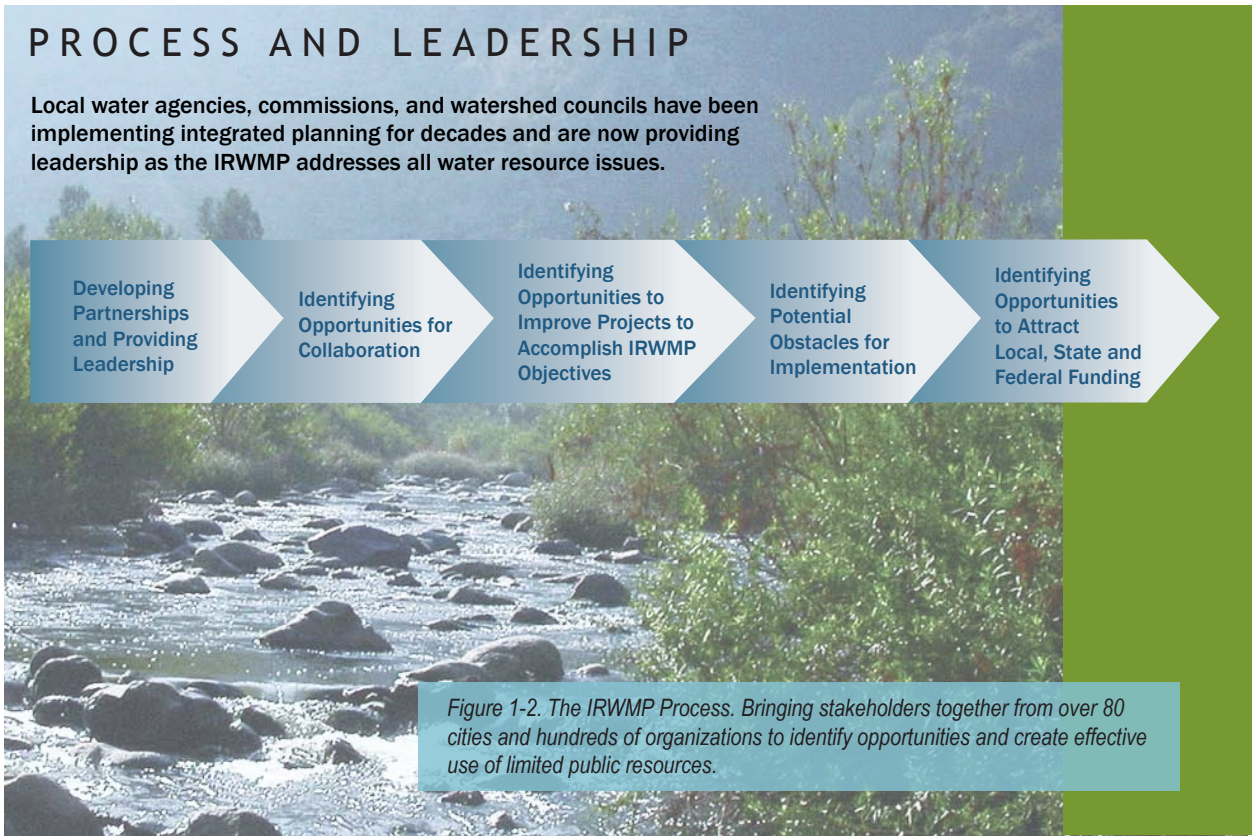


Figure 1-2. The IRWMP Process. Bringing stakeholders together from over 80 cities and hundreds of organizations to identify opportunities and create effective use of limited public resources.

IRWMP LEADERSHIP COMMITTEE

Leadership Committee members are actively engaged in monthly meetings. Membership includes director-level staff from a large number of local agencies.

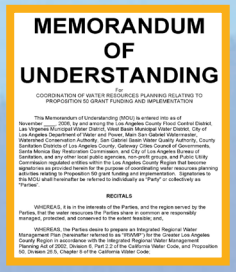
MILESTONE ACCOMPLISHMENTS

Demonstrated cooperative efforts between Regional and Subregional groups

Leadership Committee as well as Subregional Steering Committees meet monthly. Members are dedicated agency directors and high-level decision makers

Four Regional workshops and 20 Subregional workshops were well attended and provided opportunity for collaboration

1,521 projects were submitted during the Call for Projects


MEMORANDUM OF UNDERSTANDING

COORDINATION OF WATER RESOURCES PLANNING RELATING TO PROPOSITION 50 GRANT FUNDING AND IMPLEMENTATION

Memorandum of Understanding drafted and signed by members of the Leadership and Steering Committees

Figure 1-3. Leadership Committee Milestones. IRWMP has made significant milestone accomplishments with a broad outlook: 1,400 Stakeholders, over 500 agencies, and 5 Subregional Steering Committees.

city, and stakeholder representatives, and additional representatives for the water management focus areas. This structure provided opportunities for coordination, integration of decision-making, and stakeholder input. These committees met monthly, or on a more frequent basis, during development of the IRWMP.

To provide opportunities for direct input by the entire range of stakeholders in the Region, the IRWMP process also included 20 workshops at the Subregional level and four workshops at the Regional level. Workshops were focused on specific topics (e.g., objectives, project integration, and Plan implementation).

To prepare this IRWMP, existing plans, studies, and documents were reviewed to determine the concepts of integrated resource management and assess whether existing documents could collectively be integrated into an IRWMP. The assessment determined that the existing plans and studies could not readily be assimilated into a functionally equivalent IRWMP and preparation of a coordinated IRWMP is required.

This IRWMP utilizes and adapts appropriate technical information from the original planning grant applications and various existing plans, studies, and documents. The discussion of water supply relies upon water supply and demand information from Urban Water Management Plans (UWMPs) water agencies in the Region and the IRP developed by the Metropolitan Water District of Southern California (Metropolitan). The Regional description and discussion of water quality issues is derived from local watershed plans (including Arroyo Seco Watershed Restoration Feasibility Study, Ballona Creek Watershed Management Plan, Common Ground, from the Mountains to the Sea, Compton Creek Watershed Management Plan, Dominguez Channel Watershed Management Master Plan, Malibu Creek Watershed Management Area Plan, Rio Hondo Watershed Management Plan, Sun Valley Watershed Plan, the draft Upper San Gabriel River Watershed Management Plan), the Santa Monica Bay Restoration Plan, and existing and proposed TMDL requirements. These documents, along with input from the stakeholder workshops, provide a basis for the mission, objectives, and planning targets articulated in this IRWMP. The documents also inform the Region's short-term and long-term priorities and the water management strategies that are relevant.

The development of the IRWMP is supported by various Technical Memoranda (TMs) and related products. The TMs cover topics such as water management strategies, project integration, benefit/cost analysis, and framework for implementation; and provide the background and technical analysis that support the Plan, including water supply and demand. Feedback from the Leadership Committee, Steering Committees, and stakeholder workshops helped to articulate how water management strategies can be integrated into Regional project concepts and prioritize which Regional project concepts are most appropriate for the individual Subregions.

1.5 Stakeholder Involvement

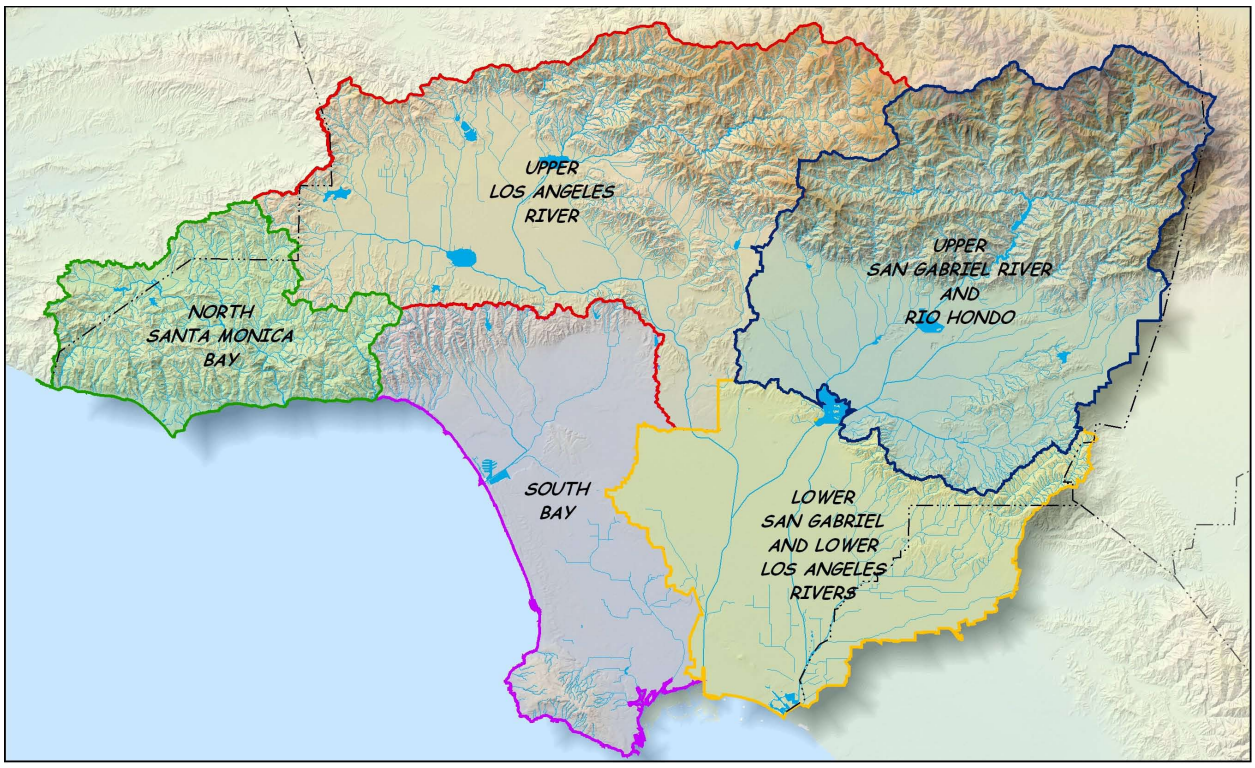
An extensive stakeholder outreach process was crucial to ensure that the Plan reflects local needs, promotes the formation of partnerships, and encourages coordination with state and federal agencies.

Regional Water Management Group

Consistent with Sections 10530 - 10546 of the Water Code, preparation of an IRWMP must be guided by a Regional Water Management Group (RWMG) comprised of three or more local public agencies, at least two of which have statutory authority over water supply, formed by means of a joint powers agreement, memorandum of understanding (MOU), or other written agreement that is approved by the governing bodies of the local public agencies. Consistent with the IRWMP guidelines, the RWMG is comprised of signatories to a MOU that established the Greater Los Angeles County RWMG.

Leadership and Steering Committees

The Leadership Committee made formal decisions associated with the scope and content of the Plan. Five Subregional Steering Committees provided input to the Leadership Committee on the major issues contained in the Plan. Stakeholder work-



Map 1-2. IRWMP Subregions, Los Angeles Region.

shops provided additional input to the process. As illustrated in Figure 1-4, stakeholder input to the Leadership Committee was structured around the five Subregional Steering Committees and stakeholder workshops.

The Leadership Committee and the Steering Committees are currently governed by interim operating guidelines.

The Leadership Committee has 11 voting members, as shown in Figure 1-5, including the LACFCD (committee chair), chairs of the five Subregional Steering Committees, and five stakeholder agencies representing the following water management strategy areas: groundwater; surface water; sanitation; habitat/open space; and stormwater. The Leadership Committee also includes 14 ex-officio (non-voting members), including: Bureau of Reclamation; California Department of Fish and Game; California Coastal Commission; California Coastal Conservancy; California Department of Transportation; California DWR; California Environmental Protection Agency (EPA); California Regional Water Quality Control Board Los Angeles Region (RWQCB); Californian Department of Parks and Recreation; California Department of Health Services (DHS); Metropolitan Water District of Southern California; National Parks Service; U.S. Army Corps of Engineers (USCOE or Corps); and U.S. Department of Agriculture (USDA) Forest Service.

The specific management responsibilities of the Leadership Committee voting members as relates to water management are summarized below.

Los Angeles County Flood Control District. The LACFCD chairs the Leadership Committee. LACFCD provides for the control and conservation of the flood, storm, and other waste waters of the District. It also conserves such waters for beneficial and useful purposes by spreading, storing, retaining or causing them to percolate into the soil within the District. The District also protects the harbors, waterways, public highways and property in the District from damage from such waters and may provide for recreational use of District facilities. The District was created in 1915 and now operates and owns 15 major dams, 14 rubber dams, 529 miles of open channels, 2,811 miles of underground storm drains, 77,917

catch basins, 48 stormwater pumping plants, 116 sediment entrapment basins, 232 concrete crib check dams, 27 groundwater recharge facilities, 35 sediment placement sites, and 3 seawater intrusion barriers. In January 1985, the District consolidated with the County Engineer and the County Road Department to form the Department of Public Works. The Director of the Department of Public Works is therefore the Chief Engineer of the District, the County Engineer, and the Road Commissioner.

West Basin MWD. West Basin MWD represents the South Bay Watersheds Subregion on the Leadership Committee. West Basin MWD is a public agency that wholesales imported water to cities, investor-owned utilities and private companies in the South Bay and unincorporated areas of Los Angeles County, serving a population of more than 851,000. In addition, West Basin MWD provides recycled water for municipal, commercial, and industrial uses. West Basin MWD owns the West Basin Water Recycling Facility in El Segundo, where approximately 28,000 acre-feet per year (acre-feet/year) of secondary treated wastewater from Hyperion Treatment Plant is additionally treated and distributed throughout the Region. Formed in 1947, West Basin MWD is committed to ensuring a safe and reliable water supply for the Region.

Las Virgenes MWD. Las Virgenes MWD represents the North Santa Monica Bay Watersheds Subregion on the Leadership Committee. Las Virgenes MWD provides potable water, wastewater treatment, recycled water and biosolids composting to more than 65,000 residents in the cities of Agoura Hills, Calabasas, Hidden Hills, Westlake Village, and unincorporated areas of western Los Angeles County. Las Virgenes MWD maximizes water resources by bringing water full circle. Wastewater is treated to be beneficially used as recycled water and biosolids converted to compost.

City of Los Angeles Department of Water and Power. Los Angeles Department of Water and Power (LADWP) represents the Upper Los Angeles River Watershed Subregion on the Leadership Committee. LADWP is responsible for delivering water to 640,000 customers (including households, multi-family dwellings, and businesses) and electricity to 1.4 million customers in the City of Los Angeles.

Watershed Conservation Authority. The Watershed Conservation Authority (WCA) represents the Lower San Gabriel and Los Angeles Watersheds Subregion on the Leadership Committee. WCA is a joint powers entity between the San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy (RMC) and LACFCD whose focus is to provide multiple benefits such as open space, habitat restoration, and recreational opportunities in the San Gabriel and Lower Los Angeles Watersheds.

Main San Gabriel Basin Watermaster. The Main San Gabriel Watermaster represents the Upper San Gabriel River Watershed Subregion on the Leadership Committee. The Main San Gabriel Basin Watermaster is the agency charged with administering adjudicated water rights within the watershed and managing groundwater resources in the Main San Gabriel Basin.

San Gabriel Basin Water Quality Authority. The San Gabriel Basin Water Quality Authority (WQA) represents the Groundwater Water Management Area on the Leadership Committee. The San Gabriel Basin WQA was created by the state in 1993 to address the problem of groundwater contamination in the San Gabriel Valley. The WQA is empowered to address the problem of the migration of contaminated groundwater within the San Gabriel Basin and, in particular, the migration of contaminated water through the Whittier Narrows into the Central Basin. The WQA currently operates groundwater cleanup projects for beneficial uses in the San Gabriel Valley that are actively intercepting contaminated groundwater flowing toward the Whittier narrows.

County Sanitation Districts of Los Angeles County. The County Sanitation Districts of Los Angeles County (LACSD) represents the Sanitation Water Management Area on the Leadership Committee. The LACSD is a confederation of independent special districts serving about 5.1 million people in Los Angeles County. Its service area covers approximately 800 square miles and encompasses 78 cities and unincorporated territory within the County.

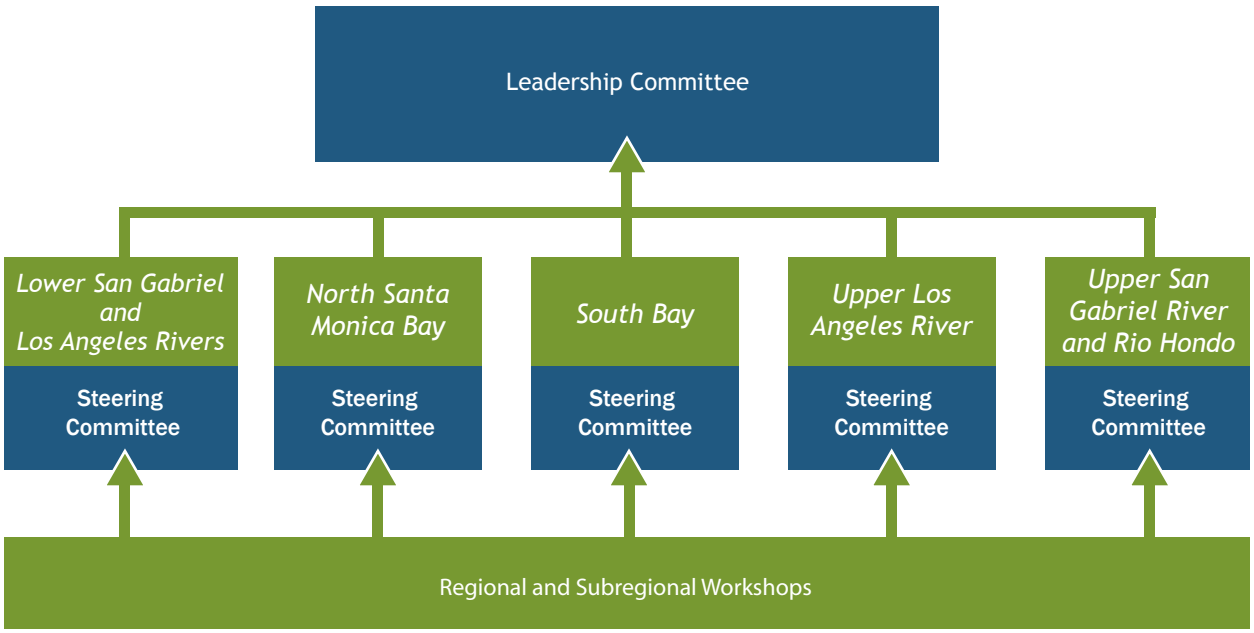


Figure 1-4. Stakeholder Structure. The IRWMP stakeholder structure provides the Leadership Committee with all the stakeholder and Subregional steering committees' feedback, projects, comments and concerns.

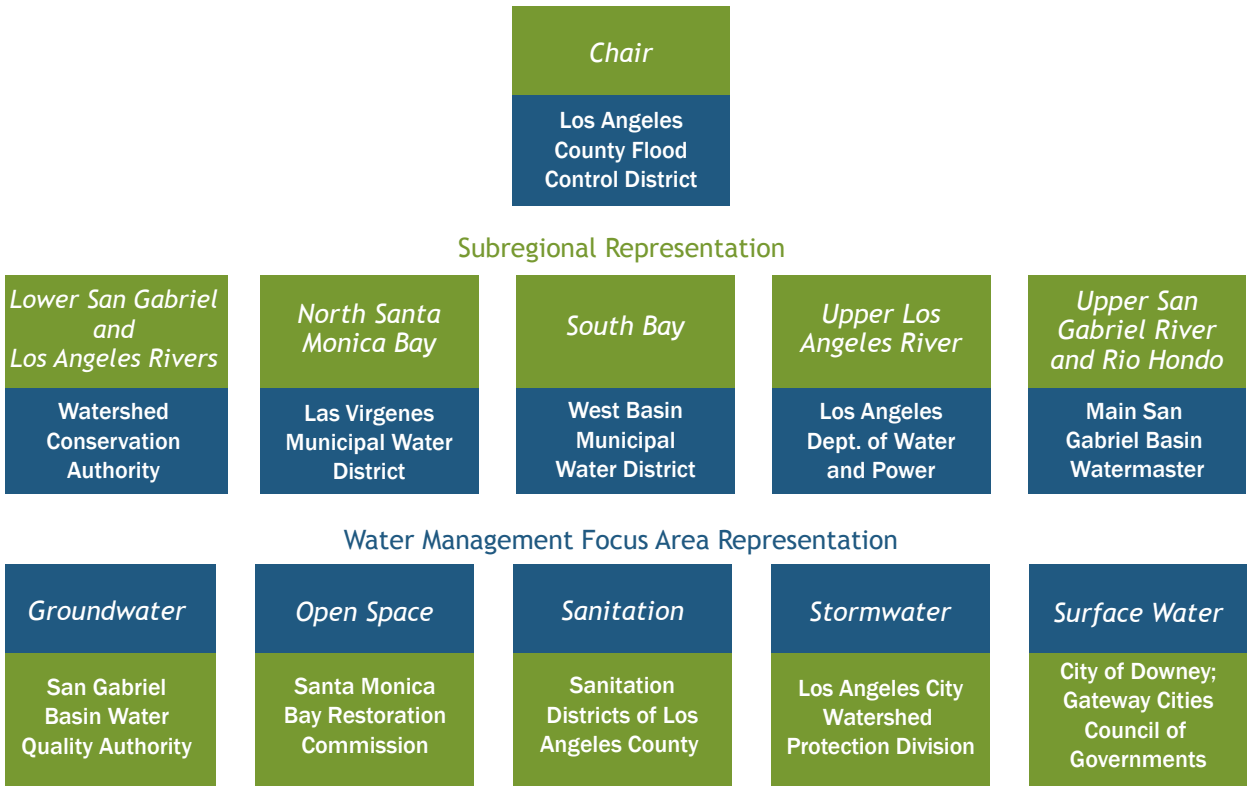


Figure 1-5. Leadership Committee. The Leadership Committee consist of representatives from each Steering Committee and each water management focus area.

LACSD constructs, operates, and maintains facilities to collect and treat approximately 500 million gallons per day (MGD) of municipal wastewater. Approximately 30 percent of the treated wastewater is reclaimed by LACSD, of which nearly one half is beneficially reused. LACSD also provides the management of solid wastes including disposal, transfer operations, and materials recovery.

Gateway Cities Council of Governments. The Gateway Cities Council of Governments (COG) represents the Surface Water Management Area on the Leadership Committee, and the seat is currently held by the City of Downey. The council serves as an advocate in representing the 27 member cities and two million residents at the regional, state and federal levels on issues of importance to southeast Los Angeles County. The goal of the council is one of voluntary cooperation among the cities for the collective benefit of cities in southeast Los Angeles County.

Santa Monica Bay Restoration Commission (SMBRC). The SMBRC represents the Habitat/Open Space Water Management Area on the Leadership Committee. The State of California and the U.S. Environmental Protection Agency (USEPA) established the Santa Monica Bay Restoration Project as a National Estuary Program in December 1988. The Project was formed to develop a plan that would ensure the long-term health of the 266 square mile Santa Monica Bay and its 400 square mile watershed, located in the second most populous region in the United States. That plan, known as the Santa Monica Bay Restoration Plan, won state and federal approval in 1995. On January 1, 2003, the Santa Monica Bay Restoration Project formally became an independent state organization and is now known as the Santa Monica Bay Restoration Commission. The SMBRC continues the mission of the Bay Restoration Project and the collaborative approach of the National Estuary Program but with a greater ability to accelerate the pace and effectiveness of Bay restoration efforts.

City of Los Angeles Bureau of Sanitation, Watershed Protection Division. The Watershed Protection Division (WPD) represents the Stormwater Water Management Area on the Leadership Committee. The WPD, founded in 1990, is responsible for the development and implementation of stormwater pollution abatement projects within the City of Los Angeles, which covers approximately 23 percent of the Region.

The composition of the Leadership Committee achieves a cross sectional representation of all water management issues: Las Virgenes MWD, LADWP, and West Basin MWD are involved in water supply, conservation and water recycling issues; the Main San Gabriel Basin Watermaster and the San Gabriel Basin Water Quality Authority are focused on groundwater supply and groundwater quality issues, respectively; LACFCD deals extensively with stormwater quality, flood protection, and the conservation of stormwater runoff; the Gateway Cities Council of Governments provides the perspective of local cities on water issues; LACSD is the main agency for wastewater treatment, as well as a leader in water recycling; and the WCA and SMBRC are proponents for open space, habitat and water quality issues. Collectively, the members of the Leadership Committee represent Regional leadership in all water management areas.

To manage input from the stakeholders across the entire region and reflect local variations, five Subregional Steering Committees were also established. Table 1-1 identifies the agencies and organizations represented on each of the Subregional Steering Committees.

Agency and Stakeholder Participation

The IRWMP synthesizes prior planning efforts in the Region. These efforts include water supply and urban water management plans, resource management plans, river corridor master plans, and watershed plans. Proponents of some of these efforts coalesced to form larger Subregional groups which submitted initial planning grant applications. The decision to consolidate these Subregional efforts into a single plan thus benefits from many years of consensus building and has the potential to yield results that are more expansive than a stakeholder outreach process associated with development of a stand-alone plan.

OPPORTUNITIES AND WORKSHOPS

Figure 1-6. Opportunities for Stakeholders and Agencies. Subregional and Regional workshops have provided opportunities for project collaboration and integration.

Invitations to participate in stakeholder workshops, project identification, and plan development were transmitted to over 1,400 individuals representing hundreds of cities, agencies, districts, and organizations. A summary of the agencies and organizations included in this process follows.

Federal Agencies. U.S. Army Corps of Engineers, Bureau of Reclamation, Forest Service, National Park Service, Natural Resources Conservation Service.

State Departments and Agencies. Caltrans, Fish and Game, Health Services, Parks and Recreation, Resources Agency, State Water Resources Control Board, University of California Cooperative Extension, Water Resources.

State Conservancies. San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy, Santa Monica Mountains Conservancy, Coastal Conservancy, Baldwin Hills Conservancy.

Regional Agencies. Southern California Association of Governments, RWQCB (Los Angeles and Santa Ana Regions).

Special Districts. County Sanitation Districts of Los Angeles County.

Los Angeles County Departments. Public Works, Regional Park and Open Space District, Parks and Recreation, Regional Planning, Beaches and Harbors, Flood Control.

Orange County Departments. Resources and Development Management Department and Watershed and Coastal Resources.

Cities in Los Angeles County (including City Managers and Departments of Planning, Public Works, and Parks and Recreation). Agoura Hills, Alhambra, Arcadia, Artesia, Azusa, Baldwin Park, Bell, Bellflower, Bell Gardens, Beverly Hills, Bradbury, Burbank, Calabasas, Carson, Cerritos, Claremont, Commerce, Compton, Covina, Cudahy, Culver City, Diamond Bar, Downey, Duarte, El Monte, El Segundo, Gardena, Glendale, Glendora, Hawaiian Gardens, Hawthorne, Hermosa Beach,

Huntington Park, Industry, Inglewood, La Canada Flintridge, La Habra Heights, Lakewood, La Mirada, La Puente, La Verne, Lawndale, Long Beach, Los Angeles, Lomita, Lynwood, Malibu, Manhattan Beach, Maywood, Monrovia, Montebello, Monterey Park, Norwalk, Palos Verdes Estates, Paramount, Pasadena, Pico Rivera, Pomona, Rancho Palos Verdes, Redondo Beach, Rolling Hills, Rolling Hills Estates, Rosemead, San Dimas, San Fernando, San Gabriel, San Marino, Santa Fe Springs, Santa Monica, Sierra Madre, Signal Hill, South El Monte, South Gate, South Pasadena, Temple City, Torrance, Vernon, Walnut, West Covina, West Hollywood, Westlake Village, and Whittier.

Cities in Orange County (including City Managers and Departments of Planning, Public Works, and Parks and Recreation). Anaheim, Brea, Buena Park, Cypress, Fullerton, La Habra, La Palma, Los Alamitos, Placentia, and Seal Beach.

Other Entities. Non-profit organizations (trusts, foundations, conservancies, associations, societies, coalitions, alliances, councils); joint powers authorities, businesses, property owners; financial institutions; businesses and industry associations; Chambers of Commerce; educational institutions; civic organizations; environmental groups; watershed councils; and interested individuals.

Water Agencies and Districts. The major water wholesalers, regional water agencies, and individual cities with water departments were also invited to participate in the IRWMP process, as listed in Table 1-2. Each of the Region's districts and authorities are participants in the IRWMP process, and thus, all of the 92 cities in the Region are represented. With this participation, all entities that are party to groundwater basin adjudications in the Region are also represented. In addition, the Upper Los Angeles River Area Watermaster and the Main San Gabriel Basin Watermaster are participants in the process.

Opportunities for Agency and Stakeholder Involvement

To develop an IRWMP that addresses Regional issues, yet recognizes local conditions and preferences, a process was established with the following mechanisms to involve stakeholders and incorporate their input: TMs, stakeholder workshops (at the Regional and Subregional level), monthly Subregional Steering Committees, monthly Leadership Committee meetings, project website, and e-mail notices. All of the project meetings were open to the public. The methods for stakeholder involvement and input are described below.

Technical Memoranda. A significant body of work related to water supply, surface water quality, and open space is contained within numerous plans, reports, and studies. Rather than attempt to synthesize herein, a series of TM were developed. The subject of the TMs include: water supply, water quality/flood management, open space, water quality strategy integration, project integration, benefits assessment, and implementation. These incorporate and integrate stakeholder-generated information and cumulate that information across the entire region. In addition, a summary of existing plans, reports, and studies was compiled to confirm the relevance of these various documents, along with interviews with selected stakeholders (e.g., water supply agencies) to obtain the individual perspective of those entities.

Regional Workshops. Four Regional stakeholder workshops encouraged regional consistency and the formation of partnerships. Workshop content focused on: 1) background, context and schedule; 2) objectives and strategies; 3) project scenarios and benefits; and 4) review of the Draft Plan.

Subregional Stakeholder Workshops. The primary avenue for stakeholder input was Subregional workshops. Twenty Subregional workshops were held (four in each of the five Subregions). These workshops provided background on the IRWMP process; identified issues, opportunities and constraints; considered opportunities for project integration, and identified comments on the Public Review Draft of the IRWMP.

Steering Committees. The Subregional Steering Committees provided a forum for more detailed discussion of the issues related to development of the Plan and for input on issues considered by the Leadership Committee, including the prioritization and selection of projects for Round

Table 1-1. Steering Committee Representation

Lower San Gabriel and Los Angeles Rivers Watersheds	North Santa Monica Bay Watersheds	South Bay Watersheds	Upper Los Angeles River Watershed	Upper San Gabriel River and Rio Hondo Watersheds
• California Coastal Conservancy • Central Basin Municipal Water District • City of Long Beach • Gateway COG—City of Downey • Gateway COG—City of Lakewood • Gateway COG—City of Paramount • Los Angeles & San Gabriel Rivers Watershed Council • Los Angeles County Department of Public Works • Orange County Resources and Development Management Department • County Sanitation Districts of Los Angeles County • Water Replenishment District • Watershed Conservation Authority	• California Department of Parks and Recreation • California Coastal Conservancy • California Department of Transportation • City of Agoura Hills • City of Calabasas • City of Malibu • City of Westlake Village • County of Los Angeles Department of Public Works • Heal the Bay • Las Virgenes Municipal Water District • Los Angeles County Beaches & Harbors • Mountains Restoration Trust • National Park Service-Santa Monica Mountains NRA • Resource Conservation District of the Santa Monica Mountains • Santa Monica Bay Restoration Commission • Santa Monica Baykeeper • Santa Monica Mountains Conservancy • Triunfo Sanitation District • Water District # 29 Los Angeles County Waterworks Division • West Basin Municipal Water District	• California Department of Water Resources • City of Los Angeles Bureau of Sanitation • City of Torrance • County of Los Angeles Department of Public Works • County Sanitation Districts of Los Angeles County • Los Angeles Department of Water and Power • Mono Lake Committee • Santa Monica Bay Restoration Commission • South Bay Cities COG • Water Replenishment District • West Basin Municipal Water District • Westside Cities COG	• Arroyo Seco Foundation • Burbank Water and Power • California Coastal Conservancy • City of Calabasas • City of Los Angeles • City of Los Angeles Department of Water and Power • City of Los Angeles Department of Recreation & Parks • City of Los Angeles Department of Public Works, Bureau of Sanitation • City of Pasadena • City of South Pasadena • Coastal Conservancy • Glendale Water and Power • Los Angeles & San Gabriel Rivers Watershed Council • Los Angeles County Department of Public Works • Mountains Recreation and Conservation Authority • Mountains Restoration Trust • Tujunga Watershed Council • Upper Los Angeles River Area Watermaster	• California Department of Water Resources • Los Angeles & San Gabriel Rivers Watershed Council • Los Angeles County Department of Public Works • Main San Gabriel Basin Watermaster • Rivers and Mountains Conservancy • San Gabriel Basin Water Quality Authority • San Gabriel Valley Municipal Water District • San Gabriel Valley Water Association • Three Valleys Municipal Water District • Upper San Gabriel Valley Municipal Water District

1 (Step 2) of Proposition 50, Chapter 8. The Steering Committees also assisted in the preparation for Subregional stakeholder workshops. Approximately 50 committee meetings were held during Plan development.

Leadership Committee. The Leadership Committee met at least once per month and more frequently as needed, to provide direction for the Plan development process, make formal decisions regarding administration of the Plan, and determine project priorities (e.g., the final selection of Step 2 projects).

Project Website. A project website was developed (www.lawaterplan.org) to facilitate the distribution of project information to stakeholders. The website contained background information about the IRWMP plan development, a calendar of meetings and workshops, and contact information. The website also included a database tool through which stakeholders could submit or review projects or project concepts.

Electronic and Written and Communications. Electronic mail was the main tool used to maintain a high level of stakeholder communication and engagement. All meetings and workshop announcements were sent as far in advance as possible to stakeholders. Various stakeholder groups (e.g., the Ballona Creek Watershed Task Force) also forwarded IRWMP messages to their constituencies, thereby extending the reach to additional stakeholders. In addition, written communications in the form of letters to cities and press releases to the media were utilized to expand awareness of, and participation in, plan development.

With this structure, and under the guidance of the Leadership Committee, stakeholders were provided an opportunity to shape the scope, content and priorities articulated in the Plan in an efficient manner. Stakeholders were instrumental in the following:

- Developing the IRWMP mission and objectives;
- Refining procedures for how projects are incorporated into the IRWMP;
- Identifying appropriate implementation strategies; and
- Recommending improvements to stakeholder workshops.

Disadvantaged Community Outreach

Outreach to disadvantaged communities in the Region is a priority. An initial assessment was completed by conducting a census analysis of the five Subregions to identify and map communities with a median income below 80 percent of Statewide Median Household income –the state qualification for Disadvantaged Community (DAC) under Proposition 50, Chapter 8. Only the North Santa Monica Bay Watersheds had no qualifying communities. Activities conducted to expand DAC participation include:

- A gap analysis was conducted of the stakeholder invitation lists to determine which disadvantaged communities in the Plan Region are not represented or are underrepresented. A strategy was developed to increase participation from each of these communities by reaching out to agencies in those communities, including public works, community development, and parks and recreation.
- Phone conservations with, and e-mails to, leaders of the statewide Environmental Justice Coalition for Water (EJCW) served to introduce them to the planning effort. Based on feedback from the EJCW, additional communities and groups were added to the stakeholder lists.
- Briefings with steering committee leaders of the Los Angeles Working Group on the Environment (LAWGE), a coalition of over 50 environmental and environmental justice groups that have been working together since 2005 to develop a cohesive environmental agenda for the City of Los Angeles, including a safe and reliable water supply.
- Phone conservations or in person meetings with opinion leaders to discuss outreach strategy, including representatives of the Desalination Response Group and the Mono Lake Committee.
- E-mails and conversations with various Councils of Government, including the South Bay Cities and Westside Cities COGs.

Table 1-2. Water Districts, Agencies, and Authorities in Greater Los Angeles IRWMP Region

Regional District or Authority	Cities and Communities Served
Central Basin MWD*	Artesia, Bell, Bellflower, Bell Gardens, Cerritos, Commerce, Cudahy, Downey, East Los Angeles, Florence, Hawaiian Gardens, Huntington Park, La Habra Heights, Lakewood, La Mirada, Lynwood, Maywood, Montebello, Norwalk, Paramount, Pico Rivera, Santa Fe Springs, Signal Hill, South Gate, South Whittier, Vernon, Whittier
Foothill MWD*	Altadena, La Cañada Flintridge, La Crescenta, Montrose
Las Virgenes MWD*	Agoura, Agoura Hills, Calabasas, Chatsworth, Lake Manor, Hidden Hills, Malibu Lake, Monte Nido, Westlake Village, West Hills
Metropolitan Water District of Southern California	Anaheim, Beverly Hills, Burbank, Compton, Fullerton, Glendale, Long Beach, Los Angeles, Pasadena, San Fernando, San Marino, Santa Ana, Santa Monica, Torrance
Municipal Water District of Orange County*	Brea, Buena Park, Cypress, La Habra, La Palma, Los Alamitos, Placentia, Seal Beach
San Gabriel Basin Water Quality Authority	Baldwin Park, Bradbury, Duarte, La Puente, La Verne, Rosemead, San Dimas, San Gabriel, San Marino, Sierra Madre, South El Monte, Temple City, West Covina
San Gabriel Valley MWD	Alhambra, Azusa, Monterey Park, Sierra Madre
Southeast Water Coalition Joint Powers Authority	Cerritos, Commerce, Downey, Huntington Park, Lakewood, Norwalk, Paramount, Pico Rivera, Santa Fe Springs, South Gate, Vernon and Whittier
Three Valleys MWD*	Azusa, Charter Oak, Claremont, Covina, Covina Knolls, Diamond Bar, Glendora, Industry, La Verne, Pomona, Rowland Heights, San Dimas, South San Jose Hills, Walnut, West Covina
Upper San Gabriel Valley MWD*	Avocado Heights, Arcadia, Baldwin Park, Bradbury, Citrus, Covina, Duarte, El Monte, Glendora, Hacienda Heights, Industry, Irwindale, La Puente, Mayflower Village, Monrovia, Rosemead, San Gabriel, South El Monte, South Pasadena, South San Gabriel, Temple City, Valinda, West Covina, West Puente Valley
Water Replenishment District of Southern California	Artesia, Bell, Bellflower, Bell Gardens, Carson, Cerritos, City of Commerce, Compton, Cudahy, Downey, El Segundo, Gardena, Hawaiian Gardens, Hawthorne, Hermosa Beach, Huntington Park, Inglewood, La Habra Heights, La Mirada, Lakewood, Lawndale, Lomita, Long Beach, Los Angeles, Lynwood, Manhattan Beach, Maywood, Montebello, Monterey Park, Norwalk, Palos Verdes Estates, Paramount, Pico Rivera, Rancho Palos Verdes, Redondo Beach, Rolling Hills, Rolling Hills Estates, Santa Fe Springs, Signal Hill, South Gate, Torrance, Vernon, Whittier
West Basin MWD*	Alondra Park, Carson, Culver City, El Segundo, Gardena, Hawthorne, Hermosa Beach, Inglewood, Ladera Heights, Lawndale, Lennox, Lomita, Malibu, Manhattan Beach, Marina Del Rey, Palos Verdes Estates, Rancho Palos Verdes, Redondo Beach, Rolling Hills, Rolling Hills Estates, Ross-Sexton, Topanga Canyon, Torrance, West Athens, West Hollywood

** Also served by the Metropolitan Water District of Southern California*

Sources: Metropolitan Water District of Southern California, San Gabriel Valley MWD, San Gabriel Basin Water Quality Authority, Southeast Water Coalition, and Water Replenishment District of Southern California

- Conversations between Subregional area managers and Los Angeles County Department of Public Works (LACDPW) staff to assure coverage of unincorporated areas in each Subregion.
- Conversations with organizers of the Los Angeles Neighborhood Initiative (LANI) program, which serves 17 diverse under-served neighborhoods in the City of Los Angeles that are economically-challenged, have a declining, blighted neighborhood main street, and are predominantly comprised of transit-dependant populations.
- Individual meetings and information disseminated to leaders of specific community groups that focus their efforts in economically disadvantaged communities including: Amigos De Los Rios, People for Parks, The Metropolitan Alliance, Pacoima Beautiful, and Communities for a Better Environment.

- Outreach to Los Angeles Unified and other local school districts.
- Briefings to watershed stakeholder groups including the Ballona Creek Task Force, Coyote Creek Watershed Council, Dominguez Watershed Advisory Council, Sun Valley Stakeholders Group, Tujunga Watershed Project Steering Committee, and Compton Creek Watershed Advisory Group.
- E-mails notices to registered neighborhood councils located in disadvantaged communities in the City of Los Angeles, with the assistance of the Los Angeles Department of Neighborhood Empowerment (DONE).

1.6 Stakeholder Outcomes

A number of outcomes resulted from the stakeholder involvement and coordination process. These outcomes include opportunities to develop partnerships, identify possible obstacles to Plan implementation, and identify areas in which a state agency or agencies may be able to assist in implementing the Plan. Two of these outcomes are discussed below.

Partnerships

One of the outcomes of the IRWMP process is that it brought together disparate groups in a forum where common needs and opportunities for collaboration and integration could be pursued. There have been many examples of partnerships that have formed to date in the IRWMP process, including the formation of the Leadership Committee and the Steering Committees, which have required multiple agencies to work together at new planning levels, both Regional and Subregional. As the IRWMP is implemented, several types of partnerships will form, including geographic partnerships between jurisdictions in close proximity, and public-private partnerships, stakeholder organizations with common interests, and common-purpose partnerships between entities with similar goals.

In addition, the identification of projects has lead to the formation of collaborative partnerships and will likely continue to do so during Plan implementation. One example is the Large Landscape Conservation Project (submitted as part of the Region's Proposition 50 Step 2 grant application) which is a partnership between the Surfrider Foundation and the West Basin MWD. Although the interests and roles of the two partners are very different, they have found that implementation of the project will meet some of their shared goals. Water conservation is important to the West Basin MWD as it will reduce imported water supplies and help to improve water supply reliability for the Region. Water conservation is also important to the Surfrider Foundation because it will reduce dry weather urban runoff to the Santa Monica Bay. By working together these two partners are increasing chances for successful implementation and thus the ability to meet their own goals.

Coordination with Federal and State Agencies

Development of the Plan benefited from the involvement, and coordination with, a variety of state and federal agencies. A list of the agencies invited to participate in this effort was provided in Section 1.5.2. Federal, state and regional agencies that were Ex Officio members of the Leadership Committee included: U.S. Bureau of Reclamation; California Department of Fish and Game; California Coastal Commission; California Coastal Conservancy; California Department of Transportation; California DWR; California EPA; California RWQCB, Los Angeles Region; California Department of Parks and Recreation; California DHS; Metropolitan Water District of Southern California; National Parks Service; U.S. Army Corps of Engineers; and USDA Forest Service. Several of those agencies also participated at the Subregional level, as noted in Table 1-1.

The involvement of state and federal agencies such as the National Park Service and the U.S. Army Corps of Engineers will be critical during the Plan implementation. Examples are provided below:

- The National Park Service owns a great deal of land in the Santa Monica Mountains which can impact the North Santa Monica Bay Watersheds. The National Forest Service manages large portions of the Upper Los Angeles Watershed and Upper San Gabriel and Rio Hondo Watersheds.

- The Angeles National Forest, which covers approximately 24 percent of the Region, is the headwaters of the San Gabriel River watershed and a portion of the Los Angeles River watershed and has experienced problems with sedimentation following catastrophic wildfires. To address this problem the Upper San Gabriel Valley MWD is partnering with the USDA Forest Service to replant forests that have been denuded by wildfires.
- The U.S. Army Corps of Engineers, which built and operates five dams and portions of several open channels in the Region, is a desired partner in flood damage reduction projects and a necessary partner in any project that affects a Corps-constructed flood control channel. Additionally, it is a necessary partner in any dam-related activities, such as the removal of Rindge Dam in the North Santa Monica Bay watersheds. It also is important in conducting feasibility studies on restoration of local watersheds, including the Arroyo Seco, Ballona Creek, and Coyote Creek, and could play a role in future funding opportunities related to ecosystem restoration along the rivers and major tributary channels.

Similar examples apply to state agencies involvement.

- California State Parks is an active stakeholder in many habitat preservation and park creation activities. Its participation is critical as habitat projects may be implemented on state park land and additional parks may be created. As an active project proponent, it can assist the IRWMP effort by communicating the importance of its projects to the public.
- RWQCB representatives are also engaged in the IRWMP process and are involved in parallel efforts to develop TMDLs and the associated TMDL Implementation Plans. By maintaining contact with both TMDL and IRWMP efforts, the RWQCB can assist in the identification of projects that will meet TMDL requirements while simultaneously meeting other Regional needs. By streamlining the process and avoiding duplication of efforts, the RWQCB can maximize available funds.
- Southern California-based staff from California DWR attended most Leadership Committee and several Subregional Steering Committee meetings to observe the discussion and provide comments and suggestions about potential relationships between local and statewide water resource planning.

Dealing with downstream water quality impacts of erosion and sedimentation caused by forest fires in the Angeles National Forest requires coordinated local/federal efforts.

2. REGIONAL DESCRIPTION

Los Cerritos Wetland

More than 90 percent of coastal wetlands have been eliminated in the Region. The Los Cerritos wetlands is one of the remaning few.

2.1 Introduction

The purpose of this section is to discuss why preparation of an IRMWP for this Region is appropriate, describe the physical characteristics of the Region, describe the sources of water and estimate water demand, identify water quality issues, and describe social trends and concerns in the Region.

2.2 Overview

Greater Los Angeles County Region

The Region, an area of approximately 2,058 square miles, is located in coastal southern California (refer to Map 1-1). The Region contains portions of four counties; Los Angeles, Orange, Ventura, and San Bernardino. It is bordered by five other IRWMP Planning Regions: the Watershed Coalitions of Ventura County (which consolidated the Ventura County and Calleguas Creek Watershed efforts) on the west, the Municipal Water District of Orange County and the Santa Ana Watershed Project Authority to the south, and the Upper Santa Clara River and Antelope Valley to the north. The Mojave Water Agency's Regional Water Management Planning Area is located to the northeast of the Region.

Although the development of an IRWMP at this scale was not originally envisioned by local stakeholders, the preparation of an IRWMP for this Region is appropriate, given the consistency of the major water resource management issues, including substantial dependence on imported water, poor surface water quality due to urban and stormwater runoff, opportunities to expand water conservation and the produc-

tion and utilization of recycled water, and significant groundwater resources in much of the area. Water resource management planning at this scale provides an opportunity to optimize use of stormwater, recycled water, and groundwater resources to reduce dependence on imported water and concurrently enhance water supply reliability.

Subregional Characteristics

Lower San Gabriel and Los Angeles Rivers Watersheds

The Lower San Gabriel and Los Angeles Rivers Watershed Subregion is comprised of 37 cities, 27 in the Gateway Cities COG area and 10 in the Orange County portion of the Coyote Creek watershed and dozens of water agencies/companies and other entities which have an interest in a variety of water management issues. This Subregion faces significant ground and surface water quality challenges, as well as flood control issues, due to its location in the lower reaches of two major watersheds and intense urban development changes. It has the greatest water recharge capacity in the Greater Los Angeles County Region due to the recharge basins at Whittier Narrows. Further, it has the most densely developed commercial and industrial land uses coupled with the least amount of open space on a per acre basis in the Greater Los Angeles County Region; notably several cities in the Subregion are over 100 years old. Further, this Subregion is in the lower reaches of a vast metropolitan area and, therefore has significant water quality issues along with tremendous opportunities for conjunctive use, recycled and reclaimed water use, desalination and wetlands restoration in the estuaries of the San Gabriel and Los Angeles Rivers. One of the greatest challenges in the Subregion is identifying opportunities for multipurpose projects in a heavily built out landscape. The cities in the Subregion face many competing needs, including replacing aging infrastructure, providing affordable housing and increasing public safety. A considerable number of the cities have experienced and will continue to experience severe funding shortages for infrastructure repair, maintenance and installation along with high household poverty rates.

North Santa Monica Bay Watersheds

The North Santa Monica Bay watersheds differ substantially from the other Subregions with respect to land use, water supply, groundwater and surface water qualiy, aquatic resources, open space

Steep mountain slopes and adjacent flatlands create both challenges and opportunities for water resource management .

and recreation. Over 85 percent of the Subregion is still undeveloped open space; remaining land uses in the area are primarily residential and concentrated along the coastline and interior valleys. There is little heavy industry. The Subregion depends almost entirely on imported water due to naturally-poor groundwater quality and limited surface storage opportunities. Per capita recycled water use is among the highest in the nation, but further expansion is limited to areas that are difficult to reach due to cost. Aquatic habitat protection and restoration is a special priority, as the Subregion includes the Santa Monica Mountains National Recreation Area, several State Parks, a state designated Area of Biological Significance (ASBS), and Malibu Lagoon, all heavily used for recreation. The Subregion is also home to over a dozen endangered and threatened species, including the southernmost Steelhead Trout population in the state.

South Bay Watersheds

The South Bay watersheds consist of three defining characteristics—its coastline, its population and its industry. More than 30 miles of coastline in the South Bay attract tens of millions of visitors to Southern California every year, serve as an important recreation area for the area's residents both rich and poor, and in a few remaining pockets such as the Palos Verdes Peninsula, Madrona Marsh, Ballona Wetlands, portions of the Santa Monica Mountains and Baldwin Hills, support a diverse population of birds and other wildlife. With over 2.9 million residents, the South Bay is one of the most dense and economically diverse urban areas of the region, creating both challenges to preserve and enhance local water resources and the natural environment as well as unique opportunities for collaboration. The South Bay's industries--oil refining, power generation, and transportation via the Port of Los Angeles, Los Angeles International Airport and major freeways—provide similar challenges and opportunities.

Upper Los Angeles River Watershed

The Upper Los Angeles River Watersheds is home to approximately 2.3 million residents, mostly in development concentrated in the interior valleys and the foothills, which are generally surrounded by large expanses of open space in the San Gabriel, Verdugo, Santa Monica, and Santa Susanna Mountains. In most years, the mountains generate substantial runoff, much of which can be recharged into the underlying groundwater basins

The Los Angeles River is fed by the largest drainage area in the Region.

via favorable soils along the major channels and on the valley floors. The large expanses of urban and suburban development on the valley floors, and significant residential development in canyons and associated hillsides, have resulted in the channelization of most of the major river and stream channels and contributed to degraded surface water quality in those channels. Restoration or enhancement of several major channels, including the Los Angeles River, provides opportunities to improve water quality, enhance water supplies and restore habitat.

Upper San Gabriel River and Rio Hondo Watersheds

The Upper San Gabriel River and Rio Hondo Watersheds contains large expanses of open space in the San Gabriel Mountains (including much of the Angeles National Forest) and the Puente, and San Juan Hills, with development concentrated in the interior valleys and the surrounding foothills. Several groundwater basins, including the vast San Gabriel basin, and runoff from the San Gabriel Mountains provide significant water supplies, although groundwater contamination from industrial sources and prior land uses poses a significant challenge in some locations. The large expanses of urban and suburban development on the valley floors are home to approximately 1.6 million residents. Although most of the major river and stream channels on the valley floors have been subject to channelization, several of these, including the San Gabriel River, have natural bottoms, which promote instream percolation of runoff.

2.3 Physical Setting

Geology and Geomorphology

The geography of the Region can generally be divided into four distinct types: the coastal plain, inland valleys (e.g., San Fernando, San Gabriel, Pomona, and Walnut), foothills that generally surround the valleys, and two mountain ranges (the Santa Monica and San Gabriel Mountains). These mountains are part of the Transverse Ranges, which extend 350 miles east to west from the Eagle Mountains in San Bernardino County to the Pacific Ocean. To the north, the San Gabriel Mountains separate the Los Angeles basin from the Mojave Desert. To the west, the Santa Monica Mountains separate the Los Angeles basin from the Ventura basin. Topography in the Region ranges from sea level to over 10,000 feet in the San Gabriel Mountains. Most of the coastal plain is less than 1,000 feet in elevation. The foothills reach 3,000 to 4,000 feet before rising rapidly into the San Gabriels, to a height of 10,064 feet at Mount San Antonio (or Mount Baldy). The grade of the mountain slopes in the San Gabriels average 65 to 70 percent, some of the steepest slopes in the world.

Geology varies from Precambrian metamorphic rocks (1.7 billion years old) to alluvial deposits washed down from mountain canyons. The San Gabriel Mountains are young mountains, geologically speaking, and continue to rise at a rate of nearly three-quarters of an inch per year. Because of this instability, they are also eroding at a rapid rate. Alluvial deposits of sand, gravel, clay and silt in the coastal plain are thousands of feet thick in some areas, due in part to the erosive nature of the San Gabriel and Santa Monica Mountains.

The Region is extensively faulted, with the San Andreas Fault bordering the north side of the San Gabriels and the Sierra Madre–Cucamonga fault zone on the south side. Throughout the Region are hundreds of lesser fault systems, such as the Newport-Inglewood fault that runs from Newport Beach to Beverly Hills via Long Beach and Signal Hill. The most notorious are those that have been the cause of major earthquakes during the past few decades, known not by name but by the area in which they struck: Sylmar in 1971, Whittier Narrows in 1987, and Northridge in 1994.

Climate

The Region is within the Mediterranean climate zone, which extends from Central California to San Diego and is characterized by winter precipitation followed by dry summers.

The geography of the Los Angeles Region results in a great deal of spatial variation in the local climate. The abrupt rise of the mountains from the coast creates a barrier that traps moist ocean air against the southerly slopes and partially blocks the desert summer heat and winter cold from the

interior northeast. The common perception of the region as desert is misleading. The coastal plain may be more appropriately termed "semi-arid," although portions of the San Gabriel Mountains receive considerable snow and rainfall most years.

Summers are dry, with most precipitation falling in a few major storm events between November and March. Long-term annual rainfall averages vary from 12.2 inches along the coast, 15.5 inches in downtown Los Angeles to 27.5 inches in the mountains. The maximum-recorded 24-hour rainfall in the Region was 34 inches in the mountains and 9 inches on the coastal plain.

2.4 Internal Boundaries

The Region has a variety of internal boundaries that have been defined for different purposes. In many cases, these boundaries overlap. This section describes the different sets of internal boundaries: subregional (described previously), watershed, political and water supply.

Subregional Boundaries

To manage stakeholder input and acknowledge local variation, the Region includes five Subregions (refer to Map 1-2):

- Lower San Gabriel and Los Angeles Rivers Watersheds;
- North Santa Monica Bay Watersheds;
- South Bay Watersheds;
- Upper Los Angeles River Watershed; and
- Upper San Gabriel River and Rio Hondo River Watersheds.

Watershed Boundaries

The Los Angeles and San Gabriel Rivers drain approximately 1,513 square miles of the Region and discharge to San Pedro Bay. These two watersheds are connected via the Rio Hondo, which transfers water during large storm events from the San Gabriel to the Los Angeles River. Other major watersheds in the region include Malibu Creek, Topanga Creek, Ballona Creek, and the Dominguez Channel. Dozens of smaller watersheds drain directly to Santa Monica or San Pedro Bays. Based on the Watershed Management Initiative Chapter of the Basin Plan prepared by the Los Angeles RWQCB, the IRWMP Region includes the Los Angeles River Watershed, the San Gabriel River Watershed, the Santa Monica Bay Watershed Management Area (WMA), and the Dominguez Channel WMA. The Los Angeles RWQCBs WMAs are shown on Map 2-1.

Given the extent of urbanization within the developed coastal plain and interior valleys, rivers, major creeks, and most tributaries have been channelized. In contrast, the creeks and streams within the San Gabriel Mountains and Santa Monica Mountains generally are unchannelized, with minimal improvements at some locations.

Major Water Supply Boundaries

Within the Region, there are 35 major institutions that provide water or wastewater services or manage groundwater resources. The general boundaries of the major water wholesale districts and city-operated water agencies, with the five Greater Los Angeles County IRWMP Subregions overlain, are shown on Map 2-2.

Political Boundaries

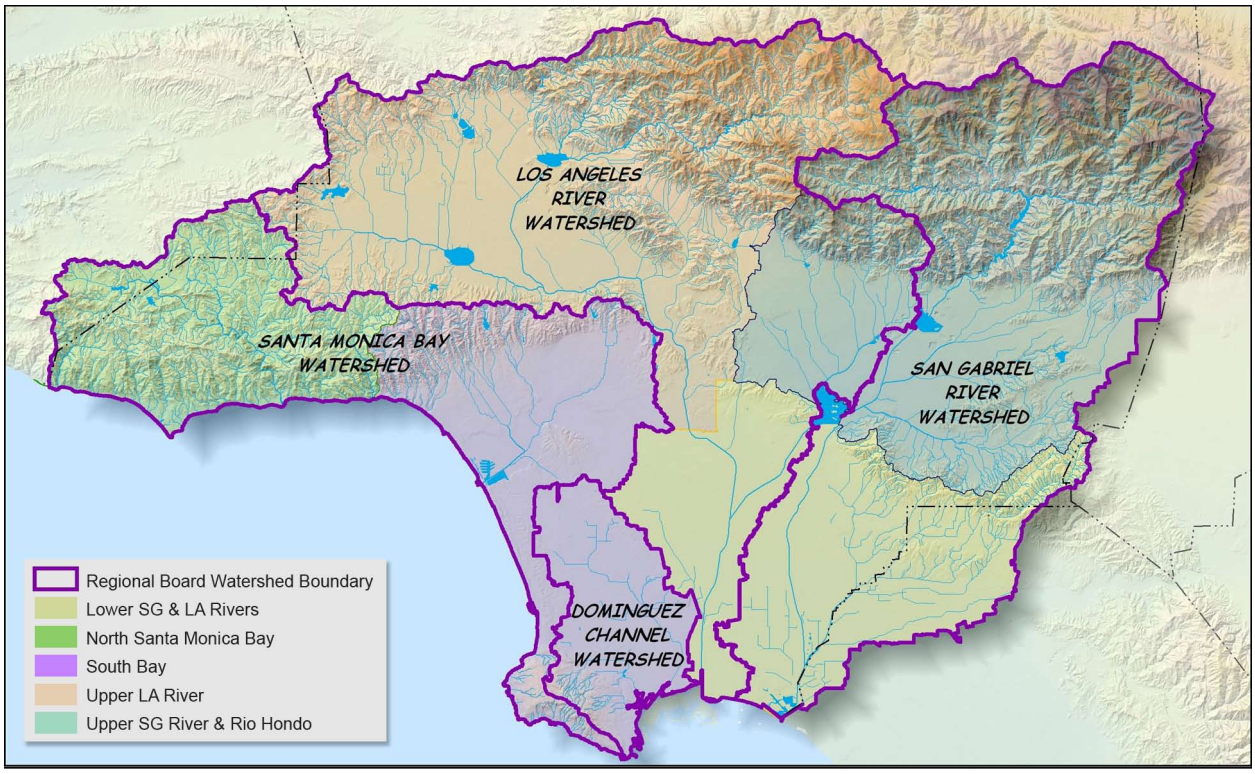
The Region includes portions of 4 counties and 92 cities. Maps 2-3(A) through 2-3(E) depict the county and city boundaries within each of the five Subregions.

2.5 Sources of Water Supply

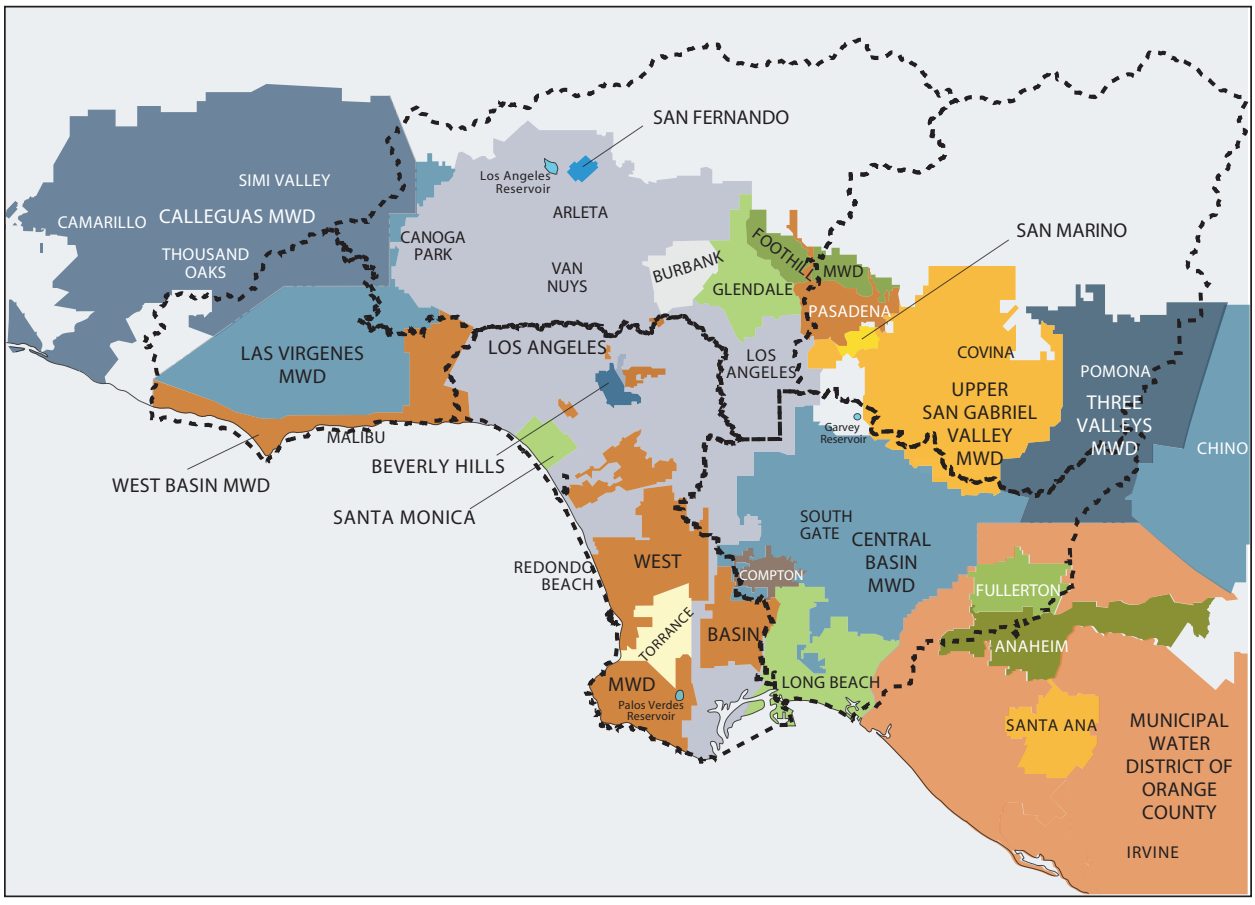
The Region has developed a diverse mix of local and imported water supply sources. Local water resources include groundwater, surface water, recycled water, water conservation, water transfers, and storage. Water is imported through the California State Water Project (SWP), the Colorado River Aqueduct, and the Los Angeles Aqueducts. Major water supply sources are described below.

Groundwater

Groundwater represents a significant portion of local supplies in the Region, approximately 23 percent of the Region's entire supply in an average year, and 29 percent in a dry year. Most groundwater basins in the Region are adjudicated (via a court decision) and producers within these basins



Map 2-1. RWQCB Watershed Areas and IRWMP Subregions.



Map 2-2. Major Water Suppliers in the IRWMP Region.

follow management guidelines established by their respective adjudications. Exceptions are the Orange County Basin, Santa Monica Basin and Hollywood Basin. The City of Santa Monica plans to implement a groundwater management plan for that basin. The Orange County Basin (which extends outside the southern boundary of the Region) is managed by Orange County Water District, which was established in 1933. There are no significant groundwater basins in the North Santa Monica Bay Watersheds.

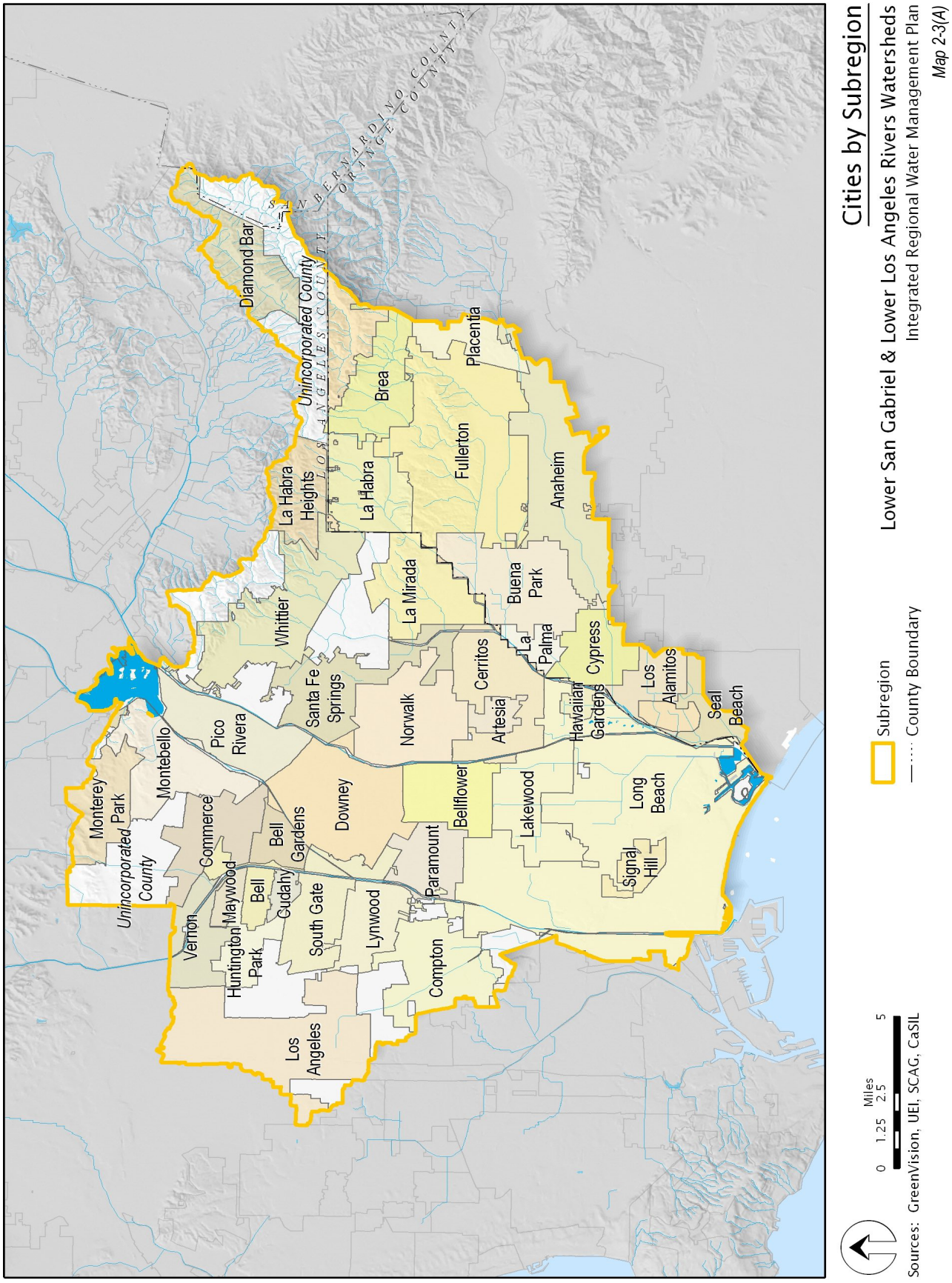
Groundwater basin recharge can occur via exisiting and restored natural channel bottoms or percolation of rainwater (natural recharge), however natural recharge is typically insufficient to maintain basin water levels and current pumping levels due to the extent of impervious surfaces and the presence of clay soils in parts of the Region. Many agencies rely on artificial recharge, by diverting local supplies from rivers or creeks when flow conditions are optimal, to spreading grounds (or basins) which typically contain sandy soils that promote infiltration. In some locations, spreading is limited because of the capacity limitations of the spreading facilities rather than being limited by water supply. Historical concerns about the presence of urban contaminants in stormwater may also limit the amount of local water that can be recharged, although the Water Augmentation Study being conducted by the Los Angeles and San Gabriel Rivers Watershed Council is monitoring several sites to determine whether stormwater pollutants migrate to groundwater. In addition, recycled water is infiltrated in spreading grounds and injected (along with imported water) along the coast to form barriers to seawater intrusion at three locations (the Alamitos, Dominguez Gap, and West Coast Basin Barriers). This water augments and blends with groundwater, which is eventually extracted for potable use

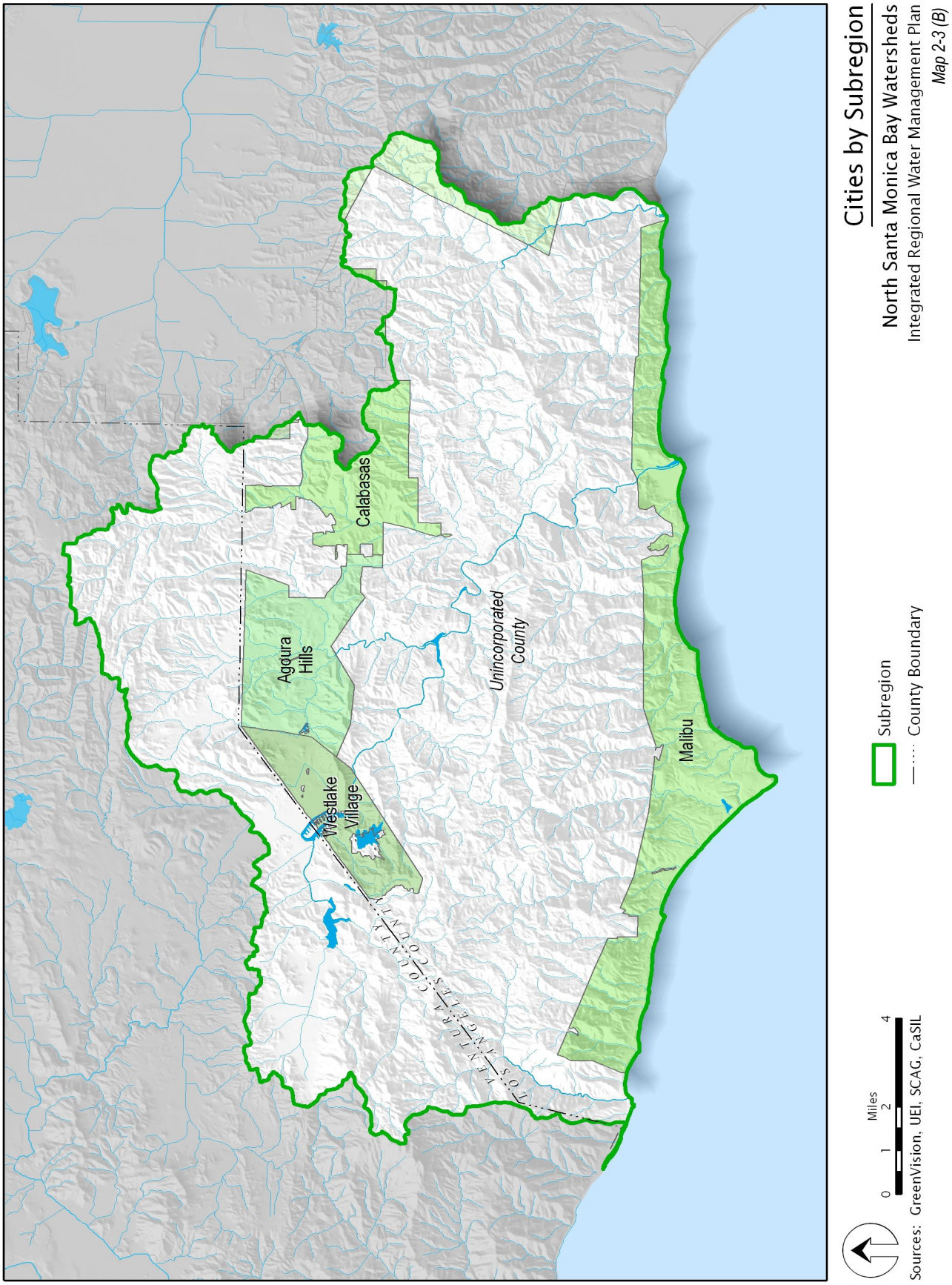
Conjunctive use programs may also be implemented to recharge basins, where imported water is recharged via spreading grounds or injection wells. Recharge can also occur "in-lieu," when an agency suspends production from its wells and uses other supplies. The reduction in pumping permits groundwater levels in the basin to recover. The amount of water that can be recharged in the basin may be limited by local runoff, recharge capacity, overlying groundwater demands, and water rights.

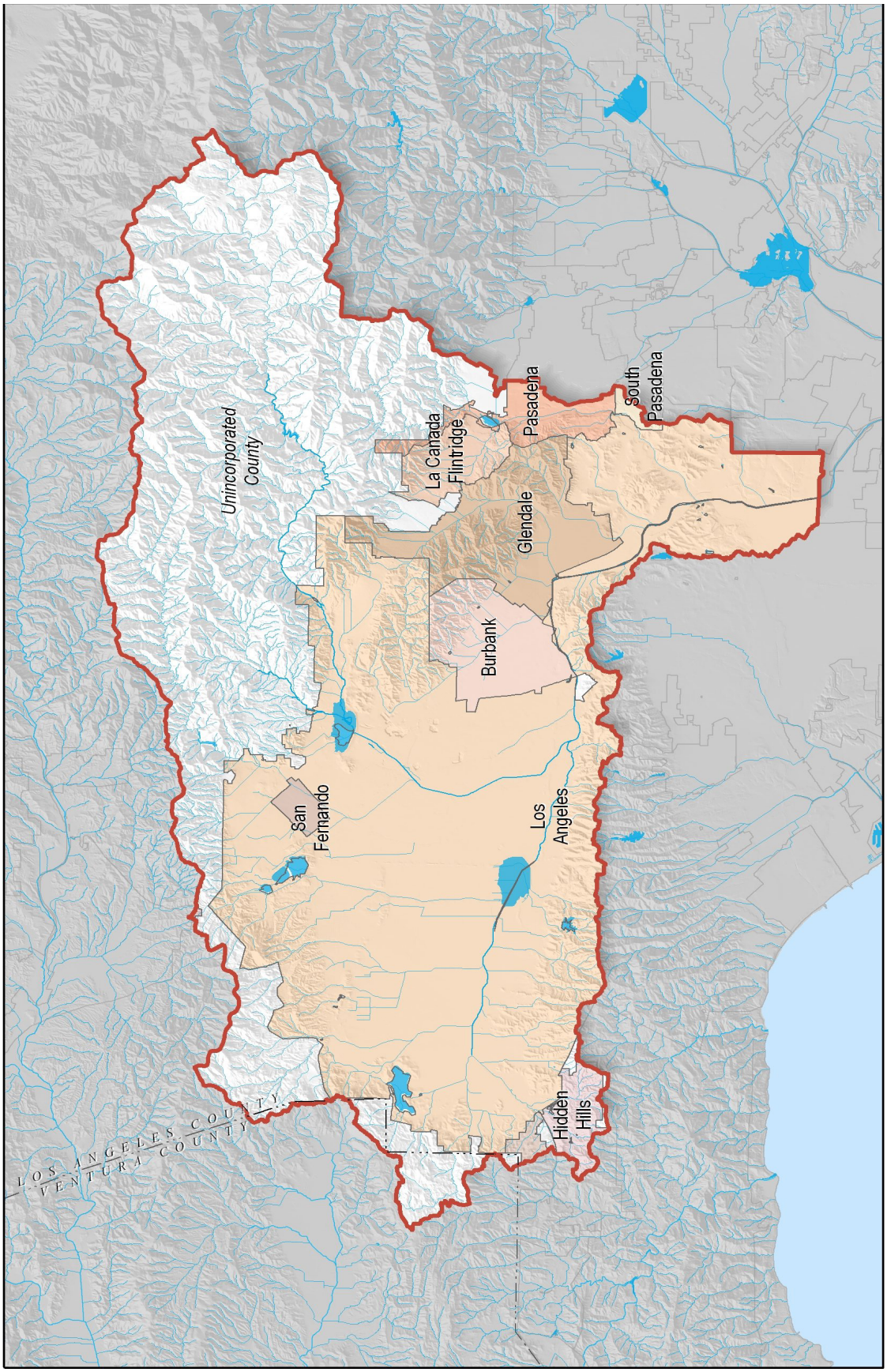
Most of the time, it is more cost effective for agencies to supply groundwater rather than purchase imported water. Thus, the strategy of most groundwater agencies is to maximize groundwater production, up to estimated annual yield limits without significantly impacting groundwater levels, and meet the balance of the customer demand through imported or local water.

Groundwater basin water quality is a significant issue in the Region, as natural conditions result in high dissolved salt levels. In some aquifers, salt levels are so high the water is termed "brackish," which either requires desalination or advanced treatment to make the supply usable or blending the treated water with other supplies that have a lower salt content. In addition, land use practices and production practices have deteriorated water quality in portions of certain groundwater basins. Many factors have contributed to the deterioration of water quality including historic overdrafting of groundwater basins (sometimes resulting in seawater intrusion), industrial discharges, agricultural chemical usage, livestock operations, contaminants in urban runoff, and naturally occurring constituents. The cost of treating these contami-

Possible future drought year reductions in water supply from the Colorado River highlight the need for less dependence on imported water in the Region.

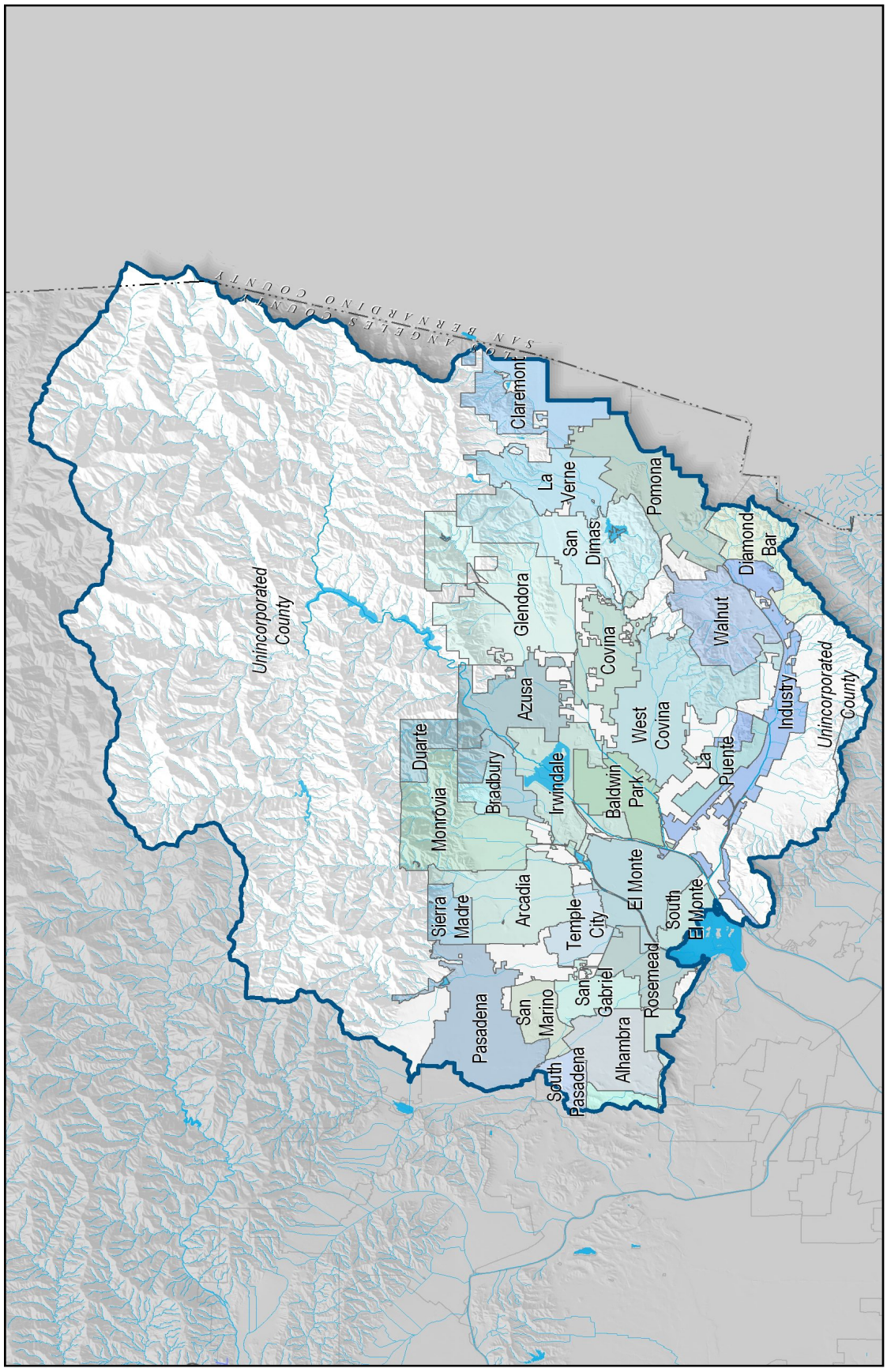

Cities by Subregion
Lower San Gabriel & Lower Los Angeles Rivers Watersheds
Integrated Regional Water Management Plan
Map 2-3(A)
Subregion
County Boundary
0 1.25 2.5 5
Miles
Sources: GreenVision, UEI, SCAG, CaSIL
SAN BERNARDINO COUNTY
ORANGE COUNTY
LOS ANGELES COUNTY
Diamond Bar
Unincorporated County
La Habra Heights
Whittier
La Habra
Brea
Placentia
Fullerton
Anaheim
La Mirada
Buena Park
La Palma
Cypress
Cerritos
Artesia
Hawaiian Gardens
Los Alamitos
Seal Beach
Santa Fe Springs
Norwalk
Pico Rivera
Montebello
Monterey Park
Unincorporated County
Commerce
Bell Gardens
Downey
Bellflower
Lakewood
Long Beach
Signal Hill
Paramount
Bell
Cudahy
Maywood
South Gate
Lynwood
Compton
Vernon
Huntington Park
Los Angeles

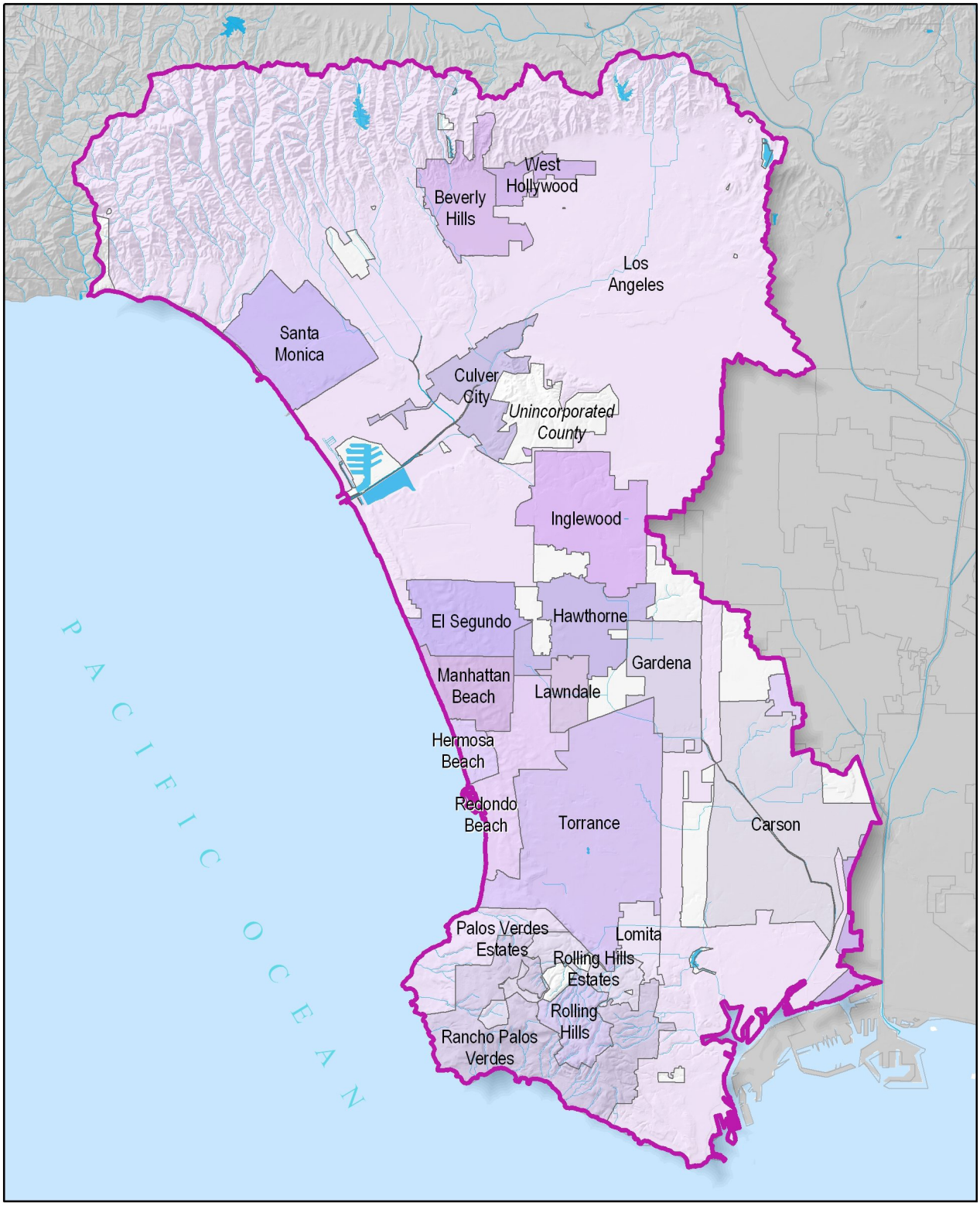

Cities by Subregion
North Santa Monica Bay Watersheds
Integrated Regional Water Management Plan
Map 2-3 (B)
Calabasas
Agoura Hills
Westlake Village
Malibu
Unincorporated County
Subregion
County Boundary
0
1
2
4
Miles
Sources: GreenVision, UEI, SCAG, CaSIL



Cities by Subregion

Upper Los Angeles River Watersheds
Integrated Regional Water Management Plan
Map 2-3 (C)


Cities by Subregion
Upper San Gabriel River & Rio Hondo Watersheds
Integrated Regional Water Management Plan
Map 2-3(D)
Subregion
County Boundary
Miles
0 1.5 3 6
Sources: GreenVision, UEI, SCAG, CaSIL
LOS ANGELES COUNTY
SAN BERNARDINO COUNTY
Unincorporated County
Claremont
La Verne
Pomona
San Dimas
Diamond Bar
Glendora
Walnut
Covina
Azusa
Industry
Unincorporated County
Duarte
Monrovia
Bradbury
Irwindale
Baldwin Park
West Covina
La Puente
Sierra Madre
Arcadia
Temple City
El Monte
South El Monte
Pasadena
San Marino
San Gabriel
Rosemead
Alhambra
South Pasadena



Miles
0 1.25 2.5 5

Sources: GreenVision, UEI, SCAG, CaSIL

Subregion

Cities by Subregion

South Bay Watersheds
Integrated Regional Water Management Plan
Map 2-3 (E)

nants is often significant, and for some improperly disposed chemicals, effective treatment has not yet been identified. Various agencies, including the San Gabriel Basin Water Quality Authority and the Water Replenishment District have implemented programs to assess treatment options and treat the contaminated groundwater.

Local Surface Water

Los Angeles River

The Los Angeles River flows 51 miles from the union of Bell Creek and Arroyo Calabasas in the San Fernando Valley, then southeast through the City of Burbank and eventually southward to Long Beach. Originally, the Los Angeles River was the primary water source for the City of Los Angeles. Following several catastrophic floods, the U.S. Army Corps of Engineers encased most of the river bed and banks in concrete, effectively eliminating interaction between groundwater and surface water, except for those portions where the natural bottom was retained due to high groundwater levels that made concrete lining infeasible. Today, the river is primarily fed from stormwater, effluent from wastewater treatment plants, urban runoff, base flow from the Santa Monica and San Gabriel Mountains, and groundwater inflow in the Glendale Narrows. Runoff from several tributaries is diverted to spreading grounds and facilities at various locations in the San Fernando Valley.

San Gabriel River

The San Gabriel River flows 75 miles southwest from the San Gabriel Mountains, then southward from the Whittier Narrows to its ocean discharge at the City of Seal Beach. Unlike the Los Angeles River, due to more favorable soil conditions the San Gabriel River has a natural bed for most of its length, although the banks are armored with rip rap and concrete for flood control purposes. The river is fed by stormwater, base flow from the San Gabriel Mountains, dry weather urban runoff and effluent from wastewater treatment plants. Municipalities in the upper portion of the watershed receive portions of their water supply from surface water runoff from the San Gabriel Mountains. Significant quantities of surface water naturally recharge groundwater via the permeable bottom in the San Gabriel River and are also used for groundwater recharge in several locations. During the dry season, the presence of dams and other diversions results in river flow that is sometimes discontinuous, as some river reaches are dry, while other reaches have flow.

Imported Water

State Water Project

The California SWP is a system of reservoirs, pumps and aqueducts that carries water from Lake Oroville and other facilities north of Sacramento to the Sacramento-San Joaquin Delta and then transports that water to central and southern California. Although the system was never fully completed and typically delivers less than designed, when water is available the SWP is able to deliver its contractual amount of slightly more than four million acre-feet/year. Environmental concerns in the Sacramento-San Joaquin Delta have limited the volume of water that can be pumped from the SWP. The potential impact of further declines in ecological indicators in the Bay-Delta system on SWP water deliveries is unclear. Uncertainty about the long-term stability of the levee system surrounding the Delta system raises concerns about the ability to transfer water via the Bay-Delta to the SWP.

The Metropolitan Water District's contract with DWR, operator of the SWP, is for 2,011,000 acre-feet/year– about half the total project. However, Metropolitan projects a minimum dry year supply from the SWP of 650,000 acre-feet/year, and average annual deliveries of 1.5 million acre-feet/year. These amounts do not include water which may become available from transfer and storage programs. The San Gabriel Valley MWD's contract with DWR is for 28,800 acre-feet/year. However, currently San Gabriel Valley MWD only uses this water to replenish the Main San Gabriel Basin as needed by its member agencies and the Main San Gabriel Basin Watermaster and is generally able to balance demands during dry years with water stored in the groundwater basin.

Metropolitan began receiving water from the SWP in 1972. The infrastructure built for the project has become an important water management tool

for moving not only annual entitlement from the SWP but also transfer water from other entities. Metropolitan, among others, has agreements in place to store water at a number of points along the aqueduct, primarily in Kern County. When needed, the project facilities can be used to move water hundreds of miles to southern California. However, there are certain obstacles that must be overcome, including substantive limitations on the movement of water across the Bay-Delta system, constraints related to the quality of water, and the cost of the water. Generally speaking, DWR will not allow water in their aqueduct that is of lower quality than its own water.

Colorado River

California water agencies are entitled to 4.4 million acre-feet/year of Colorado River water. Of this amount, the first three priorities totaling 3.85 million acre-feet/year are assigned in aggregate to the agricultural agencies along the river. Metropolitan's fourth priority entitlement is 550,000 acre-feet/year. Until a few years ago Metropolitan routinely had access to 1.2 million acre-feet/year because Arizona and Nevada had not been using their full entitlement and the Colorado River flow was often adequate enough to yield surplus water to Metropolitan. Metropolitan delivers the available water via the 242-mile Colorado River Aqueduct, completed in 1941, which has a capacity of 1.2 million acre-feet/year.

While the Quantification Settlement Agreement (QSA) affirms the state's right to 4.4 million acre-feet/year, water allotments to California from the Colorado River could be reduced during future droughts along the Colorado River watershed as other states increase their diversions in accord with their authorized entitlements. California's Colorado River Water Use Plan and the QSA identify measures to conserve water (such as the lining of existing earthen canals) and to shift some water from agricultural use to urban use. Such transfers between willing sellers and willing buyers would offset potential reductions in future deliveries of urban water made available by the Colorado River. The QSA and several other related agreements were executed in October 2003. The QSA and related agreements provides the numeric baseline to measure conservation and transfer programs by which unused agricultural priority water would be made available for diversion by Metropolitan. It also allows for implementation of agricultural conservation, land management, canal lining and other programs. By 2020, the QSA programs are expected to allow delivery to full capacity of the Colorado River Aqueduct at 1.25 million acre-feet if needed.

Los Angeles Aqueducts

High-quality water from the Mono Basin and Owens Valley is delivered through the Los Angeles Aqueducts to the City of Los Angeles. Construction of the original 233-mile Los Angeles Aqueduct from the Owens Valley was completed in 1913. In 1940 the aqueduct was extended 105 miles north to Mono Basin. A second aqueduct from Owens Valley was completed in 1970 to further increase capacity. Approximately 480,000 acre-feet/year of water can be delivered to the City of Los Angeles each year; however the amount the aqueducts deliver varies from year to year due to fluctuating precipitation in the Sierra Nevada Mountains and mandatory in-stream flow requirements. In addition, the diversion of water from Mono Lake has been reduced following a decision of the SWRCB and exportation of water from the Owens Valley is limited by the Inyo-Los Angeles Long Term Water Agreement (and related MOU) and an additional MOU between the Great Basin Air Pollution Control District and the City of Los Angeles (to reduce particulate matter air pollution from the Owens Lake bed). As a result of these restrictions on water transfers, future deliveries are expected to be reduced to an average of 321,000 acre-feet/year over the next 20 years.

Recycled Water

Current average annual recycled water production in the Region is approximately 225 mgd, which represents approximately 25 percent of the current average annual effluent flows. Of the 225 mgd of recycled water produced, approximately 107 mgd is currently reused for municipal uses (e.g., irrigation), industrial applications, environmental uses, groundwater replenishment, or maintenance of seawater barriers in groundwater basins along the coast. The

remainder is currently discharged to creeks and rivers, supporting riparian habitat in some locations, or directly to the ocean.

Water Transfers

Prior to 1991, water transfers within the Region had been limited to transfers of annual groundwater basin rights (which continue to occur). In addition, agencies sometimes transferred water to enhance operational flexibility. Metropolitan's facilities generally have not been used to transfer local water from one agency to another mainly because of water quality issues and potential downstream impacts. Sometimes, there is a restriction to export groundwater outside basin boundaries as a result of adjudication of the basin.

In response to the 1991 drought, the Governor's Water Bank was developed. Metropolitan Water District and other SWP contractors took advantage of the program to augment supplies and lessen the severity of drought impacts. Since that time, Metropolitan has participated in water transfers as a water management strategy to augment supplies. The City of Los Angeles plans to develop water transfers as part of its supply strategy. Should the costs of purchasing and wheeling (or moving) water from outside the Region be lower than purchasing Metropolitan water, other agencies would likely be interested in implementing water transfers as a supply strategy.

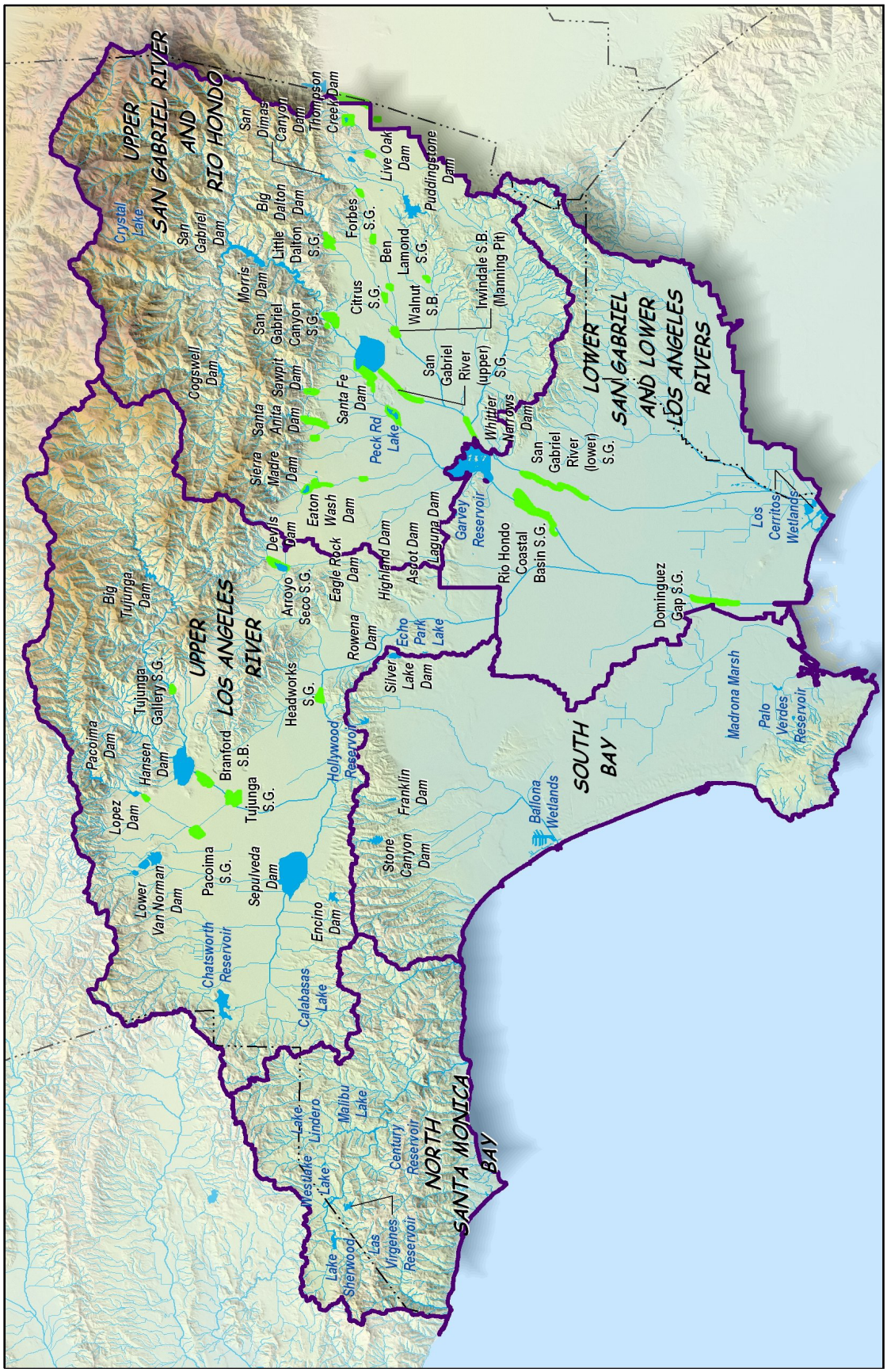
Storage

The water supply in the Region is heavily dependent on imported surface water; therefore various surface reservoirs (managed by Metropolitan Water District and the SWP) located outside the Region (such as Diamond Valley Lake) are used to facilitate water delivery to local water agencies and districts. Several smaller reservoirs have also been developed within the Region to assist in the management of water supplies. However, most of these local reservoirs are limited in their ability to capture local runoff. Most of the remaining dams in the Region have been developed for flood management purposes and are typically not used for long-term (e.g., multi-year) surface water storage.

LACDPW oversees several surface water storage facilities, which were created to improve flood protection and store runoff for subsequent release and diversion to 27 groundwater spreading grounds for recharge. Eleven dams were constructed as part of the San Gabriel River and Montebello Forebay water conservation system to impound runoff from the San Gabriel Mountains prior to release for downstream spreading and groundwater recharge. Runoff in the San Gabriel River is captured by three dams in San Gabriel Canyon: Cogswell Dam on the West Fork, San Gabriel Dam below the confluence of the East and West Forks of the San Gabriel River, and Morris Dam, a few miles downstream of San Gabriel Dam. Once released from the upper canyon facilities, runoff flows to Santa Fe Dam and may be diverted to the Santa Fe spreading grounds, located off-river along the northern boundary of the dam, or conveyed downstream to the Rio Hondo and San Gabriel Coastal Basin Spreading Grounds. On tributaries to the Los Angeles River, the Big Tujunga and Pacoima dams provide similar functions. LACDPW also oversees 17 inflatable rubber dams throughout the Los Angeles Basin. Most are used to divert flows into the spreading grounds, although several rubber dams in the San Gabriel watershed also promote short-term groundwater recharge through the stream bottom. Dams, spreading grounds and surface storage in the Region are depicted in Map 2-4.

Las Virgenes MWD purchases treated water from Metropolitan and stores it in Las Virgenes Reservoir, in the City of Westlake Village. The reservoir also provides seasonal water storage allowing Las Virgenes MWD to purchase supplies off-season and deliver at times of peak demand to meet high summer irrigation needs.

The in-city water distribution systems of the City of Los Angeles once included 15 open-air reservoirs. Due to concerns from DHS about open water storage, nine of these reservoirs have been bypassed, replaced, or covered. Los Angeles Reservoir is one of the last remaining open reservoirs. It has a capacity of 10,000 acre-feet and is a primary water source of the San Fernando Valley area. LADWP does not consider removal of the


UPPER SAN GABRIEL RIVER AND RIO HONDO
UPPER LOS ANGELES RIVER
LOWER SAN GABRIEL AND LOWER LOS ANGELES RIVERS
SOUTH BAY
NORTH SANTA MONICA BAY
Crystal Lake
San Gabriel Dam
Cogswell Dam
Morris Dam
San Dimas Canyon Dam
Thompson Creek Dam
Big Dalton Dam
Little Dalton Dam
Live Oak Dam
Puddingstone Dam
Forbes S.G.
Ben Lamond S.G.
Walnut S.B.
Irwindale S.B. (Manning Pit)
Citrus S.G.
San Gabriel Canyon S.G.
San Gabriel River (upper) S.G.
Santa Fe Dam
Peck Rd Lake
Whittier Narrows Dam
San Gabriel River (lower) S.G.
Sierra Madre Dam
Santa Anita Dam
Sawpit Dam
Devils Gate Dam
Eaton Wash Dam
Arroyo Seco S.G.
Eagle Rock Dam
Highland Dam
Rowena Dam
Silver Lake Dam
Echo Park Lake
Hollywood Reservoir
Headworks S.G.
Big Tujunga Dam
Tujunga Gallery S.G.
Hansen Dam
Pacoima Dam
Lopez Dam
Lower Van Norman Dam
Pacoima S.G.
Sepulveda Dam
Branford S.B.
Tujunga S.G.
Chatsworth Reservoir
Encino Dam
Calabasas Lake
Lake Lindero
Malibu Lake
Century Reservoir
Lake Westlake
Lake Sherwood
Las Virgenes Reservoir
Stone Canyon Dam
Franklin Dam
Ballona Wetlands
Asbot Dam
Laguna Dam
Garvey Reservoir
Rio Hondo Coastal Basin S.G.
Dominguez Gap S.G.
Madrona Marsh
Palo Verdes Reservoir
Los Cerritos Wetlands
Dams, Spreading Grounds and Reservoirs
Greater Los Angeles County Region
Integrated Regional Water Management Plan
Map 2-4
Rivers, creeks, and streams
Reservoirs
Spreading Grounds
Miles
0 2 4 8
Sources: GreenVision, UEI, SCAG, CaSIL

Los Angeles Reservoir a viable option. To protect its water quality, a floating cover was proposed.

The U.S. Army Corps of Engineers oversees Hansen, Lopez and Sepulveda dams in the Los Angeles River Watershed and Santa Fe and Whittier Narrows Dams in the San Gabriel River watershed. They are operated based on various constraints and operational priorities including flood protection, recreation, habitat preservation, and water conservation.

2.6 Water Supply and Demand

As water agency boundaries are not aligned with the Region's boundaries, an estimate of the Region's water supply and demand was not readily available for this Plan. Water supply and demand for the Region was estimated based on review of key documents, the results of a survey distributed to water agencies in the Region, and meetings with Metropolitan Water District and other water agencies staff.

Metropolitan and its member agencies adopted an IRP in 1996 (and updated it in 2004), which establishes targets for Metropolitan and its member agencies to meet demand for a single dry year[1] (assuming a single dry-year supply on the SWP would equal five percent of entitlement based on current conditions). Based on the Metropolitan's IRP, UWMP, and 2005 IRP Report Card, Table 2-1 identifies the IRP supply target categories and year 2025 targets for the entire Metropolitan service area.

In addition to the IRP target categories identified in Table 2-1, it is estimated that an additional 1.9 million acre-feet/year of water would be produced from the Los Angeles Aqueduct and from local groundwater and surface supplies.

As the IRP covers most of the Region, total demand for Metropolitan's IRP can be proportioned to estimate water demand for the Region (supplemented with information on local water production and demand for portions of the Region not serviced by Metropolitan). Estimated water demand for Los Angeles County was combined with 20 percent of the water demand for Orange County (based on the estimated proportion of the total Orange County population residing within the Region), to derive an estimate of total water demand for the Region. By comparing that estimate to the total water demand for the entire Metropolitan service area, the

Table 2-1. Metropolitan Water District's IRP Categories and Targets

IRP Supply Category	2025 Target (acre-feet/year)
Conservation	1,110,000
Local Resources Program (Recycling, Groundwater Recovery, Ocean Desalination)	750,000
Colorado River Aqueduct[1]	1,250,000
State Water Project[2]	650,000
Groundwater Conjunctive Use	300,000
CVP/SWP Storage and Transfer	550,000
Metropolitan Surface Storage[3]	620,000
Total	**5,230,000**

1. *The 1,250,000 acre-feet/year supply from the Colorado River Aqueduct is a target for specific year types when needed. Metropolitan is not expecting a full aqueduct in every year.*
2. *Updated Number from IRP Report card.*
3. *Target for Surface Storage is for total storage capacity, not dry year withdrawal yield.*

[1] *Consistent with recent legislation, water supplies are typically estimated for three climatic conditions (based on historic records), including an average year, a single dry year (meaning a year of below-normal precipitation) and a multi-dry year period (e.g., a period of prolonged drought). For the purposes of this Plan, the demand and supplies are estimated for the single dry-year condition.*

proportion of total Metropolitan demand attributable to the Region (approximately 47 percent) was calculated, as shown in Table 2-2.

By combining information from Metropolitan's IRP, UWMP, the 2005 IRP Report Card, and a survey of local water agencies (conducted for the IRWMP), the Region's current water supplies (for a single dry year) was estimated at 2.55 million acre-feet/year (assuming SWP deliveries in a single dry year would be 5 percent of entitlement). By comparing the Region's supply to the estimated demand (proportioned from Metropolitan's IRP targets), the difference could be determined, as shown in Table 2-3. For the 20-year planning horizon of this Plan, the gap between estimated water demand and water supply is approximately 800,000 acre-feet/year.

Metropolitan's IRP proposes that its member agencies develop projects to increase local water production and conservation, and further suggests that financial incentives can facilitate some of those projects. The IRP also assumes that additional imported water will be available to augment current supplies, including additional deliveries from the SWP and during dry years, additional deliveries from the Colorado River through various programs that Metropolitan is undertaking or investigating.

It should be noted this analysis includes a supply buffer to insure against risk of loss of supply and assumes additional imported water would be available to contribute to the estimated supply gap. This estimate may be subject to revision based on future delivery projections and supply development.

2.7 Water Quality

More than two centuries of agricultural, industrial, and residential development and the widespread use of chemicals, fertilizers, industrial solvents, and household products, has resulted in water quality degradation of varying degrees in both surface water and groundwater in the Region. These sources of degradation can be classified as either point or nonpoint sources. Point sources are the discharge of water and/or wastes to the soil, groundwater, or surface waters. Common examples include wastewater treatment and indus-

Table 2-2. Proportion of Region's Water Demand to MWD Total Demand

	2005	2010	2015	2020	2025
Estimated Total Raw Water Demand for Greater Los Angeles County Region (acre-feet/year)	2,311,906	2,490,680	2,567,861	2,665,909	2,756,739
Total Raw Water Demand for Metropolitan Water District's Service Area (acre-feet/year)	4,851,600	5,237,500	5,437,200	5,670,400	5,891,400
Region's Proportional Demand	48%	48%	47%	47%	47%

Table 2-3. Estimated Regional Water Supply Gap

Year	Estimated Regional Supply[1] (Acre-Feet)	Estimated Regional Demand (Acre-Feet)	Difference (Acre-Feet)
2010	2,550,000	2,700,000	150,000
2015	2,550,000	2,980,000	430,000
2020	2,550,000	3,310,000	760,000
2025	2,550,000	3,350,000	800,000

All numbers rounded.

1. Based on current supply, assuming SWP delivery in a single dry-year would be 5 percent of entitlement.

Figure 2-1. Water Quality Issues. Volunteers on creek clean up duty. Dry weather and stormwater runoff creates significant water quality problems in the Region.

trial discharges and leaking underground storage tanks. Nonpoint sources are area-wide discharges to soil, groundwater, and surface waters, such as the application of fertilizers, atmospheric deposition of contaminants, and litter such as trash and plant materials. Point sources can be traced back to a single source, such as the end of a pipe, while nonpoint sources have widespread origins. Although many stormwater contaminants come from nonpoint sources, as the discharge of stormwater typically occurs via an individual storm drain or channel, stormwater discharge is typically regulated as a point source.

Growing public awareness and concern for controlling water pollution led to enactment of the Federal Water Pollution Control Act Amendments of 1972. Amended in 1977, this law, commonly known as the Clean Water Act, established the basic structure for regulating discharges of pollutants into the waters of the United States and gave the USEPA the authority to implement pollution control programs. In California, per the Porter Cologne Water Quality Control Act of 1969, responsibility for protecting water quality rests with the SWRCB and the RWQCBs.

The SWRCB sets statewide policies and develops regulations for the implementation of water quality control programs mandated by state and federal statutes and regulations. The RWQCBs develop and implement Basin Plans designed to preserve and enhance water quality. The determination of whether water quality is impaired is based on the designated beneficial uses of individual water bodies, which are established in the Basin Plan. As mandated by Section 303(d) of the Federal Clean Water Act, the SWRCB maintains and updates a list of "impaired" water bodies that exceed State and federal water quality standards. To address these impairments, the RWQCBs identify the maximum amount of pollutants, or TMDLs, that may be present without impairing the designated beneficial uses. In addition to development of the TMDLs the RWQCBs develops and implements the NPDES premits for discharges from wastewater treatment and water reclamation plants (shown in Map 2-5) of treated wastewater effluent in the Region to surface water bodies.

Even though agencies and cities in the Region have significantly reduced pollutants that are discharged to water bodies from individual point sources since the Clean Water Act was established, many of the major rivers and water bodies are still considered impaired due to trash, bacteria, nutrients, metals, and/or toxic pollutants. The quality of many water bodies continues to be degraded from pollutants discharged from diffuse and diverse nonpoint sources, and from the cumulative impacts of multiple point sources. As a result, many of the Region's creeks, rivers, and water bodies are included on the most recent update of the 303(d) list of impaired water bodies, as depicted on Maps

2-6(A) and (B). Consequently, during the next ten years, dozens of TMDLs are scheduled to be developed, in addition to the ten TMDLs developed as of early 2006, which will require the implementation of projects and programs by hundreds of point source dischargers, the counties, and the cities in the Region.

Residential use of potable water, the importation of water, and the use of recycled water all have the potential to increase the level of total dissolved solids (TDS) in surface water, wastewater, and groundwater. With naturally-occurring elevated levels of TDS already present in both local surface water and groundwater, the need to manage salt levels has been recognized for some time. The transfer of water within the Region and the recharge of imported water have both been limited due to concerns about potential water quality impacts which include high salinity levels. Higher TDS source water also poses a problem for water recycling facilities because conventional treatment processes are designed to remove suspended, but not dissolved, particles and thus more advanced treatment methods may be required. Several water and wastewater agencies in the Region are members of the Southern California Salinity Coalition, which in conjunction with the National Water Research Institute, seeks to coordinate efforts to address the critical need to remove salt from water supplies and preserve water resources.

Surface Water Quality

Within the Region, surface water quality is generally better in the headwaters and upper portions of watersheds, and is generally degraded by urban and stormwater runoff closer to the Pacific Ocean. Common contaminants in urban and stormwater runoff in the Region are described below.

Sediment is a common component of stormwater, and can be a pollutant at certain levels. Sediment can be detrimental to aquatic life by interfering with photosynthesis, respiration, growth, reproduction, and oxygen exchange in water bodies. Sediment can also transport other pollutants that are attached to it including nutrients, trace metals, and hydrocarbons. Erosion and subsequent sedimentation is a natural process of the highly-erodable San Gabriel Mountains. Other sources of sediment include stream banks, bridge pilings, vacant lots, and construction sites.

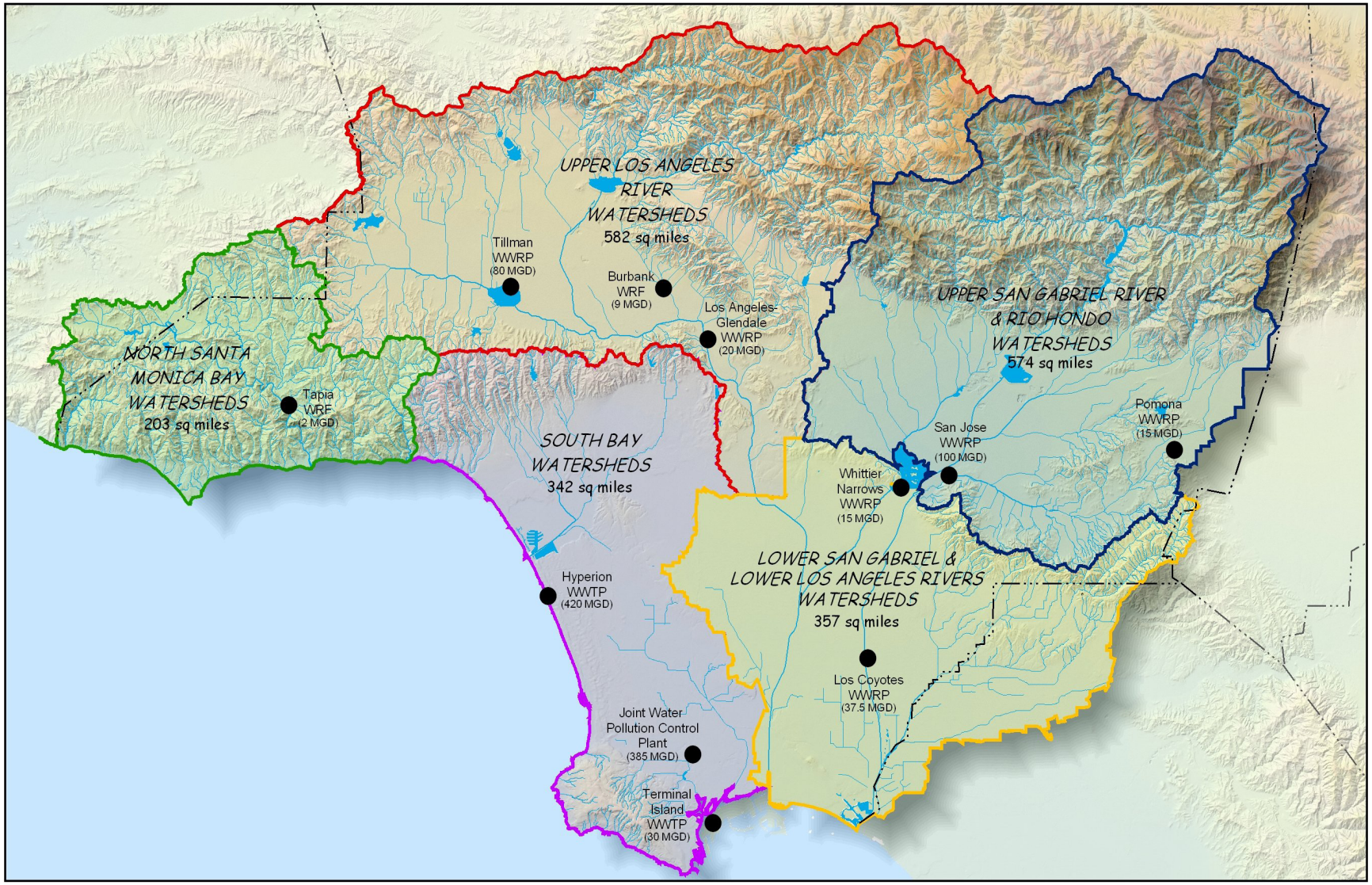
Nutrients, including nitrogen and phosphorous, are critical to the growth of plants. However, in high amounts, nutrients can result in excessive or accelerated growth of vegetation, such as algae, which can result in water quality impairment. Common sources of nutrients include fertilizers used in landscaping and agriculture, human and animal waste, and effluent from wastewater treatment facilities.

Bacteria and viruses are common contaminants in both urban runoff and stormwater. High levels of indicator bacteria (such as *Escherichia coli*) in stormwater sometimes results in the closure of beaches to contact recreation. Sources include sanitary sewer leaks and spills, illicit connections of sewer lines to the storm drain system, malfunctioning septic tanks, and fecal matter from humans, pets, and wildlife.

Oil and grease includes a wide array of hydrocarbon compounds, some of which are toxic to aquatic organisms at low concentrations. Sources of oil and grease include leakage from tanks, pipelines and old extraction sites, accidental spills, cleaning of vehicles and equipment, leaks in hydraulic systems, and the improper disposal of restaurant wastes and used oil.

Metals found in the Region's urban and stormwater runoff include lead, zinc, cadmium, copper, chromium, and nickel. Metals can be toxic to aquatic organisms and can bioaccumulate (accumulate to toxic levels in animals such as fish or birds). Many artificial surfaces of the urban environment (e.g., galvanized metal, paint, automobiles and brake pads, or preserved wood) contain metals, which enter stormwater as those surfaces corrode, flake, dissolve, decay, or leach. During storms, many of the metals present in stormwater are attached to sediments.

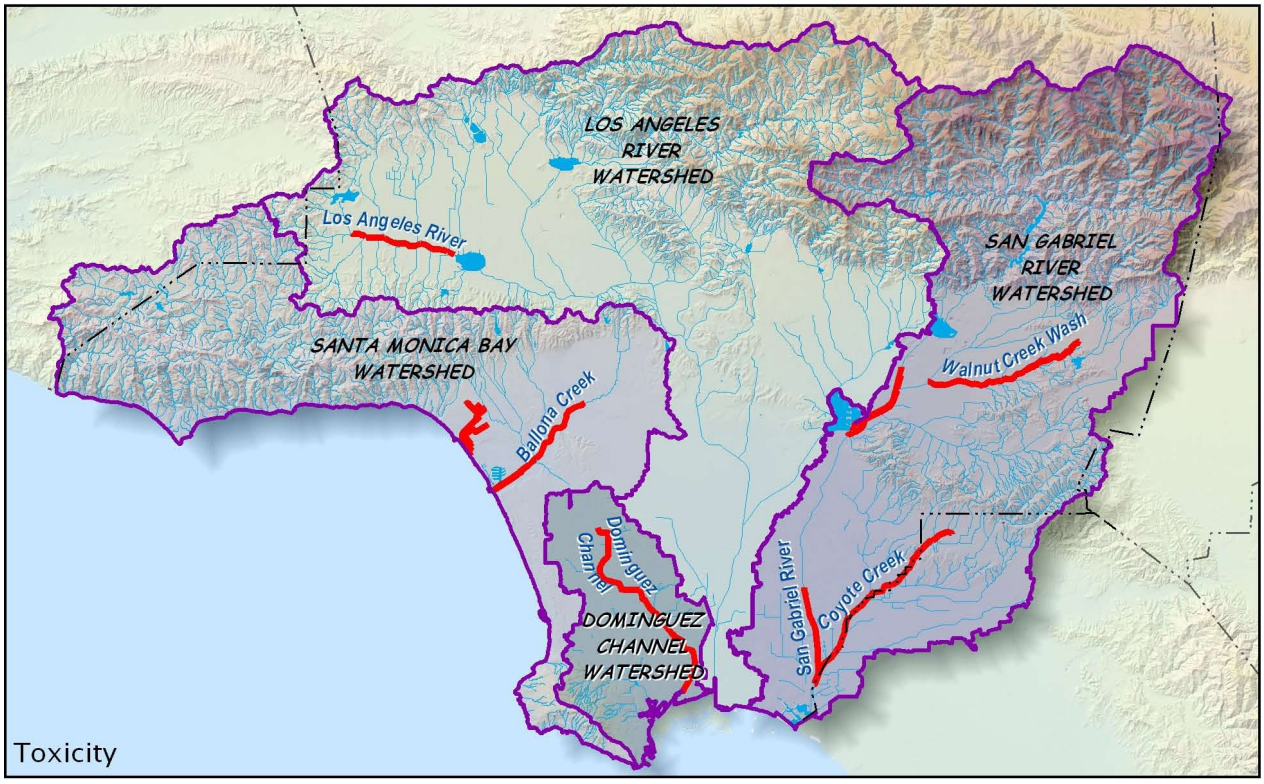
Organic compounds (e.g., adhesives, cleaners, sealants, solvents, etc.) and pesticides (e.g., herbicides, fungicides, rodenticides, and insecticides) may be found in urban and stormwater runoff in low concentrations. The widespread use of these substances and their improper disposal

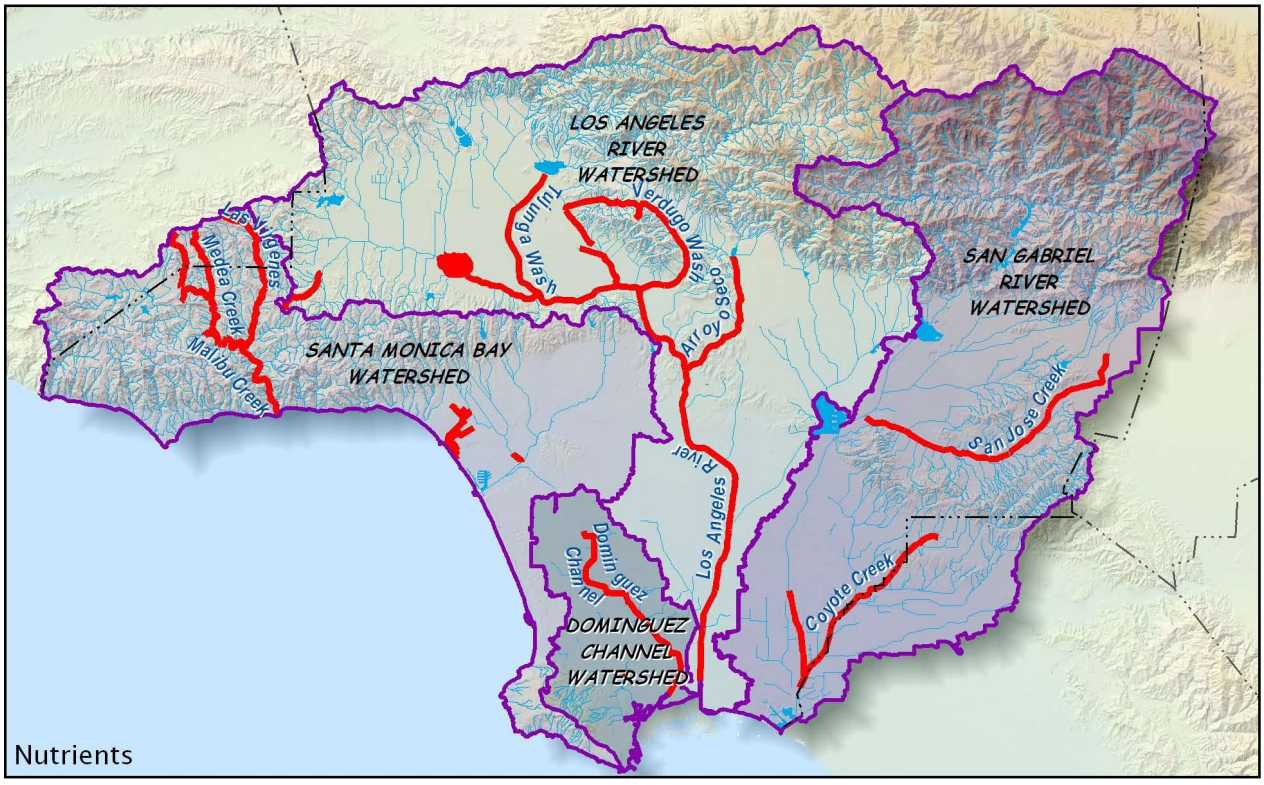


Major Dischargers

Greater Los Angeles County Region
Integrated Regional Water Management Plan

Map 2-5





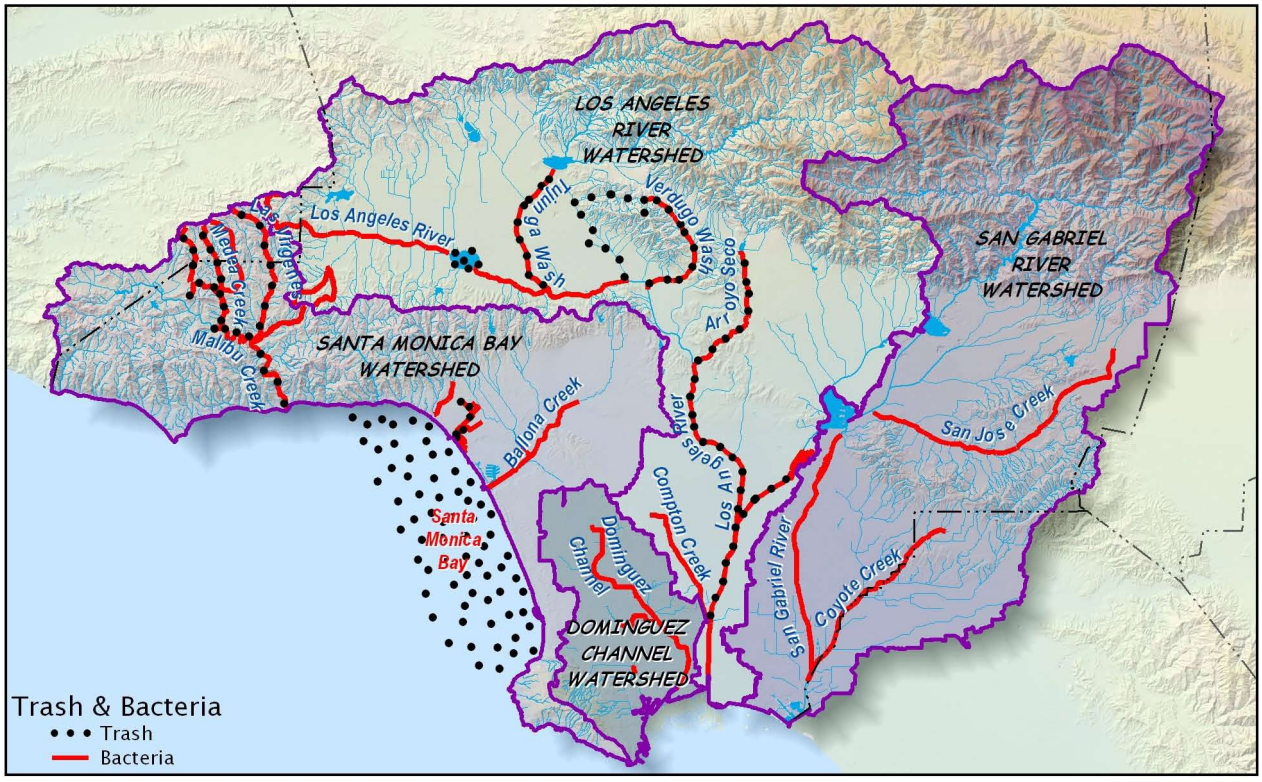
Miles
0 2.5 5 10

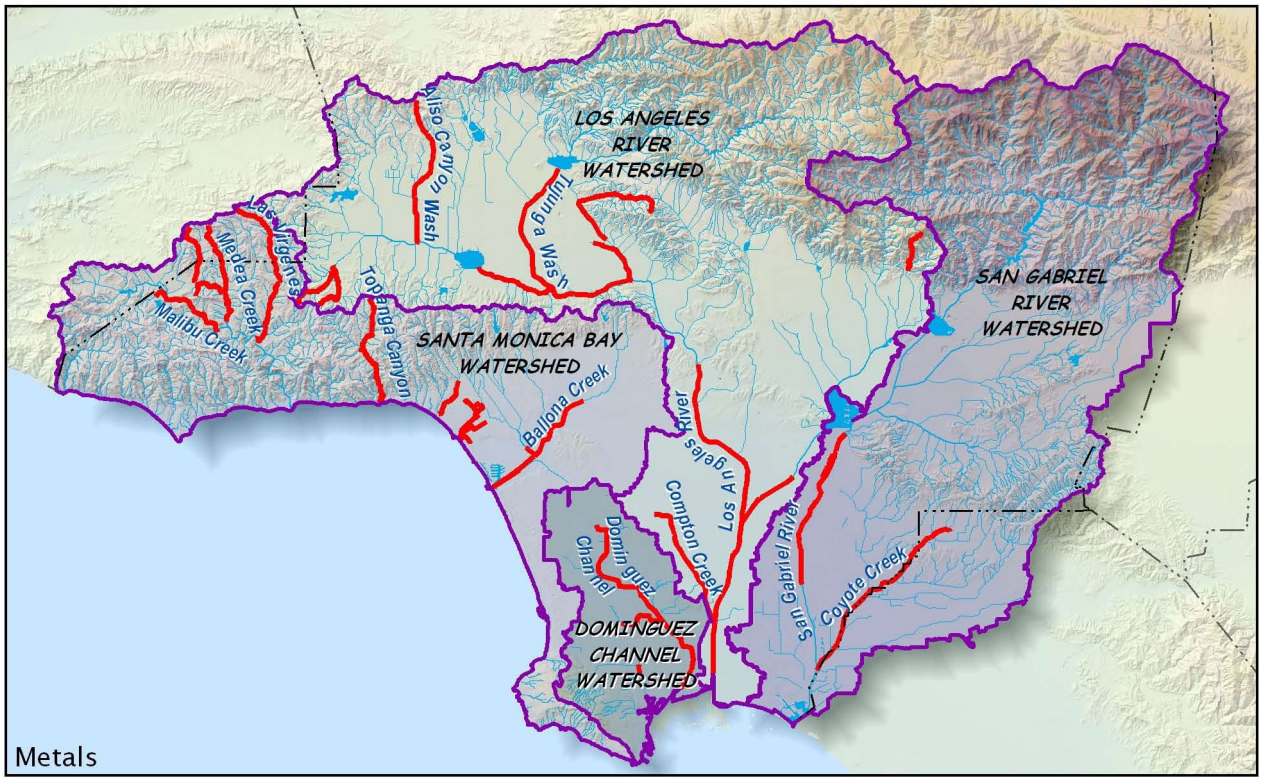
Sources: GreenVision, UEI, SCAG, CaSIL

County
Impairment
Streams, creeks & rivers
Lakes

Impaired Waterbodies

Greater Los Angeles County Region
Integrated Regional Water Management Plan
Map 2-6 (A)





Miles
0 2.5 5 10

Sources: GreenVision, UEI, SCAG, CaSIL

County
Impairment
Streams, creeks & rivers
Lakes

Impaired Waterbodies

Greater Los Angeles County Region
Integrated Regional Water Management Plan
Map 2-6 (B)

are the common sources of these compounds. Bioaccumulation of pesticides can have adverse effects on aquatic life and the animals that consume that life (e.g., seabirds that eat fish). Some of these substances were prohibited long ago due to negative impacts but are still detected in low concentrations (such as dichloro-diphenyl-trichloroethane [DDT]) and are now termed "legacy" pollutants.

Trash, debris, and other floatables are the result of the improper use, storage, and disposal of packaging and other products in urban environments, plant debris (such as leaves and lawn-clippings from landscape maintenance), animal excrement, street litter, and other organic matter. In addition to negative aesthetic impacts, these substances may harbor bacteria, viruses, vectors, and depress the dissolved oxygen levels in water bodies.

Groundwater Quality

Groundwater quality varies throughout the Region, based on naturally occurring conditions, historical land use patterns, and groundwater extraction patterns.

Naturally occurring soil and geologic conditions in the region often result in elevated levels of dissolved solids in groundwater (measured in terms of TDS). Commonly referred to as "hard" water, these dissolved solids include inorganic salts (including calcium, magnesium, potassium, sodium, bicarbonates, chlorides and sulfates) and small amounts of organic matter. Increases in groundwater TDS concentrations are a function of the recharge of storm and urban runoff, imported water, and incidental recharge. They are also attributed in part to the legacy of salt contamination from past agricultural and land uses, including fertilizer use and waste disposal.

Groundwater quality in some portions of the Region has been degraded by elevated levels of nitrates primarily from past agricultural land use practices and plumes of volatile organic compounds (VOCs) from the past disposal of industrial solvents. These include trichloroethylene (TCE), a common degreaser and cleaning product, and perchloroethylene (PCE), commonly used in dry cleaning of clothing. In addition, perchlorate contamination, associated with the manufacturing and testing of solid rocket propellants, is another major concern. The solid salts of ammonium perchlorate, potassium perchlorate, or sodium perchlorate are soluble in water and can

Santa Monica Beach. Continual improvement of the Region's surface water quality supports recreation at its many beaches.

persist for decades. Groundwater contamination has also occurred in some locations from the use of methyl tertiary butyl ether (MBTE) a gasoline additive used to increase octane ratings and reduce emissions. Although the use of MTBE was discontinued in 2003 (following the discovery of MBTE in groundwater wells in the City of Santa Monica), many underground gasoline storage tanks leaked and created the potential for contamination. Groundwater clean up efforts are being coordinated by various agencies and cities, including the San Gabriel Basin WQA.

The cost of treating these contaminants so that groundwater supplies can be optimized is often significant. Additionally, effective treatment has not yet been identified for some chemicals and testing needs to be performed of different treatment methods prior to identifying the preferred treatment alternative. Some of the contamination is extensive and several sites are on EPA's National Priorities List for remediation. The cost to treat this groundwater is typically in the millions of dollars.

One example is the Baldwin Park area where VOCs have been detected at 1000 times above the established maximum contaminant levels (MCLs). Although responsible parties, who are obligated to pay for the remediation, were identified, it has taken years for this remediation project to begin. Although the VOCs were identified in the 1980s and an agreement was reached in the late 1990s to begin treatment, other contaminants were subsequently found and new treatment methods had to be identified. In 2000, treatment of the VOCs, N-nitrosodimethylamine (NDMA), and perchlorate began. Additional programs are planned or underway.

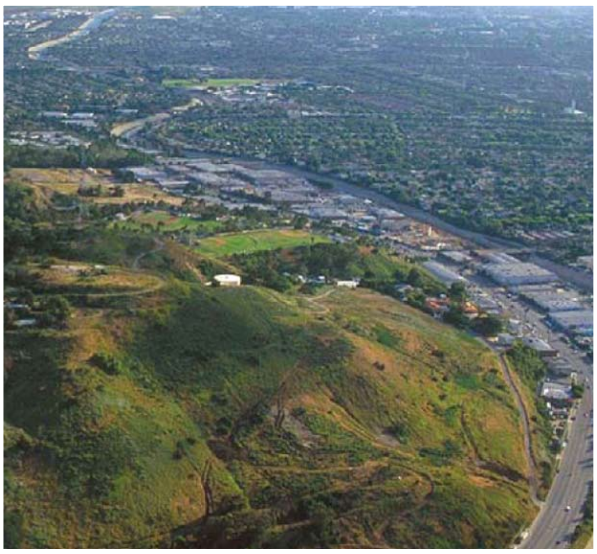
The extraction of groundwater above natural replenishment levels and the subsequent intrusion of seawater have adversely affected groundwater quality at some coastal locations in the Region since the 1940's. Seawater intrusion can degrade water quality such that wells become unusable and reduce available aquifer storage. Los Angeles County operates and maintains three seawater intrusion barrier systems along the coast that utilize treated wastewater and imported water to reduce the seawater intrusion in coastal aquifers.

2.8 Environmental Resources

Wetlands

The Region is estimated to have lost over 90 percent of its coastal wetlands. According to the Coastal Conservancy, within the Los Angeles River watershed, 100 percent of the original lower riverine and tidal marsh and 98 percent of all inland freshwater marsh and ephemeral ponds have been drained or filled (California Resources Agency, 2001). Similar loss occurred with the channelization and improvement of the Region's creeks. Currently, two expansive areas of coastal wetlands remain: the Los Cerritos wetlands complex, and the Ballona wetlands and lagoons near the mouth of Ballona Creek. Other remaining historic wetland areas include the El Dorado wetlands near the confluence of Coyote Creek and the San Gabriel River; the lower reach of Compton Creek where the channel bottom is unlined; some limited saltwater marsh along the banks at the lowest reach of the Los Angeles River (SCWRP, 2001 and Resources Agency, 2001), and the coastal lagoons in the North Santa Monica Bay Watersheds, including Malibu, Trancas, and Topanga Creek Lagoons.

After a long history of widespread destruction and degradation, wetlands have belatedly been recognized as performing many valuable, even critical roles in the environment. Wetlands can



Baldwin Hills is one of the few remaining preserves of large open space in the heart of the Region.

function as sources, sinks and transformers of chemical, genetic and biological materials. They have been likened to "the kidneys of the landscape" for the role they play in hydrologic and chemical cycles, and in improving water quality (Mitsch & Gosselink, 1986). Functional wetlands (e.g., those that retain their natural ecological functions) have been shown to cleanse polluted waters, prevent or mitigate floods, protect shorelines and channel banks, and recharge groundwater aquifers. Additionally, wetlands provide unique and critical habitats for large numbers of flora and fauna. Thus, expansion and restoration of existing wetlands which retain natural functions, and development of constructed wetlands which recreate natural functions have the potential to improve water quality, improve flood protection, restore or create habitat, and enhance groundwater recharge.

Riparian Habitat

Riparian habitat is typically a linear corridor of variable width that occurs along perennial, intermittent, and ephemeral streams and rivers. In undisturbed areas, two distinguishing features of riparian ecosystems are the hydrologic interaction that occurs between the stream channel and adjacent areas through periodic exchange of surface water and groundwater, and the distinctive geomorphic features and vegetation communities that develop in response to this hydrologic interaction.

Due to the extensive urbanization on the coastal plain and inland valleys, current riparian habitat within the Region bears little resemblance to the pre-development conditions. Faber et al. (1989) estimated that 90 to 95 percent of the riparian habitat has been lost. Most native riparian habitat in the Region is located in the Santa Monica and San Gabriel Mountains, although some riparian corridors occur along the upper and middle reaches of the San Gabriel River, including portions of Walnut, San Jose, and Coyote Creeks, the Chino, Puente, and Simi Hills, and the Verdugo and Santa Susana Mountains. In-stream riparian habitat also occurs in the upper San Gabriel River and streams in the San Gabriel foothills, the Whittier Narrows, Sepulveda Basin, Hansen Dam, and the Glendale Narrows. Although the San Gabriel Mountains contain some large areas of quality riparian habitat, much of the other riparian habitat in the Region is increasingly stressed by recreational use, exotic species, hydrologic modifications, natural disturbance such as fires and drought, and encroaching development. In regional parks, recreation areas, and other protected areas, patches of natural or nearly natural habitat of varying size remain, supporting native species of plants and animals. Substantial portions of the remaining riparian habitat are located on private lands.

Where riparian habitats remain within or adjacent to urbanized areas, conditions are often impaired by degraded water quality, altered hydrologic conditions, encroachment on, and modification of, adjacent "buffer" habitat, and modified sediment transport. Water quality impairments generally include increases in 1) water temperature; 2) non-toxic elements such as sediment and nutrients; and 3) toxic contaminants such as pesticides and heavy metals. Since functional riparian vegetation and wetlands can improve water quality by removing or sequestering many contaminants, the widespread loss of riparian and wetland habitat and/or reduction of their normal functions have reduced the potential for these natural systems to enhance water quality, provide flood protection, recharge groundwater, and serve as wildlife corridors.

Significant Ecological Areas and Environnmentally Sensitive Habitat Areas

Significant Ecological Areas (SEAs) are ecologically important areas that are designated by the County of Los Angeles as having valuable plant or animal communities. Similar to the SEAs are Environmenally Sensitive Habitat Areas (ESHAs), which are designated by the Coastal Commission via local coastal programs. Terrestrial or aquatic habitat can qualifies for recognition as an SEA or ESHA if the habitat possesses one or more of the following features, or classes:

- Habitat of rare, endangered, or threatened plant or animal species;
- Represents biotic communities, vegetative associations, or habitat of plant or animal species that are either one-of-a-kind, or are restricted in distribution on a regional basis;

As much as 20 miles of steelhead fishery will be restored with removal of barriers like this "Texas Crossing" in Malibu Creek.

- Represents biotic communities, vegetative associations, or habitat of plant or animal species that are either one-of-a-kind, or are restricted in distribution in Los Angeles County;
- Habitat that at some point in the life cycle of a species or group of species serves as a concentrated breeding, feeding, resting, or migrating grounds, and is limited in availability;
- Represents biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or they represent an unusual variation in a population or community;
- An area important as game species habitat or as fisheries;
- An area that would provide for the preservation of relatively undisturbed examples of the natural biotic communities in Los Angeles County; and
- A special area worthy of inclusion, but one that does not fit any of the other seven criteria

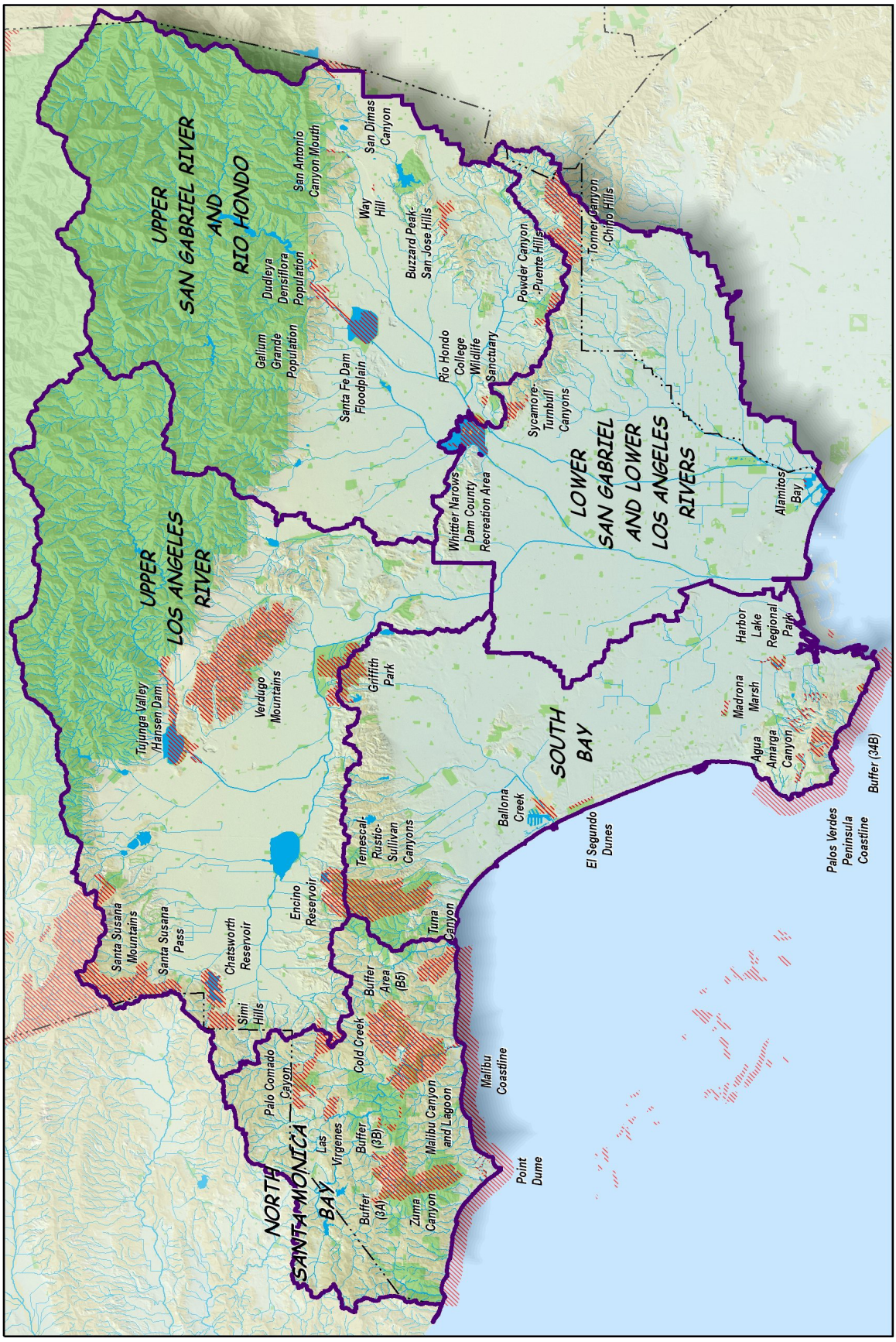
SEAs are offered certain protections within the unincorporated portions of Los Angeles County. Development proposals located within a SEA and outside incorporated City boundaries are reviewed by the Significant Ecological Area Technical Advisory Committee (SEATAC) which recommends changes to the project and mitigation measures to protect the habitat. The County of Los Angeles is in the process of updating the SEA designations and policies. Current SEAs within Los Angeles County are depicted on Map 2-7.

Area of Special Biological Significance

In the mid-1970s, to protect sensitive coastal habitats, the SWRCB designated 34 areas on the coast of California as Areas of Special Biological Significance (ASBS[2]), including the area between Mugu Lagoon in Ventura County and Latigo Point in Los Angeles County. Several watersheds in the North Santa Monica Bay drain to the eastern portion of this ASBS, between Sequit Point (near the Los Angeles County line) and Latigo Point, which begins at the intertidal zone and extends 1,000 feet from the shore (or to a depth of 100 feet, whichever is greater). The California Coastal Commission has designated all watershed lands adjacent to an ASBS as Critical Coastal Areas (CCA). Thus, development in this CCA and runoff from that area is subject to special conditions.

The land form along this portion of the ASBS generally consists of a coastal bluff with cliffs along the shoreline, except at Zuma Beach, where the coastal bluff is separated from the shore by a wide sandy beach. Vegetation types in the adjacent

[2] *In January, 2003, the SWRCB renamed ASBS as State Water Quality Protection Areas, although many sources still refer to the original term.*



Significant Ecological Areas

Greater Los Angeles County Region

Integrated Regional Water Management Plan

Map 2-7

onshore areas include coastal strand, coastal sage scrub and riparian woodland (where several intermittent streams reach the coast). Subtidal habitat types along this ASBS include exposed rock reefs and kelp beds, semi-protected sandstone reefs and kelp beds, shallow sands, and deeper sands along most of the ASBS (SWRCB, 1979).

Runoff in this area includes stormwater discharge from roads (including State Highway 1) and some dry-weather urban runoff from the mostly residential development along the coast and in upland areas. Several beaches along this area are 303(d)-listed for beach closures and high coliform bacteria counts.

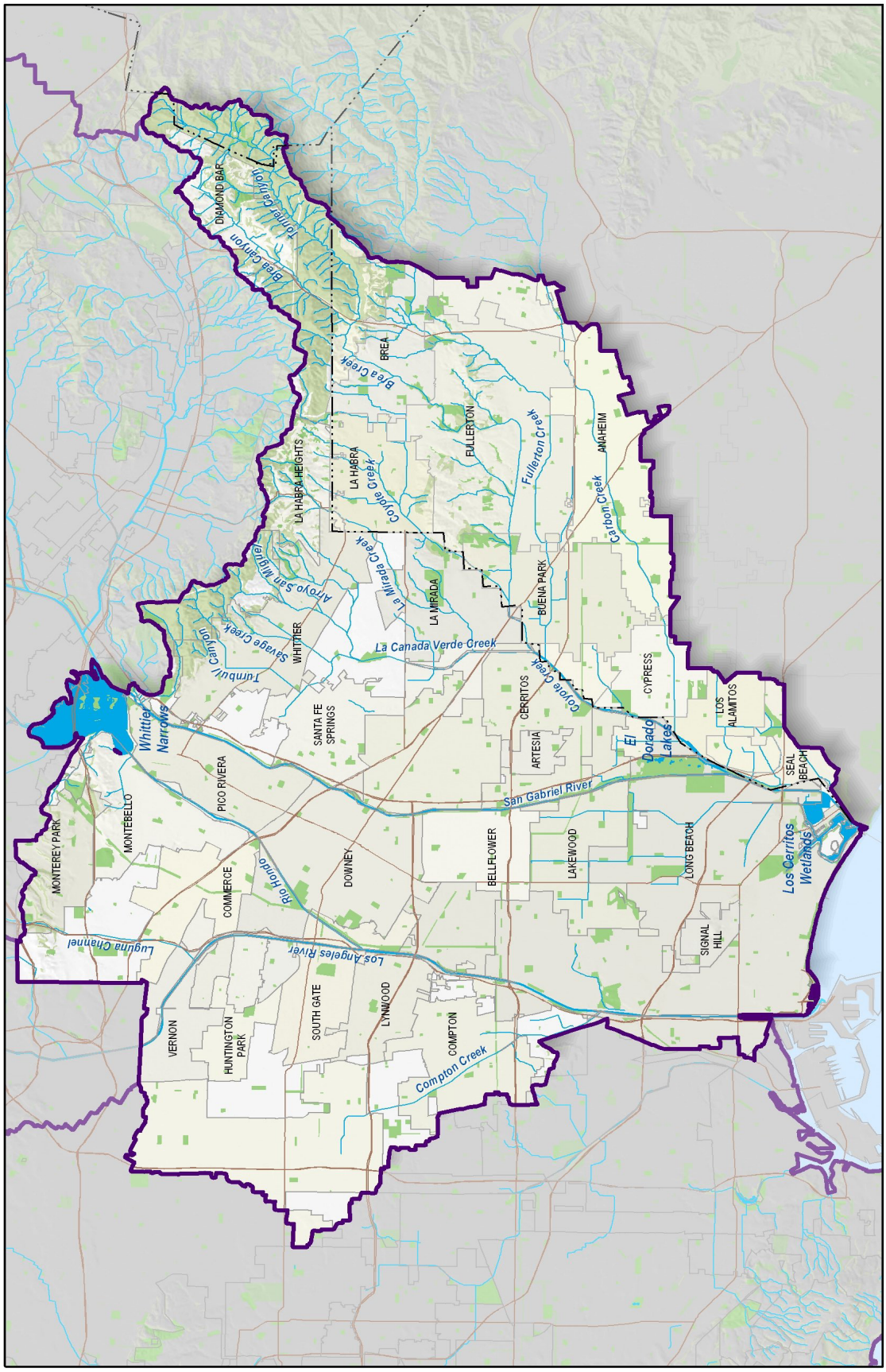
The Public Resources Code prohibits the discharge of point source waste and thermal discharges into an ASBS, except by special conditions. In addition, the California Ocean Plan prohibits the discharge of dry-weather runoff from nonpoint sources into an ASBS, although the City of Malibu and the County of Los Angeles have both requested exemptions from this prohibition. If granted, the RWQCB may allow discharges to be covered under the appropriate NPDES permit, which could include provisions to minimize or eliminate dry weather flows and reduce stormwater pollutants draining to ASBS to maintain the quality of receiving waters.

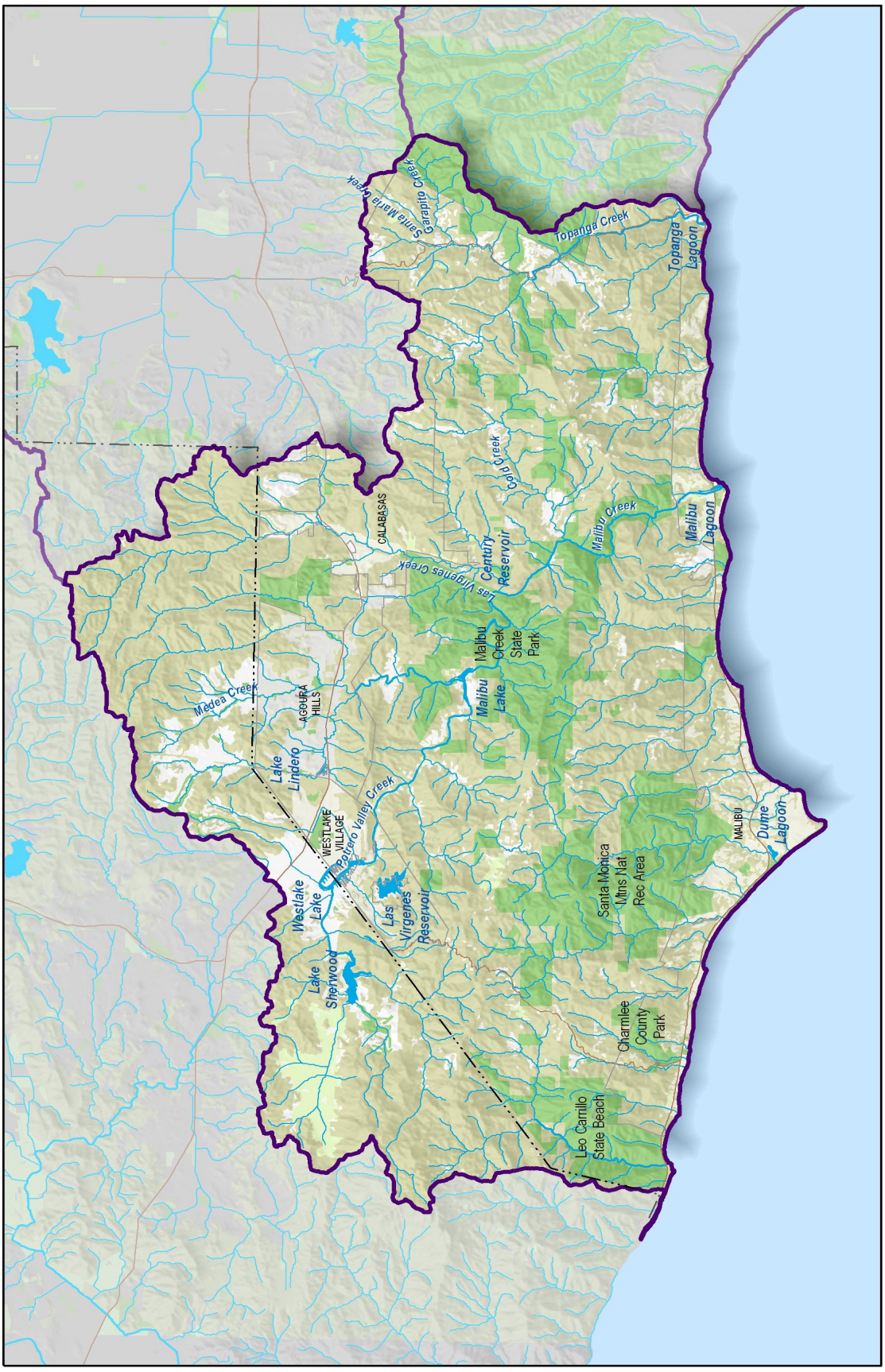
2.9 Open Space and Recreation

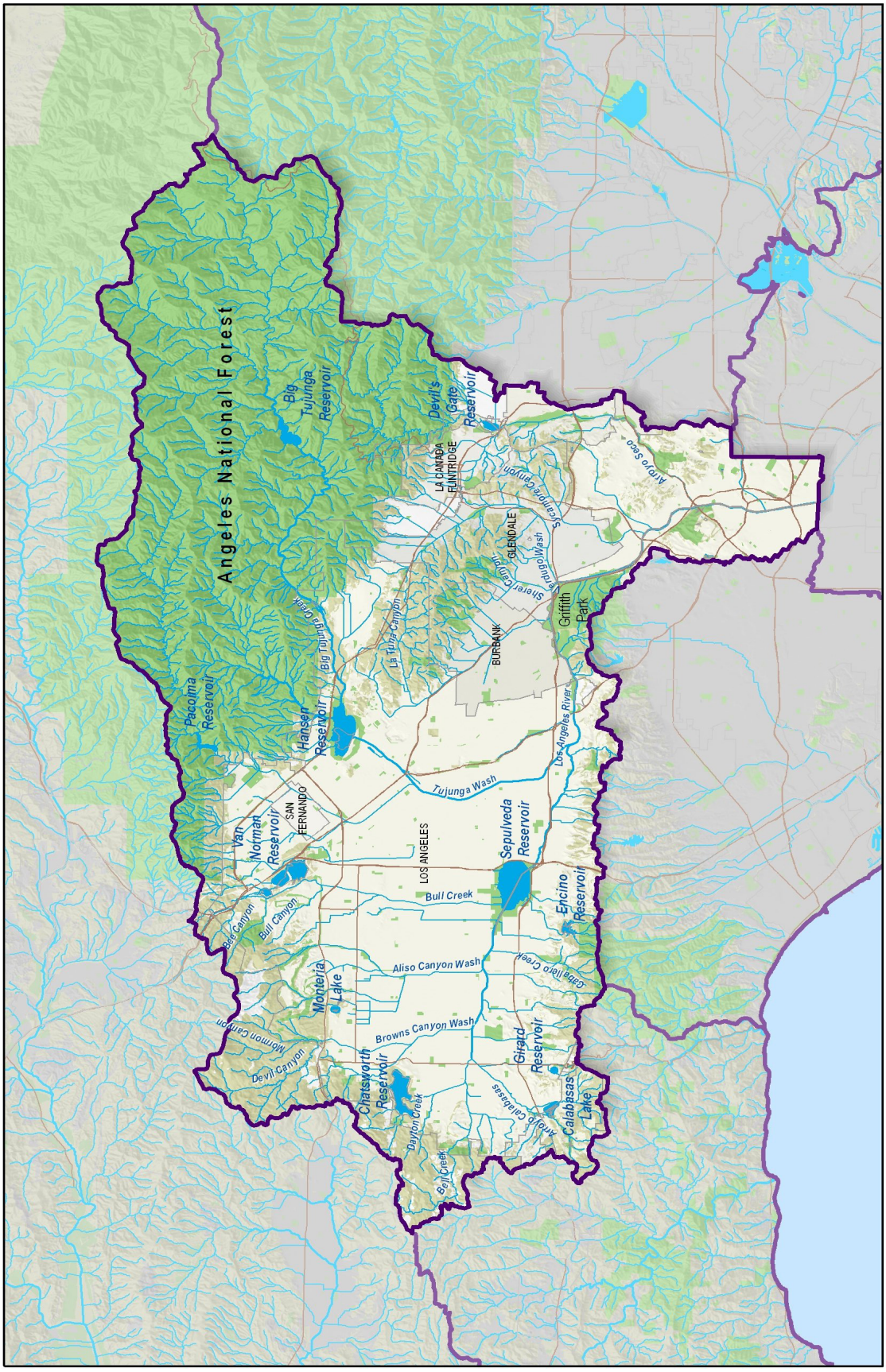
The Region's open space resources are extensive, due to the presence of large portions of the Angeles National Forest and the Santa Monica Mountains National Recreation Area. These natural areas provide large expanses of open space, which absorb rainfall that contributes to groundwater recharge and produce runoff that feeds local streams and the Region's two major rivers. This provides a substantial portion of the Region's water supply. The preservation of environmental resources within those areas is generally the responsibility of the Land Management Plan for the Southern California Forests and the Santa Monica Mountains Comprehensive Plan. Additional open space is located in the undeveloped portions of the foothills south of the Angeles National Forest, and throughout the Santa Monica, Santa Susanna and Verdugo Mountains, the Baldwin, Chino, and Puente Hills, and the Palos Verdes Peninsula. Protection of the open space in these areas is generally the responsibility of local Park Agencies and General Plans. Preservation of such spaces can protect existing water resources and native habitat, as these open spaces absorb rainfall, produce runoff that feeds local streams, and may contribute to groundwater. Watershed and open space plans, such as *Common Ground from the Mountains to the Sea*, also promote the preservation of these areas.

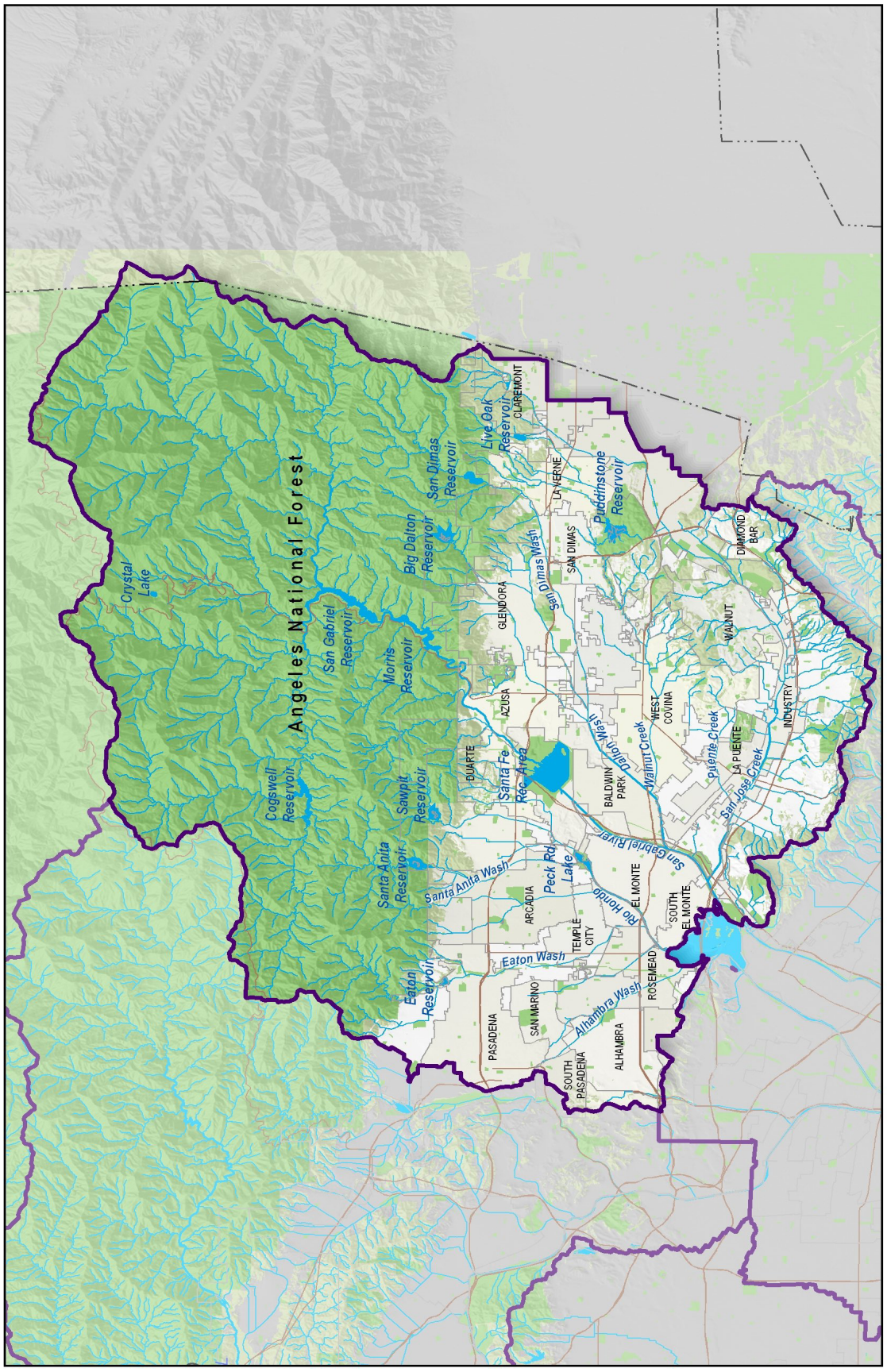
Excluding the large open spaces and other state lands in the upper portions of the watersheds, within the urbanized portions of the Region, there are over 1,000 parks with a combined total area of approximately 52,800 acres. Major open spaces and parks are depicted on Maps 2-8(A) through 2-8(E). With a current population of approximately 10.2 million, the Region has approximately 5.2 acres of parkland per 1,000 residents, although considerable variation exists between the Subregions. In some communities, which are proximate to large open spaces, access to parkland with active recreational opportunities is limited. The parkland to population ratio tends to be much lower in Disadvantaged Communities, where access to park space is as low as 0.8 acres per 1,000 residents. The National Recreation and Park Association suggests that a park system serving an urban area should, at a minimum, be composed of a "core" system of parklands, with a total of 6.25 to 10.5 acres of developed open space per 1,000 residents. Thus,

Arroyo Seco trail. The Region's open space resources are extensive. This plan includes targets to increase open space in disadvantaged communities.


Parks & Other Open Space
Lower San Gabriel & Lower Los Angeles Rivers Watersheds
Integrated Regional Water Management Plan
Map 2-8 (A)
Parks
Other open space
0 1.25 2.5 5
Miles
Sources: GreenVision, UEI, SCAG, CaSIL
Whittier Narrows
Los Cerritos Wetlands
El Dorado Lakes
San Gabriel River
Coyote Creek
Carbon Creek
Fullerton Creek
La Canada Verde Creek
Compton Creek
Los Angeles River
Rio Hondo
Laguna Channel
Brea Creek
Brea Canyon
Tonner Canyon
Turnbull Canyon
Arroyo San Miguel
Sawpit Creek
La Mirada Creek
Coyote Creek
DIAMOND BAR
BREA
FULLERTON
AMAHEIM
LA HABRA HEIGHTS
LA HABRA
WHITTIER
LA MIRADA
BUENA PARK
CYPRESS
LOS ALAMITOS
SEAL BEACH
SANTA FE SPRINGS
CERRITOS
ARTESIA
MONTEREY PARK
MONTEBELLO
PICO RIVERA
COMMERCE
DOWNEY
BELLFLOWER
LAKEWOOD
LONG BEACH
SIGNAL HILL
VERNON
HUNTINGTON PARK
SOUTH GATE
LYNWOOD
COMPTON

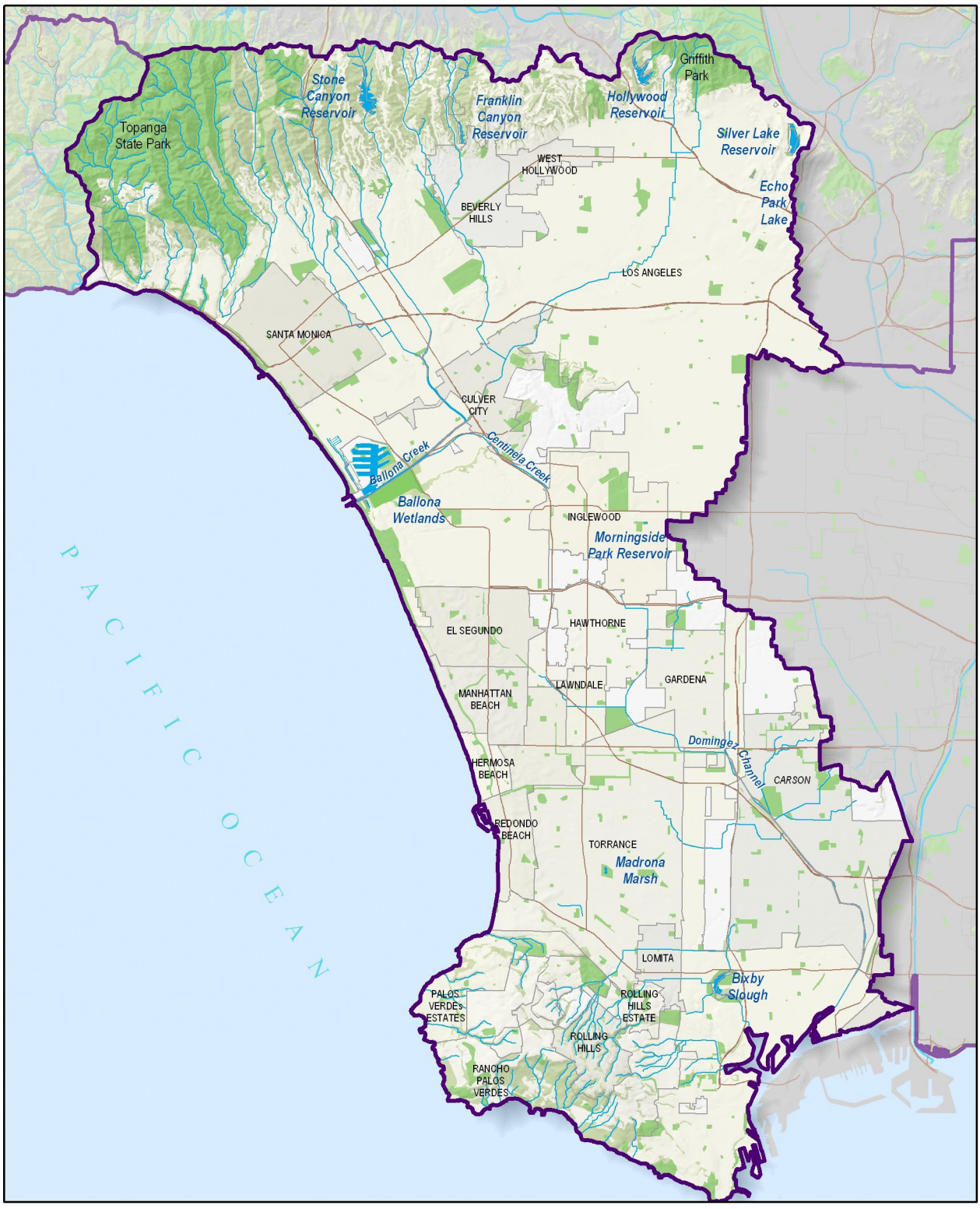

Parks & Other Open Space
North Santa Monica Bay Watersheds
Integrated Regional Water Management Plan
Map 2-8 (B)
Parks
Other open space
Agriculture
Miles
0
1
2
4
Sources: GreenVision, UEI, SCAG, CaSIL
Topanga Creek
Topanga Lagoon
Malibu Creek
Malibu Lagoon
Malibu Creek State Park
Malibu Lake
Century Reservoir
Las Virgenes Creek
Cold Creek
CALABASAS
Medea Creek
AGOURA HILLS
Lake Lindero
Lindero Canyon
WESTLAKE VILLAGE
Westlake Lake
Las Virgenes Reservoir
Lake Sherwood
Santa Monica Mtns Nat Rec Area
Charmlee County Park
Leo Carrillo State Beach
MALIBU
Dume Lagoon


Angeles National Forest
Big Tujunga Reservoir
Devils Gate Reservoir
Pacoima Reservoir
Hansen Reservoir
Van Norman Reservoir
Sepulveda Reservoir
Encino Reservoir
Monteria Lake
Chatsworth Reservoir
Girard Reservoir
Calabasas Lake
Tujunga Wash
Bull Creek
Aliso Canyon Wash
Browns Canyon Wash
Devil Canyon
Dayton Creek
Bell Creek
Bull Canyon
Beef Canyon
Momon Canyon
Big Tujunga Creek
La Tuna Canyon
Los Angeles River
Arroyo Seco
Verdugo Wash
Sycamore Canyon
Strarel Canyon
Arroyo Calabasas
Cabe Ilio Creek
LA CANADA FLINTRIDGE
GLENDALE
BURBANK
LOS ANGELES
SAN FERNANDO
Griffith Park
Parks & Other Open Space
Upper Los Angeles River Watersheds
Integrated Regional Water Management Plan
Map 2-8 (C)
Other open space
Parks
0 1.5 3 6
Miles
Sources: GreenVision, UEI, SCAG, CaSIL



Parks & Other Open Space

Upper San Gabriel River & Rio Hondo Watersheds
Integrated Regional Water Management Plan
Map 2-8 (D)



Parks & Other Open Space

South Bay Watersheds
Integrated Regional Water Management Plan
Map 2-8 (E)

current parkland in the Region is below this identified minimum recommendation.

Open space used for recreation and public access has the potential to optimize use of local water resources by preserving or enhancing groundwater recharge, and thereby improving water supply reliability and providing opportunities to reuse stormwater or recycled water for irrigation improve surface water quality, to the extent that it filters, retains, or detains stormwater runoff (although few existing parks or open spaces include specific features to improve the quality of stormwater runoff).

2.10 Ecological Processes

Although large portions of the Region have been subject to urban and suburban development, ecological processes still play an important role in the management of water resources. The large expanses of open space in the upper watersheds of the Los Angeles and San Gabriel Rivers and throughout the Santa Monica Mountains provide a substantial portion of Region's water supply.

Fire is an integral and necessary part of the natural environment and plays a role in shaping the landscape, yet the management of most open space areas historically relied on fire suppression which has resulted in open spaces with varying fuel loads. Catastrophic wildfire events can denude hillsides which create opportunities for invasive plants and increase the potential for subsequent rains to result in debris flows that erode the landscape and can clog stream channels, damage structures, and injure inhabitants in the canyons and lower foothill areas. In recent years, more enlightened open space management practices have attempted to incorporate fire as a natural force for renewal while minimizing risks to lives and property.

Invasive species in the Region have also substantially affected specific habitats and areas. Along with the rest of California, most the Region's native grasslands were long ago displaced by introduced species. The receptive climate has resulted in the widespread importation of plants from around the globe for landscaping. Some plant introductions have resulted in adverse impacts. In many undeveloped areas, non-native plants such as arundo (*Arundo donax*), tree of heaven (*Alianthus altissima*) tree tobacco (*Nicotiana glauca*), castor bean (*Ricinus communis*), salt cedar (*Tamarix ramosissima*) and cape ivy (*Senecio mikanioides)* are out-competing native

Table 2-4. Land Use (in Acres)

Land Use Category	Lower San Gabriel and Los Angeles Watersheds	North Santa Monica Bay Watersheds	South Bay Watersheds	Upper Los Angeles River Watershed	Upper San Gabriel River and Rio Hondo Watersheds	Region Totals	Percent
Agriculture	2,886	1,990	1,046	2,190	3,468	11,580	0.9
Commercial	33,839	1,746	27,689	21,061	20,829	105,164	8.1
Industrial	30,042	231	19,906	14,408	12,107	76,694	5.9
Recreation	10,182	1,995	8,496	8,279	9,431	38,382	2.9
Residential	117,214	12,992	105,045	117,288	91,039	443,578	34.0
Transportation, Communication, and Utilities	15,283	772	11,024	16,495	11,021	54,595	4.2
Vacant/Open Space	18,605	108,494	33,868	190,134	212,887	563,988	43.2
Other	1,726	1,573	2,627	2,368	3,983	12,277	0.9
Totals	229,776	129,791	209,701	372,224	364,766	1,306,258	100.0

Source: California State Los Angeles Urban Environment Initiative, Southern California Association of Governments

species because they are not edible to wildlife or lack natural predators such as disease and insects. Arundo, a tall bamboo-like grass that is prolific and difficult to eradicate, is probably the most invasive of the exotic plant species. In riparian areas, it takes up large amounts of water, crowds out native plants, clogs streams, and disrupts the balance for aquatic species. The removal of this particular species, which requires focused and repeated efforts, can provide substantial dividends in water savings and restored species diversity.

As noted earlier, limited wetland and riparian habitat remain within those areas subject to development. In locations where such habitat exists, contact with water is critical to long-term viability. To the extent that channelization of streams prevents natural percolation of water into the soil, and in some locations, the return of baseflow to stream channels, the continued presence of wetland and riparian vegetation cannot be ensured. The presence of riparian vegetation within soft-bottom portions of the rivers (e.g., the Los Angeles River in the Sepulveda Basin and Elysian Valley, the Rio Hondo in Whittier Narrows, and many locations along the San Gabriel River) creates habitat that has become dependent on runoff, which in some locations is supplemented by recycled water discharge from wastewater treatment plants. Consequently, the removal or redirection of that flow could adversely affect habitat in those locations. In addition, the proposed restoration of steelhead fisheries in the Santa Monica Mountains, such as Malibu Creek, may require that some recycled water discharge be maintained.

2.11 Land Use

Land Use within the Region reflects the historic pattern of urbanization, as most of the coastal plain and interior valleys are occupied with residential, industrial, commercial, and institutional uses, and most of the foothills and mountains are principally open space. A breakdown of land use in the Region is provided in Table 2-4, and depicted on Maps 2-9(A) through 2-9(E).

2.12 Social Characteristics

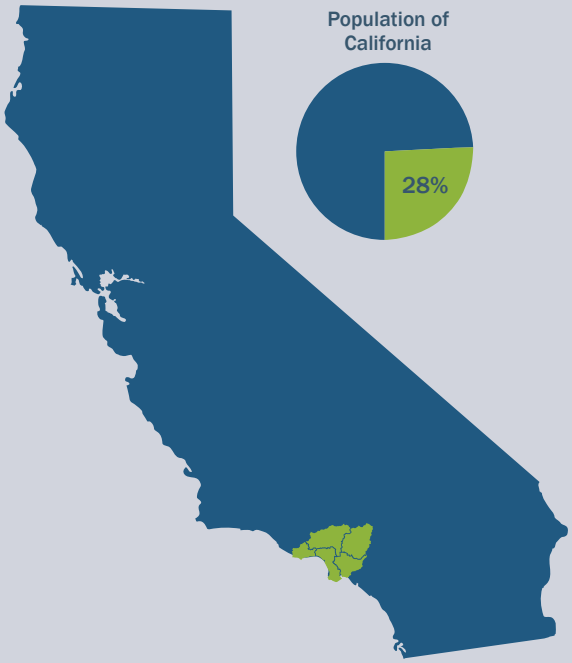
The Region's population is currently estimated at approximately 10.2 million residents as depicted on Table 2-5, which represents approximately 28 percent of the State's estimated 2006 population.

Per State Guidelines, Disadvantaged Communities are those with an annual median household income (MHI) that is less than 80 percent of the statewide annual median household income (CWC § 79505.5 (a)). Using Census 2000 data, 80 percent of the statewide annual MHI is $37,994. Those communities meeting these criteria are depicted in Map 2-10(A) through 2-10(D). Note that there are no Disadvantaged Communities in the North Santa Monica Bay Watersheds Subregion.

As depicted on these maps, Disadvantaged Communities are located throughout much of the Region. As discussed in the sections above, water management issues, such as a reliable water supply, poor surface water quality, and groundwater contamination also occurs throughout the Region. No specific relationship has been identified between the location of Disadvantaged Communities and the location of water resource management issues.

2.13 Social Trends and Concerns

The watershed management plans for many of the Region's major watersheds identify various goals, objectives, and guiding principles. Those various concepts are incorporated in this Plan as objectives in Section 3.1, but noted here as a reflection of the social and cultural values of the Region. They include: reduce dependence on imported water, optimize use of local water resources, enhance water supply reliability, improve the quality of urban runoff and stormwater, maintain and enhance flood protection, increase watershed-friendly recreation and accessible open space for all communities, conserve and restore native habitat, manage public open spaces to reduce the risk of catastrophic wildland fires, and promote the application of watershed approaches to resource management issues.

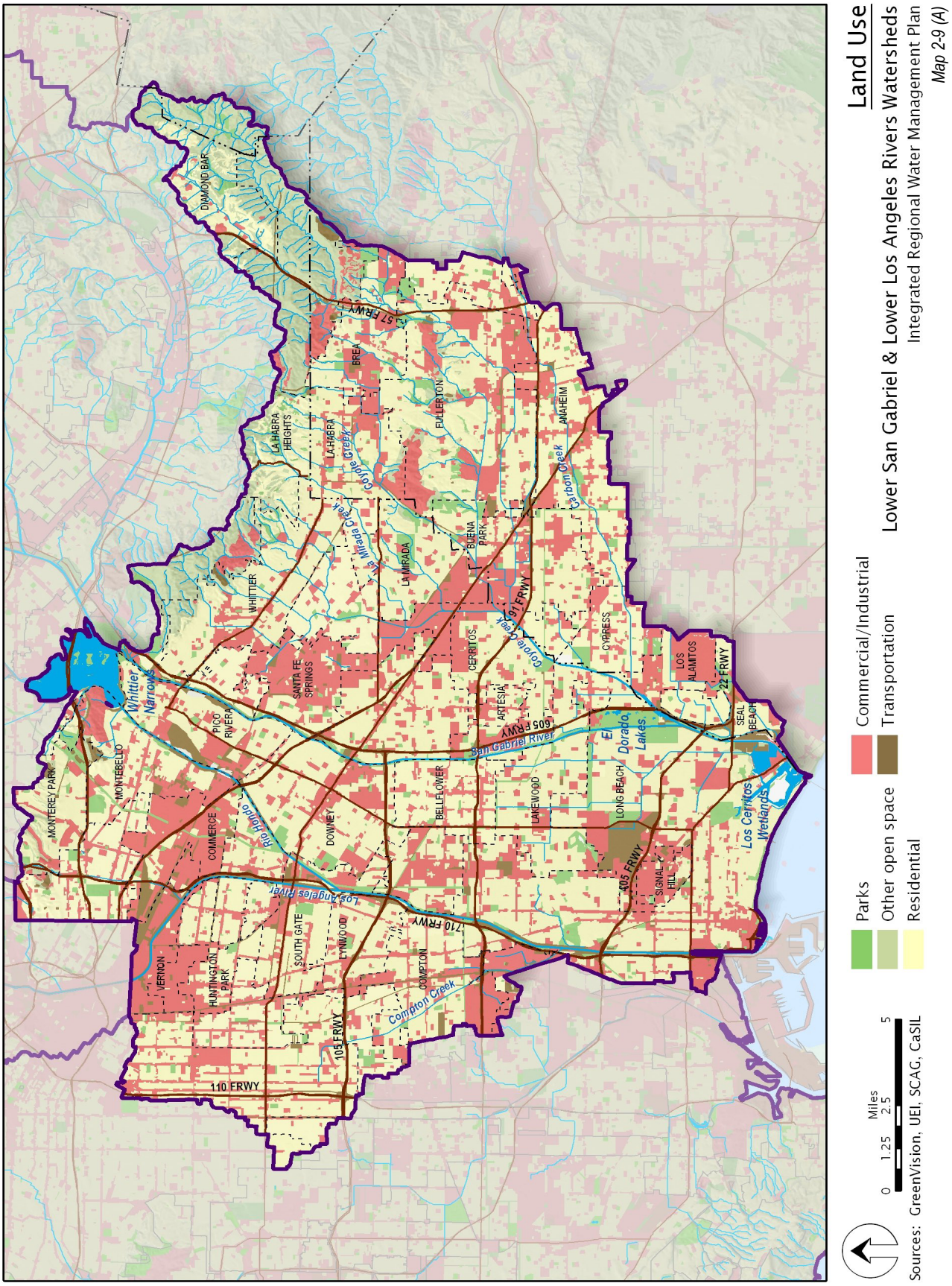


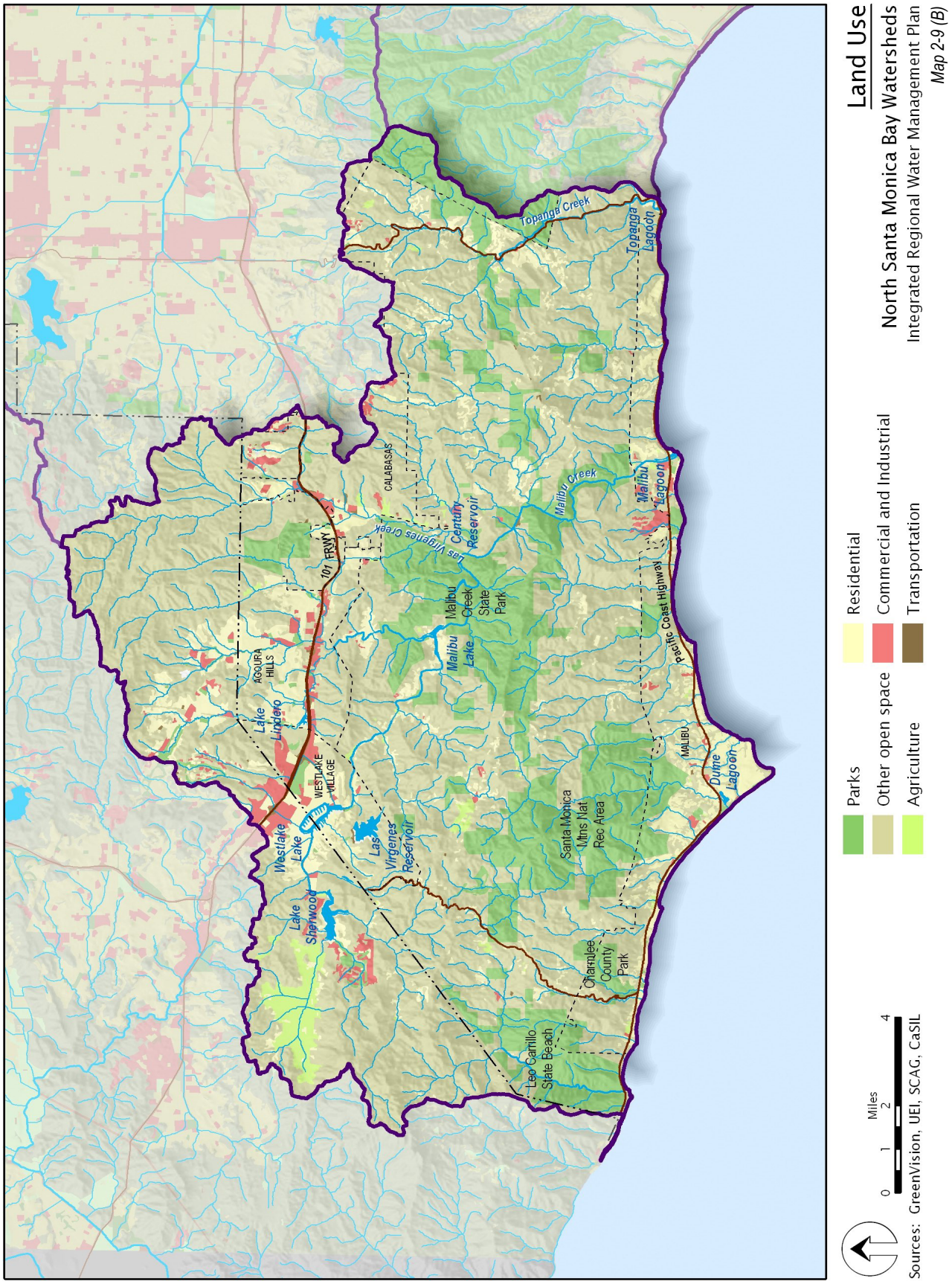
Subregion	Population
Lower San Gabriel and Los Angeles Rivers	3,219,316
North Santa Monica Bay	106,480
South Bay	2,903,382
Upper Los Angeles	2,338,290
Upper San Gabriel and Rio Hondo	1,640,528
The Greater Los Angeles County Region Total	10,207,996

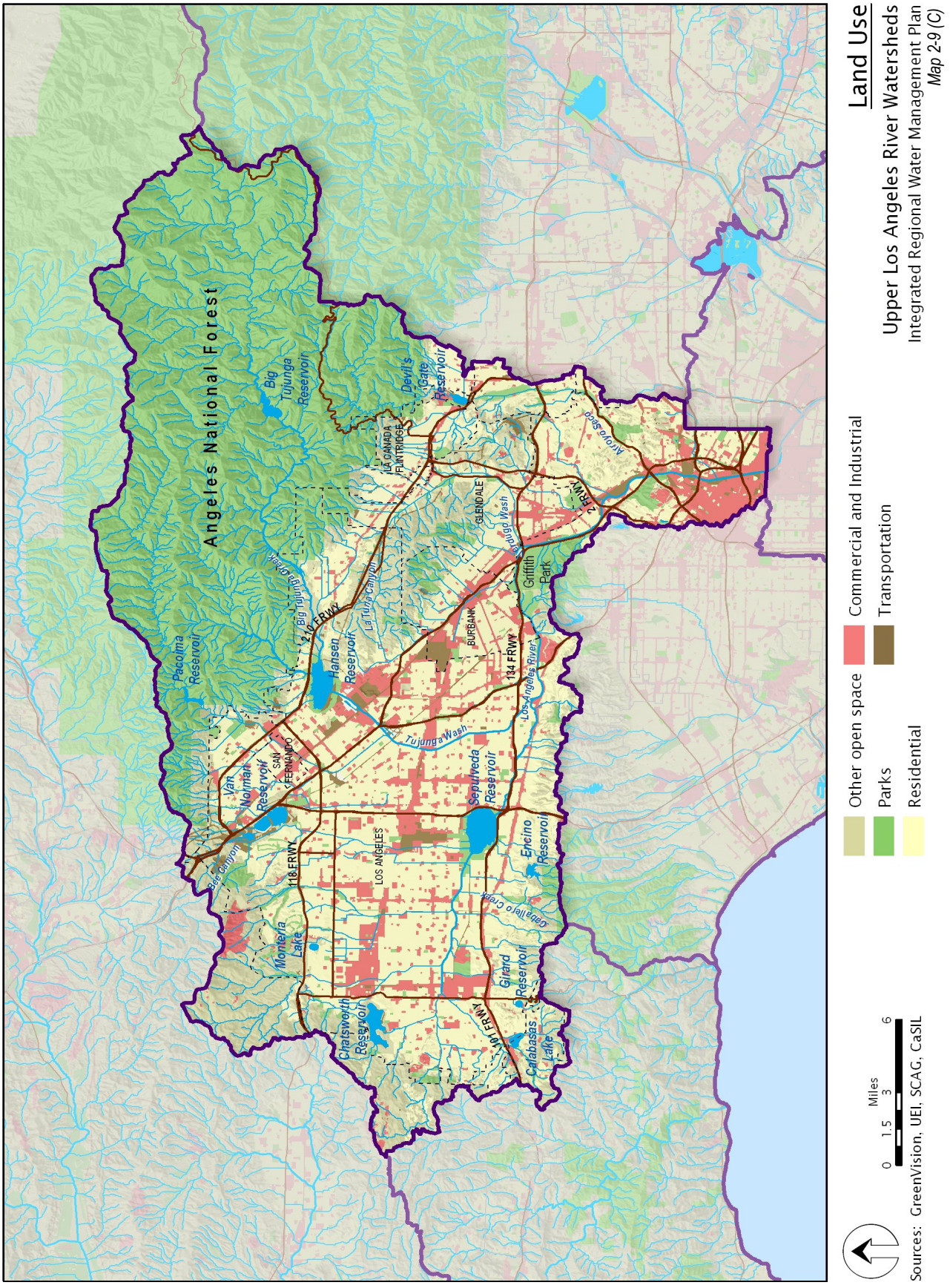
Figure 2-1. 2006 estimated Greater Los Angeles County Region population. The Greater Los Angeles County Region represents 28 percent of California's population.

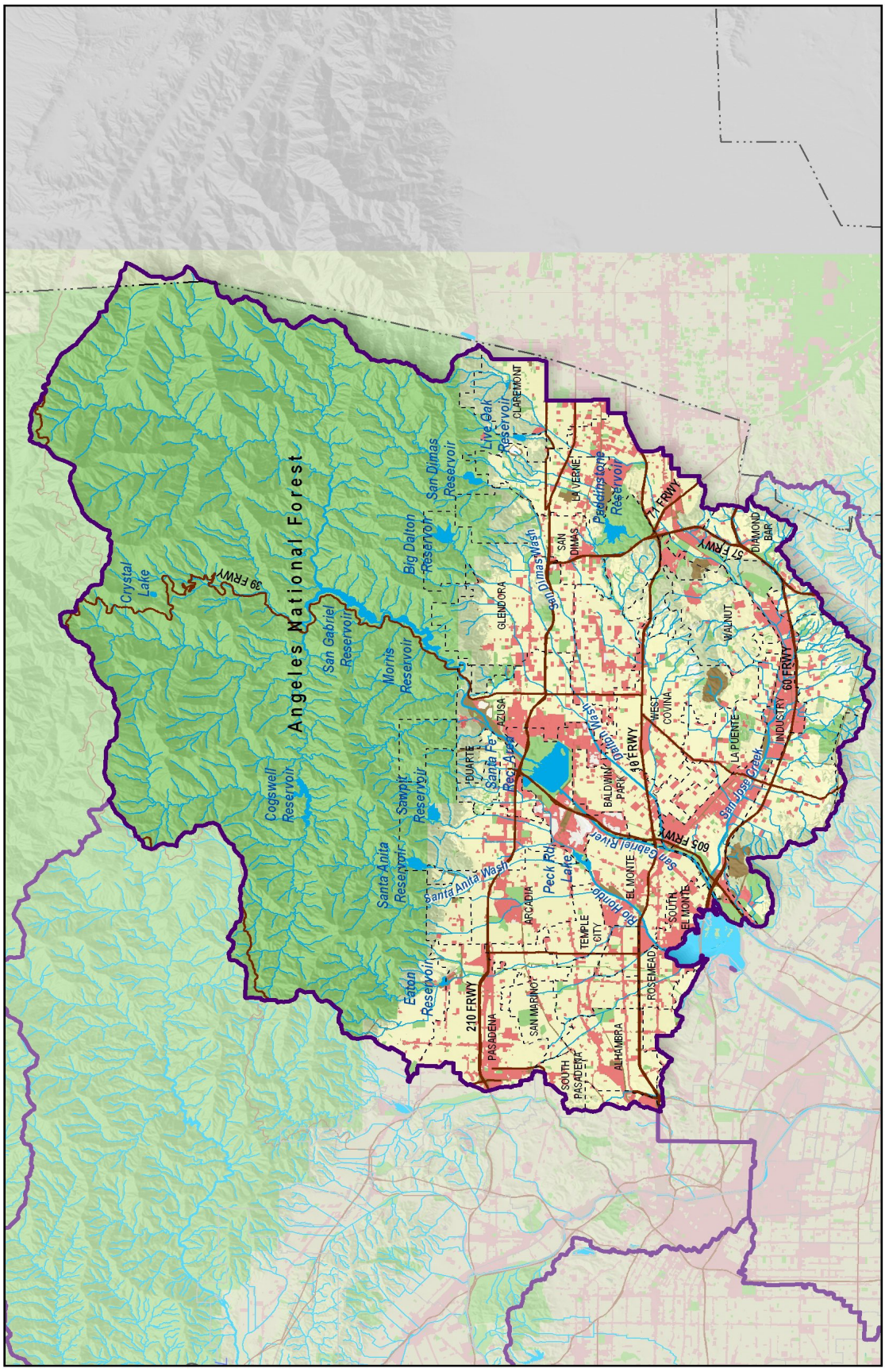
Social trends in the Region may be summarized on the basis of certain demographic trends. The Public Policy of California (PPIC) (PPIC, 2002) describes trends for portions of California, including Los Angeles, Ventura, and Orange Counties, and is representative of the Region. Population growth in the Region is slowing (a 10 percent increase from 1990-2000, down from a 20 percent increase from 1980-1990). In the last decade, births represented the largest portion of population increase in the Region, followed by international migration. Domestic migration was a net loss to the Region's population during that period. Population growth outpaced job growth (by more than 2:1) and growth in residential units, increasing the number of persons per household. Ethnic diversity continues to increase, as the percentage of Caucasian residents declines (from 58.percent in 1980, 47.0 percent in 1990, and 38.8 percent in 2000).

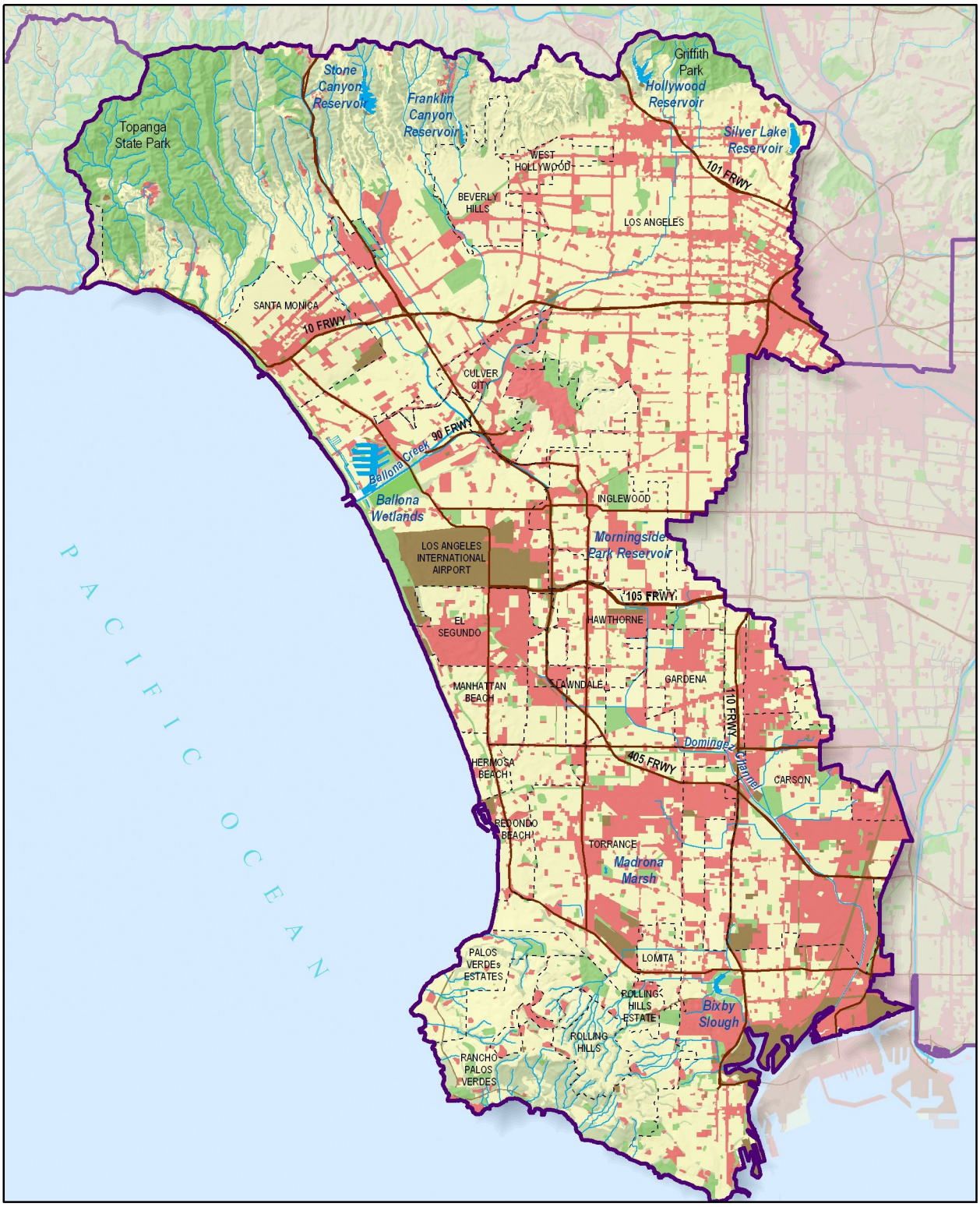
Social concerns in the Region may be reflected by a recent survey of Los Angeles residents (PPIC, 2005), which found that residents are unhappy with some key indicators of quality of life. Large majorities say traffic congestion on freeways and major roads (74 percent) and the availability of affordable housing (64 percent) are big problems in the County today. Majorities of residents still rate police protection (57 percent) and the quality of parks, beaches, and recreation facilities (58 percent) as excellent or good, but their assessments have fallen in recent years. Residents are far less charitable in their rating of other public services: Only one-third give excellent or good ratings to streets and roads (32 percent today, 51 percent in 2004) and public schools (36 percent today, 43 percent in 2004). In contrast, large majorities of residents in neighboring Orange County give excellent or good ratings to police protection (83 percent), recreational facilities (84 percent), streets and roads (64 percent), and public schools (64 percent). Los Angeles County residents are more likely to believe that Los Angeles County will be a worse place (37 percent) rather than a better place (24 percent) to live in 20 years, with 35 percent anticipating that quality of life in the county will stay the same. Fully one-third of county residents (33 percent) expect to leave Los Angeles County in the next five years, up from 17 percent in 2003.


Land Use
Lower San Gabriel & Lower Los Angeles Rivers Watersheds
Integrated Regional Water Management Plan
Map 2-9 (A)
Commercial/Industrial
Transportation
Parks
Other open space
Residential
0 1.25 2.5 5
Miles
Sources: GreenVision, UEI, SCAG, CaSIL
DIAMOND BAR
BREA
FULLERTON
ANAHEIM
LA HABRA HEIGHTS
LA HABRA
WHITTIER
LA MIRADA
BUENA PARK
CERRITOS
CYPRESS
LOS ALAMITOS
SEAL BEACH
SANTA FE SPRINGS
PICO RIVERA
ARTESIA
MONTEBELLO
MONTEREY PARK
COMMERCE
DOWNEY
BELLFLOWER
LAKEWOOD
LONG BEACH
SIGNAL HILL
VERNON
HUNTINGTON PARK
SOUTH GATE
LYNWOOD
COMPTON
57 FRWY
91 FRWY
605 FRWY
22 FRWY
405 FRWY
710 FRWY
105 FRWY
110 FRWY
Whittier Narrows
San Gabriel River
Rio Hondo
Los Angeles River
Coyote Creek
Carbon Creek
Compton Creek
El Dorado Lakes
Los Cerritos Wetlands


Land Use
North Santa Monica Bay Watersheds
Integrated Regional Water Management Plan
Map 2-9 (B)
Residential
Commercial and Industrial
Transportation
Parks
Other open space
Agriculture
Miles
0
1
2
4
Sources: GreenVision, UEI, SCAG, CaSIL
Topanga Creek
Topanga Lagoon
Malibu Creek
Malibu Lagoon
Las Virgenes Creek
Century Reservoir
Malibu Creek State Park
Malibu Lake
Pacific Coast Highway
Dume Lagoon
MALIBU
Santa Monica Mtns Nat Rec Area
Charmlee County Park
Leo Carrillo State Beach
Las Virgenes Reservoir
Westlake Lake
Lake Sherwood
WESTLAKE VILLAGE
Lake Lindero
AGOURA HILLS
CALABASAS
101 FRWY


Land Use
Upper Los Angeles River Watersheds
Integrated Regional Water Management Plan
Map 2-9 (C)
Commercial and Industrial
Transportation
Other open space
Parks
Residential
Miles
0 1.5 3 6
Sources: GreenVision, UEI, SCAG, CaSIL
Angeles National Forest
Big Tujunga Reservoir
Devil's Gate Reservoir
Pacoima Reservoir
Hansen Reservoir
Van Norman Reservoir
Sepulveda Reservoir
Encino Reservoir
Chatsworth Reservoir
Monteria Lake
Girard Reservoir
Calabasas Lake
Tujunga Wash
Los Angeles River
Griffith Park
GLENDALE
BURBANK
LA CANADA FLINTRIDGE
LOS ANGELES
SAN FERNANDO
210 FRWY
134 FRWY
118 FRWY
101 FREEWAY
5 FRWY


Angeles National Forest
Crystal Lake
39 FRWY
Cogswell Reservoir
San Gabriel Reservoir
Morris Reservoir
Sawpit Reservoir
Santa Anita Reservoir
Eaton Reservoir
Big Dalton Reservoir
San Dimas Reservoir
Live Oak Reservoir
Puddingstone Reservoir
210 FRWY
57 FRWY
605 FRWY
10 FRWY
60 FRWY
71 FRWY
Santa Anita Wash
Peck Rd Lake
San Gabriel River
Rio Hondo
San Jose Creek
Walnut Creek Wash
San Dimas Wash
Santa Fe Dam Rec Area
PASADENA
SOUTH PASADENA
ALHAMBRA
SAN MARINO
ARCADIA
TEMPLE CITY
ROSEMEAD
EL MONTE
SOUTH EL MONTE
BALDWIN PARK
AZUSA
IRWINDALE
GLENDORA
SAN DIMAS
LA VERNE
CLAREMONT
WEST COVINA
LA PUENTE
INDUSTRY
WALNUT
DIAMOND BAR
Land Use
Upper San Gabriel River & Rio Hondo Watersheds
Integrated Regional Water Management Plan
Map 2-9 (D)
Commercial/Industrial
Transportation
Parks
Other open space
Residential
0 1.25 2.5 5
Miles
Sources: GreenVision, UEI, SCAG, CaSIL



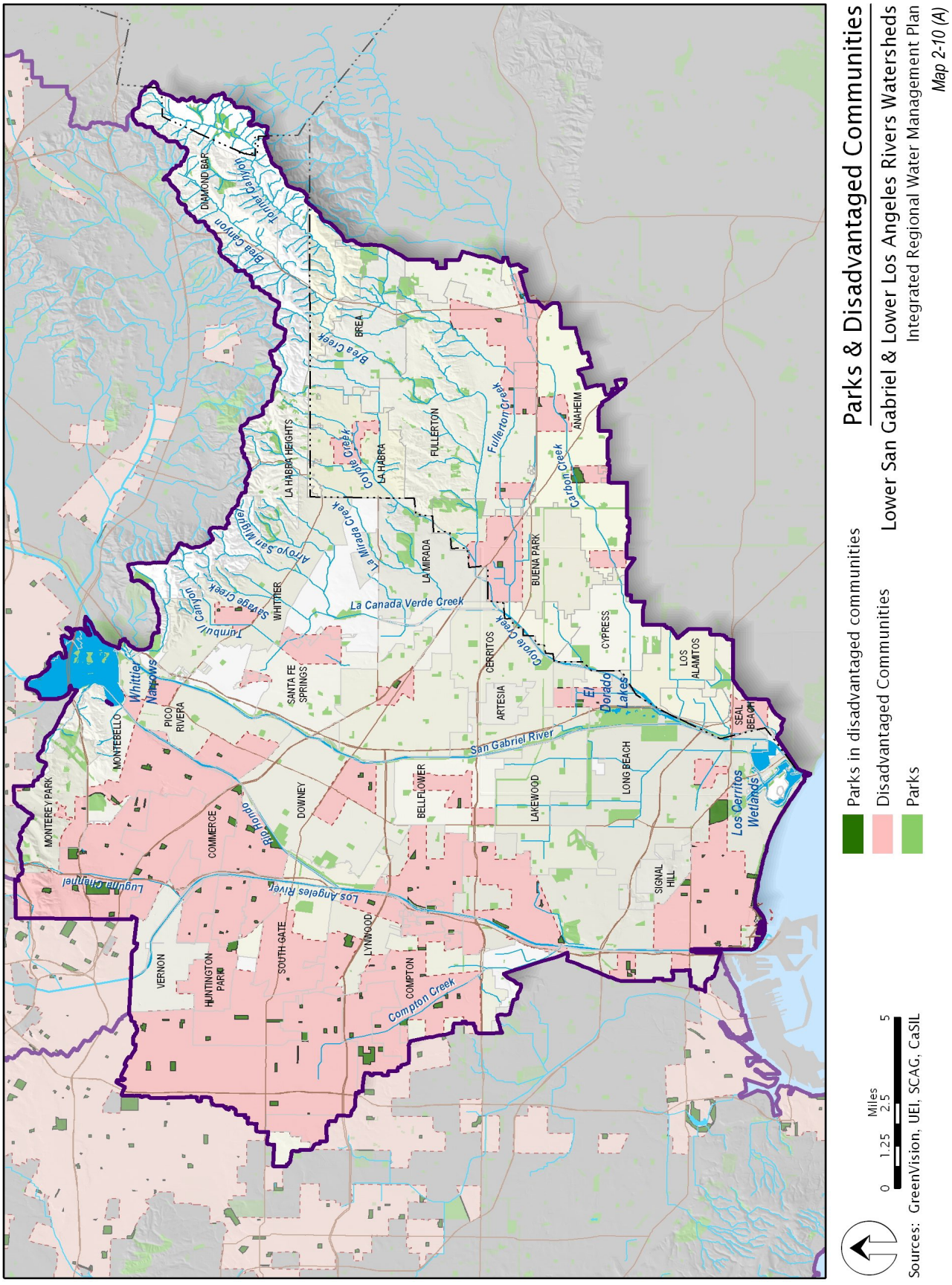
Miles
0 1.25 2.5 5

Sources: GreenVision, UEI, SCAG, CaSIL

- Other open space
- Parks
- Residential
- Commercial and Industrial
- Transportation

Land Use

South Bay Watersheds
Integrated Regional Water Management Plan
Map 2-9 (E)


Parks & Disadvantaged Communities
Lower San Gabriel & Lower Los Angeles Rivers Watersheds
Integrated Regional Water Management Plan
Map 2-10 (A)
Parks in disadvantaged communities
Disadvantaged Communities
Parks
Miles
0 1.25 2.5 5
Sources: GreenVision, UEI, SCAG, CaSIL
Whittier Narrows
San Gabriel River
Los Cerritos Wetlands
El Dorado Lakes
La Canada Verde Creek
Coyote Creek
Carbon Creek
Fullerton Creek
Brea Creek
Compton Creek
Los Angeles River
Rio Hondo
Arroyo San Miguel
Turnbull Canyon
Tonner Canyon
Lugonia Channel
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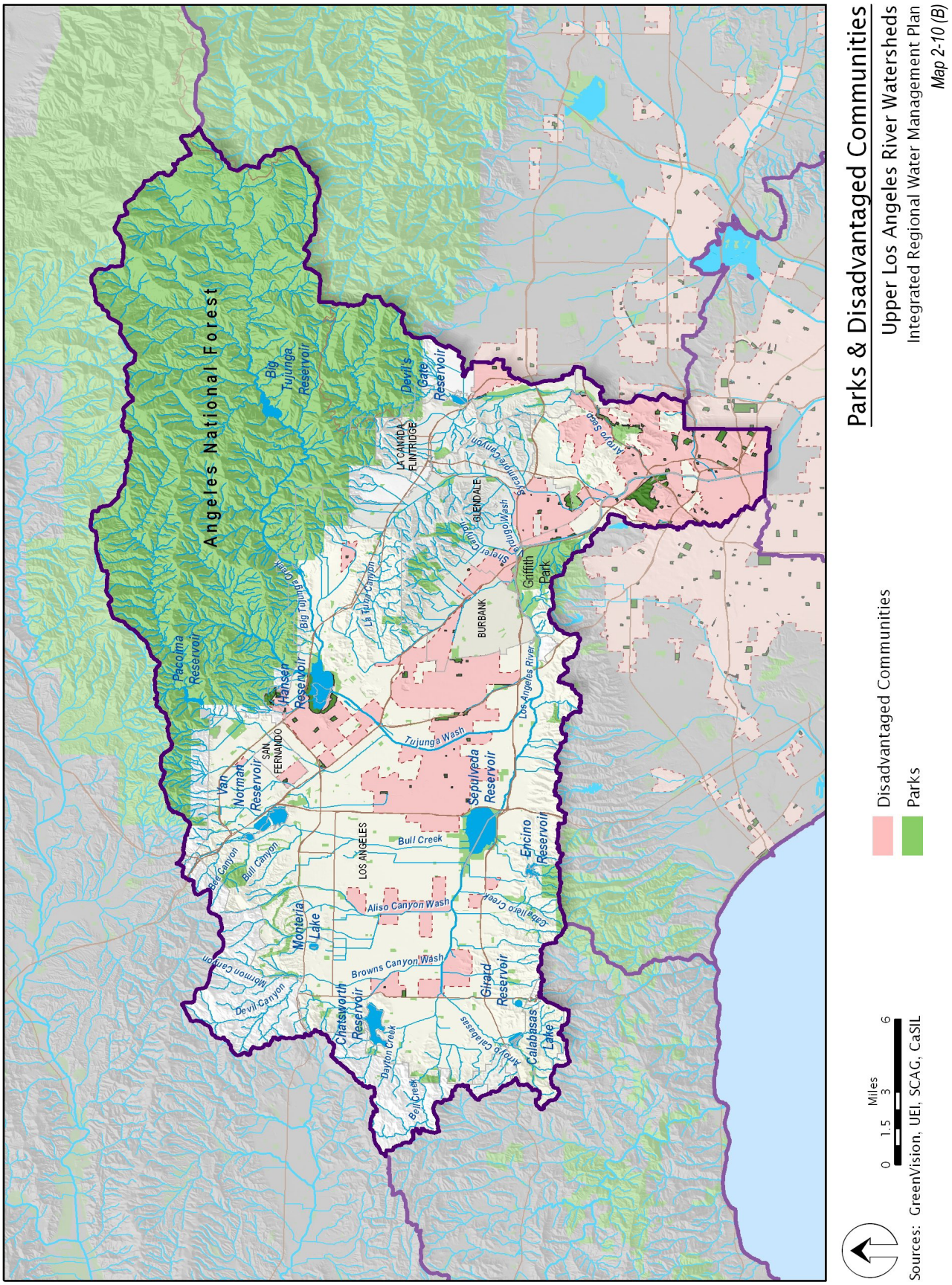
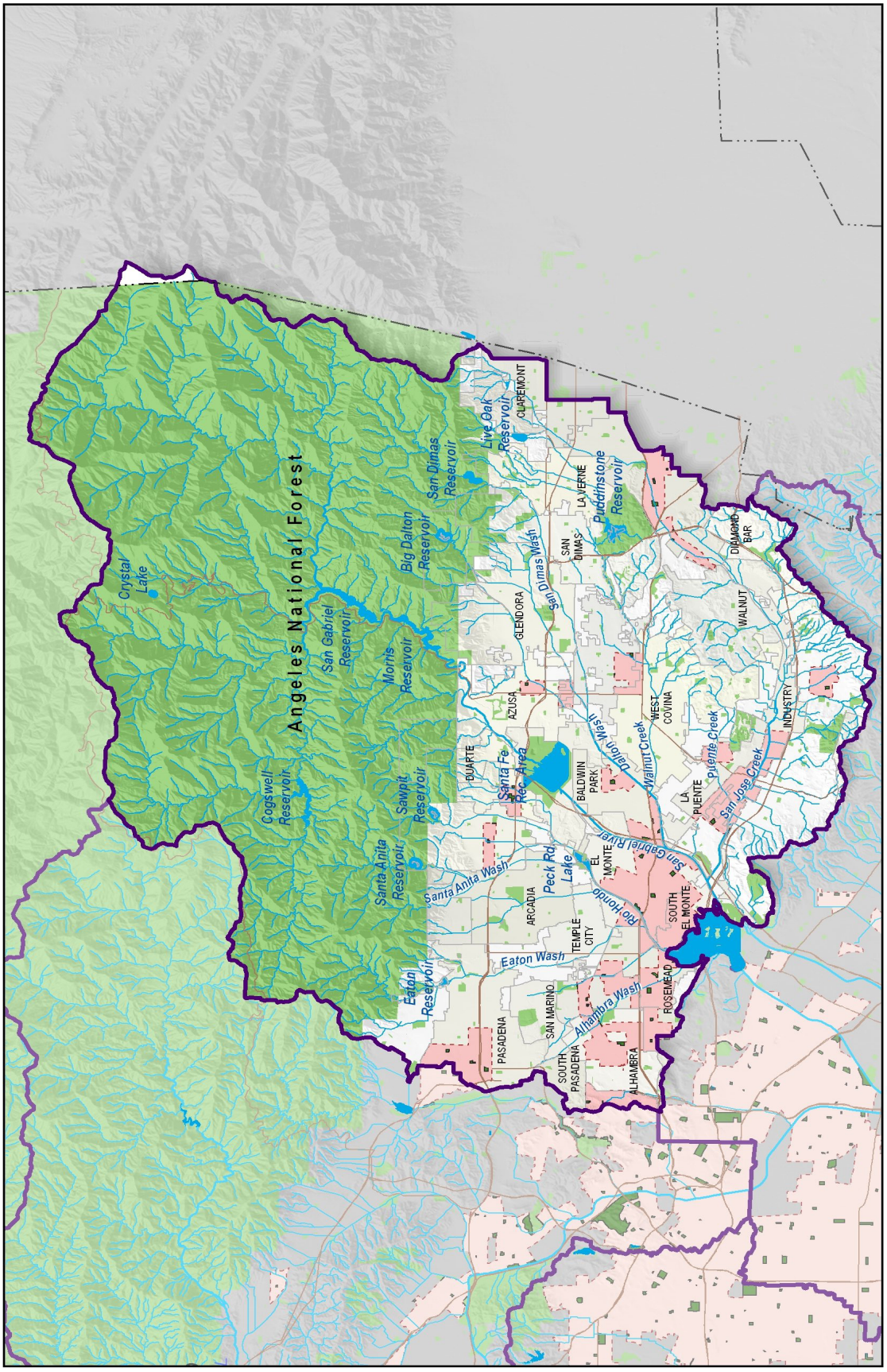
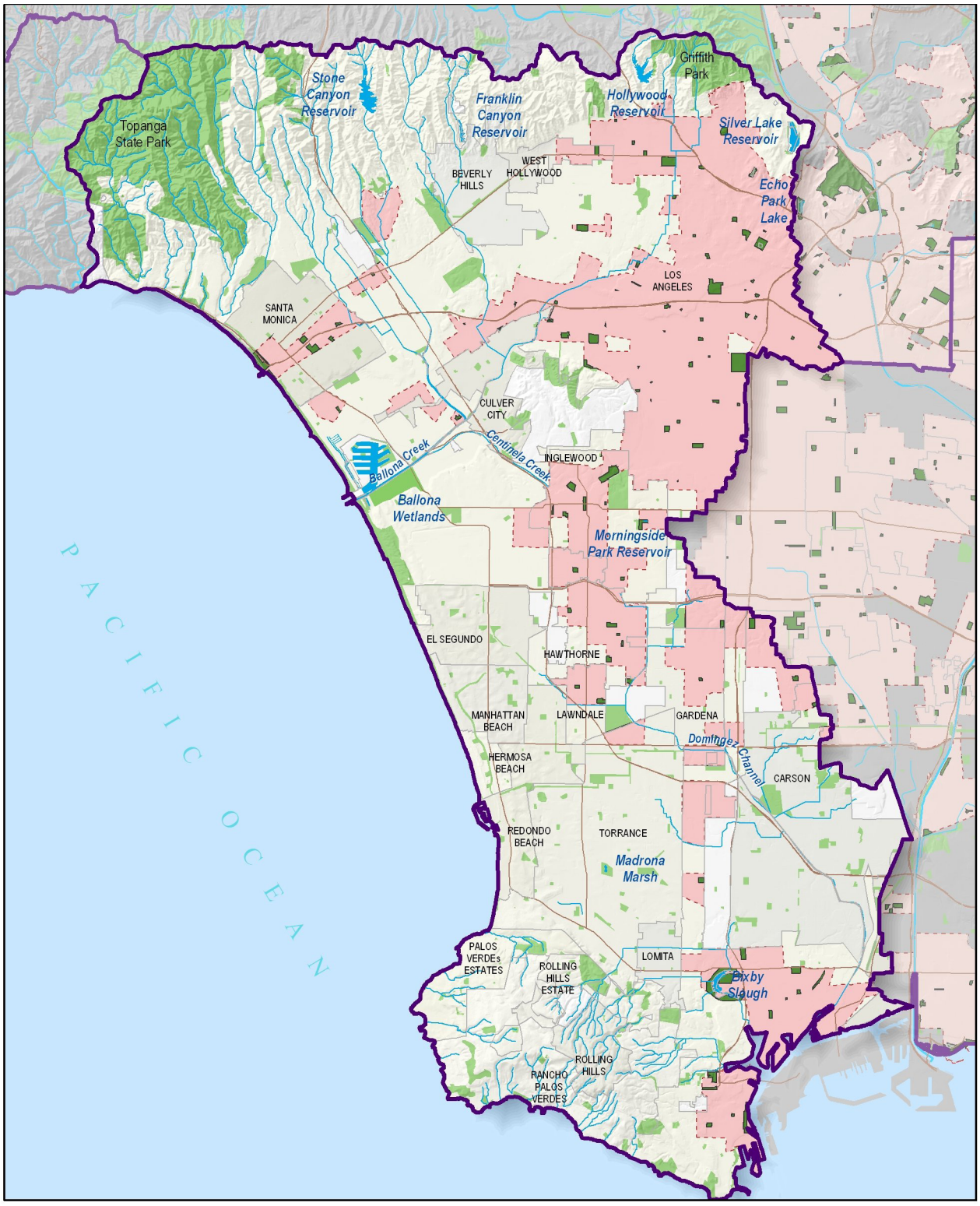
ANAHEIM
LA HABRA HEIGHTS
LA HABRA
LA MIRADA
BUENA PARK
WHITTIER
CYPRESS
CERRITOS
LOS ALAMITOS
SANTA FE SPRINGS
ARTESIA
SEAL BEACH
MONTEBELLO
PICO RIVERA
MONTEREY PARK
COMMERCE
DOWNEY
BELLFLOWER
LAKEWOOD
LONG BEACH
SIGNAL HILL
VERNON
HUNTINGTON PARK
SOUTH GATE
LYNWOOD
COMPTON


Angeles National Forest
Big Tujunga Reservoir
Devils Gate Reservoir
Pacoima Reservoir
Hansen Reservoir
Van Norman Reservoir
Sepulveda Reservoir
Encino Reservoir
Monteria Lake
Chatsworth Reservoir
Girard Reservoir
Calabasas Lake
Griffith Park
LA CANADA FLINTRIDGE
GLENDALE
BURBANK
SAN FERNANDO
LOS ANGELES
Big Tujunga Creek
La Tuna Canyon
Tujunga Wash
Los Angeles River
Bull Creek
Aliso Canyon Wash
Browns Canyon Wash
Dayton Creek
Devil Canyon
Bull Canyon
Bee Canyon
Mormon Canyon
Arroyo Seco
Verdugo Canyon
Shelter Canyon
Arroyo Calabasas
Cabrillo Creek
Parks & Disadvantaged Communities
Upper Los Angeles River Watersheds
Integrated Regional Water Management Plan
Map 2-10 (B)
Disadvantaged Communities
Parks
0 1.5 3 6
Miles
Sources: GreenVision, UEI, SCAG, CaSIL


Angeles National Forest
Crystal Lake
Cogswell Reservoir
San Gabriel Reservoir
Morris Reservoir
Sawpit Reservoir
Santa Anita Reservoir
Eaton Reservoir
Big Dalton Reservoir
San Dimas Reservoir
Live Oak Reservoir
Puddingstone Reservoir
Santa Fe Rec Area
Peck Rd Lake
Eaton Wash
Santa Anita Wash
San Dimas Wash
Walnut Creek
Puente Creek
San Jose Creek
San Gabriel River
Rio Hondo
Alhambra Wash
CLAREMONT
LA VERNE
SAN DIMAS
GLENDORA
AZUSA
DUARTE
BALDWIN PARK
WEST COVINA
DIAMOND BAR
WALNUT
INDUSTRY
LA PUENTE
EL MONTE
SOUTH EL MONTE
ARCADIA
TEMPLE CITY
ROSEMEAD
SAN MARINO
PASADENA
SOUTH PASADENA
ALHAMBRA
Parks & Disadvantaged Communities
Upper San Gabriel River & Rio Hondo Watersheds
Integrated Regional Water Management Plan
Map 2-10 (C)
Parks in disadvantaged communities
Disadvantaged Communities
Parks
0 1.25 2.5 5
Miles
Sources: GreenVision, UEI, SCAG, CaSIL



Parks & Disadvantaged Communities

South Bay Watersheds

Integrated Regional Water Management Plan

Map 2-10 (D)

3. OBJECTIVES AND PRIORITIES

Ballona Creek

Broad consensus on quantitative Regional targets for the next 20 years provides clear direction for projects and accountability for success.

3.1 Purpose

This section identifies the objectives for the Plan, establishes quantified planning targets for the 20 year planning horizon that can be used to gauge success in meeting the objectives, and identifies short- and long-term priorities for the Region.

3.2 Objectives

This plan is intended to improve water supply and water quality, enhance open space, recreation and habitat, and sustain local communities in the Greater Los Angeles County Region. To meet those broad goals, seven objectives have been articulated, based on recent water supply, resource management, and watershed plans. These plans include various UWMPs, the Metropolitan Water District's IRP, Common Ground, from the Mountain to the Sea (the watershed and open space plan for the Los Angeles and San Gabriel Rivers), the Santa Monica Bay Restoration Plan, and completed and in progress watershed plans for major tributary streams (including the Arroyo Seco, Ballona Creek, Compton Creek, Coyote Creek, Dominguez Channel, Rio Hondo, Tujunga Wash, and the Upper San Gabriel River). An initial list of objectives was revised by a subcommittee of the Leadership Committee and then circulated for comment to the five Steering Committees, five Subregional stakeholder workshops, and one Regional stakeholder workshop. Stakeholder comments were reviewed and incorporated as appropriate into the objectives, which were then finalized by the Leadership Committee.

The seven objectives identified below (and summarized in Table 3-1 along with planning targets) are presented under the Plan element to which they most closely correspond.

Table 3-1. Greater Los Angeles County Region Objectives and Planning Targets for Year 2026 - To Promote an Integrated, Multi-Benefit, Inter-Regional Approach to Regional Water Management and Planning

Objectives	Planning Targets
Improve Water Supply	
Optimize local water resources to reduce the Region's reliance on imported water.	Increase water supply reliability and quality by providing 800,000 acre-feet/year of additional water supply and demand reduction through conservation. Included within the 800,000 acre-feet/year noted above, reuse or infiltrate 130,000 acre-feet/year of reclaimed water (110 percent increase over existing reclaimed water use).
Improve Water Quality	
Comply with water quality regulations (including TMDLs) by improving the quality of urban runoff, stormwater, and wastewater.	Dry Weather: Reduce and reuse 150,000 acre-feet/year (~40 percent), and capture and treat, an additional 170,000 acre-feet/year (~50 percent); (~90 percent of estimated total dry weather flow). Wet Weather: Reduce and reuse 220,000 acre-feet/year of stormwater runoff from developed areas (~40 percent), and capture and treat an additional 270,000 acre-feet/year (~50 percent); (~90 percent of estimated total wet weather flow).
Protect and improve groundwater and drinking water quality.	Treat 91,000 acre-feet/year of contaminated groundwater (1.82M acre-feet in 20 years)
Enhance Habitat	
Protect, restore, and enhance natural processes and habitats.	Restore 100+ linear miles of functional riparian habitat and associated buffer habitat. Restore 1,400 acres of functional wetland habitat.
Enhance Open Space and Recreation	
Increase watershed friendly recreational space for all communities.	Develop 30,000 acres of recreational open space, focused on under-served communities.
Sustain Infrastructure for Local Communities	
Maintain and enhance public infrastructure related to flood protection, water resources and water quality.	Repair and/or replace 40 percent of the aging infrastructure.

Improve Water Supply

Optimize local water resources to reduce the Region's reliance on imported water

Most years, the San Gabriel Mountains receive substantial rainfall and existing dams and natural storage slowly release runoff, providing an important source of high-quality and low-cost water that can be treated for direct use or recharged into groundwater basins for later use. At several locations, recharge is limited by the capacity of existing recharge facilities. Rehabilitation and expansion of recharge facilities, modified operation of existing storage facilities, and rehabilitation and enlargement of upstream storage capacity, and optimization of operational practices could improve the utilization of this local water source.

Recharge or direct reuse of runoff from urbanized areas is generally limited by concerns about the presence of contaminants. To increase the utilization of this local resource, runoff capture and infiltration could be expanded (where appropriate), the quality of surface runoff improved, and projects

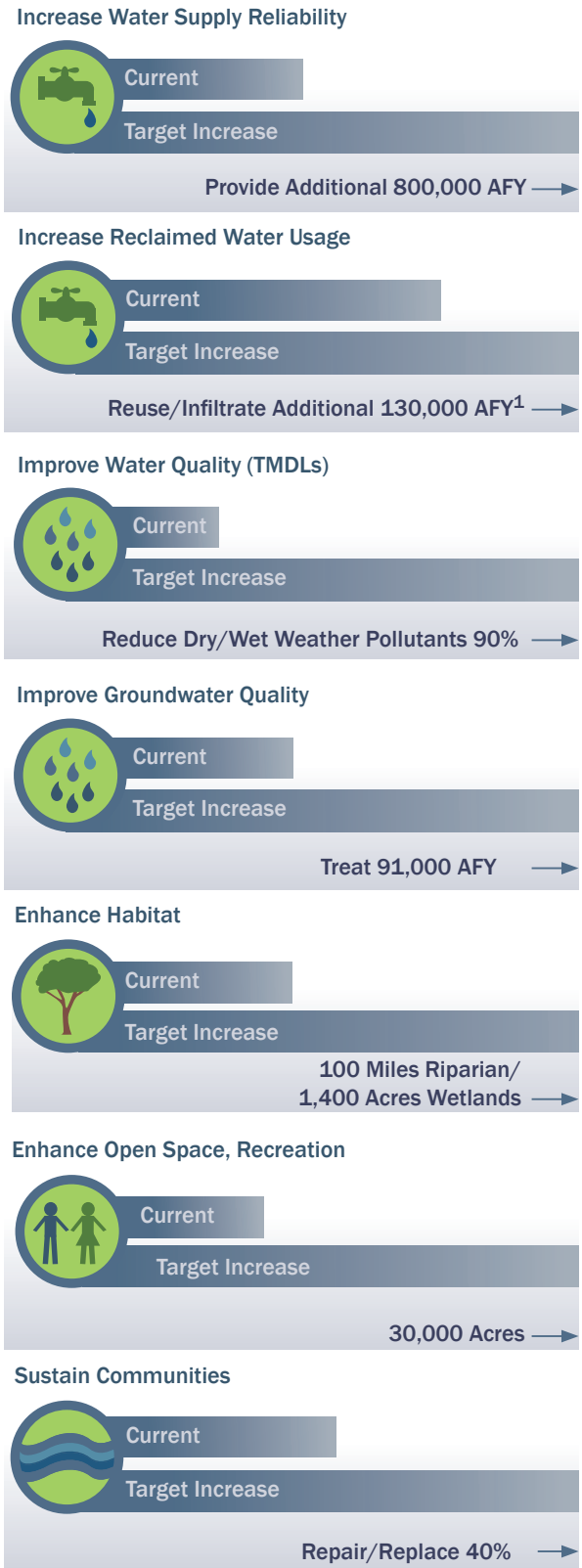


Figure 3-1. Planning Targets. The IRWMP leadership committee has carefully created 20-year targets and strategies that usher in a new era of integrated solutions and more cost effective use of public resources.

The San Jose Creek Water Reclamation Plant in the Upper San Gabriel River Subregion provides over 90,000 acre-feet/year of recycled water to the Region however, there is still over 300,000 acre-feet/year of treated effluent disposed to the ocean, offering a significant opportunity for recycled water expansion.

implemented to capture, treat, and utilize storm-water for either non-potable direct use or recharge.

The widespread implementation of water conservation projects and programs has resulted in significant reductions in demand throughout the Region. Aggressive adoption of additional measures, such as public outreach, ultra low-flush toilets, and evapotranspiration-based irrigation controllers will be needed to continue progress.

Although local wastewater treatment plants produce substantial amounts of recycled water, due to demand and infrastructure limitations, not all of this production is currently utilized to augment water supply, resulting in the discharge of excess supplies to the rivers and creeks. Expansion of distribution systems and the creation of new storage facilities could facilitate increased production and expand the utilization of this local resource for direct non-potable reuse (e.g., landscape irrigation) and groundwater recharge.

Desalination is being considered by some coastal agencies to improve supply reliability and reduce dependence on imported water. Seawater desalination has become more economical in recent years due to improvements in membrane technology, plant siting strategies, and increased costs for traditional water treatment. Additional research and supporting studies will be needed to optimize treatment technology, develop pretreatment alternatives, resolve brine disposal management issues,

[1] Reuse or infiltrate 130,000 acre-feet/year of reclaimed water is included within the 800,000 acre-feet/year noted above.

and identify appropriate mitigation for any adverse environmental impacts.

Improve Water Quality

Comply with water quality standards (including TMDLs) by improving the quality of urban runoff, stormwater, and wastewater

Improving the quality of urban and stormwater runoff will reduce or eliminate impairment of the designated beneficial uses of rivers, creeks, beaches, and other bodies of water in the Region. Continued compliance with National Pollutant Discharge Elimination System (NDPES) permit requirements and the implementation of additional programs and projects will be required to reduce contaminant levels to the limits established by current, pending, and future TMDLs. Improving the quality of urban and stormwater runoff could also make these local supplies available for direct reuse or groundwater recharge in some locations depending on land use.

Protect and improve groundwater and drinking water quality

The Region's many groundwater basins provide a substantial portion of local water supplies, particularly during drought periods. In some locations, groundwater quality has been degraded by industrial discharges, agricultural and residential chemical usage, naturally occurring minerals and organics, and overdrafting of some basins, which has resulted in seawater intrusion along the coast. Identifying sources of contaminants and taking appropriate measures to reduce or eliminate the potential for contamination, is crucial to ensuring a reliable water supply. Where contamination has occurred, programs and projects must be implemented to treat the contaminated groundwater and make these additional supplies available.

Enhance Habitat

Protect, restore, and enhance natural processes and habitats

Urban and suburban growth in the Region has displaced extensive areas of native habitat, including wetlands, riparian, and upland habitats, which has adversely affected local watersheds and water resources. The protection of existing habitats, including wetland and riparian habitats along the coast and interior valleys and upland habitats in the foothills and mountains will preserve areas that contribute to the natural recharge of precipitation. Many of these existing habitats have been adversely affected by land use practices and the introduction of invasive and non-native species and thus are in need of preservation and restoration to enhance their value as native habitat. Functional linkages between the remaining areas of native habitat are needed to preserve long-term species diversity.

Rindge Dam is an example of obsolete infrastructure as well as a major barrier to Steelhead migration in the Malibu Creek Watershed.

Restoration of steelhead trout *(Oncorhynchus mykiss)* to its historic range could serve as a key indicator of ecosystem health in the Region. Within the 20-year horizon of the Plan, steelhead populations on major creeks in the Santa Monica Mountains should be restored, via removal of barriers to fish migration and restoration of spawning and riparian habitat and associated buffer habitat. Although the restoration of steelhead to channelized rivers may be infeasible during the planning horizon, this Plan recognizes restoration of steelhead trout as a long-term goal (e.g., 50 to 100 years) for the rivers and major tributaries in the urbanized portions of the Region that were the species' historic range.

The loss of functional native habitat and the extensive modification of natural channels in urbanized areas have also reduced the extent to which natural processes can remove or sequester contaminants in urban and stormwater runoff, cycle nutrients through watersheds, and provide functional habitat for aquatic and terrestrial species that inhabit or depend on these areas. The protection, restoration and enhancement of native functional riparian habitats should also restore natural ecosystem processes to the extent feasible.

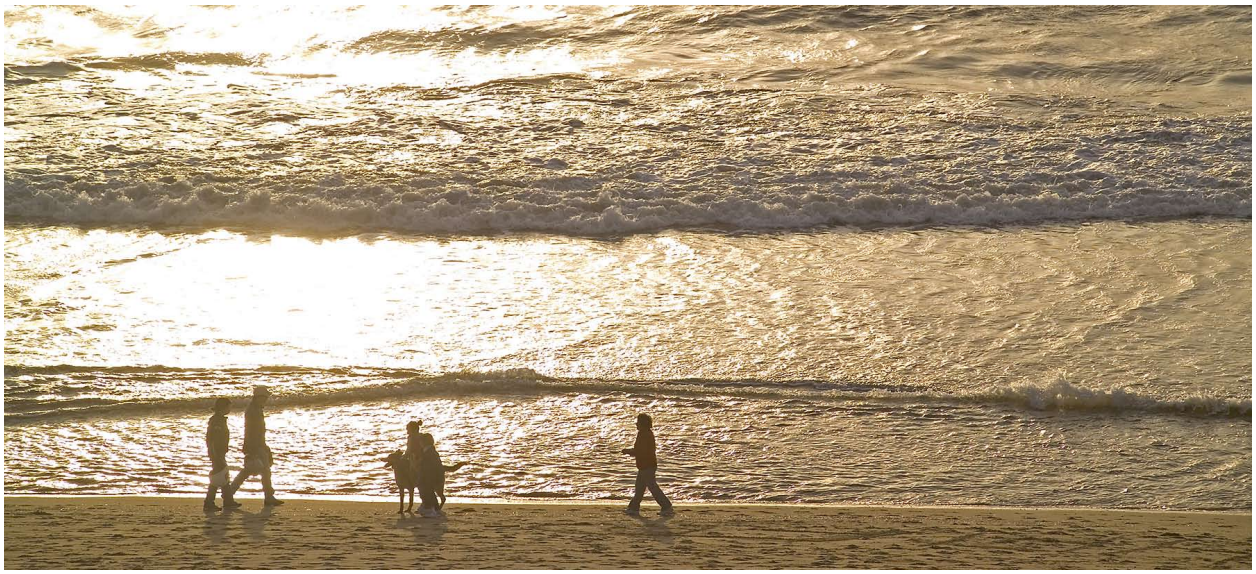
The amount of undeveloped open space and habitat in the upper portions of many watersheds has been decreasing as urbanization continues. To maintain the water supply, water quality, habitat and recreational benefits that these areas provide, the undeveloped portions of the upper watersheds not currently included within protected areas (i.e., national forests or parks) need to be identified, quantified, and protected where feasible. Analysis of the benefits of restoring natural processes may be useful to convince local jurisdictions of the value of this practice.

Fire is an integral part of many local ecosystems, which have adapted to these occasional events in ways that renew vegetation and recycle nutrients. Historical patterns of open space management have relied heavily on fire suppression, which in some instances has increased fuel loads, transforming once minor fires to major conflagrations that have severe impacts on habitat and create substantial risks to lives and property. Once denuded of vegetation, exposed soils are susceptible to erosion and failure, reducing the ability of these lands to absorb rainfall and recharge groundwater, and sometimes resulting in debris flows that clog channels and fill reservoirs with sediment, adversely affecting downstream water quality. Sensitive fuel management techniques, including controlled burns and fuel load management are needed to restore the ability of these lands to accommodate minor fires, while preserving and protecting habitat for sensitive species.

Enhance Open Space and Recreation

Increase watershed friendly recreational space for all communities

Open space and parkland has the potential to enhance groundwater water resources (by preserving or expanding the area available for natural groundwater recharge), improve surface water quality (to the extent that these open spaces filter, retain, or detain stormwater runoff), and provide opportunities to reuse treated runoff or recycled water for irrigation (thereby reducing the demand for potable water). The amount of existing parkland in the



IRWMP targets for water quality are based on the desire to protect our ocean and tributary rivers.

urbanized portions of the Region does not meet national standards per capita parkland access, particularly in Disadvantaged Communities. Additional watershed-friendly recreational space is needed and these spaces should provide native vegetation to create habitat, passive recreational opportunities, and where feasible, contribute to stormwater detention and treatment and natural groundwater recharge.

Sustain Infrastructure for Local Communities

Maintain and enhance public infrastructure related to flood protection, water resources, and water quality

Although, abundant sunshine is one of the Region's main attractions, occasional storm events have the potential to generate substantial amounts of runoff which can create significant flood risks. The Region's extensive flood management system must be operated, maintained, and enhanced where needed to protect lives and property. As elements of the flood protection system warrant significant repair or replacement, consideration should be given to the implementation of more integrated flood management systems. Projects that propose to: 1) reduce runoff via onsite best management practices (BMPs); 2) capture and treat urban and storm-water runoff for treatment; 3) expand groundwater recharge; or 4) restore habitat, must also preserve or enhance existing flood protection levels.

Replacement of aging infrastructure with green infrastructure is being considered to achieve IRWMP objectives.

Many water and wastewater systems in the Region have been operating for up to five decades or longer with differing approaches and issues related to maintenance and infrastructure replacement. As these systems age or system demands increase, adequate maintenance and appropriate enhancements should be implemented to improve the quality of water delivered to consumers, maintain the quality of wastewater effluent discharge, expand recycled water production, enhance system flexibility, and improve water supply reliability in an integrated manner as much as possible.

3.3 Planning Targets

To establish quantified benchmarks for implementation of the Plan, planning targets have been defined based on much discussion with the relevant agencies and stakeholders, which amplify the objectives above and provide more definition to the Region's major water resource needs over the next 20 years. Although the IRWMP is intended to address the Region's water resource management needs, this document also identifies several open space and habitat targets, as the implementation of water supply and water quality projects have the potential to contribute towards these other Regional needs. In addition, habitat, open space, and parkland projects have the potential to generate water supply and water quality benefits. The planning targets are summarized in Table 3-1 and are discussed in the following sections.

Improve Water Supply

Increase water supply reliability by providing 800,000 acre-feet/year of additional water supply and demand reduction through conservation

As discussed in Section 2, the Region's current water supplies (for a single dry year) were estimated at approximately 2.55 million acre-feet/year (assuming SWP deliveries in a single dry year would be 5 percent of entitlement). By comparing the Region's current supply to an estimate of future demand, the difference between water demand and

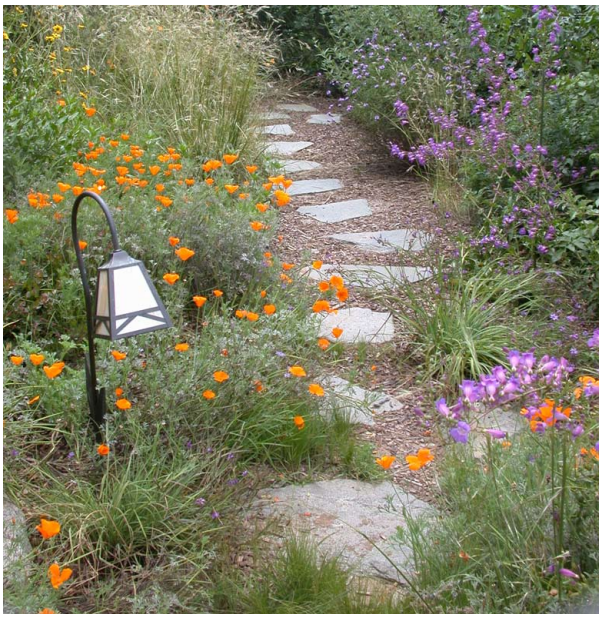
supply was estimated to be approximately 800,000 acre-feet/year.

Varying two key assumptions used in the analysis of supply and demand produces a considerable range. The estimated future supply "gap" of 800,000 acre-feet/year noted above is based on estimates of future supply and demand developed by the Metropolitan Water District and apportioned to the Region for the purposes of the IRWMP. Metropolitan's IRP established "targets" for future water supplies which include a buffer against the potential loss of existing water supplies. By eliminating the buffer against supply loss, the Region's planning target would drop to 580,000 acre-feet/year. Alternatively, if the Region was asked to absorb Metropolitan's entire supply loss buffer (which may be unlikely), then the Region's planning target would increase. If Metropolitan's water supply targets were increased, then the Region's planning target would also increase. By combining these two assumptions (i.e., the Region absorbs the Metropolitan's entire supply loss buffer and the Metropolitan's supply targets are increased by 25 percent), then the Region's planning target would increase to 1.87 million acre-feet/year.

Included in the 800,000 acre-feet/year target noted above, reuse or infiltrate 130,000 acre-feet/year of recycled water

The Region produces substantial amounts of recycled water, but this production exceeds current demand. Expanding opportunities for utilization of this local resource for direct non-potable reuse, indirect potable reuse, injection into seawater intrusion barriers in coastal groundwater basins, and recharge through groundwater recharge basins, could displace the need to import, pump and/or treat "new" water and would improve water supply reliability. This will require enhanced treatment, expanded distribution systems, rehabilitation of existing infrastructure, and the identification of new customers and/or new uses for recycled water.

This target recognizes the substantial volume of current production (approximately 120,000 acre-feet/year) and suggests that with aggressive expansion of existing systems, production and utilization could be increased and perhaps more than doubled (to 250,000 acre-feet/year) over the next 20 years. This target is subsumed within the above planning target for water supply.



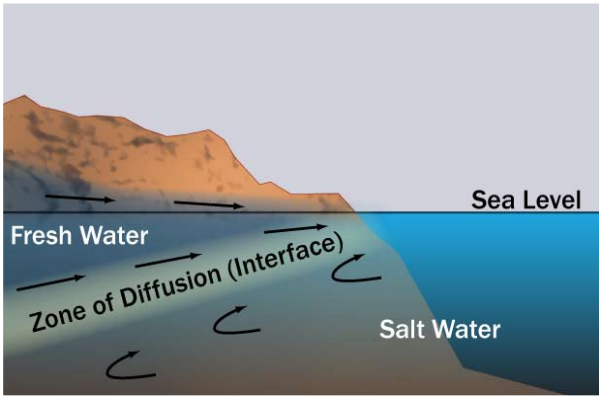
Replacement of water-thirsty landscapes with native plants offers significant opportunities for additional conservation in the Region as well as reduction of dry weather urban runoff.

Improve Water Quality

Reduce and reuse 150,000 acre-feet/year (~40 percent) of dry weather urban runoff and capture and treat an additional 170,000 acre-feet/year (~50 percent), for a total target of ~90 percent

During periods of dry weather, runoff from landscape irrigation, washing impervious surfaces, unregulated industrial discharges, illicit sewer connections, and seepage from natural springs, cumulatively result in the discharge of a substantial volume of runoff into local creeks, rivers, and the ocean. This urban runoff typically contains moderate levels of contaminants which degrade surface water quality and limit the potential to utilize this resource to augment local water supplies. To reduce adverse impacts to beneficial uses in the creeks and rivers, the volume of urban runoff could be reduced (i.e., more efficient landscape irrigation or onsite BMPs to infiltrate and reduce runoff). The remaining urban runoff should be captured, treated, infiltrated, or reused for other purposes, which would require the development of infrastructure for detention, treatment and infiltration.

This target for the volume of urban runoff is based on stream gauge records of current dry-weather flows in major channels in the Region. The estimate of the range of annual volumes that should be reduced, captured and/or treated corresponds to cumulative flows of between 210 to 450 cfs for the entire Region. The IRP for the City of Los Angeles establishes a target for a 50 percent reduction in runoff. The lower limit for this target (40 percent) reflects a concern that the City's IRP target may be difficult to achieve during the 20-year IRWMP planning horizon. As existing habitat in some creeks and rivers has become dependent on the year-round flows which result from urban runoff (and the discharge of treated effluent from wastewater treatment plants at some locations), the complete elimination of urban runoff could result in adverse impacts to in-channel habitat and the native and migratory species that utilize those habitats. Thus, rather than propose the complete elimination of urban runoff, this target sets an upper limit of the 90 percent for the reduction and/or capture, treatment, and reuse of urban runoff.



Maintenance of seawater barriers is an opportunity to expand recycled water use and protect groundwater quality.

Reduce and reuse 220,000 acre-feet/year (~40 percent) of stormwater runoff from developed areas, and capture and treat an additional 270,000 acre-feet/year (~50 percent), for a total of ~90 percent

Extensive urban and suburban development in the Region has significantly increased impervious surfaces and increased stormwater runoff to the creeks and rivers. The flood management system has been designed to efficiently carry stormwater runoff to the Santa Monica and San Pedro Bays. Due to the presence of trash, bacteria, metals, nutrients and organic chemicals in stormwater, this local resource is generally not being pursued as a potential source to augment local water supplies, likely due to perceived cost and logistical constraints. At sites where contaminant levels are generally low (such as residential parcels), stormwater runoff volumes should be reduced through onsite measures (by reducing impervious surfaces, or utilizing swales, berms and other onsite BMPs to capture and infiltrate runoff). This has the potential to augment local supplies through natural recharge and could reduce demand for potable water (e.g., by capturing runoff in cisterns for subsequent reuse as irrigation water).

Although measures to reduce runoff from urbanized sites (per the above target) would reduce the volume of stormwater discharged to storm drains, creeks and rivers, most of the remaining runoff that is discharged will need to be captured and

BMPs such as vegetated swales and tree well inflitration pits offer stormwater capture benefits as well as polluntant reduction and groundwater recharge benefits.

treated in order to meet applicable water quality standards. Although some situations may warrant single-purpose stormwater treatment solutions, preference should be given to multi-purpose solutions that provide functional native habitat, create recreational opportunities, and utilize treated runoff to augment water supplies, either via direct non-potable reuse or groundwater recharge.

The lower range of this target (40 percent) reflects a concern that the City's IRP target (to reduce runoff by 50 percent) may be difficult to achieve during the 20-year IRWMP planning horizon. The upper limit (90 percent) for the capture and treatment of runoff is generally consistent with the 85th percentile runoff target for the Standard Urban Stormwater Mitigation Plan established by the Los Angeles RWQCB, which requires the detention of stormwater runoff (from rainfall events with approximately ¾ inch of precipitation) for several development types[1]. This target also acknowledges that large storm events produce runoff volumes which are too large to feasibly capture and treat. For the purposes of this plan, it is assumed that TMDL compliance can be achieved through a combination of reducing runoff volumes (up to the 40 percent of runoff) and the subsequent capture and treatment (up to 90 percent) of (both dry-weather and) stormwater runoff from developed areas.

Treat 91,000 acre-feet/year of contaminated groundwater

Groundwater quality in many basins has been degraded by industrial discharges, agricultural and residential chemical usage, contaminants in urban runoff, naturally occurring constituents, and seawater intrusion at some locations along the coast. Where contamination has occurred, many programs and projects have been implemented to treat and augment local supplies and enhance water supply reliability. Remediating contaminated portions of our groundwater basins can provide significant and direct benefits locally and to the state from making additional groundwater supplies available. These benefits are immediate, quantifiable, and long term. Cleaning up the groundwater has a direct nexus and achieves the primary purpose of this Plan. This task requires significant coordination between agencies and stakeholders.

[1] *In most of Los Angeles County, Standard Urban Stormwater Mitigation Plan are currently required for: 1) single family hillside residences; 2) 100,000 square feet commercial developments; 3) automotive repair shops; 4) retail gasoline outlets; 5) restaurants; 6) home subdivisions with greater than 10 units; 7) parking lots greater than 5,000 square feet or 25 spaces; and 8) locations directly adjacent to or discharging directly to environmental sensitive areas.*

This target is based on estimates of the volume of contaminated groundwater requiring cleanup in the major groundwater basins developed by groundwater basin managers in the Region.

Enhance Habitat

Restore 100+ linear miles of functional riparian habitat and associated buffer habitat

Existing riparian habitat in the Region is mostly confined to the San Gabriel and Santa Monica Mountains. Although much of this habitat in the San Gabriel Mountains is protected within the Angeles National Forest, much of the riparian habitat in the rest of the Region has been subject to modification. Historically, many of the streams that supported this habitat also supported native populations of steelhead trout. To help restore the population of species associated with these stream corridors, preservation and restoration of functional riparian habitat and associated habitat buffer and water quality improvements in those streams will be required.

This target is based on a goal established by the Santa Monica Bay Restoration Commission to restore 20 linear miles of steelhead trout habitat in the Santa Monica Mountains, which would require removal of barriers to fish migration and restoration of functional riparian habitat and associated buffer habitat. Although specific targets for restoration of riparian habitat have not been established for the other Subregions (in part due to a lack of adequate baseline information on the extent of existing habitat), the target for the North Santa Monica Bay Subregion (of 20 linear miles) was applied to each of other Subregions, resulting in the cumulative planning target. This planning target is included in the IRWMP to recognize that functional riparian habitat can provide water supply and water quality benefits and to determine to what extent implementation of the Plan can contribute towards meeting this Regional resource conservation need.

Restore 1,400 acres of functional wetland habitat

Approximately 90 percent of the coastal wetlands in the Region have been lost due to habitat loss and development. Wetlands can cleanse polluted waters, prevent or mitigate floods, protect shorelines and channel banks, and recharge groundwater aquifers. Additionally, wetlands provide unique and critical habitats for large numbers of flora and fauna. Thus, restoration of existing and historic wetlands has the potential to improve water quality, improve flood protection, restore habitat, and enhance groundwater recharge.

This target is based on an estimate of remaining wetland habitat in the Region (approximately 1,400 acres) developed by the Southern California Wetlands Recovery Project. This planning target is included in the IRWMP to recognize that functional wetland habitat can provide water supply and water quality benefits and to determine to what extent implementation of the Plan can contribute towards meeting this Regional resource conservation need.

Enhance Open Space, Recreation

Develop 30,000 acres of recreational open space, focused in under-served communities

To address existing deficiencies in access to parkland and open space in urbanized areas, and meet additional demand associated with projected population growth, additional recreational open space is required. As many Disadvantaged Communities lack sufficient park space, development of new recreational open space should be focused in those communities. Watershed-friendly recreational open space includes native vegetation for habitat, provides passive recreational activities, and where feasible, contributes to stormwater detention and treatment and groundwater recharge.

Currently the Region has approximately 52,800 acres of parks (excluding the Angeles National Forest, the Santa Monica Mountains Recreation Area and other state lands, which are not accessible to many residents). With a current population of approximately 10.2 million, there is approximately 5.2 acres of parkland for each 1,000 residents. The National Recreation and Park Association suggests that a park system serving an urban area should be composed of a "core" system of parklands, with a minimum of 6.25 acres of developed open space per 1,000 residents. With a projected population increase of approximately 15.4 percent over the 20 year plan horizon (SCAG, 2004), it is estimated that approximately 30,380 acres of additional parkland would be needed within the developed portions of the Region (e.g., in close proximity to the population being served, such as walking distance) to meet the minimum recommendation for parkland.

The inclusion of a planning target for recreational open space is intended to gauge to what extent the implementation of the IRWMP can contribute towards meeting the Regional need for additional recreational space through the inclusion of watershed-friendly recreational or open space features in water quality and water supply projects.

A critical element of the plan is the maintenance and upkeep of infrastructure such as Morris Dam, shown here.

Sustain Infrastructure for Local Communities

Repair and/or replace 40 percent of the aging water resources infrastructure

Various elements of the flood protection system, including debris basins, dams, reservoirs, pump stations, underground storm drains, and concrete-lined channels, are years old and have exceeded their design life span. As a result, many have signs of structural strains, or are showing deterioration or other aging effects. Several dams and debris basins have been identified by the state department of Water Resources Division of Safety of Dams as subject to failure during a maximum credible earthquake or probable maximum flood. Results of years of channel and underground inspections and safety concerns have prompted agencies to monitor and perform immediate repairs to several channels and drains with various deficiencies. Many water and wastewater systems in the Region have been operating for five decades or longer with varying priorities about, and capacity for, infrastructure maintenance and replacement. As these systems age or system demands increase, repair or replacement of system elements should be implemented to improve the quality of water delivered to consumers, maintain the quality of wastewater effluent discharge, expand recycled water production, enhance system flexibility, and improve water supply reliability and protection.

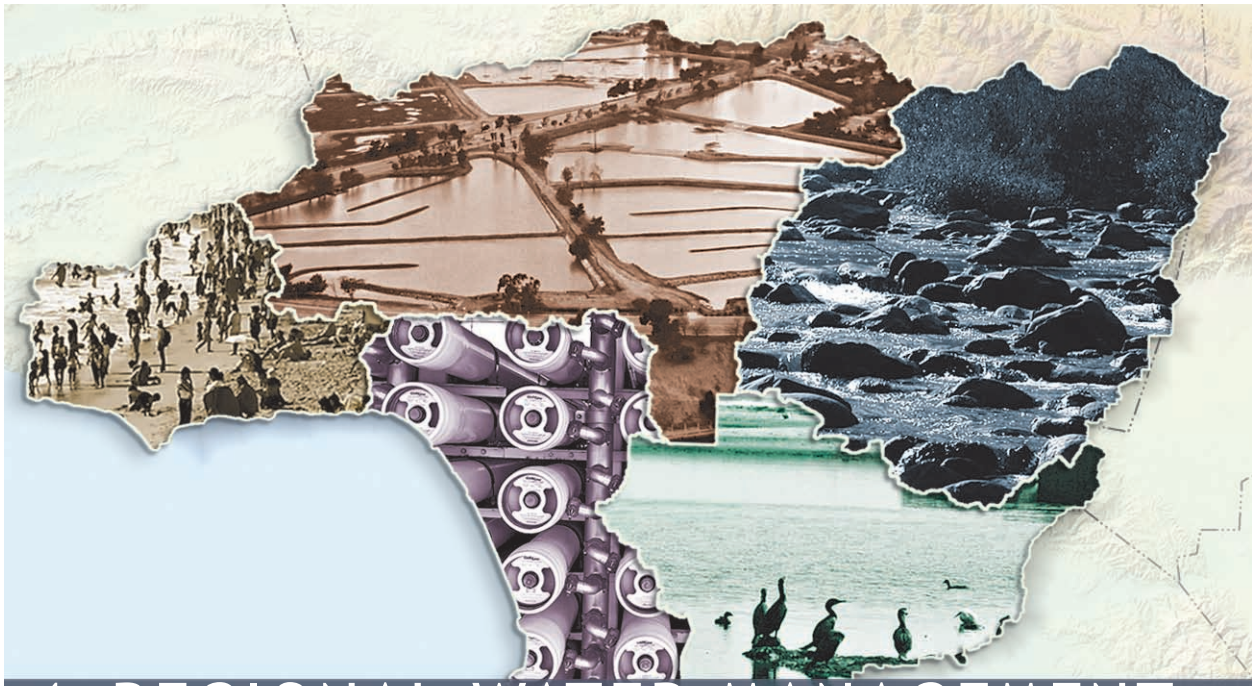
Although many agencies regularly plan for infrastructure repair and replacement, this target acknowledges the need for a systematic repair and replacement of the aging water resources infrastructure. As elements of the flood protection system warrant significant repair or replacement, consideration should be given to the implementation of integrated flood management systems.

3.4 Regional Priorities

Based on input and review by the Leadership Committee, review of recent plans, including UWMPs, Watershed Management Plans, and other Regional plans, and input from agencies and stakeholders, the following list of short-term (e.g., three years) and long-term (20 years) priorities have been identified for the Region. Refer to Figure 3-2.

Short Term Priorities	Long Term Priorities
■ Utilize a Regional and Subregional structure for development and implementation of the IRWMP. ■ Complete the Greater Los Angeles County IRWMP by January 1, 2007. ■ Articulate quantifiable planning targets for water supply, water quality, flood management, and open space/habitat. ■ Determine which water management strategies can contribute to meeting the identified objectives. ■ Identify projects that will meet the gap between existing projects and the Regional planning targets. ■ Maximize funding opportunities for project implementation from local, state and federal sources.	■ Maintain a Regional and Subregional structure to oversee plan implementation and assure continued stakeholder input. ■ Optimize use of recycled water, groundwater, desalination, and stormwater to enhance water supply reliability. ■ Reduce demand on imported water sources. ■ Protect groundwater supplies. ■ Improve surface water quality to meet applicable water quality regulations, including TMDL's. ■ Preserve open space, conserve and restore functional habitats, and protect special-status species.

Figure 3-2. Regional Priorities. The IRWMP Leadership Committee established short and long term priorities intended to guide implementation of the Plan and enhance water supply reliability.



4. REGIONAL WATER MANAGEMENT

The Region integrates a diverse mix of water management strategies

The public receives the benefit of more efficient use of limited fiscal resources through the coordination of water management strategies.

4.1 Introduction

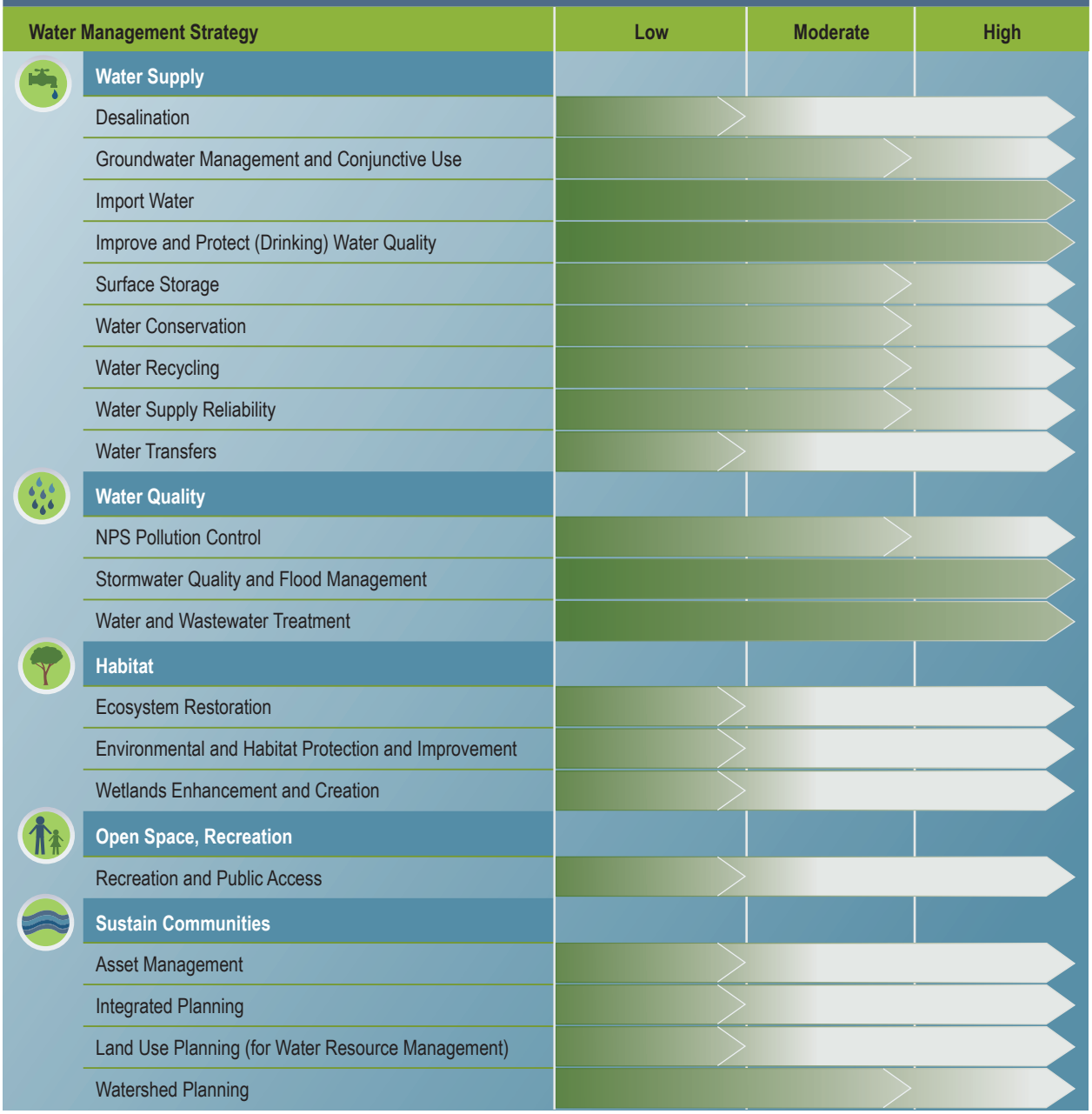
The purpose of this section is to describe the various water resource management strategies that are applicable in the Region and describe opportunities for integration of those strategies.

4.2 Water Management Strategies

The Integrated Regional Water Management Grant Program Guidelines (DWR, 2004) identify 20 water management strategies that may be utilized to enhance water supplies and improve water supply reliability, and specifies that eleven of those strategies must be discussed in an IRWMP. The following section describes the current and potential future applicability of the strategies identified in the guidelines, and two additional strategies (asset management and integrated planning) which the Leadership Committee determined were relevant to the Region. The identification of which water management strategies are included in this Plan is based on review of strategies, actions, and opportunities identified in the Metropolitan Water District's IRP, the UWMPs of Regional water wholesale districts, Common Ground, from the Mountains to the Sea (the watershed and open space plan for the Los Angeles and San Gabriel Rivers), and recent watershed plans on major creeks and tributaries.

As described below, all of the water management strategies identified in the Proposition 50 guidelines are currently being utilized in the management of water resources in the Region, although the relative utilization of these strategies varies. The relative application of each of these strategies on a Regional basis is summarized in Table 4-1, although there is substantial Subregional variation. In the Lower San Gabriel

Table 4-1. Current Application of Water Management Strategies in IRWMP Region



and Los Angeles River Watersheds, the strategies that are currently most prevalent are: Import Water, Improve and Protect Water Quality, Flood Management, and Water and Wastewater Treatment. In the North Santa Monica Bay Watersheds, the strategies that are currently most prevalent are: Ecosystem Restoration & Environmental and Habitat Protection & Improvement, NPS Pollution Control, Recreation & Public Access, Stormwater Quality Management, Water Conservation, Water Recycling, Watershed Planning. In the South Bay Watersheds, the strategies that are currently most prevalent are: Desalination, Water Conservation, Water Recycling, Water Supply Reliability, and Wetlands Enhancement and Creation. In the Upper Los Angeles River Watershed, the strategies that are currently most prevalent are: Import Water, Stormwater Management, Water and Wastewater Treatment, Water Recycling, and Watershed

Planning. In the Upper San Gabriel River and Rio Hondo Watersheds, the strategies that are currently most prevalent are: Groundwater Management/ Conjunctive Use and Water Conservation.

Based on the current application of the water management strategies in the Region, the following strategies are currently being implemented on a widespread basis: Flood Management, Import Water, Water and Wastewater Treatment, and Protect and Improve (Drinking) Water Quality. These strategies will continue to be implemented in the Region, although substantial expansion of the utilization of these strategies is not anticipated.

The following water management strategies are being implemented in the Region, but their application may not be widespread, and substantive opportunities exist for expanded integration of these strategies: Groundwater Management/ Conjunctive Use; Nonpoint Source (NPS) Pollution Control; Surface Storage; Water Conservation; Water Recycling; Watershed Planning; and Water Supply Reliability. However, opportunities for expansion of Surface Storage are limited.

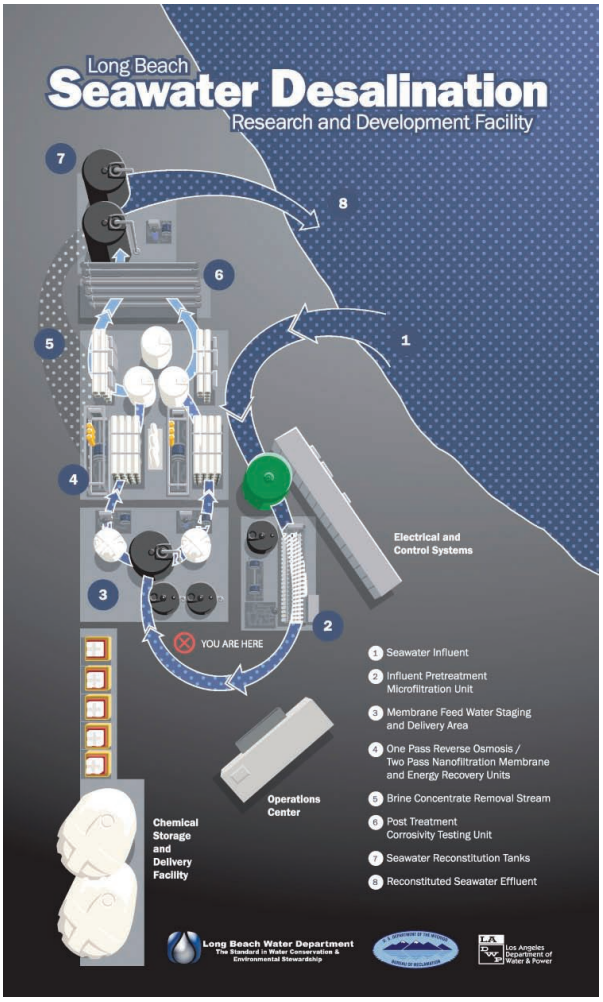
The following water management strategies are currently being implemented in the Region, but their application is relatively limited: Asset Management, Desalination; Ecosystem Restoration; Environmental & Habitat Protection & Improvement; Land Use Planning; Recreation and Public Access; Stormwater Quality Management; Water Transfers; and Wetlands Enhancement and Creation. Expanded utilization of these strategies could be implemented to enhance water supplies and improve water supply reliability.

For the purposes of this Plan, all 20 of the water management strategies identified in the Grant Program Guidelines are discussed in this Plan, although groundwater management and conjunctive use are combined as a single strategy below, some titles have been modified (e.g., "import water" instead of "imported water"), and two additional strategies are included (asset management and integrated planning).

Water Supply

Desalination

Brackish groundwater desalination (i.e., the removal of salts by forcing water through porous membranes) has been in practice in the Region for many years, in part due to financial incentives provided by the Metropolitan Water District. The Water Replenishment District of Southern California and the West Basin MWD operate brackish water desalters that produce significant water supplies from local groundwater sources.



The City of Long Beach Water Department has constructed the largest prototype seawater desalination research and development facility of its kind in the United States (300,000 gallon-per-day). Desalination will become a relevant water management asset as the costs of imported water increase and the impacts of desalination decrease with advances in technology.

Reverse Osmosis Membranes at West Basin Municipal Water District, Brewer Desalination Facility. Desalination of local brackish groundwater helps reduce the Region's dependence on imported water.

Until recently, seawater desalination has not been an economic alternative to conventional sources of water supply. As improvements in high-pressure reverse osmosis membrane technology have lowered operating pressure, the cost of producing drinking water from seawater has become more attractive. Considering the vast supply of seawater available to coastal Regions and the demand for "new" water, ocean desalination would appear a promising addition to the Region's water supply. Several water providers are currently examining the feasibility of desalinating seawater through pilot and demonstration scale projects.

In order to diversify the Regional water resource mix further, the Metropolitan Water District has developed a program to provide $250 per acre-feet for water produced from desalination and thereby defray the production cost, which is particularly sensitive to the cost of electrical power. Ongoing research to improve membrane efficiency may lower power costs and therefore the total cost of ocean desalination.

Challenges to the expanded use of desalination in the Region include the following: disposal of saline discharge water (or brine) which from inland locations; typically requires a pipeline and ocean outfall; environmental concerns about entrapment and entrainment of fish, fish larvae, and plankton by seawater intake structures; sensitivity of desalination facilities to the cost of electrical power, as much of the Region's power is currently generated by natural gas, which is subject to market-driven variations; and a need for new infrastructure to deliver water from ocean desalination facilities to more inland locations.

Figure 4-1. Local water suppliers operate brackish water desalters that produce significant water supplies from groundwater sources.

Opportunities for expanded use of desalination in the Region include expanded desalination of brackish groundwater and new ocean desalination facilities. New ocean desalination facilities include the 1,000 acre-feet/year dual pass nanofiltration plant at Haynes Generating Station, a joint effort by the City of Long Beach and the LADWP; LADWPs proposal for a 25,000 acre-feet/year reverse osmosis seawater desalination facility at the City's Scattergood Power Plant in El Segundo; and West Basin MWD's planned 20,000 acre-feet/year reverse osmosis seawater desalination plant at an adjacent El Segundo Power Plant (currently in pilot-scale testing).

Groundwater Management and Conjunctive Use

Groundwater represents a significant portion of local supplies in the Region, although the extent of impervious surfaces resulting from urban and suburban development has greatly curtailed natural recharge. In some basins expanded pumping has caused significant declines in groundwater levels, seawater intrusion, other water quality concerns, and limited the ability of producers to continue pumping from the basin without drilling deeper wells. As conditions deteriorated, and producers were not willing to settle on a compromise to reduce production and protect the groundwater basin, one of the appropriators in the basin would file a lawsuit against the other appropriators to adjudicate the groundwater basin and seek title to a portion of the water rights in the basin. Through engineering investigations, a safe yield is typically

established by a court and rights to the safe yield are allocated to the parties in the lawsuit. Given long-standing groundwater demand, very few basins remain unadjudicated in the Region.

Many overlying groundwater users in the Region use artificial recharge as a means of maintaining groundwater levels and production volumes. Artificial recharge can occur with either local water (e.g., surface runoff or storm events) or imported water. Spreading grounds are typically used to recharge local water whereas imported water recharge can occur through direct means using spreading grounds or injection wells or in-lieu means. In some instances, spreading is limited because of the capacity limitations of the spreading facilities rather than water supply. Recharge by in-lieu means does not require facilities. It simply requires that an agency suspend production from its wells and meet retail demand needs through deliveries of other supplies into its distribution system. Groundwater levels recover due to the reduction in pumping.

Groundwater basin water quality is a significant issue in the Region. Many factors have contributed to the deterioration of water quality in portions of certain groundwater basins including historic overdrafting resulting in seawater intrusion, industrial discharges, farming and agricultural chemical

Groundwater Management and Conjunctive Use Opportunities	
Increase native filtration	Expand advanced wastewater treatment
Increase recharge of recycled water supplies	Increase recharge of treated stormwater
Reduce impervious surfaces	Expand existing or construct new spreading facilities

Figure 4-2. Groundwater basin water quality is a significant issue in the Region as many factors that have contributed to the deterioration of water quality in the groundwater basins.

GROUNDWATER MANAGEMENT

San Gabriel Valley Water Company's Plant B6 in Baldwin Park

Figure 4-3. Groundwater Projects. The San Gabriel Basin Water Quality Authority has helped fund a complex network of groundwater remediation projects. Over one million residents rely primarily on these resources for potable supply.

San Gabriel Valley Water Company's Plant No. 8 treatment facility in South El Monte.

Spreading basins in the Arroyo Seco are used to percolate rain water into underlying aquifers.

usage, and naturally occurring constituents. The cost of treating these contaminants is significant. Additionally, effective treatment has not yet been identified for some chemicals and various agencies are currently testing different treatment technologies to identify the preferred treatment alternative.

Opportunities for the optimized use of groundwater basins in the Region include: a reduction in impervious surfaces to increase native infiltration; expansion of existing, or construction of new, conjunctive use facilities to spread or inject both local and imported water when available; expansion of existing, or development of new, projects to replenish local groundwater aquifers using recycled water; enhancement of seawater intrusion barrier facilities to increase their effectiveness; implementation of projects to recharge treated stormwater; and inter-basin transfers of recycled water. All of these opportunities for optimized use of groundwater basins should be used to maximize storage potential identified in Table 4-2; to the extent that institutional challenges can be overcome and cost-effectiveness can be demonstrated.

Import Water

The Region is heavily dependent on imported surface water for drinking water supply. The primary sources of imported water supplies are the SWP, the Colorado River, and the Mono Basin and Owens Valley. Although these sources have been instrumental in the growth of much of the Region, each of these sources faces various challenges and issues, including concerns about the higher salt content of some sources.

Table 4-2. Groundwater Management and Conjunctive Use

Basin	Additional Storage Potential (Acre-Feet)
Los Angeles Coastal Plain Basins	1,089,000
Raymond Basin	144,000
Six Basins	30,000
San Fernando Basins	150,000
San Gabriel Basin	400,000
Total	**1,813,000**

The Association of Groundwater Agencies has estimated that the groundwater basins underlying the Los Angeles IRWMP planning area have long-term storage potential of an additional 1,813,000 acre-feet. Water supply agencies are continually evaluating projects to make use of this efficient and reliable storage.

The California SWP is a system of reservoirs, pumps and aqueducts that carries water from north of the Sacramento area to areas north, west and south of the Sacramento-San Joaquin Delta. Although originally designed to deliver slightly more than 4 million acre-feet/year, as the system was never fully completed, it typically delivers less than designed. The decline of key fish populations in the Bay-Delta system (e.g., the Delta smelt) has limited the volume of water that can be pumped to the SWP. The potential impact of further declines in ecological indicators in the Bay-Delta system on SWP water deliveries is unclear. Additionally, uncertainty about the long-term stability of the levee system surrounding the Delta system raises concerns about the ability to transfer water via the Bay-Delta to the SWP.

The Colorado River Aqueduct delivers water from the Colorado River to Southern California. Metropolitan has traditionally received in excess of its entitlement when excess water is available. Future water allotments to California supplies from the Colorado River may be reduced as other states increase their diversions in accord with their authorized allotments. California's Colorado River Water Use Plan and the Quantification Settlement Agreement identify measures to increase the beneficial uses of the water and offset potential reductions in future deliveries to California.

The Los Angeles Aqueduct delivers high-quality water from the Mono Basin and Owens Valley to the City of Los Angeles. Approximately 480,000 acre-feet/year of water can be delivered to the City of Los Angeles, however the amount the aqueduct delivers varies from year to year due to fluctuating precipitation in the Sierra Nevada and mandatory in-stream flow requirements. In addition, the diversion of water from Mono Lake has been reduced by a decision of the SWRCB and export of water from the Owens Valley is limited by the Inyo-Los Angeles Long Term Water Agreement (and related MOU) and an additional MOU between the Great Basin Air Pollution Control District and the City

Figure 4-4. The Region is continually improving its ability to reduce its dependence on imported surface water for drinking water supply.

of Los Angeles (to reduce particulate matter air pollution from the Owens Lake bed). As a result of these restrictions, future deliveries are expected to be reduced to an average of 321,000 acre-feet/year over the next 20 years.

Thus, although imported water will continue to be an important component of the Region's water supply, as the major sources are fully allocated or have constraints on deliveries, it is unlikely that substantial new sources of imported water will be available to meet the Region's future needs.

Improve and Protect Water Quality

For the purposes of this Plan, the strategy to improve and protect water quality includes the quality of potable water, the quality of groundwater, and the quality of stormwater and urban runoff.

The USEPA requires all states to establish and implement a Source Water Assessment Program (SWAP) for all public water systems, as promulgated in the 1996 Amendments to the federal Safe Drinking Water Act. In California, the federal SWAP requirement is administered by the DHS (Health and Safety Code Chapter 4, Section 116270). DHS developed the Drinking Water Source Assessment and Protection (DWSAP) Program, to evaluate the vulnerability of water sources to contamination and prioritize activities for protective measures. Surface water used for local water supplies may be susceptible to potential contamination from a variety of land use practices, such as agricultural and urban runoff, recreational activities, residential and industrial development and wildland fires. The California DHS requires that water suppliers complete a Watershed Sanitary Survey every five years, to examine possible sources of drinking water contamination and recommend how to protect water quality at the source.

Protection of groundwater quality has historically been a local concern, most notably reflected by seawater intrusion along the coast. Los Angeles County operates and maintains three seawater intrusion barrier systems along the coast that rely upon recycled water and imported water to reduce the intrusion of saline water in underground aquifers. In recent decades, there has been a growing recognition that historical and current agricultural and industrial activities have the potential to adversely affect groundwater quality, which is reflected in expanded enforcement of other regulatory programs to implement clean-up of contaminants. Public water supply wells are also subject to the Wellhead Protection Program, which requires the identification of potential water quality threats (in close proximity to the wellhead) and measures to address the identified threats.

The protection of surface water quality (e.g., in the rivers, creeks, and storm drains) is regulated by the SWRCB and its RWQCBs, via the applicable Basin Plan, which identifies surface and groundwater bodies, designates applicable beneficial use classifications to each water body, establishes general and water body-specific water quality objectives; and suggests an implementation plan for main-

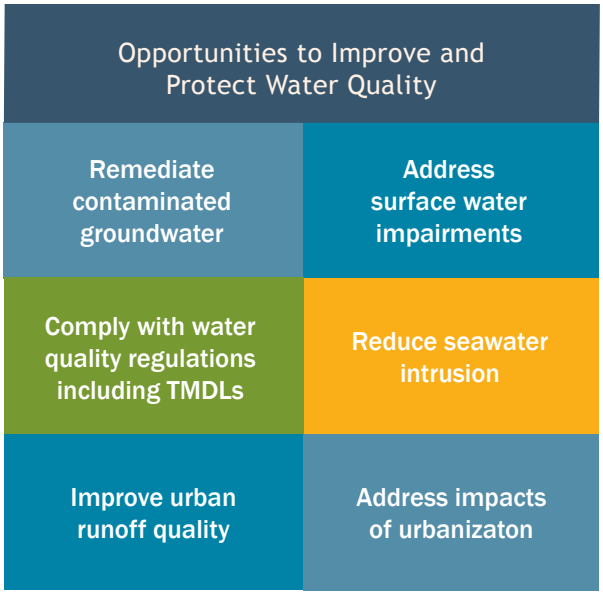


Figure 4-5. For the purpose of this Plan, the strategy to improve and protect water quality includes the quality of potable water, groundwater, and stormwater/urban runoff.

taining or restoring the water quality objectives. The RWQCBs utilize NPDES permits and Waste Discharge Requirements to limit the discharge of contaminants and protect surface water quality.

Constraints to the implementation of water quality protection and improvement programs and projects include the extent of urbanization, pressure for development within the foothills and adjacent mountains, contamination of soils from previous land uses, and importation of water, which contributes to salt management issues.

Opportunities for the expansion of water quality protection and improvement programs and projects include: SDWA projects; and programs to remediate groundwater contamination; and address surface water impairments through the establishment and implementation of TMDLs and public education to reduce point and non-point source pollutants.

Surface Storage

As the water supply in the Region is heavily dependent on imported surface water, various surface reservoirs (managed by Metropolitan Water District and the SWP) located outside the Region are used to facilitate water delivery to various local water agencies. Several smaller reservoirs have been developed within the Region to assist in the management of local water supplies. However, most of these reservoirs are limited in their ability to capture local runoff. Most of the remaining dams in the Region have been developed for flood management purposes and are not used for long term surface storage.

Surface Storage Opportunities	
Increase water storage capability	Improve management of water flows
Increase operational flexibility of local reservoirs, canals and dams	Surface impoundments for recycled water and treated stormwater runoff

Figure 4-6. LACFCD oversees several surface water storage facilities, which were created to improve flood protection and store runoff for subsequent release and diversion to groundwater spreading grounds for recharge.

Los Angeles County Flood Control District operates inflatable dams on the San Gabriel River to promote short-term in stream recharge.

LACFCD oversees several surface water storage facilities, which were created to improve flood protection and store runoff for subsequent release and diversion to groundwater spreading grounds for recharge. These include dams for short-term storage, and in-stream rubber dams to promote short-term instream recharge. Las Virgenes MWD purchases pretreated water from Metropolitan and stores it in the Las Virgenes Reservoir in the City of Westlake Village. The reservoir also provides seasonal water storage allowing Las Virgenes MWD to purchase supplies off-season and deliver at times of peak demand to meet high summer irrigation needs. The in-city water distribution systems of the City of Los Angeles once included 15 open distribution reservoirs. Due to concerns from DHS about open water storage, nine reservoirs have been bypassed, replaced, or covered.

Constraints on the development of additional surface storage in the Region include: the lack of suitable sites for surface impoundments, since most of the mountainous areas are protected open space; constraints on open reservoirs to reduce potential contaminants; and the cost of developing new reservoirs.

Opportunities to enhance surface storage include: modification of local reservoirs, canals, and dams to increase storage capability and operational flex-

ibility; installation of additional in-channel rubber dams to improve management of flows; creation of new surface impoundments for recycled water and/or treated stormwater runoff; and the development of unused resource extraction sites (e.g., gravel pits) as surface impoundments. It should be noted that gravel pits are privately-owned industrial sites and any use other than the owner's intended use would be subject to approval by the owner.

Water Conservation

Water conservation is a critical water resource management strategy for the Region. The strong reliance on imported water and the inherent variability in both imported and local supplies has spurred efforts throughout the Region to minimize the use of water where possible through water efficiency measures. Conservation is an element in drought planning as well as an ongoing strategy to ensure long term availability of local supplies in the face of additional demand generated by population growth.

Given the substantial progress already made by local agencies, further expansion of water conservation will need to incorporate economic incentives and new technology and in some instances, change public perceptions (e.g., about the desirability of sub-tropical landscaping in a semi-arid climate). Conservation techniques must offer the consumer opportunities to save money as well as save water. In some cases—such as subsidies to change out older, water-using appliances such as washing machines and toilets—the subsidizing agency can reduce demand as an alternative to building infrastructure. The expanded utilization of California friendly landscaping may also benefit from economic incentives such as rebates or land use ordinances established by the cities or counties. Newer technologies, such as irrigation controllers that use current weather information to modify irrigation patterns, have worked well in commercial applications, but have proven to be expensive for homeowners without the use of rebates. As this technology evolves, it is anticipated that such controllers will become more widespread, facilitated by agency programs for free or reduced cost distribution of the units. Care must be taken in projecting potential conservation savings to account for hospitals, restaurants and other applications where specific, high-water use protocols have been established to protect the public's health.

The Madrona Marsh Nature Center's Nature Plan garden in the city of Torrance. Garden showcases native and drought tolerant plants that can provide attractive alternatives to traditional Southern California landscaping.

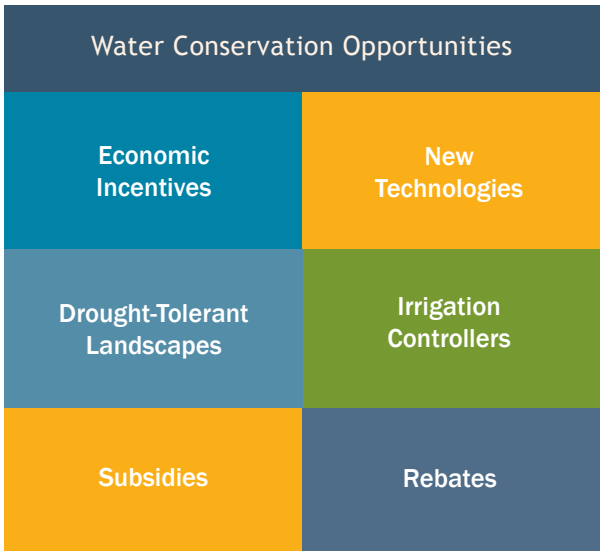


Figure 4-7. Strong reliance on imported water and the inherent variability in both imported and local supplies has spurred efforts throughout the Region to minimize the use of water where possible through water efficiency measures.

Since the drought of 1987-1992, conservation efforts have stepped up significantly within the Region. Most local agencies have adopted specific goals for water conservation which suggests that additional conservation is still feasible. The

California Urban Water Conservation Council has established a set of 14 BMPs for water conservation, although not all agencies in the Region are signatories to a MOU to implement these BMPs. Water conservation also has the potential to produce corollary benefits, as reduced water consumption in homes and business reduce the volume of wastewater discharge that must be treated, and improved irrigation techniques can reduce irrigation runoff and thereby improve surface water quality.

Opportunities to expand water conservation generally fall into two categories – active and code-based. Active conservation comes from programs offering things such as rebates, device installation, and plumbing retrofit. Although many agencies have ongoing programs, expanding active conservation can be directly influenced by water agencies. Expansion of code-based conservation can occur either through local ordinances or new State laws that require either certain water conservation actions or penalize the theft or waste of water. In addition, local water agencies could develop water conservation master plans (such as those recently completed by the Central and West Basin MWDs), to coordinate and prioritize conservation efforts and identify enforcement protocols.

Water Recycling

Recycled (or reclaimed) water will become an ever more important source of water in the Region primarily for non-direct potable uses, but also for displacing the need for "new" potable water. Several agencies currently produce more recycled water than is currently being reused within their systems; other agencies are leveraging the economic and environmental benefits of this water source. The cost of developing needed infrastructure (storage facilities, pump stations, and distribution lines) to distribute recycled water has limited the use of recycled water in some areas. Some agencies, including the Metropolitan Water District and the U.S. Bureau of Reclamation, provide grant funding for such facilities. As the cost of "new" water increases due to market forces, recycled water will become increasingly economically and environmentally desirable.

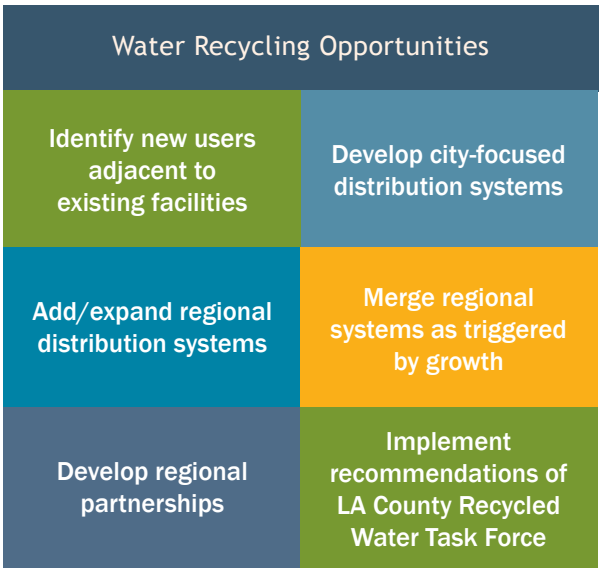


Figure 4-8 As the cost of "new" water increases because of market forces, reclaimed water will become an increasingly economic and environmental choice.

Current recycled water annual average flows (including both tertiary and advanced treated water) total approximately 225 mgd, which represents approximately 25 percent of the current secondary treated effluent annual average flows. Of these 225 mgd, approximately 105 mgd are currently reused for municipal and industrial applications, environmental uses, groundwater replenishment, or seawater barrier. The reused flows represent approximately 45 percent of the available recycled water flows. The rest of the recycled water flows are currently discharged to local streams and rivers, which may dilute the concentration of some pollutants.

Key challenges for the use of recycled water in the Region include: identification of new projects for large recycled water users in the close vicinity of wastewater treatment plants that expand demand for recycled water; disposal of advanced treatment waste products (e.g., brine); seasonal variations in recycled water demand for irrigation; cost-effectiveness of building additional infrastructure (storage facilities due to seasonal variations in demand, pump stations, distribution lines, and purple pipe); water quality treatment requirements; regulatory trends (which suggest increasingly stringent wastewater discharge standards); requirements to maintain minimum in-stream flows; proximity of reclaimed water production to area of demand; and

Figure 4-9. Water Recycling. Recycled/reclaimed water currently provides 120,000 acre-feet/year to the Region. Recycled water will become an increasingly important water source for the Region.

political/public support. In addition, one constraint on LACSDs recycling program is their inability to serve the recycled water due to restrictions imposed by the Service Duplication Act. The State's Recycled Water Task Force suggested various regulatory changes, research needs, and increased funding to overcome many of these obstacles.

Opportunities to expand recycled water use could be based on incremental approach to recycled water distribution networks, which could include: encourage large recycled water users in the close vicinity of wastewater treatment plants to develop projects that use recycled water; development of City-focused distribution systems; add and/or expand Regional distribution systems; merge Regional systems as triggered by growth; and develop groundwater recharge and seawater intrusion projects (although these could implemented at any time during the life of a recycled water program).

Additionally, development of Regional partnerships and projects could be pursued, such as those as identified in the Southern California Comprehensive Water Reclamation and Reuse Study (which identified proposals for several Regional projects within the Calleguas/Las Virgenes, East San Gabriel, West Basin, and Central Basin areas).

The newly created Los Angeles County Recycled Water Task Force will look at the issues of recycled water and report back to the Board of Supervisors with policy recommendations on how the County can advance the use of recycled water for non potable purposes.

Water Supply Reliability

The availability of imported water in southern California, beginning with the LADWPs system from the Owens Valley and later continuing with Metropolitan's Colorado River Aqueduct and partnership in the California SWP allowed many agencies throughout the Region to shift their reliance to imported water and away from local supplies. Increasing costs for imported water, concerns about the health of the Bay-Delta ecosystem, enlightened environmental attitudes in areas where imported water originates, and increasing competition for potable water resources, has resulted in a rekindling of interest in local resources. In some cases, new reservoir storage, expansion of groundwater recharge basins, or the implementation of conjunctive groundwater projects, have

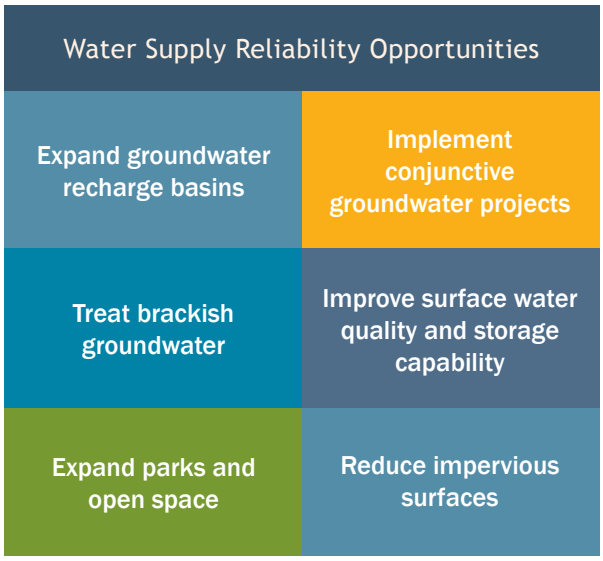


Figure 4-10. Increasing competition for potable water resources, has resulted in a rekindling of interest in local resources.

all been developed to take advantage of surplus imported water (water not required to satisfy immediate consumptive demand). These measures can decrease reliance on imported water and improve local water supply reliability during periods of drought.

Pumping and treating brackish groundwater can expand local supplies and create opportunities to enhance water supply reliability by removing and replacing the brackish water with higher quality water. This could be accomplished through well injection operations (to replace the removed brackish water with fresh or treated water) or expanded groundwater spreading operations to recharge surplus runoff or imported water. Such operations must be carefully designed, to avoid adversely affecting the quality of the injected or recharged water.

Urban growth displaces open space and increases impervious surfaces, thereby reducing natural recharge of precipitation. The channelization of streams, particularly when the channel bottom becomes impervious, reduces natural percolation of streamflow into underlying soils. Thus, the preservation of open space, particularly in those areas that directly recharge aquifers used for water supply, and the preservation of natural stream channels, preserves groundwater recharge in many areas, and thus contributes to the long-term reliability of existing groundwater supplies. The creation of new parkland, which may reduce impervious surfaces (e.g., via removal of existing development) may also reduce runoff and enhance groundwater recharge. The creation of new habitat, such as wetlands, can improve groundwater recharge by increasing retention of runoff.

Constraints to the improvement of water supply reliability include the limited availability of undeveloped land for the expansion of recharge facilities or creation of constructed wetlands and the limited ability to recharge groundwater across large portions of the coastal plain due limited permeability in soils with high clay content.

Opportunities to improve water supply reliability include: the expansion of groundwater recharge basins; the implementation of conjunctive groundwater projects; and the development of natural treatment systems, such as constructed wetlands, to improve both surface water quality and storage capability.

Water Transfers

Prior to 1991, water transfers within the Region had mostly been limited to transfers of annual groundwater basin rights (which continue to occur, although conditions imposed by groundwater basin adjudication sometimes restrict export of groundwater outside the basin's boundaries), and transfers water to enhance operational flexibility. Additionally, the Metropolitan Water District's

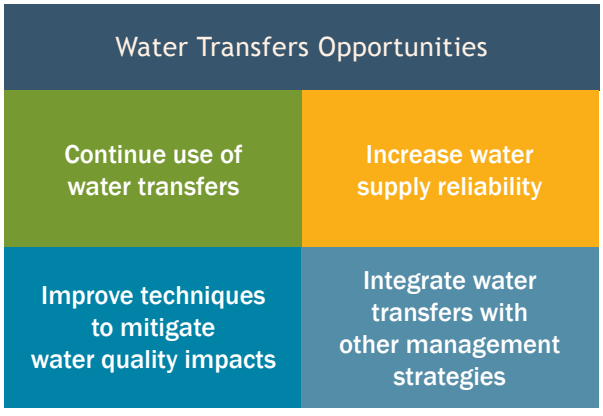


Figure 4-11. Historically, water transfers were arrangements between two parties; one with surplus water supply, and one in need of additional water.

transmission facilities have not been used to transfer local water from one agency to another mainly because of water quality issues and potential downstream impacts. Lastly, regulations limit mixing of different source waters in transmission lines used for potable water, which sometimes imposes restrictions on the movement of water.

With the 1991 drought, the Governor's Water Bank was developed. Metropolitan Water District and other SWP contractor's took advantage of that resource to augment supplies and lessen the severity of the impacts of the drought. Since that time, Metropolitan has participated in water transfers as a water management strategy to augment supplies. The City of Los Angeles plans to develop water transfers as part of its supply strategy rather than purchasing water from Metropolitan during dry years. Should the costs of purchasing and wheeling transfer water from outside the Region be lower than purchasing Metropolitan water, other agencies would likely be interested in such a supply strategy.

Constraints to the use of water transfers within the Region include institutional constraints related to the wheeling (or transfer) of water, which may affect various transmission elements, and the limitation on using Metropolitan facilities because of potential water quality impacts to downstream users.

The Santa Monica Urban Runoff Recycling Facility collects, treats, and reuses approximately 500,000 gallons per day of urban runoff.

Water Quality

Nonpoint Source Pollution Control

To conform to the requirements of the federal Clean Water Act and the federal Coastal Zone Act Reauthorization Amendments of 1990, the State of California has developed the NPS Program Strategy and Implementation Plan (1998–2013) which identified actions to reduce nonpoint pollution, and a companion volume, the California Management Measures for Polluted Runoff Review Document, identifies a range of management measures for agriculture, forestry, urban areas, marinas and recreational boating, hydro-modification (including modification of stream channels, water impoundments, and stream bank erosion), and wetlands, riparian areas and vegetated treatment systems. Additional information on sources of nonpoint pollution and measures to reduce and/or treat polluted runoff is provided in the California NPS Encyclopedia, developed by the SWRCB.

To reduce stormwater pollution the RWQCBs have issued stormwater and urban runoff NPDES permits which regulate the discharge of runoff from municipal storm sewer systems (MS4s), otherwise known as storm drains. These permits

Caltrans has a succesful program to reduce pollutants from freeway stormwater runoff. Their research is ongoing in the Los Angeles Basin.

prohibit non-stormwater discharges into the storm drain system, limit discharges to receiving waters that would cause or contribute to a violation of water quality standards, and require implementation of a Stormwater Quality Management Program (SQMP) that includes the use of BMPs to reduce the discharge of pollutants identified. Within most of Los Angeles County, the SQMP has seven programs, including:

- The Industrial/Commercial Facilities Control Program, covers industrial and commercial facilities, including restaurants, automobile service facilities, retail gasoline outlets, automobile dealerships and other federally-mandated facilities;
- The Development Planning Program, requires implementation of post-construction BMPs and site-specific mitigation measures for commercial developments on sites one acre or greater in impervious area, automotive repair shops, retail gasoline outlets, restaurants, residential development with ten or more dwelling units, parking lots with 25 or more spaces (or are greater than 5,000 square feet in area), single-family hillside residences, and locations within, or directly adjacent, or discharging to, environmentally sensitive areas;
- The Development Construction Program, requires control of erosion and the prevention of runoff from construction sites, the containment of construction materials, equipment fuel, maintenance and washing fluids through a combination of BMPs, inspections, and for projects over one acre in area, preparation of a Stormwater Pollution Prevention Program, per the Construction Activities Stormwater General Permit (Order No. 99-08-DWQ);
- The Illicit Connections and Illicit Discharges Elimination Program, which requires the County and the cities to identify and investigate illicit discharges, resolve undocumented connections to the storm drain system, and take enforcement action;
- The Public Agency Activities Program, consists of maintenance, inspection, and response to minimize stormwater impacts from public agency activities;
- The Public Information and Participation Program, requires measures to increase awareness, change behavior, and involve the public in mitigating the impacts of stormwater pollution; and
- The Countywide Monitoring Program, requires measures to assess receiving water impacts, identification of sources of pollution, evaluation of BMPs, and measure of long-term trends in mass emissions.

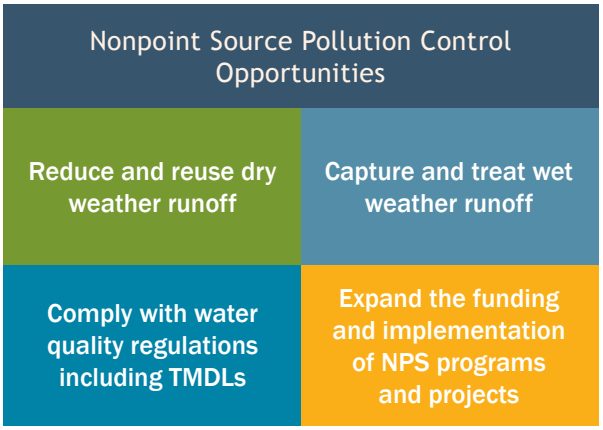


Figure 4-12. Improvement of stormwater runoff quality will lead to an increase in the availability of local non-potable water supplies.

In response to the identification of water quality impairments (via the 303(d) list), the RWQCBs have begun to establish TMDLs for contaminants including trash, metals, organic compounds, nutrients, and bacteria. Given the pervasive nature of some contaminants, development of implementation plans for some TMDLs may need to include measures to address NPS pollutants. In addition, the discharge of dry-weather runoff is prohibited in a portion of the North Santa Monica Bay as an ASBS (described in Section 2, Regional Description), which may require specific measures to address NPS pollutants in upland areas draining to the ASBS.

Constraints to the implementation of NPS pollution control programs and projects include: the substantial portion of the Region that has been subject to urban and suburban development; the pervasive nature of surface water contaminants; and the need for widespread individual action for some aspects of NPS pollution control.

Opportunities include the continued implementation of existing programs in accordance with

NPDES permits and establishment and implementation of TMDLs, which may expand funding and implementation of NPS programs and projects.

Stormwater Quality and Flood Management

Historically, the management of stormwater has been viewed either as an element of flood management, or as a means to augment water supply, via the managed transfer of runoff from river or stream channels into groundwater recharge basins (discussed above in groundwater management). However, that component of stormwater that is not already used for groundwater recharge (and is therefore discharged via the flood control network to the ocean), is a potential candidate for capture and treatment, to improve surface water quality in the rivers and other bodies of water, and to further augment local water supplies.

Given the extent of urbanization in the Region (with approximately 54 percent developed), runoff quality has been notably degraded in most of the rivers and tributaries. The capture (and subsequent treatment) of stormwater, as a structural solution to surface water quality impairments, could be implemented as one element of a comprehensive surface water quality improvement program.

In some locations, historical concerns about the quality of stormwater runoff have limited the willingness of water supply agencies to consider recharge of stormwater from urbanized areas. To address these concerns, the Los Angeles and San Gabriel Rivers Watershed Council is conducting the Water Augmentation Study, a long-term research project to explore the potential for increasing local water supplies and reducing urban runoff pollution by increasing the infiltration of stormwater runoff. The project began in January 2000 to assess the viability of adding these stormwater resources to local water supplies, in terms of groundwater quality and quantity. The Phase II Final Report (LASGRWC, 2005) provides encouraging results which suggest that migration of pollutants is not occurring at the six sites being monitored. The City of Los Angeles' IRP for the Wastewater Program has identified the potential to direct dry-weather flows to wastewater treatment plants for treatment, and subsequent reuse as recycled water.

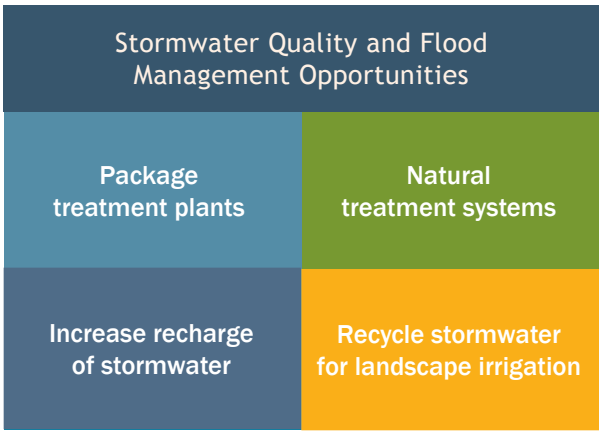


Figure 4-13. Stormwater currently lost to the ocean is a potential candidate for capture treatment, recharge, and reuse.

Challenges to the expansion of stormwater capture and management include: the need to maintain flood protection for any potential modification of storm drain systems that would expand or enhance capture of stormwater in detention basins, cisterns, or recharge basins; concerns about the potential for contaminants in stormwater to migrate to groundwater; limited land availability, which limits options for development of structures to capture and manage stormwater; and short duration/high intensity storm events which make storage difficult.

Opportunities for expansion of stormwater capture and management include development of local and regional facilities to capture and treat urban runoff and stormwater as part of a TMDL compliance strategy. This could include package treatment plants to remove contaminants, filtration systems, or natural treatment systems such as constructed wetlands. Water cleansed by such facilities could either be recharged to groundwater, or stored for delivery to local uses, such as landscape irrigation.

Flood management in the Region is the responsibility of the LACFCD, the Orange County Flood Control District, the Ventura County Flood Control District, the U.S. Army Corps of Engineers, and cities in the Region. The LACFCD was formed in 1915 in response to a devastating flood in 1914, the Orange County Flood Control District was formed in 1927, and the Ventura County Flood Control District was formed in 1944. In 1936, federal legislation gave specific

flood protection duties to the U.S. Army Corps of Engineers.

Flood management measures in the Region began in earnest in the 1920s, but the major elements of the current system were developed beginning in the 1930s. The current flood management system generally consists of concrete river and stream channels designed to expedite flow, dams and reservoirs on the rivers to regulate flow, debris basins on streams to capture sediment washed down from the mountains, and hundreds of miles of channels to direct flow into spreading basins, the rivers, or directly to the ocean. Flood management measures are less developed in those portions of the Region within the Santa Monica and San Gabriel Mountains, where most streams are in their natural state, except for dams on the San Gabriel River, Malibu Creek, and several major tributary streams.

Despite the extensive network of flood management structures and channels, the counties track areas throughout the Region where flooding or drainage problems persist. Information is reported by the cities, through individual complaints, or directly to each county in unincorporated areas. Un-met drainage needs have been identified throughout the Region, but mostly in localized urban areas. If the situation requires a new drainage structure, the cities and the counties, sometimes in conjunction with the U.S. Army Corps of Engineers, will study the best solution. The recently completed Los Angeles County Drainage Area project, which enhanced flood protection on the lower Los Angeles River, is an example.

Constraints to the expansion of flood management programs include: limited funding, the lack of undeveloped land within the urbanized portions of the Region which could be used for flood management improvements, and steep slopes within the local mountains, which combined with the potential for heavy rains, can result in substantial soil erosion or debris flows which may affect the capacity at downstream drainage facilities.

Opportunities to enhance flood management include the Sun Valley Watershed Plan, which addresses an area of chronic flooding with alternative approaches to construction of a flood conveyance channel through the use of gravel pits and underground drains below parkland to infiltrate runoff and thereby enhance groundwater recharge. If successful, the Sun Valley Plan can serve as a model for future localized flood management improvements. Flood attenuation to reduce peak flood flows, via expanded on-site infiltration and increased upstream storage, represents an opportunity to enhance the potential for river channel modifications, such as those proposed in the Los Angeles River Revitalization Master Plan.

Water and Wastewater Treatment

As noted above, the principle sources of water supply in the Region are imported water and groundwater, with recycled and surface water providing small amounts. Thus, the majority of water utilized in the watersheds is potable water which must meet drinking water standards. The federal Safe Drinking Water Act, passed by Congress in 1974, requires the USEPA to develop drinking water standards that must be implemented nationwide. In California, EPA has delegated implementation of drinking water regulations to the state. The California DHS has responsibility to protect the quality of drinking water, in accord with California's Drinking Water Source Assessment and Protection Programs, that were developed in response to the 1995 reauthorization of the Federal Clean Water Act. Drinking water standards for the State of California are specified in the Health and Safety Code (Division 20, Chapter 6.75, Sections 25299.57 to 25299.99.3, and Division 104, Part 12, Sections 116270-117130). Responsibility for

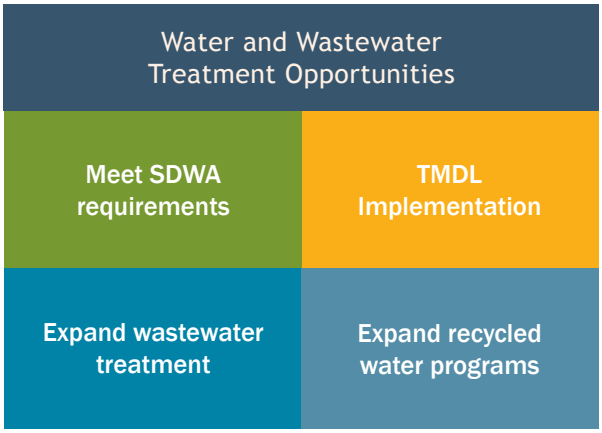


Figure 4-14. The majority of water utilized in the Region's watersheds is potable water which must meet drinking water standards.

treatment of potable water supplies rests with the approximately 120 retail water agencies and districts in the Region. Compliance with SDWA rules may require improvements to potable water supply treatment facilities, reduce disinfection by-products, and reduce inflow of surface runoff to surface impoundments. Considerable uncertainty exists over the timing and extent of possible future requirements related to contaminants which are not currently regulated, such as endocrine-disrupting compounds, pharmaceuticals, and components of common household products, such as shampoo, which have been detected in various source waters.

The treatment of wastewater in the Region is governed by provisions of the federal Clean Water Act, the California Porter-Cologne Water Quality Control Act, the California Toxics Rule, the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, the Water Quality Control Plan for the Los Angeles Region (and Santa Ana Region), NDPES discharge permits, and individual Waste Discharge Requirements for wastewater treatment plants established by the RWQCBs. Wastewater treatment services within the Region are currently provided by:

- County Sanitation Districts of Los Angeles County;
- Orange County Sanitation Districts;
- City of Los Angeles Department of Public Works, Bureau of Sanitation;
- The Las Virgenes MWD (under a joint partnership with Triunfo Sanitation District);
- The City of Burbank; and
- The Los Angeles County Department of Public Works.

In addition, various other entities operate small treatment facilities (e.g., less than 0.2 mgd) or onsite package plants.

Constraints to the expansion of water and wastewater treatment programs include: antidegradation issues; land constraints; uncertainty over pending regulatory developments; and the cost of implementation.

Opportunities to expand water treatment include projects designed to meet SDWA requirements, and projects and programs for TMDL implementation. Opportunities to expand wastewater treatment include the Malibu Civic Center Wastewater Reclamation Facility and expansion of recycled water programs.

Malibu Lagoon has suffered the negative impacts of human activity. Completely filled in at one point to create ballparks, work has continued since 1983 to restore the natural ecosystem and associated water quality benefits.

Habitat

Ecosystem Restoration

Despite their exceptional importance and value many of the Region's inland, riverine, and coastal ecosystems have suffered from over a hundred years of human impacts—development activities that have destroyed or degraded many ecosystems. Rivers, streams, and wetlands have been diked, ditched, and filled. Dams and flood control channels have been built to contain and direct waterways; fundamentally altering the natural processes that created, preserved, and restored these systems. Much of the historic coastal dunes, woodlands, wetlands, grasslands, scrub communities, and

Rocky tidal pool in Paradise Cove along the Malibu coastline.

estuary ecosystems have succumbed to development or been degraded by declines in water quality and ecosystem functionality.

In recent decades, technologies have emerged to restore function and productivity to degraded or destroyed ecosystems. Scientists, engineers, and community groups have begun working with federal, state, and local governments to restore ecosystem function to the Region's native ecosystems. The fundamental goal of ecosystem restoration is to return the selected ecosystem to a condition that resembles its natural pre-disturbance state as closely as possible. Achievement of this goal entails restoration of the target ecosystem's structure and function both locally and within its broader landscape or watershed context.

Restored ecosystems result in physical, chemical, and biological changes to both the specific system, and the areas that it influences. The benefits of ecosystem restoration are difficult to quantify, but, depending upon the type of ecosystem restored (e.g., aquatic vs. terrestrial), they can include capturing and storing stormwater, groundwater recharge, flood protection, increasing water supply reliability, wildlife habitat creation and enhancement, water quality enhancement, flood control, and recreation. Economic benefits can also be realized through increased property values and the reduced cost of water quality enhancement compared to conventional wastewater and stormwater treatment systems.

To achieve long-term success, ecosystem restoration needs to address the causes and not just the symptoms of ecological disturbance. Sometimes these causes are obvious; sometimes they are subtle and far removed in space and time from the ecological damage, as is the case in many southern California coastal wetlands. Most watersheds that drain into the Region's coastal wetlands were hydrologically modified as a result of urbanization and flood protection measures. Runoff quantities and velocities were increased by the straightened, more efficient drainage systems reduced deposition of sediments on the floodplain and increased the movement of sediments (and pollutants) downstream. These materials entered the coastal wetlands, estuaries and bays, causing water quality problems that fundamentally changed how many of these ecosystems functioned.

These large-scale cause-and-effect relationships pose major constraints to ecosystem restoration such as; the scale of the impact, the cost of both restoration and maintenance, and the magnitude and potentially permanent nature of the environmental changes that resulted in the loss of many ecosystem functions. In addition, although human activities in the watershed have substantially altered many ecological processes, some of these activities provide important public benefits (e.g., flood protection and water supply). Ecosystem restoration therefore must balance the need to provide high quality environments that fulfill the needs of plant and animal communities with preservation of

Ballona wetlands in Marina Del Rey. The Region has lost more than 90 percent of its historic wetlands. The last remaining 600 acres of the Ballona wetlands are in the planning stages of restoration.

the functions provided by human modifications to such ecosystems.

Opportunities for ecosystem restoration in the Region include as examples: the Los Angeles and San Gabriel River Master Plans, the Los Angeles River Revitalization Master Plan; the DeForest-Dominguez Wetlands Restoration Preliminary Plan; the Hazard Park Wetlands Restoration; Devil's Dip Creek Restoration and Daylighting; Topanga Creek Restoration Program; Malibu Creek and Tributary Restoration, Las Flores Creek Restoration; Solstice Creek Restoration, Arroyo Sequit Restoration, Whittier Narrows Nature Center Ecosystem Restoration; Malibu Lagoon Habitat Enhancement Program; Ballona Creek Ecosystem Restoration Project; Hydrodynamic Study for the Restoration of the Tujunga Wash; Taylor Yard Multi-Objective Feasibility Study, the Limekiln Canyon Stream Restoration and Habitat Improvement Project, Puente Chino Hills Wildlife Corridor, and the Los Cerritos Wetlands Restoration.

Environmental and Habitat Protection and Improvement

Risks to the environment and upland and riparian habitat in the Region include urbanization and the loss of green space, invasive species, hydrological alterations, channel hardening, incompatible land uses, habitat fragmentation, and other common problems associated with urbanization and pollution. The results of riparian and aquatic habitat degradation can lead to increased erosion of banks and channels; diminished water quality for wildlife and domestic use; loss of habitat for wildlife; alteration in flood protection; loss of aquatic and terrestrial productivity and health; and loss of recreational, educational, and aesthetic values. For some surface water bodies, water quality impairments include increases of both non-toxic elements such as sediment, nutrients, and water temperature, as well as toxic contaminants such as pesticides, bacteria, and heavy metals. Degraded water quality requires substantial treatment to remove the pollutants that may potentially affect fish and wildlife habitat quality, and limits recreational use of southern California beaches, bays, and lagoons.

In addition, the loss of habitat throughout the coastal watersheds has aggravated water supply and reliability problems since riparian vegetation, wetlands, and surrounding uplands can act to slow and retain stormwater flows and allow the water to recharge groundwater.

The long-term restoration, improvement, and protection of the Region's riparian and aquatic habitat and environment would alleviate or eliminate the water quality, water supply and biological impacts of environmental degradation. Because many of the issues involved in environmental and habitat protection and improvement cut across traditional political and organizational boundaries success will only be accomplished through cooperative planning efforts like the IRWMP that include non-governmental organizations, private landowners, industry, and state and federal government.

The potential for aquatic and riparian restoration is limited by extensive development in the Region, as well as by geologic and topographic constraints. Restoration in such a heavily urbanized Region is hindered because the physical and hydrological landscape has been irreversibly altered in so many locations that it may be impossible to re-establish historic conditions. Hydrologic and land use changes in the watersheds also continue to impact stream corridors and downstream aquatic habitats and many created habitats that were designed

Figure 4-15. Multiple agencies in the Greater Los Angeles Region are collaborating across organizational boundaries to develop long-term solutions to historical environmental degradation.

to mitigate for losses from development seldom perform the same ecological functions as those that were removed.

Opportunities for restoration, improvement, and protection of the Region's riparian and aquatic habitat include the following examples: Las Virgenes Creek Naturalization and Restoration, Restoration of Southern Steelhead Habitat in Solstice Creek, Triunfo Creek Riparian Enhancement, Hahamongna Watershed Park Habitat Restoration and BMP Implementation; the Flint Wash Restoration; the Central Arroyo Park Habitat Restoration and BMP Implementation; the Lower Arroyo Park Habitat Restoration and BMP Implementation; the San Rafael Creek Restoration; Santa Fe Dam Recreation Area and Habitat Enhancements; Rio Hondo Vision Plan (Emerald Necklace Concept); Wilmington Drain Restoration Multiuse Project; Machado Lake Improvements; Stone Canyon Creek Restoration; the Long Beach RiverLink; the Sepulveda Basin Habitat Enhancement; and the Arroyo Seco Watershed Feasibility Study.

Wetlands Enhancement and Creation

The Region has lost more than 90 percent of its historic wetlands. Those remaining are threatened by development, changes in hydrology, invasive species, and poor water quality. The results of degradation of remaining wetlands and the associated environment can lead to increased erosion of banks and channels; diminished water quality for wildlife and domestic use; loss of ecosystem function, loss of habitat for wildlife; alteration in flood protection; loss of aquatic and terrestrial productivity and health; and loss of recreational, educational, and aesthetic values. Water quality impairments include increases of both non-toxic elements such as sediment, nutrients, and water temperature, as well as toxic contaminants such as pesticides, bacteria, and heavy metals. The degraded water quality requires substantial treatment to remove the pollutants which may affect aquatic and terrestrial habitat quality and function, and limits recreational use of beaches, bays, and lagoons. In addition, the loss of wetlands throughout the coastal watersheds has aggravated water supply and reliability problems, since riparian vegetation

Figure 4-16. The long-term restoration, improvement and protection of the Region's wetlands would help ameliorate the water quality, water supply and biological impacts of environmental degradation.

and wetlands can act to slow and retain stormwater flows and allow the water to recharge groundwater.

The long-term restoration, improvement, and protection of the Region's wetlands would help ameliorate the water quality, water supply and biological impacts of environmental degradation. Because many of the issues involved in wetland restoration and enhancement cut across traditional political and organizational boundaries, success can more easily be accomplished through cooperative planning efforts like the IRWMP that include non-governmental organizations, private landowners, industry, and state and federal government. Education and public outreach will be critical in helping the public understand their role in protection and achieving buy-in on the necessary improvements.

Wetland restoration and enhancement is constrained by existing development over much of the historical wetland areas, private ownership, permanently altered hydrology, and lack of funding for operation and maintenance. Meeting water quality and flood management needs, water supply needs and habitat and recreation targets over the next 20 years will strain the Greater Los Angeles community. Projected growth, a tight fiscal environment, and limits to water supply will all contribute to the difficulty. In today's funding

environment, it is probably not possible that all of the required projects can be completed as single purpose projects. With planning, cooperation, and vision, projects can be integrated to achieve multiple goals. For example, wetlands and riparian habitat projects can provide water quality, groundwater recharge, flood management and recreational opportunities. Integrated projects may be more likely to be funded, in that funding agencies may treat them more favorably, or various fund sources would be available to fund individual elements of projects.

Opportunities for enhancement and creation of the Region's wetlands include: Los Cerritos Wetland Restoration (Bryant, Bixby, and Hellman); Gardena Willows Restoration; Ballona Wetlands Restoration; Colorado Lagoon Enhancement; DeForest-Dominguez Wetlands Restoration; Hansen Dam Recreational Area Wetlands Restoration Project; JWPCP Marshland Enhancement Project, Los Angeles River Headworks Wetlands and Water Protection Project; the Multiuse Wetlands Project at Children's Museum of Los Angeles; Malibu Lagoon; and El Dorado Park Wetlands.

Open Space, Recreation

Recreation and Public Access

Open space used for recreation and public access has the potential to enhance water supply (by preserving or enhancing groundwater recharge and thereby improving water supply reliability) and improve surface water quality, to the extent that these open spaces filter, retain, or detain stormwater runoff (although few existing parks or open spaces include specific features to improve the quality of stormwater runoff, and poorly managed open space has the potential to be a source of sediment which can degrade water quality).

As discussed in Section 3, with a projected population increase of approximately 15.4 percent in the Region, it is estimated that approximately 30,380 acres of additional parks and open space will be needed to meet the minimum recommendation for parkland from the National Recreation and Park Association.

Although much of the remaining open space in the Region is located in the foothills and the mountains, the bulk of the need exists within the densely developed coastal plain and the inland valleys. If new parkland and open space can be created within these urbanized areas, particularly within or near Disadvantaged Communities, then public access to parkland could be improved. To increase open space, the acquisition of land will be necessary. Opportunities for acquisition could include vacant parcels, under-utilized public land, brownfields (when remediation is feasible), and the lands along rivers, creeks or tributaries.

Current plans and proposals for new parks, trails and recreational projects in the Region include: Rio de Los Angeles State Park, Annandale Golf Course Habitat Restoration and Infiltration; Welch Site BMP and Habitat Restoration; Lincoln Heights Freeway Interchange Restoration and BMP; Malibu Linear and Civic Center Legacy Park; Trancas Canyon Park; Las Flores Creek Park; Morris Dam Peninsula Park; Azusa Canyon River Wilderness Park; San Gabriel River Master Plan, (National Park Service) San Gabriel River Watershed Special Resource Study, San Gabriel Canyon Spreading Grounds; Maywood Riverfront Park; San Gabriel River Discovery Center at Whittier Narrows Regional Park; Woodland (Duck) Farm Park; Pio Pico State Historic Park; Paseo del Rio at San Gabriel and Rio Hondo Spreading Grounds; Santa Fe Springs Park Expansion; Downey Landing, City of Downey; Bellflower Riverview Park; Pacoima

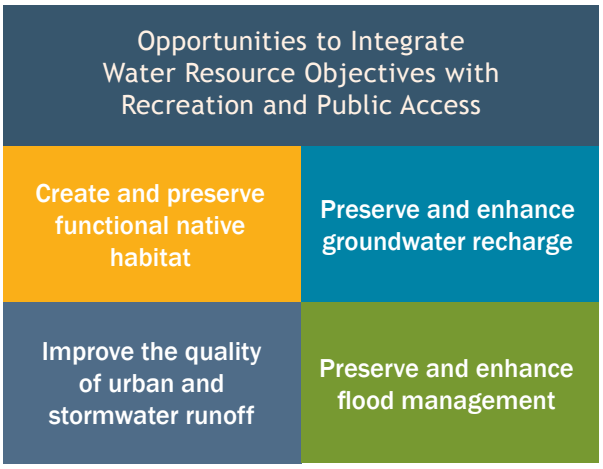


Figure 4-17. Open space used for recreation and public access has the potential to enhance water supply and improve surface water quality.

Wash Greenway Project Parkside Drive Park; South Los Angeles Wetlands Park; Puente Creek Nature Center; Strathern Pit Multiuse Project; North Atwater Creek Restoration and Water Quality Enhancement; Marsh Street Park; Walteria Lake Enhancement; and Lafayette Creek Daylighting.

As new parks or open space are created, these places may also provide opportunities to meet other Regional needs, including:

- Creation or preservation of functional native habitat and habitat linkages;
- Preservation or enhancement of groundwater recharge, to the extent that new parks preserve existing open space or reduce impervious surfaces;
- Improve the quality of urban or stormwater runoff, so that new parks or open space are designed to include runoff quality features, such as vegetated swales, buffers, or other BMPs; and;
- Preserve or enhance flood management; the preservation of open space can avoid potential increases in runoff associated with new development, and reduce runoff if impervious surfaces are reduced.

Sustain Communities

Asset Management

With more than 10 million people residing in a developed area of approximately 1,125 square miles, the infrastructure developed for water, wastewater, and flood protection is significant. To maintain the quality of potable water, the capture and treatment of wastewater, and minimize risks to life and property from flood events, this infrastructure must be maintained, repaired as needed, and replaced or expanded when appropriate.

Traditionally viewed as a form of monetary management, in the past decade, asset management has increasingly replaced traditional assessments of repair and replacement costs. The recently adopted Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, requires the development of Sewer System Management Plans (SSMP) for all publicly owned sewage collection systems greater than one mile in length in California over the next four years, with a goal to protect public health and the environment by reducing the severity and number of sanitary sewer overflow events.

Although the specific components of an asset management program may vary, in general the process consists of the development of an overall strategy, an inventory of assets, an assessment of asset condition, a financial valuation, the establishment of capital and operating budgets, followed by the ongoing maintenance, repair, and replacement of assets.

Public agencies and districts responsible for water, wastewater, and flood protection should implement asset management programs, which will preserve and protect water quality, enhance water supply reliability, and protect the public and environment.

Integrated Planning

This Plan is the most visible evidence of integrated planning in the Region, but it is not the only example. As noted elsewhere, in recent years the potential for a transformation of the watersheds in this Region has emerged, beginning with visions of "restoring" the Los Angeles and San Gabriel Rivers, development of watershed management plans on most of the major tributaries and creeks, and the preparation of IRPs by water and sanitation agencies. These various plans promote integrated efforts to manage resources and recognize

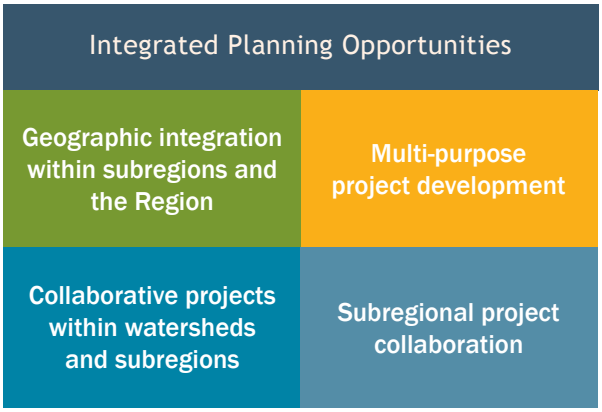


Figure 4-18. The IRWMP has provided an opportunity to integrate planning at the scale of watersheds, subregions, and the Greater Los Angeles County Region.

that water and watershed resources are interconnected.

Three general approaches to integrated planning have been identified in this Plan: 1) Geographic Integration, which links similar kinds of projects or programs that are geographically separated, but can work together to create a whole that is greater than the sum of its parts; 2) Multi-purpose Projects, where multiple water management strategies are incorporated into individual projects or programs; and 3) Collaborative Projects, which requires agencies, jurisdictions or organizations to work together on collaborative projects or programs which cross jurisdictional boundaries and address multiple water management strategies.

Due to the extensive urban constraints in the Region, the opportunities for implementing water resource projects are constrained by the availability of funding and competing demands for available land to site new projects. Plans, programs, and projects need to integrate multiple water management strategies to meet Regional water resource needs, efficiently use fiscal resources, and provide the public with tangible community benefits.

As the IRWMP will largely be implemented by the individual actions of local agencies, jurisdictions, and organizations, the consistent application of integrated planning will be necessary to assure that the objectives and planning targets established in this Plan are realized.

Land Use Planning

The constitution of the State of California confers responsibilities for land use planning to the cities and counties (for unincorporated areas). The Government Code establishes requirements for the development of General Plans to guide land use decisions, which must include seven required elements: land use, circulation, housing, conservation, open space, noise, and safety. Because of this structure, water resources may be discussed within the conservation element (as relates to water supply and stormwater management), the open space element (as relates to water-based recreation or the use of lands that may protect water supply or enhance groundwater recharge), and the safety element (as relates to flood protection). Thus,

Figure 4-19. The State of California Government Code establishes requirements for the development of General Plans to guide landuse decisions.

most jurisdictions' policies with respect to water resources and their management are typically fragmented throughout several elements. The State of California's General Plan Guidelines (GOPR, 2003) describe the concept of an optional water resources element, which would combine water supply and demand, water quality, wastewater treatment and disposal, watershed features and processes, flood management, and stormwater management.

In 2001, two water supply planning bills were enacted and required greater coordination and more extensive data to be shared between water suppliers and local land use agencies for large development projects and plans. Senate Bill 610 (California Water Code §10631, §10656, §10910, §10912, §10915, §10657) requires a water supply assessment (as part of the California Environmental Quality Act [CEQA] review) for any development project or related land use plan of more than 500 housing units, 500,000 square feet of retail use, 250,000 square feet of office use, 500 hotel rooms, 40 acres, or 650,000 square feet of business park use or a mixed-use project with any combination equal to the scale noted above. Senate Bill 221 (Government Code §66410, et seq.) prohibits any land use agency from approving a subdivision map of more than 500 housing units unless there is written verification from a water provider that a sufficient and reliable water supply is available. Sufficient water supply is defined as adequate water to supply the new growth in normal, dry, and multiple dry years. As large portions of the Region are already developed and most of the remaining developable land is located in the foothills and mountains, few development projects in the Region exceed the thresholds identified in either bill. Thus, the preparation of Water

Supply Assessments or written verifications has been somewhat limited in the Region.

Given the pervasive nature of some NPS pollutants, land use planning, in the form of ordinances, could be used to reduce stormwater runoff volume and/or the discharge of pollutants from development or redevelopment sites. For those portions of the Region within Los Angeles and Ventura Counties, certain development (including automotive repair shops, retail gasoline outlets, restaurants, home subdivisions with ten or more homes, parking lots with 25 or more spaces or are greater than 5,000 square feet in area, single-family hillside residences, and locations within, or directly adjacent, or discharging to, environmentally sensitive areas) require the development of a Standard Urban Stormwater Mitigation Plan (SUSMP), to retain the runoff from storms of approximately 0.75 inches. SUSMP requirements could be amended to require both retention and treatment of runoff with individual jurisdictions extending these requirements to development/redevelopment on smaller sites or additional development types. Existing stream corridors, open spaces, or other valued watershed resources could be protected via ordinance (i.e., a stream protection ordinance) or incentives could be provided to reduce impervious surfaces and increase natural recharge. To address water quality issues, the Orange County Drainage Area Master Plan was followed by the development of watershed action plans and the subsequent amendment of local General Plans to integrate water quality and runoff policies. A more comprehensive approach to natural resource management, which could provide corollary benefits to water resources, is provided by the City of Santa Monica's Sustainable City Plan, which promotes a well-maintained open space system that can support natural functions, wildlife habitat, passive and active recreation, and supports implementation of land use and transportation planning and policies that encourage compact development and mixed-use projects.

Implementation of projects designed to capture, treat, and reuse urban and stormwater runoff as part of the implementation of the IRWMP, could require acquisition of land to site those projects. To the extent that acquisition displaces existing uses, cities and counties may consider modification of their general plans to facilitate the accommodation of displaced uses or provide incentives to take advantage of newly created open spaces (e.g., detention basin or natural treatment areas) or recreational areas. Where feasible, general plan modifications should incorporate the concepts articulated in Common Ground from the Mountains to the Sea, and in the SCAG Compass Growth Vision Report, such as mixed-use land use designations with increased density along existing transportation corridors. Cities and counties should also consider providing incentives to private development that promote the inclusion of features that improve surface water quality, enhance groundwater recharge, and reduce water demand.

Constraints to the use of Land Use Planning to enhance the integrated management of water resources include: the lack of fiscal resources to support development of optional general plan elements; the potential for disparities amongst local jurisdictions to subtly affect development patterns (as developers may choose those jurisdictions with less stringent requirements); and the absence of model programs to demonstrate the effectiveness of such measures.

Opportunities to expand the use of Land Use Planning in the integrated management of water resources include: the adoption of natural resource protection measures (e.g., floodplain or stream protection ordinances); the preparation of Water Resource Elements in city and county General Plans; the adoption of Sustainability Plans by jurisdictions, agencies, and organizations; and the SCAG Compass Growth Vision Report.

Watershed Planning

Numerous watershed plans have been prepared in the Region, including the Arroyo Seco Watershed Restoration Feasibility Study, the Ballona Creek Watershed Management Plan, Common Ground, from the Mountains to the Sea, Compton Creek Watershed Management Plan, Dominguez Channel Watershed Management Master Plan, Malibu Creek Watershed Management Area Plan, Rio Hondo Watershed Management Plan, Sun Valley Watershed Plan, and the draft Upper San Gabriel

River Watershed Management Plan. Draft plans are under development for the Tujunga Wash, the Headwaters of the Los Angeles River, and Coyote Creek, along with the Green Visions Plan for Los Angeles County and portions of Orange and Ventura Counties. As noted by the 2005 update of the California Water Plan: "…Los Angeles County [is] the most productive county in the state in terms of watershed planning" (DWR, 2005).

The primary focus of these plans has been improvement of surface water quality, with additional emphasis on preservation of open space, and the promotion of multi-purpose projects. Most of these efforts have been stakeholder-driven, so that the list of recommended actions reflects local concerns and priorities.

Constraints on the development of additional watershed plans include: availability of funding; absence of established stakeholder groups for some of these areas; and a defined minimum scope to assure Regional consistency.

Opportunities for the preparation of new watershed plans include: Burbank (east and west) Wash; Verdugo Wash; the main stems of both the Los Angeles and San Gabriel Rivers (although the respective river Master Plans cover the river corridors and some adjacent lands); Los Cerritos Channel; and numerous smaller watersheds that drain directly to Santa Monica Bay and San Pedro Bay. In addition, this IRWMP could serve to promote regional consistency between both new and existing plans.

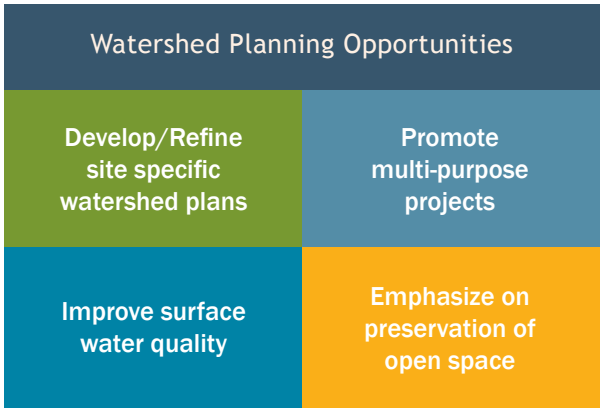


Figure 4-20. As noted by the 2005 update of the California Water Plan: "...Los Angeles County [is] the most productive county in the state in terms of watershed planning." (DWR, 2005).

4.3 Opportunities for Integration

Opportunities to integrate individual water management strategies with other strategies are identified below and summarized in Table 4-3. For those water management strategies that are identified as having a potential for substantial expansion in the Region (in Section 4.2 above) specific opportunities to integrate with other strategies are identified below.

Water Supply

Desalination

Desalination projects could be integrated with strategies to: 1) Improve and Protect Water Quality (as desalination projects would provide a high-quality source of water); 2) Water and Wastewater Treatment (as desalination is one form of water treatment); 3) Water Supply Reliability (as desalination can provide a source of additional water that is not subject to seasonal or yearly variation); and 4) Water Transfers (as desalinated water could either be transferred to other locations or could free up other supplies for subsequent transfer).

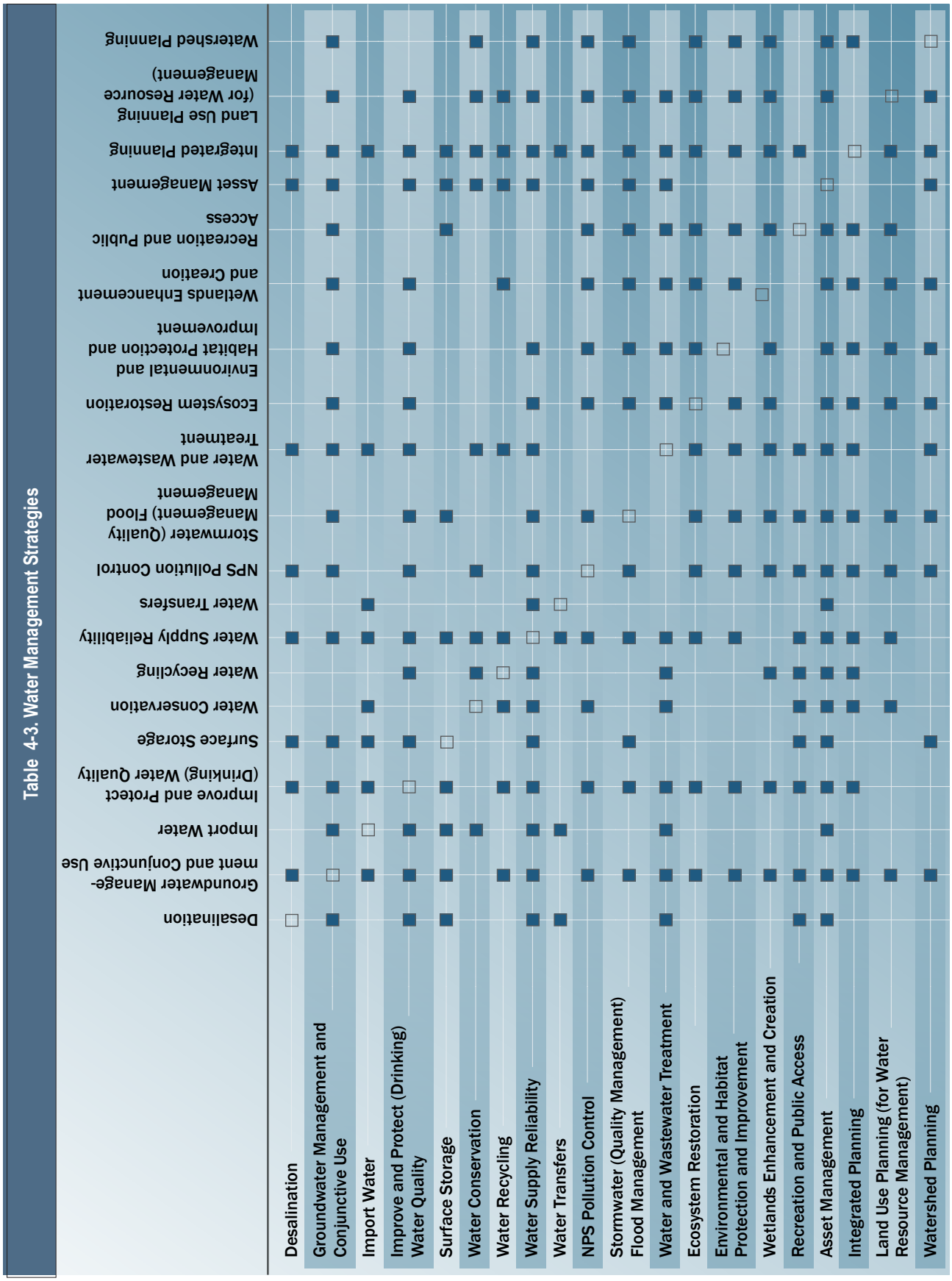
Water Transfers

Water Transfers may be integrated with: 1) Desalination (as desalinated water could either be transferred to other locations or could free up other supplies for subsequent transfer); 2) Import Water (as a likely source of the water); and 3) Water Supply Reliability (as an augment water supplies).

Stormwater and Flood Management

Stormwater and Flood Management projects and programs can be integrated with: 1) Asset Management (for the maintenance, repair and replacement of flood protection facilities); 2) Ecosystem Restoration (promoting retention of stormwater); 3) Environmental and Habitat Protection and Improvement (promoting retention of stormwater); 4) Groundwater Management and Conjunctive Use (which would benefit from

Table 4-3. Water Management Strategies



the recharge of treated runoff); 5) Improve and Protect Water Quality (through improved stormwater quality); 6) Land Use Planning (via policies and ordinances which support improved surface water quality); 7) NPS Pollution Control (which would reduce the presence of some contaminants in stormwater); 8) Recreation and Public Access (as stormwater quality management facilities that utilize natural treatment methods may provide passive recreational opportunities); 9) Surface Storage (as storage facilities provide opportunities to manage runoff, particularly during flood events); 10) Watershed Planning (for watershed-based approaches to improving surface water quality and preserving flood protection levels); 11) Water Supply Reliability (as improved surface water quality may expand recharge of runoff); and 12) Wetlands Enhancement and Creation (as wetlands can remove contaminants and retard runoff).

Habitat

Ecosystem Restoration

Ecosystem Restoration projects and programs can be integrated with: 1) Environmental and Habitat Protection and Improvement (as a component of such programs); 2) Groundwater Management and Conjunctive Use (by promoting or preserving natural recharge); 3) Improve and Protect Water Quality (by preserving or restoring natural processes that enhance surface water quality); 4) Land Use Planning (via

General Plan policies or ordinances that promote restoration); 5) NPS Pollution Control (by promoting natural processes which sequester or remove contaminants in stormwater); 6) Recreation and Public Access (by enhancing passive recreation opportunities in restored ecosystems); 7) Stormwater and Flood Management (by promoting retention of stormwater); 8) Watershed Planning (as a potential open space goal in such plans); 9) Water Supply Reliability (by promoting retention of stormwater and natural recharge); and 10) Wetlands Enhancement and Creation (if appropriate for the ecosystem being restored).

Environmental and Habitat Protection and Improvement

Environmental, Habitat Protection and Improvement projects and programs provide opportunities to integrate with: 1) Ecosystem Restoration (as a component of such programs); 2) Groundwater Management and Conjunctive Use (by promoting or preserving natural recharge); 3) Improve and Protect Water Quality (by preserving or restoring natural processes that enhance surface water quality); 4) Land Use Planning (via General Plan policies or ordinances that promote restoration); 5) NPS Pollution Control (by promoting natural processes which sequester or remove contaminants in stormwater); 6) Recreation and Public Access (by enhancing passive recreation opportunities in restored habitat); 7) Stormwater and Flood Management (by promoting retention of stormwater); 8) Watershed Planning (as an open space goal in such plans); 9) Water Supply Reliability (by promoting retention of stormwater and natural recharge); and 10) Wetlands Enhancement and Creation (if appropriate for the ecosystem being restored).

Wetlands Enhancement and Creation

Wetlands Enhancement and Creation projects and programs may be integrated with: 1) Ecosystem Restoration (as a form of restoration); 2) Environmental and Habitat Protection and Improvement (consistent with the enhancement and creation of wetlands); 3) Groundwater Management and Conjunctive Use (as wetlands may promote natural recharge); 4) Improve and Protect Water Quality (as constructed wetlands can be used to remove contaminants from runoff); 5) Land Use Planning (via policies or ordinances which enhance or create wetlands); 6) NPS Pollution Control (as natural processes may sequester or remove stormwater pollutants); 7) Recreation and Public Access (as creation and enhancement of wetlands may provide passive recreational opportunities); 8) Stormwater and Flood Management (as wetlands can remove contaminants and retard runoff); 9) Water and Wastewater Treatment (as wetlands may be used

to improve the quality of treated stormwater or wastewater); 10) Water Recycling (as constructed wetlands could be used to improve the quality of recycled water); and 11) Watershed Planning (via watershed-based approaches to habitat issues such as wetlands).

Open Space, Recreation

Recreation and Public Access

Recreation and Public Access may be integrated with: 1) Asset Management (as the future retrofit of recreational spaces could be designed to provide stormwater quality benefits); 2) Ecosystem Restoration (by enhancing passive recreation opportunities in restored ecosystems); 3) Environmental and Habitat Protection and Improvement (by enhancing passive recreation opportunities in restored habitat); 4) Groundwater Management and Conjunctive Use (as recharge facilities may provide passive recreation opportunities); 5) Land Use Planning (via policies which support development of recreational spaces that enhance water resources); 8) NPS Pollution Control (to the extent that recreational space may contain features which improve surface water quality); 9) Stormwater and Flood Management (as stormwater quality management facilities that utilize natural treatment methods may provide passive recreational opportunities); 10) Surface Storage (as such facilities may provide recreational opportunities); 11) Watershed Planning (as the open space preservation typically promoted by most watershed plans may preserve or enhance passive recreational opportunities); and 12) Wetlands Enhancement and Creation (as creation and enhancement of wetlands may provide passive recreational opportunities).

Sustain Communities

Asset Management

Asset management programs could be implemented for water, wastewater, stormwater and flood management systems, and could be integrated with the following strategies: 1) Desalination; 2) Groundwater Management/Conjunctive Use; 3) Improve and Protect Water Quality; 4) NPS Pollution Control; 5) Stormwater and Flood Management; 6) Surface Storage; 7) Water and Wastewater Treatment; 8) Water Conservation; 9) Water Recycling; and 10) Water Supply Reliability. In addition, the implementation of asset management programs for recreational facilities (per the Recreation and Public Access strategy) could also provide integration opportunities as the future retrofit of recreational spaces could be designed to provide water resource benefits.

Land Use Planning

Land Use Planning can be integrated with water resource management via the inclusion of a general plan water element, or: 1) Ecosystem Restoration (via policies and ordinances which support restoration); 2) Environmental and Habitat Protection and Improvement (via policies and ordinances which support habitat protection and improvement); 3) Groundwater Management and Conjunctive Use (via policies and ordinances which support natural recharge and protection of groundwater quality); 4) Improve and Protect Water Quality (via policies and ordinances which support natural protection of surface and groundwater quality); 5) NPS Pollution Control (via policies and ordinances which support natural recharge and protection of groundwater quality); 7) Recreation and Public Access (via policies which support development of recreational spaces that enhance water resources); 8) Stormwater and Flood Management (via policies and ordinances which support improved surface water quality); 9) Water Conservation (via policies and ordinances which reduce water consumption); 10) Water Recycling (via policies or ordinances which promote utilization of recycled water where appropriate); 11) Watershed Planning (via policies which support application of watershed approaches to resource management issues); 12) Water Supply Reliability (via policies and ordinances which support groundwater recharge, water conservation, and water recycling); and 13) Wetlands Enhancement and Creation (via policies or ordinances which enhance or create wetlands).

5. INTEGRATED REGIONAL PROJECTS

San Gabriel Canyon Spreading Grounds

Over 1,500 projects have been identified by local entities, and are being evaluted for opportunties to accomplish integrated solutions.

5.1 Introduction

Water resource management projects developed in past decades generally focused on a single purpose, and avoided or minimized impacts on other water resource interests. Examples of this approach include; flood protection, water supply and water treatment projects. Agencies, jurisdictions, and stakeholders increasingly recognize the value of addressing the interrelationships and interdependencies of water resource management projects and the value of developing integrated projects.

The purpose of this section is to:

- Describe the current list of stakeholder-identified projects that make progress towards the objectives developed for the IRWMP and contribute to the planning targets for water supply, water quality, open space, habitat and infrastructure identified in Section 3;
- Discuss integration efforts for stakeholder-identified projects; and
- Identify Regional planning project approaches that can be used to help develop a comprehensive vision for each Subregion, assist in evaluating the stakeholder project ideas consistent with that vision, and stimulate the identification of new Regional projects that can bridge the gap between the stakeholder projects and the Regional planning targets and thereby form an integrated and comprehensive solution for the Region's water resource management needs over the 20 year planning horizon of this Plan.

5.2 Stakeholder Identified Projects

To improve water supplies, enhance water supply reliability, improve surface water quality, expand recreational acess, conserve habitat, and enhance infrastructure in the Region, agencies, jurisdictions, and organizations have developed hundreds of water supply, watershed management, water quality compliance and other water resource management projects. Collectively, these projects have the potential to generate substantial amounts of new water, significantly improve surface water quality, restore important habitat areas, enhance flood protection, and repair and replace critical water supply, water quality, and flood protection infrastructure.

A small subset of these projects was identified for the first round of Proposition 50, Chapter 8 funding. Stakeholders identified a list of 149 projects, which was subsequently narrowed down to 58 projects by the Subregional Steering Committees and submitted for Step 1 of the funding process. Following the consolidation of the initial planning efforts, the State requested a single application from the Region, which required further integration and prioritization that ultimately resulted in a list of thirteen priority projects, which were submitted in June 2006 for Step 2 (of Round 1) implementation funding. Information concerning those projects is provided in Appendix B.

Call for Projects

To identify the many potential projects in the Region and to gauge the cumulative contribution of these projects towards meeting the objectives and planning targets, development of the IRWMP included a "Call for Projects" which afforded stakeholders the opportunity to directly submit their projects and project concepts for consideration. Stakeholders were asked to submit projects that were at any stage of development and ideas about possible projects (or project concepts). There were a variety of avenues available for participating in the Call for Projects including the submission of projects via a project identification form (in either a short- or long-form version), in spreadsheet form (for the submission of multiple projects), or directly on-line via the website (www.lawaterplan.org). As of October 31, 2006, a total of 1,521 projects and project concepts had been submitted and entered into a project database. A list of the projects submitted, including information about the project benefits provided by the entity submitting the project, is provided in Appendix C.

Table 5-1 provides a summary of projects including project concepts contained in the database as of October 31, 2006 by Subregion and identified benefit category. Breaking down by benefits category provides a picture of the composition of those projects. Note that stakeholders identified benefits for only 850 of the 1,521 projects submitted, or approximately 55 percent of the projects.

It should be noted that the completeness of the project information varies greatly. For example, only 565 projects out of 1,521 included quantified benefit information. It is assumed that the projects where more complete information was provided, reflects projects at a more advanced level of planning and/or are ready to proceed. It should also be noted that stakeholders were encouraged to submit project concepts and thus the incompleteness of some project information may be appropriate given that request.

The information provided by stakeholders included identification of the project proponent. In many instances, the proponent submitted the project. For some projects, the identified project proponent may have no knowledge of the project, or the project is proposed to be located on private property without the express consent of the property owner. (Several projects fitting these categories were deleted from the database for this reason, but further verification of the project database is needed.)

Although some conclusions may be possible from an analysis of the stated benefits provided for the projects and project concepts in the database, given the uncertain accuracy of the benefit information provided, an assessment of cumulative benefits of the stakeholder-identified projects and a comparison of the cumulative benefits to the planning targets was ultimately not included in this Plan. However, based on a review of the projects,

Table 5-1. Stakeholder Projects by Subregion and Benefit Category

Subregion	Total Projects Submitted [1]	Number of Projects by Benefit Category [1], [2]			
		Water Supply [3]	Water Quality [4]	Habitat & Open Space [5]	Other Benefits [6]
Lower San Gabriel and Los Angeles River Watersheds	212	74	59	53	62
North Santa Monica Bay Watershed	215	43	66	58	36
South Bay Watershed	309	56	98	143	53
Upper Los Angeles River Watershed	296	108	152	119	97
Upper San Gabriel River and Rio Hondo Watersheds	433	96	49	23	14
Regional Projects [7]	56	15	7	20	6
TOTAL	**1521**	**392**	**431**	**416**	**268**

1. *Based on projects submitted by October 31, 2006. Stakeholders identified qualitative benefit information for only 850 of the 1,521 projects.*
2. *Projects for which more than one qualitative benefit was identified were included in each benefit category. Thus the total number of projects included in each benefit category exceeds 850.*
3. *Includes potable and non-potable supply benefits including potable supply benefits from drinking water treatment and non-potable supply benefits from water recycling, urban dry weather runoff/stormwater treatment.*
4. *Includes dry weather urban runoff and stormwater capture benefits.*
5. *Includes public access, open space, habitat, and repair and replacement.*
6. *Includes flood protection and infrastructure repair and replacement. These benefits did not require quantified benefits, hence the numbers listed reference qualitative benefits*
7. *Projects that fell within multiple or all Subregions, or projects for which location information was not provided or incomplete.*

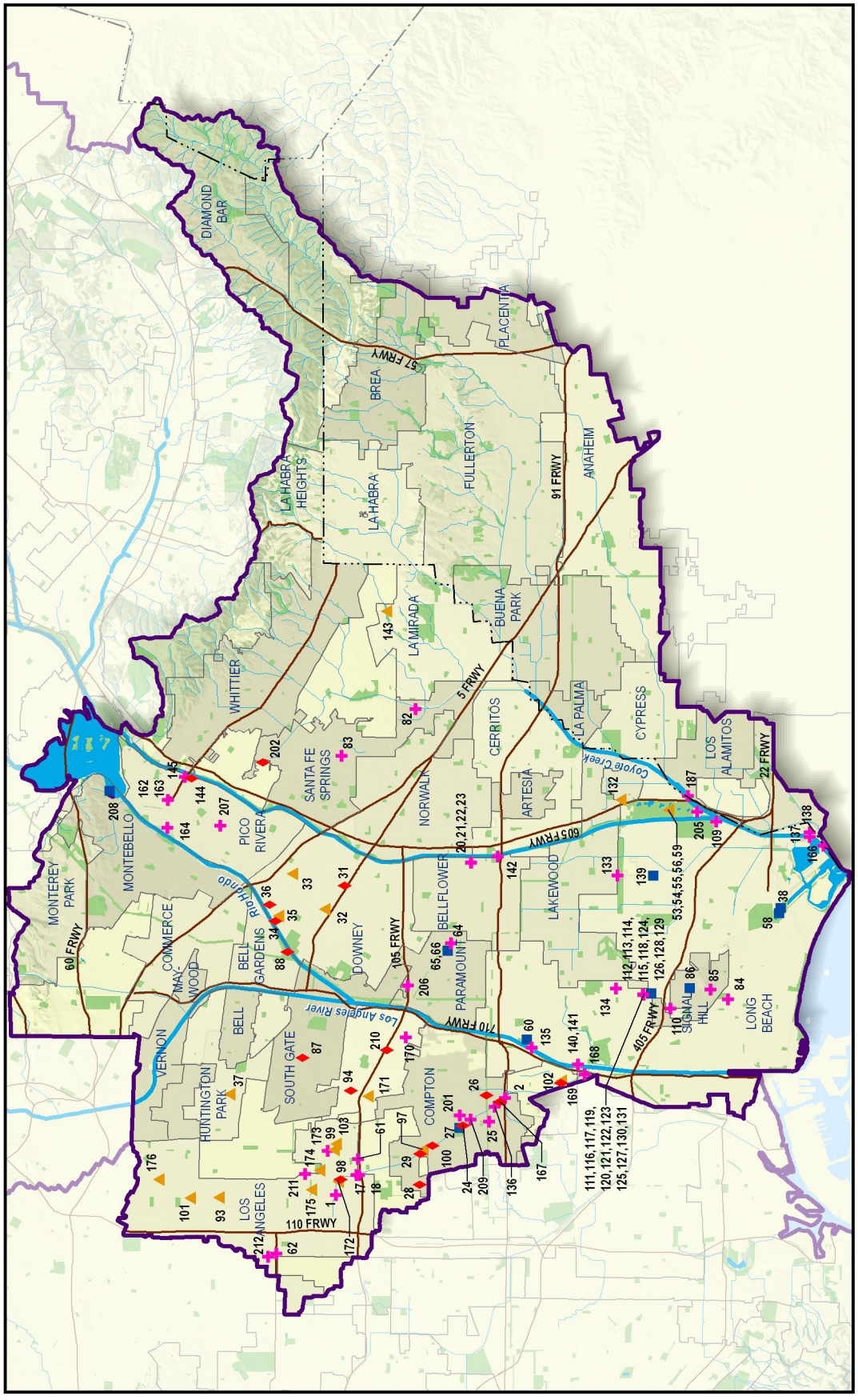
it appears unlikely that the stakeholder-identified projects will provide sufficient benefits to meet the 20 year planning targets.

While many of the projects lack detail and supporting information, the Call for Projects provided a valuable mechanism to engage stakeholders in the process of sharing project information and discussing the issues related to the integration of projects. The information provided herein represents the outcome of the initial step in a process of bringing individual projects into a collaborative process of project identification. The database identifies what information is readily available, what information remains to be identified, and gives the stakeholders a basis to work together as the IRWMP moves forward.

Location of Projects

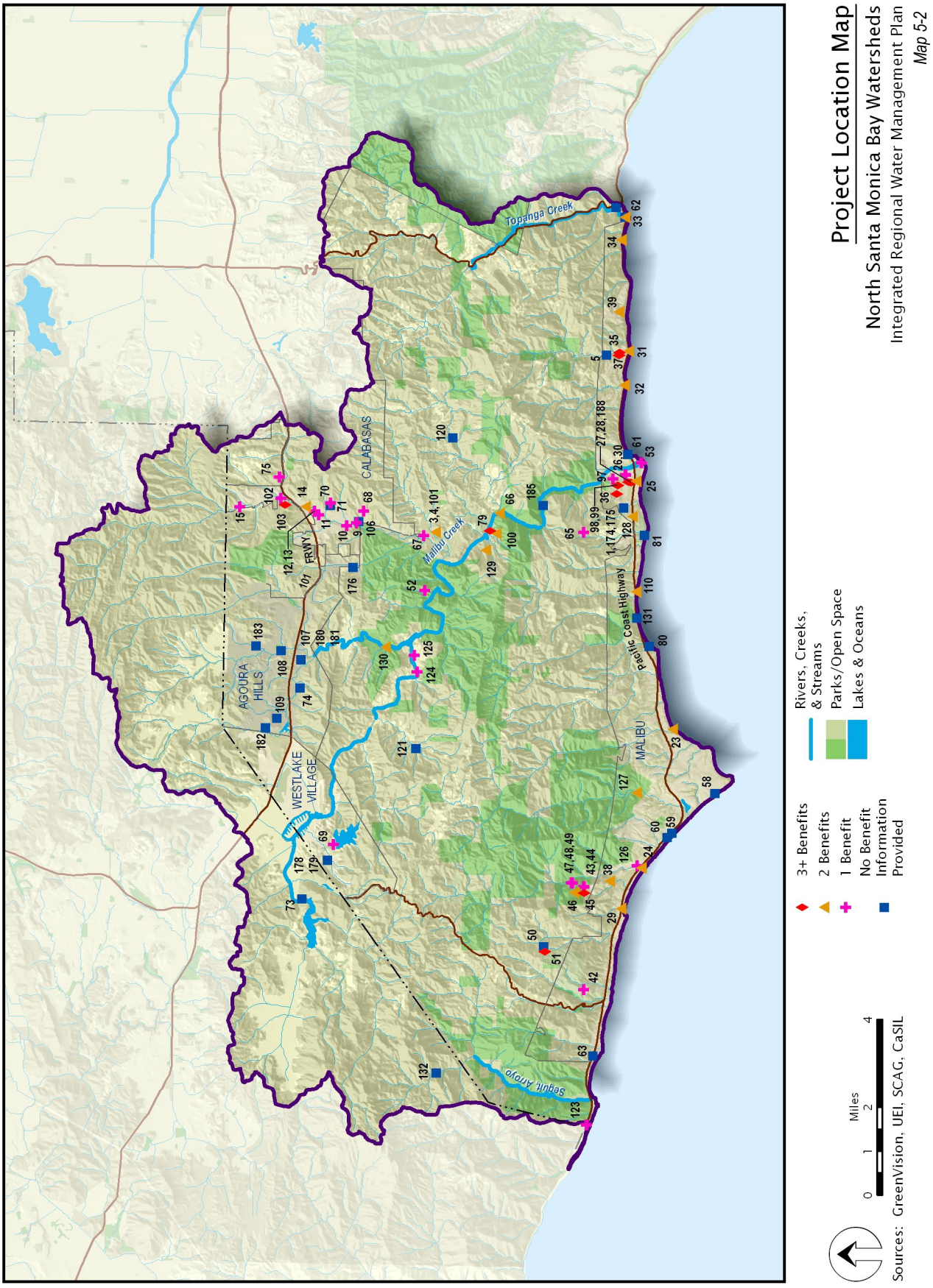
Maps 5-1 through 5-5 show the general location of stakeholder-identified projects within each Subregion. In some instances, multiple projects occur at the same locations, which may suggest opportunities for project integration. Regional projects, projects located in multiple Subregions, or projects for which no location information was provided, are not depicted on the Maps.

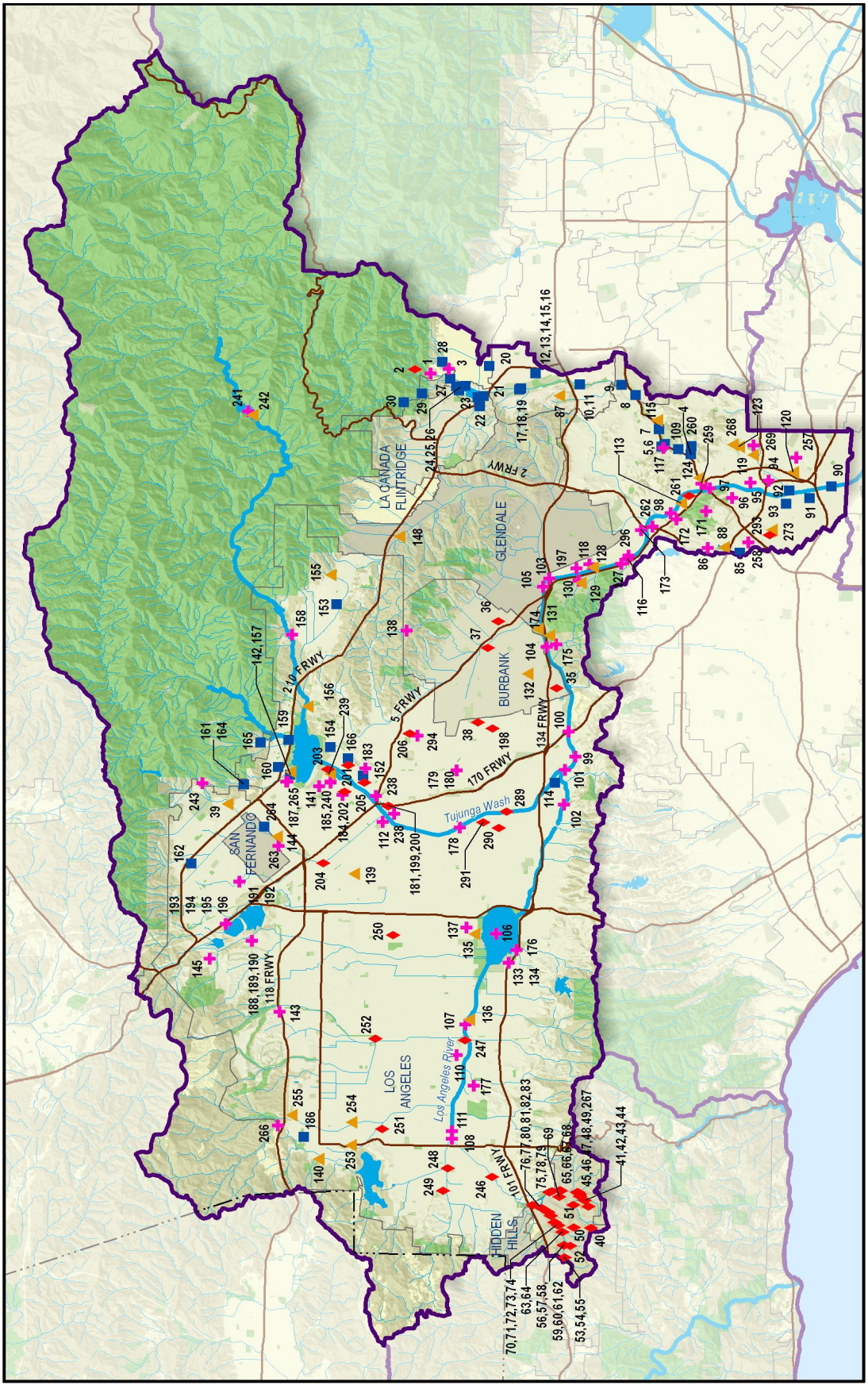
These Maps also illustrate the relationship of projects to DAC areas. The areas with the greatest number of projects in DACs are the Upper Los Angeles Subregion and the Lower Los Angeles and San Gabriel River Subregion. The North Santa Monica Bay has no DACs located within this Subregion. In the Upper San Gabriel and Rio Hondo Subregion the projects located within



Project Location Map

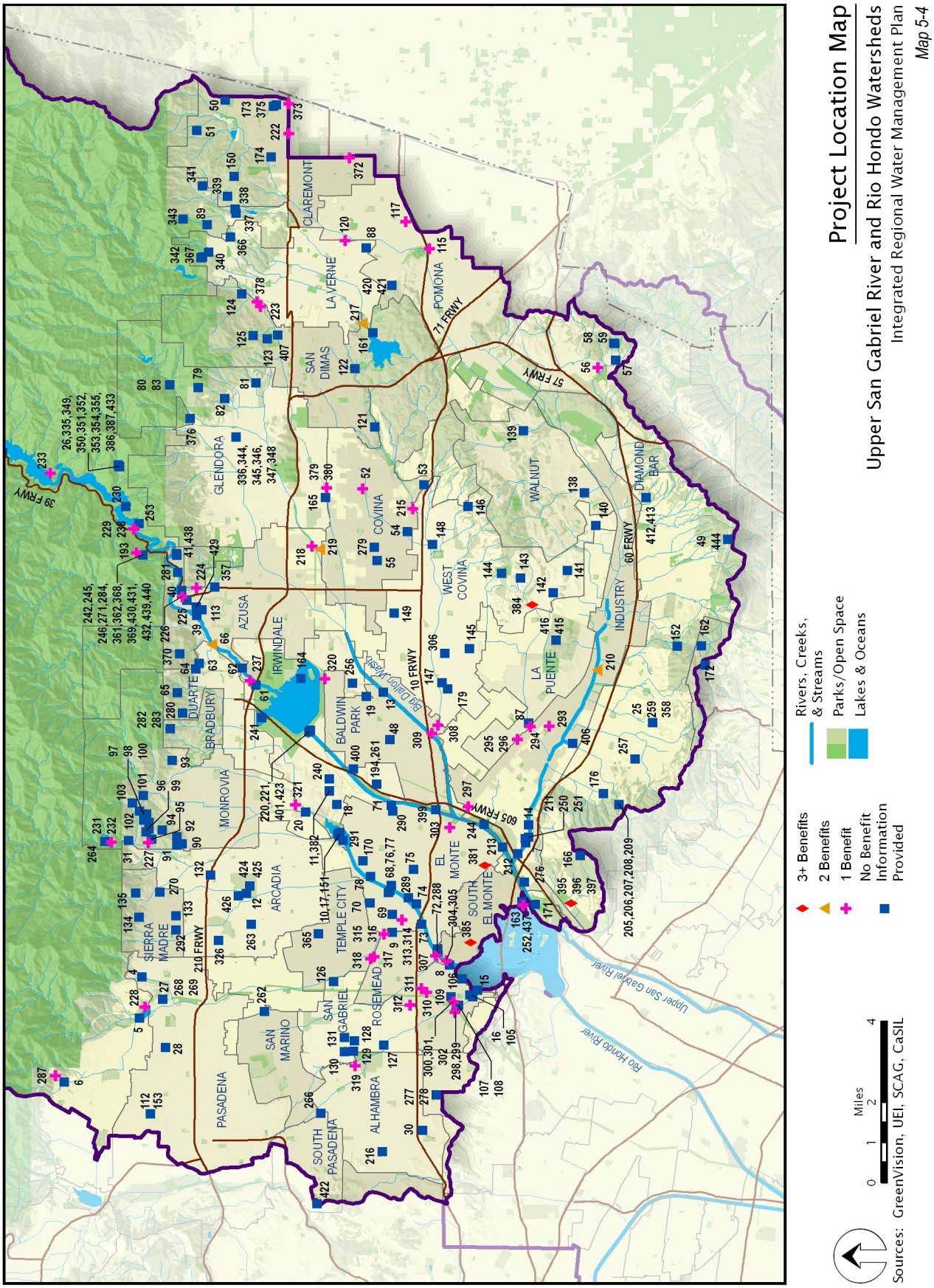
Lower San Gabriel and Lower Los Angeles Rivers Watersheds
Integrated Regional Water Management
Map 5-1

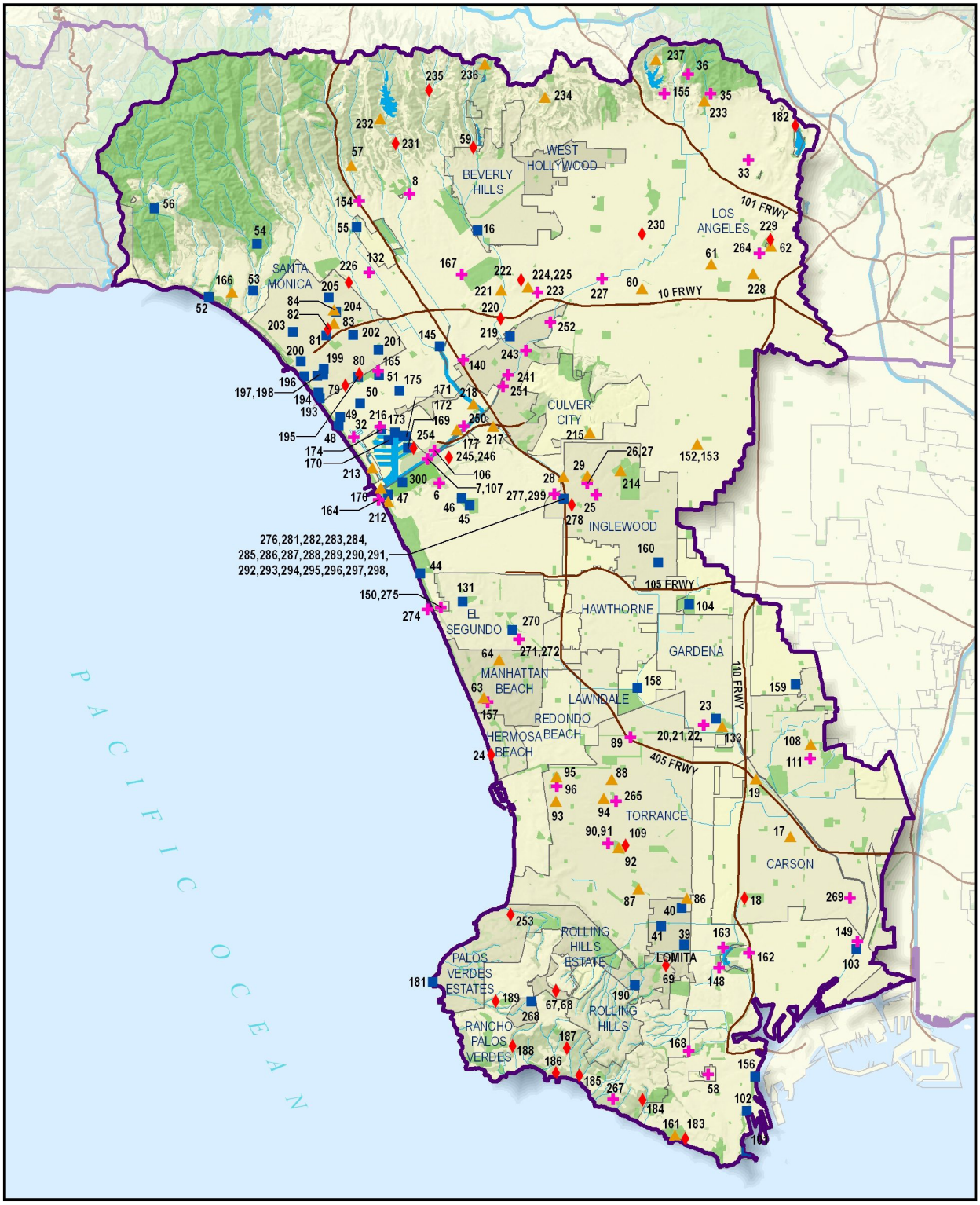

Project Location Map
North Santa Monica Bay Watersheds
Integrated Regional Water Management Plan
Map 5-2
Topanga Creek
Malibu Creek
Pacific Coast Highway
CALABASAS
AGOURA HILLS
WESTLAKE VILLAGE
MALIBU
FRWY
Rivers, Creeks, & Streams
Parks/Open Space
Lakes & Oceans
3+ Benefits
2 Benefits
1 Benefit
No Benefit Information Provided
0 1 2 4
Miles
Sources: GreenVision, UEI, SCAG, CaSIL



Project Location Map

Upper Los Angeles River Watersheds
Integrated Regional Water Management Plan
Map 5-3


Project Location Map
Upper San Gabriel River and Rio Hondo Watersheds
Integrated Regional Water Management Plan
Map 5-4
3+ Benefits
2 Benefits
1 Benefit
No Benefit Information Provided
Rivers, Creeks, & Streams
Parks/Open Space
Lakes & Oceans
Miles
0 1 2 4
Sources: GreenVision, UEI, SCAG, CaSIL
Upper San Gabriel River
Rio Hondo River
Big Dalton Wash
10 FRWY
605 FRWY
210 FRWY
57 FRWY
60 FRWY
71 FRWY
39 FRWY
CLAREMONT
LA VERNE
SAN DIMAS
POMONA
GLENDORA
COVINA
WALNUT
DIAMOND BAR
WEST COVINA
INDUSTRY
AZUSA
IRWINDALE
BALDWIN PARK
LA PUENTE
DUARTE
BRADBURY
MONROVIA
ARCADIA
TEMPLE CITY
EL MONTE
SOUTH EL MONTE
SIERRA MADRE
PASADENA
SAN MARINO
SAN GABRIEL
ROSEMEAD
ALHAMBRA
SOUTH PASADENA



Sources: GreenVision, UEI, SCAG, CaSIL

Project Location Map

South Bay Watersheds
Integrated Regional Water Management Plan

Map 5-5

DACs are generally clustered around the Whittier Narrows Flood Control Basin and may be associated with the project concept known as the Emerald Necklace.

Multi-Purpose Projects

To determine the relative numbers of single and multi-purpose projects, Table 5-2 sums the number of projects with a single benefit type (e.g., water supply, water quality, or open space), two benefit types, and three or more benefit types. Each project is represented one time in the group that describes its benefits. For example, a project submitted with water supply and water quality benefits is only represented once as a water supply/water quality project.

Most of the projects submitted with benefit information, identified only a single benefit category, with water supply the largest number of projects. 201 projects offered two or more benefit categories and only 188 projects identified three or more benefit categories. Although this statistics suggests some integration within individual projects, it is possible that individual projects could integrate multiple water management strategies (e.g., water and wastewater treatment and water supply reliability) which are not reflected in this analysis.

To increase the proportion of multi-purpose projects, the following opportunities should be noted:

- The 461 single-purpose projects (that provided benefit information) could be further evaluated for possibilities between connecting and integrating functions across multiple projects. This process has already begun in the Subregional workshops, and can continue under the direction and leadership of each Subregions Steering Committee. Input from the Subregional workshops may also have identified other opportunities for integration and collaboration among the identified projects.
- Many projects submitted did not include benefit information at all. Because these projects are assumed to be conceptual or in initial planning stages, refinement of the project scope to promote multiple purposes may still be feasible.
- As stakeholders are encouraged to submit additional projects to the database, it should be stressed that whenever possible, project benefit information should be provided, allowing future analysis to reflect project benefits.

Table 5-2. Benefit Combination Groups [1]

Single Benefit Type	Number of Projects	Two Benefit Types	Number of Projects	Three or more Benefit Types	Number of Projects
	156		53		47
	96		7		16
	138		20		13
	71		85		32
			22		80
			14		
TOTAL	**461**		**201**		**188**

1. Based on all projects included in the project database as of October 31, 2006.

Project Costs

Table 5-3 summarizes the range of capital costs that were provided for the projects. Over half of the projects were submitted without any cost information. Those that did include cost information, about half were between the one and 10 million dollar range and the remaining projects were over 10 million dollars.

Table 5-3. Project Capital Costs ($)[1]

Benefit Type	Number of Projects	Number of Projects by Cost Category				
		< 100k	100K-1M	1M-10M	>10M	Not Provided [2]
	156	6	21	60	11	58
	96	3	12	53	10	18
	138	7	31	17	3	80
	71	15	15	30	4	7
	53	2	12	34	3	2
	7	1	1	4	0	1
	20	0	3	10	5	2
	85	2	12	50	6	15
	22	2	12	8	0	0
	14	1	6	4	1	2
	47	0	5	21	6	15
	16	4	3	9	0	0
	13	3	4	6	0	0
	32	9	11	4	2	6
	80	18	27	12	9	14
No benefit information	671	52	94	128	6	391
TOTAL	1521	125	269	450	66	611

1. Based on projects included in the database as of October 31, 2006.
2. Projects for which no cost information was provided.

Implementation Schedules

Table 5-4 summarizes the implementation schedule for the 220 projects that include schedule information. The implementation schedule is broken down into four time period ranges: 2006-2008, 2009-2016, 2013-2017, and 2018-2026.

Table 5-4. Project Implementation Timeline[1]

Benefit Type	Number of Projects	Number of Projects by Implementation Schedule [2] Category				
		2006 – '08	2009 – '12	2013 – '17	2018 – '26+	Not Provided
		0-2 Years	3-6 Years	7-11 Years	12-20+ Years	
	156	62	23	2	1	68
	96	41	19	16	0	20
	138	17	11	0	0	110
	71	32	6	3	0	30
	53	11	1	1	0	40
	7	4	0	0	0	3
	20	14	2	0	0	4
	85	55	8	0	0	22
	22	14	3	0	0	5
	14	6	3	0	0	5
	47	21	14	0	0	12
	16	14	1	0	0	1
	13	10	2	0	0	1
	32	18	1	0	0	13
	80	31	2	0	0	47
No benefit information	**671**	**146**	**60**	**14**	**1**	**450**
TOTAL	1521	496	156	36	2	831

1. Based on projects included in the database as of October 31, 2006.
2. Range refers to project completion date.

Most projects submitted with schedules are scheduled for implementation within the next two years. The majority of submitted projects did not include schedule information, which may due to earlier phases of project development. Inclusion of these projects in the database, presents an opportunity to increase integration of multiple purposes during the planning and development stages of the project.

5.3 Project Integration

Integration Methods

As discussed above, many of the projects identified by stakeholders to date are single purpose. The project location maps (Maps 5-1 to 5-5) depict numerous projects at the same location or in close proximity. Thus, substantial opportunities appear to exist for project integration, in the form of geographic integration, strategy integration, or multi-agency projects, as discussed below.

Geographic Integration

In a Region of more than 2,000 square miles, opportunities for geographic integration are numerous. Two major river systems (the Los Angeles and San Gabriel) with several major tributaries (Arroyo Seco, Compton Creek, Coyote Creek, Rio Hondo, San Jose Creek, Tujunga Wash, and Walnut Creek) drain approximately three-quarters of the Region. Several other major creeks (Ballona, Dominguez Channel, Malibu, and Topanga) drain substantial portions of the remainder. These watershed (and sub-watershed) boundaries provide an obvious opportunity for geographic integration in the Region, particularly for projects and programs that address surface water quality.

The adopted (wet- and dry-weather) bacteria TMDLs for Santa Monica Bay beaches and the metals TMDL for the Los Angeles River require the establishment of jurisdictional groups, which are organized on watershed boundaries, or other logical geographic groupings (e.g., smaller watersheds in the South Bay, or an individual reach of a river). Pending future TMDLs may include a similar requirement. Thus, implementation plans for some TMDLs will result in the geographic integration

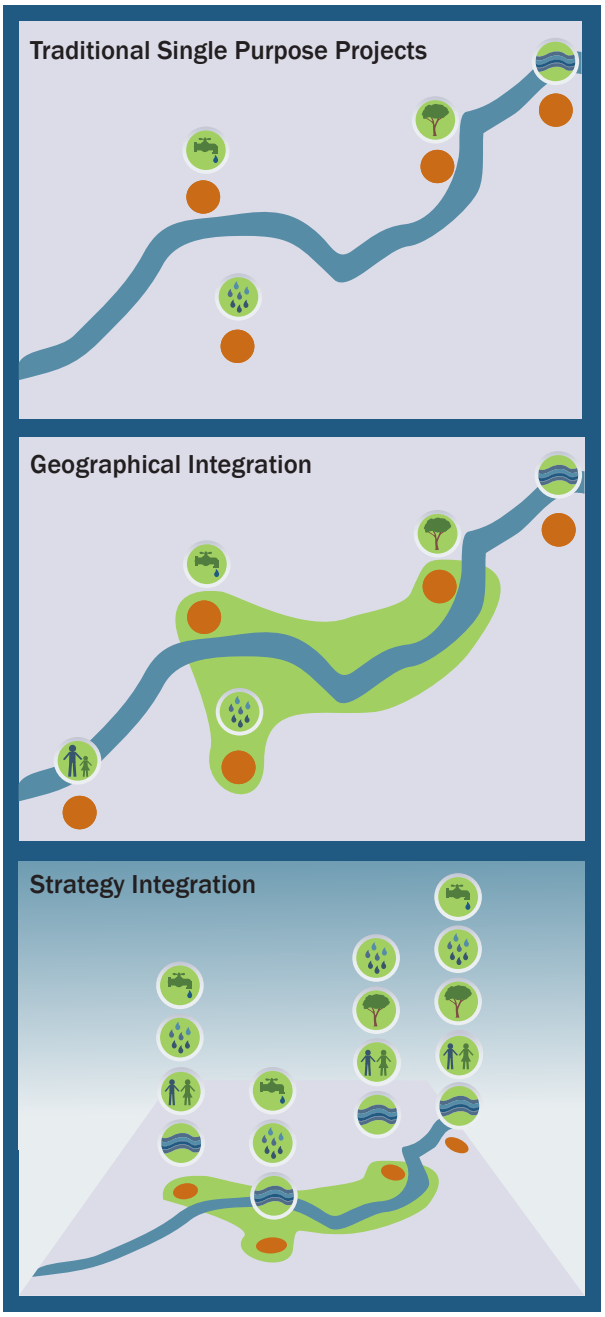


Figure 5-1. Geographical and Strategy Integration. Stakeholders are identifying many opportunities to integrate projects located near each other (geographic integration) and redesign projects to accomplish multiple objectives (strategy integration.)

of projects and programs related to surface water quality. The Los Angeles RWQCB has suggested that it may consider adoption of watershed-based NPDES permits, which would provide additional impetus for coordination of stormwater and NPS programs on a geographic basis.

The Joint Water Pollution Control Plant Marshland Enhancement project provides benefits to a local disadvantaged community and is an example of the integration of several water management strategies including TMDL compliance, habitat restoration and recreation. (Strategy integration.)

Integration of water supply projects and programs on a geographic basis has been occurring in the Region for some time, due to the geographic boundaries of the major wholesale water supply agencies, including the Upper San Gabriel Valley MWD, the Municipal Water District of Orange County, the Central Basin MWD, and the West Basin MWD, the broad scale of the Metropolitan Water District, and the size of the City of Los Angeles. Opportunities for expanded integration exist between the major wholesalers, groundwater management entities, and sanitation agencies which have available excess recycled water.

Project Strategy Integration

Individual agencies, cities, and counties have the ability to implement projects and programs that address more than one of the identified water management strategies. As many resource management agencies typically have single-purpose

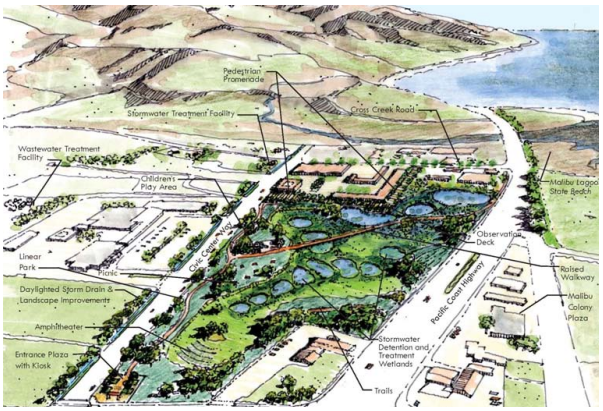
The Machado Lake project has the opportunitiy for integration with the Marshland project due to its proximity. (Geographic integration.)

missions, the implementation of multi-purpose projects may be a challenge, although given affinities between some of the strategies (e.g., water supply, water quality, or habitat and open space), agencies are increasingly funding opportunities to integrate multiple strategies.

Table 4-2 identifies potential affinities between the identified water management strategies, which suggest opportunities to create multi-purpose projects and programs that integrate more than one strategy.

Multi-Agency Projects and Programs

Partnerships provide opportunities for agencies, cities, communities, and groups to work together for common goals. Cities can, and sometimes do, coordinate planning with adjacent jurisdictions. Agencies can work with cities, other agencies, and non-profit groups, to coordinate studies and implement projects. Interest groups may band together to work on issues of common interest. Neighborhoods and associations can strive to iden-



The Malibu Legacy Project will integrate wastewater, stormwater, habitat, open space and recreation strategies.

tify consensus on broad goals. These all represent forms of collaboration, which can result in partnerships that increase the strength of individual voices, expand the influence of groups, and extend benefits of projects and programs beyond individual cities or jurisdictions.

Given the large number of agencies, cities, and counties with jurisdiction in the Region, and the diversity of neighborhoods and interest groups, the range of interests and issues is very diverse and extends beyond water resource management. Instead of differences, it is possible to focus on common themes on which virtually everyone can concur: protect the environment, protect water supply and water quality, and provide more parks and open space. It is possible to work together to plan and develop multi-purpose projects and programs that meet both local needs and agency mandates while also helping to enhance water supplies and improve water supply reliability.

Although informal associations of agencies, cities, counties, and stakeholder groups may be sufficient for the discussion of issues and the formulation of plans (such as watershed plans), more formal arrangements are typically required to plan, implement, operate, and maintain projects. Options for the creation of formal arrangements include a MOU, typically for single projects or programs, a cost-sharing agreement, and a Joint Powers Authority (JPA), which typically is used for multiple actions and/or for long-term activities. Any such structures would need to address the equitable distribution of costs, in proportion to the benefits received by individual agencies or jurisdictions

Integration Process

The project integration process is envisioned to differ in the immediate term and in the future. In the near-term (e.g., 2007-08) integration would likely occur by identifying and enhancing linkages between existing single purpose projects, rather than redefining the projects. For example in the first round of implementation funding, two separate water conservation projects being planned by two agencies (the City of Westlake Village and Las Virgenes MWDs) in the same Subregion were combined into a single integrated project.

In the long term, it is envisioned that identification and integration of projects will be an ongoing, iterative process that would take into account the success of earlier IRWMP projects and be adaptive to a variety of possible changes, including modifications to the objectives and planning targets, and changes to the environmental, regulatory and funding environment. A conceptual process for project identification and integration is described below.

Benefits of Integration

The various water management strategies identified in this document can be integrated into projects and programs to achieve broad objectives.

Improve water supply and enhance water reliability: desalination; groundwater management/ conjunctive use; imported water; surface storage; water and wastewater treatment; water conservation; water recycling; water supply reliability; and water transfers.

Improve surface water quality and/or flood management: flood management; land use planning; NPS pollution control; stormwater capture and management; water quality protection and improvement; and watershed planning.

Expand recreational open space and habitat: ecosystem restoration; environmental and habitat protection and improvement; recreation and public access; watershed planning, and wetlands enhancement and creation.

The integrated implementation of projects to improve surface water quality and/or flood management has the potential to improve water supply and enhance water supply reliability. If surface water quality is improved, concerns about potential adverse impacts from the recharge of stormwater would be reduced, making additional runoff become available for recharge. If stormwater capture and management is expanded, options for the treatment of stormwater include detention basins and constructed wetlands, both of which have the potential to enhance groundwater recharge. If flood management is improved, additional stormwater runoff could be detained and thereby become available for recharge (as current

Step 1 – Develop Subregional targets and assess current progress towards Subregional targets: This step would involve the development of Subregional targets based on Subregional opportunities and constraints. These targets would be used for decision making at the Subregional level. Any adjustment to the Subregional priorities and/or targets would need to be coordinated at the Regional level.

Step 2 – Assess current environment (including political, regulatory, funding). The priority would be adjusted with shifts in the political, regulatory and funding environment, in addition to progress made towards targets. For instance, future bond measures may create increased funding opportunities and necessitate a modification in priorities. Subregional priorities may shift in response to local conditions. Similarly, the political will to pursue certain project types and locations may affect the ability to obtain support and consensus to advance projects forward.

Step 3 – Examine adequacy of long term Regional targets: As implementation progresses, it may become evident that the initial planning targets were unrealistic or will not be sufficient to meet future needs. In such a case, the targets themselves may need to be adjusted.

Step 4 – Review and update the list of potential projects: Identification and submission of new projects will be an ongoing process. Once the priorities and targets have been updated in the previous steps, these projects will be reviewed and prioritized alongside existing projects.

Step 5 – Define a new prioritized set of integrated projects: Using a formal prioritization process and the integration tools developed as part of this IRWMP as appropriate, a new set of priority, integrated projects can be defined.

Figure 5-2. The integration process follows 5 steps. In the long term, it is envisioned that identification and integration of projects will be an ongoing, iterative process that would take into account the success of earlier IRWMP projects.

recharge capacity limits the volume of runoff that may be recharged at some locations). If groundwater recharge is expanded, then water supply reliability would be enhanced, as groundwater basins can be drawn down in periods of drought and replenished during periods of above-average rainfall.

The integrated implementation of projects to expand and preserve open space and habitat also has the potential to improve water supply and enhance water supply reliability. Open space in the mountains and foothills act as sponges to soak up rainfall and slowly release the water and natural outflow over a relatively long period. Restored habitat areas tend to soak up more rainfall than degraded habitat. The Santa Monica and San Gabriel Mountains, along with other mountains and foothills in the Region provide a substantial source of local water supply. Although large portions of these areas are already preserved, in the form of the Angeles National Forest and the Santa Monica Mountains National Recreation Area (and associated state and local parks), large portions of the mountains and foothills remain in private hands, and are subject to potential development. The preservation of open space, restoration of functional habitat, and the creation of new habitat (such as constructed wetlands) all have the potential to increase groundwater recharge, and therefore improve water supplies and enhance water supply reliability.

Project integration can also enhance the Region's ability to contribute to statewide priorities, as more fully discussed in Appendix A (Statewide Priorities).

5.4 Regional Planning Tools

As noted above, it appears unlikely that stakeholder-identified projects will provide sufficient benefits to meet the planning targets and do not appear to reflect widespread integration. To demonstrate integrated approaches that would meet the planning targets, three conceptual approaches were developed that combined selected project concepts which are termed Regional Planning Tools (or Planning Tools):

- **Planning Tool 1—Site Scale:** Use of single purpose projects implemented at individual sites. (Figure 5-4.)
- **Planning Tool 2—Neighborhood Scale:** Agencies working together to implement multi-purpose projects to meet neighborhood level needs. (Figure 5-5.)
- **Planning Tool 3—Regional Scale:** Linear corridors along rivers, creeks and channels that link multipurpose projects. (Figure 5-6.)

Table 5-5 provides an illustration of how planning targets could be met. The Planning Tools provide a mechanism on how to meet the water supply needs of the Region while simultaneously addressing the requirements to reduce, capture, and treat urban and stormwater runoff (and meet applicable water quality standards) and generate benefits to habitat and recreational open space thereby contributing to other identified Regional needs.

Although the Planning Tools depict three conceptual approaches to meet the planning targets for water supply and water quality, numerous combinations of the project concepts included in the tools are possible. The Planning Tools are not intended to represent every possible combination and no inference should be drawn from the omission of any individual project concept in any of the tools. The tools are intended to generate a discussion of how to meet the planning targets while maximizing the integration of water supply and water quality projects and simultaneously generating benefits for habitat, open space, and recreational access. As the stakeholder-identified projects do not cumulatively meet the planning targets, the Regional Planning Tools could be utilized to define a set of new Regional or Subregional integrated projects, and

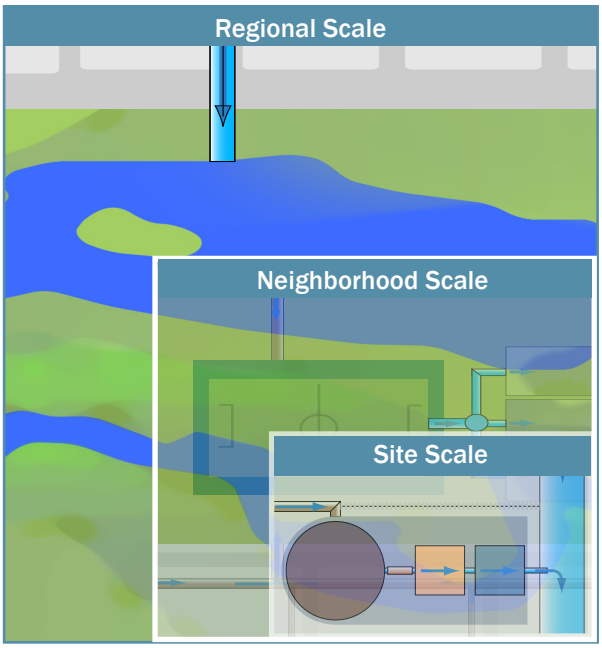


Figure 5-3. Regional Planning Tools Relationship. By integrating projects within the 3 planning tools, a network can be created that is greater than the sum of its parts.

when combined with the stakeholder-identified projects, would provide a comprehensive water resource management solution.

Given the substantial variation that exists between the Subregions, the applicability of each of the tools will also vary between Subregions. It should not be assumed that only one tool is applicable to any Subregion, watershed, or jurisdiction. Rather, each Subregion, or individual agency and jurisdiction may elect to consider customization of the tools to reflect local conditions and priorities

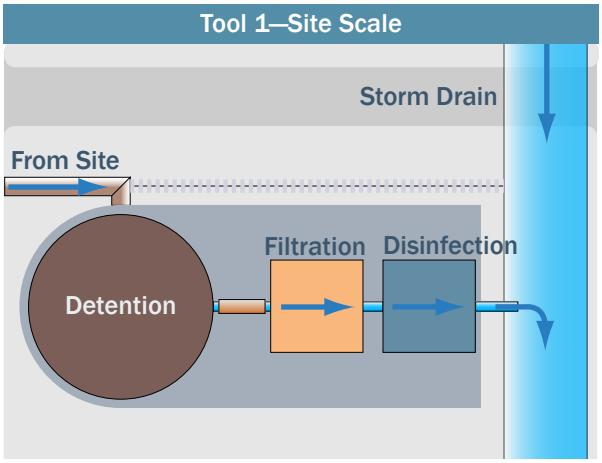


Figure 5-4. Planning Tool 1—Site Scale. Conceptual runoff capture and treatment project before water flows to storm drain.

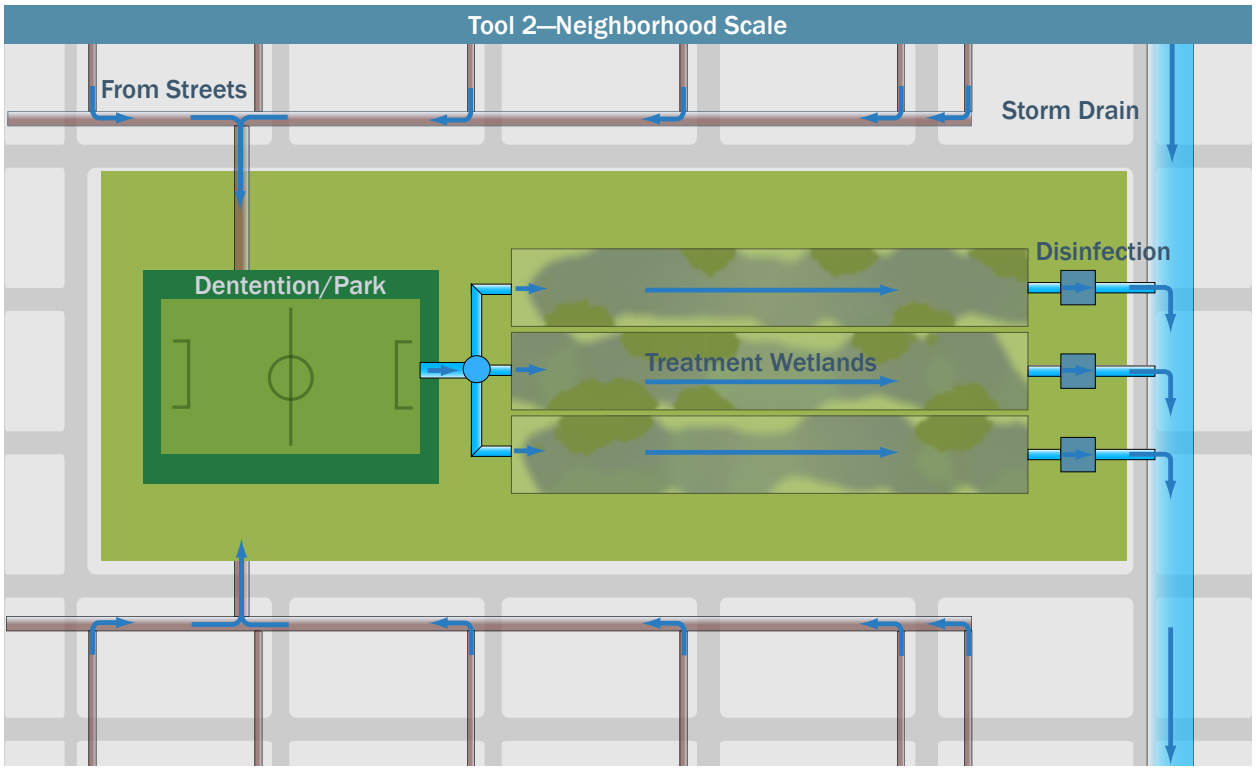


Figure 5-5. Planning Tool 2 —Neighborhood Scale. Conceptual runoff capture and treatment project of water flow to storm drain.

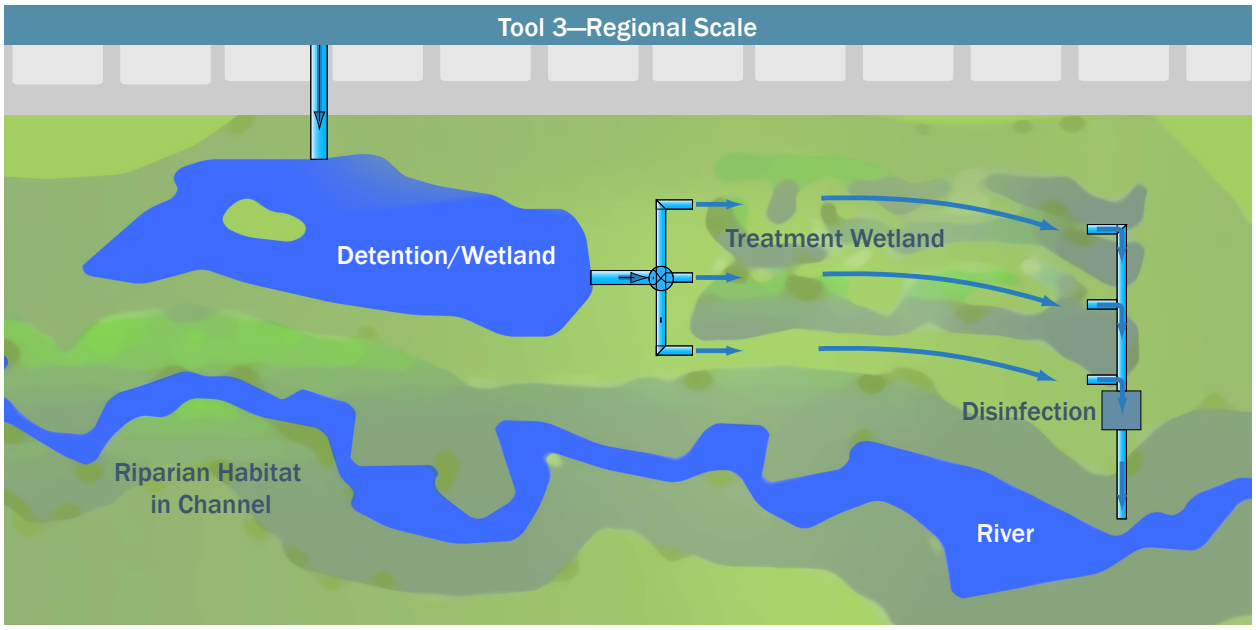


Figure 5-6. Planning Tool 3 —Regional Scale. Conceptual runoff capture and treatment of water flows from storm drain.

and generate additional integrated Regional projects. The following sections include an expanded description of each of the three Regional Planning Tools.

Planning Tool 1: Site Scale

Public agencies throughout the Region have a variety of projects and programs to address water supply, improve surface water quality, maintain

flood protection, and expand parkland and open space. However, as most public agencies have single-purpose missions and mandates, most of these projects and programs tend to be single-purpose. Thus, one option to fill the identified gap would be to continue to focus on single purpose projects at the site scale level.

For water supply, site scale projects would include: expanded groundwater recharge (e.g., by expanding capacity at existing recharge facilities); groundwater basin optimization (including remediation of existing contamination); expansion of water conservation; expanded utilization of recycled water, ocean water desalination, and surface storage (e.g., using flood control facilities to retain additional runoff). Water quality improvement site scale tools would include various projects and programs identified to treat stormwater contaminants (trash, bacteria, metals, and organic chemicals), through a variety of treatment technologies (e.g., on-site BMPs, catch basin filters, continuous deflection separators, oil and grease separators, disinfection systems, or ultraviolet light systems). A hypothetical scenario shown in Table 5-5 uses a combination of these projects. Figure 5-4 shows an example of stormwater capture and treatment BMPs being used as a site scale tool for water quality.

Given the volume estimates for stormwater that must be treated, it is assumed that projects would need to be located within existing residential street boundaries, rights-of-way, and small catchments, where individual storm drains meet the river, or major creek channels. The actual treatment technology that would be needed for individual storm drains would vary depending on which contaminants are present. The capacity requirements for these technologies would be reduced over time as more and more residences begin to capture and infiltrate their stormwater runoff on-site. Map 5-6 shows the potential coverage available in the Region for the widespread application of site scale projects using onsite BMPs in single family neighborhoods.

The site scale option could be adapted via an analysis of the project database to identify specific projects and programs to restore wetland and riparian habitat and associated buffer areas. This may include removal of barriers to fish migration in the Santa Monica Mountains, invasive species removal, land acquisition, and measures to improve water quality in contributing areas.

Finally, although site scale tool is by definition the utilization of single-purpose projects, implementing them in conjunction with the IRWMP requires that all attempts be made to find linkages and synergies to other projects where-ever possible.

Planning Tool 2: Neighborhood Scale

From a water quality and water supply standpoint, neighborhood-scale projects shift the focus from projects on individual sites (as in Planning Tool 1) to the installation of large scale water quality treatment facilities for urban and stormwater runoff at the neighborhood scale. Fundamentally, this concept reflects a shift away from single-purpose water supply and water quality projects with a proposal to reuse 130,000 acre-feet of treated urban runoff for non-potable uses (e.g., irrigation), thereby augmenting local water supplies and reducing demand for other sources. The example in Table 5-5 shows that under Planning Tool 2, 130,000 acre-feet/year of treated runoff contributing to surface water quality targets would also contribute the same amount of water supply.

Planning tool 2 consists of multi-purpose projects and programs implemented at the neighborhood scale all across the Region. Neighborhood scale projects would be specifically designed for each of the neighborhood's needs and conditions. This approach could encourage agencies and jurisdictions to work collaboratively together to implement multipurpose projects and programs.

Using these types of projects assumes that some water supply projects and programs would proceed, such as: expanded groundwater recharge (e.g., by expanding capacity at existing recharge facilities); groundwater basin optimization (including remediation of existing contamination); expansion of water conservation; ocean water desalination; surface storage (e.g., using flood control facilities to retain additional runoff); and expanded utilization of recycled water (recycled dry weather runoff) through development of a localized distribution system at facilities where water users are within

Table 5-5. Summary of Regional Planning Tools

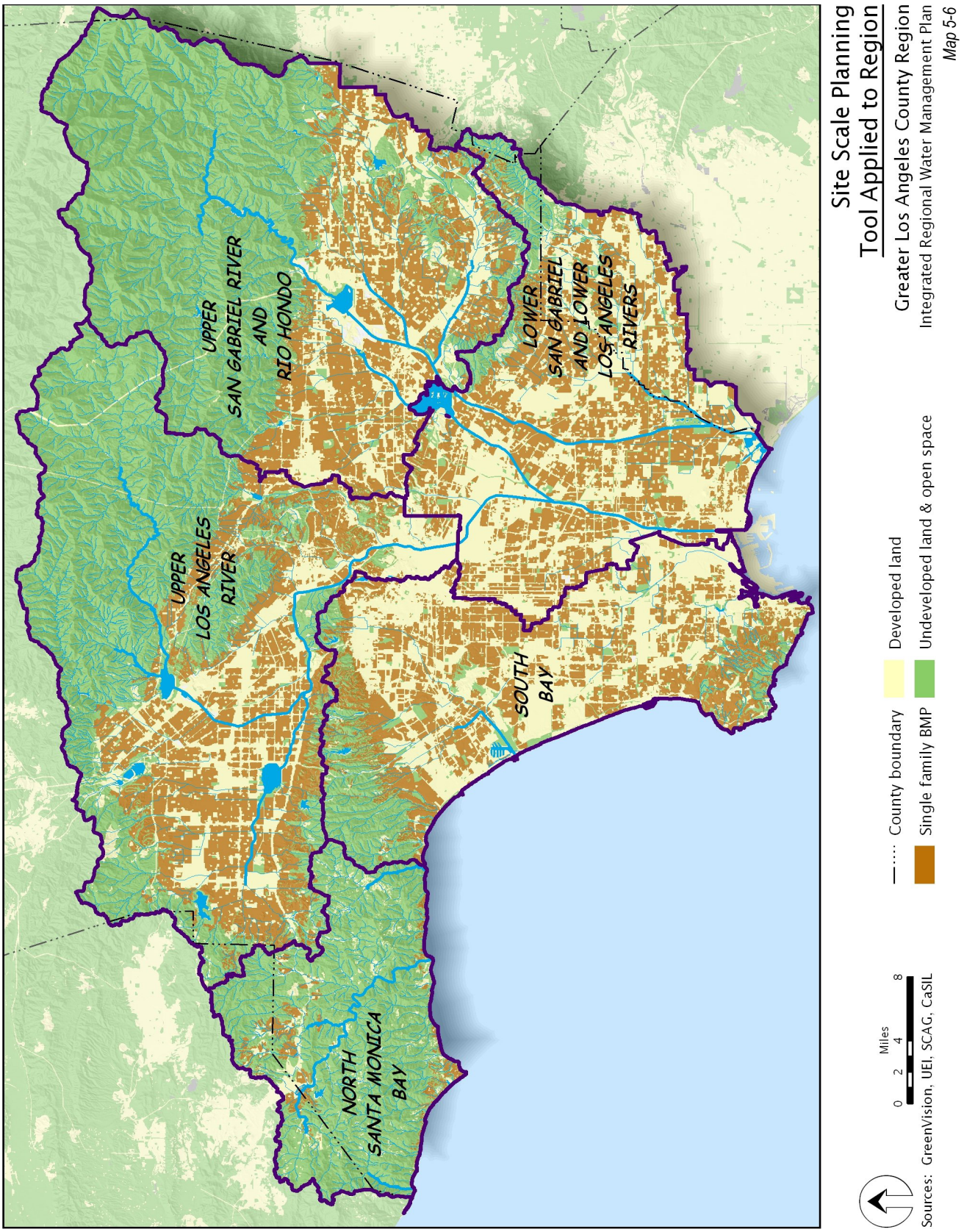
	Target 800,000	Planning Tool 1 Site Scale	Planning Tool 2 Neighborhood Scale	Planning Tool 3 Regional Scale
	Acre-feet/year			
Water Conservation / Demand Reduction		110,000	110,000	110,000
Expanded Local Water Production		100,000	100,000	100,000
Other Projects (desalination & groundwater recovery)		90,000	90,000	90,000
Additional Recycled Water		130,000	130,000	130,000
Additional Imported Water		370,000	240,000	120,000
Urban (Dry Weather) Runoff		0	130,000	130,000
Stormwater Runoff (from Urban Areas)		0	0	120,000
Total Water Supply[1]		**800,000**	**800,000**	**800,000**
Urban (Dry Weather) Runoff	320,000			
Reduction of Runoff Volumes				
On-Site Residential BMPs[2]		124,000	0	0
Treatment[3]				
Traditional (Mechanical/Chemical)		196,000		
Natural Treatment (e.g., constructed wetlands)			320,000	320,000
Use of Treated Water				
Non-Potable Reuse[4]		0	130,000	130,000
Discharge to Creeks and Rivers		196,000	190,000	190,000
Total Urban (Dry Weather) Runoff Treated		**320,000**	**320,000**	**320,000**
Stormwater Runoff (from Urban Areas)	490,000			
Reduction of Runoff Volumes				
On-Site Residential BMPs[2]		190,000	0	0
Short-Term Detention		300,125	490,000	490,000
Treatment				
Traditional (Mechanical/Chemical)		300,125	0	0
Natural Treatment (e.g., constructed wetlands)				
Secondary Treatment[5]				120,000
Tertiary Treatment			490,000	370,000
Total Urban Stormwater Runoff Treated		**490,000**	**490,000**	**490,000**
Use of Treated Water				
Recharge via Groundwater Basins		0	0	120,000
Discharge to Creeks and Rivers		300,125	490,000	370,000
Wetland restoration/creation (from water quality facilities) (acres)	1,400		4,500 acres	8,000 acres
Riparian habitat restoration (from water quality facilities) (miles)	100			100 miles
Parks and Open Space creation (from water quality facilities) (acres)	**30,000**	1,550 acres	3,500 acres	
Parks and Open Space creation (additional) (acres)		6,450 acres		
Total Open Space and Habitat		**8,000 acres**	**8,000 acres**	**8,000 acres**
Flood Management, Water Supply and Wastewater	**40%**	**40%**	**40%**	**40%**

1. *Estimated increase in water supply and/or demand reduction above current supplies/conservation*
2. *Equals approximately 39% of runoff, as that portion of urbanized area is single family homes*
3. *Assumes tertiary treatment, unless otherwise noted*
4. *Local distribution of treated urban runoff for irrigation and other uses (similar to reclaimed water)*
5. *Assumes secondary treatment for subsequent groundwater recharge via spreading basins*

Residential BMPs could reduce water demand (amount TBD)

Non-potable reuse of treated urban runoff

Recharge of treated stormwater runoff


UPPER SAN GABRIEL RIVER AND RIO HONDO
LOWER SAN GABRIEL AND LOWER LOS ANGELES RIVERS
UPPER LOS ANGELES RIVER
SOUTH BAY
NORTH SANTA MONICA BAY
Site Scale Planning Tool Applied to Region
Greater Los Angeles County Region
Integrated Regional Water Management Plan
Map 5-6
County boundary
Developed land
Single family BMP
Undeveloped land & open space
Miles
0 2 4 8
Sources: GreenVision, UEI, SCAG, CaSIL

a one-mile radius. However, to the extent that stormwater improvement projects and programs make supplies available for direct reuse or recharge, the need for "traditional" water supply projects may be reduced. The implementation of runoff treatment technologies has traditionally been limited to a single purpose benefit of water quality improvement. Using neighborhood scale projects will allow some additional water supply benefits through reuse of the captured water, converting the project to multi-use and contributing simultaneously to both the water supply and water quality planning targets. Map 5-7 shows the potential coverage available in the Region for the widespread application of a neighborhood scale projects using onsite BMPs in single family neighborhoods as an example.

To achieve the multiple benefits envisioned at the neighborhood scale, natural treatment systems would include detention basins to capture, detain and equalize the flow generated from a ¾-inch storm event, and treatment wetlands to receive the equalized flow effluent from the detention basin. These facilities would be designed to enable the integration of additional purposes into the design of subsequent facilities, such as passive and active recreation. It is assumed that the facilities would be designed to drain the detention basin in 72 hours in anticipation of the next storm event. These systems could be located at sites throughout the Region (as shown in Map 5-7), within individual catchments and on smaller storm drains to create a patchwork of small open spaces within individual neighborhoods for both recreation and habitat purposes.

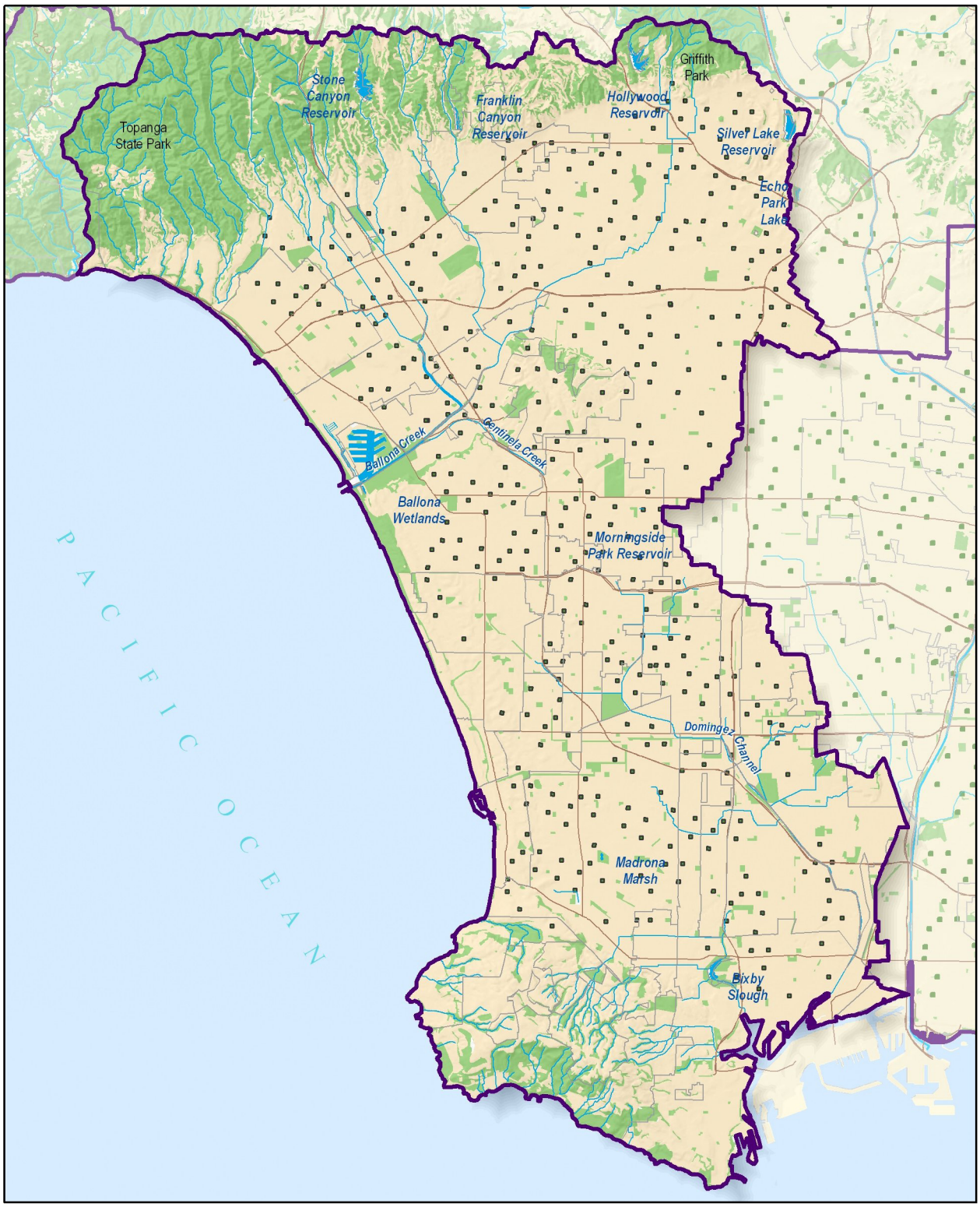
Planning Tool 3: Regional Scale

The regional scale Planning Tool also emphasizes development of multi-purpose projects. However, instead of projects developed at the neighborhood scale, the capture and treatment of urban and stormwater runoff would occur along the rivers, creeks, and major tributary channels, creating multi-purpose riparian corridors that have the potential to connect the Region with linear green spaces. For this option, a series of detention basins and constructed wetlands would be developed along major channels as shown in Figure 5-6 to treat runoff from individual storm drains before they empty into the main channel.

Over time, as additional facilities are constructed and become contiguously linked, existing river channels could potentially be reconfigured to incorporate these facilities into a more naturalized channel to function more like a riparian ecosystem. This concept is generally consistent with the "river parkways" found in the 2001 California Resources Agency document Common Ground: From the Mountains to the Sea, which proposed the creation of linear green spaces along the Los Angeles and San Gabriel Rivers, the major tributaries, and other major creeks or channels. The specific width of the parkways would vary, depending on volume of runoff that would need to be treated from specific storm drains or tributary channels and the availability of land.

The river corridor design would increase habitat value benefits by creating a contiguous linear corridor of connected habitats which would provide greater ecological value than the same amount of disconnected habitats isolated by urbanization. A conceptual figure of how this could be accomplished is shown in Map 5-8. In addition, the U.S. Army Corps of Engineers has acknowledged that this approach would be consistent with the Corp's mandate for ecosystem restoration, which would make these projects eligible for federal cost-sharing (at 65 percent of the cost).

Consistent with Planning Tool 2, this tool also proposes the capture, treatment, and subsequent reuse of urban runoff for non-potable uses, such as landscape irrigation. In addition, Planning Tool 3 also proposes to recharge treated stormwater runoff via recharge features incorporated into the site design. This is illustrated in Table 5-5, which shows that under Planning Tool 3, approximately 130,000 acre-feet/year would be captured and treated (as in Planning Tool 2), while an additional 120,000 acre-feet/year of treated stormwater would be recharged, creating a total of 250,000 acre-feet/year of supplemental water, reducing the need to develop new water supplies and potentially reducing demand for imported water.



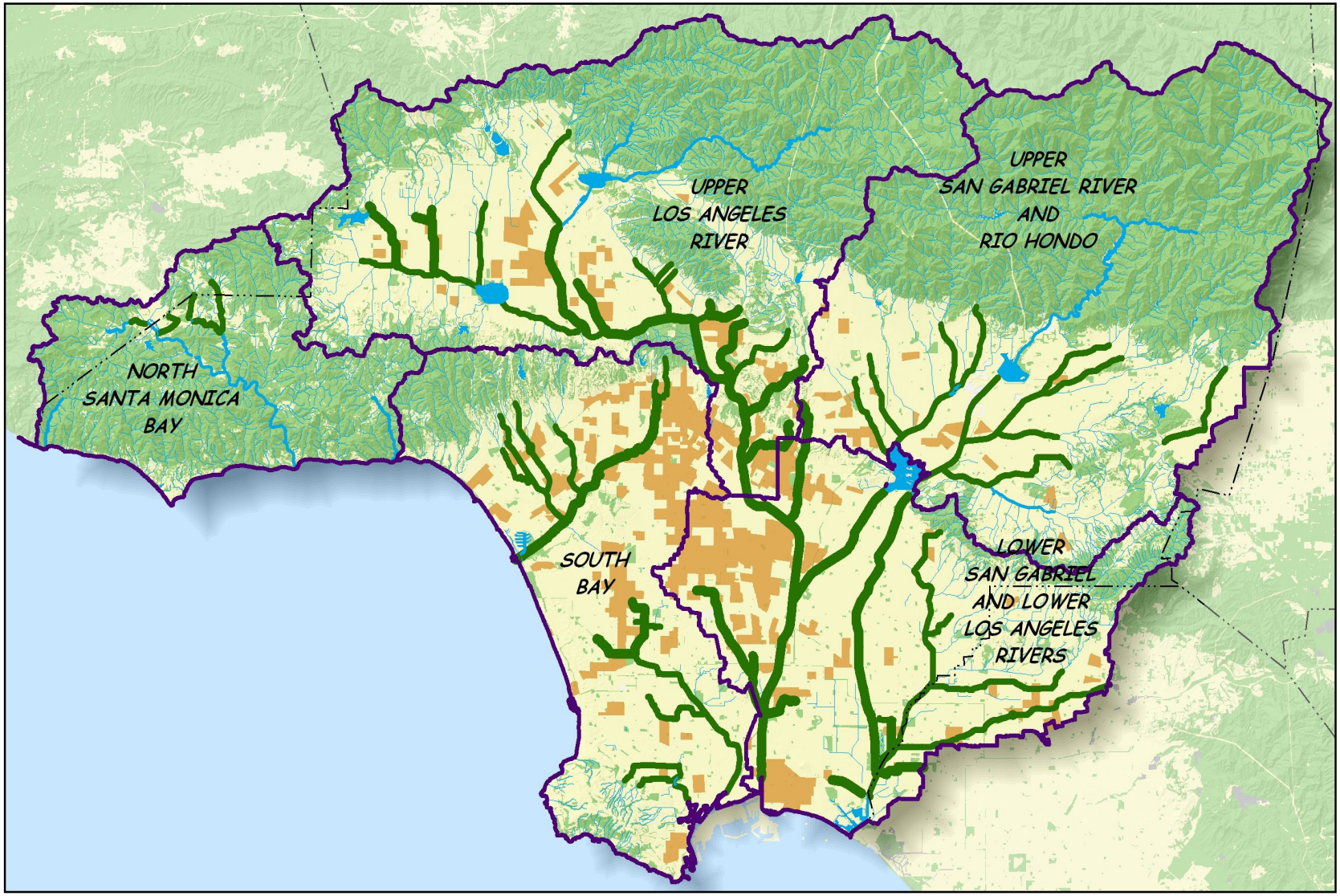
Miles
0 1.25 2.5 5

Sources: GreenVision, UEI, SCAG, CaSIL

5-acre open space
Developed land
Undeveloped land & open space

Neighborhood Scale Planning Tool Applied to a Subregion

South Bay Watersheds
Integrated Regional Water Management Plan
Map 5-7



Sources: GreenVision, UEI, SCAG, CaSIL

Regional Scale Planning Tool Applied to Region

Greater Los Angeles County Region
Integrated Regional Water Management Plan
Map 5-8

6. BENEFITS AND IMPACTS

Venice Beach

The Southern California economy is dependent on clean water and clean beaches.

6.1 Introduction

This section summarizes the potential benefits and impacts of the IRWMP. The following sub-sections identify the potential benefits of the stakeholder submitted projects, describe the overall approach to the assessment of benefits, provide an assessment of potential benefits from the IRWMP, and summarize potential impacts that could result from implementation of the IRWMP. A discussion of potential benefits and impacts for the thirteen projects submitted for Proposition 50 (Chapter 8) Round 1 (Step 2) implementation funding is provided in Appendix B.

6.2 Benefits of Stakeholder-Identified Projects

Section 5 (Project Identification and Integration) provided an analysis of 1,521 projects and project concepts submitted via the project solicitation process through October 2006. This process generated a total of 1,521 projects and project concepts (which are included in Appendix C), of which 850 identified benefit types and 565 quantified those benefits, as discussed more fully in Section 5.

6.3 Benefits of IRWMP Implementation

The IRWMP proposes integration of multiple water management strategies in projects to improve water supply, water quality, and open space. The Leadership Committee has identified objectives and quantifiable planning targets for water supply, water quality, habitat, parkland, and infrastructure repair and replacement.

The benefits assessment provides an opportunity to quantify, in monetary terms, the value of implementing the Plan or individual projects.

Benefits Assessment Framework

The purpose of the benefits assessment framework is to quantify, in monetary terms, improvements to the "beneficial uses" of water, which are identified in the Basin Plans prepared by the RWQCBs, and any other improvements that may result from the IRWMP. The benefits assessment framework provides decision-makers with a tool that can support the integration of projects and be used to compare the estimated benefits of different projects or combinations of projects.

The benefits assessment framework provides the categorization and quantification of project benefits under a consistent metric. The goal of the benefit assessment framework is to identify opportunities to increase benefits, through the integration of individual projects into a more cost-effective program. Benefit values used in this framework are largely based on estimates established in the Environmental and Natural Resource Economics Literature, avoided costs, or estimates provided by project sponsors. Economists regard environmental resources, including water resources, as natural assets that generate value in the same manner as all other assets. Thus, the value of a water resource asset can be generally defined as the discounted sum of the "well being" provided by water resource during the useful life of that resource.

To estimate the value of water resources improvements, environmental and natural resource economists have developed a variety of methods that either estimate the willingness-to-pay for the resource improvement or infer value from an observed phenomena, such as price differentials. Each valuation method has an appropriate application and comes with caveats. This benefit assessment framework relies on the following approaches to evaluate project benefits:

- Avoided costs;
- Revealed preferences;
- Stated preferences; and
- Hedonic pricing[1].

In addition, the benefit assessment framework uses a flood protection valuation model developed by LACFCD. Benefit estimates submitted by projects proponents are also presented in this benefits assessment framework.

The following sub-sections provide additional benefit assessment information associated with water supply, water quality, and other beneficial uses.

Water Supply Benefits	Water Quality Benefits
■ Increase groundwater recharge ■ Increase groundwater recovery ■ Increase conjunctive use ■ Increase water transfers ■ Increase recycled water ■ Increase surface water capacity ■ Increase surface water capture and treatment ■ Increase desalination ■ Avoided purchase of imported water	■ Avoided water treatment costs ■ Avoided sediment removal costs ■ Avoided damages ■ Avoided health risks ■ Increased recreational use ■ Improved recreational experience ■ Increased aesthetic value of water and related habitat ■ Increased property values

Figure 6-1. Potential water supply and water quality benefits.

[1] *Hedonic pricing is the use of statistical techniques such as regression analysis to determine, from the prices of goods with measurable characteristics, the prices associated with those characteristics, and there from the comparable price of another good based on its characteristics.*

Other Benefits

Numerous types of benefits, other than those directly related to water supply and water quality, may be generated by a water resources project. These benefits may be ancillary to the primary purpose of a water resources project, such as habitat benefits from a treatment wetland or recreational benefits from new open space created by surface water quality treatment facilities. Although ancillary, these benefits may be useful in the formulation of projects that provide the greatest economic benefit, including both primary and ancillary benefits.

Other benefits may be categorized in various ways, however, for the purpose of this Plan, the framework of other benefits are categorized according to the services provided. Categorization and calculation of benefits according to services provided is consistent with the valuation of ecological services and allows for identification and calculation of individual benefits, which may be added to water supply and water quality benefits calculated elsewhere.

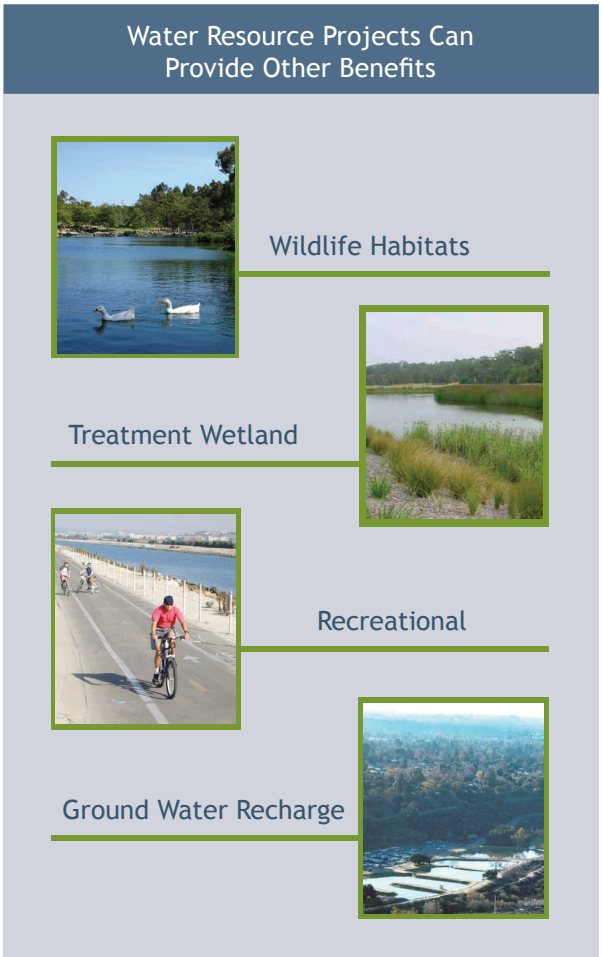


Figure 6-2. Water resource projects provide other benefits. Water resource projects can be designed to provide benefits other than water supply and water quality.

Regional Planning Tools

Three distinct approaches to achieve the planning targets are described in Section 5. As the stakeholder-identified projects may not provide the level of benefits needed to meet the planning targets, a benefit gap must be met to reach the targets. This led to the development of three Regional Planning Tools (or Planning Tools):

- Planning Tool 1: Site Scale
- Planning Tool 2: Neighborhood Scale
- Planning Tool 3: Regional Scale

The Planning Tools have been developed at the direction of the Leadership Committee, to assist stakeholders by providing information on the benefits and costs of three distinct approaches that would achieve the planning targets. It should be emphasized that none of these tools should be interpreted to be the answer for the Region or any Subregion. The information is provided to help decision-makers develop more informed choices about appropriate solutions given a particular set of opportunities and constraints. It is likely that the final solution for any Subregion could be a hybrid of all three of approaches identified by the Planning Tools.

Costs and Benefits

Calculation of the costs and benefits of the three Regional Planning Tools was conducted at a conceptual level, based on data gathered from similar projects that have already been constructed in the Region, discussions with local agency personnel, or from costs and benefits identified in literature. The costs and benefits of each Planning Tool are estimated separately, using generic unit costs and benefits that may be applicable to each Planning Tool.

It should be noted that the cost of a project or groups of projects would vary depending on how the project is structured to generate multiple

benefits. For example, capturing and treating runoff from a particular storm drain that currently drains into the Los Angeles River could include water quality, water supply, and/or habitat benefits. If a single purpose project is pursued, then the improvements provided would be different than if the project was designed to achieve multiple objectives. Likewise, the costs associated with the different project integration and development alternatives will also vary. To facilitate an assessment of the costs to benefit relationships of these different project integration and development alternatives, the costs and benefits of each Planning Tool are estimated separately. The costs estimates were developed using generic unit costs and benefits applicable to each Planning Tool.

Again, the cost estimates developed herein are appraisal-level estimates and are to be used only for comparison purposes. More detailed cost estimates that reflect local project conditions and other project-specific cost factors will need to be developed in subsequent planning stages of the selected projects. Similarly, more detailed benefit estimates are not necessary for development of the IRWMP because the purpose of the Plan is to identify the overall approach to regional water resources management and not to select among specific local projects. Consequently, it is important to consider that the benefits identified in this IRWMP are not all encompassing. It is understood that substantial localized benefits exist for some projects that cannot be identified at this Regional Planning level. For this reason, calculation of a benefit/cost ratio for any of the three Regional Planning Tools would likely be misleading, given the under-representation of potential benefits.

The information contained within this analysis provides decision-makers with a venture level quantitative assessment of the incremental costs and benefits of integrated regional water resources management. The costs and benefits presented in this analysis provide a perspective on the significant economic differences between the three Regional Planning Tools in terms of the magnitude of the costs and benefits. An assessment of the potential magnitude of Federal participation in financing Regional water resources management is also provided. The costs and benefits analysis clearly shows the progressive increase in regional benefits that is gained from increased project integration and development of multi-purpose projects. The results of this analysis indicate that project integration and coordination with the management of existing natural features (such as parks, rivers, wetlands, etc.) will lower the cost of developing the additional water supplies that are needed for the Region.

Regional Planning Tool Costs

All three Tools were designed to treat the runoff from a "design storm" of 0.75 inch precipitation in 24 hours. The volume of stormwater runoff associated with the design storm was estimated to help define future needs for capture and treatment facilities (capacity and cost). Stormwater runoff volume was calculated using a weighted Simple Method equation, as applied in the Los Angeles County 1994-2005 Integrated Receiving Water Impacts Report. In the Region, the 85th percentile 24-hour runoff storm event translates to approximately 0.75 inch of precipitation over a 24-hour period. This design storm event has been calculated based on methods and recommendations set forth by the ASCE and the Water Environment Federation (WEF) in their design manual (ASCE/WEF, 1998). For detailed project design, storm intensity and rate of runoff would also need to be considered in addition to volume of the runoff.

To calculate the runoff from developed areas, the percent impervious area for each land use type was estimated based on guidelines for Los Angeles County published in the (LACFCD, 1991). The total volume of stormwater runoff associated with a 0.75 inch storm event is approximately 25,800 acre-feet/design storm event over the entire 1,151 square miles of developed area in the Region.

Water quality targets and volumes achieved by the three Planning Tools are presented in terms of acre-feet per year instead of the more typical mgd metric (for flood protection projects) for ease of comparison with the water supply planning targets (as Tools 2 and 3 provide water supply benefits). In order to capture and treat the "design" storm event, treatment facilities with a capacity of 8,400 mgd were identified. By designing runoff capture systems for this volume, dry-weather urban runoff

flows, which would be substantially less than storm runoff, could also be captured and treated by the same system.

Table 6-1 presents a summary of the present costs for the Regional Planning Tools. Present cost values are used to calculate the total costs and benefits of the tools, over the useful life of the Tools, in this case 50 years (the typical design life of major capital projects and thus an appropriate timeframe for calculation of costs and benefits). Present values are discounted (6 percent per year) so that all costs and benefits can be expressed in current (2006) dollars.

Discounting is necessary for the comparison of costs and benefits and for the comparison of one tool to another because it accounts for differences in the timing of costs and benefits. Typically, costs are higher in the early stages of a project (construction, land acquisition, etc) and then level off at a much lower level (operations and maintenance costs). Benefits, on the other hand, typically don't occur until after the construction is complete and may require a few years to build up to a sustainable level. Discounting provides a consistent systematic approach to comparing costs and benefits that occur at different times (some today, some tomorrow, and some 50 years from now). All the costs and benefits presented in this analysis are discounted at 6 percent and summed over 50 years, with the exception of the discussion of construction costs, which are presented in today's 2006 dollars. These construction costs are discounted when they are included in the total costs of there Regional Planning Tools.

The total present value water supply costs presented in Table 6-4 are the sum of a series of calculations for each of the estimated 50 years the project would operate. For each year (2007–2056), the volume of water produced by each supply type has been estimated based on discussions with local water agency personnel. A total annual cost for each supply type is calculated by multiplying the annual volume by the unit cost for each water supply type. The total annual costs for each supply type are summed and discounted according to the year of the project.

Table 6-4 also presents the water supply, water quality, and open space quantities achieved by those Tools. There are no costs specifically identified for open space creation under Tools 2 and 3 because land purchases are assumed to be a requirement for construction of the water quality facilities. Under Tool 1, land in addition to land required for construction of the treatment facilities must be purchased for the sole purpose of creating the same number of open space acres as tools 2 and 3. Therefore, only Tool 1 has costs specifically identified for open space. Capital costs, including

Table 6-1. Cost Summary of Regional Planning Tools[1]

	Regional Planning Tools		
	Tool 1	Tool 2	Tool 3
Water Supply Quantity (acre-feet/year)	800,000	800,000	800,000
Water Supply Costs[2]	$9,499,000,000	$8,487,000,000	$9,842,000,000
Surface Water Quality Reduction and/or Treatment Quantity (acre-feet/year)	810,000	810,000	810,000
Water Quality Costs[3]	$32,154,000,000	$45,580,000,000	$15,869,000,000
Open Space Quantity (acres)	8,000	8,000	8,000
Open Space Costs[3]	$3,109,000,000	-	-
Total Costs	**$44,762,000,000**	**$54,067,000,000**	**$25,711,000,000**

1. *Costs are sum of present values discounted 50 years at 6 percent.*
2. *From Table 6-4.*
3. *From Table 6-5.*

land purchases, for each tool are distributed evenly over a twenty year period and Operation and Maintenance (O&M) costs are accrued cumulatively over the same 20 years. All costs are discounted at 6 percent and summed over a period of 50 years.

Table 6-1 indicates that the same quantities of water supply, water quality, and open space can be achieved at varying costs. The costs of implementing Tool 3, which has the greatest level of integration, are 57 percent of the costs of implementing Tool 1, which has the least level of integration, even though both tools produce the same water supply, water quality, and open space quantities during the same time.

Water Supply Costs

Table 6-2 presents the quantities of the various types of water supply that will provide a total of 800,000 acre-feet/year. Each type of water supply is assumed to achieve the full quantity by 2020, with the exception of conservation which will be fully achieved in 2025. After 2025, water supply quantities for each supply type are assumed to be constant at the fully achieved level. Water supply quantities under Tool 1 are based on projected increases in local water supply production, conservation, and MWD supplies. Under Tool 2, an additional 130,000 acre-feet/year of dry weather runoff is developed for water supply, which displaces an equal volume of demand for imported water. Under Tool 3, an additional 120,000 acre-feet/year of stormwater runoff is developed for water supply, similarly displacing an equal amount of imported water.

Differences in water supply costs among the three Regional Planning Tools are directly related to the level of project integration and increased use of multi-purpose projects across the tools. Water supply unit costs, presented in Table 6-3 are based on MWD rate projections and discussions with local water agency personnel. Table 6-4 presents an example calculation of total annual water supply costs under each Regional Planning Tool. This table displays the change in costs across the planning tools as imported water is replaced by new supplies developed from urban dry weather and stormwater runoff. The example calculations are conducted for the year 2025, using the water supply quantities presented in Table 6-2.

Water Quality Costs

Differences in water quality costs for the Planning Tools are due to differences in treatment facility design and function in each of the three Tools. Tool 1, the least integrated of the three Regional Planning Tools, includes 1,030 treatment facilities (5 mgd each) and BMPs that would capture the first ¾ inch of runoff from 100 percent of all single family residential properties in the Region. Tool 2 would include 1,600 5.25 mgd facilities, but no resi-

Table 6-2. Water Supply Development Quantities (acre-feet/year)

	Regional Planning Tools		
Water Supply Type	**Tool 1**	**Tool 2**	**Tool 3**
Conservation/Demand Reduction	110,000	110,000	110,000
Expanded Local Groundwater Production	100,000	100,000	100,000
Desalination	55,000	55,000	55,000
Groundwater Recovery	35,000	35,000	35,000
Additional Recycled Water	130,000	130,000	130,000
Additional Imported Water	370,000	240,000	120,000
Dry Weather Urban Runoff	0	130,000	130,000
Stormwater Urban Runoff	0	0	120,000
Totals	**800,000**	**800,000**	**800,000**

dential onsite BMPs. Tool 3, the most centralized and integrated tool, includes 84 treatment facilities rated at 100 mgd.

The differences in project integration and centralization among the three Regional Planning Tools also affect the quantity of open space created by each tool. Under Tool 1, 1,550 acres of open space is created at the detention and sand filtration areas of the treatment facilities, assuming that only 50 percent of the 3,100 acres used for treatment would qualify as open space. An additional 6,450 acres is purchased under this Tool for the purpose of achieving 8,000 total acres of open space. Under Tools 2 and 3, wetland filtration replaces sand filtration and the detention areas are larger than under Tool 1. Both Tools 2 and 3 create 8,000 acres of open space without the need for land purchases beyond those required for the treatment facilities.

Table 6-3. Estimated New Water Supply Development Unit Costs (2006 Dollars per acre-feet/year)

	Total New Supply Volume Increments		
Water Supply Type	**First 25%**	**26% to 75%**	**Greater than 75%**
Conservation	$600	$1,400	$2,000
Local Groundwater Production	$600	$1,100	$1,500
Local Surface Water	$250	$250	$250
Recycled Water	$775	$1,000	$1,450
Groundwater Recovery	$875	$1,125	$1,375
Ocean Desalination	$1,000	$1,000	$1,000
Dry Weather Runoff	$500	$1,000	$1,500
Urban Stormwater Runoff	$500	$1,000	$1,500

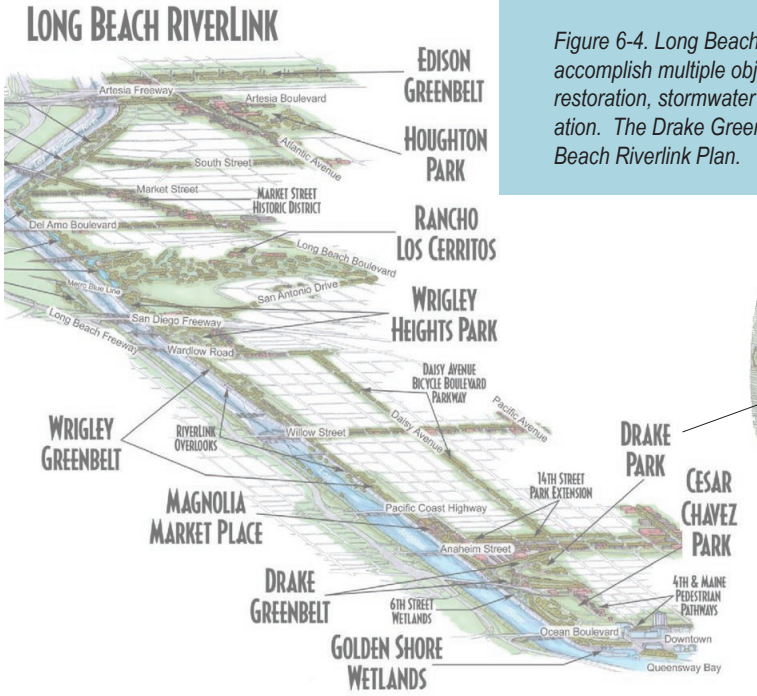
Source: Informal survey of local water agency personnel.

Table 6-4. Total Annual Water Supply Cost Example: 2025

	Assumed Cost	Regional Planning Tool		
Water Supply Type	**Per acre-feet/year**	**Tool 1**	**Tool 2**	**Tool 3**
Imported Water	$842	$311,000,000	$66,600,000	$33,300,000
Conservation	$2,000	$220,000,000	$220,000,000	$220,000,000
Local Groundwater Production	$1,500	$150,000,000	$150,000,000	$150,000,000
Recycled Water	$1,450	$188,000,000	$188,000,000	$188,000,000
Groundwater Recovery	$1,375	$48,100,000	$48,100,000	$48,100,000
Ocean Desalination	$1,000	$55,000,000	$55,000,000	$55,000,000
Dry Weather Runoff	$1,500	0	$195,000,000	$195,000,000
Urban Stormwater Runoff	$1,500	0	0	$180,000,000
Total		**$973,000,000**	**$923,000,000**	**$1,070,000,000**
Discount Factor		.330	.330	.330
Present Value Total		**$321,000,000**	**$305,000,000**	**$353,000,000**

Present Value discounted at 6 percent for 19 years (2025 to 2006).

GEOGRAPHIC INTEGRATION BENEFITS



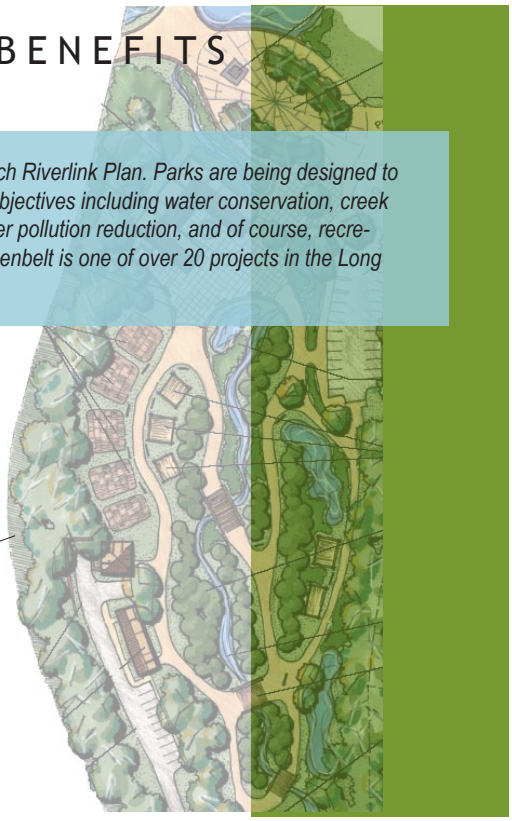


Figure 6-4. Long Beach Riverlink Plan. Parks are being designed to accomplish multiple objectives including water conservation, creek restoration, stormwater pollution reduction, and of course, recreation. The Drake Greenbelt is one of over 20 projects in the Long Beach Riverlink Plan.

Table 6-5 presents the significant differentiating features of the three Regional Planning Tools and their construction costs.

Regional Planning Tool Benefits

The calculation of economic benefits resulting from increases in open space and parkland is based on increases in property values for adjacent and nearby residential properties (Crompton, 2001 and 2005). The calculation of wetland and riparian habitat benefits is based on improved recreational opportunities (bird watching: McConnell and Walls, 2005) and on California resident's stated willingness-to-pay value for wetland restoration (Pate and Loomis, 1997). The economic benefits of riparian habitat improvements are assumed to be equivalent to the economic benefits of wetland habitat improvements.

Table 6-6 presents a summary of benefits generated by each of the Regional Planning Tools. The benefits are based on the services provided by the facilities described in the Regional Concept Cost section of this document. Benefits, which result from capital expenditures distributed over 20 years, accumulate at the same rate as the capital is expended. All benefits are discounted at 6 percent and summed over a period of 50 years.

Water quality benefits are constant across the three Regional Planning Tools because the quantity and the unit value of water quality improvements are the same for each tool. Open space benefits are greater for Tool 3 than for the other two tools because their adjacency to existing water resources and the larger size of open space parcels increases their value for recreation and improves habitat conditions (thereby increasing habitat values). Overall, Table 6-6 shows that a broad range of benefits can result from achievement of the same target quantities of water supply, water quality, and open space. The benefits resulting from Tool 3, the Regional scale, are 1.65 times larger than the benefits resulting from Tool 1, the site scale.

Benefits Requiring Additional Study

Many of the monetary benefits associated improvements in water quality and increases in open space cannot be quantified at the conceptual level of analysis presented in the IRWMP. For example,

Table 6-5. Summary of Planning Tool Water Quality Features and Capital Costs						
	Description			Estimated Cost (in Billions)		
Feature	Tool 1	Tool 2	Tool 3	Tool 1	Tool 2	Tool 3
Runoff Reduction						
Onsite BMPs	Residential Areas Only	None	None	$5.86	None	None
Runoff Collection	Existing Storm Drain System	Existing System	Existing System	None	None	None
Runoff Treatment						
Plant Capacity	5 mgd	5.25 mgd	100 mgd	-	-	-
Number of Plants	1,030 plants	1,600 plants	84 plants	-	-	-
Total Capacity	5,140 mgd	8,400 mgd	8,400 mgd	-	-	-
Treatment Technique						
Level 1	Screening / Detention Basin	Screening / Detention Basin	Screening / Detention Basin	$13.7	$21.9	$6.75
Level 2	Sand Filter & Disinfection	Wetland Filter & Disinfection	Wetland Filter & Disinfection	$6.56	$2.06	$1.33
Level 3	Reverse Osmosis	Reverse Osmosis	Reverse Osmosis	$23.4	$37.5	$9.06
Distribution of Treated Runoff	None	1 mi. (16") Pipe, & 1 Pump Station per Plant	5 mi. (72" dia.) Pipe & 1 Pump Station per Plant	None	$1.6	$0.878
Land Acquisition	6,450 ac. open space 3,100 acres treatment	8,000 acres	8,000 acres	$9.68	$13.2	$8.8
Total Capital Costs				**$59.3**	**$76.4**	**$26.8**
Annual O&M Costs				$0.135	$0.188	$0.51

All costs in 2006 dollars.

Table 6-6. Summary of Regional Planning Tool Benefits(1)			
	Regional Planning Tool		
	Tool 1	Tool 2	Tool 3
Water Supply Quantity (acre-feet/year)	800,000	800,000	800,000
Water Supply Benefits	$1,990,000,000	$2,550,000,000	$3,070,000,000
Water Quality Quantity (acre-feet/year)	810,000	810,000	810,000
Water Quality Benefits	$3,600,000,000	$3,600,000,000	$3,600,000,000
Open Space Quantity (acres)	8,000	8,000	8,000
Open Space Benefits (recreation based)	$1,880,000,000	$1,880,000,000	$3,800,000,000
Open Space Benefits (recreation and habitat based)	-	-	$1,950,000,000
Total Benefits	**$7,500,000,000**	**$8,060,000,000**	**$12,400,000,000**

Quantities are attained over 20 years.

1. Benefits are sum of present values disounted 50 years at 6 percent.

the dollar value of creating new recreational opportunities in neighborhood or Regional parks can only be calculated when the specific location of the new facility is known so that it can be analyzed in relation to its proximity to existing facilities. Likewise, the full economic benefits of reaching the IRWMPs water quality goals cannot be enumerated without detailed studies of the costs that will be avoided upon attainment such as the elimination of the economic losses associated with beach closures or the health impacts of swimming in polluted ocean waters. In order to calculate the benefits arising from reduced beach closures it would be necessary to determine which beaches are closed, how often and for how long; the average daily number of beach goers at each beach at the time of year of each closure; and the nearest alternate beach available as a substitute. The acquisition and analysis of this data, was not be completed within the scope and schedule constraints imposed by this IRWMP. Another example of a benefit type that could arise but cannot be estimated at this time would be the economic and intangible benefits resulting from restoring steelhead fishery in the Region's rivers. Attaining TMDL compliance would be one requirement of such a restoration but the benefits would not accrue until substantial restoration of riparian habitat could be completed after reaching compliance.

Beneficial Aspects of Project Integration

Project integration typically consists of concurrent development of multipurpose projects or coordination of single purpose projects in such a way that the benefits of the single purpose are enhanced (or costs reduced). More than 25 percent of the stakeholder identified projects are multi-purpose projects. The Regional Planning Tools have been designed to illustrate varied degrees of project scale, and potential integration.

Tool 1, which is at the site scale, perhaps offers the least opportunity for integration, and relies on typical single-purpose water supply projects, on-site BMPs to achieve water quality goals, and additional land purchases to achieve open space goals. Tool 2 generates 130,000 acre-feet/year of water supply from capture of dry weather flow and conducts surface water treatment at neighborhood-scale facilities. Recreational open space is provided through creative use of retention facilities at the neighborhood level. Although overall costs are 19 percent higher for Tool 2 (Table 6-1), there is a 7 percent increase in quantified economic benefits (Table 6-6). In addition, development of water quality projects at the neighborhood scale may allow a preferential distribution of benefits by siting projects in Disadvantaged Communities.

Tool 3, which is the most Regional tool, may offer the most opportunities for integrated solutions, as it also makes the most use of Region's natural resources, such as rivers, creeks, and major tributary channels in order to create multi-purpose riparian corridors that connect the entire Region. Tool 3 generates 130,000 acre-feet/year of water supply from dry weather flow and 120,000 acre-feet/year from stormwater flow. The heavy reliance on large scale projects adjacent to natural features greatly reduces the overall cost of this tool. The cost of Tool 3 is 56 percent of the cost of Tool 1 and 47 percent of the cost of Tool 2 (Table 6-1). Benefits are also increased, due to greater reductions in imported water purchases and the increased size of open space parcels, which enhances recreation and habitat benefits. The overall benefits of Tool 3 are 65 percent greater than the benefits of Tool 1 and 54 percent greater than the benefits of Tool 2 (Table 6-6). Tool 3 also provides opportunities to distribute benefits to some Disadvantaged Communities through the placement of treatment facilities and accompanying open space and habitats along waterways in those communities.

Additionally, the natural resource focus associated with Tool 3 increases the opportunity for federal cost sharing in water resource habitat improvement through the U.S. Army Corps of Engineers ecosystem restoration program. The objective of the U.S. Army Corps of Engineers ecosystem restoration program is to invest in restoration projects or features that make a positive contribution to the environmental resources in a cost effective manner. Restoration of riparian and wetland habitat, including the restoration of natural functions such as stormwater retention and filtration, is a substantial component of Tool 3. Construction of large scale ecosystem restoration projects are cost-shared 65 percent federal funds/35 percent

non-federal funds. Although only a rough estimate of federal financial participation can be made with the venture level cost estimates used in this analysis, it would not be unreasonable to assume that as much as 20 percent to 25 percent of the total cost of Tool 3 may be available for federal participation under the U.S. Army Corps of Engineers ecosystem restoration program.

Other opportunities for increased federal cost sharing through other programs may also exist. For example, the potential for Bureau of Reclamation participation in the construction of water supply elements of Tools 2 and 3 should be investigated.

Benefit Assessment Conclusion

Three Regional Planning Tools, each designed to achieve the same level of water supply, water quality, and open space output have been assessed in terms of venture level costs and benefits. The three categorical approaches are largely differentiated by the scale of individual projects which make up the tool, with Planning Tool 1 including projects at the site scale, Planning Tool 2 including projects at the neighborhood scale, and Planning Tool 3 including projects at the larger Regional scale. The results of the assessment indicate that Tool 3 has the least cost and highest economic benefits. Multiple benefits can be accomplished by projects at any scale, but in general, increased benefits occur as a result of increased scale, especially for water quality treatment and habitat creation. In general, larger multi-purpose projects are able to provide water supply, water quality, and habitat creation benefits at a lower cost than an accumulation of smaller single-purpose projects. The three Regional Planning Tools have been designed to accent different scales and therefore should not be considered as alternative comprehensive plans. The actual plans, which will be implemented in the near and long-term future, will include combinations of all scales presented in this analysis. The benefit of conducting comparative cost and benefit assessments of the three Tools is that the comparison illustrates the relative costs and benefits of increasing (or decreasing) scale among local projects.

The three Regional Planning Tools have been developed to illustrate the economic effects of

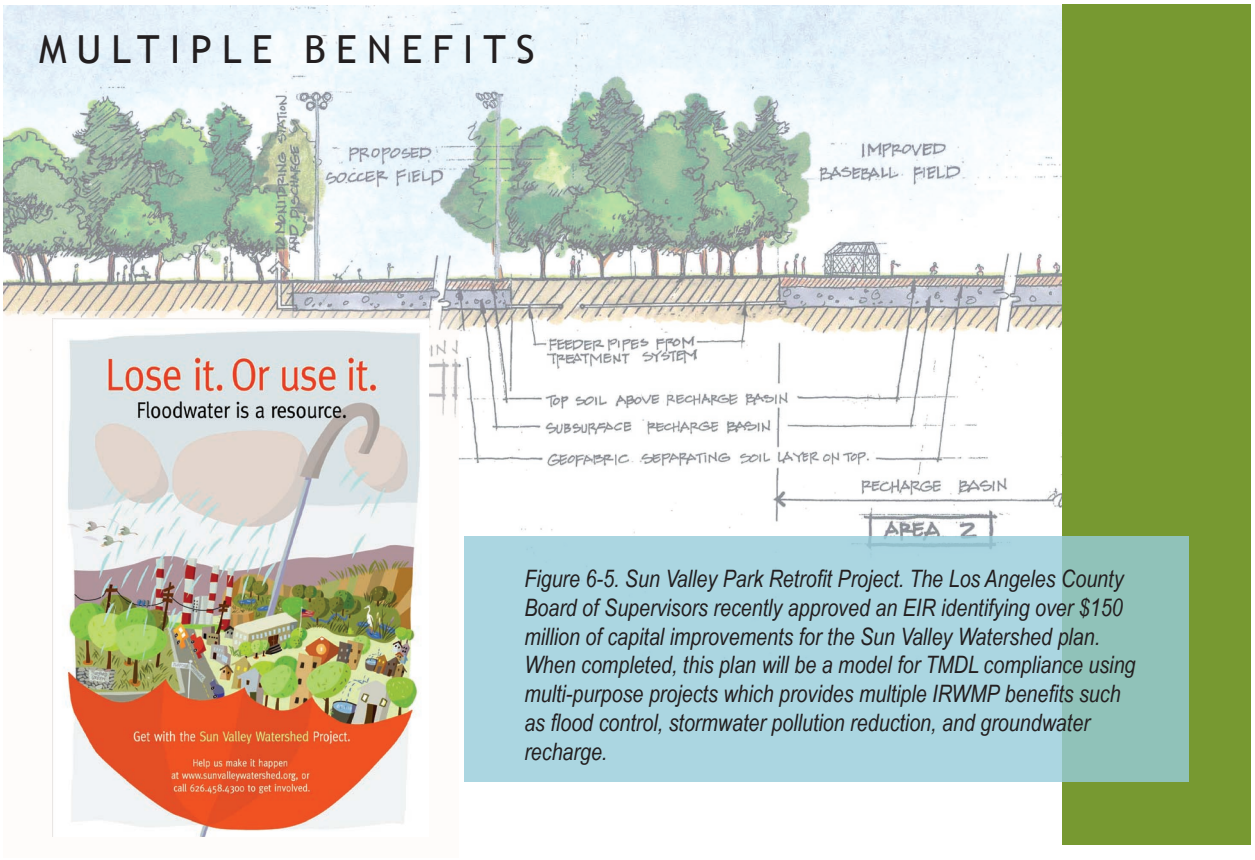


Figure 6-5. Sun Valley Park Retrofit Project. The Los Angeles County Board of Supervisors recently approved an EIR identifying over $150 million of capital improvements for the Sun Valley Watershed plan. When completed, this plan will be a model for TMDL compliance using multi-purpose projects which provides multiple IRWMP benefits such as flood control, stormwater pollution reduction, and groundwater recharge.

varied levels of project scale, integration and centralization. None of the tools represent a comprehensive plan to meet the Region's water resource needs, but instead illustrate the benefits of project integration, reliance on multi-purpose projects, and centralization around existing natural features. The actual plans, which will be implemented over the course of the next 20 years and more, will likely be a mix of strategies adapted to local opportunities and constraints and would be unlikely to consistently achieve the high level of integration depicted in Tool 3. However, the results of this analysis indicate that increasing project integration with centralization around natural features to whatever extent possible will increase the economic benefits of achieving the Region's future water resource needs.

As project integration dialog moves forward the demonstrated quantitative benefits provided by the integration in the Regional planning tools will help to inform the process at the Subregional level while promoting an approach that maintains a consistent vision at the Regional level.

6.4 Potential Impacts of IRWMP Implementation

As discussed in Section 7.7, this IRWMP is a feasibility or planning study which identifies possible future actions that the members of the RWMG have not approved, adopted, or funded. Consistent with Section 15262 of the CEQA Guidelines, a project involving only feasibility or planning studies does not require the preparation of an Environmental Impact Report or Negative Declaration but does require consideration of environmental factors.

To consider potential environmental effects that could result from IRWMP implementation, the CEQA Initial Study Checklist contained in Appendix G of the CEQA Guidelines (OPR, 2003) was reviewed to identify whether the implementation of the Plan, which might include those project concepts identified in the Regional Planning Tools, could result in adverse affects. Although this review is not intended to replace or supplant detailed review of potential environmental impacts (at such time as specific projects are proposed), the following provides a summary of potentially adverse project-specific and/or cumulative affects that could result. These include the potential to:

- Degrade the existing visual character or quality of project sites and their surroundings, including adverse affects to scenic vistas or damage to scenic resources.
- Generate construction emissions which could violate applicable air quality standards.
- Modify project sites in a manner that could have a substantial adverse effect, either directly or through habitat modifications, on candidate, sensitive, or special status species.
- Disturb project sites during construction in a manner that could cause a substantial adverse change in the significance of a historical, archaeological, or paleontological resource.
- Result in substantial soil erosion or the loss of topsoil (e.g., during construction), or involve construction on unstable soils.
- Disturb project sites in a manner which could expose buried or unknown hazardous materials or substances.
- Alter the existing drainage pattern of a site or area, including the alteration of the course of a stream or river, in a manner which could result in substantial erosion or siltation.
- Place facilities within a 100-year flood hazard area in a manner which could impede or redirect flood flows.
- Generate noise levels during construction which could cause a substantial temporary increase in ambient noise levels in the project vicinity.
- Depending on the location of proposed land acquisition, projects could displace existing housing, which could necessitate the construction of replacement housing elsewhere.

Any decision to implement any individual project or program identified in this plan would be subject to CEQA compliance at such time as any agency commits to fund or implement the project. It is assumed that the approving entity would comply with CEQA and identify appropriate mitigation measures to the extent that any significant impacts would result.

7. IMPLEMENTATION

Arroyo Seco Watershed

Consensus and local leadership is attracting funding partners for implementation of this 20-year Plan.

7.1 Introduction

The purpose of this Section is to:

- Describe the relationship between local plans and the IRWMP;
- Identify governance options for implementation of the IRWMP;
- Describe procedures for coordination of IRWMP activities with state and federal agencies;
- Describe funding options for IRWMP implementation; and
- Identify next steps and a schedule of future activities for the IRWMP process.

7.2 Framework for Implementation

To support development of this Plan, stakeholders have identified 1,521 projects and project concepts as of October 31, 2006. As funding opportunities arise in the future, the projects in the project database can be prioritized, funded, and implemented, and thereby make progress towards meeting the objectives and planning targets articulated in the Plan. This "bottom-up" approach relies upon agencies, jurisdictions, organizations, and individuals to identify and submit projects. As discussed more fully in the Section 5 (Project Identification and Integration), based on a review of the projects in the database, many cities and agencies in the Region have yet to identify projects, many of the projects included in the database need additional refinement, and many of the projects could benefit from integration, by combining similar projects into regional projects, or by adding additional features so those projects provide multiple benefits.

Even with more than 1,500 stakeholder-identified projects and project concepts, it appears uncertain if these projects will generate sufficient benefits to achieve the planning targets. Thus, identification of additional projects may be required. The Regional Planning Tools described in Section 5 provide an analytical framework for a "top-down" approach that can be used to develop customized project scenarios for jurisdictions, watersheds, or Subregions, and thereby identify projects with a Regional focus which incorporate multiple water management strategies and maximize project benefits.

It should be noted that the concepts of project integration or the identification of projects via a "top-down" process should not be interpreted to suggest a loss of control by individual jurisdictions with respect to the identification or implementation of projects. The IRMWP process is not intended to be prescriptive or to supersede the authority of individual jurisdictions or agencies.

Existing Plans and Programs

A substantial number of agencies and jurisdictions are responsible for, or participate in, the development of plans, programs, and regulations that are relevant to the IRWMP. Table 7-1 identifies some of the agencies and jurisdictions that are involved in planning within the Region for each water management strategy identified in Section 4

PLANNING SCALES

Figure 7-1. Emerald Necklace and Duck Farm. The Duck Farm Project is one componet of the Emerald Necklace. These projects are examples of planning being coordinated at both site and Regional scales.

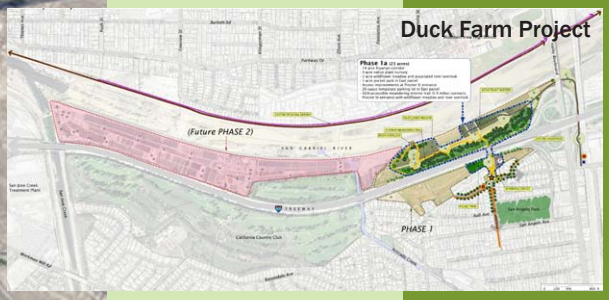


Table 7-1. Agencies and Jurisdictions Involved in Planning in IRWMP Region

Water Management Strategy	Federal	State	Local/Regional
Desalination	Bureau of Reclamation	Department of Water Resources	Some wholesale and retail water agencies
Groundwater Management and Conjunctive Use		Department of Health Services, Department of Water Resources, State & Regional Water Resources Control Boards	Wholesale and Retail Water Agencies, San Gabriel Basin Water Quality Authority, Cities, Pumpers
Import Water	Bureau of Reclamation	Department of Water Resources, State Water Resources Control Board	Some Wholesale Water Agencies
Improve and Protect Water Quality	U.S. Environmental Protection Agency	Department of Health Services, Water Resources, State & Regional Water Resources Control Boards	Cities, Water Agencies, Sanitation Districts, Los Angeles, Orange and Ventura Counties
Surface Storage	Bureau of Reclamation, U.S. Army Corps of Engineers	Department of Water Resources	Some cities and Los Angeles, Orange and Ventura County Flood Control Districts
Water Conservation	Bureau of Reclamation	Department of Water Resources, State & Regional Water Resources Control Boards	Cities, Wholesale and Retail Water Agencies
Water Recycling	U.S. Environmental Protection Agency	Cities and Los Angeles, Orange and Ventura County Flood Control Districts	Sanitation Districts, Water Agencies, and Cities with Water Agencies and/or, Sanitation Departments
Water Supply Reliability		Department of Water Resources, State Water Resources Control Board	Wholesale and Retail Water Agencies
Water Transfers	Bureau of Reclamation	Department of Water Resources, State Water Resources Control Board	Some Wholesale and Retail Water Agencies
Nonpoint Source (NPS) Pollution Control	U.S. Environmental Protection Agency	Department of Water Resources, State & Regional Water Resources Control Boards	Cities, Los Angeles, Orange and Ventura Counties, Watershed and Environmental Groups
Water and Wastewater Treatment	U.S. Environmental Protection Agency	Department of Water Resources, State & Regional Water Resources Control Boards	Cities with Water Agencies, Wholesale and Retail Water Agencies, Sanitation Agencies, San Gabriel Basin Water Quality Authority
Stormwater Capture and Management	Bureau of Reclamation, U.S. Army Corps of Engineers	Department of Water Resources, State & Regional Water Resources Control Boards	Cities and Los Angeles, Orange and Ventura County Flood Control Districts

Table 7-1. Agencies and Jurisdictions Involved in Planning in IRWMP Region (Continued)

	Water Management Strategy	Federal	State	Local/Regional
	Restore Ecosystems	Fish and Wildlife Service, Forest Service, National Park Service, National Resources Conservation Service	Baldwin Hills Conservancy, Coastal Conservancy, Fish and Game, San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy, Santa Monica Mountains Conservancy, State Parks	Some Cities and Los Angeles, Orange and Ventura Counties
	Environmental and Habitat Protection and Improvement	U.S. Army Corps of Engineers, Fish and Wildlife Service, Forest Service, National Park Service, National Resources Conservation Service	Baldwin Hills Conservancy, Coastal Conservancy, Fish and Game, San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy, Santa Monica Mountains Conservancy, Santa Monica Bay Restoration Commission, State Parks	Cities and Los Angeles, Orange and Ventura Counties
	Wetlands Enhancement and Creation	U.S. Army Corps of Engineers, Fish and Wildlife Service, Forest Service, National Park Service, National Resources Conservation Service	Fish and Game, State Parks, Baldwin Hills Conservancy, Coastal Conservancy, San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy, Santa Monica Mountains Conservancy	Some cities, Los Angeles, Orange and Ventura Counties, Southern California Wetlands Recovery Project
	Recreation and Public Access	National Park Service	State Parks	Cities and Los Angeles, Orange and Ventura Counties
	Asset Management	Bureau of Reclamation, U.S. Army Corps of Engineers	Department of water Resources	Some wholesale and retail water agencies
	Land Use Planning			Cities and Los Angeles, Orange and Ventura Counties
	Integrated Planning	U.S. Army Corps of Engineers	Department of Water Resources, State & Regional Water Resources Control Boards	Some cities, Water Agencies, and Los Angeles, Orange and Ventura Counties
	Watershed Planning	U.S. Army Corps of Engineers, National Park Service	Baldwin Hills Conservancy, Coastal Conservancy, San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy, Santa Monica Mountains Conservancy	Some Cities and Los Angeles, Orange and Ventura Counties, Environmental and Watershed Groups, Sanitation Angencies

(Regional Water Resource Management). This table suggests that substantial effort will be required to assure cross-agency coordination for the development of Regional plans and projects for individual water management strategies or that incorporate multiple water management strategies.

As the IRWMP proposes the integration of these various water management strategies, instead of focusing on individual water management strategies, a broader form of coordination is appropriate. Table 7-2 summarizes the agencies and jurisdictions involved in planning (from Table 7-1), for the

Table 7-2. Summary of Agencies, Jurisdictions and Organizations Involved in Planning in IRWMP Region

Agencies and Entities	Water Supply	Water Quality	Open Space, Habitat, and Parkland
Federal Agencies	Bureau of Reclamation	U.S. Army Corps of Engineers	Fish and Wildlife Service, Forest Service, National Park Service, National Resources Conservation Service
State Agencies	Water Resources Control Board, Water Resources	Health Services, Water Resources Control Board, Water Resources	Fish and Game, State Parks
State Conservancies and Commissions	Not Applicable	Santa Monica Bay Restoration Commission	Baldwin Hills Conservancy, Coastal Conservancy, San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy, Santa Monica Bay Restoration Commission, Santa Monica Mountains Conservancy
Regional Entities	Metropolitan Water District of Southern California	Southern California Association of Governments	Southern California Association of Governments, Southern California Wetlands Recovery Project
County Departments	Los Angeles, Orange, and Ventura Counties	Los Angeles, Orange, and Ventura Counties	Los Angeles, Orange and Ventura Counties
Special Districts	County Sanitation Districts of Los Angeles County, Orange County Sanitation District, Water Replenishment District of Southern California	County Sanitation Districts of Los Angeles County, Orange County Sanitation District	Los Angeles County Regional Park and Open Space District
Water Agencies	Retail and Wholesale Water Agencies, Cities with Water Departments	Wholesale and Retail Water Agencies, San Gabriel Basin Water Quality Authority	Some water agencies
Cities	Cities with Water and/or Sanitation Departments	All cities	All cities
Other Organizations	Southeast Water Coalition	Watershed and Environmental Groups, Councils of Government	Watershed, Open Space and Environmental Groups

general categories of water supply, water quality, and habitat/open space, and includes other relevant organizations and entities, such as Regional agencies and non-governmental organizations.

Typical Planning Scales

Most jurisdictions and agencies develop plans and programs within their jurisdictional boundaries, consistent with their statutory responsibilities, although in the past decade, planning at the watershed scale has become more common in the Region. For some entities with large jurisdictional boundaries (e.g., state and federal agencies and state conservancies), planning is often at a regional scale, which can extend beyond the IRWMP Region, as shown in Table 7-3, which depicts the typical planning scales for most agencies, jurisdictions, and entities in the Region. Thus, for most local agencies and jurisdictions, participation in Regional planning efforts (such as this Plan) requires them to work beyond their typical planning scale.

Relationship to Local Planning

Although the IRWMP establishes broad objectives and planning targets for the entire Region, the Leadership Committee the IRWMP cannot feasibly assume responsibility for meeting all of the objectives and targets. Thus, projects and programs implemented by individual agencies and jurisdictions will likely remain the primary vehicle to achieve the Plan's objectives and targets. Many agencies and jurisdictions increasingly acknowledge the value of collaboration in the planning, design, implementation, funding, monitoring and maintenance of integrated projects. Implementation of the IRWMP supports development of integrated projects, provides an over-arching framework that can support planning by individual agencies and jurisdictions; and fosters integrated planning for those issues that could benefit from a Regional approach.

Over 200 plans and studies related to water resource, watershed, and open space management have been identified in the TMs that informed development of the Plan. Thus, the IRWMP has been developed from and is consistent with local planning efforts in the region, as discussed below.

General Plans. Plans of the counties and cities that comprise the Region reflect local planning needs and issues. General Plans express the goals, actions and policies in a number of areas, including land use and water management. The General Plan of Los Angeles County (which covers the majority of the Region) specifically calls for a number of policies directly related to IRWMP goals and objectives such as water conservation; wastewater recovery and reuse; avoidance and mitigation of pollution threats to the ocean, drainage ways, lakes and groundwater reserves. General Plans of the cities echo similar themes of ensuring reliable water supply, maintaining open space and recreational opportunities in dense urban areas. Representative language taken directly from a representative sampling of city General Plans and their relationship to IRWMP programs is shown in Table 7-4. Each of the goals, policies, programs or actions

Table 7-3. Typical Planing Scales

Agencies and Entities	Individual Sites or Parcels	Within Jurisdictional Boundaries	Watersheds	Regional[1]
Federal Agencies	◉		■	■
State Agencies	◉		■	■
State Conservancies	◉	■	■	■
Regional Entities	◉	■		■
County Departments	◉	■	■	
Special Districts	◉	■	■	
Water Agencies	◉	■	■	
Cities	◉	■	■	
Other Organizations	◉	■	■	

Notes:

[1] Scales such as Southern California, not the Greater Los Angeles IRWMP Region.

Symbol Key:

◉ *Planning for Specific Projects*

■ *Most Prevalent Planning Scale*

■ *Occasional Planning at this Scale*

Table 7-4. Relationship of General Plan Policies to IRWMP Objectives

IRWMP Objectives	Goals, Policies, Programs and Actions expressed in Selected General Plans
Optimize local water resources to reduce the Region's reliance on imported water	• Promote conservation of water resources • Promote the use of water conservation devices • Encourage the use of reclaimed water • Work with the West Basin MWD to ensure completion of the recycled water facility infrastructure
Comply with water quality standards by improving the quality of urban runoff, stormwater and wastewater	• Reduce contaminant levels at beaches and oceans • Preserve existing naturally vegetated areas [for stormwater infiltration] • Incorporate stormwater runoff systems into site design • Utilize street wells, landscaped parkways, medians, islands and other elements of streetscape to minimize, capture and reuse stormwater runoff • Control surface runoff and associated pollutant loads into coastal waters, wetlands and riparian areas • Comply with laws prohibiting discharge of contaminants into the bays, and their tributaries • Protect ASBS against damage from excessive grading, stream pollution, and ocean outfalls
Protect and improve groundwater and drinking water quality	• Monitor production well quality • Coordinate with local, regional, state and federal efforts to protect the groundwater supply and enhance groundwater quality • Provide protection for groundwater recharge areas to ensure water quality and quantity
Protect, restore and enhance natural processes and habitats	• Restore Arroyo Seco streambanks • Connect habitat areas with larger expanses of open space • Protect stream bed gravel conditions in streams supporting steelhead trout • Establish setbacks from riparian corridors to protect wildlife habitats • Reclaim and preserve the natural state of Malibu Lagoon • Discourage plant species that are invasive where such species would degrade native plant communities
Increase watershed-friendly recreational space for all communities	• Uncovered open spaces should be encouraged to maximize opportunity for percolation of precipitation or imported water • Develop potential of existing open space resources represented by school playgrounds, flood control facilities, Edison right-of-ways, and City owned watersheds • Promote development of low-intensity, natural parks in City watershed areas with hiking, cycling, and equestrian trails • Provide target ratio of 3 acres of open space per thousand people • Provide a recreational resource within ½ mile of each resident
Maintain and enhance public infrastructure related to flood protection, water resources and water quality	• Monitor pipe system to check and correct leaks • Maintain the water supply system to meet water demands • Encourage private firms and public agencies providing water and waste management services to cooperate with all levels of government in enacting, establishing and enforcing consistent standards and criteria • Minimize potential adverse effects from flooding • Maximize the amount of pervious surfaces to absorb stormwater and decrease runoff

Source: General Plans of the Cities of Carson, Downey, El Monte (update in progress), Glendale, Los Angeles, Malibu, Pasadena and the County of Los Angeles.

shown is addressed within the associated IRWMP element.

Regional Water Quality Control Board Basin Plans. The IRWMP includes key strategies achieving water quality goals for the Region identified in the Basin Plans developed by the Los Angeles and Santa Ana RWQCBs. The control of NPS Pollution throughout the Region and restoration of water quality in local water bodies and adjacent coastal areas are particular aspects of the Basin Plans that are addressed by the IRWMP. A number of recommended actions are identified in the IRWMP to achieve this, such as coordinating NPS water pollution management on a watershed basis; implementation of control measures for pollutants associated with storm water/urban runoff; and controlling pathogens in the surf zone to ensure safety of swimmers. Projects designed to reduce, capture, and treat urban and stormwater runoff directly address the water quality objectives in the Basin Plans.

Involvement of Land Use Decision Makers. Land use decisions have the potential to affect the water management strategies utilized in the Plan, as land use can affect population growth, water demand and surface water quality. The implementation of stormwater capture projects may require acquisition of land which could displace existing uses and may warrant consideration of modifications to land use policies and practices. In developed areas, the land use decision makers are primarily the cities and the counties. In open space areas, the Forest Service, National Park Service, and California State Parks have responsibility for the conservation and preservation of those spaces. All of these agencies and jurisdictions have been involved in the IRWMP as voting or ex-officio members of the Leadership Committee, members of Subregional Steering Committees, or participants at stakeholder workshops.

Dynamics between IRWMP and Local Planning. The stakeholder process allows for interactive feedback to occur between local planning and regional IRWMP planning. Local planning is conducted by counties, cities, and local agencies and districts. Many of the water agencies, and most of the cities in the Region have participated either directly, or through the participation of a Council of Governments (COG) representative. Four COGs (Gateway Cities, Westside Cities, San Gabriel Valley Cities, South Bay Cities) representing 78 cities have been active in the IRWMP process. Through the stakeholder workshops, the water agencies, cities,

Figure 7-2. Pacoima Spreading Grounds, Tujunga Watershed. Local planning efforts like the Tujunga Watershed Project illustrates the importance of local planning in meeting regional IRWMP goals.

Torrance Detention Basin. Enhancement of detention basins in the Dominguez Channel watershed could improve water quality, create habitat, and provide passive recreation opportunities.

Compton Creek. Restoration of the natural bottom section of Compton Creek could improve water quality, facilitate recharge, and restore habitat.

COGs and municipal agencies have advocated for their respective local planning needs and issues, which have been incorporated into the IRWMP. Subsequently, the outcomes from the IRWMP planning process have been disseminated by the representatives back to their local governments and planning agencies, allowing the IRWMP priorities and plans to be considered in local planning where appropriate. For example, the Cities of El Monte, Torrance and Westlake Village are updating their general plans in the near future, and the IRWMP can be used to inform and shape that process in areas related to water resource management. In addition, water agencies can factor IRWMP programs and priorities into their individual plans. As future updates of the IRWMP occur, local entities that use that update to further refine or adapt these local plans.

Relationship of Other Planning Documents to IRWMP Objectives

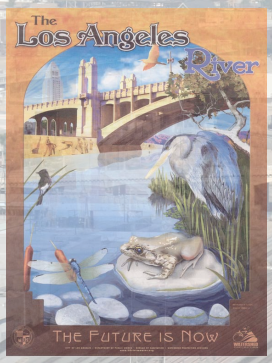
Other water resource management planning documents are also being used to help guide the IRWMP process. Many of these planning documents are sources of specific projects and programs that can be incorporated directly into the IRWMP implementation plan. A general discussion of how some of these planning documents support IRWMP objectives is provided below.

Optimize local water resources to reduce the Region's reliance on imported water. The quantity of supply necessary to meet future population growth and land use (forecasted in General Plans) is documented in the UWMPs of the Region. The IRWMP includes a number of projects described in the UWMPs, including large landscape water conservation projects. Recycled water and conservation master plans have been developed by local agencies and the IRWMP will implement a number of projects identified in those plans.

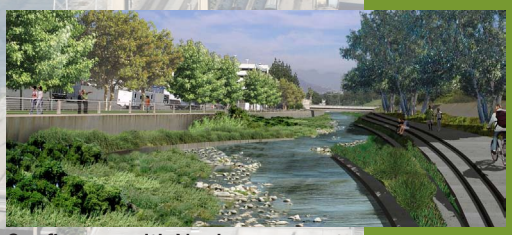
Comply with water quality standards by improving the quality of urban runoff, stormwater and wastewater. There are a number of local planning documents that have informed IRWMP efforts in this area. TMDL implementation plans are developed to meet Clean Water Act requirements. The Implementation Plans are developed at a local level and identify responsible agencies. Watershed master plans have been developed to resolve a number of issues in a holistic fashion. These plans contain many components related to stormwater management. The development of projects and programs to reduce, capture, infiltrate, and/or treat stormwater runoff is the responsibility of NPDES permit holders (and co-permittees), which include the counties, the cities, and point source dischargers. Projects and programs to reduce the presence of trash, bacteria, nutrients, metals, and toxic pollutants will be identified in TMDL implementation plans prepared by the relevant jurisdictions for the affected water bodies, and the plans and programs developed by individual permittees.

Protect and improve groundwater and drinking water quality. UWMPs for all water purveyors

LOCAL PLANNING



Taylor Yard



Confluence with Verdugo

Studio City

Figure 7-3 Los Angeles River Revitalization. The City of Los Angeles is undertaking a large-scale effort for the revitalization of 32 miles of the Los Angeles River.

in the Region document planning to address the impacts of groundwater and drinking water quality. Specific plans that address groundwater and drinking water quality include: City of Redondo Beach Water Quality Task Force Master Plan, Five Year Water Quality Management Plan, City of Downey Groundwater Master Plan, Potable Water Master Plan, San Gabriel Basin Groundwater Quality and Remediation Plan, and the Water Replenishment District Groundwater Management Plan.

Protect, restore and enhance natural processes and habitats. The goal to restore riparian habitat is contained in a number of local watershed management plans. Individual projects and programs to achieve this goal will be the responsibility of local jurisdictions in those areas in which restoration occurs, including those responsible for management of parks and open space (e.g., State land conservancies, including the Santa Monica Mountains Conservancy, San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy, and the Baldwin Hills Conservancy, California State Parks, the County of Los Angeles, and city parks departments in some locations), resource management agencies (e.g., the U.S. Fish and Wildlife Service, US Forest Service, and the California Department of Fish and Game), land use agencies (e.g., the County of Los Angeles and cities in some locations), the local wastewater treatment entity (to the extent that wastewater discharge effects streams subject to restoration), and NDPES permit holders (where stormwater discharge effects water quality in stream subject to restoration). Thus, the plans, work programs, and capital improvement programs of those agencies and entities will include the specific projects and programs that implement this goal.

Increase watershed-friendly recreational space for all communities. Responsibility for the expansion of parkland and open space rests with numerous jurisdictions, including the park and recreation departments of the cities and counties in the Region, the Open Space District of the County of Los Angeles, the California Department of Parks, State land conservancies (e.g., Santa Monica

Mountains Conservancy, San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy, and the Baldwin Hills Conservancy), and the National Park Service. In addition, various private entities, such as land conservancies and trusts and park support groups have opportunities to promote and create additional parkland and open spaces. Many of these agencies and groups have existing plans to create new parks and preserve open space. In addition, most local watershed plans identify opportunities to expand parks and open space.

Maintain and enhance public infrastructure related to flood protection, water resources and water quality. The Sun Valley Watershed Management Plan has been developed to specifically address flooding as well as stormwater treatment, water supply, and open space benefits. LACFCD is committed to pursuing flood protection on an integrated watershed management approach and is developing a asset management plan for the flood protection infrastructure within their jurisdiction. Orange and Ventura County Flood Control Districts and the individual cities responsible for the operation, repair, and replacement of the flood management infrastructure are addressing the need for systematic repair and replacement through capital improvement plans.

Plans for maintaining and enhancing infrastructure are contained in the capital improvement plans of the wholesale and retail water agencies and municipalities with water departments, and sanitation agencies.

Implementation of Local Plans

Implementation of the IRWMP will address many of the expressly recommended actions, policies and goals found in the planning documents of the region. By doing so, it plays a crucial role of placing these plans into a regional context, while preserving the outcomes of the individual planning efforts. Most of the implementation projects come directly from local plan documents. Altogether, the projects included in this IRWMP directly implement elements of a number of local plans and studies. These include UWMPs, Watershed Plans, TMDL Implementation Plans, River/Creek Master Plans, Water Recycling Master Plans, Water Conservation Master Plans, Greenway Master Plans, and Master Facilities Plans. The IRWMP also includes projects that meet the water quality objectives of the local basin plans.

7.3 Institutional Structure

Existing Organizational Structures

Regional Structures

Existing organizations and jurisdictions that work at a Regional scale include the Southern California Association of Governments, the Metropolitan Water District, and the Southern California Wetlands Recovery Project, although each of these work at a scale that is larger than the Greater Los Angeles County IRWMP Region.

The Leadership Committee established to guide the development and implementation of the IRWMP works at the scale of the Greater Los Angeles County Region. The Leadership Committee is supported by five Subregional Steering Committees, and input from stakeholders via Regional and Subregional workshops. The governance structure for the Leadership Committee and the Steering Committees is currently governed by interim operating guidelines. The RWMG formed by the MOU between agencies and organizations involved in the IRMWP process works at the same scale.

Subregional Structures

The only existing organizations that work at the precise scale of the IRWMP Subregions are the Steering Committees established for the IRWMP. Other types of Subregional structures are JPAs. Table 7-5 shows some of the JPAs in the Region, their composition and what issues they address. COGs are one type of JPA and are important as they bring cities together to discuss common issues in number of areas including water management and open space. The COGs have been active participants in the IRWMP process, ensuring that their member cities' needs are being heard, as well as providing a means to disseminate the results of integrated planning down to the local level. Other JPAs have proven to be very effective in combining complementary powers of two or more agencies to solve problems that require multidisciplinary approaches.

Table 7-5. Joint Powers Authorities in the Region

JPA	Composition	Purpose
Gateway Cities COG	• Cities of Artesia, Avalon, Bell, Bellflower, Bell Gardens, Cerritos, Commerce, Compton, Cudahy, Downey, Hawaiian Gardens, Huntington Park, La Habra Heights, La Mirada, Lakewood, Long Beach, Lynwood, Maywood, Montebello, Norwalk, Paramount, Pico Rivera, Santa Fe Springs, Signal Hill, Vernon, Whittier • County of Los Angeles • Port of Long Beach	The goal and intent of the council is one of voluntary cooperation among the cities for the collective benefit of cities in Southeast Los Angeles County.
Las Virgenes Malibu COG	• Cities of Agoura Hills, Calabasas, Hidden Hills, Malibu, Westlake Village	To provide a vehicle for members to engage in Regional and cooperative planning and coordination of government services and responsibilities.
Los Cerritos Wetlands Authority	• San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy, • California Coastal Conservancy • Cities of Long Beach and Seal Beach	To provide a comprehensive program of acquisition, protection, conservation, restoration, maintenance and operation and environmental enhancement of the Los Cerritos Wetlands area.
Mountains Recreation and Conservation Authority (MRCA)	• Conejo Recreation and Park District • Rancho Simi Recreation and Park District • Santa Monica Mountain Conservancy	To preserve and manage local open space and parkland, watershed lands, trails and wildlife habitat.
Orange County Council of Governments	• 34 cities, including Anaheim, Brea, Buena Park, Cypress, Fullerton, La Habra, La Palma, Los Alamitos, Placentia, and Seal Beach • Orange County • 17 water, infrastructure, and transportation agencies	A voluntary advisory association representing governments and agencies throughout Orange County seeking cooperative subregional and Regional planning, coordination and technical assistance on issues of mutual concern.
Puente Hills Landfill Native Habitat Preservation Authority	• City of Whittier • County of Los Angeles • Sanitation Districts of Los Angeles County • Hacienda Heights Improvement Association.	To acquire, restore and maintain open space in the Puente Hills as a permanent protection for the native habitat.
San Gabriel River Discovery Center Authority	• Upper San Gabriel Valley Municipal Water District • Central Basin Municipal Water District • Los Angeles County Department of Parks and Recreation • San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy (RMC)	Provide educational and outdoor experiences for people of all ages.
San Gabriel Valley COG	• Cities of Alhambra, Altadena, Arcadia Azusa, Baldwin Park, Bradbury, Claremont, Covina Diamond Bar, Duarte, El Monte, Glendora, Hacienda Heights, Industry, Irwindale La Canada Flintridge, La Puente, La Verne, Montebello, Monterey Park, Pasadena, Pomona, Rosemead, Rowland Heights, San Dimas, San Gabriel, Sierra Madre, San Marino, South El Monte, South Pasadena, Temple City, Walnut, West Covina	To provide a unified voice to maximize resources and advocate for Regional and member interests to improve the quality of life in the San Gabriel Valley.

Table 7-5. Joint Powers Authorities in the Region (Continued)

JPA	Composition	Purpose
Santa Monica Bay Restoration Authority (SMBRA)	• Los Angeles County Flood Control District • SMBRC	To reduce storm drain pollutant discharges in order to improve the water quality of the Santa Monica Bay.
South Bay COG	• Carson, El Segundo, Gardena, Hawthorne, Hermosa Beach, Inglewood, Lawndale, Lomita, Manhattan Beach, Palos Verdes Estates, Rancho Palos Verdes, Redondo Beach, Rolling Hills, Rolling Hills Estates, Torrance, and the Harbor City/San Pedro communities of the City of Los Angeles.	To maximize the quality of life and productivity of the South Bay region.
Southern California Coastal Water Research Project	• Cites of Los Angeles and San Diego • County Sanitation Districts of Los Angeles and Orange Counties • Los Angeles, San Diego, and Santa Ana RWQCBs • State Water Resources Control Board • U.S. Environmental Protection Agency • Ventura County Watershed Protection District • Los Angeles County Department of Public Works • Orange County	Address limited knowledge of the effects of wastewater and other discharges to the Southern California coastal marine environment.
Tapia Water Reclamation Facility JPA	• Las Virgenes Municipal Water District • Triunfo Sanitation District	To operate Tapia WRF for both wastewater treatment and water reclamation.
Watershed Conservation Authority	• Los Angeles County Flood Control District • San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy	The focus of the Watershed Conservation Authority is on projects which will provide open space, habitat restoration, and watershed improvement projects in the watersheds of both the San Gabriel River and the Lower Los Angeles River.
Westside Cities COG	• Cities of Beverly Hills, Culver City, Los Angeles, Santa Monica, West Hollywood	To forge consensus on policies and programs of regional significance that enhance the quality of daily life, sustain the environment and enrich the future.
Wildlife Corridor Conservation Authority	• Cities of Brea, Whittier, Diamond Bar, La Habra Heights • Santa Monica Mountains Conservancy • California Department of Parks and Recreation, California Department of Fish and Game (ex officio member) • Los Angeles County • Two public members.	To provide for the proper planning, conservation, environmental protection, and maintenance of lands within the Puente-Chino Hills corridor area.

Watershed-Based Structures

Stakeholder groups were established to support development of watershed plans, including the Arroyo Seco Watershed Restoration Feasibility Study, the Ballona Creek Watershed Management Plan, Compton Creek Watershed Management Plan, Dominguez Channel Watershed Management Master Plan, Making Progress: Restoration of the Malibu Creek Watershed, Malibu Creek Watershed Natural Resources Plan, Rio Hondo Watershed Management Plan, Santa Monica Bay Restoration Plan, Sun Valley Watershed Management Plan, and the Upper San Gabriel River Watershed

Management Plan. Several of the watershed groups established during plan development are still active, although some only meet occasionally. In addition, stakeholder groups are active for several plans that are currently under development, including the Tujunga Wash, the Headwaters of the Los Angeles River, and Coyote Creek.

Several recent TMDLs adopted by the Los Angeles RWQCB—the Santa Monica Bay (wet and dry-weather) bacteria, the Los Angeles River metals TMDL and the Malibu Creek Watershed Bacteria and Nutrient TMDLs—require establishment of jurisdictional groups to develop monitoring and implementation plans. These are generally organized on a watershed basis. The Santa Monica Bay groups have been functioning since 2003, although the groups for the Los Angeles River metals TMDLs were established this year.

Governance Options

There has been a great deal of discussion regarding governance options going forward. A stable governance structure, based on widespread agreement of the stakeholders, would assure the long-term implementation of the Plan. Four alternatives are listed below.

Maintain Existing Structure. The existing governance structure, with a Leadership Committee, five Subregional Steering Committees, and input from occasional stakeholder workshops, could be maintained over the life of the IRWMP. This may require some clarification of the existing operating guidelines to specify terms of service for committee members and a process for the selection of future committee representatives.

Modify Existing Structures. To respond to stakeholder suggestions about representation, the existing governance structure could be expanded to provide representation for additional jurisdictions and agencies in the Region and add representation for non-governmental organizations on the Leadership Committee. For example, a representative could be identified for each of the watershed planning efforts underway in each Subregion (e.g., a representative from the Ballona Creek Watershed Task Force could be added to the South Bay Steering Committee), or for each of the cities and counties in each Subregion. Given the number of cities, this might suggest creation of a two-tiered structure for each Subregion, the entire group (which might meet only occasionally) and a steering committee with duly elected city representatives (which could meet more regularly).

Currently, the IRWMP committees (Leadership and Steering) are charged with discussing all IRWMP issues to foster integration. However, for some topics, sub-committees could be established, such as water supply, water quality, and habitat/open space. Although this might make some activities more efficient, it may also raise concerns about the potential to reduce the focus on integration. However, if participation in the IRWMP was expanded, some form of topical focus might be useful to keep individual meetings more manageable.

Integrate Existing Structures. The governance structure could be modified to include additional existing structures or organizations, consistent with some comments at the Regional IRWMP Workshop on August 2, 2006. Existing organization that might be integrated into the IRWMP governance structure include watershed-based groups (e.g., watershed stakeholder groups and jurisdictional groups formed for TMDL compliance), local Councils of Government, or other ad hoc organizations, such as the North Santa Monica Bay Task Force (formed to address bacteria TMDLs), or the Management Committee of the North Orange County Watershed Management Area. As most of these groups work at a Subregional or watershed scale, the integration of these groups into the existing structure would most likely occur at the Subregional scale. For example, some stakeholder input could occur via these existing organizations (reducing or replacing future stakeholder workshops), which might also be included as members on the Subregional Steering Committees.

Create New Structures. Although informal associations of agencies, cities, counties, and stakeholder groups may be sufficient for the discussion and identification of issues, formulation of plans (such as watershed plans), more formal arrangements are typically required to plan, implement, operate, and maintain projects and programs.

Options for the creation of new structures include a formal agreement between multiple parties, such as an MOU, which is often implemented for individual projects or programs, or a cost-sharing agreement, which may extend over the life of a program or a plan. As an alternative, a new organizational entity could be created, such as a JPA, which typically is used for multiple actions and/or for long-term activities, or the formation of a non-profit group (e.g., a tax-exempt organization per Section 501(c)(3) of the Internal Revenue Code). A new governmental entity could be created (e.g., via legislative action) to form a new regional entity with specific authorities and responsibilities. Alternatively, an existing agency or organization could assume responsibility for plan implementation, or for implementation of a portion of the plan (e.g., surface water quality).

7.4 Coordination

State and Federal Agencies

As noted above, in addition to the voting members, the Leadership Committee currently includes 14 ex-officio (non-voting members), including four federal agencies (Bureau of Reclamation, National Parks Service; U.S. Army Corps of Engineers; and the Forest Service), nine state agencies (Department of Fish and Game; California Coastal Commission; State Coastal Conservancy; Department of Transportation; DWR; EPA; RWQCB (Los Angeles Region); Department of Parks and Recreation; and DHS), and one Regional agency (Metropolitan Water District of Southern California). Thus, coordination with federal and state agencies is currently ongoing.

- Federal agencies such as the National Park Service own a great deal of land which can impact the North Santa Monica Bay watersheds. The National Forest Service manages large portions of the Upper San Gabriel and Los Angeles Watersheds.
- The Angeles National Forest is located upstream of the San Gabriel River watershed and has experienced problems with sedimentation. To address this problem the Upper San Gabriel Valley MWD is partnering with the USDA Forest Service to replant forests that have been denuded by wildfires.
- The U.S. Army Corps of Engineers is a necessary partner in any dam related activities, such as the removal of Ridge Dam in the North Santa Monica Bay Watersheds, or for modified operation of Hansen, Whittier or Santa Fe Dams to improve the storage and release of runoff for subsequent recharge. It also is important in conducting feasibility studies such as the Arroyo Seco Watershed, and could play a role in future funding opportunities related to ecosystem restoration along the rivers and major flood control channels.
- The Department of Fish and Game has awarded grants to local cities for replacement of bridges in order to remove barriers to fish passage.

Similar examples apply to state agencies involvement:

- The California Coastal Conservancy (CCC) plays an important role in projects near the coast. The Solstice Creek Southern Steelhead Habitat Restoration Project involves a cooperative agreement between the City of Malibu and the CCC.
- California State Parks is already an active stakeholder. Its participation is critical as many potential habitat projects may take place on state parks land. As an active project proponent, it can assist the IRWMP effort by communicating the importance of its projects to the public.
- RWQCB representatives are also engaged in the IRWMP process and are involved in parallel efforts to develop TMDLs and the associated TMDL Implementation Plans. By maintaining contact with both TMDL and IRWMP efforts, the RWQCB can identify projects that will meet TMDL requirements and support integrated planning that meets other regional needs. By streamlining the process and avoiding duplication of efforts, the RWQCB can make available funds go further.
- Southern California-based staff from the California DWR attends most Leadership Committee and some Subregional Steering

Committee meetings to observe the discussion and provide comments and suggestions about potential relationships between local and statewide water resource planning.

As projects are developed and/or refined, the involvement of some state and/or federal agencies may be warranted. State and federal agencies that may be relevant to the development and/or refinement of projects are identified in Table 7-1 for each water management strategy.

In general, for water supply projects, involvement of state agencies (such as the DWR, the SWRCB, or the DHS) is typically limited to oversight or review in conjunction with funding applications or regulatory oversight. Projects that involve modifications to existing surface storage and/or flood protection structures or new structures would warrant involvement of the U.S. Army Corps of Engineers and possibly the Bureau of Reclamation.

For water quality projects, involvement of state agencies is also typically limited to funding applications or regulatory oversight. Little interaction with federal agencies is likely, unless such projects might involve modifications to flood protection structures maintained by the U.S. Army Corps of Engineers.

For habitat projects, involvement with state and federal agencies is more typical, given the resource management responsibilities of key agencies (e.g., U.S. Fish and Wildlife, state Fish and Game, and the Coastal Conservancy), or the funding opportunities provided by the various state conservancies. In addition, projects that propose restoration of wetlands or riparian habitat could also be pursued in partnership with the U.S. Army Corps of Engineers.

As more detailed planning occurs at the Regional and Subregional scale, various federal agencies should be involved in that process. For example, water supply planning should include the California DWR. Water quality planning should include the Los Angeles RWQCB. Habitat Planning should include the Forest Service, Fish and Wildlife, California Fish and Game and state conservancies. Specific examples of state and federal agencies that should be involved in more detailed water supply, water quality, and habitat/open space planning are identified in Table 7-2.

Development of a funding strategy should include key state and federal agencies, including the DWR and SWRCB (to assure eligibility for future state funding opportunities) and the U.S. Army Corps of Engineers (to assure eligibility for U.S. Army Corps of Engineers participation in ecosystem restoration activities). Refer to Section 7.7 for a more complete discussion of state and federal funding strategies.

Adjacent IRWMP Regions

The Leadership Committee will coordinate as appropriate with all other Planning Regions that surround the boundary of the Greater Los Angeles County Region, including but not limited to: the Watersheds Coalition of Ventura County, the Municipal Water District of Orange County, the Santa Ana Watershed Project Authority, the Upper Santa Clara River, and the Antelope Valley. This coordination will prevent duplicate project submissions or gaps where IRWMP Regions overlap and will improve inter-Regional understanding and coordination on issues of common interest.

7.5 Technical Feasibility

The projects proposed for implementation in the IRWMP in conjunction with Round 1 of Proposition 50, Chapter 8 funding are supported through technical studies and reports that document their ability to meet the intended objectives. As future projects are recommended for funding and implementation, it is assumed that similar technical studies and reports will document the feasibility of those projects and provide support for the ability of the projects to generate the identified benefits. The technical support for these projects on a programmatic level is summarized by IRWMP objective below.

Optimize local water resources to reduce the Region's reliance on imported water. Projects selected to meet this objective could include water conservation, desalination, and recycled water projects. Water conservation projects typically involve the use of proven technology, such as irrigation controllers, which utilize a computer that accounts for a series of factors to deliver the correct amount

of water for conditions. The technical feasibility of desalting projects has been well established and efficiency is increasing due to improvements in membrane technology. Recycled water projects utilize treatment processes for producing water that meets Title 22 standards. An example is the use of dual barrier free chlorine UV system which is a well documented practice for producing tertiary water for reuse while avoiding formation of NDMA.

Comply with water quality standards by improving the quality of urban runoff, stormwater and wastewater. This objective will be implemented by a series of runoff reduction, capture and infiltration projects, as well as non-structural programs. A key element for success of the program is optimal project site selection to ensure high levels of capture and pollutant reduction. TMDLs and TMDL Implementation Plans provid analysis of target pollutant sources and identify high impact areas that have been targeted by IRWMP projects. The effectiveness and design of structural BMPs employed in these projects have been optimized based on previous project experience and the efforts of the Los Angeles County BMP Task Force.

Protect and improve groundwater and drinking water quality. Protecting and improving drinking water quality involves using treatment unit processes that have been well documented including disinfection processes such as ultraviolet light and ozone injection; and contaminant removal processes including granular activated charcoal, ion exchange and reverse osmosis. Groundwater protection also involves pumping management which may rely on groundwater models, which have been developed for many groundwater basins.

Protect, restore and enhance natural processes and habitats. Projects that will meet this objective include stream restoration, steelhead habitat restoration, exotics removal and wetlands restoration. Stream restoration projects are supported through a number of studies that document proven hydromodification techniques. Steelhead habitat restoration is supported by biological studies and established steelhead habitat criteria as documented by studies such as the Fish Migration Barrier Severity and Steelhead Habitat Quality in the Malibu Creek Watershed. Projects involving removal of exotic species use techniques developed from previous experience. These involve methods for removal on slopes and level ground as well as the best post removal strategies for keeping exotics from returning.

Increase watershed-friendly recreation and accessible open space for all communities. Resource Conservation Districts, the National Park Service, California State Parks and local park agencies have developed a number of documents that identify potential opportunities for preserving existing open space and creating additional open space and recreation. These documents also contain information that assist in determining planning criteria such as appropriate density and access while minimizing the negative impacts of human activity on the natural environment.

Pacoima Wash Today. Pacoima Wash provides flood control in the City of San Fernando

Pacoima Wash Rendering. This project, implemented by the City of San Fernando, will create habitat and provide recreational access.

Maintain and enhance public infrastructure related to flood protection, water resources and water quality. Given the existing flood protection system, it is unlikely that maintenance or enhancement of flood protection will require the construction of new large scale facilities, although repair and/or replacement of some facilities may be necessary. Watershed plans based on hydrologic analysis and the rational method of runoff estimation provide the support for determining placement of measures such as detention ponds and infiltration basins.

The technical feasibility of infrastructure maintenance projects is based on standard construction procedures and vendor specifications.

Table 7-6 provides a summary of some representative technical documents in the form of analyses,

Table 7-6. Documents supporting technical feasibility

Objectives	Documents for Projects Associated with Each Objective	Technical Support
Optimize local water resources to reduce the Region's reliance on imported water	The Residential Runoff Reduction Study (MWDOC & IRWD, July 2004)	Provides scientific and technical merit to the water savings and runoff reduction attributed to WBICs.
	Westpark Study (IRWD, MWDOC, and MWD, 2001)	Presents a small-scale study of Weather-Based Irrigation Controllers.
Comply with water quality standards by improving the quality of urban runoff, stormwater and wastewater	Assessment of BMP Effectiveness (Brown et al, September 2005)	Provides an evaluation of BMP effectiveness.
Protect and improve groundwater and drinking water quality	Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse (NWRI and AWWARF Guidelines, May 2003)	Provides guidelines developed by UV experts that formulate minimum design requirements for UV disinfection and currently adopted by California DHS. Specifically discusses UV for water reuse and testing protocols.
Protect, restore and enhance natural processes and habitats	Fish Migration Barrier Severity and Steelhead Habitat Quality in the Malibu Creek Watershed (Heal the Bay, 2005)	Ranks the severity of steelhead trout migration barriers that block potential spawning and rearing habitat in the Malibu Creek Watershed.
	Weed Control Methods Handbook: Tools and Techniques for Use in Natural Areas (Mandy Tu, Callie Hurd, John M. Randall, 2001)	Describes an integrated pest management approach and reviews available control methods with pros and cons of each. We use this information to select control methods and design our overall site plan.
Increase watershed-friendly recreational space for all communities	Common Ground: From the Mountains to the Sea: San Gabriel and Los Angeles Rivers Watershed and Open Space Plan (RMC and SMMC, 2001)	Sets forth a detailed list of guiding principles for land and water planning. The plan provides general characteristics of the watersheds and includes general project selection criteria. Trails, habitat linkages, open space and preservation opportunities are identified.
	Santa Monica Bay Restoration Plan	Comprehensive plan that established priority actions to ensure the health of Santa Monica Bay.
	Watershed Management Plan for the San Gabriel River above Whittier Narrows (CDM, 2005)	Provides recommendations and policy measures to result in multiple beneficial uses for communities and wildlife by addressing the multiple areas.
Maintain and enhance flood protection	Los Angeles and San Gabriel Rivers Watershed Feasibility Study: Preliminary Draft Feasibility Report (USACE, LADPW, 2001)	Characterizes watershed through GIS data mapping, narrative and tables. The report used GIS modeling to create project selection criteria.

studies and plans that have been used to develop the IRWMP and ensure technical feasibility.

7.6 Funding

The Leadership Committee has acknowledged that significant financial resources will be needed to implement the IRWMP and there are currently limited funding sources for this purpose. As discussed in Section 6 (Benefits and Impacts), conceptual cost estimates have been developed for the Regional Planning Tools which suggest it could take between $26 and $76 billion to achieve the planning targets. It is clear that existing local revenue sources will not be sufficient to fund this level of activity during the 20-year plan horizon. The Leadership Committee has acknowledged that additional funding sources are needed, and these will likely be a combination of local, state, and federal sources. Following is a discussion of the major activities needed to assure a comprehensive funding plan is developed and implemented in support of the IRWMP.

Local Funding Strategy

The Leadership Committee has indicated that local funding measures should be considered as a part of their overall strategy to develop the appropriate revenue to achieve the Regional planning targets in the next 20 years. While existing funding mechanisms are in place for development of water supply and wastewater facilities and operation and maintenance of these facilities, they may not be entirely adequate to achieve the targets for water supply and wastewater. In addition, there is no widespread local revenue-generating mechanism in place to provide for management of stormwater quality.

The Regional Watershed Infrastructure Funding Workgroup, sponsored by the Los Angeles section of the American Society of Civil Engineers prepared a draft report in September 2005 which evaluated several options to develop local funding, as well as the advantages and disadvantages of those options. Of the funding sources evaluated

LOCAL FUNDING

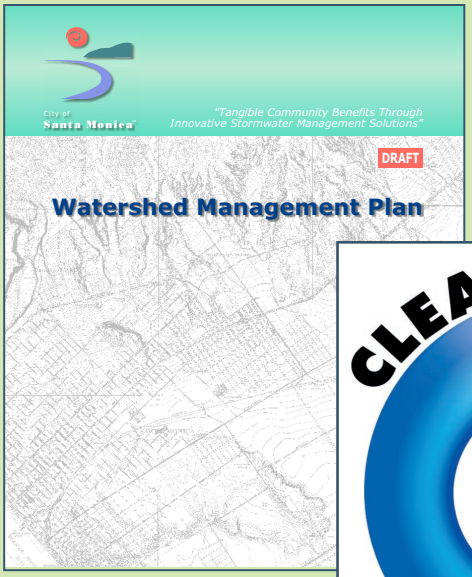


Figure 7-4. Funding Success Stories. City of Los Angeles residents voted in 2004 to approve Proposition "O", a $500M funding measure to implement multipurpose water management projects consistent with the IRWMP goals. The City of Santa Monica voted on November 7, 2006 on Measure V, Clean Beaches and Ocean Parcel Tax. At printing time, 67.03 percent of the votes counted were in favor, above the required 66.67 percent.

in that report, three were judged to be the most promising for funding the costs of a watershed management program. These are special purpose property taxes, benefit assessments, and utility fees. All three sources have relatively low administrative costs and could fund capital projects as well as operation and maintenance of those projects.

Table 7-7 provides a comparison of the three best funding sources in relation to the remaining evaluation criteria. It should be noted that it is extremely challenging to develop local funding in the state of California since the adoption of Proposition 218 in 1996 which extended the requirement for a 2/3-vote of the electorate (or 50 percent of the returned ballots of property owners) to most local funding options.

The Infrastructure Funding Workgroup draft report does not recommend a single best funding source for implementation of projects. Instead, the advantages and disadvantage of the alternative sources are presented in the paper so that policy-makers can choose among them.

In response to a unanimous motion by the Los Angeles County Board of Supervisors in September 2005, the LACDPW, along with other County departments and agencies, is currently evaluating several options to fund solutions that would address surface water quality with an emphasis on multi-use projects. Options including those described above would assist the Leadership Committee to achieve progress towards the planning targets through the development of a stable, long-term local revenue stream. LACDPW, and its partners, are conducting additional research on the various funding options available and developing recommendations to the County Board of Supervisors on how to best proceed with a funding measure. Subsequent work will identify potential benefits that would be provided by the funding measure (e.g., progress towards the planning targets), develop a thorough assessment of existing operations, and develop an outreach plan to educate the public. One option that may be considered as a model funding mechanism is the Los Angeles County Safe Neighborhood Parks Proposition of 1996 (Proposition A) as it provided revenue to cities and directly to projects through three separate methods.

Possible next steps in developing the local funding plan include:

Develop Local Funding Plan

- Evaluate current sources of funding for water supply, water quality, habitat, open space, and infrastructure, and determine funding gaps;
- Evaluate feasibility of implementing a local funding measure based on conclusions of ASCE draft report and other reliable sources, such as research provided by the County of Los Angeles Department of Public Works;
- Evaluate potential for state and federal partners so that an estimate of the required local share of funding can be developed;
- Identify and rank new local funding alternatives; and
- Prepare draft local funding plan.

Perform Partnering Activities

- Identify key local stakeholders.
- Meet with stakeholders to promote funding plan and partnerships.
- Compile feedback from stakeholders, revise funding plan based on stakeholders' input; and
- Develop education and outreach campaign to educate the public on the IRWMP targets, the need for infrastructure to achieve the targets, the need for additional local revenue, etc.

Implement Local Funding Plan

- Implement Local Funding Plan.
- Refine Local Funding Plan as needed.

State Funding Strategy

Voters of the State of California have passed a number of statewide water and watershed funding measures in the past several years including Propositions 12, 13, 40, 50, and most recently Proposition 84, which will provide significant IRWMP funding. The IRWMP Leadership Committee was formed because of the funding available through the state and has acknowledged that future statewide funding could play a significant

Table 7-7. Comparison of the Three Local Funding Alternatives

Funding Source	Equity	Implementation Feasibility	Stability of Revenue	Acceptable	Flexibility
Bonds and Property Tax for Capital, Parcel Tax for O&M	All property owners pay for runoff from public places and would be appropriate for funding the general benefits of multipurpose projects. Poor nexus between payment and runoff from private properties.	Parcel taxes cannot be varied to fit well with the existing funding sources of the cities to guarantee that all residents pay their fair share. Parcel taxes could not vary between watersheds.	Property tax revenues could be reduced somewhat if falling property values force the County to lower assessed valuations. Parcel tax revenues are stable.	Requires 2/3 vote.	Can cover all types of costs, including O&M.
Benefit Assessment	Good nexus between payment and contribution to runoff from private property. Must assume that responsibility for runoff from streets is proportion to runoff from private property.	Can vary to fit well with the existing funding sources of the cities to guarantee that all residents pay their fair share. Assessments could vary between watersheds.	Revenues are very stable.	Requires half of weighted vote of property owners. Large properties could defeat the vote.	May not cover the costs of general benefits, which could be much of the total.
Utility Fee	Good nexus between payment and contribution to runoff from private property. Must assume that responsibility for runoff from streets is proportion to runoff from private property.	Can be varied to fit well with the existing funding sources of the cities to guarantee that all residents pay their fair share. The fees could vary between watersheds.	Revenues are very stable.	Requires either half vote of property owners or 2/3 vote of the general electorate.	May not be used for general government services, but will likely cover more than assessments.

role in meeting the planning targets. The following activities are recommended as a part of a state funding strategy:

Evaluate and Apply for Existing State Funding Opportunities

- Pursue Proposition 50, Round 2, grant applications for IRWMP planning and project implementation;
- Consider other chapters of Proposition 50 and their applicability to IRWMP implementation.
- Evaluate other statewide funding opportunities including Bay-Delta watershed program grants.

Participate in Crafting and/or Providing Leadership of Future Statewide Funding Measures

- Participate in statewide discussions regarding the scope and projects to be funded in Proposition 84, as well as the appropriate distribution of funds statewide.
- Identify appropriate representatives for the IRWMP Leadership Committee in discussions on development and interpretation of the language in any draft or final funding measures.

Perform Partnering Activities

- Identify key statewide stakeholders.
- Meet with stakeholders to promote state funding plan and partnerships.
- Compile feedback from stakeholders, revise funding plan based on stakeholders' input.

Implement State Funding Plan

- Implement Funding Plan;
- Refine Funding Plan as need.

Federal Funding Strategy

Local agencies and jurisdiction seek federal funding opportunities and federal agencies may provide opportunities to fund IRWMP projects.

Table 7-8. Potential Sources of Funding to Implement IRWMP Projects			
	Sources	**Expected Contribution**	**Targeted Beneficiaries**
Local	• Existing Capital Improvement Budgets • Local sales tax • Bond and associated property tax • Utility fee or benefit assessment based on use of the property • Utility fee or benefit assessment based on total area and impervious area • Gasoline tax • Water sales • Parcel tax	High (50%-100%)	Region's residents, environment, and economy
State	• Competitive grants • Appropriations • State-wide Assessments	Moderate (10-50%)	Statewide environment and economy
Federal	• Appropriations • Competitive grants	Moderate (10-50%)	Areas of national environmental or economic significance
Others	• Individual and corporate donors • Foundations and other non-profit organizations	Low (<10%)	Particular communities or targeted interests in the Region

While no definitive funding plan has been developed to date; a description of potential funding sources for implementation of IRWMP projects is identified in Table 7-8.

Funding Options – Additional Planning

The Leadership Committee and Steering Committees have acknowledged that additional planning will be needed to refine and integrate stakeholder-identified projects and develop fully integrated projects that achieve the planning targets.

To fund additional detailed IRWMP planning, several funding options may be possible:

- Contribution from local sources (e.g., Leadership and Steering Committee members).
- Grant from State Funds (e.g., Round Two of Proposition 50, funds for continured planning in Proposition 84, or future bonds).
- Legislative Appropriation.
- Federal Funds (e.g., via U.S. Army Corps of Engineers participation).

7.7 California Environmental Quality Act Compliance

This IRWMP is a feasibility or planning study which identifies possible future actions the members of the RWMG have not approved, adopted, or funded, and therefore is statutorily exempt from the CEQA. Consistent with Section 15262 of the CEQA Guidelines, a project involving only feasibility or planning studies does not require the preparation of an Environmental Impact Report or Negative Declaration but does require consideration of environmental factors. Potential environmental effects that might result from implementation of the IRWMP are identified in Section 6.4 (Potential Impacts of IRWMP Implementation). Any agency decision to implement any project or program identified herein would be subject to CEQA compliance at such time as such agency commits to fund or implement the project.

7.8 Data Management

The collection, management, dissemination and utilization of data (e.g., information gathered from

studies, sampling events, or projects) are an essential element to creating a sustainable integrated plan. Information needs to be available to regional leaders, stakeholders, and the public to facilitate effective planning and decision-making. Data management is necessary to identify data gaps, detect and avoid duplicate data collection efforts, support statewide data needs, and integrate with other regional and statewide programs.

Management and Dissemination of Data

Dissemination of data to stakeholders, agencies, and the general public is integrated into the IRWMP process to ensure overall success. This process is shown in Figure 7-5. Stakeholder workshops serve as the basis for the dissemination of information. Data collected or produced as part of the IRWMP will be presented and disseminated during these workshops.

A website has been created to store data and information about the IRWMP process so that the public can find information about meeting dates, agendas, and notes. The website provides information on the IRWMP process and posts annual reports and relevant documents that can be downloaded. Data collected during the IRWMP process will be available on the website as well. The website will also provide links to other existing monitoring programs to promote data exchange between these programs and the IRWMP. This will provide a means to identify data gaps (e.g., information needed to provide a more complete assessment of the status of a specific issue or program) and to ensure that monitoring efforts are not duplicated between programs.

Existing Monitoring Efforts

Surface Water Quality

Numerous federal, state, municipal, local and community agencies and organizations have been conducting monitoring of surface water quality in the Region for years. Table 7-9 identifies a few of the recent surface water quality monitoring efforts and programs. In general, these efforts and programs supply data to support the implementation of statewide programs such as TMDL development and implementation and Clean Water Act 303(d) listing of impaired water bodies. Data

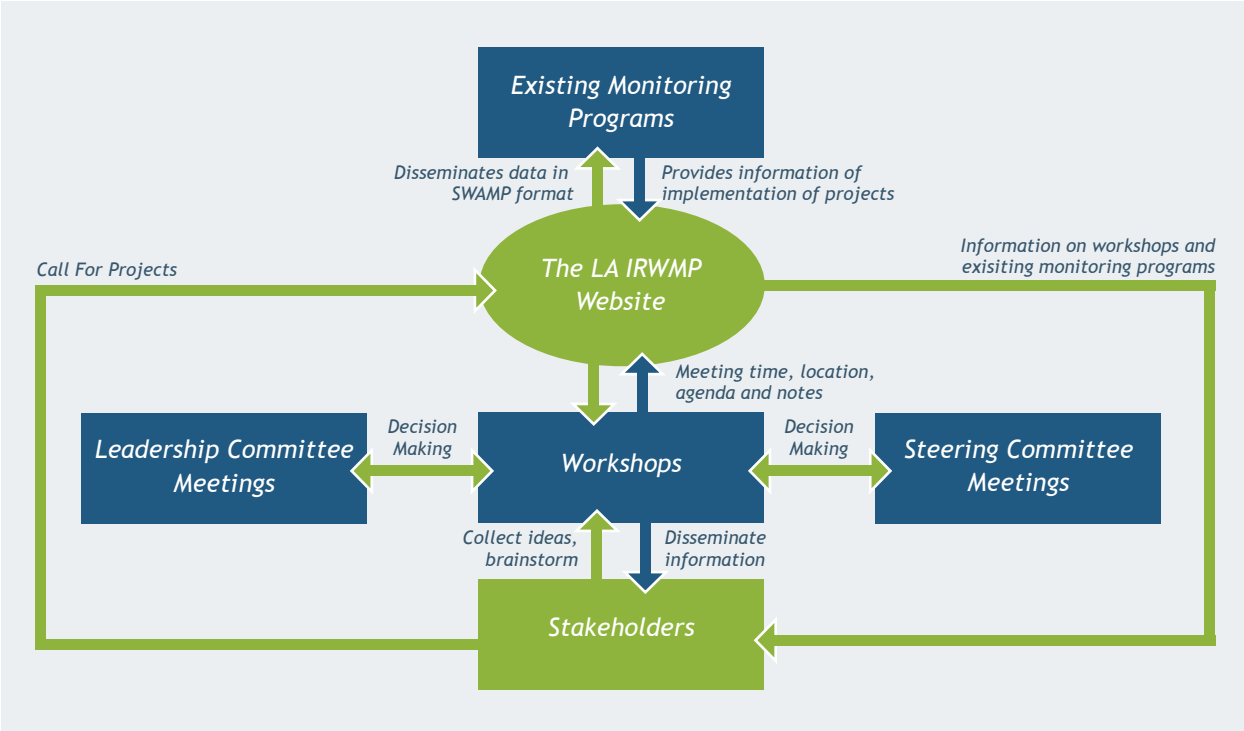


Figure 7-5. Data Management Flow. Disseminatin of data to stakeholders, agencies, and the general public is integrated into the IRWMP process to ensure overall success.

Table 7-9. Recent Surface Water Quality Monitoring Programs	
Lead Agency Program	**General Overview**
Caltrans	Caltrans conducts monitoring aimed at estimating loadings from highway runoff.
City of Los Angeles Cleaner Rivers through Effective Stakeholder-led TMDLs (CREST)	CREST is a stakeholder effort initiated by the City of Los Angeles to develop TMDLs to restore and protect water quality in the Los Angeles River and Ballona Creek. TMDL strategies must include monitoring as the final step.
Friends of the Los Angeles River RiverWatch (319(h) grant program)	A (319(h) grant program monitoring the quality of water at 60 sites along the full length of the Los Angeles River on a monthly basis, surveying the river's biota in natural bottomed areas and tracking seasonal changes in the river and related habitat. FoLAR publishes a State of the River Report and intends to develop a successful and long-term volunteer river monitoring program.
Heal the Bay Beach Monitoring	Heal the Bay Beach Monitoring provides monitoring of total coliform, fecal coliform, enteroccus, and total fecal ratio.
Los Angeles and San Gabriel Rivers Water Augmentation Study	The Los Angeles and San Gabriel Rivers Watershed Council is monitoring six sites to determine whether infiltration of stormwater results in the subsequent migration of pollutants to groundwater. The Phase II Final Report is available at www.lasgrwc.org
Los Angeles Basin Contaminated Sediment Task Force	The task force is conducting a study to identify sources of heavy metals loadings within the Ballona Creek Watershed. Study results could support the development of a TMDL for selected heavy metals.
Los Angeles County Department of Public Works (LACDPW)	LACDPW monitors runoff from major watersheds, including some tributaries, during multiple storm events as well as during dry weather in order to comply with its NPDES permit. Samples are taken for physical, chemical and biological analysis; toxicity testing, bioassessment and trash monitoring are also performed. Details of the NPDES monitoring program and prior year's data are found in the annual monitoring reports at www.ladpw.org.
Los Angeles County Department of Public Works (LACDPW) Santa Monica Bay Beaches Bacteria TMDL Monitoring	The TMDL, which has been divided into dry weather and wet weather, each having its own compliance dates and limits, encompasses 27 subwatersheds that cover 44 303(d)-listed beaches from Malibu to Palos Verdes. The Coordinated Shoreline Monitoring Plan (CSMP) provided 67 sampling sites to be monitored on a weekly basis starting in November 2004.
Malibu Chapter of the Surfrider Foundation	The Malibu Chapter provides volunteer monitoring of the upper Malibu Creek Watershed, and coliform monitoring of the surf zone off the Malibu coast.
Malibu Creek Watershed Advisory Council Malibu Creek Monitoring Program	Volunteer effort to provide baseline data for receiving waters throughout the watershed, coordinate with other monitoring efforts to avoid duplication, and provide data to submit to the Regional Water Quality Control Board to assist in the development of TMDLs. Where possible, this program will be used to satisfy TMDL compliance monitoring requirements.
Port of Los Angeles Consolidated Slip Restoration Project Draft Plan	A Consolidated Slip Restoration Project draft plan by the Port of Los Angeles described the extent of sediment contamination in Consolidated Slip and the site's history, identified data gaps, called for additional sediment sampling to characterize the area extent and vertical depth of Consolidated Slip contamination.
Resource Conservation District of the Santa Monica Mountains	The district provides Volunteer water quality and biological monitoring and surveys of Malibu Lagoon.
RWQCB SWAMP	The RWQCB conducted SWAMP monitoring of the Dominguez Channel watershed in FY 03/04.
San Gabriel River Regional Monitoring Program Work Group (including many county, regional, and local agencies, municipalities, and advisory organizations)	The Work Group has developed a regional monitoring program for the San Gabriel River watershed and is now working on implementation. The monitoring program integrates with existing monitoring efforts. The monitoring approach includes use of random sites in order to assess overall watershed health as well as directed sites at high habitat value areas and at the base of sub-watersheds. Extensive monitoring data are available as part of NPDES monitoring and reporting programs.

Table 7-9. Recent Surface Water Quality Monitoring Programs (Continued)	
Lead Ageny Program	**General Overview**
Santa Monica Bay Restoration Commission (SMBRC)	The SMBRC is developing new sources and loading monitoring design for point and NPS ocean discharges from the Santa Monica Bay Watershed.
Santa Monica Bay Restoration Project (SMBRP)	SMBRP completed a marine resource inventory and habitat mapping (available on CD) for Santa Monica Bay. The objectives of these projects are to produce a detailed inventory of the bay's habitats and provide a baseline for the valuation of the bay's habitats.
Santa Monica BayKeeper	The Santa Monica BayKeeper provides volunteer monitoring of storm event sampling at over 30 Bay storm drains.
Southern California Coastal Water Research Project (SCCWRP)	SCCWRP has on going efforts to investigate the loading and impacts of stormwater runoff throughout the Region, including creeks in the Santa Monica Mountains.
Southern California Marine Institute (SCMI)	This strategic alliance of 12 major universities in southern California operates several monitoring programs: CI-CORE Ocean Observatory Program, Citizen Water Quality Monitoring, Demonstration Cruise Monitoring, NOAA's Volunteer Observing Ship (VOS) Program, and Rocky Intertidal Monitoring, Seasonal Bacteria Study.
Topanga Watershed Committee CWA 205(j) project	Volunteer baseline water quality monitoring for the past two years during both dry and wet weather.
U.S. Army Corps of Engineers	The U.S. Army Corps of Engineers has worked with UCLA to collect stormwater samples in Ballona Creek to calculate relative contributions of pollutant loadings from each tributary and major land use types.

review will also include assessment of duplicate data collection efforts in the watershed to identify opportunities for partnership and reduced costs.

Drinking Water Quality

Drinking water quality is monitored through the following means:

SDWA compliance monitoring and reporting. All public water systems are required to produce water that complies with the SDWA. To this end, specific monitoring is required and conducted routinely. Results of the monitoring are reported to the California DHS. In addition, monitoring information is required to be published in the annual Consumer Confidence Report (also required by the SDWA).

Unregulated Contaminant Monitoring Rule Results. The 1996 SDWA Amendments mandate that USEPA publish a list of unregulated contaminants that may pose a potential public health risk in drinking water. This list is called the Contaminant Candidate List (CCL). The initial 1998 accounting listed 60 contaminants. USEPA uses this list to prioritize research and data collection efforts for future rulemaking purposes. The 1996 SDWA amendments incorporated a tiered monitoring approach. The rule required all large public water systems and a nationally representative sample of small public water systems serving less than 10,000 people to monitor the contaminants.

Groundwater Contamination. Metropolitan Water District produces periodic summaries of groundwater contamination in southern California.

Water Supply. Sources of data for water supply quantities include individual agency UWMPs that are updated every 5 years, Metropolitan's IRP updates, and Metropolitan's IRP Report Card. These include the amount of single dry-year and multiple dry-year supplies developed to date, projected single dry-year and multiple dry-year demands over a 20-year planning horizon and the gap between the existing supplies and demands.

Integration into State Programs

Data collected to support future updates of the IRWMP will be organized in a format that is compatible with the following major State surface water and groundwater programs.

Surface Water Ambient Monitoring Program (SWAMP). Surface water data collected in conjunction with IRWMP updates will be organized consistent with SWAMP database comparability guidelines. Data will be collected in a manner that is compatible with the SWAMP database. Any IRWMP sampling activities will be performed according to SWAMP quality assurance requirements.

Groundwater Ambient Monitoring and Assessment (GAMA). Groundwater data collection in conjunction with updates of the IRWMP will be coordinated with the needs of the GAMA program so that the data can be integrated into the GAMA database. If needed, field sampling efforts will be coordinated with the GAMA program to eliminate duplicative data collection efforts and fill data gaps. Data will be consistent with GAMA database specifications so that it can be easily integrated and shared.

California Environmental Resources Evaluation System (CERES). Appropriate notice of data and reports developed in conjunction with the IRWMP will be provided to CERES so that information will be available and useful to a wide variety of users.

Data Gaps

In conjunction with the development of this plan, several data gaps were identified related to water resource management, including water supply, surface water quality, and habitat quantity and quality.

As noted in Section 2, because water agency boundaries are not aligned with the Region's boundaries, an estimate of the Region's water supply and demand was not readily available. Water supply and demand for the Region was estimated based on review of key documents, the results of a survey distributed to water agencies, and discussions with staff of water agencies. Future IRWMP updates should utilize a more precise methodology for estimating water supply and demand.

The description of surface water quality in the Region is based on the 303(d) of water quality impairments in the Region. As noted in several local watershed plans, the number of monitoring locations for surface water quality is limited and needs to be expanded in order to provide a more accurate assessment of water quality and assist in source identification. The monitoring plans developed in conjunction with TMDL implementation plans will result in additional monitoring locations and provide additional information that could be utilized in future IRWMP updates.

Although several federal, state and local agencies collect data with respect to the quantity and quality of habitat, currently no single entity can provide a comprehensive assessment of such data. The Green Visions Plan, a joint venture between the University of Southern California and the region's land conservancies, including the Rivers and Mountains Conservancy, Santa Monica Mountains Conservancy, Coastal Conservancy, and Baldwin Hills Conservancy, will provide a guide to habitat conservation, watershed health and recreational open space that includes planning and decision-support tools for the Los Angeles metropolitan region. Future IRWMP updates will benefit greatly from these data and tools.

7.9 Adaptive Management

To measure the performance of projects, the IRWMP, the implementation projects, and facilitate future adjustments to objectives, planning targets, or project priorities, a set of metrics has been established. Metrics at the plan level were developed based on the IRWMP objectives. At the project level, metrics were developed to measure individual project performance based on the established goals of each project. Monitoring programs at both levels are planned to collect performance-related data which will be analyzed and compared to the established metrics. Performance data will provide feedback into an adaptive management process that will be used to modify both project composition and priorities and the IRWMP based on actual results. This section describes the monitoring methods and programs that will be used to collect data and the mechanisms by which this data will drive future improvements to projects and the IRWMP. Table 7-10 summarizes project monitoring and program performance measures.

Table 7-10. Project Monitoring and Program Performance Measures

IRWMP Objective	Project Monitoring	Program Performance
Optimize local water resources to reduce the region's reliance on imported water	Number of water conservation devices provided Volume of recycled water distributed Volume of water created or stored	Total volume of total water supply created or conserved
Comply with water quality standards by improving the quality of urban runoff, stormwater and wastewater	Volume of stormwater captured Water quality parameter measurements	Total volume of total runoff captured, infiltrated, and/or treated Measured water quality improvements
Protect, restore and enhance natural processes and habitats	Acres of habitat restored Acres of habitat maintained Miles of river restored Water quality measurements	Miles of habitat created
Increase watershed-friendly recreational space for all communities	Acreage created	Total acreage created

An adaptive management process will be used to analyze project and plan performance and identify the need for modification of projects and/or the IRWMP.

The first level of response to performance will be at the project level. Agencies responsible for implementing projects have a vested interest in adjusting project operations for maximum benefit and also have familiarity with the technical aspects of the project. Documents that have been identified as the basis for scientific and technical merit for a project will be used to guide the response. Also sponsors of similar projects will be consulted. In addition, working groups will be formed to share information and experience regarding specific types of project issues. If certain projects do not perform as expected, then an alternate project may be designated to replace the underperforming project, if the costs are not prohibitive. This may cause a change in project sequence if the projects in question are addressing higher priority issues. Alternatively, if some projects exceed expectations or capacity, then investigation should be made to see if the project can be expanded. For instance, with stormwater capture projects it may be discovered that pollutant loading is higher than expected or the amount of water exceeds the design capture volume of a BMP. In this case, an additional or expanded BMP could be employed to take maximum advantage of the higher volumes.

Another response to performance data may be the realization that certain assumptions used to design and/or site the project were incorrect. As an example, TMDL implementation plans often use land use assumptions for initial BMP prioritization and placement. Once BMPs are in place, the data gained on the ground can be used to refine site selection. For instance, if a certain area is demonstrated to possess higher than assumed pollutant loads, then this information will also be fed back into the BMP prioritization database to allow updated models to be completed and new projects identified.

At the plan level, if the planning targets are not being met, then the particular program would need to be analyzed to determine if a more optimal mix of project types and/or water management strategies would offer improved results. Alternatively, the planning target may be adjusted if changed conditions or other factors warrant modification of the target.

If both project and plan level responses do not lead to satisfactory results, then a change in institutional structure may be appropriate. This could involve identifying and bringing on board missing players whose participation would improve success. Changes to the stakeholder process could be explored to bring new ideas. Finally, a change in governance structure or decision making process could be considered to bring a fresh approach.

7.10 Next Steps

The IRWMP will be implemented over the next 20 years through projects; non-structural programs; additional studies and planning, adaptive management; regular updates of the IRWMP; and stakeholder outreach. The IRWMP will require a number of coordinated actions to achieve successful implementation. A summary of potential IRWMP next steps is shown in Table 7-11.

Project Prioritization

As funding for project implementation becomes available, a list of candidate projects should be developed, and narrowed to a short list of projects that would form the basis of a grant application. This will require development of project prioritization criteria. Although no specific criteria have been developed to date, and future funding opportunities would provide specific criteria that would substantially affect any project ranking, the following conceptual prioritization criteria have been developed for consideration in the next phase of IRWMP development.

Conformity with Funding Criteria. It is expected that there will be various opportunities to secure local, state or federal funding for water management activities during the next 20 years. In many, cases opportunities will be focused on specific water management areas rather than the full range of areas. The Region may still choose to submit multi-purpose projects for consideration under those circumstances; however priority should be given to projects with the greatest probability for funding.

Readiness to Proceed. Factors that contribute to project readiness are included in the following: level of detail presented in planning documents; level of design and cost estimation; completion of site identification; completion of environmental compliance activities; and completion of any required permitting activities. Comparing project readiness should consider the context of the time needed to complete all the required activities. Project timelines can be compared to the schedule requirements of each funding effort. Priority should be given to those projects capable of meeting the schedule requirements.

Availability of Locally Required Cost Share. Availability may be judged by differing criteria under varying circumstances. For example, while matching funds may be required for planning activities a simple demonstration of the ability to raise implementation funds may also be important. However, when seeking funds to implement new projects, a demonstration of reserved funds or a formal commitment by a stakeholder group with access to adequate funding may be required. Priority should be given to projects having greater certainty of securing local funding.

Project Contribution to IRWMP Quantifiable Objectives. A project's contribution to water supply, water quality, habitat, open space, and/or infrastructure must be considered both in terms of the Region's quantifiable objectives and in the context of a given Subregion's needs and constraints. Priority should be given to projects that contribute to multiple objectives at the Subregional and Regional levels.

Benefit Cost Relationship. It is appropriate that both quantifiable and not-quantifiable benefits provided by projects be considered in relation to their costs. It is likely, at least initially, that lack of detailed data regarding all benefits could preclude a rigorous quantitative comparison of all projects. Subregions should include a qualitative assessment of each submitted projects' benefit cost relationship and a relative ranking of projects. Priority should be given to projects with relatively stronger benefit to cost ratio.

Strength of Local Support. Priority should be given to projects showing strong support from diverse groups in the local community and public sector.

The relative importance assigned to each of the above criteria would play a key role in determining which projects are selected for inclusion in funding applications. That relative importance or "weighting" will vary depending on potential funding sources and the planning horizon.

Plan Updates

The IRWMP will be updated as needed, as projects continue to be developed or funding opportunities arise, and when objectives or the planning targets

Table 7-11. Summary of Potential IRWMP Next Steps

Implementation Element	Implementation Objectives	Suggested Implementation Phase		
		Immediate Term	Near Term	Long Term
Coordination with Local Plans and Programs	• Demonstrate a high degree of coordination with local planning efforts. • Be consistent with locally expressed goals. • Utilize the results of local planning where possible.	• Identify additional future planning efforts and when results are expected. • Determine dates for General Plan updates. • Increase interagency communication and coordination where plans, studies and implementation projects overlap jurisdictions.	• Establish coordination and communication procedures with ongoing local planning efforts. • Establish quantifiable Subregional goals/ targets. • Create project "clearing house" to allow rapid identification of planned projects throughout the Region to avoid duplication and create opportunities for partnering.	• Integrate IRWMP into General Plan and UWMP updates. • Update IRWMP with updated Subregional goals. • Consider ordinances that require water savings devices or penalize water waste generation. • Expand incentives for conservation. • Consider assessing fines for runoff and providing public recognition for water conservation. • Evaluate changing the Covenants, Conditions and Restrictions (CCR) in many homeowners associations that restrict the ability to utilize native or water friendly landscaping. • Reassess grey water reuse opportunities.
Institutional Structure	• Achieve representation of all agencies and organizations necessary to ensure successful IRWMP execution. • Identify agency(ies) responsible for project implementation.	• Agree on structure and mechanism for future IRWMP governance. • Representation, roles and responsibilities. • Decision making procedure.	• Form JPAs where appropriate. • Form partnerships for combined development and implementation of projects with mutual benefits. • Examine current Leadership Committee Structure.	• Utilize adaptive management to determine appropriate institutional structures on a project or issue specific basis.
Coordination with State and Federal Agencies	• Achieve coordination with appropriate state and federal agencies. • Identify areas where state or federal agencies may be able to assist in communication or cooperation or funding. • Determine where state or federal agencies can assist in implementation of plan activities, components or processes.	• Identify further opportunities for coordination with state and federal agencies.	• Develop future projects with state and federal partners where mutually beneficial. • Pursue funding available through state and federal programs.	• Determine how state and federal agencies will influence long term project concepts. • Identify need for state or federal approval or assistance on existing projects.

Table 7-11. Summary of Potential IRWMP Next Steps (Continued)

Implementation Element	Implementation Objectives	Suggested Implementation Phase		
		Immediate Term	Near Term	Long Term
Schedule	• Determine timelines for active or planned projects. • Ensure that IRWMP implementation schedule is coordinated with schedules for other water management activities in the Region and in the Subregions.	• Identify additional Regional or Subregional schedules or deadlines. • Determine periodic IRWMP "re-opener" periods that will allow for comprehensive updates of stakeholders, projects and implementation plans. • Establish Subregional funding priorities.	• Select projects that will help meet upcoming regulatory deadlines. • Select projects that are ready to proceed and are high priority.	• Determine the optimal combination of projects to meet long range deadlines. • Monitor/update project schedules and continue to identify needs and opportunities.
Financing	• Identify funding for plan implementation. • Determine opportunities for ongoing financing for O&M and maintenance of projects.	• Provide information on local potential funding measures (fees, assessments etc.). • Compile list of current grants being pursued.	• Develop detailed estimates of capital and O&M costs for existing projects. • Track all potential funding opportunities. • Develop innovative, multi-benefit projects to maximize opportunities for competitive funding. • Pursue special earmarks for specific projects.	• Determine the most cost-effective combination of projects that can achieve Subregional objectives.
Data Management	• Identify methods for efficient collection and dissemination of data. • Identify data gaps. • Determine how data collection will support statewide data needs. • Identify obstacles to sharing data between agencies and determine methods to remove them.	• Document known gaps in data. • Identify data overlaps. • Suggest opportunities for improved data sets. • Develop a data management collection and dissemination system for the Subregion. • Identify lead entity or entities to collect and manage data	• Utilize data to guide development of existing and future projects. • Develop project monitoring plans that can also fill data gaps, if possible.	• Identify long term trends for the Region and Subregion • Maintain data and continue to collect information.

Table 7-11. Summary of Potential IRWMP Next Steps (Continued)

Implementation Element	Implementation Objectives	Suggested Implementation Phase		
		Immediate Term	Near Term	Long Term
Performance Measures	• Determine the appropriate measures to monitor for Regional and Subregional performance. • Provide mechanisms for adapting project operation in response to performance data. • Discuss results in an integrated fashion.	• Determine what performance measures are important for targets. • Determine what performance measures are appropriate for existing projects. • Identify potential project modifications in response to collected data.	• Measure performance of all benefits of multi-objective projects.	• Develop Regional and Subregional monitoring system. • Identify opportunities for coordinated Subregional responses to performance data.
Stakeholder Outreach	• Maintain contact and increase coordination with current participants. • Expand participation and increase project submission all cities and unincorporated areas. • Increase participation of Disadvantaged Communities.	• Continue outreach to all identified stakeholders on plan finalization and adoption.	• Create compelling case statement of benefits of participating in ongoing IRWMP process. • Continue outreach and briefings to key stakeholders that are not participating. • Intensify outreach to Councils of Government, watershed stakeholder groups, and other groups involved in area planning efforts.	• Continue to address barriers to participation including lack of resources; lack of information on how to engage, and language barriers.

need to be adjusted. As local and Subregional plans are completed, the recommendations and projects contained within those plans can be incorporated into the IRWMP through an update or amendment.

Ongoing Stakeholder Outreach

Stakeholder outreach will be a continued activity going forward. Involvement of stakeholders is critical for successful implementation as it provides opportunities for building local support by ensuring that local needs are being heard and addressed. Development of an outreach strategy will include expanding efforts to reach disadvantaged communities and gaining increased involvement of the many cities in the Region.

Implementation of Additional Projects

The projects identified during the Call for Projects represent a great potential source for achieving the IRWMP goals. All the projects are currently available for review on the Plan website. To make progress towards the plan's objectives and planning targets, individual projects included in the database could be implemented as funding becomes available. In addition, the project concepts included in the database could be further refined as more definitive projects. This could include some form of project development assistance to jurisdictions, agencies and stakeholder organizations.

At this point in time, no specific schedule has been developed for implementation of the 1,521 proj

ects and project concepts included in the database as part of this Plan. It is anticipated that additional projects will be identified and added to the project database over time, as project concepts are refined and developed, and to address changing conditions and needs in the Region.

Additional Planning

As noted in the Interim Draft IRWMP, substantial portions of the Region are covered by existing or in-progress watershed plans. Preparation of additional watershed plans is suggested for those watersheds not currently covered by a plan, including: Burbank (east and west) Wash, Verdugo Wash, the mainstem of both the Los Angeles and San Gabriel Rivers (although the respective river Master Plans cover the river corridors and some adjacent lands), the Upper Los Angeles River (not covered by the Tujunga Plan and the Headwaters Plan), Los Cerritos Channel, and numerous smaller watersheds that drain directly to Santa Monica Bay and San Pedro Bay. For the watershed plans that have already been completed, implementation is the next step, along with assessment of the impacts and realized benefits. Regular updates of the plans should be undertaken to account for these assessments, as well as changes in local conditions and modifications to the IRWMP regional objectives.

Section 5 (Regional Project Concepts) identifies three conceptual Regional Planning Tools (or approaches) which combine various project concepts to meet the established planning targets. Additional planning could refine the Regional Planning Tools into more specific solutions for each Subregion and thereby identify definitive projects which complement the stakeholder-identified projects, respond to local conditions and priorities, and fill the gap in benefits between those generated by the stakeholder-identified projects and the planning targets. As these projects are identified, they could be merged with, or where appropriate, replace some of the projects included in the project database to create a comprehensive project list which would achieve the objectives and planning targets.

Habitat issues have traditionally been addressed at different levels, with jurisdictions planning their own boundaries and resource management agencies planning at levels larger than the Region. Although some habitat planning is ongoing, much of this is limited to specific areas (e.g., coastal wetlands or the National Forest), and has yet to address the difficult questions of conservation and preservation of habitat around and within the urbanized portions of the Region. Although some long-term goals have been suggested (e.g., more naturalized stream channels), little work has been done to articulate the precise elements of that vision, or to define incremental steps that would contribute to that long-term version. To ensure that habitat issues are addressed, the following steps should be taken:

- Develop a long term habitat/open space vision, with a clear scientific basis, and identify steps necessary to proceed with long-term regional planning;
- Define costs/benefits of, and establish targets for, achieving these goals;
- Identify additional studies to fill in gaps needed to completed the regional vision;
- Include assessment of on-going studies to help identify the goals (e.g., Green Visions Plan species mapping report);
- Define functional habitats; and
- Identify targets that help achieve the vision (e.g., removal of fish passage barriers).

7.11 IRWMP Schedule

Additional planning including development of customized project solutions for the Subregions is estimated to require approximately 18 months, which is illustrated in Table 7-12.

Table 7-12. Additional Planning and Development of Customized Project Solutions

1. Schedule dependent on identification of funding.

APPENDIX A: CONSISTENCY WITH STATEWIDE PRIORITIES

Introduction

The state has identified a range of statewide priorities in the IRWM Grant Program Guidelines (DWR, 2004). Table A-1 provides an assessment of how the IRWMP and the Region's priorities are consistent with statewide priorities.

Table A-1. Consistency with Statewide Priorities	
Statewide Priorities	**IRWMP Consistency**
Reduce Conflict between Water Users or Resolve Water Rights Disputes, including Interregional Water Rights Issues	Although the preservation and protection of water rights will continue to be a concern, given the long period of urban and suburban development in the Region, most of the major water rights disputes were settled long ago, often via litigation or adjudication of groundwater basins. As the IRWMP will optimize use of local supplies and expand conservation, which will enhance water supply reliability, implementation of the plan will reduce the potential for conflicts during periods of extended drought.
Implementation of TMDLs that are Established or Under Development	Several TMDLs have been established in the Region, and many more remain to be developed. Efforts are underway to implement those that have been established, but considerable uncertainty exists regarding the total effect of multiple TMDLs in local watersheds. The IRWMP includes planning targets to capture an estimated volume of dry- and wet-weather runoff and expand use of recycled water and will identify the costs, benefits and impacts of alternative methods to treat and recycle the estimated volumes. This process will provide specific and quantifiable information for the development of implementation plans to comply with existing and pending TMDLs, and resolve a major conflict for many local jurisdictions which are struggling to identify a fund source for TMDL compliance
Implementation of Los Angeles RWQCB Watershed Management Initiative Policies	
Alternative methods to demonstrate water quality improvement. Tie water quality improvement to beneficial use improvement as a preferred way to demonstrate effectiveness of grant projects that are multi-use or habitat restoration in nature.	The IRWMP proposes a planning target to restore riparian habitat and associated buffer habitat, which would support the goal of restoration of steelhead populations in streams in the Santa Monica Mountains. Thus, the IRMWP will support the preservation and/or restoration of beneficial uses throughout the Region as an alternative measure of water quality, rather than simple reliance on numerical standards.
Addressing the regional salt management/salt imbalance issue which is becoming increasingly critical in the region. Also, balancing this issue with the need to promote the use of reclaimed water.	The Plan includes an objective to maintain quality of existing water sources, such as reservoirs and groundwater basins, and expand use of recycled water, and includes specific acknowledgement that the re-use of water increases salt content and that salt management issues must be recognized and addressed.
Development, adoption, and implementation of TMDLs is a high priority both regionally and statewide.	The Plan proposes quantifiable planning targets to reduce, capture, treat and/or infiltrate dry-weather urban runoff, and stormwater runoff, and recycle wastewater effluent.
Municipal stormwater/urban runoff. Advancing stormwater and urban runoff programs through a variety of efforts. Current priorities include trash control and new development/re-development issues.	The Plan proposes quantifiable planning targets to reduce, capture, treat and/or infiltrate dry-weather urban runoff and stormwater runoff.
Watershed monitoring and assessment. Coordination of existing resources and participation in the Surface Water Ambient Monitoring Program (SWAMP). More use of bioassessment as a tool.	The Plan encourages the development of watershed plans for those areas not currently covered, which would include watershed assessments and appropriate monitoring of watershed resources. The Data Management element addresses issues of data consistency, including the inclusion of water quality monitoring data in the SWAMP.
Habitat loss/restoration. Even with strides in improving instream water quality, unless habitat is restored (riparian/wetlands, in particular), in many cases beneficial uses can not be fully restored.	The Plan includes an objective to protect, restore, and enhance natural processes and habitats and identifies planning targets for restoration of riparian habitat and associated buffer, in support of the existing beneficial uses and restoration of steelhead fisheries where feasible.
Preservation of high quality habitats. Ensure maintenance of beneficial uses at these sites through support of low-impact development coupled with minimized/avoided hydromodification.	The Plan includes an objective to protect, restore, and enhance natural processes and habitats and identifies planning targets for restoration of riparian and wetland habitats.

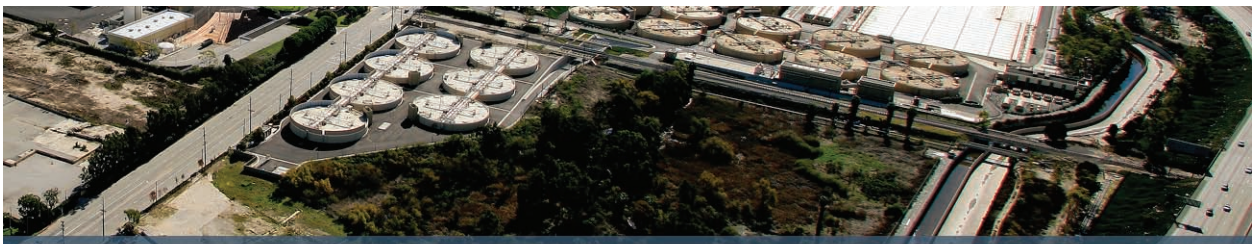
(Table A-1. Consistency with Statewide Priorities (Continued)	
Statewide Priorities	**IRWMP Consistency**
Priority NPS efforts. Several areas have been targeted for accelerated efforts including development of regional strategies to address agriculture, septic tanks, urban runoff, and marinas as contributors of NPS pollution.	The Plan recognizes the need to continue existing programs, such as NPDES permits, and expand implementation of programs and projects to address NPS pollution, consistent with the State's NPS Program Strategy and Implementation Plan (1998–2013) which identifies actions to reduce nonpoint pollution, and the companion volume, the California Management Measures for Polluted Runoff.
Beach closures. Other impairments in the Region are the result of elevated coliform levels or beach closures. Monitoring the water quality of recreational areas along the coast, identifying land uses or drainages which generate pathogens, and reducing pollution within these areas is a targeted activity.	The Plan includes a planning target to capture an estimated volume of dry- and wet-weather runoff and recycle wastewater effluent and will identify the costs, benefits and impacts of alternative methods to treat the estimated volumes. This process will support development of implementation plans to comply with existing and pending TMDLs, including the dry and wet-weather bacteria TMDLs for Santa Monica Bay beaches, which should reduce potential beach closures associated with elevated bacteria levels.
Reduce, reuse, and recycle water. Maximize water conservation in the Region.	The Plan includes objectives to maintain and enhance the reliability of local water resources and planning targets to expand water conservation and increase the use of recycled water.
Implementation of Santa Ana RWQCB Watershed Management Initiative Policies	
The WMI identifies specific water quality concerns for the Coyote Creek Watershed (including nitrogen impairment, channel erosion and aquatic habitat degradation) and proposes development of a watershed management plan (in progress) to address these issues.	The Plan includes objectives to improve surface water quality, conserve and restore native habitat, including wetlands and riparian habitat, and acknowledges the ongoing development of the watershed management plan for Coyote Creek.
Implementation of the SWRCB's Non Point Source Pollution Plan	
Manage NPS pollution, where feasible, at the watershed level…where local stewardship and site-specific management practices can be implemented through comprehensive watershed protection or restoration plans.	As noted above, the IRWMP recognizes the need to continue existing programs, such as NPDES permits, and expand implementation of programs and projects to address NPS pollution, consistent with the State's NPS Program Strategy and Implementation Plan and the companion volume, the California Management Measures for Polluted Runoff. Existing watershed plans, which have been developed for most of the major tributary watersheds address these concepts at the watershed level. The Plan's quantifiable planning targets for dry-weather urban runoff and wet-weather stormwater runoff may lead to the identification of alternative methods to address runoff quality, including measures to address NPS pollutants, and integrate those methods into regional solutions. As water quality problems can be effectively implemented at a watershed scale, the project integration associated with the IRWMP is likely to occur at the watershed scale.
Apply previous experiences to future decisions.	Existing efforts to develop and implement watershed plans and comply with NPDES and TMDL requirements are increasingly utilizing adaptive management techniques to learn from previous efforts and apply those lessons to future projects and programs. The Plan identifies a process for plan updates and proposes to incorporate information from watershed monitoring into future plan updates, so that the relative application of water management strategies, the list of projects that are proposed, and the relative priorities of those projects can be modified as appropriate.

Table A-1. Consistency with Statewide Priorities (Continued)	
Statewide Priorities	**IRWMP Consistency**
Encourage innovative approaches to NPS pollution control and prevention through interagency, interdisciplinary, and volunteer activities.	As noted in Section 1, a variety of innovative approaches to surface water quality issues have been developed to date, which involve interagency collaboration, and often rely upon water quality monitoring programs which rely upon volunteer efforts to expand available information. The Plan identifies three alternative project concepts or regional planning tools which would achieve TMDL implementation and ultimate attainment of attain applicable water quality objectives, which will include programs and projects to address NPS pollution. Given the size of the Region and the pervasive effect of urbanization on surface water quality, collaborative efforts to address NPS pollution will likely require multi-agency efforts, which may take the form of projects with multiple sponsors to address surface water quality.
Ensure the protection and restoration of the State's water quality, existing and potential beneficial uses, critical coastal areas, and pristine areas by implementing management measures to prevent and control NPS pollution.	The Plan includes identification of programs and projects to achieve compliance with TMDLs and thus applicable water quality standards intended to preserve designated beneficial uses, including those in coastal and inland locations. The Plan acknowledges the presence of an Area of Biological Significance and associated Critical Coastal Area in the North Santa Monica Bay.
Promote the implementation of management measures and use of management practices for the NPS component of TMDLs or in Clean Water Act section 303(d) listed water bodies in order to improve water quality.	Existing TMDLs for trash and bacteria will require the extensive application of NPS pollution control techniques to achieve compliance. The Plan include identification of three comprehensive approaches (or regional planning tools) that would improve surface water quality and achieve compliance with TMDLs for 303(d) listed water bodies, which are most of the Region's rivers and creeks.
Assist in Meeting Delta Water Quality Objectives	The Plan includes a planning target to sustain current local water resources production capacity and provide additional water supply and/or demand reduction. The Plan identifies options to meet that target, which include expansion of water conservation programs, expanded use of recycled water (to offset potable water demand), and the optimized use of local supplies, including improved management and cleanup of groundwater basins and the potential to capture, treat, infiltrate or directly reuse urban and stormwater runoff. The combined effect of these proposals will be to minimize demand on imported supplies. This will improve water supply reliability for the Region and could concurrently reduce demand on State Water Project supplies and enhance the potential for improved management of the Bay-Delta system in order to meet identified water quality objectives, including salinity.
Implement Recommendations of the Floodplain Management Task Force	
In planning new or upgraded floodwater management programs and projects, including structural projects, local and State agencies should, where appropriate, encourage nonstructural approaches and the conservation of the beneficial uses and functions of floodplains. It is recognized that some structural approaches provide needed flood protection and opportunities for agricultural conservation and ecosystem protection and restoration.	The Plan includes objectives to protect, restore, and enhance natural processes and habitats and to increase watershed friendly recreational space for all communities, which have the potential to contribute to flood protection without specific structural enhancements. The Plan also includes a planning target to restore riparian and associated habitat buffer (e.g., floodplain), which would support the preservation and restoration of steelhead trout habitat in the Santa Monica Mountains, consistent with a designated use of those streams, while recognizing the need to include the associated buffer habitat as part of the overall system. The Plan's discussion of water management strategies includes a discussion of the potential for land use planning to be used as a tool for water quality (by reducing impervious surfaces) which would have a corollary benefit to flood protection.

Table A-1. Consistency with Statewide Priorities (Continued)	
Statewide Priorities	**IRWMP Consistency**
Planning and development of ecosystem restoration projects should consider costs and impacts with respect to vector control and monitoring related to mosquito-transmitted diseases.	The Plan's discussion of ecosystem restoration as a water management strategy recognizes that the ability to restore ecosystems within a largely urbanized region requires consideration of public safety issues, including vector management and the appropriate interface between wildlands and developed areas.
The State should encourage multi-jurisdictional partnerships when floodplain management projects are planned and implemented. Jurisdiction-based projects provide localized solutions, when a greater benefit might be achieved if the project adopted a watershed-wide approach. Communities and jurisdictions should work together to develop, implement, and monitor watershed-wide floodplain management programs.	The Plan identifies options for multi-purpose project scenarios, which may include flood management benefits. Given the size of the Region and the number of local jurisdictions and agencies, collaborative efforts will be required, which may take the form of projects with multiple sponsors at the watershed scale.
Implement Recommendations of the Desalination Task Force	
Include desalination, where economically and environmentally appropriate, as an element of a balanced water supply portfolio, which also includes conservation and water recycling to the maximum extent practicable.	The IRWMP includes a discussion of water management strategies, which acknowledges that brackish groundwater desalination is ongoing in the Region and that three agencies are currently investigating ocean water desalination as part of their water supply portfolio. As discussed above, substantial expansion of water conservation and reuse of recycled water is also part of the regional solution to enhance local supplies and improve water supply reliability.
Identify ways to improve water quality by mixing desalinated water with other water supplies.	Ongoing efforts to desalinate brackish groundwater already rely upon mixing the desalinated water with other supplies to provide high quality water. Pending and future proposals for ocean water desalination will also include plans to mix desalinated water with other supplies.
Where feasible and appropriate, utilize wastewater outfalls for blending/discharging desalination brine/concentrate.	Two of the three proposed ocean water desalination facilities in the Region propose to utilize existing wastewater discharge outfalls for brine discharge, which would reduce adverse effects associated with reduced salinity in the areas around the existing outfalls.
Evaluate all new water supply strategies including desalination based upon adopted community General Plans, UWMPs, Local Coastal Plans, and other approved plans that integrate regional planning, growth and water supply/demand projections. Environmental reviews should ensure that growth related impacts of desalination projects are properly evaluated.	The IRWMP provides a comprehensive assessment of the Region's water supply needs based on urban water management plans and regional population projections. The Plan acknowledges the need for integration of water resource management planning with other regional plans and activities, and recognition of the need to understand the intersection between such regional plans and the actions and proposals of individual water agencies.
Implement Recommendations of the Recycled Water Task Force	
Engage the public in an active dialogue using a community value-based decision-making model in planning water recycling projects.	The IRWMP proposes expanded utilization of recycled water as part of the Region's future water supply portfolio and identifies an extensive stakeholder outreach process to discuss water resource management strategies for the Region. Individual proposals for new or expanded recycled water production or distribution systems will need to incorporate a stakeholder-involvement process in the identification and implementation of individual projects. One notable example of such a process is the City of Los Angeles' IRP, which utilized an extensive stakeholder process to identify alternative scenarios for wastewater, recycled water and stormwater that were subjected to CEQA analysis.
Develop a uniform method for analyzing projects and a consistent economic feasibility framework across funding agencies.	The Plan includes a benefit assessment framework for projects that can be applied to all projects, including recycled water projects, across funding agencies and project sponsors.

Table A-1. Consistency with Statewide Priorities (Continued)	
Statewide Priorities	**IRWMP Consistency**
State Species Recovery Plan	The State of California does not have a single Species Recovery Plan, as most species recovery plans are developed and implemented by the U.S. Fish and Wildlife Service pursuant to their responsibilities under the federal Endangered Species Act. The California Department of Fish and Game cooperates in the development of such plans, however, state efforts towards species recovery are focused on the development of Natural Community Conservation Plans (NCCP, formerly known as Habitat Conservation Plans). Only one such plan has been developed in the Region (the Palos Verde Peninsula Sub-Regional Plan). No projects included in the Draft IRWMP are located within the boundaries of the Palos Verdes NCCP plan, and therefore no conflicts with the NCCP would occur. The County of Los Angeles also has implemented the Significant Ecological Areas program, which identify special habitats and proposes measures to protect such habitat. The Plan includes an objective to protect, restore, and enhance natural processes and habitats, which is consistent with state and federal programs related to species recovery. The Plan includes a planning target to restore 100 linear miles of riparian habitat and associated habitat buffer, which is consistent with regional plans to restore steelhead fisheries in Malibu Creek and other streams in the Santa Monica Mountains. The Plan also proposes to incorporate the following water management strategies in the IRWMP: Restore Ecosystems, Environmental & Habitat Protection & Improvement, Watershed Planning, and Wetlands Enhancement and Creation. These strategies are consistent with federal, state, and local species preservation plans, projects and programs.
Address Environmental Justice Concerns	Various cities, agencies, and organizations have been working for some time to address environmental justice issues in the region and improve the lives of communities that have traditionally received little attention or amenities that more affluent communities have enjoyed. The Plan includes objectives to: optimize local water resources to reduce the region's reliance on imported water; protect and improve groundwater and drinking water quality; increase watershed friendly recreational space for all communities; maintain and enhance flood protection; and maintain and enhance public infrastructure related to water resources and water quality The IRWMP is intended to address the substantive water supply and water quality issues in all communities, including Disadvantaged Communities. The planning target for recreational space specifically acknowledges the need to focus efforts to expand open space in under-served communities, which often fit the definition of Disadvantaged Communities identified in the Proposition 50 guidelines. One concept the Plan is likely to explore is the concept of river parkways, which could result in the creation of linear greenbelts along existing river and stream channels, which would provide opportunities for much-needed green space in densely urbanized communities along these channels, which are typically park poor.
Assist in Achieving One or More Goals of the CALFED Bay-Delta Program	
Maximize use of available water supplies through conservation, water recycling, and water quality improvements.	The Plan proposes to address future water resource needs through aggressive expansion of water conservation programs, expanded use of recycled water, optimized use of groundwater basins (which include measures to improve water quality) and improvements in surface water quality, which could make substantial local supplies available for recharge or other direct use.

Table A-1. Consistency with Statewide Priorities (Continued)	
Statewide Priorities	**IRWMP Consistency**
Increase the flexibility of water systems at the state, federal and local level through improvements in conveyance, storage and water project operations.	The Plan recognizes the need to increase flexibility of the Region's water infrastructure, which may include expansion and extension of conveyance facilities, projects or programs to modify reservoir operations and increase local storage, and optimized operation of wells, pumps, and treatment facilities to enhance water supply and improve water supply reliability.
Develop groundwater and surface water storage projects to boost flexibility and provide additional supplies for agriculture, urban and environmental use.	The Plan proposes optimized use of groundwater basins to increase storage capacity, and may suggest projects or programs to modify reservoir operations and increase local storage. These measures would both provide additional supplies for agricultural, urban and environmental use.
Reduce water demand through "real water" conservation.	The Plan includes a planning target for future water supply, through the development of new supplies and demand reduction. It is anticipated that a substantial portion of this future target will be provided by aggressive expansion of water conservation and water recycling programs.
Promote collaboration and integration among community based watershed efforts.	The Plan suggests that watershed plans be completed for those local watersheds that do not currently have a plan (although many individual watersheds currently have such plans), and acknowledges that the IRWMP creates an over-arching framework for these local plans and support continued collaboration and integration between these efforts.



APPENDIX B: PROPOSITION 50, ROUND 1 PROJECTS

B.1 Introduction

This Appendix provides information on the 13 projects which were submitted for Proposition 50, Chapter 8 Implementation Grant funding as part of the Round 1 funding cycle in June 2006 and recommended for an award of $25 million in November 2006.

B.2 Project Selection

In recent years, dozens of water supply, watershed management, water quality compliance and other water management planning documents have been prepared in the Region. Stakeholders within each Subregion used these planning documents as well as a "call for projects" process to identify potential IRWMP projects. The call for projects was an invitation to stakeholders to submit projects for inclusion in the IRWMP.

These initial efforts yielded a list of 149 projects. These projects were then prioritized within each Subregion to select sets of priority projects to be considered for a first stage (Step 1) of IRWMP implementation funding. Although specific prioritization methods varied between the Subregions, each used an objective scoring process to quantitatively rank projects using criteria based on IRWMP Guidelines and Statewide Priorities. The process was designed to select well developed, stakeholder supported projects that address a wide range of water management strategies and meet Regional and statewide priorities. Using these prioritization methods, the Subregions proposed a total of 58 projects as the basis for Step 1 funding.

Recognizing opportunities for increased integration the state encouraged the consolidation of the four Subregions into the one Region. The initial 58 projects identified in Step 1 formed the nucleus for the IRWMP effort and defined the starting point for further integration and prioritization to achieve a list of thirteen priority projects.

Figure B-1 illustrates the overall process that took place as part of the Step 1 application process and as part of the initial phase of the IRWM planning effort to identify priority projects.

The proposed projects were organized into five water management programs that correspond to the Regional objectives covered in Section 3 of the IRWMP to facilitate the prioritization process:

- Imported Water Reduction and Supply Reliability;
- Urban Runoff and Stormwater Water Quality Improvements;
- Flood Protection Maintenance & Improvements;
- Watershed-Friendly Recreation and Open Space Creation; and
- Natural Habitat Conservation and Restoration.

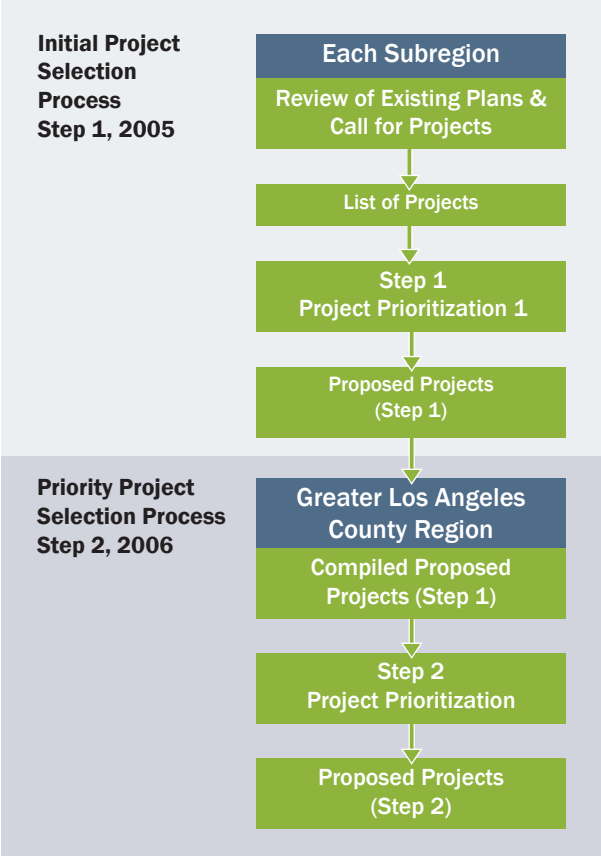


Figure B-1. Project Identification and Prioritization Process. The Step 1 prioritization approach varied by Subregion. Specific details on the prioritization process are provided in the Step 1 grant applications.

The primary benefit of each project was used to assign the project to a particular program, recognizing that most projects offer multiple benefits that can contribute towards meeting the objectives associated with the other programs. The program associated with each of the 58 projects (since consolidated into 56 projects) is indicated in Appendix A.

B.3 Project Prioritization Approach

The proposed projects submitted with Step 1 applications were prioritized utilizing the two-phase process illustrated in Figure B-2. Each of these prioritization steps are further described below. As noted earlier in this Section, this project prioritization approach only applies to the identification of priority projects for the Proposal for Implementation Grant, Step 2 – First Funding Cycle. The final IRWMP will present a more comprehensive approach to project identification and integration.

Prioritization Phase 1

Within each Subregion, stakeholders ranked each of the 58 proposed projects from the Step 1 application within each water management program based on readiness to proceed by reviewing the

Figure B-2. Project Prioritization Approach (Step 2).

Table B-1. Benefits Considered in the Prioritization Phase 2	
Benefit	**Unit**
Water Supply Created	acre-feet/year
Volume of Water Treated	mgd
Area Drained	acres
Open Space, Recreation Opportunities Created	acres
Area of Wetlands/Habitat Created	acres

status of planning, environmental documentation, and design percent complete. Financial commitment of project sponsors was also considered in evaluating the readiness to proceed. Twenty-five top-ranked projects out of the 58 proposed projects were selected through this first step.

Prioritization Phase 2

The Leadership Committee and Subregional Steering Committees reviewed the 25 top-ranked projects and ranked them by Subregion and by water management program based on their ability to provide the greatest benefits. The benefits were measured in terms of water supply created, volume of water treated, and area of wetlands/habitat created as shown in Table B-1.

B.4 Priority Projects

The 13 priority projects that constitute the Proposal for Implementation Grant, Step 2 – First Funding Cycle are listed in Table B-2, which includes a brief project description and the name of the implementing agencies. The project locations are illustrated on Map B-1.

Additional information on each project as well as their economic and technical feasibility, their status, and their contribution to statewide or state agency priorities is provided in the Proposal for Implementation Grant, Step 2 – First Funding Cycle.

Linkages and interdependence between the priority projects is discussed below. For the purpose of the Draft IRWMP it is assumed that two or more projects are linked or inter-dependent if they verify one or more of the following conditions:

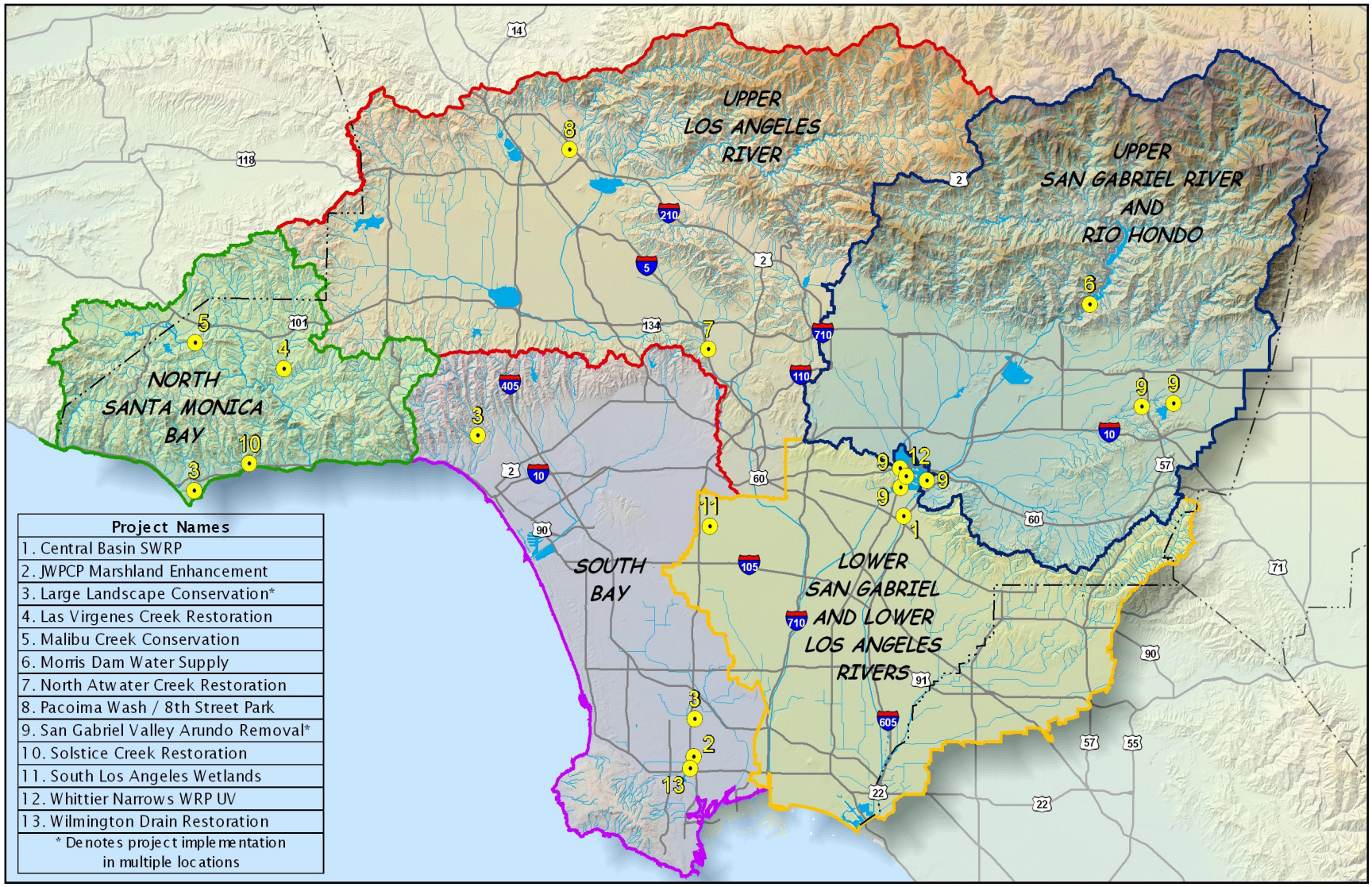
- A project is a precursor to the other(s), or a project is a component of a larger project;
- Projects are part of one integrated action plan developed to resolve a local or Regional issue;
- Project(s) have a potential impact on Regional policy;
- Projects are physically linked (e.g., tertiary treatment plant and recycled water distribution system); and
- Synergies exist between project's implementation strategies (e.g., public outreach efforts can be combined, specific measurement methods can be shared, regulatory agencies can be approached at once with similar issues).

Per discussion with DWR and SWRCB, projects that have common functions (e.g., two water conservation projects) but do not meet one of the conditions listed above were not considered linked.

Because of funding limitations, the final list includes only 13 projects which were selected for a Region that is home to more than 10 million people and covers over 2,000 square miles. Thus, limited non-programmatic linkage and interdependence between the 13 priority projects exist. To maximize linkage and interdependences amongst such a limited pool of projects, projects located within a single Subregion would have been preferable. This approach was understandably not acceptable to the stakeholders from the other Subregions; hence limiting potential linkage and interdependence between the 13 priority projects.

However, linkage and interdependence between the 13 priority projects and the integrated Regional projects to be developed through the IRWMP planning process are believed to be of more significant

Table B-2. Priority Projects			
	Project Name	Abstract	Implementing Agency
1	Central Basin Southeast Water Reliability Project	Construction of a 12-mile recycled water line from San Jose Creek WRP to distribute up to 16,000 acre-feet/year of recycled water (13,500 acre-feet/year for City of Vernon refinery) and complete Central Basin Recycled Water System.	Central Basin MWD
2	JWPCP Marshland Enhancement Project	Restoration of vegetation and wildlife habitat value of the 17 acre freshwater JWPCP marshland that provides stormwater treatment, flood control; Project includes educational and recreational facilities.	County Sanitation Districts of Los Angeles County
3	Large Landscape Water Conservation, Runoff Reduction and Educational Program	Installation of 1,950 weather-based irrigation controllers at 500 locations in the watershed to achieve up to 2,000 acre-feet/year in water conservation and 500 acre-feet/year in runoff reduction; Establish a rebate program (2,700 units); Develop 17 demonstration gardens and a public outreach program.	West and Central Basin MWDs
4	Las Virgenes Creek Restoration Project	Reestablish a native creek side habitat to enhance the water quality and biological environment of the area; Reestablish direct connectivity between the two existing riparian communities.	City of Calabasas; Mountains Restoration Trust
5	Malibu Creek Watershed, Water Conservation, Runoff Reduction, and Native Flow Restoration Project	Promotes indoor water conservation by replacing low-efficiency irrigation systems, clothes washers and toilets with more efficient systems. Promotes outdoor conservation by offering rebates and incentives for Weather Based Irrigation Controllers (WBICs) and drip irrigation systems. Also replaces city-wide irrigation controllers in the City of Westlake Village as part of a larger citywide conservation plan.	City of Westlake Village and Las Virgenes MWD
6	Morris Dam Water Supply Enhancement Project	Lower the operational pool behind Morris Dam by upgrading the dam's control structures to allow more stormwater to be captured for recharge at downstream spreading grounds.	Los Angeles County Flood Control District
7	North Atwater Creek Restoration Project	This project will construct water quality physical and structural improvements to an area along the Los Angeles River. The project will restore the creek at the North Atwater Park for storm water runoff capture and treatment and provide wetlands habitat linkage to the Los Angeles River. Two acres of wetland habitat will be created.	City of Los Angeles Bureau of Sanitation
8	Pacoima Wash Greenway Project: 8th Street Park	Convert 3 acres of undeveloped land into a natural park that collects, treats, and infiltrates residential runoff onsite and create recreational, educational, and aesthetic benefits to disadvantage community.	Mountains Recreation and Conservation Authority
9	San Gabriel Valley Riparian Habitat Arundo Removal Project	Eradicate 24 net acres of Arundo at 3 riparian areas in the San Gabriel Valley; Project will complete eradication efforts in the valley and prevent Arundo expansion to 120 acres of uninfested areas.	Los Angeles/San Gabriel Rivers Watershed Council
10	Solstice Creek Southern Steelhead Habitat Restoration Project	Complete the Solstice Creek Steelhead Habitat Restoration Plan by restoring Solstice Creek to a more natural condition through removal of debris, sediment, invasive species and creek barriers.	National Park Service, SMMNRA
11	South Los Angeles Wetlands Park Project	Converts a former MTA maintenance facility into a multi-benefit community resource with a water quality treatment element, a constructed wetland, and a community and education center.	City of Los Angeles Bureau of Sanitation
12	Whittier Narrows Water Reclamation Plant UV Disinfection Facilities	Address NDMA concentrations in tertiary effluent to preserve the use of an average of 7,000 acre-feet/year of effluent (based on a range of 5,600 acre-feet/year to 10,080 acre-feet/year, depending on the timing and implementation of other projects) for indirect potable reuse by converting from chloramination to UV disinfection.	County Sanitation Districts of Los Angeles County
13	Wilmington Drain Restoration Multiuse Project	Proposes wetlands restoration in the Dominguez Channel Watershed. The project will: 1. preserve and restore coastal wetlands ecosystems; 2. recover native habitat and species diversity; and 3. prevent future degradation and/or loss of wetlands resources.	City of Los Angeles Bureau of Sanitation



Priority Projects Location

Greater Los Angeles County Region
Integrated Regional Water Management Plan
Map B-1

relevance than the linkage between the 13 priority projects themselves. For example, should the Large Landscape Water Conservation, Runoff Reduction and Native Flow Restoration Project effort led by West and Central Basin MWD be successful, it will support a programmatic approach at the Regional level to implement similar projects. Additional examples will be provided in the final IRWMP.

Hence, the 13 initial priority projects, although not strongly linked or interdependent, are critical to stimulate further integrated planning, create learning opportunities for professionals and the public as to how to best address water management in the Region, and initiate the overall program implementation.

The linkages and interdependences between the 13 priority projects are discussed below:

- The Las Virgenes Creek Restoration Project is a component of a larger project and part of two integrated action plans (Calabasas Creek Master Plan and Las Virgenes Gateway Master Plan) developed to resolve a local or Regional issue. The project will also have Regional impact on policy for urban stream restoration in the Santa Monica Mountains and, potentially, the Region as a whole.
- The San Gabriel Valley Riparian Habitat Arundo Removal Project is a component of a larger project: it is a continuation of a campaign to eradicate all Arundo from urban riparian areas of San Gabriel Valley. In addition, the project is linked to the Morris Dam Water Supply Enhancement Project has it will contribute to increasing the stream capacity downstream of the dam facilitating the safe release of additional water for recharge at downstream spreading grounds.
- The Large Landscape Water Conservation, Runoff Reduction and Educational Program is a component of a larger project and part of several integrated action plans (West Basin MWD's 2005 UWMP, Central Basin MWD's 2005 UWMP, Metropolitan Water District's Five-Year Conservation Strategy Plan). The implementation of this project and lessons learned will lead to the implementation of similar projects at the local and potentially Regional level. Finally, this project is closely linked to the Malibu Creek Watershed Urban Water Conservation and Runoff Reduction Project since they both rely on a similar technology of weather-based irrigation controllers, which will lead to shared lessons learned and potential partnerships in expanding or advertising the program.
- The JWPCP Marshland Enhancement Project and the Wilmington Drain Restoration Multiuse Project, located immediately downstream, both contribute to improving the water quality of the Wilmington Drain.
- The North Atwater Creek Restoration Project, Pacoima Wash Greenway Project, and other restoration projects relying on stormwater BMPs will benefit from a number of synergies such as public outreach elements, performance measurement tools, and lessons learned that could later be apply to similar projects throughout the Region.
- The Solstice Creek Southern Steelhead Habitat Restoration Project is the last key component of a larger project aiming at enhancing habitat for federally endangered southern steelhead trout.

B.5 Priority Projects Impact and Benefit Assessment

The assessment of impacts and benefits is central to the identification of projects included in both the Proposition 50 Step 2 Implementation Grant application and the IRWMP. A benefit assessment framework is being developed to support benefit quantification as part of the IRWMP development process. The following sub-sections discuss the overall approach and specific assessment of impacts and benefits in each of the Step 2 application and overall IRWMP development. Step 2 projects represent the first phase of implementation for the IRWMP and have been selected to provide a range of benefits that work to meet the objectives of the Region. This section provides an analysis of the benefits and impacts of the Step 2 projects.

Project Benefits

Included in the Step 2 application submittal, Attachment 10 and Attachment 11 detail both the economic benefit and additional, non-quantifiable benefits of submitted projects. Table B-3 provides a summary overview of benefits that will result from project implementation.

Five projects offer quantifiable water supply benefits, six projects offer quantifiable stormwater and urban runoff capture and treatment benefits (while all remaining projects offer other water quality benefits), and eight projects create wetlands, riparian, upland or steelhead habitat with significant open space and recreational opportunities. All of the priority projects are multi-objective in nature offering benefits in at least two of the benefits categories.

Regional Benefits

The priority projects selected for Step 2 Implementation provide benefits that impact the entire Region. Collectively, they provide 26,000 acre-feet/year reduction in imported water demand (which includes 16,000 acre-feet/year of recycled water distribution), 9,000 acre-feet/year of urban and stormwater capture and treatment, 63 acres of natural habitat and open space restoration or creation, and two miles of steelhead habitat restoration. This results in Regional benefits of decreased demand on imported water, cleaner rivers, creeks, and beaches and increased access to open space, recreation and natural habitat throughout the Region.

The Step 2 projects will lead IRWMP implementation and an added Regional benefit lies in providing a spark to future implementation. The Step 2 projects illustrate the wide variety of project types and concepts that will be necessary to creatively and effectively address the objectives of the Region. If successful, the projects will serve as models and inspire future projects that will work together to meet the IRWMP planning targets Table B-4 shows the key Regional benefits for the Step 2 projects.

Advantages of Regional Implementation

There are a large number of potential projects developed for the Region. There are significant advantages of implementing these projects Regionally through the IRWMP as opposed to implementing them as a series of local efforts. Regional implementation will:

- Allow for accounting of all benefits of projects in meeting Regional objectives;
- Provide opportunities for Regional cooperation and coordination;
- Encourage sharing of lessons learned;
- Demonstrate many possible solutions to a Region-wide audience;
- Avoid duplicated efforts; and
- Increase efficiency in obtaining project funding.

The benefits to Regional implementation are that project prioritization and implementation will be consensus based. Given limited resources, not all projects can be implemented immediately. The IRWMP process brings stakeholders together to identify priorities at a Regional level and work out conflicting interests. The Regional implementation of projects allows for maximum utility as it will achieve a high level of consensus while providing the best chance for meeting the agreed upon objectives.

Benefits to Disadvantaged Communities

When implemented, Step 2 Application projects will provide benefit to disadvantaged communities within the Region. Table B-5 identifies Disadvantaged Communities that will recognize the benefits of project implementation.

Potential Project Impacts

Project impacts will be generally positive. Any potential negative impacts of project implementation are temporary and are usually associated with construction and no negative impacts are expected outside the Region. Table B-6 summarizes the negative impacts and the mitigation that will be performed.

Table B-3. Step 2 Application Project Benefit Summary			
Project Name	**Project Benefits**		
	Water Supply	**Water Quality**	**Open Space, Habitat, Recreation**
Central Basin Southeast Water Reliability Project	16,000 acre-feet/year additional recycled water distribution	Decrease algal growth potential in the San Gabriel River	None
JWPCP Marshland Enhancement Project	None	Removal of 20 percent of TMDL constituents (ammonia, copper lead and coliform)	17 acres marshland restoration
Large Landscape Water Conservation, Runoff Reduction and Educational Program	1,250-2,000 acre-feet/year additional water conservation	300-500 acre-feet/year dry weather runoff reduction	None
Las Virgenes Creek Restoration Project	None	Reduction of algae blooms and improvements in creek water quality	0.5 acre streambed and riparian habitat restoration
Malibu Creek Watershed Water Conservation, Runoff Reduction, and Native Flow Restoration Project	3,500 acre-feet/year additional water conservation	3,500 acre-feet/year dry weather urban runoff reduction	None
Morris Dam Water Supply Enhancement Project	5,720 acre-feet additional groundwater recharge	Reduction in sediment loads	None
North Atwater Creek Restoration Project	None	44 acre-feet/year storm-water and urban runoff treated	2 acres of wetland habitat creation
Pacoima Wash Greenway Project: 8th Street Park	None	10 acre-feet/year storm-water and urban runoff treatment	2 acres upland habitat , 400 feet of ephemeral stream, 1 acre of live oak riparian woodland creation; 33 acres catchment drainage
San Gabriel Valley Riparian Habitat Arundo Removal Project	90 acre-feet/year additional groundwater recharged (from decreased evapotranspiration)	Reduction in algae growth and improvement in water quality	24 net acres Arundo removal, 3 miles San Gabriel River riparian habitat restoration
Solstice Creek Southern Steelhead Habitat Restoration Project	None	Decrease in sediment loads and turbidity	1.5 miles steelhead habitat restoration
South Los Angeles Wetlands Park Project	None	110 acre-feet/year dry weather urban runoff and 310 acre-feet/year stormwater capture and treatment	5 acres native habitat restoration
Whittier Narrows Water Reclamation Plant UV Disinfection Facilities	Preservation of 7,000 acre-feet/year treated effluent for groundwater replenishment	Reduction in NDMA and ammonia levels	None
Wilmington Drain Restoration Multiuse Project	None	4,800 acre-feet/year stormwater capture and treatment	5 acres wetland habitat and/or 8 acres riparian habitat restoration

Table B-4. Regional Benefits of Step 2 Projects	
Project Name	**Regional Benefit**
Central Basin Southeast Water Reliability Project	Provides an additional source of recycled water within the Region which will reduce dependence on imported water and reduce runoff to the ocean.
JWPCP Marshland Enhancement Project	Serves as an example for the restoration and enhancement freshwater wetlands in industrialized areas of the Region. Provides educational and viewing opportunities of wetland habitat and associated wildlife available to surrounding communities and other communities throughout the Region. Realization of positive water quality impacts through the treatment capability provided by the wetland.
Large Landscape Water Conservation, Runoff Reduction and Educational Program	Provides an excellent example for the use of large landscape conservation methods in the Region.
Las Virgenes Creek Restoration Project	Provides an important model of a successful restoration of an urbanized creek segment to native conditions.
Malibu Creek Watershed Water Conservation, Runoff Reduction, and Native Flow Restoration Project	Demonstrates that existing water conservation programs can be tailored to target water uses that result in the largest sources of dry weather urban runoff. Shows the advantage of partnering between agencies in developing and implementing conservation programs and showcases some recently developed irrigation conservation techniques.
Morris Dam Water Supply Enhancement Project	Creates an additional source of local supply in the Region through increasing water available for groundwater recharge operations.
North Atwater Creek Restoration Project	Demonstrates the concept of a riverfront pocket park that can provide water quality, flood control and wetland habitat opportunities while also offering sorely needed open space for inhabitants of the Region.
Pacoima Wash Greenway Project: 8th Street Park	Encourages the development of greenways throughout the Region by serving as the foundation project for a plan to create a 3-mile corridor of connected open space in conjunction with storm-water capture elements.
San Gabriel Valley Riparian Habitat Arundo Removal Project	Continues a campaign to eradicate Arundo from urban areas of a large swath of the Region.
Solstice Creek Southern Steelhead Habitat Restoration Project	Addresses the loss of habitat in the Region for the federally endangered Southern Steelhead Trout and also provides an example of cooperation between federal and local stakeholders.
South Los Angeles Wetlands Park Project	Converts a former vehicle service facility in a densely urbanized area into a wetlands park, which can be used as an example for the conversion of other similar sites in the Region.
Whittier Narrows Water Reclamation Plant UV Disinfection Facilities	Preserves and expands the use of recycled water for groundwater recharge in the Region, which is an important component of water supply. It will demonstrate the use of chlorine/UV disinfection as an alternative method to avoid the problem of NDMA generation experienced by the current method of chloramination.
Wilmington Drain Restoration Multiuse Project	Helps to reverse the trend of diminishing wetlands and open space in the Region by converting a drain easement into a wetland habitats and park. Provides an important Regional habitat resting area for migating birds and creates local wildlife viewing opportunities for nearby disadvantaged communities, as it is located in the migratory path of fowl that overfly the Region.

Table B-5. Disadvantaged Communities Receiving Benefit from Step 2 Projects	
Project Name	**Disadvantaged Community Receiving Benefit**
Central Basin Southeast Water Reliability Project	16 disadvantaged communities with a total population of 786,202 spread throughout Central Basin MWD's service area will benefit from increased water supply reliability. These include the cities of Bell, Bell Gardens, Commerce, Compton, Cudahy, Huntington Park, Lynwood, Maywood, Paramount, and South Gate and the unincorporated communities of East Compton, East Los Angeles, and Walnut Park.
JWPCP Marshland Enhancement Project	The adjacent disadvantaged communities of Wilmington and Harbor City will benefit from improved water quality in the channel and lake downstream of the project. These communities will also benefit from public access to a wetlands habitat area and the creation of educational opportunities for students.
Large Landscape Water Conservation, Runoff Reduction and Educational Program	Residents of 22 disadvantaged communities spanning the North Santa Monica Bay, South Bay and Lower San Gabriel and Los Angeles Subregions will benefit from lower water consumption and the attendant savings, as well as increased water supply reliability.
Morris Dam Water Supply Enhancement Project	The disadvantaged communities of El Monte, South El Monte and Rosemead will benefit by increased availability of local groundwater supplies.
North Atwater Creek Restoration Project	The disadvantaged community of Atwater Village will benefit from water quality improvements and open space and wetland habitat creation.
Pacoima Wash Greenway Project: 8th Street Park	The project will benefit the Northeast San Fernando Valley through the creation of open space and native habitat, as well as reduced flood risk. This area includes some of the most crowded and impoverished inner-city areas in the county. Cities in the area include San Fernando, which has a population of 23,000 with 4,600 below the poverty line; Pacoima, with a population of 57,000 with 12,414 below the poverty line; Arleta, with a population of 34,000 with 6,536 below the poverty line; and Sylmar, with a population of 64,000 and 8,176 below the poverty line.
San Gabriel Valley Riparian Habitat Arundo Removal Project	The disadvantaged communities of Rosemead and South El Monte will benefit through improved access to open space and native wildlife habitat viewing opportunities.
South Los Angeles Wetlands Park Project	The disadvantaged community of South Los Angeles will benefit from the creation of open space and wetland habitat, and water quality improvements as well as from the opportunity for educational opportunities
Whittier Narrows Water Reclamation Plant UV Disinfection Facilities	18 disadvantaged communities in the Region with a total population of 1,600,000 will benefit from the protection of water quality and increased reliability of local groundwater supplies. These include the cities of Bell, Bell Gardens, Commerce, Compton, Cudahy, El Monte, Hawaiian Gardens, Huntington Park, Long Beach, Lynwood, Maywood, Paramount, Rosemead, South El Monte and South Gate and the unincorporated communities of East Compton, East Los Angeles, and Walnut Park.
Wilmington Drain Restoration Multiuse Project	The disadvantaged communities of Harbor City and Wilmington will benefit from public access to an improved wetland and native habitat area. The project will also create opportunities for wildlife viewing and educational programs for local schools from those communities.

Table B-6. Potential Impacts from Step 2 Project Implementation	
Project	**Potential Project Impacts**
Central Basin Southeast Water Reliability Project	Potential negative impacts during construction of the distribution pipeline include noise, traffic, dust and air quality. These will be minimized through a mitigation plan as well as an outreach program to impacted communities.
JWPCP Marshland Enhancement Project	There is a potential negative impact on nesting birds during construction, however a qualified biologist will be on site during critical periods to ensure that nests will not be impacted. Other potential negative impacts during construction will be mitigated through best management practices.
Large Landscape Water Conservation, Runoff Reduction and Educational Program	No construction is involved in this project and no mitigation is required. Impacts would be limited to retraining of personnel on use of water conservation devices.
Las Virgenes Creek Restoration Project	Negative impacts during construction involve increases in sediment load and disruption of a wildlife corridor. These will be mitigated through best management practices and monitoring by a qualified biologist.
Malibu Creek Watershed Water Conservation, Runoff Reduction, and Native Flow Restoration Project	No significant construction is involved in the project and any negative impacts possible during the installation of the weather based irrigation controllers will be minimized through proper training.
Morris Dam Water Supply Enhancement Project	The project will require dewatering of the reservoir behind Morris Dam and relocation of fish in the reservoir. This will be mitigated through the preparation of a dewatering plan. Construction work could also increase sediment flows downstream. This will be mitigated through the use of BMPs.
North Atwater Creek Restoration Project	Potential negative impacts during construction include increased noise, traffic, dust and wet weather runoff pollution. These will be mitigated through the preparation of a SWPPP and by restricting construction to the hours of 7:00 am to 3:30 pm.
Pacoima Wash Greenway Project: 8th Street Park	Negative noise, air quality and cultural impacts during construction will be mitigated through defined measures.
San Gabriel Valley Riparian Habitat Arundo Removal Project	Negative impacts include the effect of tractor operation on bird nesting. This will be mitigated by surveying during nesting season. Impacts from the application of herbicides will be minimized through the utilization of experienced contractors and proven herbicide application methods.
Solstice Creek Southern Steelhead Habitat Restoration Project	No construction is involved. A qualified biologist will ensure that the project meets NEPA requirements for revegetation activities.
South Los Angeles Wetlands Park Project	Negative impacts of construction activities will be mitigated through best management practices and scheduling of activities to minimize impacts.
Whittier Narrows Water Reclamation Plant UV Disinfection Facilities	Negative impacts of construction activities will be mitigate through dust and sediment mitigation control measures.
Wilmington Drain Restoration Multiuse Project	Negative impacts during construction will be mitigated through the use of mitigation measures for dust and sediment control and the preparation of a SWPPP. Construction will be restricted to the hours of 8:00 am to 3:00 pm to minimize noise, light and traffic impacts.

B.6 Project Implementation Schedule

The implementation schedule for the projects submitted for Round 1 funding is shown in

Table B-7.

The remaining projects will be prioritized and a master schedule for implementation will be created for IRMWP projects. The establishment of a priority list will allow projects to be implemented with minimal delay as funds become available for IRWMP projects.

As the IRWMP is further developed during the next six months, additional projects will be identified, prioritized and incorporated into the schedule.

Table B-7. Implementation Grant Step 2 Project Schedules

Project	2006	2007	2008	2009	2010	Projected Construction Start Date
Central Basin SWRP						Jan 2007
JWPCP Marshland Enhancement						Jul 2006
Large Landscape Conservation						May 2007
Las Virgenes Creek Restoration						May 2007
Malibu Creek Water Conservation						May 2007
Morris Dam Water Supply						May 2007
North Atwater Creek Restoration						May 2007
Pacoima Wash / 8th Street Park						May 2007
San Gabriel Valley Arundo Removal						May 2007
Solstice Creek Restoration						Oct 2007
South Los Angeles Wetlands Park						May 2007
Whittier Narrows WRP UV						Apr 2007
Wilmington Drain Restoration						May 2007

Planning/Design Phase

Construction Phase
(May 2007 is the projected effective date of the Grant Agreement)

B.7 Project Financing

Financial resources needed to implement the IRWMP will come from a variety of funding sources. Table B-8 below outlines the expected sources of funds.

Obtaining funding for projects is one of the biggest challenges. Funding sources have been identified for the 13 projects being submitted for the Step 2 application. These sources are summarized in Table B-8. Local funds include funding from agencies such as the SMBRC and the Metropolitan Water District. Other secured funds include non IRWMP state funds. Agencies have accounted for O&M costs in their planning and have secured funds to ensure project continuity. O&M funds for the priority projects will be funded from the general O&M accounts of the individual agencies.

Estimated costs for operation and maintenance of the thirteen projects are identified in Table B-8.

Table B-8. Expected Sources of Funding to Implement IRWMP

Project	Total Budget	Local	Other Secured	Federal	Grant Requested	Annual O & M Costs
Central Basin SWRP	$54,676,000	$51,146,000	-	$0	$3,530,000	$1,750,000
JWPCP Marshland Enhancement	$2,637,065	$2,237,065	-	$0	$400,000	$150,000
Large Landscape Conservation	$5,291,360	$3,191,360	-	$0	$2,100,000	$702,000
Las Virgenes Creek Restoration	$1,063,090	$33,490	$514,600	$0	$515,000	$43,500
Malibu Creek Water Conservation	$883,600	$457,600	-	$0	$426,000	$117,000
Morris Dam Water Supply	$13,258,175	$8,122,541	-	$0	$5,135,634	$243,600
North Atwater Creek Restoration	$5,600,000	$3,350,000	$0	$0	$2,250,000	$200,000
Pacoima Wash / 8th Street Park	$1,328,650	$435,150	$306,500	$0	$587,000	$80,000
San Gabriel Valley Arundo Removal	$198,000	$20,000	-	$0	$178,000	$0
Solstice Creek Restoration	$235,733	$157,367	-	$0	$78,366	$210,000
South Los Angeles Wetlands Park	$11,820,000	$8,520,000	-	$0	$3,300,000	$210,000
Whittier Narrows WRP UV	$7,741,960	$5,741,960	-	$0	$2,000,000	$445,000
Wilmington Drain Restoration	$12,030,000	$7,530,000	-	$0	$4,500,000	$200,000
Total	$116,763,633	$90,942,533	$821,100	$0	$25,000,000	$4,351,000

APPENDIX C: IRWMP PROJECTS

Introduction

To identify projects and to gauge the potential for these projects to meet the objectives and planning targets, development of the IRWMP included a "Call for Projects" which provided an opportunity for stakeholders to directly submit their projects for inclusion in a database. Stakeholders could submit projects at any stage of development, including general ideas for potential projects (or project concepts). As of October 31, 2006, more than 1,500 projects and project concepts had been entered into the project database. This appendix contains a list of the projects, including information about the project benefits provided by the entity submitting the project.

North Santa Monica Bay Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
1	Provide Septic System (OWTS) Pumpers and Customers with Septic System Guides	Responsible Agencies in the Malibu Creek Watershed	Update outreach materials for pumpers to distribute to customers to inform of good practices for septic system operation. Annual Effort: 40 hrs.	-	-	-	-	-	-	-	-	NA
2	Irrigation credits/subsidies trading	Assorted Water Agencies	Some people agree their property will not be irrigated. Others pay the non-irrigators in order to have water for irrigating. No property too small.	X	-	-	X	-	-	-	-	NA
3	California Department of State Parks General Plan	California Department of State Parks	Key areas of the Los Angeles region of the CA Department of State Parks do not have a General Plan, including Lower Topanga. Until a General Plan is in place, restoration projects are in a holding pattern, thus completing the Plan will allow for greater restoration to occur.	-	-	-	X	-	X	-	-	NA
4	California Department of State Parks Restroom Facilities	California Department of State Parks	Suitable toilets + maintenance at Rock Pools	-	-	-	X	-	X	-	-	NA
5	Las Flores Maintenance Station (CALTRANS) On-Site Structural BMPs for capturing wet-weather runoff	CALTRANS	Installation of cisterns, on-site storage and reuse facilities, and/or small scale capture and infiltration projects at the CALTANS Los Flores Maintenance Station to capture wet-weather runoff and reduce bacteria loading.	-	-	-	-	-	-	-	-	NA
6	Topanga Narrows	CALTRANS with RCDSMM Support	Every time there is a rain-heavy year, parts of Topanga Canyon Boulevard collapse. From the point of view of the resource, each collapse entails sediment and road filling the narrow creek – and the repairs entail huge amounts of cement and rirrap which encroach upon already limited riparian habitat. In order to preserve endangered Southern Steelhead Trout populations, we need a creative redesign of the road which will prevent this ongoing problem. In addition, the current road design is potentially a public safety hazard and financial drain upon the community as emergency fixes are costly.	-	-	-	X	-	X	-	-	Improves road safety. Provides better bicycle/foot access.
7	Topanga Lagoon Restoration Project	CALTRANS with RCDSMM Support	Project will expand and restore the Topanga Lagoon to part of its historic native condition. 4 alternatives have been provided and the analysis states that these options would work. Prior to a final design, we would need the State Parks General Plan, then land swap agreements between Caltrans, LACDBH, and State parks. After that, we would need to do the EIR and then the construction design. Planned designs include taking out much of the artificially created cliffs on the North side of the creek and putting in a bridge to replace all four lanes of PCH for up to several hundred yards so as to be able to widen the lagoon and the mouth of the creek to better approximate some of what used to be there back in the day. Note this is a partial restoration, not a complete restoration. The project would not impact traffic as planned.	-	-	-	X	-	X	-	-	Increases wetlands in L.A. County, improves scenery.
8	LVC 25	City Of Calabasas	LVC 25 is listed in the master plan as eradication of Procambarus clarkii, which is a non-native crayfish that can prey on arroyo toad tadpoles. Questa Engineering, who conducted the feasibility study, did not directly observe the species during their fie	-	-	-	-	-	X	-	-	NA
9	LVC 26, 27, 28, 30A	City Of Calabasas	At LVC 26, the fish barrier lies immediately upstream of Wright School and near the waterline crossing. This project does not appear on Heal the Bay Fish Passage Inventory. Because the barrier is mostly pipe, rubble, and woody debris, Questa Engineering s	-	-	-	-	-	X	-	-	NA
10	LVC 23, 29	City Of Calabasas	LVC23 is a .15 acre area on the west side of Las Virgenes Creek, near Lost Hills Road. It occupies a flat area between the bottom of the adjacent fill slope and the existing edge of riparian vegetation. The area is currently mowed and kept clear of tall	-	-	-	-	-	X	-	-	NA
11	LVC 18, 20, 24	City Of Calabasas	LVC18 is roughly .18 acres in size along 200 L.F. of Las Virgenes Creek's east bank. The bank ranges from steeper than 1:1 to beyond vertical in this reach, and tops out to what appears to be a fill bench between the creek and the homes fronting it. The	-	-	-	-	-	X	-	-	NA
12	LVC 15, 17	City Of Calabasas	LVC-15 - Stabilize Bank. Private Property? Small bank stability problem on tributary to Las Virgenes Creek. Work would include placing rock check and rock riprap to stabilize. Allow $15,000-$20,0000, including site inspection. Allow $2,000 for inspecti	-	-	-	-	-	X	-	-	NA
13	LVC 16	City Of Calabasas	LVC 16 includes an area of roughly 0.15 acre that is in need of bank recontouring (as noted in the master plan), plus an additional area of roughly 0.7 acre dominated by Pepper Trees (not identified in the master plan). The Pepper Trees form a continuous	-	-	-	-	-	X	-	-	NA
14	LVC 13, 14, 19	City Of Calabasas	LVC 13 begins roughly 125' downstream from the Agoura Rd bridge, and ends roughly 200' further downstream, covering approximately 0.5 acre. The east bank is high quality riparian forest and is relatively undisturbed. The west bank has been filled to some	-	-	-	X	-	X	-	-	NA
15	LVC 01 – 04	City Of Calabasas	LVC-01 - LA County Flood Control District (LACFCD). Project site at upper end of concrete flood control channel, 8'-10' high vertical cut in bank along approx. 75' of channel, with transition repair area about 125'-135'. (1) Lay back bank slope, install	-	-	-	-	-	X	-	-	NA
16	Malibu TMDL Implementation Project	City of Malibu	Conduct special studies as required to meet Clean Water Act regulations, implement strategies to reduce/eliminate urban runoff pollution through BMPs, monitoring and evaluation of BMP effectiveness.	-	-	-	X	-	-	-	-	NA
17	Malibu NPDES Implementation Project	City of Malibu	Conduct special studies as required to meet TMDL objectives, implement strategies to reduce/eliminate urban runoff pollution through BMPs, monitoring and evaluation of BMP effectiveness.	-	-	-	X	-	-	-	-	NA
18	Malibu ASBS Implementation Project	City of Malibu	Conduct marine assessments as required to meet ASBS objectives, implement strategies to reduce/eliminate urban runoff pollution through BMPs, monitoring and evaluation of BMP effectiveness.	-	-	-	X	-	-	-	-	NA
19	Historical Ecology of Malibu Coastal Watersheds	City of Malibu	Research and report historical ecology in Malibu Coastal Watersheds to evaluate and bring to life, past human impacts to help current residents and visitors appreciate the importance of protecting the natural resources.	-	-	-	-	-	-	-	-	Environmental Education
20	Enhanced On-site Wastewater System Inventory	City of Malibu	Expansion of the Malibu Integrated Wastewater Management Information System (IWIMS) database to include systems installed before 1991.	-	-	-	X	-	-	-	-	NA
21	Malibu Wastewater IWIMS Implementation	City of Malibu	Enchance the opportunties to improve operation and maintenance of Malibu on-site wastewater treatment systems using the database to improve user education and operating techniques as required.	-	-	-	X	-	-	-	-	NA
22	Small Wastewater Facility Development	City of Malibu	If there is a need identified in the future to replace aging onsite wastewater treatment systems and if the environmentally superior replacement option is to construct a shared treatment facility, the project would be for planning, design and construction.	-	-	-	X	-	-	-	-	NA
23	Paradise Cove Pretreatment and System Upgrade	City of Malibu	Provide pre-treatment pollutant removal and storage capacity to increase the functional capacity of existing bacteria treatment system and evaluate the potential for system upgrade.	-	-	-	X	-	X	-	-	NA
24	Trancas Watersheds Integrated Water Plan	City of Malibu	Development in the Trancas Canyon area is proposed for single and multiple-family residences and commercial. Trancas Watershed Integrated Water Quality Management Feasibility Study to address the cumulative impacts of new development.	X	-	-	X	-	-	-	-	NA
25	Malibu Road Stormwater Management	City of Malibu	Reduce runoff and debris within the subwatersheds discharging into Malibu Lagoon. Reduce or redirect spillover from Pacific Coast Highway onto Malibu Road through the Malibu Colony Plaza. Possibly construct bioswales on northern side of Malibu Road to increase depth of flow channel and increase inlet capacity of some of the catchment systems.	-	-	-	X	-	-	-	-	Flood Management

North Santa Monica Bay Subregion Projects

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26	Malibu Recyled Water Delivery Project	City of Malibu	Installation of infrastructure to deliver recycled water from the planned Malibu Civic Center Reclamation Facility.	X	-	-	-	-	-	-	-	NA
27	Malibu Civic Center Riparian Habitat	City of Malibu	Construction of riparian habitat in conjunction with intermittent wetlands on Legacy Park to protect natural resources of Malibu Creek & Lagoon.	-	-	-	X	-	X	-	-	Environmental Education
28	Malibu Civic Center Stormwater Management	City of Malibu	Construction of vegetated stormwater detention basins/bio-swales to eliminate urban runoff pollution from reaching Malibu Creek and Lagoon.	X	-	-	X	-	X	-	-	Environmental Education
29	Broad Beach Stormwater Management	City of Malibu	Remove bottlenecks in stormdrains by replacing them with large connector pipes, create new stormdrain systems with more inlets, replace undersized catch basins, reduce spillover and runoff debris from watershed north of Pacific Coast Highway. Install BMPS to reduce impacts of urban runoff on the near shore habitat.	-	-	-	X	-	-	-	-	Flood Management
30	Malibu Clean Water – In Your Neighborhood	City of Malibu	Bring the Clean Water message close to home through the classroom. Adapt a program to meet the new state Environmental Education Initiatives for K-12 by creating a curriculum that focuses on what children can observe in their own neighborhood.	-	-	-	-	-	-	-	-	Environmental Education
31	La Costa Stormwater Management	City of Malibu	Contain and reduce spillover from Las Flores Canyon at Pacific Coast Highway, reduce runoff and debris from Las Flores Creek watershed, improve drainage facilities by constructing two new stormdrain systems with BMPs that will improve water quality.	-	-	-	X	-	-	-	-	Flood Management
32	Carbon Canyon Stormwater Management	City of Malibu	Contain and reduce spillover from Carbon Canyon watershed north of Pacific Coast Highway, collecting and implementing BMPs before discharging into Carbon Canyon Creek to prevent PCH flooding and urban runoff contamination of Santa Monica Bay.	-	-	-	X	-	-	-	-	Flood Management
33	Topanga Beach Stormwater Management	City of Malibu	Improve stormwater management and flood prevention by redirecting storm flows from Pacific Coast Highway, collecting and implementing BMPs before discharging the urban runoff.	-	-	-	X	-	-	-	-	Flood management
34	Peña/Tuna Canyon Stormwater Management	City of Malibu	Contain and reduce spillover from Tuna Canyon at Pacific Coast Highway, reduce runoff and debris from Tuna Canyon Watershed, improve culvert crossings at PCH, improve low point drainage facilities.	-	-	-	X	-	-	-	-	Flood management
35	Las Flores Creek Park On-Site Structural BMPs for capturing wet-weather runoff	City of Malibu	Installation of cisterns, on-site storage and reuse facilities, and/or small scale capture and infiltration projects within Las Flores Creek Park to capture wet-weather runoff and reduce bacteria loading.	-	-	-	X	-	X	-	-	Environmental Education
36	Malibu Civic Center Linear Park Expansion	City of Malibu	Construction of safe, permeable walking path from Webb Way to Malibu Canyon Road along side BMPs to capture and treat stormflows before reaching existing storm drain systems leading to the ocean.	-	-	-	X	-	X	-	-	Add public trail
37	Las Flores Land Acquisition	City of Malibu	Acquisition of an undeveloped residentially-zoned lot (APN 4451-019-022) from a willing seller on Las Flores Creek within the restoration zone. The lot is just under .5 acres and will be incorporated into Las Flores Creek Park. If not purchased, the owners intend to sell and it will be developed and not accessible to the public. The creek stabilization and restoration plan has been designed by CH2M Hill in conjunction with Phillip William & Associates. Construction is proposed to begin in Summer 2007 and end in Fall 2007. The asking price was $300,000 in 2004.	-	-	-	X	-	X	-	-	Passive Recreation and Environmental Education
38	Trancas Canyon Park On-Site Structural BMPs for capturing wet-weather runoff	City of Malibu	Installation of cisterns, on-site storage and reuse facilities, and/or small scale capture and infiltration projects at Trancas Canyon Park to capture wet-weather runoff and reduce bacteria loading.	-	-	-	X	-	X	-	-	NA
39	Las Flores Creek Restoration	City of Malibu	Las Flores Creek Restoration of degraded riparian habitat and creek bank stabilzation	-	-	-	X	-	X	-	-	NA
40	Malibu Equestrian Center	City of Malibu	Installation of BMPs to capture and treat runoff from the riding rings and parking lot. Equestrian owner education about proper care and maintenance of confined animal spaces to improve water quality in coastal streams.	-	-	-	X	-	-	-	-	NA
41	Lower Yamaguchi Property Acquisition	City of Malibu	Acquisition of approximately 10 acres of mostly undeveloped land in the Malibu Civic Center. This property has a small delinated wetland system that can be linked to other projects underway in the Civic Center.	-	-	-	X	-	X	-	-	NA
42	Charmlee Park Environmental Discovery Center	City of Malibu	Construction of a nature center to provide environmental education related to the Santa Monica Mountains ecology. Current programs are limited because they operate out of a converted storage shed.	-	-	-	-	-	-	-	-	Environmental Education
43	Trancas Canyon Park Stormwater Management Project	City of Malibu	Construction of stormwater detention devices, bio-swales or other BMPs to reduce runoff from park development.	-	-	-	X	-	-	-	-	NA
44	Trancas Canyon Park Development	City of Malibu	Construction of trails, picnic areas, public parking lot and restrooms all designed with water quality and conservation practices.	-	-	-	-	-	X	-	-	NA
45	Trancas Canyon Park Sports Field Development	City of Malibu	Proposed use of synthetic turf to eliminate the need for imported water and fertilizers.	X	-	-	X	-	X	-	-	NA
46	Trancas Creek and Lagoon Acquisition	City of Malibu	Acquisition of undeveloped but degraded property from willing seller to be used for riparian hebitat and wetland restoration project with public access amenities.	-	-	-	-	-	X	-	-	Public trail
47	Trancas Creek and Lagoon Restoration	City of Malibu	Bank stabilization and creek restoration along Trancas Creek north of Pacific Coast Highway.	-	-	-	-	-	X	-	-	NA
48	Trancas Creek Connector Trail Development	City of Malibu	Construction of multi-use trail with runoff BMPs from Malibu West residential community to Malibu Coastal trails and Morningview Road.	-	-	-	X	-	-	-	-	NA
49	Trancas Creek Connector Trail Acquisition	City of Malibu	A trail easement may need to be purchased to make the connection complete from Malibu West to Morningview Drive.	-	-	-	-	-	X	-	-	NA
50	Chamlee Nature Center On-Site Structural BMPs	City of Malibu	Installation of cisterns, on-site storage and reuse facilities, and/or small scale capture and infiltration projects at the Chamlee Nature Center to capture wet-weather runoff and reduce bacteria loading.	-	-	-	-	-	-	-	-	NA
51	Chamlee Park On-Site Structural BMPs	City of Malibu	Installation of cisterns, on-site storage and reuse facilities, and/or small scale capture and infiltration projects at the Chamlee Nature Center to capture wet-weather runoff and reduce bacteria loading.	X	-	-	X	-	X	-	-	NA
52	Las Virgenes Trail	City of Malibu	Connect Upper Las Virgenes Open Space/NPS Cheseboro Canyon Unit-Rim of the Valley Trail/DeAnza Trail with Malibu Creek State Park/Backbone Trail via L.A. County adopted Las Virgenes Trail. Co-ordinate trail construction with RCDSMM project to remove concrete from Las Virgenes Creek under the 101 and Agoura Road (partial funding available). Secure Trail right-of way from L.A. County Flood Control District, L.A. County DPW, City of Calabasas and private owners to acquire missing links and connect Las Virgenes Trail with the existing trail system.	-	-	-	-	-	X	-	-	NA
53	Malibu Lagoon Restoration and Enhancement	Coastal Conservancy, California State Parks	The lagoon is at the mouth of Malibu Creek watershed, the lagoon is owned by State Parks.	-	-	-	X	-	-	-	-	NA
54	Residential Cistern Incentive Program	County of Los Angeles Department of Public Works	The program is meant to provide an incentive to residents who install cisterns for storm water runoff.	X	-	-	X	-	-	-	-	NA
55	Public Cistern Projects	County of Los Angeles Department of Public Works	The project will include the construction of three to five large public cistern. These cisterns will store stormwater runoff and reuse it for local irrigation.	X	-	-	X	-	-	-	-	NA

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56	Small-Scale Infiltration Projects	County of Los Angeles Deptartment of Public Works	Small projects designed to naturally retain and infiltrate storm water will be constructed throughout the North Santa Monica Bay.	-	-	-	X	-	-	-	-	NA
57	Ronald Reagan Equestrian Campground	Equestrian Trails Inc. & California State Parks	First Equestrian Campground in the Santa Monica Mountains National Recreation Area (SMMNRA) of over 150,000 acres where the public will be able to drive in and camp with their horses. It will benefit all 5 sub-regions.	-	-	-	-	-	-	-	-	NA
58	Point Dume Beach On-Site Structural BMPs for capturing wet-weather runoff	LA County Dept. of Beaches & Harbors	Installation of cisterns, on-site storage and reuse facilities, and/or small scale capture and infiltration projects at Point Dume Beach to capture wet-weather runoff and reduce bacteria loading.	-	-	-	-	-	-	-	-	NA
59	Zuma County Beach On-Site Structural BMPs for capturing wet-weather runoff	LA County Dept. of Beaches & Harbors	Installation of cisterns, on-site storage and reuse facilities, and/or small scale capture and infiltration projects at the Zuma County Beach parking lot to capture wet-weather runoff and reduce bacteria loading.	-	-	-	-	-	-	-	-	NA
60	Zuma Beach Maintenance Yard On-Site Structural BMPs for capturing wet-weather runoff	LA County Dept. of Beaches & Harbors	Installation of cisterns, on-site storage and reuse facilities, and/or small scale capture and infiltration projects at the Zuma Beach Maintenance Yard to capture wet-weather runoff and reduce bacteria loading.	-	-	-	-	-	-	-	-	NA
61	Surfrider Beach On-Site Structural BMPs for capturing wet-weather runoff	LA County Dept. of Beaches & Harbors	Installation of cisterns, on-site storage and reuse facilities, and/or small scale capture and infiltration projects at the Surfrider Beach parking lot to capture wet-weather runoff and reduce bacteria loading.	-	-	-	-	-	-	-	-	NA
62	Topanga County Beach On-Site Structural BMPs for capturing wet-weather runoff	LA County Dept. of Beaches & Harbors	Installation of cisterns, on-site storage and reuse facilities, and/or small scale capture and infiltration projects at the Topanga County Beach parking lot to capture wet-weather runoff and reduce bacteria loading.	-	-	-	-	-	-	-	-	NA
63	Nicholas Canyon County Beach On-Site Structural BMPs for capturing wet-weather runoff	LA County Dept. of Beaches & Harbors	Installation of cisterns, on-site storage and reuse facilities, and/or small scale capture and infiltration projects at the Nicholas Canyon County Beach parking lot to capture wet-weather runoff and reduce bacteria loading.	-	-	-	-	-	-	-	-	NA
64	Santa Ynez Reservoir Water Quality Improvement Project	LADWP	Construct Floating Cover and new inlet piping along with a landscape master plan for the entire site.	-	-	-	-	-	-	-	-	Construct new facilities and alter or remove existing facilities from water distribution system to bring reservoir into compliance with the Long Term 2 Enhanced Surface Water Treatment Rule and the Stage 2 Disinfection By Product Rule (DHS). Both rulings were promulgated early 2006 with compliance required by April 2009 for LT2 ESWTR and S2DBPR by April 2012.
65	Construct advanced treatment facilities at Tapia WRF and Rancho Las Virgene	Las Virgenes Municipal Water District	Construction of treatment facilities to achieves 8 mg/L TN, centrate equalization, UV disinfection and groundwater remediation	-	-	-	X	12	-	-	-	NA
66	Constructed wetlands	Las Virgenes Municipal Water District	Rehabilitation of constructed wetlands at the confluence of Cold Creek and Malibu Creek	-	-	-	X	1	X	0	2	NA
67	LVMWD recycled water system expansion project 5 - Construct Parallel 24-inc	Las Virgenes Municipal Water District	Construct parallel 24-inch recycled water transmission main in Las Virgenes Road from Piuma to Mulholland Hwy	X	-	-	-	-	-	-	-	NA
68	Tank Farm Storage and Pumping	Las Virgenes Municipal Water District	Construct five 100AF tanks and associated pumping facilities for recycled water operational storage	-	-	-	X	-	-	-	-	NA
69	Westlake Filtration Plant Enhancement	Las Virgenes Municipal Water District	Expansion of Westlake Filtration Plant from 15 mgd to 18 mgd, construction of interconnection with CMWD and relocation of LV-1 MWD turnout	X	0	3360	-	-	-	-	-	NA
70	LVMWD recycled water system expansion project 6 Expand Recycled Water Pump	Las Virgenes Municipal Water District	Expansion of the existing recycled water pump station serving the eastern subsystem from 2,300 gpm to 4,800 gpm	X	0	7732	-	-	-	-	-	NA
71	LVMWD recycled water system expansion project 7 - Expand Recycled Water Res	Las Virgenes Municipal Water District	Expansion of recycled water reservoir # 2 from 45 to 100 AF	-	-	-	-	-	-	-	-	NA
72	LVMWD recycled water system expansion project 4 - Calabasas City Center REW	Las Virgenes Municipal Water District	Extend existing recycled water line along Mulholland Hwy east of Old Topanga Blvd to serve existing customers using potable water for landscape irrigation	-	0	24	-	-	-	-	-	NA
73	LVMWD recycled water system expansion project 2 - Decker Cyn. REW Facilitie	Las Virgenes Municipal Water District	Extend existing recycled water line along Westlake Blvd/State Hwy 23 to serve existing customers using potable water for irrigation, includes construction of a high lift pump station and local storage tank	-	0	294	-	-	-	-	-	NA
74	LVMWD recycled water system expansion project 3 - Agoura Gap REW Extension	Las Virgenes Municipal Water District	Extend existing recycled water line along Agoura Road to serve existing customers using potable water for landscape irrigation	-	0	42	-	-	-	-	-	NA
75	Trunk Sewer Rehabilitation Projects	Las Virgenes Municipal Water District	Rehabilitation of trunk sewers and manholes to reduce inflow and infiltration and strengthen reliability, I&I reduction estimated at 15% of avg plant flow	-	-	-	-	-	-	-	-	2 MGD of reduced inflow
76	Divert raw wastewater to City of LA	Las Virgenes Municipal Water District	Construct facilities that allow diversion of raw wastewater to the City of LA for that portion of the district within the LA River watershed	-	-	-	X	2	-	-	-	NA
77	LVMWD recycled water system expansion project 1 - TO Bled extension	Las Virgenes Municipal Water District	Extend existing recycled water line along Thousand Oaks Blvd to serve existing customers using potable water for landscape irrigation	-	0	251	-	-	-	-	-	NA

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78	LVMWD recycled water system expansion project 8 Convert Las Virgenes Reserv	Las Virgenes Municipal Water District	Construct 22,500 AF potable water reservoir with associated transmission and treatment facilities allowing conversion of the existing 9,000 AF Las Virgenes reservoir to recycled water storage	-	-	-	-	-	-	-	-	9000AF of REW seasonal storage and increased potable water storage of 22,500 AF
79	Designer Bottled Recycled Water	Las Virgenes MWD & Triunfo SD	Designer bottled water is a direct reuse project with powerful education implications, improving public acceptance for larger indirect or direct reuse projects.	X	-	-	X	-	-	-	-	Leads to ultimate maximum water conservation with on the order of 1,700 kWh/af (imported ~2,500kWh/af, seawater ~4,400 kWh/af.
80	Latigo Shores Subsurface Flow Wetlands	Los Angeles County Department of Public Works	Utilize vacant County Beaches and Harbors land for treatment of creek flows through subsurface flow wetland system.	-	-	-	-	-	-	-	-	NA
81	Marie Canyon Drain Retrofit/Peracetic Acid/bacteriacides	Los Angeles County Department of Public Works	Provide upstream storage and diversion, with peracetic acid treatment and discharge back into Marie Canyon Drain	-	-	-	-	-	-	-	-	NA
82	SEPULVEDA FEEDER INTERCONNECTION	LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS,WATER WORKS DISTRICT 29-MALIBU	The water system improvements include the addition of 1,800 linear feet of 30-inch diameter water main and a pressure reducing station. The primary objective of this project is to introduce a new primary source of supply, to increase system reliability and provide redundancy to the District in case of emergency outages.	-	-	-	-	-	-	-	-	NA
83	Corral Ordinance	Malibu Creek Watershed Council -- Conceptual Project List	Some stakeholders suggested creating a corral ordinance with setbacks from creeks. As of yet, this is a conceptual project with no input from members of the equestrian community.	X	-	-	-	-	-	-	-	NA
84	Outreach + Research Project to Keep Cats and Dogs Indoors and/or On Leashes	Malibu Creek Watershed Council -- Conceptual Project List	Project has the potential to reduce bacteria and nutrient issues; project can improve protection of native species upon whom domestic pets predate, such as, via cats, songbirds and lizards, and, via dogs, such as rabbits and bigger prey. A parallel research project demonstrating the actual real impacts of fecal matter of local cats and dogs on the watershed and upon native species, would support this effort.	X	-	-	X	-	X	-	-	NA
85	Horse Community: Implement Current Regulations	Malibu Creek Watershed Council -- Conceptual Project List	Currently, a wide variety of laws from the county, the cities, the health department and more define how horses can and cannot be kept within the Santa Monica Mountains. Many of these rules are overlooked by some horseowners. Stakeholders requested that current laws be implemented.	X	-	-	-	-	-	-	-	NA
86	Medea Creek: Assess Household Urban Runoff	Malibu Creek Watershed Council -- Conceptual Project List	Stakeholders would like to understand potential pollution issues at Medea Creek; a study would clarify things and suggest an appropriate course of action.	X	-	-	-	-	-	-	-	NA
87	County Environmental Review Board -- Revise zones to make them more sensitive to habitat/natives	Malibu Creek Watershed Council -- Conceptual Project List	Goal would be to increase viable habitat.	-	-	-	X	-	X	-	-	Potential to improve scenery.
88	Fire Zones & Nativescaping -- Mountains Restoration Trust Project	Malibu Creek Watershed Council -- Conceptual Project List	This program received is great -- stakeholders would like to see an expanded version of this throughout the Santa Monica Mountains.	-	-	-	X	-	X	-	-	NA
89	Riparian Canopy in Developed Areas	Malibu Creek Watershed Council -- Conceptual Project List	Project would entail partnering with willing HOAs and willing individual property owners to increase native riparian canopy; possible sponsors might include NRCS, the RCDSMM, Heal the Bay, Baykeeper and more.	-	-	-	X	-	-	-	-	Beautifies neighborhoods!
90	Biofiltration as primary pre-drain BMP	Malibu Creek Watershed Council -- Conceptual Project List	Project would request that cities and county implement biofiltration as the preferred BMP at the mouth of each stormdrain.	X	-	-	X	-	X	-	-	NA
91	Waterless Wash Research Project	Malibu Creek Watershed Council -- Conceptual Project List	Project would entail basic research to determine if waterless cars are a best management practice or a worst management practice; information would be shared with cities, agencies and counties to deseminate more widely.	-	-	-	X	-	-	-	-	NA
92	Illegal Drains	Malibu Creek Watershed Council -- Conceptual Project List	Baykeeper has done a masterful job of detailing illegal discharges along the beach. Project would entail mapping all discharge points, pinpointing owners and preventing illegal discharges.	X	-	-	X	-	-	-	-	NA
93	Solstice Canyon Composting Toilets Research Project	Malibu Creek Watershed Council -- Conceptual Project List	State Parks and others expressed interest in the functionality of the new composting toilets at Solstice Canyon. How much did they cost? What are operations and management costs? How often are they cleaned? Would NPS do this again?	X	-	-	X	-	X	-	-	NA
94	SOKA -- Protect historic buildings	Malibu Creek Watershed Council -- Conceptual Project List	Stakeholders expressed concerns over rapid dismantling of old buildings on site at the SOKA properties currently managed by the Santa Monica Mountains Conservancy. Perception of some stakeholders was that these could be historic sites and these stakeholders expressed condern that deconstruction could be occurring without permitting or without consensus from involved stakeholders and the community.	X	-	-	-	-	X	-	-	NA

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95	Malibu Lagoon -- Explore possibility of expanding footprint	Malibu Creek Watershed Council -- Conceptual Project List	Given the tremendous constraints upon the Malibu Lagoon site with Pacific Coast Highway, the Malibu Colony and more, this project is a placeholder for a long-term goal which would require willingness from a diverse number of stakeholders for any forward movement. Currently, the lagoon restoration project underway will expand the footprint of the lagoon some. This project would only be possible working with willing sellers; all key stakeholders in the area are opposed to the use of imminent domain.	X	-	-	-	-	-	-	-	NA
96	Malibu Lagoon -- Explore possibility of buying homes adjacent to the Lagoon	Malibu Creek Watershed Council -- Conceptual Project List	This project would only be possible working with willing sellers; all key stakeholders in the area are opposed to the use of imminent domain. Funding could be available for willing sellers and for ensuing restoration.	X	-	-	X	-	X	-	-	NA
97	Carwashes at Cross-creek: Research Destination of Discharges	Malibu Creek Watershed Council -- Conceptual Project List	Research project would determine where discharges from carwashes at Cross-Creek Road go. Possible interested parties include the City of Malibu, Santa Monica Bay Restoration Commission and Regional Board.	-	-	-	X	-	-	-	-	NA
98	Malibu Lagoon -- Improve condition of septic systems as identified in Malibu Study	Malibu Creek Watershed Council -- Conceptual Project List	City of Malibu has been working on this issue for some time; stakeholders support continued efforts in this area. Stakeholders support eliminating "hot spots" as identified in the study, with information on these efforts being provided in a public forum as soon as possible.	X	-	-	X	-	X	-	-	NA
99	Malibu Lagoon -- Explore ways to buy undeveloped properties to create more seasonal marshes -- i.e. dirt lots	Malibu Creek Watershed Council -- Conceptual Project List	Acquisition of the Chili Cookoff Site has been a huge achievement by the City of Malibu; more open space in the city remains and could be restored as functional wetlands with adequate funding and willing sellers.	X	-	-	X	-	X	-	-	NA
100	Tapia Release Temperature Assessment	Malibu Creek Watershed Council -- Conceptual Project List	Stakeholders expressed interest in the temperature of treated effluent released into the creek as compared to the actual temperature of the creek. Suggestion was made that treated effluent might be shaded prior to release in the creek to accelerate cooling and perhaps better match natural creek temperatures.	-	-	-	X	-	X	-	-	NA
101	Operations and Management costs for State Parks' Trash	Malibu Creek Watershed Council -- Conceptual Project List	State PArks needs more educators and camp hosts.	-	-	-	X	-	X	-	-	NA
102	Upper Las Virgenes Canyon Open Space Preserve Native Grass Preservation	Malibu Creek Watershed Council -- Conceptual Project List	Partner with Santa Monica Mountains Conservancy to preserve native habitat especially for rare and endangered native grasses. The year before last, a film project is said to have placed soil atop Lasky Mesa as well as having built a large set on plywood, crushing native grasses, soil and affiliated plants. BMPs for future film projects would protect rare and endangered plant species.	-	-	-	-	-	X	-	-	NA
103	Upper Las Virgenes Canyon Open Space Preserve Restroom Facilities for the Public	Malibu Creek Watershed Council -- Conceptual Project List	This large open space needs more restroom facilities in order to allow the public access to these beautiful lands. Ideally, these would be compostable toilets with recycled blackwater.	X	-	-	X	-	X	-	-	NA
104	Urban Runoff Team	Malibu Creek Watershed Council -- Conceptual Project List + LVMWD	Working with LVMWD, create an urban run-off team (with jackets so that people would comfortable giving them access) to approach over-waterers to make positive changes in gardening practices and thus reduce urban run-off. Partner with non-profits, the RCDSMM, schools, universities to create a hip, fun group that is effective and popular.	X	-	-	-	-	-	-	-	NA
105	Horse Community -- Implement Current Regulations	Malibu Creek Watershed Council -- Possible Projects	Current rules from county, cities, health department and more require certain standards from horseowners. Many times these regulations are not enforced. Some stakeholders requested that these be enforced. As of yet, this suggestion was made with no input from members of the equestrian community.	X	-	-	X	-	X	-	-	NA
106	Las Virgenes Creek Infiltration Basin near De Anza Park	Malibu Creek Watershed Responsible Agencies	Infiltration of urban dry-weather runoff	-	-	-	-	-	-	-	-	NA
107	Medea Creek Park Infiltration Basin	Malibu Creek Watershed Responsible Agencies	Infiltrate urban runoff from local storm drains.	-	-	-	-	-	-	-	-	NA
108	Chumash Park Infiltration	Malibu Creek Watershed Responsible Agencies	Infiltrate urban runoff from local storm drains.	-	-	-	-	-	-	-	-	NA
109	Reyes Adobe Park Subsurface Flow Wetland	Malibu Creek Watershed Responsible Agencies	Subsurface Wetland to improve water quality in Lower Lindero Creek	-	-	-	-	-	-	-	-	NA
110	Water Quality Improvement and Road Hazard Reduction on Pacific Coast Hwy in Malibu	Marlene Matlow	1. 25501 W PCH in Malibu: From Puerco Canyon north to 25653 PCH, storm-water runoff sheets onto PCH (from S.M. Mountains Conservancy property), creating dangerous hydroplaning of cars, as well as contaminants , i.e., asphalt, oils, grease, brake lining	-	-	-	X	-	-	-	-	Flood hazard reduction
111	Malibu Water Supply Options and Infrastructure	Marlene Matlow	Malibu is subject to extensive and extended loss of water when earth movement from mountain slides, mudslides, earthquakes and etc. seriously compromise that supply. A secondary water source is essential. The solution will be to have both Las Virgenes a	X	-	-	-	-	-	-	-	NA
112	"DON'T TRASH CALIFORNIA" TRASH CONTAINERS	MARSHA FULLMER	Tie in with the "Don't Trash California" campaign (and possibly funding) to provide easily accessible "California Colors" trash and cigarette depositories, not only at the beaches, but throughout the North Santa Monica Bay Wateershed, in parks, malls, and	-	-	-	X	-	-	-	-	NA
113	New Reservoir for Area	Michael Hart	NA	-	-	-	-	-	-	-	-	NA

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114	Cold Creek Restoration	Mountains Restoration Trust	A culvert from Mulholland Highway draining into Cold Creek created a arroyo that is over 6-feet deep and has caused bank failure on Cold Creek. NRCS plans have been completed and the project is on hold until an adjacent property is acquired.	-	-	-	-	-	X	-	-	NA
115	Cold Creek Riparian Restoration	Mountains Restoration Trust	Non-native invasive species are removed from riparian, grassland and upland areas of the 1300-acre Cold Creek Preserve, and where feasible are replaced by native plant species. Target species include yellow star thistle, Spanish broom, tree of heaven, ripgut and periwinkle.	-	-	-	-	-	X	-	-	NA
116	Tuna Canyon Habitat Restoration	Mountains Restoration Trust	The final 3-mile reach of Tuna Canyon Creek passes through heavy infestations of non-native invasive weeds that impact the water before it flows into Santa Monica Bay. Two projects are essential to the life of the creek: 1. repair of a culvert-made arroyo that carries large volumes of road-runoff, accumulated erosive materials, and has caused slope and bank failure, and 2. invasive species including heavy infestations of plant-smothering Cape ivy and a minimum of 83 blue-gum eucalyptus trees with an estimated transpiration rate of 85 gallons of water per day per day and that have crowded out native riparian vegetation.	-	-	-	-	-	X	-	-	NA
117	La Sierra Preserve Habitat Restoration	Mountains Restoration Trust	La Sierra Preserve contains five blue-line stream with riparia and upland habitat ranging from pristine to disturbed. This project will enhance and restore riparian wetland and habitat and control the invasive plants within the federally-listed endangered Pentachaeta lyonii.	-	-	-	-	-	X	-	-	NA
118	Malibu Creek Enhancement	Mountains Restoration Trust	Complete the removal of Arundo donax and other non-native invasive plant species from approximately 250 acres around the final 4.5-mile reach of Malibu Creek. A project started in 2001, completely eradicated or displayed significant mortality (greater than 80 percent) to the 414 A. donax patches and this project aims to control the finaly 15-20% of patches that have retained viable canes.	-	-	-	-	-	X	-	-	NA
119	Modification of Culverts within the Cold Creek Preserve	Mountains Restoration Trust	The project would evaluate the effects of all road culverts and drains on the habitat, drainages, emphemeral, intermittant and year-round water courses within the Cold Creek Preserve and develop plans for the modification of culvert/drains to reduce negative impacts to natural resources, to reduce rate of runoff, reduce erosion and enhance riparian zones.	-	-	-	-	-	X	-	-	NA
120	Cold Creek Riparian Acquisition	Mountains Restoration Trust	The Cold Creek Restoration Plan approved by the State Coastal Conservancy acquires properties that support the creek and riparian attributes of Cold Creek, a tributary of Malibu Creek. Of the 1244 acres planned for acquisition only 146 acres remain to be acquired.	-	-	-	-	-	-	-	-	NA
121	La Sierra Riparian Acquisitions	Mountains Restoration Trust	Acquisition of approximately 500 acres of undisturbed watershed supporting 6-7 tributary streams of La Sierra Creek in the Malibu Creek watershed.	-	-	-	-	-	-	-	-	NA
122	Las Flores Canyon Restoration and Water Quality Improvements (Biofiltration and Infiltration	NA	Restoration of Los Flores Creek and acquisition of adjacent properties for biofiltration and infiltration prior to discharge to the creek.	-	-	-	-	-	-	-	-	NA
123	Malibu / Las Virgenes Model	NA	A detection and education program in Malibu, modeled on the program used by Las Virgenes. Which tracks over use of water and educates the user to best practices procedures. To further emulate Las Virgenes is the establishment of a reclaimed water project in the Civic Center, so that businesses and residents in the area can use recycled water.	X	1	100	-	-	-	-	-	NA
124	Malibu Lake Sediment Reduction and Control Project	NA	Control sediment with upstream catch basins. Sand sediment downstream to model natural occurrence. Remove sediment to deepen lake in anticipation of using as rearing area for broad stock of steelhead. Continuous maintenance of basins with sediment going to beaches, farms, construction site, etc.	-	-	-	-	-	X	-	-	NA
125	Malibu Lake Sewer and Street Project	NA	The project involves construction of a sewer system of over one mile in length with pump and lift stations which will serve 60 % of residents around the lake presently on failing septic systems. This project will also result in new roads with improved drainage routes and increased use of lake water for landscape irrigation.	-	-	-	X	-	-	-	-	NA
126	Trancas Habitat and Connectivity Restoration	National Park Service	Trancas Canyon has been identified as potential steelhead habitat. This creek has a year-round flowing creek with healthy riparian habitat. This watershed is primarily within the public ownership of the National Park Service, however barriers such as culverts prevent upstream steelhead migration. The National Park Service would like to work with residents and the City of Malibu to retrofit the culverts to facilitate fish passage. Additional on-going work includes a crayfish eradication study (Pepperdine University) on the impacts of California Newt. Cooperators would include: Caltrans, City of Malibu, California Fish and Game, and NOAA Fisheries.	-	-	-	-	-	X	0	100	NA
127	Restore Riparian and Steelhead Habitat in Zuma Canyon	National Park Service	Restore riparian habitat and remove barriers to steelhead movement along Zuma Creek in Zuma Canyon. Zuma Creek was ranked highly by the Santa Monica Mountains Steelhead Assessment as having high importance to conservation of southern California steelhead trout (a federally endangered species). This project will restore riparian habitat and steelhead habitat on NPS property and work with other landowners in the watershed to improve steelhead habitat (City of Malibu, L.A. county beaches and harbors).	-	-	-	-	-	X	0	100	habitat restoration for endangered species.
128	Lower Malibu Steelhead Riparian Habitat Restoration	National Park Service, California State Parks, Mountains Restoration Trust	Malibu Creek is one of only a few creeks in the Santa Monica Mountains with actively spawning steelhead trout (an endangered species). Numerous impacts to these species include barriers to migration, exotic predators, water quality and non-native riparian habitat. Considerable interest and effort has been given to improving water quality and barrier removals. The National Park Service and its cooperators would like to expand these efforts to include the restoration of native riparian habitat. Previous efforts to remove exotic vegetation in this watershed have been successful, the National Park Service wishes to continue these efforts.	-	-	-	-	-	X	10	100	Restoring endangered steelhead habitat
129	Gillette Ranch	National Park Service, Santa Monica Mountains Conservancy, California State	Use reclaimed water for riparian and wetland habitat restoration. Increase recreational opportunities and educational opportunities.	-	-	-	-	-	X	-	-	use reclaimed water, prevent water going into Malibu Creek.
130	Paramount Ranch – Medea Creek Restoration and Water Conservation	National Park Service, Santa Monica Mountains Conservancy, California State	Restore riparian habitat along Medea Creek, reduce water use at the Paramount Ranch site through use of reclaimed water, conversion of lawn to native grasses, and other water storage techniques.	-	-	-	-	-	X	0	5	Reducing water use
131	Solstice Creek Steelhead Access	National Recreation Area, Caltrans, City of Malibu	NA	-	-	-	-	-	-	-	-	NA
132	Nicholas Canyon Watershed Acquisition	NatureTrust	Nicholas Canyon Watershed includes Leo Carrillo State Park.	-	-	-	-	-	-	-	-	NA
133	Million Points of Stormwater Treat&Recharge	Planning Agencies & Road Building Agencies	Convert all our "humped-up" road medians, center islands, parking lot greenery spots, etc. into stormwater detention depressions.	X	-	-	X	-	-	-	-	Leads to low energy, on order of 300 kWh/af water capture.

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134	Topanga Berm Removal	RCDSMM/California Department of State Parks/Santa Monica Bay Restoration Co	The illegally created berm down at the Rodeo Grounds section of Topanga Creek on California Department of State Parks property houses numerous historic pollutants (i.e. aging/broken septic systems, rubber tires and more) and impedes natural flows.	-	-	-	X	-	X	-	-	NA
135	Increase Inspections of Post-Development BMPs	Research information used by other agencies and review for possible improve	Research information used by other agencies and review for possible improvements and provision of workshops to increase inspection of post development BMPs. Program will include development of outreach materials and training. Includes 4 agency meetings and review of existing programs for enhancements. Annual Effort: 50 1hr inspections for 6 agencies/yr.	-	-	-	-	-	-	-	-	NA
136	Development Standards	Responsible Agencies in the Malibu Creek Watershed	Coordinate to develop an education and outreach program, distribute materials, and hold training sessions regarding development standards.	-	-	-	-	-	-	-	-	NA
137	Voluntary Downspout Redirect Program	Responsible Agencies in the Malibu Creek Watershed	Incentives to property owners to disconnect roof drains from storm drains and direct runoff to pervious areas or gardens.	-	-	-	-	-	-	-	-	NA
138	Stream Buffers Development Standards	Responsible Agencies in the Malibu Creek Watershed	Development standards for stream buffer requirements.	-	-	-	-	-	-	-	-	NA
139	Voluntary Horse Farm Retrofit	Responsible Agencies in the Malibu Creek Watershed	Design Standards, Education, Outreach, Technical Assistance, and Financial Incentives for Horse Farm BMPs.	-	-	-	-	-	-	-	-	NA
140	Single Family Resident Cistern Program	Responsible Agencies in the Malibu Creek Watershed	Incentives for rain barrels to capture rooftop runoff.	-	-	-	-	-	-	-	-	NA
141	Multi-Family Residence Cistern Program	Responsible Agencies in the Malibu Creek Watershed	Incentives for constructed concrete cisterns to capture rooftop runoff.	-	-	-	-	-	-	-	-	NA
142	Underground Storage and Reuse Projects	Responsible Agencies in the Malibu Creek Watershed	Construct large underground storage systems to collect runoffat large facilities.	-	-	-	-	-	-	-	-	NA
143	Permeable Pavement	Responsible Agencies in the Malibu Creek Watershed	Permeable pavement including pervious concrete, asphalt, and pervious paving blocks will be used where applicable to reduce runoff.	-	-	-	-	-	-	-	-	NA
144	Bioretention	Responsible Agencies in the Malibu Creek Watershed	Soil and plant based filtration devices will be implemented where applicable.	-	-	-	-	-	-	-	-	NA
145	Swales/Filter Strips	Responsible Agencies in the Malibu Creek Watershed	A combination of swales and filters strips will be used where applicable.	-	-	-	-	-	-	-	-	NA
146	Partnerships with HOAs to promote water quality and conservation	Responsible Agencies in the Malibu Creek Watershed	Partnerships with HOAs to promote water quality and conservation.	-	-	-	-	-	-	-	-	NA
147	Offer opportunities for Water Conservation and Water Quality in Existing Educational Programs at Schools.	Responsible Agencies in the Malibu Creek Watershed	Offer opportunities for Water Conservation and Water Quality in Existing Educational Programs at Schools.	-	-	-	-	-	-	-	-	NA
148	Outreach Fact Sheets on Water Quality for Point-of-Sale Distribution	Responsible Agencies in the Malibu Creek Watershed	Outreach Fact Sheets on Water Quality for Point-of-Sale Distribution	-	-	-	-	-	-	-	-	NA
149	Work with Water Providers to Support/Expand Water Audit and Conservation Programs	Responsible Agencies in the Malibu Creek Watershed	Work with Water Providers to Support/Expand Water Audit and Conservation Programs	-	-	-	-	-	-	-	-	NA
150	Horse Stable and Confined Animal Outreach and Education	Responsible Agencies in the Malibu Creek Watershed	Horse Stable and Confined Animal Outreach and Education	-	-	-	-	-	-	-	-	NA
151	Outreach to Petowners Linking Waste to Water Quality	Responsible Agencies in the Malibu Creek Watershed	Outreach to Petowners Linking Waste to Water Quality	-	-	-	-	-	-	-	-	NA
152	Pet Waste Bags at Trail Heads	Responsible Agencies in the Malibu Creek Watershed	Pet Waste Bags at Trail Heads	-	-	-	-	-	-	-	-	NA

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153	Develop Inventory of Areas with Confined Animals and Educate Property Owners on Water Quality and BMPs	Responsible Agencies in the Malibu Creek Watershed	Develop Inventory of Areas with Confined Animals and Educate Property Owners on Water Quality and BMPs	-	-	-	-	-	-	-	-	NA
154	Post Signs at City and County-owned Trailheads for Equestrian Users Emphasizing Manure Clean-up in Parking Lots	Responsible Agencies in the Malibu Creek Watershed	Post Signs at City and County-owned Trailheads for Equestrian Users Emphasizing Manure Clean-up in Parking Lots	-	-	-	-	-	-	-	-	NA
155	RV Disposal Site Outreach Programs	Responsible Agencies in the Malibu Creek Watershed	Evelop inventory of RV Campgrounds, and disposal sites. Develop materials for distribution and signage for installation at campgrounds.	-	-	-	-	-	-	-	-	NA
156	Coordinate with Watershed Agencies to Identify Methods to Reach Visitors to the Watershed	Responsible Agencies in the Malibu Creek Watershed	Coordinate with Watershed Agencies to Identify Methods to Reach Visitors to the Watershed.	-	-	-	-	-	-	-	-	NA
157	Outreach at Trailheads Regarding Waste Disposal and Restroom Use	Responsible Agencies in the Malibu Creek Watershed	Outreach at Trailheads Regarding Waste Disposal and Restroom Use	-	-	-	-	-	-	-	-	NA
158	Coordinate between Agencies and Environmental Organizations to Prepare Outreach Materials	Responsible Agencies in the Malibu Creek Watershed	Coordinate between Agencies and Environmental Organizations to Prepare Outreach Materials	-	-	-	-	-	-	-	-	NA
159	Trash Hauler Outreach	Responsible Agencies in the Malibu Creek Watershed	Inventory trash haulers. Develop materials addressing problems with open trash lids, frequency of pick-up in heavily used areas. Send out mailer and follow-up with meetings with 2 major solid waste companies. Annual Effort: each jurisdiction conducts 2 meetings/year. (10hrs/6 agencies per year)	-	-	-	-	-	-	-	-	NA
160	Develop Targeted Outreach for Businesses with Greatest Potential to Contribute Pollutants of Concern	Responsible Agencies in the Malibu Creek Watershed	Develop inventory of target businesses.(including Restaurants, Automotive, Equestrian, Industrial, Landscape Maintenance, Mobile Businesses) Identify existing outreach activities and determine additional needed materials for distribution. Develop plan of distribution, potentially including Chambers of Commerce, industry and commercial associations. Annual Effort: 24 key business/year.	-	-	-	-	-	-	-	-	NA
161	Expand Media Partnership with Caltrans	Responsible Agencies in the Malibu Creek Watershed	Meet with Caltrans and identify potential to expand outreach via signage and other media. Annual Effort: 4 meetings a year with 3 agencies.	-	-	-	-	-	-	-	-	NA
162	Work with LVMWD, WBMWD, and WWD 29 to Support/Expand Water Audit and Conservation Programs	Responsible Agencies in the Malibu Creek Watershed	Meet with 3 agencies to coordinate commercial water audit programs. Develop education materials targeted at commercial water quality activities.(costs included in BMP NS-4)	-	-	-	-	-	-	-	-	NA
163	Develop Minimum Requirements and Program to Enforce Parking Lot Street Sweeping for Commercial Businesses	Responsible Agencies in the Malibu Creek Watershed	Research City/County code requirements to determine existing enforcement authority. Meet with City/County code enforcement to develop plan and resources needed for implementation. Four meetings with legal and code enforcement for 8 agencies.	-	-	-	-	-	-	-	-	NA
164	Modify Inspection Staff Training to Include Enhanced Training on Water Quality Impairments and BMPs	Responsible Agencies in the Malibu Creek Watershed	Review and update existing materials for training sessions. Single training session for 6 agencies. Annual Effort: 90 hours of staff time to update materials and provide training. (6 agencies/15 hrs each)	-	-	-	-	-	-	-	-	NA
165	During Inspections Emphasize BMPS that Reduce Pollutants of Concern	Responsible Agencies in the Malibu Creek Watershed	Program development costs are included in NS-BMP 19 "Modify Inspection Staff Training to Include Enhanced Training on Water Quality Impairments and BMPs".	-	-	-	-	-	-	-	-	NA
166	Incorporate TMDL requirements into CEQA process	Responsible Agencies in the Malibu Creek Watershed	Review existing CEQA guidelines and their adequacy in addressing water quality issues. Determine options to modify guidelines and provide training to agency planning staff to assure consistent application to projects under review. Assume 4 meetings and development of recommendations.	-	-	-	-	-	-	-	-	NA
167	Enhance Education for Developers of Projects outside SUSMP/SQUMP requirements	Responsible Agencies in the Malibu Creek Watershed	Research information used by other agencies and review for possible improvements and provision of developer workshops to improve application of water quality BMPs. Includes 4 agency meetings and review of existing programs for enhancements. Prepare training materials to address specific water quality issues.	-	-	-	-	-	-	-	-	NA
168	Develop vegetative filter BMP	Responsible Agencies in the Malibu Creek Watershed	Meet with City/County engineering staff to outline process for development of "standard" in be included within agency building and construction standards. Involves three meetings and development of documentation in agency format.	-	-	-	-	-	-	-	-	NA
169	Complete BMP Technical Manual and Include Detailed BMP Requirements Related to Water Quality Impairments	Responsible Agencies in the Malibu Creek Watershed	Continue effort to complete BMP technical manual.	-	-	-	-	-	-	-	-	NA
170	Emergency Spill Management - Review Existing Emergency Operation Plans on a Regular Schedule; assure availability of emergency equipment during peak traffic hours	Responsible Agencies in the Malibu Creek Watershed	Review existing agency policies and practices for opportunities to improve responsiveness, develop standards, and identify opportunities for coordinated efforts and development of contracted services.	-	-	-	-	-	-	-	-	NA

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171	Additional Trash Pick Up During High Use Periods in High Use Sites	Responsible Agencies in the Malibu Creek Watershed	Develop inventory of public events and use of public facilities, review existing trash pick-up policies, and modify agency standards, as needed. Assume 140 hours per agency. (6 agencies). Annual Effort: 60 hours. Additional inspection by solid waste haulers could be needed and funded.	-	-	-	-	-	-	-	-	NA
172	Assure that Contractors Providing Maintenance and Landscape Services Adhere to BMPs Through Contract Language and Inspections	Responsible Agencies in the Malibu Creek Watershed	Research information used by other agencies and review for possible improvements and provision of contractor workshops to improve application of and compliance with BMPs. Includes 4 agency meetings and review of existing programs for enhancements. Prepare training materials to address specific water quality issues.	-	-	-	-	-	-	-	-	NA
173	Establish Optimal Cleaning Cycles for Drainage Facilities	Responsible Agencies in the Malibu Creek Watershed	Develop program that reviews existing cleaning frequency and trash accumulation per storm drain area. Based upon findings within each agency, develop optimal cleaning cycle. Assume four meetings and related research within each of six agencies..	-	-	-	-	-	-	-	-	NA
174	Investigate Incentive Programs for Replacing Improperly Operating Septic Tanks	Responsible Agencies in the Malibu Creek Watershed	As a component of the watershed wide outreach program, develop a focused watershed awareness materials that target the impacts of OWTS and identify opportunities for free or subsidized septic system inspection. An additional component could involve a low-interest loan program for repair of residential systems. Accomplishment of this effort would involve identification of the target population, clarification of common repairs and costs, and discussion with jurisdictions to determine willingness to sponsor a low interest loan program. Linkage with water agencies would be beneficial to provide an automatic repayment program that is linked with monthly water bills. Annual Effort: 1200 hrs/yr for 5 agencies (240 each).	-	-	-	-	-	-	-	-	NA
175	Septic Inspections Upon Change in Ownership	Responsible Agencies in the Malibu Creek Watershed	This program would involve the evaluation of voluntary or mandatory recording of septic inspections upon change in ownership. Effort would involve research of legal authority, existing policies and practices, and program design. Annual Effort: 300 hrs/yr for 5 agencies (60 each).	-	-	-	-	-	-	-	-	NA
176	Liberty Canyon Creek Subsurface Flow Wetland	Responsible Agencies in the Malibu Creek Watershed	Subsurface Wetland to improve water quality in Liberty Canyon Creek.	-	-	-	-	-	-	-	-	NA
177	Three Springs Park Subsurface Wetland	Responsible Agencies in the Malibu Creek Watershed	Subsurface Wetland to improve water quality.	-	-	-	-	-	-	-	-	NA
178	Triunfo Channel Infiltration Basin	Responsible Agencies in the Malibu Creek Watershed	Infiltrate urban runoff from local storm drains.	-	-	-	-	-	-	-	-	NA
179	Upper Lindero Creek at County Line Infiltration Basin	Responsible Agencies in the Malibu Creek Watershed	Subsurface Wetland to improve water quality.	-	-	-	-	-	-	-	-	NA
180	Oak Canyon Community Park Subsurface Flow Wetland	Responsible Agencies in the Malibu Creek Watershed	Subsurface Wetland to improve water quality in Medea Creek.	-	-	-	-	-	-	-	-	NA
181	Upper Lindero Creek Subwatershed Infiltration Basin	Responsible Agencies in the Malibu Creek Watershed	Infiltrate urban runoff from local storm drains.	-	-	-	-	-	-	-	-	NA
182	Lake Lindero Country Club Infiltration	Responsible Agencies in the Malibu Creek Watershed	Infiltration of urban runoff in local storm drains.	-	-	-	-	-	-	-	-	NA
183	Sumac Park Infiltration Basin	Responsible Agencies in the Malibu Creek Watershed	Infiltrate urban runoff from local storm drains.	-	-	-	-	-	-	-	-	NA
184	Topanga Lagoon and Creek Restoration	Santa Monica Mountains RCD	Topanga Creek Watershed	-	-	-	-	-	-	-	-	NA
185	Malibu Creek Watershed Enhancement, Rindge Dam	State Parks	Rindge Dam is owned by State Parks.	-	-	-	-	-	-	-	-	NA
186	Malibu & Calleguas Creek Imported Water Distributed Harvesting	Triunfo Sanitation District	Decades of importing water has filled the shallow soils and fractured rock of the upper reaches of Calleguas & Malibu Creeks. The (now salty and mineral filled) water would be harvested from many small wells, treated for domestic use (including salt removal), and injected into potable water distribution systems near the wellhead. The project includes a network of brine disposal pipelines.	X	10000	0	X	10	-	-	-	NA
187	Recycled Water Expansion - Thousand Oaks	Triunfo Sanitation District	Extend the retail recycled water system along the Highway 26 corridor in Thousand Oaks.	X	300	0	-	-	-	-	-	NA
188	Watershed U.- Malibu Creek	UC Cooperative Extension	This educational project would develop a Watershed U. training program for Malibu Creek. Watershed U. is designed to increase communication among watershed stakeholders, and to engage local decision makers in the process.	X	-	-	X	-	X	-	-	Improve stakeholder participation in land and water stewardship through outreach and education.
189	USACE Malibu Creek Watershed Environmental Feasibility Study	USACE, California Dept. of State Parks, support by MCWC	Malibu Creek and its tributaries are impaired by a number of fish migration barriers, the most famous being Rindge Dam at 109' tall. The USACE Malibu Creek Watershed Environmental Restoration Study is exploring possible solutions to fish migration barriers in the creek, focusing primarily on Rindge Dam. Because this is just money to complete the study, there are as of yet, no construction costs and no EIR. Given that there are endangered Southern Steelhead in the creek, it is vital to consider giving them access to 29+ miles of quality habitat upstream.	-	-	-	X	-	X	-	-	NA
190	Landscape Irrigation Classes 3	West Basin MWD	This project proposes to offer landscape irrigation classes to the residents and customers within West Basin MWD's service area to educate them about using less water and native plants instead of non-native, exotics that require much more water for survival.	-	-	-	-	-	-	-	-	Education
191	Synthetic Turf Program 1	West Basin MWD	West Basin hopes to expand Metropolitan Water District's Synthetic Turf Program by implementing it within its own service area.	-	-	-	-	-	-	-	-	Conservation

North Santa Monica Bay Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
192	Weather-Based Irrigation Controller Program 2	West Basin MWD	This project proposes to install Weather-Based Irrigation Controllers (WBICs) to reduce the amount of water that is used for landscape irrigation.	-	-	-	-	-	-	-	-	Conservation
193	Landscape Irrigation Classes 2	West Basin MWD	This project proposes to offer landscape irrigation classes to the residents and customers within West Basin MWD's service area to educate them about using less water and native plants instead of non-native, exotics that require much more water for survival.	-	-	-	-	-	-	-	-	Education
194	Synthetic Turf Program 4	West Basin MWD	West Basin hopes to expand Metropolitan Water District's Synthetic Turf Program by implementing it within its own service area.	-	-	-	-	-	-	-	-	Conservation
195	Weather-Based Irrigation Controller Program 1	West Basin MWD	This project proposes to install Weather-Based Irrigation Controllers (WBICs) to reduce the amount of water that is used for landscape irrigation.	-	-	-	-	-	-	-	-	Conservation
196	Complete Restroom Retrofits Location 1	West Basin MWD	This program provides free hardware devices for commercial restrooms including high-efficient toilets, waterless urinals, and faucets.	-	16	8	-	-	-	-	-	NA
197	Conductivity Controller Incentives 1	West Basin MWD	This is a new program that provides prescriptive incentives for installation of conductivity and pH controllers. Funding for this program will allow the District to hire a vendor to educate commercial owners about the rebates available for equipment that conserves water. The benefits would include a reduction of wastewater generated, benefiting the LA County Sanitation Districts, and potable water used. Partners may include MWD, LADWP, and the Sanitation Districts.	-	90	45	-	-	-	-	-	NA
198	High- Efficiency Toilet Direct Installation	West Basin MWD	This program provides free installation of high-efficiency toilets to the multi-family sector, which includes apartment complexes, condos, senior apartments, and other residential multi-family facilities.	-	5	2	-	-	-	-	-	NA
199	Industrial Process Improvement Program	West Basin MWD	This is a new program that will build on Metropolitan Water District's existing program to provide customized incentives based upon the amount of water saved. This program will target industrial processes such as food processing, textiles, fabricated metals, electronics and industrial laundries.	-	130	65	-	-	-	-	-	NA
200	Irrigation Equipment/Water Budget Program	West Basin MWD	This program offers landscape audits and customized incentives for matching heads, pressure regulators and weather-based irrigation controllers for landscape customers including multi-family, commercial and institutional and provides water audits on the landscape sites. The water budgets will be created and the budget and a listing of recommended equipment upgrades will be given to the large landscape customers. The target market will be large landscape customers, specifically home owner associations.	-	58	29	-	-	-	-	-	NA
201	Laundromat Retrofits Program	West Basin MWD	This is a new program that offers substantial incentives from multiple utilities (Gas Company, Edison, and MWD) to replace non-efficient washers and dryers with more efficient devices. Some utilities currently provide funding for energy-efficient washer machines, so additional funding will expand the program to allow for more rebate incentives.	-	10	5	-	-	-	-	-	NA
202	Save-A-Buck Program	West Basin MWD	The Save-A-Buck Commercial, Industrial and Institutional (CII) program provides rebates to businesses, schools and other facilities for commercial clothes washers, waterbrooms, cooling tower conductivity controllers, pre-rinse spray nozzles, x-ray machine recirculating devices and commercial toilets and urinals. Funding for this program would be for conducting workshops, providing more rebate incentives (marketing materials), and hiring an auditor to perform water and energy audits for businesses, schools and other facilities. This is a new program through the partnership between the District and the South Bay Cities Council of Governments. It can be expanded to include other partners such as the Westside Cities COG.	-	62	42	-	-	-	-	-	NA
203	Residential High-Efficiency Clothes Washer Rebates	West Basin MWD	This program involves providing rebates to residents and businesses with high- efficiency clothes washer rebates. This program has both water and energy savings components. MWD currently provides a rebate that will end in December 2006. This program would be kick started thereafter, but before HECWs are mandated, and provide 2000 rebates per year at approx. $250,000	-	36	18	-	-	-	-	-	NA
204	Smart Controller Distributions	West Basin MWD	This is a new program that offers free smart controllers to single-family landscapes to more-efficiently irrigate landscapes. There is funding currently budgeted in the District's Conservation Budget for Fiscal Year 2006-07 for installation of the devices. This program would provide free product distributions at events similar to toilet distributions and potential partners include MWD and DWR.	-	10	5	-	-	-	-	-	NA
205	Supermarket Retrofits	West Basin MWD	This is a new program that will provide and install free pre-rinse spray valves, high-efficiency toilets, wireless urinals, and waterbrooms for supermarkets and food stores. The District would partner with MWD.	-	12	6	-	-	-	-	-	NA
206	Conductivity Controller Incentives Location 1	West Basin MWD	North Santa Monica Bay, Ballona Creek, Lower Santa Monica Bay, and Dominguez Watersheds	X	45	0	-	-	-	-	-	NA
207	High-Efficiency Toilet Rebates Location 1	West Basin MWD	North Santa Monica Bay, Ballona Creek, Lower Santa Monica Bay, and Dominguez Watersheds	X	2	0	-	-	-	-	-	NA
208	Industrial Process Improvement Location 1	West Basin MWD	North Santa Monica Bay, Ballona Creek, Lower Santa Monica Bay, and Dominguez Watersheds	X	65	0	-	-	-	-	-	NA
209	Irrigation Equipment/Water Budget Location 1	West Basin MWD	North Santa Monica Bay, Ballona Creek, Lower Santa Monica Bay, and Dominguez Watersheds	X	29	0	-	-	-	-	-	NA
210	Laundromat Retrofits Location 1	West Basin MWD	North Santa Monica Bay, Ballona Creek, Lower Santa Monica Bay, and Dominguez Watersheds	X	5	0	-	-	-	-	-	NA
211	Pre-Rinse Spray Valve Installs Location 1	West Basin MWD	North Santa Monica Bay, Ballona Creek, Lower Santa Monica Bay, and Dominguez Watersheds	X	42	0	-	-	-	-	-	NA
212	Residential ULFT/HECW Rebates Location 1	West Basin MWD	North Santa Monica Bay, Ballona Creek, Lower Santa Monica Bay, and Dominguez Watersheds	X	18	0	-	-	-	-	-	NA
213	Save-A-Buck CII Incentives Location 1	West Basin MWD	North Santa Monica Bay, Ballona Creek, Lower Santa Monica Bay, and Dominguez Watersheds	X	31	0	-	-	-	-	-	NA
214	Smart Controller Distributions Location 1	West Basin MWD	North Santa Monica Bay, Ballona Creek, Lower Santa Monica Bay, and Dominguez Watersheds	X	5	0	-	-	-	-	-	NA
215	Targeted High-Efficiency Toilet Distributions Location 1	West Basin MWD	North Santa Monica Bay, Ballona Creek, Lower Santa Monica Bay, and Dominguez Watersheds	X	38	0	-	-	-	-	-	NA

Upper Los Angeles River Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
1	Millard Creek Protection/Restoration	Altadena Foothills Conservancy	Improve the Millard Creek watershed to increase water flow and improve wildlife habitat by removing invasive non-natives and fish barriers. Involve residents through education to provide for long-term improvement of the watershed. Purchase vacant land for long term conservation.	-	-	-	-	-	-	-	-	Preservation of Groundwater Supply
2	San Gabriel Foothills Land Conservation	Altadena Foothills Conservancy - Proponent	Acquire and conserve natural lands in the foothills of the San Gabriel Mountains; specifically those within the congressional boundary of the Angeles National Forest	X	-	-	X	-	X	350	0	Riparian habitat preserved in El Prieto, Millard, and Rubio Canyons, plus upland areas in the foothills.
3	San Gabriel Foothills Debris Basins - Los Angeles Loma Alta (4)	Altadena Foothills Conservancy proponent - LA County jurisdiction	Managment revamp of debris basis, create wetlands, provide for wildlife habitat.	X	-	-	-	-	-	-	-	NA
4	Mt. Olympus Acquisition	Arroyo Seco Foundation	Aquire open space in Northeast LA for watershed/park benefit	-	-	-	-	-	-	-	-	NA
5	Los Angeles Arroyo Seco Partial Channel Removal	Arroyo Seco Foundation	Widen channel and remove concrete invert and side slopes where feasible	-	-	-	-	-	-	-	-	NA
6	North Branch Stream Daylighting	Arroyo Seco Foundation	Daylight Project 5202 Storm Drain through Sycamore Grove Park	-	-	-	-	-	-	-	-	NA
7	Arroyo Seco Parkway (SR110) BMPs	Arroyo Seco Foundation	Install BMPs	-	-	-	-	-	-	-	-	NA
8	South Pasadena Partial Channel Removal	Arroyo Seco Foundation	Widen channel and remove concrete invert and side slopes where feasible	-	-	-	-	-	-	-	-	NA
9	South Pasadena Alternative Streamcourse & BMPs	Arroyo Seco Foundation	Enhance existing alternative streamcourse near Arroyo Park and through golf course, install BMPs for SD Outlets	-	-	-	-	-	-	-	-	NA
10	Pasadena Lower Storm Drain Outlet BMPs	Arroyo Seco Foundation	Install BMPs at SD outlets in Pasadena's Lower Arroyo	-	-	-	-	-	-	-	-	NA
11	Pasadena Lower Streamcourse Restoration	Arroyo Seco Foundation	Establish natural streamcourse through Pasadena's Lower Arroyo	-	-	-	-	-	-	-	-	NA
12	Decrease Impermeability in Arroyo Seco Watershed	Arroyo Seco Foundation	Remove impervious surfaces throughout watershed were feasible	-	-	-	-	-	-	-	-	NA
13	Education for Conservation in Arroyo Seco Watershed	Arroyo Seco Foundation	Educate about ways to conserve water: Landscaping, impervious surfaces, cisterns, etc.	-	-	-	-	-	-	-	-	NA
14	Equestrian BMPs in Arroyo Seco Watershed	Arroyo Seco Foundation	Influence property owners through education or enforcement of need for BMPs for equestrian facilities and "backyard livestock"	-	-	-	-	-	-	-	-	NA
15	Stormwater BMPs in Arroyo Seco Watershed	Arroyo Seco Foundation	Install BMPs throughout watershed to improve stormwater quality	-	-	-	-	-	-	-	-	NA
16	Trail and Habitat Connectivitiy in Arroyo Seco Watershed	Arroyo Seco Foundation	Connect trail network and pockets of habitat	-	-	-	-	-	-	-	-	NA
17	Pasadena Reclaimed Water Supply	Arroyo Seco Foundation	Extend reclaimed water line from Glendale to Pasadena (more?)	-	-	-	-	-	-	-	-	NA
18	Pasadena Central Storm Drain Outlet BMPs	Arroyo Seco Foundation	Install BMPs at SD outlets in Pasadena's Central Arroyo	-	-	-	-	-	-	-	-	NA
19	Pasadena Central Streamcourse Restoration	Arroyo Seco Foundation	Establish natural streamcourse through Pasadena's Central Arroyo	-	-	-	-	-	-	-	-	NA
20	Woodbury Median Swale - Pilot Project	Arroyo Seco Foundation	Remove existing impervious median, replace with swale	-	-	-	-	-	-	-	-	NA
21	Hahamongna Fish Passage	Arroyo Seco Foundation	Remove existing barriers, incorporate passage into future projects	-	-	-	-	-	-	-	-	NA
22	Flint Wash Stream Restoration	Arroyo Seco Foundation	Ehance existing unlined portion of Flint Wash through LCF and PAS	-	-	-	-	-	-	-	-	NA
23	Hahamongna Water Conservation Pool	Arroyo Seco Foundation	Re-grade basin to allow for permanent water conservation pool and splash pool for sediment management	-	-	-	-	-	-	-	-	NA
24	Hahamongna Storm Drain Outlet BMPs	Arroyo Seco Foundation	Install BMPs at SD outlets in Hahamongna	-	-	-	-	-	-	-	-	NA
25	Hahamongna West Side GW Recharge Basins	Arroyo Seco Foundation	Construct additional spreading basins on west side of Hahamongna	-	-	-	-	-	-	-	-	NA
26	Hahamongna Streamcourse Widening	Arroyo Seco Foundation	Re-align and widen stream course through Hahamongna	-	-	-	-	-	-	-	-	NA
27	Hahamongna PWP Surface Water Treatement Plant	Arroyo Seco Foundation	Renovate and improve existing surface water treatment plant	-	-	-	-	-	-	-	-	NA
28	Lincoln SPS & Surrounding Streets	Arroyo Seco Foundation	Improve drainage on Loma Alta, incorporate trail improvements with Lincoln SPS	-	-	-	-	-	-	-	-	NA
29	Upper Arroy Seco Barrier Removal	Arroyo Seco Foundation	Remove barriers to fish movement, especially in area upstream of Hahamongna	-	-	-	-	-	-	-	-	NA
30	Brown Mountain Dam Removal	Arroyo Seco Foundation	Remove Brown Mountain Dam	-	-	-	-	-	-	-	-	NA
31	North East Valley Flooding Project #1	CD 6	This is the first in a series of projects that aim to improve the flooding issues in the North Eastern Part of the San Fernando Valley.	X	-	-	-	-	-	-	-	NA
32	North East Valley Flooding Project #2	CD 6	This is part of a series of flood control projects for the South Eastern Portion of the San Fernando Valley.	X	-	-	-	-	-	-	-	NA
33	North East Valley Flooding Project #3	CD 6	Project is part of series of flood control project for the North Eastern San Fernando Valley.	X	-	-	-	-	-	-	-	NA

Upper Los Angeles River Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
34	Wildwood Canyon Park	City of Burbank	The proposed recycled water pipeline extension will distribute gray water to the Wildwood Canyon Park, a California State Park. This pipeline extension will be approximately 4,000 feet long, and 6 inches in diameter. This new pipeline will connect to the existing 12-inch diameter pipeline in the DeBell Golf Course. This project may also require the installation of a booster pump to irrigate the upper portion of the park.	X	15	0	-	-	X	-	-	The most significant benefit of this project is it has the potential to increase the amount of potable water available to the city by about 15 AFY, which decreases an equal quantity of State Project Water needed, as there is a 1:1 ratio of recycled versus potable water (i.e. for every acre-foot of recycled water used, an acre-foot of State Project Water does not need to be purchased). The Park that will be served by this new pipeline is currently uses approximately 15 AFY of potable water to irrigate their landscaping. This site will benefit by having a more reliable source of potable water by using less of it, and will benefit from using recycled water because it is less expensive and its quantity is not impacted as much during drought conditions. The region will also benefit, because Burbank's reliance upon imported water sources will be reduced, making more water available for the region.
35	Studio District	City of Burbank	The "Studio District" is comprised of a series of studio facilities: The Warner Brothers Studios, Disney Studios, NBC Studios, and Foto Kem, which is involved in the film processing from the studios and from individuals. The studios will be the largest users of the recycled water in this area (Studio District); however, additional customers will also benefit from the new recycled water pipeline. These customers include St. Joseph Hospital, four schools, four parks and a library. The proposed project will consist of a pipeline that will begin with a 15,200 feet of a sixteen inch main line and 4,000 feet of a combination of 4 and 6 inch extensions to the customers. No public booster pump station will be required. The proposed alignment for the pipeline was developed to avoid having to place pipelines along Olive Avenue, which is a very heavily traveled road.	X	244	0	-	-	X	303	0	The most significant benefit of this project is it has the potential to increase the amount of potable water available to the city by about 244 AFY, which decreases an equal quantity of State Project Water needed, as there is a 1:1 ratio of recycled versus potable water (i.e. for every acre-foot of recycled water used, an acre-foot of State Project Water does not need to be purchased). The Studio District customers currently use approximately 244 AFY of potable water to irrigate their landscaping and to process film. The Studio District customers will benefit by having a more reliable source of potable water by using less of it, and will benefit from using recycled water because it is less expensive and its quantity is not impacted as much during drought conditions. The region will also benefit, because Burbank's reliance upon imported water sources will be reduced, making more water available for the region.
36	Robert Ovrum Park	City of Burbank	The proposed recycled water pipeline extension will distribute gray water to the Police/Fire building, Ovrum Park, Miller Park, and landscaping along the South San Fernando Road. The total demand for these four customers is estimated to be a minimum of 14 AFY, with a peak demand of about 40 AFY. However, Home Depot and Carmax are also in the vicinity of this new extension. The new recycled water pipeline extension will be approximately 5,700 feet long, and 6 inches in diameter. This area has already been plumbed to accept recycled water; therefore, the extension can be completed and operating quickly. In addition to the pipeline, this project may also include the installation of a booster pump station to distribute the recycled water to the Police/Fire facility.	X	14	0	-	-	X	12	0	The most significant benefit of this project is it has the potential to increase the amount of potable water available to the city by a minimum of 14 to 40 AFY, which decreases an equal quantity of State Project Water needed, as there is a 1:1 ratio of recycled versus potable water (i.e. for every acre-foot of recycled water used, an acre-foot of State Project Water does not need to be purchased). The sites that will be served by this new pipeline currently use approximately 14 to 40 AFY of potable water to irrigate their landscaping. These sites will benefit by having a more reliable source of potable water by using less of it, and will benefit from using recycled water because it is less expensive and its quantity is not impacted as much during drought conditions. The region will also benefit, because Burbank's reliance upon imported water sources will be reduced, making more water available for the region.

Upper Los Angeles River Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
37	Reclamation Equalization Basin	City of Burbank	Burbank's existing recycled water system delivers as much as 2.5 mgd of recycled water. This facility is subject to a diurnal cycle, where night flow rates are over 50% lower than daytime flows. The Equalization Basin will eliminate the existing diurnal pattern of influent flow by storing the daytime peak flows to be treated at night. Therefore, the daytime flow rates of 12 to 15 mgd and nighttime lows of 2 to 5 mgd can be redistributed and allow the existing process units to operate more reliably and efficiently and provide a constant recycled water supply of 9 to 12 mgd. The proposed Project will include the construction of an underground concrete tank which can hold 1.4 million gallons and a secondary clarifier. The project includes all of the associated piping and pumps to allow for the operation of the equalization basin. Readiness to Proceed It is anticipated that construction will begin within six months of securing the necessary funds.	X	3900	0	X	12.5	X	323	0	The water supply for the city and the region will benefit by decreasing the reliability on imported and/or groundwater resources; improving the reliability and quality of recycled water; and increasing the reliability to customers where irrigation is critical (e.g. golf courses, parks, cemeteries, landfills, and where the customer may be subject to reduced potable water delivers during drought periods). The Bay-Delta Estuary System will also benefit because it has the potential to reduce the demands for water from this system. Power reduction benefits will also be realized, because it will allow for off-peak pumping of recycled water. The project will also allow Burbank to reduce the amount of excess wastewater (potentially up to 4 MGD) that is diverted to the City of Los Angeles. This reduction of wastewater flow to Los Angeles will aid in preventing sewage overflows and will reduce the pollutant loading to the Santa Monica Bay from the Hyperion Treatment Plant.
38	Valhalla System Extension	City of Burbank	The proposed project will connect a new 2,000 foot pipeline to extend the service line to a new booster pumping station that will be installed at Ralph Foy Park to provide adequate pressures to Valhalla Memorial Park and other prospective nearby customers, and all the necessary supportive components required to operate the system. Project Readiness It's anticipated this project will begin in the Summer of 2008, after the reclamation plant is upgraded to include an equalization basin.	X	455	0	-	-	X	105	0	This project has the potential to increase the amount of potable water available to the city by 300 to 455 AFY and decrease an equal quantity of State Project Water needed, as there is a 1:1 ratio of recycled versus potable water. The Valhalla Memorial Park uses between 300 to more than 400 AFY of potable water to irrigate their grounds. Valhalla will benefit by having a more reliable source of water and better quality, since the water currently used and pumped by Valhalla from an on-site well. Many of the new customers proposed to receive the recycled water as a result of this project would also benefit from decreased water costs and have a more reliable water source even during drought conditions. The region will benefit, because Burbank's reliance upon imported water sources will be reduced, making more water available for the region.
39	Groundwater Replenishment Project	City of Burbank	A 48" dia. Replenishment Water Service Connection will be constructed at the east portal of the MWD San Fernando tunnel. Approximately 1,050 feet of pipeline, control valves, metering and telemetry equipment, and an energy dissipation structure at the discharge. Water will flow by gravity from the MWD connection through the pipeline and into the Pacoima Wash Channel. The water will be diverted downstream into the Pacoima Spreading Grounds and percolates into the San Fernando Basin. The water will be extracted from the San Fernando Basin by the existing wells that supply groundwater to the Burbank Operable Unit (BOU). Readiness to Proceed Burbank has the necessary agreements in place to construct the new service connection and to divert the water to the spreading basin to recharge the San Fernando Basin. This project is anticipated to be completed within six months of securing funding.	X	13000	0	-	-	-	-	-	This project will contribute towards the restoration of an aquifer that has been contaminated with Volatile Organic Compounds (VOC). Restoring the portions of the San Fernando Basin (SFB) contaminated with VOCs will eventually lessen the demand for imported water for the cities of Burbank, Glendale and Los Angeles, because all of these cities extract water from SFB. A restored local aquifer that could better support conjunctive use and offset importation of State Water Project water also benefits the Bay-Delta and Cal-Fed objectives by reducing the need for imported water when demand is at its highest. This project would also be beneficial in that it prevents the VOC contaminant plume from migrating to where it would reach the Los Angeles River and negatively impact the stream habitat. The City of Burbank will benefit by increasing its water supply and improving the management of its water credits to promote sufficient supplies of water are available during drought periods.
40	DCC 23	City Of Calabasas	DC – 23 – Revegetate exposed soils –probably private property, but City may have flood control maintenance easement. Small area of base soil on channel upper bank – dry site plant xeric plants and re-seed, straw or coir wattles Allow $8,000 – This area is a low priority, instability is probably associated with head of canyon fill – opposite Oakridge Terrace.	-	-	-	X	-	X	-	-	DCC 23 will reinforce bank stability and restore habitat along the banks. Habitat and flood conveyance will be improved.
41	DCC 22	City Of Calabasas	DC-22 – Stabilize headcut – Private property, but City probably has maintenance easement. Low priority, heavily wooded section w/very poor construction access – did not see site, saw eroded area w/ binoculars from Mulholland Drive. Because of poor construction access, try to stabilize headcut w/fiber rolls and willow cutting. Assume 200 l.f. of 2 fiber rolls @ = 400 l.f. at $40/l.f. = $16,000 plus $3,000 observation = $19,000.	-	-	-	X	-	X	-	-	DCC 22 will stabilize the bank and prevent erosion but the project is a low priority and has very poor construction access.
42	DCC 17	City Of Calabasas	Site 17 is roughly .5 acre (400'x50') in size, on the W side of Old Topanga Road, 1/4 mile S of its intersection with Mulholland Hwy. Streambed width approx. 10 feet. Flow rather stagnant. East bank covered with Vinca major. Excellent stream-side shading of willow, coast live oak, walnut. Debris on southwest area of the bank, including an old out-building.	X	-	-	X	-	X	-	-	At DCC 17, habitat will be moderately improved and aesthetics will be slightly improved.
43	DCC 15	City Of Calabasas	Site 15 is roughly .1 acre in size, on the N side of Mulholland Hwy, just W of its intersection with Old Topanga Canyon Road S. The area contains a concrete drainage ditch paralleling the road. A clear area roughly 50'x50' surrounds it. The adjacent creek supports healthy riparian forest.	X	-	-	X	-	X	-	-	At DCC 15, water quality and habitat will be moderately improved. Groundwater recharge and aesthetics will be slightly improved.

Upper Los Angeles River Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
44	DCC 16	City Of Calabasas	Site 16 is roughly .25 acre (130'x50') in size, on the S side of Mulholland Hwy, just W of its intersection with Old Topanga Canyon Road S. The project area is a deeply channeled segment of creek with riprap side slopes at roughly 2:1 slope, 20' long. It is flanked by a horse riding arena on one side and a dirt parking area on the other. In-stream habitat consists of very good growth of narrow-leaved cattails, willows, etc. However, some growth of castor beans, exotic vine species on west side. Area appears to be stable. The site would benefit from increased plantings and a planted buffer to intercept sediments and pollutants from adjacent uses.	X	-	-	X	-	X	-	-	At DCC16, water quality will be greatly improved. Habitat and aesthetics will be moderately improved.
45	DCC 13	City Of Calabasas	Site 13 is roughly .5 acre in size, on the SE side of Mulholland Hwy, just S of its intersection with Old Topanga Canyon Road. Creek supports large overhanging trees, Mule fat, large coast live oak, willow. Existing restoration efforts are in progress to the west of the drainage. Restoration efforts underway on the west bank (by MRT). Moderate opportunity for expansion of creek . A better site for restoration may be slightly upstream from DC-13, across the road crossing of the stream. Enhancement of riparian vegetation and stream shading may be accomplished there.	X	-	-	X	-	X	-	-	At DCC 13, habitat and aesthetics will be moderately improved. Water quality will be slightly improved.
46	DCC 10B	City Of Calabasas	DCC 10B - Fish passage barrier. Questa Engineering believes Mountain Restoration Trust may already be involved in the project. Nonetheless Questa suggests allowing $20,000 for design and inspection of minor barrier.	X	-	-	X	-	X	-	-	DCC 10B, 11, 12, 18, 20 will remove fish passage barriers, stabilize headcut and banks, repair damaged culvert, remove concrete channel sements/ restore wetlands, and monitor channel for further incision. Habitat, water quality, and flood conveyance should all be improved.
47	DCC 11	City Of Calabasas	DCC 11 – Stabilize Headcut. Upon inspection, Questa did not clearly see the channel failure. The channel is fairly small in this area. The failure appears to be 50 feet in length. So Questa assumes that 50 l.f. of Level 2 bank restoration @ $250/l.f. = $12,500. $12,500 + $1,500 field inspection = $14,000 total. Planted rock toe. O&M – Site maintenance = $5,000/year – 3 years = $15,000	X	-	-	X	-	X	-	-	DCC 10B, 11, 12, 18, 20 will remove fish passage barriers, stabilize headcut and banks, repair damaged culvert, remove concrete channel sements/ restore wetlands, and monitor channel for further incision. Habitat, water quality, and flood conveyance should all be improved.
48	DCC 12	City Of Calabasas	DCC 12 - Redesign culvert crossing. The site is on private property owned by the non-profit Mountain Restoration Trust at headwaters corner. Notes by Questa: "'Partially collapsed 54"? CMP culvert, protected by stacked concrete slabs, partial flow blockage. Replace with 10' wide x 30' pre-fabricated steel bridge. Typical bridge, including abutments, and installation is $1,000/ft. so $30,000 - allow $2,500 inspection. Total $32,500."	X	-	-	X	-	X	-	-	DCC 10B, 11, 12, 18, 20 will remove fish passage barriers, stabilize headcut and banks, repair damaged culvert, remove concrete channel sements/ restore wetlands, and monitor channel for further incision. Habitat, water quality, and flood conveyance should all be improved.
49	DCC 14	City Of Calabasas	Site 14 is roughly .75 acre in size, on the North side of Mulholland Hwy, near the intersection with Old Topanga Canyon Road, on MRT property. MRT has conceptual plans for future uses of the area, which will require planning coordination. The exact extent of the masterplan's intentions for this project is unclear. We are assuming a substantial reconstruction to near-original creek morphology is desired.	X	-	-	X	-	X	-	-	At DCC 14, the habitat will be greatly improved. Water quality, flood conveyance, groundwater recharge, and aesthetics will all be moderately improved. And public safety will be slightly improved.
50	DCC 21	City Of Calabasas	DC – 21 – Remove concrete bottom - ± 200 l.f. of concrete grouted channel within Viewpoint Primary School. Tough job – high risk of flooding and channel incision if concrete is removed. Questionable Feasibility – would need to convince school a stable channel can be built, and do work over summer. 200 l.f. x $300/l.f. = $60,000. Plus 4 days observation at $1500/day = $6,000 for total of $66,000. Probably replace concrete with open cell planting blocks, and add flood wall at top of bank. High design, communication, and permitting costs.	-	-	-	X	-	X	-	-	DCC 21 will naturalize the creek bed but at high risk of flooding and channel incision.
51	DCC 20	City Of Calabasas	DCC 20 - Monitor channel for further incision. The site is on Mountain Restoration Trust and City/State Parks land. There is some field evidence of incision. A complete topographic bed profile and cross-section survey is needed using 150' transect spacings and digital photos to compare to old records. Questa estimates this project will cost $8,000 for the survey effort, including periodic surveys at cross sections and $5,000 O&M. for resurvey.	X	-	-	X	-	X	-	-	DCC 10B, 11, 12, 18, 20 will remove fish passage barriers, stabilize headcut and banks, repair damaged culvert, remove concrete channel sements/ restore wetlands, and monitor channel for further incision. Habitat, water quality, and flood conveyance should all be improved.
52	MC 20	City Of Calabasas	MC 13-20 – Remove barrier to Fish movement – Improve/replace weirs, monitor bank erosion, stabilize bank and headcut, monitor channel instability, fix culvert angle, create/restore wetlands. This series of projects are located above or upstream of the Golf and Country Club entry at Entrada Drive. They should be completed as one group and not piecemealed. Much of the streamway is located in apparently undersized/underground culverts and there is evidence of surface flow in swale over culverts. Restoration of projects 13 – 20 could be completed either with 07-12, or as a separate phase in a different year, in late fall. Need to start the projects downstream in watershed and move upstream, not logical to fix fish passage problems at upper ends first. Planning study of $30,000 with an implementation budget as part of comprehensive golf course drainage improvement and creek restoration plan. Stream reach above Entrada is about 100 feet, so at 200 ft. is about $220,000. Total Golf Course Plan would be $60,000, with designs geared to an implementation budget of $220,000, and annual O&M costs of $10,000 for 3 years or $30,000.	X	-	-	X	-	X	-	-	NA
53	MC 21	City Of Calabasas	MC – 21-23 – Stabilize Headcut, Channel Incisions – This series of 3 projects are located on upper McCoy Creek above the Calabasas Golf and Country Club. Creek channel is apparently private in this area with difficult access through a gated community. The work would involve repair of some bank erosion by placing willow planted rock toe at 2 locations, and extending the rock across the channel bottom to create no higher than 12" above channel invert grade control. Assuming total of 120 l.f. of type 3 channel protection (willow planted rock toe) at $250/l.f. = $30,000. Two rock grade control structures at $5,000 each = $10,000. So total work is $40,000. Allow 15% inspection, or $6,000. So total construction, inspection and field engineering is estimated to be $46,000. Mobilization/access is poor.	-	-	-	X	-	X	-	-	MC 21,22,23 will stabilize bank erosion and naturalize vegetation on the banks.
54	MC 22	City Of Calabasas	MC – 21-23 – Stabilize Headcut, Channel Incisions – This series of 3 projects are located on upper McCoy Creek above the Calabasas Golf and Country Club. Creek channel is apparently private in this area with difficult access through a gated community. The work would involve repair of some bank erosion by placing willow planted rock toe at 2 locations, and extending the rock across the channel bottom to create no higher than 12" above channel invert grade control. Assuming total of 120 l.f. of type 3 channel protection (willow planted rock toe) at $250/l.f. = $30,000. Two rock grade control structures at $5,000 each = $10,000. So total work is $40,000. Allow 15% inspection, or $6,000. So total construction, inspection and field engineering is estimated to be $46,000. Mobilization/access is poor.	-	-	-	X	-	X	-	-	MC 21,22,23 will stabilize bank erosion and naturalize vegetation on the banks.
55	MC 23	City Of Calabasas	MC – 21-23 – Stabilize Headcut, Channel Incisions – This series of 3 projects are located on upper McCoy Creek above the Calabasas Golf and Country Club. Creek channel is apparently private in this area with difficult access through a gated community. The work would involve repair of some bank erosion by placing willow planted rock toe at 2 locations, and extending the rock across the channel bottom to create no higher than 12" above channel invert grade control. Assuming total of 120 l.f. of type 3 channel protection (willow planted rock toe) at $250/l.f. = $30,000. Two rock grade control structures at $5,000 each = $10,000. So total work is $40,000. Allow 15% inspection, or $6,000. So total construction, inspection and field engineering is estimated to be $46,000. Mobilization/access is poor.	-	-	-	X	-	X	-	-	MC 21,22,23 will stabilize bank erosion and naturalize vegetation on the banks.

Upper Los Angeles River Subregion Projects													
				Water Supply			Water Quality		Open Space			Other Benefits	
Project ID	Project Title	Project Proponent	Project Description	Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
56	MC 14	City Of Calabasas	MC 13-20 – Remove barrier to Fish movement – Improve/replace weirs, monitor bank erosion, stabilize bank and headcut, monitor channel instability, fix culvert angle, create/restore wetlands. This series of projects are located above or upstream of the Golf and Country Club entry at Entrada Drive. They should be completed as one group and not piecemealed. Much of the streamway is located in apparently undersized/underground culverts and there is evidence of surface flow in swale over culverts. Restoration of projects 13 – 20 could be completed either with 07-12, or as a separate phase in a different year, in late fall. Need to start the projects downstream in watershed and move upstream, not logical to fix fish passage problems at upper ends first. Planning study of $30,000 with an implementation budget as part of comprehensive golf course drainage improvement and creek restoration plan. Stream reach above Entrada is about 100 feet, so at 200 ft. is about $220,000. Total Golf Course Plan would be $60,000, with designs geared to an implementation budget of $220,000, and annual O&M costs of $10,000 for 3 years or $30,000.	X	-	-	X	-	X	-	-	MC 13-18 will improve/replace weirs, monitor bank erosion, stabilize bank and headcut, monitor channel instability, fix culvert angle, and create/restore wetlands.
57	MC 15	City Of Calabasas	MC 13-20 – Remove barrier to Fish movement – Improve/replace weirs, monitor bank erosion, stabilize bank and headcut, monitor channel instability, fix culvert angle, create/restore wetlands. This series of projects are located above or upstream of the Golf and Country Club entry at Entrada Drive. They should be completed as one group and not piecemealed. Much of the streamway is located in apparently undersized/underground culverts and there is evidence of surface flow in swale over culverts. Restoration of projects 13 – 20 could be completed either with 07-12, or as a separate phase in a different year, in late fall. Need to start the projects downstream in watershed and move upstream, not logical to fix fish passage problems at upper ends first. Planning study of $30,000 with an implementation budget as part of comprehensive golf course drainage improvement and creek restoration plan. Stream reach above Entrada is about 100 feet, so at 200 ft. is about $220,000. Total Golf Course Plan would be $60,000, with designs geared to an implementation budget of $220,000, and annual O&M costs of $10,000 for 3 years or $30,000.	X	-	-	X	-	X	-	-	MC 13-18 will improve/replace weirs, monitor bank erosion, stabilize bank and headcut, monitor channel instability, fix culvert angle, and create/restore wetlands.
58	MC 16	City Of Calabasas	MC 13-20 – Remove barrier to Fish movement – Improve/replace weirs, monitor bank erosion, stabilize bank and headcut, monitor channel instability, fix culvert angle, create/restore wetlands. This series of projects are located above or upstream of the Golf and Country Club entry at Entrada Drive. They should be completed as one group and not piecemealed. Much of the streamway is located in apparently undersized/underground culverts and there is evidence of surface flow in swale over culverts. Restoration of projects 13 – 20 could be completed either with 07-12, or as a separate phase in a different year, in late fall. Need to start the projects downstream in watershed and move upstream, not logical to fix fish passage problems at upper ends first. Planning study of $30,000 with an implementation budget as part of comprehensive golf course drainage improvement and creek restoration plan. Stream reach above Entrada is about 100 feet, so at 200 ft. is about $220,000. Total Golf Course Plan would be $60,000, with designs geared to an implementation budget of $220,000, and annual O&M costs of $10,000 for 3 years or $30,000.	X	-	-	X	-	X	-	-	MC 13-18 will improve/replace weirs, monitor bank erosion, stabilize bank and headcut, monitor channel instability, fix culvert angle, and create/restore wetlands.
59	MC 17	City Of Calabasas	MC 13-20 – Remove barrier to Fish movement – Improve/replace weirs, monitor bank erosion, stabilize bank and headcut, monitor channel instability, fix culvert angle, create/restore wetlands. This series of projects are located above or upstream of the Golf and Country Club entry at Entrada Drive. They should be completed as one group and not piecemealed. Much of the streamway is located in apparently undersized/underground culverts and there is evidence of surface flow in swale over culverts. Restoration of projects 13 – 20 could be completed either with 07-12, or as a separate phase in a different year, in late fall. Need to start the projects downstream in watershed and move upstream, not logical to fix fish passage problems at upper ends first. Planning study of $30,000 with an implementation budget as part of comprehensive golf course drainage improvement and creek restoration plan. Stream reach above Entrada is about 100 feet, so at 200 ft. is about $220,000. Total Golf Course Plan would be $60,000, with designs geared to an implementation budget of $220,000, and annual O&M costs of $10,000 for 3 years or $30,000.	X	-	-	X	-	X	-	-	MC 13-18 will improve/replace weirs, monitor bank erosion, stabilize bank and headcut, monitor channel instability, fix culvert angle, and create/restore wetlands.
60	MC 18	City Of Calabasas	MC 13-20 – Remove barrier to Fish movement – Improve/replace weirs, monitor bank erosion, stabilize bank and headcut, monitor channel instability, fix culvert angle, create/restore wetlands. This series of projects are located above or upstream of the Golf and Country Club entry at Entrada Drive. They should be completed as one group and not piecemealed. Much of the streamway is located in apparently undersized/underground culverts and there is evidence of surface flow in swale over culverts. Restoration of projects 13 – 20 could be completed either with 07-12, or as a separate phase in a different year, in late fall. Need to start the projects downstream in watershed and move upstream, not logical to fix fish passage problems at upper ends first. Planning study of $30,000 with an implementation budget as part of comprehensive golf course drainage improvement and creek restoration plan. Stream reach above Entrada is about 100 feet, so at 200 ft. is about $220,000. Total Golf Course Plan would be $60,000, with designs geared to an implementation budget of $220,000, and annual O&M costs of $10,000 for 3 years or $30,000.	X	-	-	X	-	X	-	-	MC 13-18 will improve/replace weirs, monitor bank erosion, stabilize bank and headcut, monitor channel instability, fix culvert angle, and create/restore wetlands.
61	MC 19	City Of Calabasas	MC 13-20 – Remove barrier to Fish movement – Improve/replace weirs, monitor bank erosion, stabilize bank and headcut, monitor channel instability, fix culvert angle, create/restore wetlands. This series of projects are located above or upstream of the Golf and Country Club entry at Entrada Drive. They should be completed as one group and not piecemealed. Much of the streamway is located in apparently undersized/underground culverts and there is evidence of surface flow in swale over culverts. Restoration of projects 13 – 20 could be completed either with 07-12, or as a separate phase in a different year, in late fall. Need to start the projects downstream in watershed and move upstream, not logical to fix fish passage problems at upper ends first. Planning study of $30,000 with an implementation budget as part of comprehensive golf course drainage improvement and creek restoration plan. Stream reach above Entrada is about 100 feet, so at 200 ft. is about $220,000. Total Golf Course Plan would be $60,000, with designs geared to an implementation budget of $220,000, and annual O&M costs of $10,000 for 3 years or $30,000.	X	-	-	X	-	X	-	-	NA
62	MC 20	City Of Calabasas	MC20 is vaguely defined in the master plan as "create/restore wetland." Ecologically speaking, there is ample opportunity to restore wetlands in this area, but given the constraints of the existing golf course, we recommend concentrating on a .1 acre area just upstream of the culvert under Parkway Calabasas. The area currently has scattered riprap and appears to receive significant sedimentation, which points to good potential for a treatment wetland function in this area. We added approximately 2 acres of additional surrounding landscape areas to this project because they contain large numbers of Cortaderia and Schinus. Similar issues probably exist in other landscape areas around the course and should also be addressed in other projects.	X	-	-	X	-	X	-	-	MC 20 will highly improve the water quality; moderately improve groundwater recharge and aesthetics. Habitat will also be slightly improved.
63	MC 12	City Of Calabasas	MC-09, MC-10, MC-11, 12 – Pull back banks & restore wetlands – Remove sediment and stabilize banks Calabasas Golf & Country Club. This series of restoration actions should be undertaken as part of a comprehensive drainage, stream restoration, and course alignment plan for golf course. Drainage in this area passes in and out of small underground culverts, many appear undersized, and some are under greens and fairways. Do not recommend a "piecemeal" approach to drainage and habitat improvements for this area. Because of potential impact on golf course, including playing times, revenues, and course layout revisions, this will be both technically challenging, expensive, and perhaps difficult to convince golf course owner/manager of merits. Work should probably be done in late fall to minimize impact on golf course, and perhaps stage/phase into 2 segments, with projects MC – 07 – 12 (downstream of entry at Entrada Golf Course entry) year 1 and MC - 13 – 20 upstream of entry in year 2. Costs very difficult to estimate without comprehensive Master Plan, as should perhaps be completed by a golf course architect along with some course revisions, but probably on order of $30,000 planning and conceptual design study, and budget	X	-	-	X	-	X	-	-	MC 09-12 will improve habitat and increase drainage area.

Upper Los Angeles River Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
64	MC 13	City Of Calabasas	MC 13-20 – Remove barrier to Fish movement – Improve/replace weirs, monitor bank erosion, stabilize bank and headcut, monitor channel instability, fix culvert angle, create/restore wetlands. This series of projects are located above or upstream of the Golf and Country Club entry at Entrada Drive. They should be completed as one group and not piecemealed. Much of the streamway is located in apparently undersized/underground culverts and there is evidence of surface flow in swale over culverts. Restoration of projects 13 – 20 could be completed either with 07-12, or as a separate phase in a different year, in late fall. Need to start the projects downstream in watershed and move upstream, not logical to fix fish passage problems at upper ends first. Planning study of $30,000 with an implementation budget as part of comprehensive golf course drainage improvement and creek restoration plan. Stream reach above Entrada is about 100 feet, so at 200 ft. is about $220,000. Total Golf Course Plan would be $60,000, with designs geared to an implementation budget of $220,000, and annual O&M costs of $10,000 for 3 years or $30,000.	X	-	-	X	-	X	-	-	MC 13-18 will improve/replace weirs, monitor bank erosion, stabilize bank and headcut, monitor channel instability, fix culvert angle, and create/restore wetlands.
65	DCC 07	City Of Calabasas	DCC-07 – Stabilize banks and channel – City of Calabasas channel. Local bank failure problem upstream of Park Ora Rd. 50 ft. level 3 – channel has concrete crib wall on east side, above Park Ora Rd, natural channel bank west side – 50 ft. level 3 at $300/ft = $15,000. Inspection allow $2,000 for total design and construction cost of $17,000. City responsibility as some City maintenance crew doing willow clearing – allow $5,000 O&M.	X	-	-	X	-	X	-	-	DCC 07, 09, 10 will improve bank stability, reduce flow velocity, and remove a fish barrier. Habitat, water quality, and public safety will all be improved.
66	DCC 09	City Of Calabasas	At DCC 09, the aim is reduce flow velocity in the City of Calabasas channel. There is some evidence of high velocity and channel downcutting. Questa suggests adding planted rock channel boulders and drop structure. Their estimate includes 80 l.f. + 30 l.f. = 110 l.f. x 5' of rock depth = 550 cubic feet of rock. 20.3 cu yd. x 15% expansion = 23 cu. yd. x 2.5 tons/cubic yd. = 60 tons rock, planted at $120/ton = $7,200.00 Allow $3,000 field design/inspection for total $10,200.	X	-	-	X	-	X	-	-	DCC 07, 09, 10 will improve bank stability, reduce flow velocity, and remove a fish barrier. Habitat, water quality, and public safety will all be improved.
67	DCC 10	City Of Calabasas	At DCC 10 A, the aim is to remove a fish passage barrier. At the site there is a grouted bottom and a high velocity barrier at Vicosa Drive, above Park Ora – Wrencrest Dr. – Private bridge crossing. Questa suggests removing the grouted structure, constructing a series of step pools, and fixing a failing apron base culvert. According to Questa Engineering, allow $10,000 for rock work, work on culvert and apron plus 3 drop structures/ rock weirs/ step pools at $5,000 = $15,000 = $25,000. Allow $5,000 for inspection and field direction. Total $30,000.	X	-	-	X	-	X	-	-	DCC 07, 09, 10 will improve bank stability, reduce flow velocity, and remove a fish barrier. Habitat, water quality, and public safety will all be improved.
68	DCC 08	City Of Calabasas	DCC 08 is roughly 1.25 acre in size, on the West side of Old Topanga Canyon Road, where it intersects Wrencrest Drive. There are several patches of arundo on the site (~6000sqft), with the rest of the site being a mix of bare areas and weedy species such as Conzia. An old asphalt road extends to a drainage structure in the creek. DCC08 is in a tight cluster of project points (DCC07, DCC09, and DCC10), which are being investigated by Questa Eng. It will likely be most economical to design and construct this project with the rest of the cluster. There appears to be some existing efforts to control arundo on the site.	X	-	-	X	-	X	-	-	DCC 08 will greatly improve the habitat and aesthetic appeal, moderately improve water quality, and slightly improve groundwater recharge and public safety.
69	DCC 18	City Of Calabasas	DCC 18 - Remove concrete channel segments and restore the wetlands. This is private channel behind Equestrian Facility at 23200 Mulholland Rd. Several small bridges cross creek in this area. The channel has been straightened and partially lined with loose rock walls, rock slope, and in some areas. Channel is about 500-600' long, with about 15-20% hardened or about 160 feet. Total hard structures. Channel side slopes poorly vegetated/shaded. Work would involve breaking up grouted rock areas and installing pvc pipe container openings/or joint planting willows, planting willow stakes in and around rock, and adding coir fiber rolls. Most of the work could be done by a CCC crew. Work would take 1 crew week or 5 crew days. A crew day is about $2,000, so $10,000, plus equipment rental and materials of $5,000. Allow $15,000 plus $3,000 for field engineering and inspection = $18,000. Allow $2,000/yr x 2 yrs. for O&M = $4,000.	X	-	-	X	-	X	-	-	DCC 10B, 11, 12, 18, 20 will remove fish passage barriers, stabilize headcut and banks, repair damaged culvert, remove concrete channel sements/ restore wetlands, and monitor channel for further incision. Habitat, water quality, and flood conveyance should all be improved.
70	MC 10	City Of Calabasas	MC10 is roughly .5 acres in size along 250 L.F. of McCoy Creek within the Calabasas Golf and Country Club. The master plan calls for the removal of sediment and stabilization of bank erosion. Neither problem was prominent during our visit, but the area does need restoration work. A large area on the NW bank is dominated by Pepper Trees and other exotic species. The upstream sections have relatively sparsely vegetated banks. The reach ends at a small bridge that separates this site from MC11. The creek itself apparently has low velocity in this area and is dominated by Typha. Golf play crosses this section of creek so solutions will need to accommodate line of site and ball travel.	X	-	-	X	-	X	-	-	At MC 10, plans will greatly improve water quality and moderately improve habitat and aesthetics.
71	MC 11	City Of Calabasas	MC11 is roughly .5 acre located along roughly 300 L.F. of McCoy Creek within a golf course. It is very tightly constrained by golf fairway on either side. The upstream end is defined by a culvert outlet, and the downstream end is defined by a small bridge. Both banks are actively sloughing, and portions have been reinforced by low retaining walls. Solutions will need to respect the need for a line of site for golfers over the downstream end. Vegetated buffer strips are likely to be highly beneficial for water quality.	X	-	-	X	-	X	-	-	At MC 11, plans will greatly improve the water quality, habitat, flood conveyance, and aesthetics. It will also slightly improve groundwater recharge and public safety.
72	MC 07	City Of Calabasas	MC – 07 Redesign Undersized Culvert – Calabasas Golf Course – Undersized culvert just above Calabasas Parkway – Remove and replace existing culvert with two 24" culverts. Cost of culvert installation and field engineering – $10,000. Comment: As with all projects above MC – 05, needs to be completed as part of any more comprehensive redesign of golf course drainage system. Needs to be coordinated w/golf course to minimize impact on playing time/revenues, and any modification of golf course T-/green layout	X	-	-	X	-	X	-	-	MC 07 will increase culvert's capabilities.
73	MC 08	City Of Calabasas	MC-08 – Remove Sediment – Calabasas Golf Course - Sediment has accumulated in channel along a 70-80' length and created wet boggy conditions and reduced channel capacity. For planning purposes, assume 90' length, 8' wide channel and 3' of sediment excavation = 80± cu. yds. Excavation, haul-off @ $50.00/cu.yd. = $4,000. Allow $1,200 for field inspection and $1,200 for replanting = $6,400. Comment: Low priority – see comment note in MC-07	X	-	-	X	-	X	-	-	MC 08 will improve water quality and increase channel capacity.
74	MC 09	City Of Calabasas	MC-09, MC-10, MC-11, 12 – Pull back banks & restore wetlands – Remove sediment and stabilize banks Calabasas Golf & Country Club. This series of restoration actions should be undertaken as part of a comprehensive drainage, stream restoration, and course alignment plan for golf course. Drainage in this area passes in and out of small underground culverts, many appear undersized, and some are under greens and fairways. Do not recommend a "piecemeal" approach to drainage and habitat improvements for this area. Because of potential impact on golf course, including playing times, revenues, and course layout revisions, this will be both technically challenging, expensive, and perhaps difficult to convince golf course owner/manager of merits. Work should probably be done in late fall to minimize impact on golf course, and perhaps stage/phase into 2 segments, with projects MC – 07 – 12 (downstream of entry at Entrada Golf Course entry) year 1 and MC - 13 – 20 upstream of entry in year 2. Costs very difficult to estimate without comprehensive Master Plan, as should perhaps be completed by a golf course architect along with some course revisions, but probably on order of $30,000 planning and conceptual design study, and budget	X	-	-	X	-	X	-	-	MC 09-12 will improve habitat and increase drainage area.
75	DCC 06	City Of Calabasas	Site 06 is roughly .5 acre in size, stretching along roughly 500' of Dry Creek to the south of the Park Ora Bridge. It is a straight reach constrained on both sides by crib walls. Existing habitat in the floodplain is sparse and the creek bed is slightly incised. Velocities during high flows are likely to be relatively high. The channel immediately upstream of this section has a step-pool morphology created primarily by tree roots crossing the creek.	X	-	-	X	-	X	-	-	DCC 06 will greatly improve habitat, moderately improve water quality and aesthetics, and slightly improve groundwater recharge and public safety.

Upper Los Angeles River Subregion Projects

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76	MC 05	City Of Calabasas	MC – 05 – (5a & 5b) Remove barrier to fish passage. – This is a channel segment upstream of Park Capri below Park Granada and Calabasas Parking, Countryside Financial property. There are 2 barriers, - 1 about 100 ft. upstream of Capri box culvert and the second about 50 feet below Calabasas Parkway Culvert. This is a low to medium priority project, and should be completed concurrently with other projects on Countryside Financial property. Currently no steelhead in creek or watershed. MC-05b consists of an approx. 4' drop on concrete shelf associated with Calabasas Parkway box culvert. The culvert may also have some velocity problems requiring possible installation of baffles.	X	-	-	X	-	X	-	-	MC 05 will open up fish passages and reduce downcutting.
77	MC 06	City Of Calabasas	MC – 06 – Bank instability and in-channel grade control – Countryside Financial property along Park Granada between Park Capri and Parkway Calabasas. Series of small 30-40' x 6' high local bank instability problems, and a larger –60' channel bank problem immediately downstream of Parkway Calabasas box culvert. The larger erosion problem just below Parkway Calabasas is a failed former repair as evidenced by stacked concrete slabs that have been moved, and the presence of an erosional scarp.	X	-	-	X	-	X	-	-	MC 06 will improve bank stability and will provide in-channel grade control.
78	DCC 04	City Of Calabasas	Site 04 is roughly 0.75 acre in size, stretching along roughly 400' of Dry Creek. It is located in a straight reach of the floodplain. Left bank is a mix of natural and fill slopes with high quality riparian woodland habitat. Right bank is a crib-wall with generally lower quality habitat. The creek has formed two channels in this reach. The W channel is original and has some erosion problems. City Public Works crews have been clearing weeds in this reach. Options for restoration range from complete re-meandering of the channel to just focused planting/weeding efforts. Equipment access should be possible from Park Sorrento directly into the work area.	X	-	-	X	-	X	-	-	DCC 04 will greatly improve habitat; moderately improve water quality, aesthetics, and public safety; and slightly improve groundwater recharge.
79	DCC 05	City Of Calabasas	It is unclear exactly what the master plan is referring to in this area. No major erosion problems were seen. The project is approximately .5 acres located immediately downstream from the Park Ora Rd bridge, which is the end of a long constricted reach. Velocities should inherently slow at this point. The area would benefit from basic weed eradication and riparian habitat creation, which makes it a natural extension of DCC04, which is not likely within City of Calabasas limits.	X	-	-	X	-	X	-	-	DCC 05 will greatly improve habitat, moderately improve aesthetics, and slightly improve groundwater recharge.
80	MC 04	City Of Calabasas	MC 04 is on private property. The creek corridor park is owned and managed by Calabasas Park Homeowners Assn. (CPHA). To the W are condos and to the E is open space/parkland. The creek is mostly a natural channel with some minor bank erosion problems, mainly at channel bends. Bedrock (sandstone) is exposed in some banks. Some of the banks below the condos are protected by stacked gabion baskets and rock riprap. There are several small bank erosion problems; most less than 40 feet in length with vertical banks no more than 5 - 6 feet. The two largest are about 125-150 feet long, with 6-8 foot vertical banks. The creek is shaded with large/mature oaks and could create a low flow terrace at ± 4-5' above channel.	X	-	-	X	-	X	-	-	The banks will be restored with native vegetation and the banks will be stabilized. Flood conveyance should be improved. Habitat and water quality will also be significantly improved.
81	MC 02	City Of Calabasas	MC02 is an existing 300' concrete drainage connecting a lake to McCoy Creek (~.33 acres). It is likely not a historic natural connection and is designed as an overflow channel. There is good potential to improve its appearance, and aesthetics would be the primary benefit from the project. A major constraint is the presence of a very large oak only ~10' from the channel; the channel is well within the tree's canopy and disturbance from grading could be detrimental to the long-term health of the oak. Our recommendations are below, but a more extensive alternative to the project as described would be to recreate the overflow channel in the form of a meandering channel through the wide open grassy area to the south of the oak tree. This alternative would roughly double the construction costs. Access is available through the park area.	X	-	-	X	-	X	-	-	MC 02 will moderately improve the aesthetic appeal and slightly improve the water quality and habitat.
82	MC 03	City Of Calabasas	MC03 is approximately 0.75 acres along roughly 400 L.F. of McCoy Creek, starting at the culvert/bridge and extending to the south. It is flanked closely on the west bank by housing developments, with portions of the bank protected by structural products like gabions. The east bank is relatively heavily vegetated with native riparian forest species, and leads into a wide open grassy area maintained as park land use. This reach of creek has clearly been narrowed over time, resulting in the elimination of its floodplain. This is a good opportunity to expand the riparian zone and re-establish more natural hydraulics and floodplain functionality. It will come at some degree of short-term cost in the form of impacts to existing riparian vegetation on the bank to be graded. Access is available through the park area.	X	-	-	X	-	X	-	-	MC 03 will greatly improve flood conveyance and habitat in the long term. (There will be a negative benefit in the short term.) Water quality, groundwater recharge, and aesthetic appeal will all be moderately improved. Public safety will be slightly improved.
83	MC 01	City Of Calabasas	MC01 is roughly .3 acres along 250 L.F. of McCoy Creek, immediately south of Calabasas Road. It is a highly constrained reach that would benefit from a substantial widening effort to recreate a riparian zone and floodplain. That degree of project, however, is not feasible because of existing developments up to the edge of the current banks. This reach has steep banks, at roughly 1:1, but they appear to be largely stable. It is dominated by exotic species, including Vinca major, Eucalyptus spp, and Washingtonia robusta. Access is very good from the adjacent parking lot.	-	-	-	X	-	X	-	-	MC 01 will moderately improve habitat and aesthetic appeal. Water quality will be slightly improved.
84	Flint Canyon Trail Restoration Project	City of La Canada Flintridge	Construction of a slope shoring wall and widening of an existing trail along Flint Canyon.	-	-	-	-	-	-	-	-	NA
85	Rockwood Park	City of LA CD13	East Hollywood, brownfields-like area, native plants, BMPs, .42 acres	-	-	-	-	-	-	0.42	0.42	NA
86	Echo Park Minipark	City of LA CD13	Acquisition, BMPs and native habitat landscaping of small parcel at Glendale Blvd and Montana Street.	-	-	-	X	-	-	0.125	0.125	NA
87	Community Native Plant Rescue Nursery	City of LA parks & rec, SMMC, Ricky Grubb	Community Native Plant Rescue Nursery. Basic nursery to be setup and stocked in concert with grading/grubbing of Canyon Hills site. Restoration Ecologist and Nursery person must begin planning and collection of seed from areas slated for grading soon. Facility to be setup, stocked by plants impacted during grubbing, & utilized by developer for 5 years to fulfill container stock/seed needs. Facility incl. plant inventory to be transfered to Parks & rec.,SMMC,or appropriate volunteer organization afterwords. Local volunteers are prepared to staff and run facility with help from a small paid staff, after transfer to public agency costs partially displaced by plant/seed sales, before transfer by developers fees/container stock expenses.	-	-	-	-	-	X	25	0	Detention basins and swales will incorporate transplanted trees from graded ripirian areas that would otherwise be destroyed. A wide variety of native plants, from seed to shrubs to grasses to willows and oaks and walnut trees of a variety of sizes and ages will be made available to restore natural hydrologic absorption, approximating that of the undisturbed vegititation rapidly,(within 3-5 years). Before and after runoff quantity&quality should be recorded&studied to compare effectivness of plantings on storm water retention compared to pre-developed conditions. Public access to nursery, trail, and open space should be considered in designing and siting of nursery, and access to Verdugo crestline drive trail provided at or near the nursery. Stormwater runoff should be substantially reduced to SanFernando/Sun Valley downstream.
88	Echo Park Lake Rehabilitation Project	City of LA, Department of Recreation & Parks	The project proposed to restore the retention basin so that its natural physical, biological, and chemical processes can improve water quality by maximizing pollutant removal. Project specifics include draining the lake, repairing storm drain pipes, re-designing the inlet and outlet structures, repairing the interior lining of the basin, installing a sediment forebay to remove sediments, improving the aeration and circulation system, replacing non-native vegetation with native plants along the water's edge and implementing various other Best Management Practices (BMPs) throughout the park using a treatment train approach. BMPs will be based on the latest stormwater technology and may include bioswales and permeable surfaces	-	-	-	X	-	X	-	-	NA

Upper Los Angeles River Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
89	Stream Protection Ordinance Implementation	City of Los Angeles	This project facilitates implementation of retrofit priorities of the proposed stream protection ordinance for the Ciyt of LA. Activities to include removal of infrastructure from stream channels, restoration of natural channels, raising of bridges, etc.	-	-	-	X	-	X	-	-	NA
90	Los Angeles River Revitalization Master Plan, OPPORTUNITY SITE # 20-Sears/Crown Coach	City of Los Angeles	"Sears/Crown Coach" The project will entail the acquisition of private parcels needed to create continuous trail, green space and park connections and other parallel ways that can potentially be acquired and linked to make a continuous, useable connection. The area is disconnected from the river by the Amtrak and Metra train maintenance and storage yards and may include rail consolidation and/or air rights development connections over the rail yards to connect to the river. Reconnection to a revitalized river would provide benefits for current businesses and residents and would lead to further stabilization and revitalization of the neighborhood. Development of this project will require the consolidation of freight rail sidings and the Amtrak engine maintenance yards and roundtable. The project area includes the Crown Coach brownfield site that has been vacant and underutilized for years. A major double track Amtrak train flyover structure traverses the site west of the river. The project will create: a. A continuous connection from within the neighborhood across the railroads, connecting to and across the LA River to connect neighborhoods east and west. b. A linear multi purpose trail along the river with pedestrian connections	-	-	-	-	-	-	-	-	NA
91	Los Angeles River Revitalization Master Plan, OPPORTUNITY SITE # 19-Santa Fe Warehouse	City of Los Angeles	"Santa Fe Warehouse" This project will develop trail, green space, park and land use connections from the Santa Fe Warehouse neighborhood to the LA River. The project will entail the acquisition of private parcels needed to create continuous trail, green space and park connections and other parallel ways that can potentially be acquired and linked to make a continuous, useable connection. The area is disconnected from the river by the Amtrak and Metra train maintenance and storage yards and may include rail consolidation and/or air rights development connections over the rail yards to connect to the river. Reconnection to a revitalized river would provide benefits for current businesses and residents and would lead to further stabilization and revitalization of the neighborhood.The project will create: a. A continuous connection from within the neighborhood across the railroads, connecting to the LA River b. A linear multi purpose trail along the river with pedestrian connections to adjacent neighborhoods. c. Creation of urban parkland in an area of need, nearby and connected to the LA	-	-	-	-	-	-	-	-	NA
92	Los Angeles River Revitalization Master Plan, OPPORTUNITY SITE # 18-Downtown Industrial Area	City of Los Angeles	"Downtown Industrial Area" This project will develop trail, green space, park and land use connections from the southern Boyle Heights neighborhood to the LA River through an existing mixed-use, low income residential and industrial area that is underdeveloped and disconnected by railroads and freeways. The project will affect a general area of the Boyle Heights neighborhood by virtue of reconnection to the LA River and will stimulate mixed-use, mixed-income reinvestment to add residential density, jobs and park and recreation services, facilities and parkland in an area of need. The area includes a large area (greater than 40 acres) of one story, occupied industrial lands that were previously served by numerous industrial rail spurs. These spurs have been abandoned and are not in use. The corridor along the LA River includes 6 tracks that were formerly service tracks for these rail spurs, which are currently used for train storage that does not relate to the adjoining land uses. Consolidation and potential burial or structuring of the two through tracks of rail that parallel the river could open up significant new green space, habitat, trail and park connections between an underserved neighborhood and a revitalized LA Riv	-	-	-	-	-	-	-	-	NA
93	Los Angeles River Revitalization Master Plan, OPPORTUNITY SITE # 17-Downtown Arts District	City of Los Angeles	"Downtown Arts District" The project will entail the acquisition of private parcels needed to create continuous trail, green space and park connections and other parallel ways that can potentially be acquired and linked to make a continuous, useable connection. The area is disconnected from the river by the Amtrak and Metra train maintenance and storage yards and may include rail consolidation and/or air rights development connections over the rail yards to connect to the river. Reconnection to a revitalized river would provide benefits for current businesses and residents and would lead to further stabilization and revitalization of the neighborhood. The project will create: a. A continuous connection from within the arts district across the railroads, connecting to the LA River b. A linear multi purpose trail along the river with pedestrian connections to adjacent neighborhoods. c. Creation of urban parkland in an area of need, nearby and connected to the LA River. d. The project will include re-zoning and design guidelines for multi-family, residential and commercial properties to provide	-	-	-	-	-	-	-	-	NA
94	Los Angeles River Revitalization Master Plan, OPPORTUNITY SITE # 16-Boyle Heights Connector	City of Los Angeles	"Boyle Heights Connector" This project will develop multiple trail, greenspace and park connections from the Boyle Heights neighborhood to the LA River. The project will entail the acquisition of private parcels needed to create continuous trail, green space and park connections along Cesar Chavez Blvd. and other parallel ways that can potentially be acquired and linked to make a continuous, useable connection. The Boyle Heights neighborhood is an area of need for recreation services, facilities and park space, and is the location of a high proportion of youth, low income households and households without automobiles. Reconnection to a revitalized river would provide benefits for current residents and would lead to further stabilization and revitalization of the neighborhood. The project will create: a. A continuous trail from within Boyle Heights across the Golden State Freeway, other arterials and railroads, connecting to the LA River b. A linear multi purpose trail along the river with pedestrian connections to adjacent neighborhoods. c. Creation of urban parkland in an area of need, and adjacent to the LA River. d. The project will include re-zoning and design guidelines for multi-family, residential and comm	-	-	-	X	-	-	-	-	NA
95	Los Angeles River Revitalization Master Plan, OPPORTUNITY SITE # 15-Mission Road Rail Yards	City of Los Angeles	"Mission Road Rail Yards" The relationship between river restoration, water quality enhancements, recreational enhancements and habitat creation will be determined in a public process during detailed design. The project may entail removal of substantial areas of river concrete, rail consolidation and relocation; the development of rail tunnels or structures to allow greater land area for river revitalization; and the development major redevelopment of underutilized properties in the neighborhood as a result of river revitalization. A major stormwater culvert leading from Boyle Heights traverses the site area. This culvert would be daylighted into a constructed wetland treatment facility and associated park and habitat lands to create a major natural area reconstruction and recreation opportunity in an area of recreation need. The project will create: a. Potential reconstruction of the LA River channel including concrete removal, widening, temporary or permanents of in-channel or off-channel diversions of base flows; and the development of boatable low-flow channels for recreation within the	-	-	-	X	-	-	0	100	NA
96	Los Angeles River Revitalization Master Plan, OPPORTUNITY SITE # 14-Chinatown/Cornfields Area	City of Los Angeles	"Chinatown/Cornfields Area" The relationship between river restoration, water quality enhancements, recreational enhancements and habitat creation will be determined in a public process during detailed design. The project may entail removal of areas of river concrete, rail relocation and the development of rail tunnels or structures to allow greater land area for river revitalization; and the development major redevelopment of underutilized properties in the neighborhood as a result of river revitalization. The project will create: a. Potential reconstruction of the LA River channel including concrete removal, widening, temporary or permanents of in-channel or off-channel diversions of base flows; and the development of boatable low-flow channels for recreation within the river. b. Regional-scale on site water quality treatment. c. Potential berming, installation of cisterns, or excavation in selected areas to increase flood storage. d. A linear multi purpose trail along both sides of the river with pedestrian connections to adjacent neighborhoods. e. Creation of urban parkland in an area of need,	-	-	-	X	-	-	0	200	NA
97	Los Angeles River Revitalization Master Plan, OPPORTUNITY SITE # 13-Arroyo Seco Confluence	City of Los Angeles	"Arroyo Seco Confluence" The relationship between river restoration, water quality enhancements, recreational enhancements and habitat creation will be determined in a public process during detailed design. The project will create: a. Regional-scale on site water quality treatment. b. Removal of concrete along the east bank of the LA River in araes where it is hydraulically feasible. c. Potential berming, installation of cisterns or excavation in selected areas to increase flood storage. d. A linear multi purpose trail along both sides of the river connected with a pedestrian connections across the Arroyo; and connections into adjacent neighborhoods. e. Restoration of the Arroyo bottom and banks, including potential re-establishment of meander patterns to include aquatic habitat. f. Creation of urban parkland in an area of need, and adjacent to the LA River and the Arroyo Seco. g. The project will include re-zoning and design guidelines for multi-family, residential and commercial properties to provide for the re-orientation of properties to the LA River when redevelopment occurs, and to	-	-	-	X	-	-	0	50	NA

Upper Los Angeles River Subregion Projects														
				Water Supply			Water Quality		Open Space			Other Benefits		
Project ID	Project Title	Project Proponent	Project Description	Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description		
98	Los Angeles River Revitalization Master Plan, OPPORTUNITY SITE # 12-Taylor Yards	City of Los Angeles	"Taylor Yards" The relationship between river restoration, water quality enhancements, recreational enhancements and habitat creation will be determined in a public process during detailed design. The project will create: a. Regional-scale on site water quality treatment. b. Removal of concrete along the east bank of the LA River in areas where it is hydraulically feasible. c. Potential berming, installation of cisterns or excavation in selected areas to increase flood storage. d. A linear multi purpose trail along both sides of the river connected with a new bridge across the river and potentially across the Golden State Freeway and into Elysian Park; and connections across the rail lines to the proposed state park, high school and neighborhoods east of San Fernando Road. e. Restoration of the river bottom and banks, including potential re-establishment of meander patterns to include sand and gravel beds for potential steelhead spawning, other aquatic habitat and shorebirds. f. Expansion of habitats to interconnect existing and new habitat within the river and in adjacent Elysian Park. If the project is not implemented the water quality of the river will not be improved, and the river will remain disconnected f	-	-	-	X	-	-	0	40	NA		
99	Los Angeles River Revitalization Master Plan, OPPORTUNITY SITE # 7-Ventura Boulevard	City of Los Angeles	"Ventura Boulevard" The project will provide for localized water quality treatment using filter strips adjacent to the current maintenance roads. The project will create: a. Water quality treatment strips to distribute and filter urban stormwater on both sides of the LA River b. A linear multi purpose trail along both sides of the river that will run parallel to the water quality treatment strips. c. The water quality filter strips and wetland will increase available, interconnected habitat for small mammals, insects and birds in a dense urban area. d. The project will include re-zoning and design guidelines for multi-family and residential properties to provide for the re-orientation of properties to the LA River when redevelopment occurs, and to provide public access to the river, green design standards, and water quality enhancements to private property runoff as part of redevelopment. If the project is not implemented the water quality of incoming outfalls and street ends will not be improved; and the community will continue to have inadequate access to and along the LA River.	-	-	-	X	-	-	0	10	NA		
100	Los Angeles River Revitalization Master Plan, OPPORTUNITY SITE # 8-Weddington Park	City of Los Angeles	"Weddington Park" The project will provide for subregional-level water quality treatment through the construction of "green terraces" which will remove pollutants from urban runoff prior to returning it to the river. The project will create: a. Trail connections to, along and across the LA River within the two parks. b. Vegetated "green terraces" along the river channel within the park to treat urban runoff on both sides of the LA River. c. A linear multi purpose trail along both sides of the river associated with the "green terraces." d. The vegetated terraces and wetland will increase available, interconnected habitat for small mammals, insects and birds in a dense urban area.	-	-	-	X	-	-	0	5	NA		
101	Los Angeles River Revitalization Master Plan, OPPORTUNITY SITE # 6-Tujunga Wash Confluence	City of Los Angeles	"Tujunga Wash Confluence" The project will affect approximately 40 acres of land: 2 acres of land within the site of the Tujunga Wash confluence; 28 acres of land within the creek and river channels, and 10 acres of land along the river right-of-way and the immediate linear strips of "left over" land following the outside edges of the LA River channel. The project will entail negotiation of access to approximately 5 acres of private land through easement, acquisition, or through the establishment of trail connections that are structurally cantilevered from the walls of the LA River channel for short lengths of constrained areas. The project will provide a subregional-level water quality solution, using in-channel "green terraces" and filter strips adjacent to the current maintenance road, to treat discharges from the storm sewer outfalls that daylight into the Los Angeles River as well as sheet flow from adjacent streets. The project will create: a. Water quality filter strips to distribute and filter urban stormwater on both sides of Tujunga Wash b. A linear multi purpose trail along both sides of the	-	-	-	X	-	-	0	40	NA		
102	Los Angeles River Revitalization Master Plan, OPPORTUNITY SITE # 5-Studio City - Coldwater Canyon to Whitsett	City of Los Angeles	"Studio City-Coldwater Canyon to Whitsett" The project will affect approximately 10 acres of land along the river right-of-way and the immediate linear strips of "left over" land following the outside edges of the LA River channel. The project will entail negotiation of access to approximately 2 acres of private land through easement, acquisition, or through the establishment of trail connections. The project will provide for localized water quality treatment using filter strips adjacent to the current maintenance roads. The project will create: a. Water quality filter strips to distribute and filter urban stormwater on the both sides of the river. b. A linear multi purpose trail along both sides of the river, which may be structurally cantilevered in selected locations where no additional right-of-way is available. c. The filter strips and wetland will increase available, interconnected habitat for small mammals, insects and birds in a dense urban area. d. The project will include re-zoning and design guidelines for multi-family and residential properties to provide for the re-orientation of properties to the LA River when	-	-	-	X	-	-	0	10	NA		
103	Los Angeles River Revitalization Master Plan, OPPORTUNITY SITE # 11-Verdugo Industrial Green Park	City of Los Angeles	"Verdugo Industrial Green Park" This project will create regional water quality treatment areas, and will provide substantial and needed beneficial uses including the development of riparian and upland habitat; and valuable urban open space. The project will create: a. Removal of concrete on the north bank of the LA River in areas where it is hydraulically feasible. b. Diversion of base flows of the wash into a constructed wetland that will be established by modification of the channel at the point of the confluence. c. A linear multi purpose trail along the north bank of the river with future connections to regional and neighborhood trails within Griffith Park and North Atwater Park. d. A bike/pedestrian bridge and trail connection from the site to potential trail connections across the river and the Golden State Freeway into Griffith Park. e. Expansion of habitats at the confluence. If the project is not implemented water quality will not be enhanced and the river will remain disconnected from adjacent parkland.	-	-	-	X	-	-	0	40	NA		
104	Los Angeles River Revitalization Master Plan, OPPORTUNITY SITE # 9-Spreading Grounds	City of Los Angeles	"Spreading Grounds" The relationship between river restoration, water quality enhancements, recreational enhancements and habitat creation will be determined in a public process during detailed design. The project will create: a. Regional-scale on site water quality treatment. b. Potential berming or installation of cisterns in selected areas to increase flood storage. c. A linear multi purpose trail along both sides of the river, connected to regional and neighborhood trail access at the perimeter of the basin. d. Restoration of the river bottom and banks where feasible, including potential re-establishment of meander patterns to include sand and gravel beds for potential steelhead spawning, other aquatic habitat and shorebirds. e. Expansion of habitats to interconnect existing and new habitat within the river and in adjacent Griffith Park. If the project is not implemented the water quality of the river will not be improved, and the river will remain disconnected from adjacent parkland.	-	-	-	X	-	-	0	100	NA		
105	Los Angeles River Revitalization Master Plan, OPPORTUNITY SITE # 10-Ferraro Fields	City of Los Angeles	"Ferraro Fields" The relationship between river banks, recreational facilities and habitat creation will be determined in a public process during detailed design. The project will create: a. Removal of concrete on the south bank of the LA River in areas where channel hydraulics permit. b. A linear multi purpose trail along the south bank of the river that will connect to regional and neighborhood trails within Griffith Park. c. An equestrian bridge and trail connection from the equestrian center to existing equestrian trails in Griffith Park. d. Expansion of habitats to interconnect existing and new habitat within the river and in adjacent Griffith Park. If the project is not implemented, water quality will not be improved, and the river and equestrians will remain disconnected from adjacent parkland.	-	-	-	X	-	-	0	27	NA		
106	Los Angeles River Revitalization Master Plan, OPPORTUNITY SITES# 3/4-Sepulveda Basin & Agricultural Area	City of Los Angeles	"Sepulveda Basin & Agricultural Area" The project will affect several hundred acres of land within the basin. The relationship between river restoration, water quality enhancements, recreational enhancements and habitat creation will be determined in a public process during detailed design. The project will create: a. Regional-scale on site water quality enhancements for each major tributary upstream from their individual confluences with the L.A. River. b. Potential berming in selected areas within the basin to increase flood storage. c. A linear multi purpose trail along both sides of the river, connected into regional and neighborhood trail access at the perimeter of the basin. d. Restoration of the river bottom and banks, including potential re-establishment of meander patterns to include sand and gravel beds for potential steelhead spawning, other aquatic habitat and shorebirds. e. Expansion of open channel, restored tributary habitats to interconnect existing and new habitat within the basin. If the project is not implemented the water quality of incoming outfalls and street ends will not be improved; the base	-	-	-	X	-	-	0	4500	NA		

Upper Los Angeles River Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
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107	Los Angeles River Revitalization Master Plan, OPPORTUNITY SITE # 2-Reseda Boulevard	City of Los Angeles	“Reseda Boulevard” The project will affect approximately 150 acres of land: 20 acres of land within the site of the Aliso Creek confluence and its associated electrical transmission corridor; 20 acres of land within the creek and river channels, and 20 acres of land along the river right-of-way and the immediate linear strips of "left over" land following the outside edges of the LA River channel and approximately 90 acres of land within Reseda Park and the Reseda Park High School site. Through this reach of the river, approximately 20 "street ends" approach the river, with several featuring storm drains that discharge urban runoff directly into the LA River. The project will provide regional water quality treatment within the Reseda Park and High School sites, and will provide subregional-level water quality treatment, using in-channel “green terraces” and filter strips at the edge of the current maintenance road, to treat discharges from storm sewer outfalls that daylight into the Los Angeles River and sheet flow from adjacent streets.The project will create: a. On site water quality enhancements within the high school site including collection of rooftop and pavement drainage into vegetated swales with underlying soil filtration technology.	-	-	-	X	-	-	0	150	NA
108	Los Angeles River Revitalization Master Plan, OPPORTUNITY SITE # 1-Canoga Park	City of Los Angeles	“Canoga Park” The project will affect approximately 50 acres of land: 20 acres of land within the site of the Canoga Park High School; 10 acres of land within the creek and river channels, and 20 acres of land along the river right-of-way and the immediate linear strips of "left over" land following the outside edges of the LA River channel for approximately 1/2 mile downstream of the confluence. Through this reach of the river, approximately 16 "street ends" approach the river, with several featuring storm drain pans that discharge urban runoff directly into the LA River. The project will provide a subregional-level water quality solution, using in-channel “green terraces” and filter strips adjacent to the current maintenance road, to treat discharges from the storm sewer outfalls that daylight into the Los Angeles River as well as sheet flow from adjacent streets. The project will create: a. On site water quality enhancements within the high school site including collection of rooftop and pavement drainage into vegetated swales with underlying soil filtration technology. b. Diversion of	-	-	-	X	-	-	0	50	NA
109	Montecito Heights/ Debs Park	City of Los Angeles Potential partners: County of Los Angeles, North East	The Montecito Heights Park naturalization project will create an upland native riparian edge along the Montecito Heights Park. Additional green parkway along the arroyo will be added to the existing park. The project replaces a sparsely landscaped area with native trees and plants.	-	-	-	-	-	-	0	12	NA
110	WEST SAN FERNANDO VALLEY LINEAR RIVERFRONT PARKWAY	City of Los Angeles, Bureau of Engineering	In an effort to reclaim the community access to the Los Angeles River, a 2-mile linear riverfront parkway is proposed in the West San Fernando Valley, between Mason Avenue and Vanalden Avenue. It stretches through the communities of Canoga Park, Woodland Hills, Reseda, and Tarzana, and underpasses the existing bridges at Tampa Ave, Winnetka Ave, Vanowen St and Mason Ave to avoid any interruption caused by the existing bridge abutments. The parkway would provide recreation, habitat restoration, stormwater quality improvement and interpretive enhancements. The pathway would integrate transportation safety and bikeway performance goals to serve both bicyclists and pedestrians. Lightings, aesthetic gateways, railings, signage, benches, and other civic amenities would be considered to enrich the parkway experience and reclaim community identity. The proposed work would fulfill part of the 32-mile continuous bikeway along the L.A. River as called for by the City of Los Angeles Bicycle Plan.	-	-	-	X	-	-	0	5	NA
111	Los Angeles River Revitalization Master Plan-32 Mile Channel and EasementGreening	City of Los Angeles, Bureau of Engineering	This project proposes enhancements to the existing river channel along the 32 mile reach of the Los Angeles River within the City of Los Angeles, from the river's confluence of Bell Creek and Arroyo Calabasas to Washington Boulevard just south of downtown. The project proposes modifications that will improve ecological function, treat storm runoff and enhance water quality, strengthen and connect aquatic, terrestrial and avian habitat, and provide compatible recreational opportunities. The project will reduce runoff through infiltration and storage, and encourage groundwater recharge where soils are favorable. The project will address water quality treatment through landscaping and address pollutant discharges within the watershed at the source, before they make their way to the river. A 32 mile continuous greenway, including a pedestrian path on one side of the channel and a bicycle path on the other, will be provided, creating a variety of public spaces, including small pocket parks and natural areas, while providing safe mechanisms to ensure public safety in the event of flooding.	-	-	-	-	-	-	5	0	Area Drained: 582.3 sq. mi.
112	Upper Los Angeles River Flood Control	City of Los Angeles, Bureau of Sanitation	This projects intends to reduce future flood risk by completed the plan, design, and implementation of projects in the Upper Los Angeles River Sub-Region. These projects are to relieve local flooding, improve drainage, and protect public health and property	-	-	-	-	-	-	-	-	eliminate approximately 60 problematic flooding sites
113	Dorris Place: Elysian Valley Water Quality & Open Space Project	City of Los Angeles, Bureau of Sanitation and North East Trees	For this Elysian Valley Surface Drainage Project, approximately 660 feet of riverbank will be made available for public park use and landscaped to improve recreational uses along the river. This project relocates the Sanitation Yard from Dorris Place to the old Continental Bakery site in Elysian Valley and converts the existing yard to a riverfront park. Best management practices will be used to treat its runoff. In a stretch of the river where the soft bottom channel offers a rare and vivid experience of the Los Angeles River, the project will foster the creation of continous river parkway on the river's banks. L.A. River water will be re-routed to sustain wetlands. The project will provide access to the Los Angeles River and open space.	-	-	-	X	-	X	0	5	NA
114	Moorpark Park	City of Los Angeles, County of Los Angeles	The Moorpark Park project reconfigures the existing park and adds additional area. The concrete side of the park and the bank of the Tujunga wash will be reconfigured and landscaped with live stakes. The project will also include native trees, landscaping, and walk and bike trails.	-	-	-	-	-	-	0	2	NA
115	Arroyo Seco Park	City of Los Angeles, County of Los Angeles, Caltrans, City of South Pasaden	The Arroyo Seco Park naturalization project will create a native riparian edge along the Arroyo Seco Park. The project replaces a narrow grassy area with native trees and plants (conserving water and creating a more sustainable landscape). The project is in a highly visible area seen by commuters on the newly-opened Gold Line commuter rail. The bank of the Arroyo Seco near its outlet into the Los Angeles River will be spiked with live stakes that will allow the greening of the bank without impacting the hydraulic capacity of the channel. Runoff from the existing parking lot and nearby streets will be treated using grass strips or swales.	-	-	-	X	-	X	0	3	NA
116	Legion Lane Park	City of Los Angeles, County of Los Angeles, North East Trees, Atwater Villa	Legion Lane Park will have trash control devices installed in 50 catch basins located withing the watershed. There will be more than 1,000 ft. of riverbank made available for public park use, and shall be landscaped to improve recreation and habitat uses along the Los Angeles River. The low-lying lands will be landscaped with native plants to promote habitat for hydrophilic (water loving) species. Other areas will be developed with trails to allow people to enjoy this soft-bottomed stretch of the L.A. River.	-	-	-	X	-	-	0	7	NA
117	North Branch Creek Daylighting in Sycamore Park	City of Los Angeles, County of Los Angeles, U.S. Army Corps of Engineers	The North Branch Creek was a historic tributary feeding the Arroyo Seco in Highland Park, now confined to an underground storm drain. The North Branch Creek daylighting project will enhance a portion of the existing Sycamore Park by daylighting 740 feet of the historic creek. The project offers water quality benefits by restoring natural riparian processes. It will provide habitat, restore a sense of place, and increase awareness of natural water processes. The runoff from the 1,140-acre watershed will be screened for trash before it enters Sycamore Park.	-	-	-	X	1	-	0	1	NA

Upper Los Angeles River Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
118	North Atwater Park	City of Los Angeles, County of Los Angeles, U.S. Army Corps of Engineers	This project involves the acquisition of the Recreation and Parks Forestry Yard, in order to develop additional riverfront for water quality treatment, habitat, and public open space. It would add additional wetlands, water polishing and native habitat restoration.This would be for 4 acres that are not included in other phases of this project. Phase I (restoration of the creek) is a Supplemental Environmental Program project that is being funded by the Collection System Settlement Agreement, as a result of two Clean Water Act enforcements actions. Funding has been applied for Phase II from Prop 50, Chpt. 5,(for DG pathways, decorative fencing along the river and park furniture) and from Prop 50, Chpt. 8 (plants, bridge over the creek construction, bank stabilzation and a stormceptor unit). The entire project includes a native upland wooded area, walk paths, picnic area, informational kiosk, benches, riverfront walk, and a small parking lot featuring stormwater best management practices.	-	-	-	X	-	-	0	9	NA
119	Hazard Creek and Wetland Restoration	City of Los Angeles, North East Trees	The Hazard Stream and Wetland Restoration project will restore an existing degraded remnant stream that will feed the ground water through recharge, wet flow for new wetlands, and a perennial stream during the dry months. The project will restore native Los Angeles riparian habitat, including the existing wetlands, the cattails, willows, and sycamores. Twenty five City catch basins along Soto St. will be retrofitted with trash capture devises to minimize the trash discharge into the newly restored creek and the Los Angeles River. This project will also repair a broken storm drain and naturalize it, and provide treatment to improve the quality of the stream. The project will feature native trees and shrubs, a walk and bike paths enhancing community access to the park, and bringing a natural amenity to a highly urbanized area.	-	-	-	X	-	X	0	2	NA
120	Hollenbeck Park Lake Rehabilitation Project	City of Los Angeles; Dept. of Recreation and Parks	The project proposes to restore the rentention basin so that its natural physical, biological, and chemical processes can improve water quality by maximizing pollutant removal. Project specifics include draining the lake, improving the aeration and circulation system, installing trash capture inserts in storm drains, reconstructing walking paths using permeable surfaces, installing a “smart” irrigation system, providing educational signage and kiosks identifying the water quality improvements benefits, replacing non-native vegetation with native plants along the water’s edge, and implementing various other Best Management Practices (BMPs) throughout the park using a treatment train approach. BMPs will be based on the latest stormwater technology and may include bioswales and permeable surfaces	-	-	-	X	-	X	-	-	NA
121	Taylor Yard Riverfront Park	City of Los Angeles; Dept. of Recreation and Parks	Development of a 40 acre park along the edge of the Los Angeles River that would include habitat restoration, flood storage, and passive recreational areas. Develop Upland/Lowland habitat areas, an emergent wetland basin, and a flood diversion structure and basin for peak flood storage and release. Build a nature center, walking trails, and vista points; connect to the adjacent 40 Acre Rio de Los Angeles State Park to create a unified park and recreation area. The project will reduce bacteria and nutrient loads to the LA River and help attain recreational water quality standards.	-	-	-	X	-	X	-	-	NA
122	Sycamore Grove	City of Los Angeles; Dept. of Recreation and Parks	Install cistern to collect stormwater runoff, install parking lot BMPs, treat tennis court runoff through BMPs, develop swales and retention areas in suitable areas within park to process runoff before it reaches the Arroyo, upgrade irrigation system to a “smart” system, install permeable paving (pathways) throughout site, replace existing concrete swale with bio swale	-	-	-	X	-	X	-	-	NA
123	Lincoln Park Lake Rehabilitation Project	City of Los Angeles; Dept. of Recreation and Parks	The project proposed to restore the retention basin so that its natural physical, biological, and chemical processes can improve water quality by maximizing pollutant removal. Project specifics include draining the lake, improving the aeration and circulation system, installing trash capture inserts in storm drains, reconstructing walking paths using permeable surfaces, installing “smart” irrigation system, providing educational signage and kiosks identifying the water quality improvements benefits, and implementing various other Best Management Practices (BMP) throughout the park using a treatment train approach. BMPs will be based on the latest stormwater technology and may include bioswales and permeable surfaces	-	-	-	X	-	X	-	-	NA
124	Weddington Park Expansion (2)	City of Los Angeles; Dept. of Recreation and Parks	This project proposes the acquisition of 6.24 acres of river front property along the LA River (from US-101 to Lankershim Blvd) immediately adjacent to Weddington Park. Improvements include bioswales, trash capture devices, native planting & habitat restoration, and bike/walking trails. Land is currently under the jurisdiction of the Army Corps and/or LAC Flood Control District.	-	-	-	X	-	X	-	-	NA
125	Griffith Park—Fern Dell Stream Ecosystem Restoration	City of Los Angeles; Dept. of Recreation and Parks	Stream ecosystem restoration involving the use of bioengineering applications, channel modifications, where necessary, streamflow augmentation, and the removal of invasive plants and planting of native aquatic and riparian vegetation to improve stream-side buffering, bank stability, wildlife habitat values, stormwater infiltration, and water quality through a reduction in nutrient, trash, bacterial and sediment loadings. Trails, picnicking areas and other public access and recreational improvements will be provided in proximity to the stream channel. “Smart” irrigation systems will be installed to meet the watering needs of the planted areas.	-	-	-	-	-	X	-	-	NA
126	Golf Course BMPs — Roosevelt Golf Course	City of Los Angeles; Dept. of Recreation and Parks	Installation of dry swale drainage systems throughout the golf course to replace existing concrete drainage channels for capture and infiltration of storm flows; installation of new wash rack systems at the golf course service yard with a new state-of-the art water treatment and recycling system to capture, treat and reuse mechanical equipment wash water	-	-	-	X	-	-	-	-	NA
127	Golf Course BMPs — Los Feliz Golf Course	City of Los Angeles; Dept. of Recreation and Parks	Installation of dry swale drainage systems throughout the golf course to replace existing concrete drainage channels for capture and infiltration of storm flows; installation of a new wash rack systems at the golf course with a state-of-the art water treatment and recycling system to capture, treat and reuse mechanical equipment wash water; and installation of a new smart irrigation system.	-	-	-	X	-	-	-	-	NA
128	Stormwater Upgrades at Recreation & Parks Central Service Yard (CSY)	City of Los Angeles; Dept. of Recreation and Parks	The project will conduct a detailed engineering study for Central Service Yard (CSY) and identify opportunities for capture and treatment or infiltration of stormwater at the site. Project specifics may include installing vegetated buffer strips along the LA River to capture and infiltrate surface runoff, location of a cistern on-site, capture and treating first flush, and other state of the art Best Management Practices (BMPs). The project will result in reducing pollutant loads to the LA River and help towards attainment of recreational water quality standards and TMDLs in receiving waters	-	-	-	X	-	X	-	-	NA
129	Environmental Mgmt. of Equestrian Operations – Griffith Park Pony Ride	City of Los Angeles; Dept. of Recreation and Parks	Identification and implementation of equestrian related Best Management Practices (BMPs) at the Griffith Park Pony Ride and the development of a citywide equestrian public education program in order to reduce bacteria levels in the LA River. Site specific controls will include developing BMPs for handling horse manure, installing vegetated buffer strips to capture and infiltrate surface runoff, and other BMPs. The public education program will target the equestrian community, children, and visitors to the Griffith Park area and inform them on how horses impact water quality and how impacts can be mitigated through the use of good housekeeping practices and BMPs. The project will reduce bacteria and nutrient loads to the LA River and help attain recreational water quality standards	-	-	-	X	-	X	-	-	NA
130	Golf Course BMPs — Wilson/Harding Golf Courses (Griffith Park)	City of Los Angeles; Dept. of Recreation and Parks	Installation of dry swale drainage systems throughout the golf course to replace existing concrete drainage channels for capture and infiltration of storm flows; installation of new wash rack systems at the golf course service yard with a new state-of-the art water treatment and recycling system to capture, treat and reuse mechanical equipment wash water	-	-	-	X	0.0072	-	-	-	NA

Upper Los Angeles River Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
131	Environmental Mgmt. of Equestrian Operations – LA Equestrian Center (LAEC)	City of Los Angeles; Dept. of Recreation and Parks	Identification and implementation of equestrian related Best Management Practices (BMPs) at the Los Angeles Equestrian Center (LAEC) and the development of a citywide equestrian public education program in order to reduce bacteria levels in the LA River. Site specific controls will include constructing a concrete pad and roof for on-site composting of manure, installing vegetated buffer strips to capture and infiltrate surface runoff, and other BMPs. The public education program will target the equestrian community and inform horse riders on how horses impact water quality and how impacts can be mitigated through the use of good housekeeping practices and BMPs. The project will reduce bacteria and nutrient loads to the LA River and help attain recreational water quality standards. Verification of bacteria loading will be accomplished through monitoring at select location	-	-	-	X	-	X	-	-	NA
132	Limekiln Canyon / Moonshine Canyon Restoration	City of Los Angeles; Dept. of Recreation and Parks	This project proposes the development of a system of bioswales, catch basins, and related storm water improvements to treat runoff, capture debris, and prevent sediment buildup and flooding. Refurbish Limekiln Canyon Creek streambed to include bioswales, native landscaping, passive recreational improvements, trails improvements, and naturalized habitat. Stabilize canyon slopes and develop runoff culverts and channels to mitigate future slope erosion.	-	-	-	X	-	X	-	-	NA
133	Golf Course BMPs — Encino/Balboa Golf Courses (Sepulveda Basin)	City of Los Angeles; Dept. of Recreation and Parks	Installation of dry swale drainage systems throughout the golf course to replace existing concrete drainage channels for capture and infiltration of storm flows; installation of new wash rack systems at the golf course service yard with a new state-of-the art water treatment and recycling system to capture, treat and reuse mechanical equipment wash water	-	-	-	X	0.0072	-	-	-	NA
134	Sepulveda Basin-Encino & Bull Creeks & Haskell & Havenhurst Channels Rest.	City of Los Angeles; Dept. of Recreation and Parks	Stream ecosystem restoration involving the use of bioengineering applications, channel modifications, where necessary, and the removal of invasive plants and planting of native aquatic and riparian vegetation to improve stream-side buffering, bank stability, wildlife habitat values, stormwater infiltration, and water quality through a reduction in nutrient, trash, bacterial and sediment loadings. Trails, picnicking areas and other public access and recreational improvements will be provided in proximity to the stream channel. “Smart” irrigation systems will be installed to meet the watering needs of the planted areas	-	-	-	-	-	X	-	-	NA
135	Stormwater Upgrades at LADRP’s Valley Region Headquarters	City of Los Angeles; Dept. of Recreation and Parks	The project will conduct a detailed engineering study at the Valley Regional Headquarters Maintenance and Service Yard to identify opportunities for stormwater infiltration, capture and/or treatment. Project specifics may include installing vegetated buffer strips to capture and infiltrate surface runoff, location of a cistern on-site, capture and treating first flush, and other state of the art Best Management Practices (BMPs). The project will result in reducing pollutant loads to the LA River and help towards attainment of recreational water quality standards and TMDLs in receiving waters	-	-	-	X	-	X	-	-	NA
136	Reseda Lake Rehabilitation Project	City of Los Angeles; Dept. of Recreation and Parks	The project proposes to restore the rentention basin so that its natural physical, biological, and chemical processes can improve water quality by maximizing pollutant removal. Project specifics include draining the lake, improving the aeration and circulation system, installing trash capture inserts in storm drains, reconstructing walking paths using permeable surfaces, installing a “smart” irrigation system, providing educational signage and kiosks identifying the water quality improvements benefits, replacing non-native vegetation with native plants along the water’s edge, and implementing various other Best Management Practices (BMPs) throughout the park using a treatment train approach. BMPs will be based on the latest stormwater technology and may include bioswales and permeable surfaces	-	-	-	X	-	X	-	-	NA
137	Golf Course BMPs — Woodley Lakes Golf Course (Sepulveda Basin)	City of Los Angeles; Dept. of Recreation and Parks	Installation of dry swale drainage systems throughout the golf course to replace existing concrete drainage channels for capture and infiltration of storm flows; installation of new wash rack systems at the golf course service yard with a new state-of-the art water treatment and recycling system to capture, treat and reuse mechanical equipment wash water	-	-	-	X	0.0072	-	-	-	NA
138	Orcutt Ranch Park—Dayton Creek Ecosystem Restoration	City of Los Angeles; Dept. of Recreation and Parks	Stream ecosystem restoration involving the use of bioengineering applications, channel modifications, where necessary, and the removal of invasive plants and planting of native aquatic and riparian vegetation to improve stream-side buffering, bank stability, wildlife habitat values, stormwater infiltration, and water quality through a reduction in nutrient, trash, bacterial and sediment loadings. Trails, picnicking areas and other public access and recreational improvements will be provided in proximity to the stream channel. “Smart” irrigation systems will be installed to meet the watering needs of the planted areas	-	-	-	-	-	X	-	-	NA
139	Mid Valley Senior Citizen Center	City of Los Angeles; Dept. of Recreation and Parks	Installation of the following: Stormwater BMPs (including parking lot, swales/infiltration areas), smart irrigation system, passive recreation, harvesting of rain water from new senior citizen center building	-	-	-	X	-	X	-	-	NA
140	Chatsworth Park (South) Stormwater Enhancement (2)	City of Los Angeles; Dept. of Recreation and Parks	This project proposes to restore the existing streambed and develop other improvements including bioswales, trash capture devices, landscaping, trails, and picnic areas. Design storm water improvements to capture debris, prevent localized flooding, and promote infiltration.	-	-	-	X	-	X	-	-	NA
141	Golf Course BMPs — Hansen Dam Golf Course	City of Los Angeles; Dept. of Recreation and Parks	Installation of dry swale drainage systems throughout the golf course to replace existing concrete drainage channels for capture and infiltration of storm flows; installation of new wash rack systems at the golf course service yard with a new state-of-the art water treatment and recycling system to capture, treat and reuse mechanical equipment wash water	-	-	-	X	0.0072	-	-	-	NA
142	Environmental Mgmt. of Equestrian Operations – Hansen Dam Equestrian Center	City of Los Angeles; Dept. of Recreation and Parks	Identification and implementation of equestrian-related Best Management Practices (BMPs) at the Hansen Dam Equestrian Center and surrounding trails, and the development of an equestrian public education program. The purpose of the project is to reduce bacteria levels in the LA River. Project specifics include developing BMPs for handling horse manure, installing vegetated buffer strips to capture and infiltrate surface runoff, and other BMPs. The public education program will target the equestrian community, trail users and visitors to the Hansen Dam Recreation area and inform them on how horses impact water quality and how impacts can be mitigated through the use of good housekeeping practices and BMPs. The project will reduce bacteria and nutrient loads to the LA River and help attain recreational water quality standards.	-	-	-	X	-	X	-	-	NA
143	Aliso Canyon Park Stream Ecosystem Restoration	City of Los Angeles; Dept. of Recreation and Parks	Stream ecosystem restoration involving the use of bioengineering applications, channel modifications, where necessary, and the removal of invasive plants and planting of native aquatic and riparian vegetation to improve stream-side buffering, bank stability, wildlife habitat values, stormwater infiltration, and water quality through a reduction in nutrient, trash, bacterial and sediment loadings. Trails, picnicking areas and other public access and recreational improvements will be provided in proximity to the stream channel. “Smart” irrigation systems will be installed to meet the watering needs of the planted areas.	-	-	-	-	-	X	-	-	NA
144	Asphalt Plant at Pacoima Wash	City of Los Angeles; Dept. of Recreation and Parks	Installation of the following: Stormwater BMPs (including parking lot, swales/infiltration areas), smart irrigation system, active/passive recreation, synthetic turf fields, interception of water from wash for irrigation, interpretive signage (particularly regarding wash). Site currently drains to Pacoima Wash	-	-	-	X	-	X	-	-	NA
145	O’Melveny Park/Bee Canyon Park Stream Ecosystem Restoration	City of Los Angeles; Dept. of Recreation and Parks	Stream ecosystem restoration involving the use of bioengineering applications, channel modifications, where necessary, and the removal of invasive plants and planting of native aquatic and riparian vegetation to improve stream-side buffering, bank stability, wildlife habitat values, stormwater infiltration, and water quality through a reduction in nutrient, trash, bacterial and sediment loadings. Trails, picnicking areas and other public access and recreational improvements will be provided in proximity to the stream channel. “Smart” irrigation systems will be installed to meet the watering needs of the planted areas	-	-	-	-	-	X	-	-	NA
146	Taylor Yard	Coastal Conservancy	Implementation of a multi-objective enhancement of the Taylor Yard site focusing on potential flood management, wetland habitat, passive recreation and other uses of the property.	X	-	-	-	-	-	-	-	Flood Mgt

Upper Los Angeles River Subregion Projects

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147	Arroyo Seco Watershed Restoration Feasibility Study	Coastal Conservancy	Implementation of the Arroyo Seco Watershed Restoration Feasibility Study.	X	-	-	X	-	X	-	-	Flood Mgt, Ground water recharge
148	Crescenta Valley County Park Multiuse Project	Crescenta Valley Water District	The Crescenta Valley County Park Multiuse Project will convert portions of Crescenta Valley County Park for stormwater capture for groundwater recharge, water conservation education, and recreational multi-use. The project has been developed as the result of an in-depth feasibility study performed by Crescenta Valley Water District (CVWD), in conjunction with a Technical Advisory Committee (TAC) of many area stakeholders, conducted the Verdugo Basin Groundwater Recharge, Storage, and Conjunctive Use Feasibility Study. The Feasibility Study, funded by a California Department of Water Resources Local Groundwater Assistance Grant, included development of a detailed water balance for the area and use of a groundwater flow model to better understand groundwater and water supply conditions in the area. The Feasibility Study included a conceptual design for the Project and identification of key environmental and construction permits that will be needed. The project has the full support of the land owner (Los Angeles County Department of Parks and Recreation), and members of the TAC. The Project will include diverting storm water and dry-season urban runoff in existing concrete flood cont	-	0	350	X	-	-	0	16	Flood Mgt.
149	Biomonitoring pilot project	LA Trails	Assess the feasibility of using biomarkers and biomonitoring as indicators of environmental change. 200 Abstract of Study to compare effacacy of standard tests vs. biomonitor test and electronic sensors to pinpoint incident location.	-	-	-	X	-	X	-	-	Continuous monitoring in channels locate source of events
150	Equine Facilities BMP Education Outreach	LA Trails Project	The equestrian Community is a frequent user along river washes. There may be some benefits for frequent visits that are not recognized by water management agencies, and that is the improved visibility gained from riding horseback. The equestrian community is often the first to note degradation in the water quality and can help to identify non-point sources of pollution because of the routes they travel. Propose to implement a similar project to the RCD document used in the Marin and San Francisco Bay area for the control of e.coli contamination from horse manure. Project BMP will include an EPA approval for the construction of on-site manure bunkers that do not contribute to non-point source pollution and management practices	-	-	-	-	-	-	-	-	NA
151	Wildlife Waystation - Zoo Poo	LA Trails Project	Waystation Septic System upgrade to prevent e.coli contamination of Little Tujunga Creek from exotic animals	-	-	-	-	-	-	-	-	NA
152	San Fernando Road Rail wtih Trail	LA Trails Project	Suggest adding Reclaimed Water Pipeline for landscape watering along Southern California Regional Rail Authority for landscape use.	-	-	-	-	-	-	-	-	NA
153	Haines Canyon Creek River Walk	LA Trails Project	Open concrete channel between Commerce Street and McGroarty Arts Center to provide an alternate route from Foothill Blvd. Opportunity for the development of approximately 660 feet of riverbank available for public use and education on the importance of keeping trash out of the channel.	-	-	-	-	-	-	-	-	NA
154	Wentworth Tunnel Sedimentation Overflow Diversion	LA Trails Project	Create infiltration area and restore habitat on land that was used as a staging area for near by housing development.	-	-	-	-	-	-	-	-	NA
155	Haines Debris Basin Habitat Restoration	LA Trails Project	Remove sediment and widen debris basin that has filled because of fire deforestation. Plant native species trees to effectively manage stormwater runoff and control sediment. Site is currently favored by herons, and a watering hole for mammals some unidentified fish restore trailhead for historic “graveyard” trail that connects to Big Tujunga Canyon – Rim of the Valley Trail (see State Public Resources Code) & Santa Monica Mountains Conservancy	-	-	-	X	-	X	-	-	NA
156	Wheatland Vista Trailhead	LA Trails Project	Habitat, Signage and trail alignment has been degraded by flooding, use as a “Haul Route” for past ACOE Channelization Projects and construction of 210 Freeway across the Big Tujunga Wash.. Big Tujunga Wash has been Channelized and narrowed and stream bank is contaminated and allows entrance by vehicles which is prohibited by County. Revegitation of the area, would decrease erosion of the wash and reduce sediment transport into Hansen Dam. It would improve Recreational Acess and signage would help control the number of bicycles and motorcycles using the route.	-	-	-	-	-	X	-	-	DWP easement All Land in public Domain
157	Kagel-Little Tujunga-Big Tujunga Confluence Bank Restoration Project	LA Trails Project	Upstream diversion and imported fill by private landowners has narrowed the Little Tujunga Creek to dangerous proportions and contaminated the stream bank with pollutants and foreign materials. Area affected is 15 acrea along the blue line stream that needs restoration and recontouring to reduce the damage done by non-permitted alteration of the blue line streams in this area	-	-	-	-	-	-	-	-	NA
158	Doane Canyon River Outdoor Education Area	LA Trails Project	Joint use project with LAUSD and Tujunga Watershed Council to provide a staging area in the Big Tujunga Wash at beginning of ACOE Channelization.	-	-	-	-	-	-	-	-	Area Drained is 151 square miles
159	Hansen Dam Grasslansd/Walnut Woodland Restoration Raptor Hunting Ground	LA Trails Project	Restore original “fanhead” configuration at the confluence of Big and Little Tujunga Creeks in the Hansen Dam Flood Control Basin. Extreme channelization after the building of the 210 freeway has led to sediment transport into Hansen Dam, reducing its Flood Control Capability.	-	-	-	-	-	-	-	-	NA
160	Indian Canyon/Lopez Landfill Trail HEad Wildlife Corridor	LA Trails Project	“Naturalize” a debris basin and create habitat in the area while improving groundwater recharge and widening the stream bed. Improve Location of Rim of the Valley Trail Head connecting Lopez, Kagel, Little Tujunga and Big Tujunga Canyon and Hansen Dam.	-	-	-	-	-	-	-	-	NA
161	NRCS Nursery Stock Project	LA Trails Project	One of the major costs to stream bank restoration is the high cost for California Native Plants. Through the USDA and the Antelope Valley RCD, which include portions of the City of Los Angeles, a project to locally grow California Natives using the expertise of the AV Nursery crew and locating the growing area on the Lopez Canyon Landfill will accomplish multiple objectives. 1- provide native plants for restoration projects 2- provide a testing ground for native plants grown as control and test subjects for reclaimed water 3- provide an educational forum for nursery students at San Fernando Mission College 4- provide cover and greening for the Lopez Landfill which is closed and undergoing restoration 5- expand the goals and objectives for the recycling project on site.	-	-	-	-	-	-	-	-	NA
162	Olive View Edison Infiltration Demonstration Area	LA Trails Project	Develop infiltration basins	-	-	-	-	-	-	-	-	NA
163	Big Tujunga Upland 123 Acres Graveyard Trail	LA Trails Project	Big Tujunga will provide habitat, passive recreation and groundwater infiltration in a private inholding area within the Angeles National Forest. This area is threatened with high density development and loss of infiltration, increased ACOE channelization and habitat destruction.	-	-	-	-	-	-	-	-	NA
164	Lopez Canyon Greenwaste Facility Operation Conversion to Reclaimed Water	LA Trails Project/LADWP	Suggest an additonal alternative end use to existing project 174	-	-	-	-	-	-	-	-	NA
165	Kagel Canyon Water Dsitrict El Merrie Dell Infiltration Area	LA Trials Project	Develop infiltration basins	-	-	-	-	-	-	-	-	NA
166	Sheldon Pit Water Transfer (Existing Project 235 & 276)	LACDPW	Suggest adding the Valley Economic Development Center and Community Redevelopment Agency (Sun Valley Renaissance) to partners involved	-	-	-	-	-	-	-	-	NA

Upper Los Angeles River Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
167	Antelope Valley Farms Phase III	LACSD	Implementation of Jan 2001 Farm Management Plan for a 4 sq. mile land application and reuse site.	-	0	6700	-	-	-	-	-	NA
168	Castaic Lake Water Agency	LACSD	Implementation of Castaic Lake Water Agency's recycled water master plan.	-	0	8600	-	-	-	-	-	NA
169	City of Lancaster – Division Street	LACSD	Construction of pipeline and storage to serve urban users in the City of Lancaster along Division Street.	-	0	1100	-	-	-	-	-	NA
170	San Fernando Basin Management Plan	LADWP	Develop and maintain a master plan for the San Feranado basin establishing operation objectives and remedies. Project and capital improvements for the basin include the Pacoima area Groundwater, nitrate facilities at Tujunga, and the North Hollywood Wellfield restoration.	X	-	-	-	-	-	-	-	NA
171	Elysain Reservoir Water Quality Improvement Project	LADWP	Cover Elysian or provide covered storage facilites for the existing open reservoir.	-	-	-	X	-	-	-	-	NA
172	Central City/ Elysian Park	LADWP	18,000 feet of pipeline, pumping station, and tank to deliver recycled water from the LA-Glendale Plant to Elysian Park, Taylor Yard, and other users along the route.	X	1000	0	-	-	-	-	-	NA
173	Pollock Wells Ammoniation Station	LADWP	Plan, design and construct the Pollock Wells Ammoniation Station to add aqua ammonia to form a chloramine residual disinfectant in the water being supplied to customers via the Pollock Wells Treatment Plant.	-	-	-	X	-	-	-	-	NA
174	Headworks Wetlands	LADWP	Project will restore native vegetation at a 40+ acre site (Headworks Spreading Grounds) that will feature an uplands meadow habitat area (atop an underground water storage tank) and a low lying wetlands area	-	-	-	X	-	X	40	0	NA
175	Silverlake Reservoir Water Quality Improvement Project	LADWP	Construction of a 110 MG buried reservoir along with a 4 MW hydroplant at the former Headworks Spreading Grounds along with 4900 feet of a by-pass tunnel and regulating station around Silver Lake Reservoir.	-	-	-	X	-	-	-	-	NA
176	Sepulveda IV Water Recycling Project	LADWP	Construct 14,000 feet of pipeline to deliver recycled water from the Tillman Plant to users within the Sepulveda Basin. Phases 1-3 connected the 3 existing golf courses (Woodley, Balboa, Encino) within the Sepulveda Basin.	X	0	8000	-	-	-	-	-	NA
177	South Valley Water Recycling Project	LADWP	30,000-40,000 feet of pipeline to deliver recycled water from the Tillman Plant to Pierce College, MTA, LAUSD schools and other users along the route.	X	0	500	-	-	-	-	-	NA
178	North Hollywood Well Field	LADWP	The North Hollywood (NH) Project will add up to eight new NH wells, each with a capacity of approximately 8 cfs to increase the NH Well Field capacity by a net 64 cfs.	X	-	-	-	-	-	-	-	NA
179	Centralized Groundwater Treatment - San Fernando Basin	LADWP	Centralized groundwater treatment (100+ cfs) for VOCs and other contaminants at LADWP's North Hollywood Pumping Station Complex for potable use	-	-	-	-	-	-	-	-	Project will treat contaminated groundwater and increase the City's groundwater production by 100+ cfs allowing for improved management of the San Fernando Basin and better utilization of our local water resources
180	North Hollywood Wells Ammoniation Station	LADWP	Plan, design and construct the North Hollywood Ammoniation Station to add aqua ammonia to form a chloramine residual disinfectant in the water being supplied to customers via the North Hollywood Pumping Station Complex.	-	-	-	X	-	-	-	-	NA
181	Tujunga Spreading Grounds Sheldon-Arleta Project (Phase I)	LADWP	Project proposes to renovate the landfill gas collection system at the Sheldon-Arleta Landfill and restore the historic spreading capacity of the Tujunga Spreading Grounds	X	5000	0	X	-	X	0	41	NA
182	Tujunga Wells Ammoniation Station	LADWP	Plan, design and construct the Tujunga Wells Ammoniation Station to add aqua ammonia to form a chloramine residual disinfectant in the water being supplied to customers via the Tujunga Pumping Station.	-	-	-	X	-	-	-	-	NA
183	Hansen Tank	LADWP	Construct 2,000 feeet of pipeline and a 7 million gallon tank to store recyled water from the Tillman Plant for deliveries to the Valley Generating Station and other users in the Sepulveda Basin.	X	0	6400	-	-	-	-	-	NA
184	Boulevard Pit Water Transfer	LADWP	Suggest adding the Valley Economic Development Center and Community Redevelopment Agency as possible partners to facilitate property acquisition. Possible contiguous site for #51st Agricultural District Fairgrounds	-	-	-	-	-	-	-	-	40 Acres next door for sale
185	Recycled Water Groundwater Recharge Feasibility Study	LADWP	Project will determine technical feasibility and public acceptance of using advanced treated recycled water for groundwater recharge in the east San Fernando Valley	X	0	33600	-	-	-	-	-	NA
186	Modifications at LA-33	LADWP	Plan, design and construct pipeline and possible metering and chlorination/chloramination facilities to improve the operation of the MWD LA-33 connection at De Soto Reservoir; consider DBP's in any improvements; involves West Valley Feeder No. 1 agreement.	-	-	-	-	-	-	-	-	NA
187	Hansen II Water Recycling Project	LADWP	Construct 32,000 feet of pipeline, pumping station and tank to deliver recycled water from the Tillman Plant to the hansen recreation Area and other users along the route. Water will be pumped from the Hansen Tank.	X	0	1380	-	-	-	-	-	NA
188	Granada Hills Reservoir Water Quality Improvement Project	LADWP	Plan, design, and construct Granada Hills Reservoir at the Van Norman Complex.	-	-	-	X	-	-	-	-	NA
189	Van Norman Chloramination Station 1	LADWP	Plan, design and construct the Van Norman Chloramination Station No. 1 to add aqua ammonia and chlorine to form a chloramine residual disinfectant in the water being supplied to customers via the Los Angeles Reservoir Bypass Line and the Van Norman Pumping Station No. 2.	-	-	-	X	-	-	-	-	NA
190	Van Norman Chloramination Station 2	LADWP	Plan, design and construct the Van Norman Chloramination Station No. 2 to add aqua ammonia and chlorine to form a chloramine residual disinfectant in the water being supplied to customers via the Los Angeles Reservoir Outlet Line.	-	-	-	X	-	-	-	-	NA
191	Mission Well Field Rehabilitation	LADWP	Project will construct three new production wells at LADWP's Mission Well Field in the Sylmar Basin to enhance the production capacity of the well field, and to improve operational reliability and flexibility	-	-	-	-	-	-	-	-	The new wells will allow for increased production capacity if implementation of BMPs increase the safe yield of the Sylmar Basin
192	Mission Wells Ammoniation Station	LADWP	Plan, design and construct the Mission Wells Ammoniation Station to add aqua ammonia to form a chloramine residual disinfectant in the water being supplied to customers via the Mission Wells Pumping Station.	-	-	-	X	-	-	-	-	NA
193	Arsenic Removal Los Angeles Aqueduct	LADWP	Plan, design and construct facilities to remove arsenic in LA Aqueduct supply as required to meet upcoming EPA and DHS standards.	-	-	-	X	-	-	-	-	NA
194	Bull Creek-Los Angeles Reservoir Water Quality Improvement Project	LADWP	Plan, design, and construct storm drainage facilities and potable water pipeline improvements to comply with water quality regulations at LA Reservoir.	-	-	-	X	-	-	-	-	NA
195	Los Angeles Aqueduct Filtration Plant Enhanced Coagulation	LADWP	The project at the VN Res complex includes the construction of chem and mix facilities and sedimentation basins upstreams of the LAAFP, and diversion works to reroute water along the existing low speed channel.	-	-	-	X	-	-	-	-	NA
196	Los Angeles Reservoir North/South Water Quality Improvement Project	LADWP	Plan, design, and construct Los Angeles Reservoir North and Los Angeles Reservoir South. These reservoirs will be formed by constructing the Los Angeles Reservoir Division Dam to split the current Los Angeles Reservoir into two basins. The reservoirs will include floating covers. This is the final phase of the LA Reservoir Project.	-	-	-	X	-	-	-	-	NA
197	Central LA County - Regional Water Recycling Program	LADWP, FMWD, PWP, and GWP	Regional Expansion of recycled water system; to be supplied by the Los Angeles-Glendale Water Reclamation Plant to replace potable water consumption.	X	6100	0	-	-	-	-	-	NA
198	Powerline Easement Project	LADWP/County	Project proposes to capture and infiltrate stormwater beneath existing LADWP power line easements for groundwater recharge and TMDL compliance	X	0	1000	X	-	X	-	-	NA
199	Tujunga Spreading Grounds Optimization	LADWP/County	Project proposes to optimize the recharge capacity of the spreading grounds by modernizing and automating the existing intake structures and reconfiguring the spreading basins to increase retention capacity	X	2000	5000	X	-	X	-	-	NA

Upper Los Angeles River Subregion Projects

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200	Tujunga Spreading Grounds-Pacoima Channel Integration	LADWP/County	Project proposes to divert water from the Pacoima Channel into the Tujunga Spreading Grounds for recharge	X	2000	5000	X	-	X	-	-	NA
201	Sheldon Pit	LADWP/County	Acquire and develop Sheldon Pit into a multi-use retention and infiltration facility to enhance stormwater conservation	X	0	6000	X	-	X	-	-	NA
202	Boulevard Pit	LADWP/County	Acquire and develop Boulevard Pit into a multi-use retention and recharge facility to enhance stormwater conservation	X	-	-	X	-	X	-	-	NA
203	Hansen Spreading Grounds Optimization	LADWP/County	Project proposes to optimize the recharge capacity of the spreading grounds by modernizing and automating the existing intake structures and reconfiguring the spreading basins to increase retention capacity	X	-	-	X	-	X	-	-	NA
204	Pacoima Spreading Grounds Optimization	LADWP/County	Project proposes to optimize the recharge capacity of the spreading grounds by modernizing and automating the existing intake structures and reconfiguring the spreading basins to increase retention capacity	X	2000	3000	X	-	X	-	-	NA
205	Valley Generating Station	LADWP/County	Project will capture the stormwater runoff from LADWP's Valley Generating Station for infiltration	X	100	0	X	-	X	-	-	NA
206	Sun Valley Residential Retrofit	LASGR Watershed Council, City of LA WPD	This project will demonstrate how low impact development strategies can be applied to existing urban infrastructure to address runoff management, water conservation, pollution reduction and treatment, flooding, and habitat restoration by retrofitting a residential street with state of the art Best Management Practices for stormwater infiltration and reuse. The selected neighborhood is in Sun Valley.	X	7	0	X	-	X	-	-	limited runoff capture for reuse (e.g. roof runoff from homes)
207	Altadena Crest Trail Restoration	Los Angeles County	Provide a continuous foothills trail from the Arroyo Seco to Eaton Canyon for recreation and preservation of land. The trail exists in pieces; the goal is a continuous 12 mile trail.	-	-	-	-	-	X	-	-	12.4 Miles of Continuous Trail
208	Pacoima Spreading Grounds Improvements	Los Angeles County Flood Control District	Replace existing Pacoima Diversion Channel radial gate with a rubber dam; install telemetry; install trash rack and updated flow measurement instrumentation at intake works; replace existing open channel at headworks with buried drains; install vertical trench drains in spreading basin bottoms to enhance percolation; enhance landscaping around the perimeter of the facility.	X	100	100	-	-	-	-	-	Aesthetics 1.5 Miles
209	Brookside Area Channel Naturalization	Los Angeles County Flood Control District	Cover the Arroyo Seco Channel and create a naturalized low flow streamcourse through Brookside Golf Course.	-	-	-	-	-	-	-	-	NA
210	Browns Creek SPS Enhancement	Los Angeles County Flood Control District	Enhance an existing sediment placement site with native trees and plants.	-	-	-	-	-	-	-	-	NA
211	Limekiln Debris Basin Wetland Corridor	Los Angeles County Flood Control District	Development of a wetlands along the park area for water quality enhancements, habitat restoration, and public education.	-	-	-	-	-	-	23	0	NA
212	Lincoln SPS Multiuse Development	Los Angeles County Flood Control District	Improving aesthetics, enhancing habitat, and developing a horse and hiking trail in the Lincoln Sediment Placement Site area.	-	-	-	-	-	-	-	-	NA
213	Los Angeles River Headwaters, Phase 2	Los Angeles County Flood Control District	Development of a multipurpose trail, fence improvements, native landscaping, and educational components along Bell and Calabasas Creeks at the Los Angeles River Headwaters.	-	-	-	-	-	-	-	-	NA
214	Los Angeles River Headwaters, Phase I	Los Angeles County Flood Control District	Development of a native landscaped greenway and bikeway along both sides of the Los Angeles River at its headwaters. Project includes construction of a pedestrian bridge over Browns Creek near its confluence with the Los Angeles River.	-	-	-	-	-	-	-	-	NA
215	Los Angeles River Trash TMDL - Full Capture BMPs	Los Angeles County Flood Control District	Install full capture trash capture devices within the storm drain conveyance system to prevent trash from entering the Los Angeles River and major tributaries, in compliance with the Los Angeles River Trash TMDL.	-	-	-	-	-	-	-	-	NA
216	Lower Arroyo Park Channel Naturalization	Los Angeles County Flood Control District	Naturalization of the Arroyo Seco Channel within Lower Arroyo Park while maintaining existing levels of flood protection.	-	-	-	-	-	-	-	-	NA
217	Nichols SPS Enhancement	Los Angeles County Flood Control District	Development of a multiuse project at the Aqua Vista Sediment Placement Site, located on the north side of the Los Angeles River west of Lankershim Boulevard. Project site will serve as a dewatering basin and sediment placement site with native lands	-	-	-	-	-	-	-	-	NA
218	Pacoima Wash Landscaping Enhancements	Los Angeles County Flood Control District	Enhancing the Pacoima Wash right of way with native plantings and passive recreational amenities	-	-	-	-	-	-	-	-	NA
219	Pacoima Wash Pedestrian Access Bridge at 210 Freeway	Los Angeles County Flood Control District	Development of a pedestrian access bridge connecting communities on both sides of the wash.	-	-	-	-	-	-	-	-	NA
220	Studios Network Greenway	Los Angeles County Flood Control District	Development of 5 miles of greenway enhancements along the north side of the Los Angeles River connecting the major studios.	-	-	-	-	-	-	-	-	NA
221	Sun Valley Middle School Multiuse	Los Angeles County Flood Control District	Project will alleviate flooding in the vicinity of the Sun Valley Middle School by collecting stormwater runoff from the upstream residential area and routing it through a treatment, storage, and infiltration system. Stormwater runoff stored undergr	-	-	-	-	-	-	-	-	NA
222	Sun Valley Watershed - Powerline Easements Multiuse	Los Angeles County Flood Control District	Creation of multiuse improvements within the LADWP powerline easements within the Sun Valley watershed	-	-	-	-	-	-	-	-	NA
223	Sun Valley Watershed - Strathern Pit Multiuse	Los Angeles County Flood Control District	Creation of multiuse improvements, including wetlands, reuse, and recreation, within Strathern Pit, consistent with the Sun Valley Watershed Plan	-	-	-	-	-	-	-	-	NA
224	Sun Valley Watershed - Tujunga Wash Diversion Project	Los Angeles County Flood Control District	Project will divert stormwater flows from the Tujunga Wash, downstream of Hansen Dam, to Sheldon Pit, for groundwater recharge, wetlands water quality enhancements, and multiuse recreational opportunities.	-	-	-	-	-	-	-	-	NA
225	Sun Valley Watershed - Tuxford Green Phase II Collection System Drain	Los Angeles County Flood Control District	This phase of Tuxford Green further alleviates flooding impacts within the Sun Valley Watershed and will connect to Phase 1 currently in construction. Project will connect downstream of Phase 1 to the Strathern Pit project for treatment and reuse.	-	-	-	-	-	-	-	-	NA
226	Sun Valley Watershed - Valley Steam Plant	Los Angeles County Flood Control District	Capture stormwater runoff from the LADWP Steam Plant property in Sun Valley, filter flows, and pump the water to recharge within the Hansen Spreading Grounds.	-	-	-	-	-	-	-	-	NA
227	Trash Removal Subregional Solution - Aliso Creek	Los Angeles County Flood Control District	Develop a subregional trash capture BMP for the Aliso Creek subwatershed in compliance with the LAR Trash TMDL	-	-	-	-	-	-	-	-	NA
228	Trash Removal Subregional Solution - Bull Creek	Los Angeles County Flood Control District	Develop a subregional trash capture BMP for the Bull Creek subwatershed in compliance with the LAR Trash TMDL	-	-	-	-	-	-	-	-	NA
229	Trash Removal Subregional Solution - Pacoima Wash	Los Angeles County Flood Control District	Develop a subregional trash capture BMP for the Pacoima Wash subwatershed in compliance with the LAR Trash TMDL	-	-	-	-	-	-	-	-	NA

Upper Los Angeles River Subregion Projects

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230	Trash Removal Subregional Solution - Tujunga Central	Los Angeles County Flood Control District	Develop a subregional trash capture BMP for the Tujunga Central watershed in compliance with the LAR Trash TMDL	-	-	-	-	-	-	-	-	NA
231	Trash Removal Subregional Solution - Tujunga Wash	Los Angeles County Flood Control District	Develop a subregional trash capture BMP for the Tujunga Wash subwatershed in compliance with the LAR Trash TMDL	-	-	-	-	-	-	-	-	NA
232	Tujunga Wash Greenway - Phase II	Los Angeles County Flood Control District	Project will extend from Colfax to Laurel Canyon along both sides of Tujunga Wash and create a linear greenway, add native landscaping, pathways for walking and biking along either side of the Wash, and incorporate rest area amenities, interpretive s	-	-	-	-	-	-	-	-	NA
233	Tujunga Wash Greenway - Phase III	Los Angeles County Flood Control District	Project will extend from Laurel Canyon to Whitsett (101 Fwy) along both sides of Tujunga Wash and create a linear greenway, add native landscaping, pathways for walking and biking along either side of the Wash, and incorporate rest area amenities, in	-	-	-	-	-	-	-	-	NA
234	Tujunga Wash Restoration Project Section 1135	Los Angeles County Flood Control District	Work w/ Corps to extend the Tujunga Wash stream restoration project, from Vanowen Street to the Pacoima Wash Diversion. Project is on the west bank of the Tujunga Wash and will enhance habitat, add open space, and improve water water quality through	-	-	-	-	-	-	-	-	NA
235	Verdugo Debris Basin Habitat Enhancement	Los Angeles County Flood Control District	Aesthetically enhance the Verdugo Debris Basin area with native planting.	-	-	-	-	-	-	-	-	NA
236	Wilson Debris Basin Habitat Enhancement	Los Angeles County Flood Control District	Aesthetically enhance the Wilson Debris Basin area with native planting and passive recreational amenities.	-	-	-	-	-	-	-	-	NA
237	Hansen Dam Water Conservation and Supply	Los Angeles County Flood Control District	Modify Hansen Dam to allow the operation of a year-round water conservation pool that would provide additional local water supply	-	-	-	-	-	-	-	-	NA
238	Tujunga Spreading Grounds Intake and Basin Improvements	Los Angeles County Flood Control District	Regrade the spreading basins; abandon existing Tujunga Wash intake and rubber dam and relocate to Basin 1; add an intake and rubber dam near Basin 12 to capture flows from Pacoima Diversion Channel; install telemetry system.	X	1000	0	-	-	-	-	-	NA
239	Hansen Spreading Grounds Basin Improvements	Los Angeles County Flood Control District	Reconfigure and deepen the spreading basins; install interbasin structures; enlarge or supplement culvert under Glenoaks Boulevard to meet the facility's intake capacity; install landscaping around the perimeter of the facility.	X	1000	0	-	-	-	-	-	Aesthetics 1 Mile
240	Hansen Spreading Grounds Intake and Telemetry Improvements	Los Angeles County Flood Control District	Replace existing steel radial gate in Tujunga Wash with a rubber dam; install telemetry for monitoring and remote operation.	X	100	100	-	-	-	-	-	NA
241	Big Tujunga Dam Spillway Dam	Los Angeles County Flood Control District	Construction of a dam within the spillway at Big Tujunga Dam to increase the maximum storage capacity of the reservoir by approximately 705 acre-feet.	X	705	0	-	-	-	-	-	NA
242	Big Tujunga Dam – San Fernando Basin Groundwater Enhancement Project	Los Angeles County Flood Control District	The Big Tujunga – San Fernando Basin Groundwater Enhancement Project is an integrated resources management project that involves the placement of new concrete on the downstream face of the existing arch dam to create a thick-arch. The rehabilitation of Big Tujunga Dam will, in addition to providing downstream flood protection, and flow releases to enhance habitate, will provide an additional 4,500 acre-feet of water for recharge downstream.	X	4500	0	-	-	-	-	-	Additional benefits include flood protection, habitat enhancement, water quality benefits, and water conservation benefits.
243	Pacoima Reservoir – Sediment Removal	Los Angeles County Flood Control District	Remove approximately 1.5 million cubic yards of accumulated sediment from Pacoima Reservoir.	X	1000	0	-	-	-	-	-	NA
244	Big Tujunga Dam – Spillway Rubber Dam	Los Angeles County Flood Control District	The Big Tujunga is located in the Angeles National Forest, above the Sun Valley area of the City of Los Angeles, in Big Tujunga Canyon, which is located within the watershed for the upper Los Angeles River. Dam releases leaving Big Tujunga Canyon rechar	X	100	1000	-	-	-	-	-	NA
245	Arroyo Calabasas at Ventura Boulevard	Mountains Recreation and Conservation Authority	The project site consists of four Caltrans owned properties totaling 4.3 acres. It contains park of Dry Canyon Creek. The project plans proposes to construct three detention areas, total new capacity of 0.5 acre feet, and two clean and catch swales, total capacity of 13,320 cu. ft. Stormwater run-off would be diverted rom streets via curb cuts and spread over portions of the site via rock-lined infiltration trenches and bioswals. Swale vegetation will be both wet and dry. The plan also recommends integrating plantings of oaks and sycamores with the already native vegetation to provide for better wildlife habitat continuity. The project also aims to provide a new BMP model for consideration by Caltrans. Informational kiosks regarding stormwater management and local habitat issues will be installed in recreational areas of the greenway.	X	3.125	0	-	-	X	-	-	The implementation of the project will create an alternative urban run-off system needed for the heavily used Ventura Freeway and surrounding residential neighborhoods. The project will maximize recharge of the underlying groundwater aquifer and slow the peak runoff flow into the Los Angeles River to improve flood management conditions. The several targeted parcels will form an abstract continuous greenway surrounding Ventura Boulevard near Valley Circle. With detention areas and clean and catch swales, pollutants can be filtered before entering the Arroyo Calabasas reach and a new capacity of 0.5 acre feet will be available for future use. Future project plans include engaging local neighborhoods for habitat certification and greywater watering.
246	Arroyo Calabasas at Fallbrook and Hatteras	Mountains Recreation and Conservation Authority	This project is composed of several small parcels clustered around a reach of Arroyo Calabasas. Each parcel will undergo habitat enhancement, which will feature oak groves and sycamore swales, and some parcels will include a social area. Six detention areas, with total new capacity of 2.81 acre feet, and seven clean and catch swales, with total capacity of 23,400 cu. ft. will be created for the capture and filtration of stormwater and urban run-off. A 1.5 mile pedestrian path will be created on the south side of the creek which would link to the numerous schools in the area, as well as several new viewing points for local denizens to enjoy. Interpretive signage will be installed in social areas for environmental education purposes.	X	2	0	-	-	X	-	-	Benefits of this project include improving water quality, creating a new water supply, habitat enhancement for wildlife, and beneficial public use. The detention areas and swales are designed to filter pollutants before it reaches the Arroyo Calabasas channel. Currently, there is no system for retention and filtration of stormwater. This project would provide over 2.81acre feet total for future public use. Creating riparian and upland habitat will greatly enhance wildlife capacity as well as provide and aesthetic enjoyment for public citizens. Social areas, pedestrian trails, and bike path will provide a beneficial open space for a neighborhood in need for parkland. Information signage will also provide environmental education to the public.

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247	Aliso Canyon and Los Angeles River Confluence	Mountains Recreation and Conservation Authority	The project site currently houses several types of land-use. These areas are integrated into the conceptual design. Two infiltration areas are planned, the community garden and an area between the existing nurseries, with a total capacity of 2 acre feet of stormwater. In compliance of the Reseda West Van Nuys community plan, flood control channels and utility easements are being considered for the park. Additionally, a bike path and equestrian trail are also planned. In compliance with the 1996 Los Angeles River Master Plan, a bridge would be built to link this site to the surrounding neighborhoods of the creek, including West Valley Park, the YMCA and the Aliso Creek trail. A social area will be created at the tip of the confluence replete with informational kiosks about the creek and native habitat. A portion of the confluence will be replaced with a terraced layback and deposition basin, increasing the Los Angeles River channel capacity by 633,000 cu. ft.	X	0.5	0	X	-	X	-	-	The project will increase Los Angeles River channel capacity by 633,00 cu. ft. thereby aiding flood control management. A public open space for small social gatherings will be created, and a bridge across the confluence will connect surrounding neighborhoods. Revegetation around the confluence will promote and enhance wildlife productivity. Also, the project will work to integrate several planning polices for a smooth redevelopment of the confluence.
248	Bell Creek Riverfront Natural Park	Mountains Recreation and Conservation Authority	This .38 acre project will include a loop trail, 20 person outdoor center, four interpretive displays, benches, picnic area, kiosk, decorative gates and fencing, drinking fountain, and restored and created riparian areas for storm water capture as well as providing habitat for Canadian geese as a resting and foraging area.	X	0.1	0	X	-	X	1	0	Detention basins and swales will be able to filter stormwater and urban runoff from the surrounding residential area. Detention basins will contribute to the necessary maintenance of the park. Part of the Pacific Flyway, the project's habitat enhancement and creation will provide Canadian geese with better foraging grounds. The project will be able to provide the surrounding neighborhood by providing a much need high quality recreational open space. With several schools surrounding the area, the site will be able to provide an outdoor space for environmental education opportunities. Additionally, signs will be placed throughout the park providing information regarding the cultural and ecological functions of the park.
249	Lederer Ranch	Mountains Recreation and Conservation Authority	The project will include swales and a detention basin to capture, filter, and detain stormwater and urban run-off. Riparian habitat will be created as well as walnut groves and other native trees will be planted to create an aesthetic atmosphere for the public as well as prime habitat for birds. Bird watching areas will also be planned into the project so that local residents can learn and enjoy the local wildlife that was once prevalent.	X	4	0	X	-	X	-	-	Detention basins and swales will be able to filter stormwater and urban runoff from the surrounding residential area. Detention basins will contribute to the necessary maintenance of the park. Part of the Pacific Flyway, the project's habitat enhancement and creation will provide a wildlife refuge, especially for birds. The project will be able to revitalize the surrounding neighborhood by providing a much need high quality recreational open space. With several schools surrounding the area, the site will be able to provide an outdoor space for environmental education opportunities. Additionally, signs will be placed throughout the park providing information regarding the cultural and ecological functions of the park.
250	Woodley Chase Open Space	Mountains Recreation and Conservation Authority	The 10.36 acre Busch Lot is located in the middle of a highly urbanized area near Busch Creek, and would be transformed into a greenway that will revitalize the neighborhood. Stormwater and urban run-off will be captured, filtered, and detained through detention basins and bioswales.	X	-	-	X	-	X	-	-	NA
251	Santa Susana Creek at MTA Corridor on Canoga Avenue	Mountains Recreation and Conservation Authority	The project site is a linear 11.4 acre stretch of unused train track on Canoga Avenue. The project plans to create three linear detention areas with a total capacity of 3.2 acre feet, and three clean and catch swales with a total capacity of 62,280 cu. ft. A walking and equestrian trail will meander through the linear park where there will be several areas available for social gatherings for local residents and children, and viewing areas. A kiosk will be placed, where the park intersects with the Santa Susana Creek, to provide environmental and cultural information of the locale.	X	1.25	0	-	-	X	-	-	The surrounding area of the project site is land-use mix of commercial, residential, and industrial. Stormwater and urban run-off, which drain into the Santa Susana Creek, are two water quality issues this project would address by creating detention areas and clean and catch swales. In addition, where there is currently no water retention, 3.2 acre feet of water would be created for future local use. The project demographic is of a high density low income neighborhood that sufficiently lacks open areas for local denizens, especially for an increasing high density of children living nearby. The project plan proposes several open areas for social gathering and play use for children. Information kiosks placed by the Santa Susana Creek would educate local neighborhoods about the benefits of conservation and habitat efforts. The project site would also link to other existing pedestrian and equestrian pathways. Benefits of a greenway within this area would be invaluable.
252	Aliso and Limekiln Creeks at Vanalden	Mountains Recreation and Conservation Authority	The project site is 18.96 acres. Because the site is already used for recreational purposes by the local neighborhoods, infiltration areas will be integrated with large open grassy areas. Infiltration areas will have a total capacity of 17,500 cu. ft. Viewing areas will be constructed by creating small hills from fill created from the construction of detention areas. Three detention areas, totaling 6.19 acre feet, will be created with the potential of creating two more that would hold an additional 2.98 acre feet. Seven clean and catch swales will be constructed with a total capacity of 38,440 cu. ft. Also, five cisterns will be placed throughout the site with a total capacity of 5,890 gallons. A sycamore bosque is also planned for habitat and viewshed enhancement.	X	40	0	X	-	X	-	-	Although the area serves as a public open space, and a de facto basin, the proposed project plans to enhance habitat value as well as create a functional filtration and detention area for stormwater and urban run-off. The total new capacity of the detention areas, infiltration areas, swales, and cisterns creates a source for future public use as well as for the maintenance of the park. Creation and enhancement of wetlands will provide better habitat for the already present killdeer and mallards. The project will also address future pollutant sources stemming from nearby commercial and industrial development.

Upper Los Angeles River Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
253	Santa Susana Creek at Topanga Canyon and Plummer	Mountains Recreation and Conservation Authority	The project goals are to increase water retention capacity, improve water quality from urban run-off and stormwater, and creating recreational space for walking and equestrian trails, and expanding habitat for nearby wildlife corridor. Three detention areas and three swales will be strategically created throughout the site working with the natural topography. The added detention capacity equals to 3.9 acre feet, and the swale capacity is approximately 33,840 cu. ft. Additionally, nine cisterns will be created throughout the site, each holding 1,178 gallons, for collecting rainwater for future uses. This 12.3 acre site will also incorporate a bike and equestrian trail.	X	1.875	0	-	-	-	-	-	Benefits of this project include improving water quality, creating a new water supply, habitat enhancement for wildlife, and beneficial public use. The detention areas and swales are designed to filter pollutants before it reaches Arroyo Calabasas reach, and recharge groundwater supplies. Currently, there is no system for retention and filtration of stormwater. This project would provide 2.81 acre feet for future use. Habitat enhancement of an oak grove and sycamore swales will add to the ecological capacity of the area for wildlife and public enjoyment. Outdoor social gathering areas and a pedestrian walkway will add to the beneficial use of the greenway.
254	Brown's Canyon Wash at Plummer and Variel	Mountains Recreation and Conservation Authority	The goal of the project is to create a greenway that would capture and filter stormwater and urban runoff, enhance habitat for birds, and a recreational area for the surrounding neighborhood. The project site has considerable potential for stormwater storage and cleaning capacity of approximately 18.5 acre feet total. The project proposes three detention basins, five marsh grass swales, a sycamore allee, willow thickets and construction of riparian and upland habitat. In addition, sitting areas created for optimal views will be placed in key areas of the project site. A walk and bikeway will be created next to Brown's Canyon Wash linking with other parcels and optimizing the existing access roads on both sides of the channel.	X	80	0	-	-	-	-	-	Benefits of this project include improving water quality, creating a new water supply, habitat enhancement for wildlife, and beneficial public use. The detention areas and swales are designed to filter pollutants before it reaches Brown's Canyon Wash. Currently, there is no system for retention and filtration of stormwater. This project would provide 18.5 acre feet total for future public use. Creating riparian and upland habitat will greatly enhance wildlife capacity as well as provide and aesthetic enjoyment for public citizens. Social areas, pedestrian trails, and bike path will provide a beneficial open space for a neighborhood in need for parkland.
255	Brown's Canyon Wash at Route 118 and Rinaldi	Mountains Recreation and Conservation Authority	The goal of this project is to improve water quality, decrease flood risks, and restore open space for ecological and cultural benefits. The project plans to lay back the channel with terracing thereby increasing stormwater capacity and decreasing flood risks. Construction of detention areas and clean and catch swales are designed into the project to improve water quality from stormwater and runoff from the freeway as. Water quality will be monitored on an annual basis for five years. Re-creation of native riparian and upland habitats, including a sycamore-willow woodland, will increase habitat value. Renovations of pre-existing structures on the project site, such as house and stone patio, and additional modifications including view points and a walking/equestrian trail are also integrated into the project.	X	12.5	0	-	-	-	-	-	Modifying the channel by terracing will increase capacity by 197,000 cu. ft. Construction of detention areas and swales will increase capacity by 545,000 cu. ft. and 27,180 cu. ft., respectively. The detention areas and swales are designed to filter pollutants, recharge groundwater supplies, and reduce flood risks. These designs will maximize recharge of underlying groundwater aquifer and slow the peak run off flow into the Los Angeles River to improve flood management. Additionally, an increase in storage capacity will result in an increase of natural resources for surrounding wildlife and habitat. Renovations of pre-existing structures and a new trail will add to the cultural value of the project by creating a unique recreational area for surrounding neighborhoods. Also, the new walking and equestrian paths would create a continuous corridor to Joughin Ranch and the Santa Susana Mountains.
256	Washington Elementary School River Parkway	Mountains Recreation and Conservation Authority, Santa Monica Mountains Aut	Construction of an outdoor living-laboratory, infiltration basin and native plantings that will have interpretive elements regarding creek function, storm water management and watershed protection.	-	-	-	-	-	X	0	2	NA
257	Boyle Heights Green Corridor	Mountains Recreation and Conservation Authority, Santa Monica Mountains Con	The Boyle Heights Green Corridors project is a collaborative effort to bring water quality management, restoration of native riparian habitat, and recreational improvements to the densely populated Boyle Heights neighborhood. This project will focus on a right-of-way greening and the conversion of an existing storm drain into a water quality and conservation feature. After the residential runoff is collected and directed by the storm drain it will be infiltrated on the adjacent lot. A restored riparian ecosystem will further assist in the filtering and cleaning of the water. The water collected on-site will also be removed from the storm flow thereby contributing to flood control.	-	-	-	X	-	-	0	2	NA
258	Vista Hermosa Los Angeles River Watershed Restoration Park	Mountains Recreation and Conservation Authority, Santa Monica Mountains Con	Development of a park in which the natural environment will feature habitats found in the Santa Monica Mountains and the Upper Los Angeles River Watershed. Landforms will emphasize watershed processes through a stream course that captures all on-site water, marshlands, wetlands and adjoining riparian ecosystems and meadows.	-	-	-	X	-	-	0	8	NA
259	Confluence Park 2	Mountains Recreation and Conservation Authority, Santa Monica Mountains Con	Conversion of industrial land to public park including watershed restoration elements such as a cistern, non-structural BMPs, and a bioswale. Addition of visitor-serving amenities to increase public awareness of Los Angeles River restoration efforts.	-	-	-	X	-	-	0	2	NA
260	Northeast Los Angeles Open Space	Mountains Recreation and Conservation Authority, Santa Monica Mountains Con	Acquisition of last remaining undeveloped hilltop properties in northeast Los Angeles to prevent accumulation of additional runoff and pollutants in the Upper Los Angeles River Watershed. The project will result in protection and restoration of upland habitat, and increased public access.	-	-	-	-	-	-	0	10	NA

Upper Los Angeles River Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
261	Los Angeles River Greenway BMP Retrofits	Mountains Recreation and Conservation Authority, Santa Monica Mountains Con	Design and installation of structural and non-structural BMPs in five existing parks along the Los Angeles River in Elysian Valley. The BMPs will capture and treat a ¾" storm for all target pollutants.	-	-	-	X	-	X	-	-	X
262	Marsh Park	Mountains Recreation and Conservation Authority, Santa Monica Mountains Con	Retrofit three existing riverfront industrial buildings with stormwater capture system, and modify drainage of two streets to direct all runoff to a bioswale in a public park. Installation of additional visitor-serving amenities to attract higher public use and increase visibility of Los Angeles River restoration efforts.	-	-	-	X	-	-	0	2	NA
263	Pacoima Wash Greenway: 1st Street Park	Mountains Recreation and Conservation Authority, Santa Monica Mountains Con	Conversion of industrial riverfront property to public parkland including non-structural BMPs to collect and treat runoff from up to 106 acres of residential property. Addition of visitor-serving amenities to increase public awareness of Los Angeles River restoration efforts.	-	-	-	X	-	-	0	4	NA
264	Pacoima Wash Greenway: High School River Parkway	Mountains Recreation and Conservation Authority, Santa Monica Mountains Con	Restoration of riparian habitat and construction of a public trail on riverfront area adjacent to new high school. Parkway will incorporate educational materials regarding watershed restoration and protection.	-	-	-	-	-	-	0	2	NA
265	Hansen Dam Parking Lot Rehabilitation	Mountains Recreation and Conservation Authority/ Santa Monica Mountains Con	Two parking lots within the Hansen Dam Recreation area would be regraded to drain away from Hansen Lake and into a newly restored wetland. This wetland would treat stormwater runoff prior to entering the lake, and restore habitat for the threatened Least Bell's Vireo.	-	-	-	X	-	-	0	1	NA
266	Recommendation and Implementation Blueprint: groundwater recharge	Mountains Restoration Trust	To reduce dependency on imported waters, a Recharge Suitability Analysis and Recommendation and Implementation Blueprint will outline a strategy, plans, and processes for increasing groundwater recharge to protect and increase San Fernando Basin native water, and reduce impact on Bay-Delta ecosystem.	-	-	-	-	-	-	-	-	Increase and improve groundwater recharge, identify problems and protect native water San Fernando Basin, and recommend areas for groundwater recharge
267	Headwaters Corner at Calabasas	Mountains Restoration Trust and City of Calabasas	Project will educate the public on how to be better stewards of the natural resources people depend upon for quality of life. This will be achieved through a variety of programs and demonstation projects.	X	-	-	X	-	X	-	-	NA
268	Arroyo de las Pasas daylighting	NA	Daylights historical Arroyo de las Pasas through Lincoln Park.	-	-	-	X	-	X	-	-	NA
269	Hazard Park Stream Restoration	North East Trees, Earth Island Institute, Coastal Conservancy, City of LA	Restoration of a portion of a perennial stream located in Hazard Park in the city of Los Angeles. Restoration goals include water quality improvements to reduce non-point source pollution from multiple offsite location which drain to the stream.	-	-	-	-	-	X	-	-	NA
270	Well #3 Development and Expansion	Rubio Canon Land and Water Association	Installation of curtain wall across riverbed to capture surface water. Installation of new well and supply more water to other treatment plant, Install weir to measure surface flow and gain 80% of spread water	X	100	1000	-	-	-	-	-	Savings for our Customers
271	Environmental Education Camps on Angeles NF	School Districts, Grantors, ANF, Dept of Education	Replace poorly-operated and existing organization camps on ANF with upgraded residential camp facilities for school-system-run environmental education--no limits on ideas--Water treatment on site as educational tool? Native veg vs. non-native	-	-	-	-	-	-	-	-	Indirect benefits to all areas and many educated and caring residents
272	Los Angeles River watershed floodplain acquisitions	SMBRC	This project acquires and landbanks floodplain or floodprone properties, including historically floodprone properties, anywhere in the LAR watershed, stream or wetland restoration/daylighting funds, or where not immediately feasible, short-term habitat en	-	-	-	X	-	-	280	5000	NA
273	Los Angeles River watershed stream, spring and wetlands conservation easements	SMBRC	Establishes funds to secure conservation easements on the properties with streams, wetlands, or springs.	-	-	-	X	-	X	-	-	NA
274	Rim of the Valley Trail Connection: Equestrian|/Pedestrian/ Bicycle	The River Project	The Rim of the Valley Trail Connection will add a critical link in the Rim of the Valley Trail Corridor and allow access for area residents of the North Valley to connect to the Trail from the proposed Sylmar wide Equestrian/Pedestrian/Bike Trail loop.	-	-	-	-	-	-	0	24	additional benefits includes habitat enhancement.
275	Transmission Line Easement Project	The River Project	Project proposes to capture and infiltrate stormwater beneath existing LADWP and Utility Company power line easements for groundwater recharge and TMDL compliance and Recreation.	X	14000	28000	X	-	X	500	1000	Increases habitat and provides connectivity through underutilized land
276	Railroad ROW Improvement	The River Project	Enhancing the existing Railroad ROW for enhanced flood protection, trails, water capture, water quality, BMP's and habitat.	X	14000	23000	X	-	X	500	800	Improves aesthetics, creates habitat cooridor
277	Primary Street Improvement Project: San Fernando Road, Woodman Ave, Victory Road, and Van Nuys Blvd Improvements	The River Project	Increase pervious surface on major roads by improving or creating medians with curb-cuts and installing pervious gutters for water quality, infiltration, and conservation, trash BMP's, Habitat, Urban Forest, and recreation.	X	20000	40000	X	-	X	2000	4000	Additional Plantings in Medians will increase the Urban Forest
278	Tujunga Wash Bridge Retrofit and channel expansion	The River Project	Proposal to Retrofit existing bridges to allow for greater channel width for hydrologic/habitat improvements and to allow for continuous creek adjacent circulation along the Tujunga Wash easement.	X	2500	5000	X	-	X	85	170	Opportunity to increase habitat within and outside of the channel with soft bottom and Native Plantings
279	Pacoima Wash Bridge Retrofit and channel expansion	The River Project	Proposal to Retrofit existing bridges to allow for greater channel width for hydrologic/habitat improvements and to allow for continuous creek adjacent circulation along the Pacoima Wash easement.	X	1500	3000	X	-	X	53	105	Opportunity to increase habitat within and outside of the channel with soft bottom and Native Plantings
280	Sediment Gate Addition to Hansen Dam	The River Project	Proposal to create a sediment bypass on Hansen Dam to reestablish the natural sediment transportation in the system per Corp specifications.	X	-	-	X	-	-	-	-	NA
281	Decrease Impermeability in Tujunga Watershed	The River Project	Remove impervious surfaces throughout watershed where feasible	X	-	-	X	-	-	-	-	NA

Upper Los Angeles River Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
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282	Education for Conservation in Tujunga Watershed	The River Project	Produce and distribute materials to educate watershed residents about ways to conserve water: ET meters and weather sensors, native landscaping, impervious surfaces, swales, cisterns, etc.	X	-	-	X	-	-	-	-	NA
283	Equestrian BMPs in Tujunga Watershed	The River Project	Program to work with property owners through education or enforcement to implement BMPs for equestrian facilities and "backyard livestock"	-	-	-	X	-	-	-	-	NA
284	Tujunga Watershed Freeway BMP's	The River Project	Install BMPs and ET Meters on the 5/118/170/210/405 Freeways within the Tujunga Watershed and replace existing landscaping with Native Vegetation.	X	-	-	-	-	X	50	400	Increases habitat and provides connectivity through environmentally sensitive land
285	Tujunga Watershed Arundo Removal	The River Project	Removal of arundo from stream channels in the upper watershed	X	-	-	-	-	-	-	-	Improves habitat quality
286	Tujunga Watershed Management Plan Implementation	The River Project	The Tujunga Watershed Management Plan (WMP) will be completed in summer 2007. This project will support continuing stakeholder involvement and collaboration in the implementation of projects and programs outlined in the WMP.	X	-	-	X	-	X	-	-	Increases stakeholder participation in land and water stewardship through outreach and education.
287	Tujunga Ponds Habitat Enhancement & Educational Center	The River Project	This project proposes to improve the existing Tujunga Ponds area with native plantings, passive recreation trails and watershed education facilities.	-	-	-	-	-	-	-	-	NA
288	Watershed-U Tujunga	The River Project	This educational project would continue the successful Watershed U-Tujunga training program for the Tujunga Watershed annually. Watershed U is designed to increase awareness of, and communication among watershed stakeholders, and to engage local decision	X	-	-	X	-	X	-	-	Increases stakeholder participation in land and water stewardship through outreach and education.
289	CBS/Viacom Radio Regional Park	The River Project	Proposal to provide a Community Park for park-poor area residents and act as a detention basin during storm events.	X	280	550	X	-	X	10	20.9	increase habitat through native plantings and decrease pesticides used on lawns
290	Valley Glen Pocket Park and Swale Network	The River Project	Proposal to create a pocket park for stormwater capture, passive/active recreation and to improve water infiltration on adjacent roads that currently do not have curbs and gutters via a swale network with native plantings	X	14	28	X	-	X	0.5	1	improves aeshetic creates habitat cooridor and can be used as an outdoor classroom/community garden.
291	Valley Glen Community Park Retrofit	The River Project	Proposal to retrofit existing park for stormwater capture, improve water collection on roads after storm events, decrease mosquito habitat and plant native plantings	X	56	170	X	-	X	2	6.6	increase habitat through native plantings and decrease pesticides used on lawns
292	Sediment Gate Addition to Big Tujunga Dam	The River Project	Proposal to create a sediment bypass on the Big Tujunga Dam to reestablish the natural sediment transportation in the system per Corp specifications.	X	-	-	X	-	-	-	-	NA
293	Outdoor Community Living Rooms	The Verde Coalition	Acquisitions and development of mini parks in densely populated working class neighborhoods that serve dual function: to create community socializing space while providing environmental benefits of capturing & filtering runoff, & utilizing native and low-water using plants. Ten Living Rooms are currently in progress.	X	-	-	X	-	X	60	0	NA
294	Watershed U.- Sun Valley	UC Cooperative Extension	This educational project would develop a Watershed U. training program for Sun Valley. Watershed U. is designed to increase communication among watershed stakeholders, and to engage local decision makers in the process. In Sun Valley, we would highlight the work of the County of Los Angeles, Tree People, and other partners to find innovative ways to manage flooding and other issues in this urban watershed.	-	-	-	-	-	-	-	-	Increase stakeholder participation in land and water stewardship through outreach and education.
295	Watershed U. - Topanga Creek	UC Cooperative Extension	This educational project would develop a Watershed U. training program for Topanga Creek. Watershed U. is designed to increase communication among watershed stakeholders, and to engage local decision makers in the process.	X	-	-	-	-	X	-	-	Increase stakeholder participation in land and water stewardship through outreach and education.
296	Watershed U. - Los Angeles River	UC Cooperative Extension	This educational project would develop a Watershed U. training program for the mainstem Los Angeles River. Watershed U. is designed to increase communication among watershed stakeholders, and to engage local decision makers in the process.	-	-	-	-	-	-	-	-	Increase stakeholder participation in land and water stewardship through outreach and education.

Upper San Gabriel and Rio Hondo River Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
1	Whittier Narrow Conservation Pool	Water Replenishment District of Southern California	The Whittier Narrows Conservation Pool project will increase the capacity of the conservation pool located behind the Whittier Narrows Dam and involves raising infrastructure to avoid inundation when water is stored for conservation purposes. This conserved water is then released at a rate equal to the infiltration of the Montebello Forebay spreading grounds for eventual storage in the Central Groundwater Basin.	X	1000	0	-	-	-	-	-	NA
2	Kare Youth League Sports Park	ACE, Kare Youth League	This under-used open space is at the base of the Santa Fe Dam, above Arrow Hwy. It is owned by ACE. Kare Youth League is a potential lessee, that would build a soccer field with some amenities on existing disturbed paved areas. There is an existing habitat on the property that could be restored as part of the habitat corridor. These will be a trail linkage to the San Gabriel River Bike Trail	-	-	-	-	-	-	-	-	NA
3	San Gabriel Foothills Debris Basins	Altadena Foothills Conservancy - Proponent (debris basins under jurisdictio	Revamp the management of debris basins (sediment management basins) to maximize recharge (where now water goes to the storm drain ssytem), create wetlands, and provide for wildlife habitat. Basins are managed to exclude recreation - recreation should be seriously considered seasonally.	X	-	-	-	-	X	-	-	Riparian habitat could be created or restored through work on the streams that feed the debris basins. Most of these streams are invaded with arundo and other invasives; native vegetation should be restored.
4	San Gabriel Foothills Debris Basins - Rio Hondo Seirra Madre DB (3)	Altadena Foothills Conservancy - Proponent (debris basins under jurisdictio	Management revamp of debris basins, create wetlands, provide for wildlife habitat	-	-	-	-	-	-	-	-	NA
5	San Gabriel Foothills Debris Basins - Rio Hondo Eaton Canyon DB (2)	Altadena Foothills Conservancy - Proponent (debris basins under jurisdictio	Management revamp of debris basins, create wetlands, provide for wildlife habitat.	-	-	-	-	-	-	-	-	NA
6	San Gabriel Foothills Debris Basins - Rio Hondo Las Flores (1)	Altadena Foothills Conservancy - Proponent (debris basins under jurisdictio	Management revamp of debris basins, create wetlands, provide for wildlife habitat	-	-	-	-	-	-	-	-	NA
7	San Jose Creek Greenway Project	Amigo de Los Rios, RMC	Phase III of the San Jose Creek Greenway proposes to plant native habitat. The plant locations are based on microclimates; the palette is derived from an ecologist's evaluation of locally appropriate plantings. The project also proposes fencing benches, stone and other hardscape work at entry points.	-	-	-	-	-	-	-	-	NA
8	Trail Connection - Alhambra Wash - Rosemead Community Center	Amigo de Los Rios, RMC	Trail development will include a survey and outline of the trail alignment, followed by removal of non-native vegetation, installation of drip irrigation, planting natives, interpretive signage, and an inviting entrance at the Community Center.	-	-	-	-	-	-	-	-	NA
9	Eaton Wash Nature Park	Amigo de Los Rios, RMC	Acquisition of land along Valley Boulevard for use as a nature park featuring oak woodlands, riparian habitat, educational displays, and meandering pathways.	-	-	-	-	-	-	-	-	NA
10	Peck Park Nature Habitat Demonstration Garden	Amigo de Los Rios, RMC	Funding will be used to develop a native habitat demonstration garden to provide an example of future improvements in the park, such as drought-tolerant and native plants from several different ecosystems, a meandering pathway, signage, benches, and tables and a model of sustainable landscaping for local residents.	-	-	-	-	-	-	-	-	NA
11	Rodefer Pit	Amigo de Los Rios, RMC	Privately owned quarry is an inholding of the City of Arcadia is currently being filled with inert materials and is now zoned for industrial land use. Future reclamation plans could include park & open space, and other uses.	-	-	-	-	-	-	-	-	NA
12	Arcadia Wash Restoration Feasibility	Amigo de Los Rios, RMC	Assessment of feasibility for removing approximately 2,400 linear feet of concrete lining in the Arcadia Wash, including hydrologic assessment, geomorphologic study, assessment of golf course impacts, and hydraulic design.	-	-	-	-	-	-	-	-	NA
13	Hilda Solis Park Native Habitat Beautification	Amigos de los Rios & City of Baldwin Park, RMC	Amigos de los Rios is seeking a partnership with the city to add a native landscape component to the park, construct an educational kiosk along with interpretive signage, study the feasibility of landscaping along Big Dalton Wash, and pursue funding for an ecology club. The edges of the park, picnic area, and maintenance easement along Big Dalton Wash offer space for beautification and "softening" with native plants.	-	-	-	-	-	-	-	-	NA
14	San Jose Creek Gateway Park	Amigos de los Rios, RMC	This parcel is an ideal location for a neighborhood gateway park to the County regional bike trail network and the south end of the Woodland Duck Farms property. The proposed project would involve community outreach to the neighborhood, amenities, native plant palette and interpretive materials.	-	-	-	-	-	-	-	-	NA
15	Alhambra Wash Naturalization II	Amigos de los Rios, RMC	Develop and design construction drawings to naturalize parts of the channel that passes through the Whittier Narrows Golf Course. Other features include native landscaping, a trail, benches, educational signage, bridges, and other amenities	-	-	-	-	-	-	-	-	NA
16	Alhambra Wash Naturalization Feasibility Study	Amigos de los Rios, RMC	Preparation of an initial feasibility assessment for naturalization of Alhambra Wash. The study will analyze historic conditions and current flows to evaluate the feasibility of recreation and habitat improvements along the segment of the wash between Walnut Grove and the Rio Hondo.	-	-	-	-	-	-	-	-	NA
17	Peck Park Master Plan	Amigos de los Rios, RMC	Recently the park has been the partial focus of a study by the Sierra Club on open space in the Rio Hondo sub-watershed. Amigos de los Rios believes the park merits further study. A concerted study covering uses, users, access and community resource is planned. They also plan to solve specific problematic areas of the park. This will culminate into a master plan for the park.	-	-	-	-	-	-	-	-	NA
18	Bike Connection- Peck Park/San Gabriel River	Amigos de los Rios, RMC	The Rio Hondo Bicycle Trail currently ends in Peck Park, extending this trail to the San Gabriel. River would both allow direct access to the Rio Hondo trail from the San Gabriel. River Bike Trail and complete a recreational loop trail approx 15 miles in length that would link the two regional trails at Whittier Narrows and Peck Park. Security Fencing and native plant landscaping would be provided to screen views and access to the quarry.	-	-	-	-	-	-	-	-	NA
19	Anderson Nature Park	Amigos de los Rios/Cities Baldwin Pk & Irwindale, RMC	Funding will be used to acquire and develop a park featuring an oak woodland, educational displays about natural and social history, and meandering pathways,	-	-	-	-	-	-	-	-	NA
20	Sawpit Wash Trail and Habitat Restoration	Amigos de Los RiosLos Angeles, RMc	The project proposes to utilize the exiting maintenance right-of-way along the edge of the channel for habitat restoration and trail development. Native plants and native trees will be strategically planted along the trail. Interpretive signage and decorative gates will also be part of the project.	-	-	-	-	-	-	-	-	NA
21	Off-Hwy Vehicle Area Improvements	Azusa Canyon Off-Roaders Association, California Off-Raod Vehicle Associati	Azusa Canyon Off-Roaders Assn is proposing improvements to existing steam crossing & habitat restoration for the Santa Ana sucker to minimize impacts from off-road vehicle use, while providing selected amenities for the benefit of off-hwy enthusaists & other river visitors.	-	-	-	-	-	-	-	-	NA

Upper San Gabriel and Rio Hondo River Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
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22	Forest Service Road Vehicle area improvements	Azusa Canyon Off-Roaders Association, RMC	Stream crossing improvements, stream habitat restoration for Santa Ana Sucker fish, amenities	-	-	-	-	-	-	-	-	NA
23	Barnes Park	Baldwin Park	Baldwin Park will improve the existing Barnes Park with habitat enhancements & an interpretive programs center.	-	-	-	-	-	-	-	-	NA
24	Caltrans Right-of-Way Open Space & Tril	Baldwin Park, Caltrans	The Baldwin Park project will upgrade an existing 2-acre righ-of-way with lanscaping & trails to connect Buena Park, the San Gabriel River Bike Trail & neighorhood schools	-	-	-	-	-	-	-	-	NA
25	Habitat Authority Community Outreach	CA Native Habitat Endowment Fund, RMC	Development of a docent program and manual to be used by the Puente Hill Landfill Native Habitat Authority Docent Program for the Puente Hills Region.	-	-	-	-	-	-	-	-	NA
26	THINK RIVER!	California Resource Connections RMC	Think River is the implementation of an integrated watershed education program to provide educational opportunities for youth in the San Gabriel Valley regarding water quality, water supply and use, habitat. Three parts: 1) High School Student Mentoring Program 2) Teacher Education Workshop 3) Youth Watershed Conference.	-	-	-	-	-	-	-	-	NA
27	Alhambra - Monterey Park Pipeline	Cities of Alhambra, Monterey Park and San Gabriel County W.D.	Construction of a surface water treatment plant for the water transmission main from the proposed SGVMWD Raymond Basin Pipeline project to the SGWD, Cities of Alhambra and Monterey Park. This will mitigate gw production impact in the APH.	-	-	-	-	-	-	-	-	NA
28	East Raymond Basin Water Resource Plan/Program	Cities of Arcadia and Sierra Madre, RMC	Total cost for the plan is $375,000. $168,750 is being requested from the RMC. Rehabilitation of various water systems within the Raymond Basin. This project will make improvements to the Santa Anita Diversion structures, rehabilitate the diversion pipeline, rehabilitate the Sierra Madre Creek Diversion structures, and the Sierra Madre Spreading Grounds. Estimated total capital costs: About $90 million.	-	-	-	-	-	-	-	-	NA
29	East San Gabriel Valley Regional Distribution System	Cities of Industry and Covina	Plans to extend City of Industry's reclaimed water distribution system from San Jose Creek WRP into West Covina, Diamond Bar, and the Rowland Water District, and connect to the Walnut Valley Water District reclaimed water system emanating from Pomona WRP.	X	0	7600	-	-	-	-	-	NA
30	Increase Cooperative Water Exchange Agreement (CWEA) deliveries through USG	City of Alhambra, Metropolitan, SGVMWD	Increased deliveries through USG-5 would be funded by in-lieu assessments; imported CWEA water will be purchased in-lieu of pumping, which will reduce drawdown in the Main San Gabriel Basin.	-	-	-	-	-	-	-	-	NA
31	Arcadia Wilderness Park Nature Center Refurbishment	City of Arcadia, RMC	The project consists of structural and aesthetic improvements, and expansion of nature displays and exhibits. Proposed improvements include ADA upgrades, replacement of the roof and water heater, repair and replacement of support beams and exterior wood surfaces, interior and exterior paint, addition of air conditioning, rescreening of skylight screens, and expansion of exhibit displays.	-	-	-	-	-	-	-	-	NA
32	Azusa Bike Trail Network	City of Azusa	Project will develop a system of street-side bicycle paths to help bicyclists enter Azusa Canyon from Sierra Madre Avenue or Azusa Canyon Road & connect to the San Gabriel River Trail.	-	-	-	-	-	-	-	-	NA
33	Todd Avenue Bike Trail Connection	City of Azusa	Project will connect an existing City of Azusa bike path at the south end of the spreading grounds with the San Gabriel River Bike Trail. Project will provide the local community with a much needed access point to the River Trail.	-	-	-	-	-	-	-	-	NA
34	Westside Trail	City of Azusa	A new, multi-purpose trail at the far edge of the flood plain, running parallel to the San Gabriel River on its west side & opposite to the San Gabriel River Bike Trail will be developed. The one-mile trail will run along the San Gabriel Valley Gun Club & provide a connection between the Roberts Creek and Fish Creek Trails.	-	-	-	-	-	-	-	-	NA
35	Old San Gabriel Canyon Road	City of Azusa, LADPW, RMC	2-mile county service road extends south from Morris Dam at a pump station down to Azusa by the El Encanto Restaurant. A City of Azusa project, this road can provide river access for hikers & bikers and could also be linked to the nearby San Gabriel River bike Trail via the Canyon Inn & El Encanto properties. A safe crossing of Hwy 39 is needed.	-	-	-	-	-	-	-	-	NA
36	Roberts Creek Trail Access	City of Azusa, RMC	Public Access to Robert's Creek will be provided through Mountain Cove private residential development, from Azusa Canyon River Park and/or the San Gabriel River Bike Trail Extension.	-	-	-	-	-	-	-	-	NA
37	San Gabriel River Bike Trail Extension to Azusa River Wilderness Park	City of Azusa, RMC	Project will extend the 38-mile regional bike trail from the current terminus near the southern edge of San Gabriel Canyon up to edge of Angeles Forest, a one-mile extension that includes a bridge over the river or highway to reach the Azusa River Wilderness Park.	-	-	-	-	-	-	-	-	NA
39	Rio S.G. Bike Path and Trail Head Pkg Lot	City of Azusa, RMC	Design, construct, operate and maintain 1-mile of Caltrans Class I asphalt bike path including native vegetation, trees, protective barriers and a 21-spot parking lot trail head. Project is partially funded. Once the River Wilderness Park is completed it is expected that the trail will be extended.	-	-	-	-	-	-	-	-	NA
40	San Gabriel River & National Forest Gateway Interpretive Center	City of Azusa, RMC	The City is working with the USFS on this project. The goal is to educate visitors entering the Forest while restoring and respecting natural habitat. San Gabriel Canyon receives over 7 million visitors annually. The current entrance station serves as a stop to purchase the "Adventure Pass." There are no education displays or restrooms. The plan is to build a 1500 square foot building and interpretive gardens with native vegetation and a meandering walking path. A $350,000 grant has been obtained from LA County Prop A.	-	-	-	-	-	-	-	-	NA
41	Azusa Canyon River Wilderness Park Acquisition	City of Azusa, RMC	The Azusa River Wilderness Park is a project to create a passive park on the north end of the City of Azusa at the beginning of San Gabriel Canyon. The envisioned park is 89 acres in size with acreage on both sides of the San Gabriel River. Currently 41.5 acres have been purchased. There are opportunities to work with a variety of agencies and to connect to several trails that travel into the Angeles Forest as well as the San Gabriel River Bike Path that travels the length of the river and whose terminus is in Seal Beach.	-	-	-	-	-	-	-	-	NA
42	Glendora Ridge Road Trail Access	City of Azusa, SGMRC, Watershed Conservation Authority, RMC	Public access for pedestrians & bicycles to the existing fire road through the mountains on the south side of the canyon will be provided, either by an access easement through private property, or by creating a new access point. This road leads to Mount Baldy.	-	-	-	-	-	-	-	-	NA
43	Roberts Creek Restoration	City of Azusa, USFS	Habitat restoration & park expansion in the canyon area behind Mountain Cove.	-	-	-	-	-	-	-	-	NA
48	Park Master Plan - Baldwin Park	City of Baldwin Park, RMC	Development of a Master Plan to identify opportunities for increasing open space, including a plan for increasing the use of Walnut Creek Nature Park and creating access to Walnut Creek, a tributary of the San Gabriel River. MIG is the new planning consultant. The project is moving forward in the planning process, city and community outreach meetings are being held.	-	-	-	-	-	-	-	-	NA
49	Tonner Canyon Project	City of Brea, RMC	The 527 acres at the mouth of Tonner Canyon were purchased by the City of Industry; this project promotes the critical link in the Puente Chino Hills Wildlife Corridor. The property will provide connection to Tonner Creek and dedicated open space.	-	-	-	-	-	-	-	-	NA
50	Padua Avenue Park	City of Claremont, RMC	Padua Avenue Park is the largest community park in Claremont. The northeast portion of the City has limited park space and has seen significant housing development over the last four years. There will be walking trails, two tot lots, a child playground, picnic shelters, basketball courts, water play area, and open space for general play. Also included are two soccer fields, a roller hockey rink, and a girl's softball field. There will also be support facilities. The design includes significant landscape buffers between the park and neighboring homes.	-	-	-	-	-	-	-	-	NA

Upper San Gabriel and Rio Hondo River Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
51	Claremont Hills Wilderness Park	City of Claremont, RMC	Acquisition of 240 acres in the Claremont foothills to augment the 1200-acre Claremont Hills Wilderness Park and complete Wilderness Park trail loop; includes installation of interpretive signage highlighting the biological, cultural, and historical significance of the area.	-	-	-	-	-	-	-	-	NA
52	Charter Oak Wash Open Channel & Streambed Betterments within Kahler Russel	City of Covina	Restore California native vegetation/remove broken concrete drainage pipes, Improve channel hydraulics	-	-	-	-	-	X	0	17	NA
53	Jobe's Glen at Xalapa Park	City of Covina, RMC	Project consists of re-vegetation and installation of 1,500 linear feet of gabions for erosion control on Walnut Creek Wash at Xalapa Park and development of an educational tour and river walk. If erosion continues, existing park facilities are in danger of being washed away. At Kahler Russell Park, the City recently completed a 4/10 mile nature trail.	-	-	-	-	-	-	-	-	NA
54	Barranca Park Renovation Project	City of Covina, RMC	Project will redesign irrigation system and parking lot.	-	-	-	-	-	-	-	-	NA
55	Covina Civic Center Park Open Space Element	City of Covina, RMC	The project will include an outdoor entertainment area, passive green space. All landscaping and irrigation will be developed with water conservation measures.	-	-	-	-	-	-	-	-	NA
56	Sycamore Canyon Trail Phase III and IV	City of Diamond Bar	Trail located in the heart of Diamond Bar will be the first developed hiking trail in the city. Complete the decomposed granite trail from the waterfall to the trailhead, through the riparian habitat, add an overlook, pars course, and signs, benches and habitat restoration.	-	-	-	-	-	X	0	2	NA
57	Clear Creek Canyon Dr. OS	City of Diamond Bar, RMC	Acquisition of 2.5 acres of open space under threat of residential development.	-	-	-	-	-	-	-	-	NA
58	Sycamore Canyon Trail Phase II	City of Diamond Bar, RMC	NA	-	-	-	-	-	-	-	-	NA
59	Sycamore Canyon Park Trail Development Project - Diamond Bar	City of Diamond Bar, RMC	The Sycamore Canyon Trail Development project would develop the first trail increment of the City's five site city-wide trail system. Sycamore Canyon Park is an existing 50 acre city park that provides active recreation along with an undeveloped trail that begins at the existing parking lot near Golden Springs Drive and travels through undeveloped areas east toward Diamond Bar Boulevard. The undeveloped trails follow near an existing stream and four acres of walnut woodlands capable of supporting California Gnatcatcher and the Arroyo Toad. The proposal would result in a clearly defined path surfaced with decomposed granite and redwood headers.	-	-	-	-	-	-	-	-	NA
60	Duarte Bike Trail Extension	City of Duarte	Project will extend & improve an existing 1.5-mile multi-use trail for an additional mile from Royal Oaks Park in the City of Duarte across the historic Puente Largo Rail bridge to San Gabriel River Bike Trail in Azusa. Improvements will create a safer connection & will include signage, paint lines, lighting & pavement resurfacing.	-	-	-	-	-	-	-	-	NA
61	Puente Largo Rail Bridge bike path	City of Duarte, RMC	Rails-to-trails project providing linkage to San Gabriel River bike path, near historic Route 66 in City of Duarte	-	-	-	-	-	-	-	-	NA
62	Route 66 Gateway at Foothill	City of Duarte, RMC	Proposed gateway location	-	-	-	-	-	-	-	-	NA
63	Wright Property	City of Duarte, RMC	City of Duarte plans to acquire a total of 365 acres of land for open space protection, trails & habitat restoration. Project dependent on funding availability.	-	-	-	-	-	-	-	-	NA
64	Attalla Ranch Property	City of Duarte, RMC	Potential open space connections in the San Gabriel foothills	-	-	-	-	-	-	-	-	NA
65	Pacific Communities Property	City of Duarte, RMC	This is an acquisition project in the City of Duarte of 329 acres of undeveloped hillside property. The funds are for the acquisition of the property with the City planning and developing the access and education about their new Hillside Preserve.	-	-	-	-	-	-	-	-	NA
66	Encanto Nature Walk	City of Duarte/Karen Herrera	The project will provide a nature center located in Encanto Park. Its location is unique in that it constitutes the transition zone between the nearby San Gabriel Mountains and the urban area above the Main San Gabriel Basin. The project will provide educational materials in the park and along the river, where a trail will lead from the nature center to a viewpoint located on a dike above the river. The park facilities will also include an outdoor classroom, native plant landscaping, and a bioswale designed to treat and release to groundwater the storm runoff that flows from the park. Adaptations to intercept some storm water from adjacent neighborhoods are also being explored. Visitors who experience the educational message of the nature center will be able to directly experience these lessons in a walk along the river. The project is accessible via the Puente Largo Bridge to users of the San Gabriel River bike trail.	-	-	-	-	-	X	-	-	The project will provide a living example of the value of the San Gabriel River to serve the needs of area residents. It will stress the importance of ground water clean-up, storm water treatment and recharge and water conservation. It will allow visitors to safely enter the river environment via a river bank trail, a bridge, and an educational viewpoint located on a transverse dike, all located above flood levels. It will provide a bioswale to collect and treat storm runoff, with the potential to extend this treatment to urban runoff adjacent to the park. It will also provide a recreational trail that will provide opportunities for a casual stroll along the river, helping to establish in visitors' minds the idea that the river is a living resource. This trail is extendable to Fish Canyon and beyond, with future funding, to allow the Emerald Necklace system to be integrated with trails leading into the San Gabriel Mountains.
67	Valley Blvd Gateway	City of El Monte	City of El Monte will improve connections from Mountain View High School & surrounding neighborhoods to the SG River Bike Trail. The project includes entry signage.	-	-	-	-	-	-	-	-	NA
68	El Monte Storm Drain Daylighting/Green Infrastructure	City of El Monte & Amigos de Los Rios	Transform existing infrastructure along Old Valley Mall & El Monte Airport	-	-	-	-	-	-	-	-	NA
69	Gibson Park Habitat Plantings	City of El Monte and Amigos de los Rios, RMC	Part of the Emerald Necklace, Gibson Park grant from the RMC will fund native landscaping, an outdoor interpretive kiosk and an outdoor classroom where visitors and school children can learn about the natural history and resources of this watershed area.	-	-	-	-	-	-	-	-	NA
70	Gidley Elementary School Greening and Passive Recreation Enhancement	City of El Monte and Amigos de los Rios, RMC	Afternoon and weekend park programs at school sites. Gidley School is the only site in this region of the city large enough to host a large array of active sports. However being barren of vegetation, it is an undesirable location for passive recreation. The proposal is to enhance the site with drought-tolerant vegetation, a multiuse path and picnic areas.	-	-	-	-	-	-	-	-	NA
71	Durfee/Thompson Habitat Park and Trail	City of El Monte and Amigos del los Rios, RMC	The City of El Monte acquired funds from Murray Hayden and Quimby Funds Budget for a park on a 4.5 acre parcel of land between Durfee Thompson School and the San Gabriel River. There has been much community outreach regarding the design of the future park. Decisions for the future park include a jogging/walking trail and an outdoor classroom with native plant associations. They are seeking funding from the RMC for park design and a trail extension.	-	-	-	-	-	-	-	-	NA
72	Lashbrook Park	City of El Monte, RMC	The land is owned by the US Army Corps of Engineers. Lashbrook Park will be developed into a neighborhood park and rest stop for the bike trail on the Rio Hondo River. The existing vacant property will be landscaped with trees and turf, new fencing, security lighting, and picnic benches. A grant was applied for through the LA County Regional Park and Open Space Bond Act. The City is waiting for the results.	-	-	-	-	-	-	-	-	NA

Upper San Gabriel and Rio Hondo River Subregion Projects

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				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
73	Rio Hondo River Park - Rubio Wash to Railroad Track	City of El Monte, RMC	Identified in a study being performed for multiple agencies by the Sierra Club. The proposal covers improvements along an existing County trail that will improve access, develop adjoining parcels of bare land adjacent to the right-of-way, including a 3 acre wetland project, enhance habitat along the full length of the Rio Hondo in the project area, improve signage and develop educational displays.	-	-	-	-	-	-	-	-	NA
74	Metrolink Station Trail	City of El Monte, RMC	The Metrolink station is located approximately one-third of a mile from the Rio Hondo Bike Trail. Providing a connecting grail between the River and the MTA station would allow regional bike trail and public transportation users to gain access to the Metrolink trains by bicycle and to the river via public transportation.	-	-	-	-	-	-	-	-	NA
75	El Monte Multi-Use Trail Master Plan	City of El Monte, RMC	Planning to strategically map highly utilized multi-use pathways and corridors connecting existing city services to the rivers and tributaries that border the City and surrounding areas.	-	-	-	-	-	-	-	-	NA
76	Rio Vista Park Restoration	City of El Monte, RMC	The Rio Vista Park Restoration is a project that provides the restoration and rehabilitation of Rio Vista Park complete with interpretive displays, historical depictions of the Rio Hondo. Newly constructed bicycle trails and pedestrian walkways formed with native vegetation and historical growth will line the park and the Rio Hondo River and provide pedestrian connection points between major corridor of the City.	-	-	-	-	-	-	-	-	NA
77	Rio Vista Native Plant Garden Entrance Swale	City of El Monte, RMC	Rehabilitation of unused land between Rio Vista School and several houses transforming it into an additional entrance from Bisby Street through a narrow swale. The land will be developed into a native plant garden featuring drought tolerant plants, benches), and signage.	-	-	-	-	-	-	-	-	NA
78	Rio Vista Nature Trl - RR Trk to Peck Pk	City of El Monte, RMC	Second phase following the Rio Vista Park rehabilitation. Funding would provide for landscaping and trail improvements to the Rio Hondo right of way from Rio Vista Park to Valley Boulevard connecting the park and the river trail. The improvements will include an entrance gate, native plants, benches and interpretive signage showcasing social and natural history.	-	-	-	-	-	-	-	-	NA
79	Ferguson Property	City of Glendora, Glendora Conservancy, SGMRC, RMC	Acquisition of approximately 200 acres of hillside property in the foothills of the San Gabriel Mountains in the City of Glendora for the purpose of preserving the existing sensitive coastal sage scrub, oak woodland and chaparral habitats and creating linkages between the Gordon-Mull open space acquisition project and the City owned open space and the Angeles National Forest/Experimental Forest on the north and east.	-	-	-	-	-	-	-	-	NA
80	Glendora Big Dalton Restoration	City of Glendora, Glendora Conservancy, SGMRC, RMC	RMC would assist the City of Glendora with a riparian/wetland restoration project to be completed within city limits.	-	-	-	-	-	-	-	-	NA
81	Wildwood Canyon	City of Glendora, Glenoora Community Conservancy, RMC	The project consists of a 201 acres acquisition and protection and enhancement of two blue-line streams and connected wetlands, sensitive plant communities. A hiking trail is proposed, a small house will be refurbished as a nature center and a habitat/restoration plan would be prepared and implemented with Glendora Community Conservancy.	-	-	-	-	-	-	-	-	NA
82	Gordon-Mull	City of Glendora, RMC	Gordon-Mull is a 42 acre acquisition which provides for the protection and enhancement of two blue-line streams and connected wetlands, sensitive plant communities. A hiking trail is proposed, a small house will be refurbished as a nature center and a habitat/restoration plan would be prepared and implemented with Glendora Community Conservancy.	-	-	-	-	-	-	-	-	NA
83	Big Dalton Creek Restoration	City of Glendora, RMC	Big Dalton is located in an SEA. The purpose of the project is to restore the stream banks and remove invasive exotics. Big Dalton feeds into groundwater recharge facilities and serves as a resource for day hikers and overnight campers. A nature trail on the north side of the stream would serve as a nature trail for hikers.	-	-	-	-	-	-	-	-	NA
86	La Habra Heights Natural Habitat	City of La Habra Heights	Preservation of open space in the Puente Hills corridor	-	-	-	-	-	-	-	-	NA
87	Puente Creek Nature Education Center	City of La Puente. RMC	The City of La Puente proposes acquisition of a vacant parcel along Puente Creek on which the Nature Center would be located. Situated between an existing school and the channelized creek, the sheltered education center will provide the local community as well as the students of the surrounding school districts the opportunity to gain knowledge of environmental issues that face our communities. The proposed facility will be an area which schools and other community organizations will be able to access for practical learning opportunities and passive recreation.	-	-	-	-	-	-	-	-	NA
88	Valley Rancho Park	City of La Verne, RMC	Detailed information not available for this project. Staff will obtain additional information about this project.	-	-	-	-	-	-	-	-	NA
89	Stephens Ranch Rd Trail	City of La Verne, RMC	Detailed information not available for this project. Staff will obtain additional information about this project.	-	-	-	-	-	-	-	-	NA
90	Monrovia Foothills-Pokrajac,Steve Pr	City of Monrovia, RMC	See #97 Above	-	-	-	-	-	-	-	-	NA
91	Monrovia Foothills-Pokrajac,Nick Pro	City of Monrovia, RMC	See #97 Above	-	-	-	-	-	-	-	-	NA
92	Monrovia Foothills - Butcher Property	City of Monrovia, RMC	Identified property for Hillside Wilderness Preserve Management Plan of the City of Monrovia. Properties have been identified based on location and connection value for incorporation into the Monrovia Canyon Park, which is presently 803 acres of hillside land.	-	-	-	-	-	-	-	-	NA
93	Monrovia Foothills-Bowden Development	City of Monrovia, RMC	Identified property for Hillside Wilderness Preserve Management Plan of the City of Monrovia. Properties have been identified based on location and connection value for incorporation into the Monrovia Canyon Park, which is presently 803 acres of hillside land.	-	-	-	-	-	-	-	-	NA
94	Monrovia Foothills-Miller Property	City of Monrovia, RMC	Identified property for Hillside Wilderness Preserve Management Plan of the City of Monrovia. Properties have been identified based on location and connection value for incorporation into the Monrovia Canyon Park, which is presently 803 acres of hillside land.	-	-	-	-	-	-	-	-	NA
95	Monrovia Foothills- Elkins Property	City of Monrovia, RMC	See #97 Above	-	-	-	-	-	-	-	-	NA
96	Monrovia Foothills-Emigh Property	City of Monrovia, RMC	See #97 Above	-	-	-	-	-	-	-	-	NA
97	Monrovia Foothills-Kissinger Property	City of Monrovia, RMC	See #97 Above	-	-	-	-	-	-	-	-	NA
98	Monrovia Foothills-Leonard Property	City of Monrovia, RMC	See #97 Above	-	-	-	-	-	-	-	-	NA
99	Monrovia Foothills-Sartwell Property	City of Monrovia, RMC	See #97 Above	-	-	-	-	-	-	-	-	NA
100	Monrovia Foothills-Siebert Property	City of Monrovia, RMC	See #97 Above	-	-	-	-	-	-	-	-	NA
101	Monrovia Foothills-Sachan Property	City of Monrovia, RMC	See #97 Above	-	-	-	-	-	-	-	-	NA
102	Monrovia Foothills-Oldson Property	City of Monrovia, RMC	See #97 Above	-	-	-	-	-	-	-	-	NA

Upper San Gabriel and Rio Hondo River Subregion Projects

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103	Monrovia Foothills-Woodward Property	City of Monrovia, RMC	See #97 Above	-	-	-	-	-	-	-	-	NA
104	New Interconnection with City of Alhambra	City of Monterey Park	Construction of a new interconnection w/City of Alhambra	-	-	-	-	-	-	-	-	NA
105	Treatment Plant Projects for Arsenic	City of Monterey Park	Construction/installation of treatment facilities to treat Arsenic to improve water quality at the City of Monterey Wells. These treatment facilities will increase the City's water supply.	-	-	-	-	-	-	-	-	NA
106	Treatment Plant Projects for Perchlorate & VOCs Location 4	City of Monterey Park	Construction/installation of treatment facilities to treat perchlorate & VOCs to improve water quality at the City of Monterey Wells and increase City's water supply.	-	-	-	-	-	-	-	-	NA
107	Treatment Plant Projects for Perchlorate & VOCs Location 2	City of Monterey Park	Construction/installation of treatment facilities to treat perchlorate & VOCs to improve water quality at the City of Monterey Wells and increase City's water supply.	-	-	-	-	-	-	-	-	NA
108	Treatment Plant Projects for Perchlorate & VOCs Location 1	City of Monterey Park	Construction/installation of treatment facilities to treat perchlorate & VOCs to improve water quality at the City of Monterey Wells and increase City's water supply.	-	-	-	-	-	-	-	-	NA
109	Treatment Plant Projects for Perchlorate & VOCs Location 3	City of Monterey Park	Construction/installation of treatment facilities to treat perchlorate & VOCs to improve water quality at the City of Monterey Wells and increase City's water supply.	-	-	-	-	-	-	-	-	NA
110	Barrel Springs Road Staging Area	City of Palmdale	Site will be used for a multi-purpose staging area where trail users can park trailers and vehicles and provide a stop along the trail.	-	-	-	-	-	-	-	-	NA
111	Flint Wash Bridge Crossing Restoration	City of Pasadena	The Flint Wash Bridge has been destroyed twice by fire and once by flood. It is a gap that now separates the trail system through the Arroyo Seco and the system leading into the Angeles National Forest. The City has already received $200,000 for the project. The project will also restore degraded habitat in the immediate area.	-	-	-	-	-	-	-	-	NA
112	Washington Park Implementation - Pasadena	City of Pasadena, RMC	Development, including rehabilitation and restoration of portions of Washington Park. Includes an interpretive Center and historic El Molino Walkway, development of a demonstration garden, park arroyo and stage area and development of a historic picnic area.	-	-	-	-	-	-	-	-	NA
113	San Gabriel Canyon Spreading Basins	City of Pico Rivera, RMC	The City and LADPW have joined to develop a plan to landscape the perimeter of the San Gabriel Canyon Spreading Basins. The basins can become an ideal access point to the San Gabriel River serving both local and regional purposes. Residential neighborhoods are within walking distance and the San Gabriel River bike path is adjacent. A $350,000 grant has been submitted under LA County Prop A.	-	-	-	-	-	-	-	-	NA
114	Well 38 Development Project	City of Pomona, TVMWD	New well development	X	0	800	-	-	-	-	-	NA
115	Ganesha GW Treatment Plant System	City of Pomona, TVMWD	3 to 4 new GW wells w/ treatment plant for nitrate & VOC removal	X	0	2500	X	-	-	-	-	NA
116	Simpson Well Assessment & Rehabilitation	City of Pomona, TVMWD	Engineering study to develop feasibility for online inactive GW wells	-	-	-	-	-	-	-	-	NA
117	Well 32 GW Treatment Project	City of Pomona, TVMWD	New wellhead GW tmt facility & rehab of Pomona's well 32	X	0	1000	X	-	-	-	-	NA
118	Pedley Spreading Grounds Reconfiguration	City of Pomona, TVMWD	Modernization of spreading grounds for more GW recharge in 6 basin	X	0	1000	-	-	-	-	-	NA
119	Pedley Water Treatment Plant Upgrade	City of Pomona, TVMWD	Feasibility study for upgrading existing Hardlinge Filter Plant	X	0	3000	X	-	-	-	-	NA
120	Well 37 GW Treatment Project	City of Pomona, TVMWD, MWD	New wellhead GW tmt facility & rehab of Pomona's well 37	X	0	1000	X	-	-	-	-	NA
121	Sonrise Property Acquisition - Open Space Rehabilitation	City of San Dimas, RMC	Purchase property available for development adjacent to Walnut Creek and to complete initial design work to develop public uses of the property.	-	-	-	-	-	-	-	-	NA
122	Walnut Creek Habitat & Open Space Acquisition Pgm	City of San Dimas, RMC	The project improves a public open space resource, enhances a riverfront greenway, provides enhanced accessibility to trails, and is a significant historic resource to the watershed.	-	-	-	-	-	-	-	-	NA
123	Horsethief Cyn Park Master Plan	City of San Dimas, RMC	The City has prepared a Master Plan for the site. Phase I (25% of the space) is complete. Future components include an Environmental Learning Center, parking access, future activity area, restrooms, face trail improvements, sycamore canyon trail, picnic area, and trail staging area.	-	-	-	-	-	-	-	-	NA
124	San Dimas Cyn Golf Course Expansion	City of San Dimas, RMC	Acquisition of one or more parcels adjacent to existing city-owned (jointly by San Dimas and La Verne) golf course to preserve adjacent scenic lands, preserve existing creek and expand parking and driving range.	-	-	-	-	-	-	-	-	NA
125	Sycamore Canyon Rd. Trail	City of San Dimas. RMC	Restoration of one and one half miles of long abandoned equestrian trail along an intermittent blue-line creek in Sycamore Canyon and at the same time reestablish native habitat.	-	-	-	-	-	-	-	-	NA
126	San Gabriel Youth Activity Facility	City of San Gabriel & San Gabriel UDS, RMC	NA	-	-	-	-	-	-	-	-	NA
127	Vincent Lugo Park Renovation	City of San Gabriel, RMC	Develop a master plan for the renovation of Vincent Lugo Park. Master Plan will link San Gabriel Unified School District, the City, and Los Angeles County Flood Control District. Improvement contemplated include interpretive walking trail, reintroduction of native plants, picnic shelters reflecting the City's unique cultural heritage.	-	-	-	-	-	-	-	-	NA
128	Rancho Las Tunas Adobe	City of San Gabriel, RMC	The Cranston family has informed the city that they would, upon their demise, consider deeding their 13,600 square feet of property and the historic Rancho las Tunas Adobe, built in 1790, to the city. The Cranston's would like the city to investigate acquiring properties on Mission Road, fronting the adobe, to open the adobe to be viewed by the public and provide open space for the community. Funding for this project has not been acquired.	-	-	-	-	-	-	-	-	NA
129	San Gabriel Skate Park	City of San Gabriel, RMC	NA	-	-	-	-	-	-	-	-	NA
130	Mission District Community Center	City of San Gabriel, RMC	Improvements to the Mission District Community Center surrounding the San Gabriel Mission.	-	-	-	-	-	-	-	-	NA
131	Smith Park Aquatic Center	City of San Gabriel, RMC	The Smith Park Pool Facility was built in 1956 and renovated in 1986. However, with the demands for use from the two high schools in the area and the community aquatic program, the existing pool needs to be completely replaced with a modern state of the art facility -- enlarged pool shell, new buildings with more space for the participants and the staff, and state of the art mechanical and deck equipment. Funding has not been acquired.	-	-	-	-	-	-	-	-	NA
132	New Well in the Main San Gabriel Basin for Sierra Madre	City of Sierra Madre	Construction of a new well in the Main San Gabriel Basin to pump groundwater to Sierra Madre's wellfield/distribution facility through a new transmission pipeline	-	-	-	-	-	-	-	-	NA
133	Additional Interconnections	City of Sierra Madre & other water systems	Construction of addl interconnections for emergency sources of supply for the City of Sierra Madre and/or other water systems	-	-	-	-	-	-	-	-	NA

Upper San Gabriel and Rio Hondo River Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
134	Willis Tract	City of Sierra Madre, RMC	The site is within 1/8 mile of Mount Wilson Trail which connects with the Winter Creek Trail at Decker Springs. The site is owned by Maranatha. It is zoned for single family residences and is under pressure for potential development. The home is architecturally significant and a pre-civil war cabin and barn owned by the founder of Sierra Madre exist on the site. 55.7 acres are undisturbed coastal sage scrub, chaparral, and sycamore, oak, and black walnut woodland. The current land use mimics the use for the last 120 years since the land was homesteaded.	-	-	-	-	-	-	-	-	NA
135	ThomasTract/Wadell Tracts	City of Sierra Madre, RMC	The project would preserve natural area and protect existing trailheads. Acquisition will enable the City to protect additional watershed resources, including groundwater and wildlife.	-	-	-	-	-	-	-	-	NA
136	Thienes Gateway	City of So. El Monte, HBT, Friends of the San Gabriel River, LAOSD	This gateway is an equestrian staging area & local access point to the equestrian trails along the west bank of the river. Improvements by the Hollywood Beautification Team & Friends of the San Gabriel River with funding from the L.A. County Open Space District include an artful gate by a local artist, horse tie posts, drinking water, signage, seating & native landscaping including trees.	-	-	-	-	-	-	-	-	NA
137	Hollydale Regional Park Community Center/Gymnasium	City of South Gate	The Project would create an inviting entry/exit from the LA River Bike Trail into Hollydale Park. The park is heavily used for youth soccer, basketball, tennis, picnics, and equestrian use. The park has two entries to the LARIO Trail. This is being developed into a entry/staging area. The area is owned by the City, LADWP, and Edison. The Project would also provide for a community center/gymnasium.	-	-	-	-	-	-	-	-	NA
138	Lemon Creek Restoration	City of Walnut, RMC	There are flood improvements and clearance of the creek area that need to be completed, past flood control measures have uprooted concrete preventing the natural flow of the creek.	-	-	-	-	-	-	-	-	NA
139	Snow Creek Restoration	City of Walnut, RMC	Need to clear out overgrowth of landscape that has blocked natural flow of the creek area and has created flood control problems. Also large amount of moss build up causing vector problems.	-	-	-	-	-	-	-	-	NA
140	Water Conservation and Field Improvements - Friendship Park	City of West Covina, RMC	Irrigation improvements.	-	-	-	-	-	-	-	-	NA
141	Water Conservation and Field Improvements - Shadow Park	City of West Covina, RMC	Irrigation improvements.	-	-	-	-	-	-	-	-	NA
142	Water Conservation and Field Improvements - Gingrich Park	City of West Covina, RMC	Irrigation improvements.	-	-	-	-	-	-	-	-	NA
143	West Covina Sports Complex	City of West Covina, RMC	Portion of the acquisition needed for conservancy efforts at the West Covina Sportsplex/BLD/BKK project site.	-	-	-	-	-	-	-	-	NA
144	Galster Park Project	City of West Covina, RMC	Development of family camp, making it a fully functional ADA accessible campground. The trails, restrooms, and signage will be upgraded. Landscaping will also be enhanced with native plants.	-	-	-	-	-	-	-	-	NA
145	Water Conservation and Field Improvements - Walmerado Park	City of West Covina, RMC	Irrigation improvements.	-	-	-	-	-	-	-	-	NA
146	Heritage Garden Project	City of West Covina, RMC	A portion of the east trail, bridge and interpretive signage along with benches and picnic tables at Heritage Garden Park.	-	-	-	-	-	-	-	-	NA
147	Water Conservation and Field Improvements - Orangewood Park	City of West Covina, RMC	Irrigation improvements.	-	-	-	-	-	-	-	-	NA
148	Maverick / Ridgeline Rider Project	City of West Covina, RMC	Master Plan/Biological Assessment for the Maverick/Ridge Rider park area along Walnut Creek.	-	-	-	-	-	-	-	-	NA
149	Water Conservation and Field Improvements - Palmview Park	City of West Covina, RMC	Irrigation improvements.	-	-	-	-	-	-	-	-	NA
150	Johnson's Pasture Acquisition	Claremont Wildlands Conservancy, RMC	The project is a continuation of the joint efforts of the City and the Claremont Wildlands Conservancy adn other agencies to preserve the properties East and West of Johnson's pasture as permanent open space. The project will help complete the wildlife corridor from the USFS from San Antonio Canyon in the east to Marshall Canyon to the west. The projects include multiple owners and parcels vary in size from 3 acres to more than 150 acres.	-	-	-	-	-	-	-	-	NA
151	Peck Park Lake Improvements	Cnty of L.A. Dept of Parks and Rec, RMC	Dredge and clean the lake basin of trash, sediment and debris	-	-	-	-	-	-	-	-	NA
152	Schabarum Park Stream Enhancement	Cnty of L.A. Pks & Rec., RMC	Project sponsors are seeking outreach partners for docent & interpretive programs of recently re-opened nature center operated by the SGMRC in partnership with Los Angeles County which provides interpretive trails, habitat restoration, etc.	-	-	-	-	-	-	-	-	NA
153	Washington Park Picnic & ADA Restroom	Cnty of L.A. Pks and Rec, RMC	NA	-	-	-	-	-	-	-	-	NA
154	East Los Angeles Civic Center Improvements	County of Los Angeles	Assist in creating a sustainable, educational water feature connecting the plaza through open space	-	-	-	-	-	-	-	-	NA
155	Legg Lake Fishing Pier	County of Los Angeles Department of Parks and Recreation	This grant will provide restoration of an area of North Legg Lake by implementing a shoreline restoration program which includes ADA parking, an access walkway and ramp, an informational kiosk and native landscaping.	-	-	-	-	-	-	-	-	NA
156	Whittier Narrows equestrian facilities enhancement (Update Title is Whittie	County of Los Angeles Department of Parks and Recreation	Existing LA County facilities on the San Gabriel River; need refurbishment and better access to trails	-	-	-	-	-	-	-	-	NA
157	Arroyo Rosa Castilla	County of Los Angeles Department of Public Works	The project consists of a barren hillside and Caltrans' flood control channel which runs on the west side of the 710 Freeway. The project will involve the naturalization of the channel and include open space enhancements such as a multipurpose trail and native landscaping. Overall, the project will proved multiple benefits related to recreation, improved water recharge, and open space enhancements in an urban environment.	-	-	-	-	-	-	-	-	NA
158	Gage Pocket Park	County of Los Angeles Department of Public Works	County DPW strip of land located along Blue Line, to be developed as a pedestrian walkway; small pocket park to be developed on one privately owned adjacent property.	-	-	-	-	-	-	-	-	NA
159	Langford Watershed Park	County of Los Angeles Department of Public Works	DPW withdrew project from consideration for grant funds. Project however, will be discussed and considered for implementation in NPS study (2005)	-	-	-	-	-	-	-	-	NA

Upper San Gabriel and Rio Hondo River Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
160	Santa Anita Dam & Santa Anita Debris Basin Seismic Rehabilitations	County of Los Angeles Department of Pulic Works	These projects will encompass the County of Los Angeles Dept. of Public Works' portion of the East Raymond Basin Water Resources Program's (ERBWRP) projects.	X	1000	0	-	-	-	-	-	NA
161	Bonelli Trail Bridge	County of Los Angeles Dept of Pks and Rec, RMC	Prefabricated 60 foot bridge for pedestrian and equestrian access over Upper Live Oak Creek.	-	-	-	-	-	-	-	-	NA
162	San Gabriel Inflatable Rubber Dam	County of Los Angeles, RMC	LADPW is building 2 new inflatable rubber dams over existing drop structures in the river. The dams provide temporary water storage & also create rich and attractive natural habitat.	-	-	-	-	-	-	-	-	NA
163	Whittier Narrows Nature Center Trail	County of Los Angeles, RMC	Restoration of the shoreline of the north and center lakes by natural soil stabilization measures.	-	-	-	-	-	-	-	-	NA
164	Santa Fe Dam Additional Swim Beach Area	County of Los Angeles, RMC	NA	-	-	-	-	-	-	-	-	NA
165	Covina Irrigating Co. Surface Water Treatment Plant Improvements	Covinia Irrigating Co., USGVMWD	Improvements to CIC Surface Water Treatment Plant needed to reduce the TTHM precursors. New TTHM requirements have been adopted by the federal government.	X	7000	0	-	-	-	-	-	NA
166	A San Gabriel River Discovery Center is being planned to replace the existi	Discovery Center Watershed Education Program	A San Gabriel River Discovery Center is being planned to replace the existing, small Nature Center in Los Angeles County's Whittier Narrows Recreation Area. The new Discovery Center will present the story of the San Gabriel River and its watershed and will emphasize the importance of water resources and the natural values of the watershed. Its audience will range from school children to adults. The Center will also continue the current natural history message presented by LA County Parks and Recreation at the existing Nature Center. The planned facility would consist of a 16,000 square foot "green" building with an auditorium, classrooms and hands-on exhibits on the river's ecology, plus an outdoor classroom, and a recreated Tongva fishing camp. The Center will also be an important node in the planned Emerald Necklace chain of parks along the river.	-	-	-	-	-	-	-	-	NA
167	Organic Community Farm	EarthWorks Enterprises	This grant is to fund several projects at the EarthWorks Community Organic Farm, located in South El Monte. A native plant revegetation meadow, a native plant demonstration garden, living visual screens, and development of related educational programs and materials are all proposed.	-	-	-	-	-	-	-	-	NA
168	Ramona Blvd Gateway	El Monte, Baldwin Park	The Ramona Blvd gateway project will provide a key entry point to the San Gabriel River bike Trail & the City of El Monte	-	-	-	-	-	-	-	-	NA
169	Float Tubing & Fishing Study	FFCOC	FFCOC proposed this study to investigate providing seasonal access to the Morris & San Gabriel Reservoirs for fishing and other low-impact recreational activities, including allowing float tubes & non-morotized boats onto the waters and shoreline of these two water bodies.	-	-	-	-	-	-	-	-	NA
170	Peck Water Conservation Park	Friends of the Los Angeles Chap. Found., City of El Monte, Amigos de los Ri	Survey the Rio Hondo from Alhambra Wash to Peck Road Water Conservation Park to evaluate potential open space acquisitions, trail access improvements, identify habitat restoration projects, recreation potential, alternative transportation value, and interpretive value. A Master plan will be developed for entranceway improvements, habitat restoration, native garden, irrigation improvements, and other park amenities.	-	-	-	-	-	-	-	-	NA
171	Horseman's Park Restoration	Friends of the S. G. River, RMC	Landscaping and gateway to provide improved connection between local community and Horseman's Park	-	-	-	-	-	-	-	-	NA
172	Copper Toxicity Model	Gateways Cities COG, RMC	NA	-	-	-	-	-	-	-	-	NA
173	Padua Well Development	Golden State Water Co., TVMWD	New well development	X	0	1000	-	-	-	-	-	NA
174	Indian Hill Well Development	Golden State Water Co., TVMWD	New well development	X	0	1000	-	-	-	-	-	NA
175	Puente Chino Hills Wildlife Coordidor	Habitat Authority, RMC	Acquisition of properties along the Puente-Chino Hills Wildlife cooridor from Orange County to the San Gabriel River.	X	-	-	-	-	-	-	-	NA
176	Seventh Avenue Trailhead Improvement	Habitat Authority, RMC	The Seventh Avenue Trailhead improvements project involves the development of a trailhead, including interpretive signage, a parking area, ADA access, and vegetation, along with a bioswale.	-	-	-	-	-	-	-	-	NA
177	Bubalo Quarry	Hanson Aggregate West	A reclamationplan for the quarry is in progress.	-	-	-	-	-	-	-	-	NA
178	San Gabriel River Beautification & Environmental Enhancement	HBT, City of Irwindale, WCA, LADPR, ACE	An environmental beautification opportunity for the City of Irwindale in partnership with the Hollywood Beautification Team. This 1.4-mile enhancement of the existing bike trail would inclue a bike staging area & other improvements designed to provide a better interface between the Santa Fe Dam and the San Gabriel River Bike Trail.	-	-	-	-	-	-	-	-	NA
179	Lifeblood of Ranching SG Valley	Hurst Ranch Historical Foundation, RMC	Interpretive display presenting history of water and irrigation in the San Gabriel Valley prior to 1950.	-	-	-	-	-	-	-	-	NA
183	Agricultural Effluent Storage & Reuse	LACSD	Construction of 36-inch transmission main and storage reservoirs to serve agricultural users and potential urban use in City of Lancaster.	X	0	22000	-	-	-	-	-	NA
184	Walnut Valley Water District 2	LACSD	Recycled Water Master Plan	X	0	3000	-	-	-	-	-	NA
185	Walnut Valley Water District 3	LACSD	Recycled Water Master Plan	X	0	3000	-	-	-	-	-	NA
186	Santa Fe Dam Recreation Area & Habitat Enhancements	LADPR	LADPR plans improvements to habitat areas & trails, including the protection & restoration of remnant aluvial fan sage scrub plant communities by replanting native plants & removing exotics. Other improvements include improving access to the Park's bicycle path by establishing safe crossings and directional signage.	-	-	-	-	-	-	-	-	NA
187	Whittier Narrows Nature Center Ecosystem Restoration	LADPR, ACE	Project supported by LADPR in development for 6 years, based on a U.S. ACE project options study, the selected option is to build a 25-acre pond, line two lakes to reduce water loss, remove invasive plants, & restore native vegetation. The lakes could be interconnected to Lario Creek & water in the lakes could flow through the system and down to the Rio Hondo Spreading Grounds.	-	-	-	-	-	-	-	-	NA
188	Whittier Narrows Wildlife Lakes	LADPR, Water Replenishment District	LADPR believes it is important to preserve these two large lakes as wetlands. The lakes, located at the Nature Center, should be lined to reduce water percolation.	-	-	-	-	-	-	-	-	NA

Upper San Gabriel and Rio Hondo River Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
189	Historic Aerial Photography Preservation	LASGR Watershed Council	Identify and catalog aerial photographs from the past that show extent of historic wetlands and riparian habitats in Los Angeles County.	-	-	-	-	-	-	-	-	Historic aerial photography is a critical asset for land management in that it provides one of the only links to prior conditions of the landscape necessary to 1) assess changes in environmental conditions, 2) facilitate recording of cultural features, or 3) classify landuse and habitat change. Many of the early collections no longer have negatives in case the originals are destroyed or lost. These same photos are also showing signs of heavy use and age. Even if negatives are available (particularly for sets after the 1950s), reproducing new prints has proven to be costly. In addition, accessibility and searchability is especially limited. Photos are open to the public on a restricted basis, searching for the desired set can be timely, and the current monitoring/check-out system limits photo acquisition if demand is high.
190	Invasive Weed Control in Riparian Habitat of Los Angeles Basin	LASGR Watershed Council	Undesirable invasive non-native plants will be selectively controlled by targeted herbicide applications, requiring minimal cutting and biomass reduction, extending and expanding previous habitat restoration work. Work is required throughout the upper watersheds, and extending to the ocean, e.g., Millard Canyon, Rio Hondo Riparian Corridor, San Gabriel; river channel at Whittier Narrows, Whittier Narrows Nature Center, Santa Fe Dam Basin and San Gabriel; river channel in Azusa, and Eaton Canyon Nature Center. Pre- and post-project monitoring, including mapping, is necessary to achieve long term success.	-	-	-	-	-	-	-	-	NA
191	Online Watershed Primer	LASGR Watershed Council	The project would create a single-source, comprehensive collection of maps, diagrams, and brief texts presenting an accessible, broad and rich description of the LA and San Gabriel River watersheds.	-	-	-	-	-	-	-	-	NA
192	Sustainable Landscape Program	LASGR Watershed Council	Further development of Los Angeles County focused sustainable landscape education program for home owners, businesses, institutions, and elected and appointed officials. The program would use a variety of delivery methods appropriate each target audience to encourage a "landscape ethic" with a focus on practices such as the incorporation of native and Mediterranean climate plants, water conservation best practices, invasive plant removal and green waste reduction.	X	-	-	-	-	-	-	-	NA
193	Watershed Education for Elected/Appointed Officials	LASGR Watershed Council	Promote an integrated approach to regional water management and land use planning and the application of watershed approaches to resources management issues through training and outreach to decision-makers.	-	-	-	-	-	-	-	-	Ongoing annual costs of approx. $250,000/yr (initial year $400,000)
194	Grow Native! Brochure	LASGRWC, RMC	Design, print and widely distribute a brochure communicating the benefits of using native plants in gardens and other regional landscaping efforts.	-	-	-	-	-	-	-	-	NA
195	Containment of Contamination at Lincoln Ave. Water Co.	LAWC, City of Pasadena, Raymond Basin Management Board	Cleanup within Raymond Basin.	-	-	-	-	-	-	-	-	NA
196	Plant Profiles of Southern California Natives	Los Angeles and San Gabriel Rivers Watershed Council	Develop a searchable native plant image and information library/database. Images and information will be made available to organizations for use in professional documents, plans, presentations, and outreach materials.	-	-	-	-	-	-	-	-	NA
197	Rio Hondo Trail Access Project (Proiect Title is Rio Hondo Trail Access Bri	Los Angeles County Department of Parks and Recreation	The trail periodically falls victim to the natural shifting of the adjacent stream bed. This shifting brings in debris and sometimes large objects that obstruct trail access. This situation requires the building of a small bridge over the wash to allow hikers and equestrians to cross. Los Angeles County Department of Parks and Recreation also plans to add native plants near the trail for shade and habitat.	-	-	-	-	-	-	-	-	NA
198	Big Dalton Spreading Grounds Improvements	Los Angeles County Flood Control District	Replace the intake structure at Big Dalton Spreading Grounds to better control and measure flows taken into the facility. Install perimeter landscaping for aesthetics.	X	100	0	-	-	-	-	-	Aesthetics
199	Irwindale Spreading Grounds and Manning Pit - Interconnecting Drain and Bas	Los Angeles County Flood Control District	Remove accumulated sediment from Irwindale Spreading Grounds and construct an interconnecting drain to Manning Pit.	X	100	0	-	-	-	-	-	NA
200	San Dimas Reservoir Sediment Removal	Los Angeles County Flood Control District	Remove approximately 200,000 cubic yards of accumulated sediment from San Dimas Reservoir and place the sediment in Manning Sediment Placement Site in Irwindale.	-	-	-	-	-	-	-	-	NA
201	San Jose Creek Spreading Grounds Feasibility Study	Los Angeles County Flood Control District	Study the feasibility of establishing a spreading grounds or water detention facility adjacent to San Jose Creek, on agricultural property currently owned by Cal Ploy University - Pomona . Include the feasibility of incorporating other compatible uses (e.g., landscaping, hiking/biking, etc.). San Jose Creek is the last major channel in the Upper San Gabriel River watershed with no water conservation facilities. The study would determine the facility size and water supply benefit	X	1000	0	-	-	X	10	0	Aesthetics
202	Santa Anita Reservoir Sediment Removal	Los Angeles County Flood Control District	Remove approximately 500,000 cubic yards of accumulated sediment from Santa Anita Reservoir and place the sediment in either Santa Anita Sediment Placement Site in Arcadia or Manning Sediment Placement Site in Irwindale.	X	1000	0	-	-	-	-	-	NA
203	Santa Anita Spreading Grounds Improvements	Los Angeles County Flood Control District	Reconfigure and deepen the spreading basins at Santa Anita Spreading Grounds for more efficient operation and storage. Construct inter-basin structures and motorized inter-basin drain gates.	X	1000	0	-	-	-	-	-	NA
204	Big Dalton Reservoir Sediment Removal	Los Angeles County Flood Control District	Remove approximately 200,000 cubic yards of accumulated sediment from Big Dalton Reservoir and place the sediment in Manning Sediment Placement Site in Irwindale.	X	1000	0	-	-	-	-	-	NA
205	Peck Lake Wetlands Enhancement and Recharge	Los Angeles County Flood Control District	Develop wetland habitat on the south side of Peck Lake to improve water quality. Also utilize techniques to increase groundwater recharge within the basin.	-	-	-	-	-	-	-	-	NA
206	Peck Park Sub-Regional Trash Solution	Los Angeles County Flood Control District	Work with Cities of Arcadia, Monrovia, and Sierra Madre to develop a subregional solution at Peck Park for Trash TMDL compliance.	-	-	-	-	-	-	-	-	NA
207	Trash Removal Subregional Solution - Upper Rio Hondo	Los Angeles County Flood Control District	Develop a subregional trash capture BMP for the RIO_HONDO subwatershed in compliance with the LAR Trash TMDL	-	-	-	-	-	-	-	-	NA

Upper San Gabriel and Rio Hondo River Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
208	Trash Removal Subregional Solution - Upper Rio Hondo 1	Los Angeles County Flood Control District	Develop a subregional trash capture BMP for the RIO_HONDO subwatershed in compliance with the LAR Trash TMDL	-	-	-	-	-	-	-	-	NA
209	Trash Removal Subregional Solution - Upper Rio Hondo 2	Los Angeles County Flood Control District	Develop a subregional trash capture BMP for the RIO_HONDO subwatershed in compliance with the LAR Trash TMDL	-	-	-	-	-	-	-	-	NA
210	San Jose Creek TMDL Project Concept	Los Angeles County Flood Control District	Develop a project concept exploring multipurpose alternatives to address upcoming TMDL requirements in San Jose Creek. SCE has right-of-way along the south side of San Jose Creek. Their property may be used to implement Best Management Practices (BMPs) to treat storm water before it enters San Jose Creek.	-	-	-	X	-	X	0	50	NA
211	San Jose Creek Bike Trail Phase III	Los Angeles County Flood Control District	Potential expansion of the existing San Jose Creek Bike Trail, beginning along the southern bank of the creek from the San Gabriel River traveling east to Cal Poly Pomona and to Claremont along Thompson's Creek (a San Jose Creek tributary).	-	-	-	-	-	-	-	-	NA
212	San Jose Creek Bike Trail Bridge	Los Angeles County Flood Control District	This multi-use bridge would be part of a project to expand the San Jose Creek Bike Trail system. The bridge would connect bicyclists and pedestrians from the south bank of San Jose Creek with the north bank and the San Gabriel River Bike Trail.	-	-	-	-	-	-	-	-	NA
213	San Gabriel River Bike Trail Bridge	Los Angeles County Flood Control District	Develop a multi-use bridge to connect El Monte, South El Monte, and unincorporated LA County communities with the San Gabriel River Trail, the San Jose Creek Trail and the Duck Farm.	-	-	-	-	-	-	-	-	NA
214	Laguna Retention Basin	Los Angeles County Flood Control District	Presently the Laguna Retention Basin is used only for flood control purposes. This project is an opportunity to utilize multi-objective planning in a region that is presently park-deficient. ELA Holistic Watershed Study will consider implementation of this project.	-	-	-	-	-	-	-	-	NA
215	Walnut Spreading Basin Cleanout	Los Angeles County Flood Control District	Remove approximately 10,000 cubic yards of accumulated sediment from the Walnut Spreading Basin.	X	1000	0	-	-	-	-	-	NA
216	LACDA Project - Stormwater Management Plan	Los Angeles County Flood Control District	In cooperation with the Corps of Engineers, develop a hydraulic/hydrologic model(s) for the Los Angeles and San Gabriel River watersheds. Following development of a model, a plan will be developed to ensure future developments do not compromise the authorized level of flood protection in the LACDA Project area.	-	-	-	-	-	-	-	-	NA
217	Puddingstone Wetland	Los Angeles County Flood Control District	Construct wetlands to treat low-flows from Live Oak Wash, Marshall Canyon, and Puddingstone channels prior to discharge into Puddingstone Reservoir to enhance water quality and beneficial uses of the reservoir. The project will also provide passive/low impact recreational opportunities including trails with interpretive signage and outdoor classroom settings.	-	-	-	X	-	X	0	45	NA
218	Citrus and Ben Lomand Spreading Grounds – Interconnecting Pipeline	Los Angeles County Flood Control District	Construct a pipeline from Ben Lomand to Citrus Spreading Grounds.	X	1000	0	-	-	-	-	-	NA
219	Citrus Spreading Grounds Telemetry Improvements, Landscaping Improvements a	Los Angeles County Flood Control District	Install at Citrus Spreading Grounds telemetry at uppermost intake gates and link with current rubber dam telemetry at the facility; improve existing landscaping around the facility's perimeter; establish bike path along facility's existing paved access road; construct a 1.8-mile long porous pavement bike path along Big Dalton Wash between Barranca and Cerritos Avenues; replace existing pedestrian footbridge at school; plant trees along bike path to match existing trees at spreading grounds.	-	-	-	-	-	X	15	0	2 miles of bike path
220	Arrow Hwy Trail Connection	Los Angeles County Flood Control District	Develop a safer passage across Arrow Highway for SGR Bike trail users. Alternatives include building a new bridge over Arrow Highway, or going underneath through an existing tunnel, which needs repairs.	-	-	-	-	-	-	-	-	NA
221	Traffic Flow Improvements around Santa Fe Dam Recreation Area	Los Angeles County Flood Control District	LADPW proposed this study of vehicular traffic circulation patterns to identify improvements that will enhance public safety & improve pedestrian and bicycle acess near the Santa Fe Dam Recreation Area.	-	-	-	-	-	-	-	-	NA
222	Live Oak Spreading Grounds Intake Improvements	Los Angeles County Flood Control District	Create a retention/recharge facility behind the headworks of the Live Oak Wash Channel, which is adjacent to Live Oak Spreading Grounds.	X	100	0	-	-	-	-	-	NA
223	San Dimas Spreading Grounds Restoration	Los Angeles County Flood Control District	Restore the spreading basins that were washed out by the Jan 2005 Storm. New basins will be configured for more efficient operation; a bypass channel will be included to minimize large storm impacts to basins in the future.	X	1000	0	-	-	-	-	-	NA
224	San Gabriel Dam - Spillway Rubber Dam	Los Angeles County Flood Control District	San Gabriel Dam is located in the Angeles National Forest, above the City of Azusa, in the Upper San Gabriel Canyon. Dam releases recharge the Lower San Gabriel Canyon, Main San Gabriel and Central Basins.	X	1000	0	-	-	-	-	-	NA
225	San Gabriel Canyon Spreading Grounds	Los Angeles County Flood Control District	This project will study possibilities for providing landscaping, native habitat restoration, decorative fencing, interpretive signage, trails and other park amenities for public enjoyment and education. The 165-acre site project will be compatible with the groundwater recharge function of the two basins. Due to the deepness of the two basins, and the fact that it is a major water supply for Azusa, health and safety issues will be key project determinants.	-	-	-	-	-	-	-	-	NA
226	Zanjero Park at San Gabriel Canyon Spreading Grounds	Los Angeles County Flood Control District	This project will open a portion of the San Gabriel Canyon Spreading Grounds water conservation facility for public use by creating Zanjero Park. Improvements will include the restoration and expansion and enhancement of an existing watercourse, scenic open space, native landscaping, educational and interpretive signage. The park will serve as a rest stop for hikers, bicyclists and Angeles Forests visitors and as an integral part of planned passive recreational improvements in the area.	-	-	-	-	-	X	0	2	NA
227	Santa Anita Debris Dam Seismic Rehabilitation	Los Angeles County Flood Control District	The Santa Anita Debris Dam Seismic Rehabilitation Project will updrade the debris dam to comply with DSOD's requirements for seismic stability. Our consultant has developed three concepts for the rehabilitation: (1) a full rehabilitation consisting of relocation of the spillway and a new outlet tower; (2) a partial rehabilitation consisting of lowering the spillway invert to remove the debris dam from DSOD's jurisdiction and constructing a trash rack across the span of the spillway to provide sufficient sediment capacity; and (3) debris retention which consists of strengthening the outlet tower and spillway walls. The operating guidelines will be modified for maximum water conservation benefits.	-	-	-	-	-	-	-	-	The rehabilitation of Santa Anita Debris Dam will mitigate for seismic deficiencies to allow for additional flexibility in the operating guidelines for the debris dam. This will increase water conservation benefits in the East Raymond Basin. Surface runoff will be managed to increase the recharge in the Santa Anita Spreading Grounds for future use by the Cities of Arcadia and Sierra Madre.
228	Eaton Spreading Grounds Intake Improvements	Los Angeles County Flood Control District	Install a rubber dam in Eaton Wash channel to direct flows into Eaton Wash Spreading Grounds. The rubber dam would replace the current method of utilizing sandbags.	X	100	0	-	-	-	-	-	NA
229	Morris Dam Water Supply Enhancement Project	Los Angeles County Flood Control District	Project entails physical modifications to the Morris Dam Inlet/Outlet Works and control systems to facilitate a lower operational reservoir pool and the reliable conjunctive management of the resulting increased conserved water.	X	5720	0	-	-	-	-	-	NA
230	Sediment Management Plan (San Gabriel Canyon)	Los Angeles County Flood Control District	Implement sediment management plan for removing sediment that has accumulated behind both the San Gabriel Dam and the Morris Dam. In the wake of the 2002 Curve and Williams Fires, LACDPW is planning to undertake a 5-million cubic yard emergency clean out of San Gabriel Reservoir to be completed in 2006. Routine cleanouts will continue subsequently.	-	-	-	-	-	-	-	-	NA
231	Santa Anita Dam and Santa Anita Debris Basin Seismic Rehabilitations	Los Angeles County Flood Control District	These projects will encompass the County of Los Angeles Department of Public Works' portion of the East Raymond Basin Water Resources Program's (ERBWRP) projects.	X	1000	0	-	-	-	-	-	NA

Upper San Gabriel and Rio Hondo River Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
232	Santa Anita Dam Seismic Rehabilitation	Los Angeles County Flood Control District	The Santa Anita Dam Seismic Rehabilitation Project will upgrade Santa Anita Dam to comply with DSOD's design requirements for seismic stability and spillway adequacy. Our consultant has developed three concepts for the rehabilitation: (1) a full rehabilitation consisting of a full concrete buttress on the downstream face, to elevation 1300; (2) a partial rehabilitation consisting of a partial concrete buttress on the downstream face, to elevation 1270; and (3) a riser modification that will allow for a long-term maximum reservoir level at elevation 1230. The operating guidelines for the dam will be modified for maximum water conservation benefits.	X	2000	0	-	-	-	-	-	The rehabilitation of Santa Anita Dam will mitigate for seismic and spillway deficiencies, allowing for additional flexibility in the operating guidelines for the dam. This will increase water conservation benefits in the East Raymond Basin. Surface runoff will be managed to increase the recharge in the downstream spreading grounds, for future use by the Cities of Arcadia and Sierra Madre.
233	San Gabriel Dam Spillway Dam	Los Angeles County Flood Control District	Construction of a dam within the existing spillway at San Gabriel Dam to increase the maximum storage capacity of the reservoir by between 4500 acre-feet and 6500 acre-feet.	X	6500	0	-	-	-	-	-	NA
234	Sediment Management Plan (Cogswell Reservoir)	Los Angeles County Flood Control District	Cogswell Dam will be cleaned out about every 10 years by mechanical excavation. Removal of 1,000,000 CY of sediment. NEPA and CEQA reviews for the Sediment Mgt Plan were concluded in 1997 and 1998, respectively.	-	-	-	-	-	-	-	-	NA
235	Cogswell Dam Spillway Dam	Los Angeles County Flood Control District	Construction of a dam within the existing spillway at Cogswell Dam to increase the maximum storage capacity of the reservoir by between 1200 acre-feet and 1800 acre-feet.	X	1800	0	-	-	-	-	-	NA
236	Cogswell Dam – Spillway Rubber Dam	Los Angeles County Flood Control District	Cogswell Dam is located in the Angeles National Forest, above the City of Azusa, in the Upper San Gabriel Canyon. Dam releases recharge the Lower San Gabriel Canyon, Main San Gabriel and Central Basins	X	1000	0	-	-	-	-	-	NA
237	Buena Vista Bio Engineered Wetlands	Los Angeles County Flood Control District, RMC	This project will create bio-engineered wetlands for habitat restoration in a LACDPW spreading basin west of Santa Fe Dam. A conveyor line, operated by United Rock Products, runs across the westerly part of this property. The design and implementation of the wetlands will need to ensure the continued safe operation of this conveyor.	-	-	-	-	-	X	0	1	NA
238	Morris Dam Peninsula Park	Los Angeles County Flood Control District, RMC	The largest available open space along Angeles National Forest section of the river, this 40-acre peninsula juts into the Morris reservoir at the former site of a Navy torpedo testing facility adjacent to Highway 39. This site can be reclaimed and developed for recreational day-use, overnight camping, trails and a forest and/or historic interpretive center. The development of this site would provide needed park facilities with parking and other site amenities to relieve the serious weekend congestion of Forest visitors.	-	-	-	-	-	X	0	2	NA
239	San Gabriel Reservoir Recreational Study	Los Angeles County Flood Control District/OC Fly Fishermans Assn.	Update this 1992 LACDPW study that investigated expanding non-water oriented recreational activities at or near the reservoir. Its recommendations need to be updated in light of today's increased security considerations.	-	-	-	-	-	-	-	-	NA
241	Santa Fe Storm Water Storage Project: Divert Storm Water to San Gabriel Riv	Main San Gabriel Basin Producers	Install diversion works & pipelines from storm channels to the Santa Fe Dam. Increasing water in Santa Fe Dam & San Gabriel River will increase groundwater percolation & recharge.	-	-	-	-	-	-	-	-	NA
242	Urban Forestry and Sustainable Commu	Media and Policy Center Foundation of CA	The proposed project will develop and produce a multi-media PBS program on urban forestry and sustainable communities. This is a national effort which will focus on a number of cities across the nation that are taking major steps toward urban re-vitalization using "grow greener" policies.	-	-	-	-	-	-	-	-	NA
243	Edens Lost and Found: Emerald Necklace	Media and Policy Center Foundation of California	To produce a film on the Emerald Necklace that will be a portion of the PBS series Edens Lost and Found. Also provide a curriculum that will be developed closely with Amigos de los Rios to utilize with their community outreach, with the local schools and park programs as a companion to the film. Both of these products will utilize and enhance the interpretive themes and goals of the revitalized parks of the Emerald Necklace, emphasizing sustainable practices and choices.	-	-	-	-	-	-	-	-	NA
244	Duck Farm Geotechnical Studies Phase II	Mountains Rec and Cons. Authority, RMC	The grant provides for further geotechnical sampling on the Woodland Duck Farm property and independent analysis of the sampling results. The primary deliverable, a geotechnical report on the porosity of the underground strata will determine the feasibility of groundwater recharge at the site.	-	-	-	-	-	-	-	-	NA
245	Park Bond Project Management Service II (Capital Projects)	Mountains Rec. and Cons. Authority	NA	-	-	-	-	-	-	-	-	NA
246	RMC Grant Guidelines	Mountains Rec. and Cons. Authority	NA	-	-	-	-	-	-	-	-	NA
247	Commemorative Oaks	Mountains Restoration Trust	Commemorative Oaks is an oak and native plant restoration project in Malibu Creek State Park where volunteers are restoring the oak woodlands that once covered the Las Virgenes Valley.	-	-	-	-	-	X	-	-	NA
248	Emergency Interconnections	NA	Construction of emergency interconnections from the SGVMWD pipeline to the Water Facilities Authority, TVMWD, and IEUA treatment plants in the San Gabriel Valley and Inland Empire as a source of supply.	-	-	-	-	-	-	-	-	NA
249	Use of Parks as Groundwater Recharge Facilities	NA	Set up parks to be used for multi-purposes by installing fencing around parks that can be locked during groundwater recharge operations and opened when parks are available for recreational uses.	-	-	-	-	-	-	-	-	NA
250	San Jose Creek Habitat Restoration	North East Trees, RMC	North East Trees, with funding from L.A. County Open Space District, is restoring native plants along the northern slopes of San Jose Creek.	-	-	-	-	-	-	-	-	NA
251	San Jose Creek Greenway Improvements Ph II	North East Trees, RMC	Provide additional habitat benefits to current Greenway Project under design and due for completion. Additional plantings, interpretive signage, and volunteer events.	-	-	-	-	-	-	-	-	NA
252	Lario Creek Stream Corridor Restoration Plan (Lario Creek/Zone 1 Ditch)	North East Trees/Los Anegles County Flood Control District, RMC	This project proposes to transform a man-made water supply ditch into a natural meandering stream course (naturalize streambed, increase habitat value by planting native trees and understory along banks, use non-structural bioengineering methods to stabilize banks), providing passive/low impact recreational opportunities including trail links, interpretive signage, cultural and environmental education displays, and outdoor classroom settings.	X	0	5000	-	-	X	0	38	NA
253	Morris Dam Flow Study	OC Fly Fishers Club, RMC	Study to explore the feasibility of providing minimal water flow year-round below Morris Dam for possible fishing in the river.	-	-	-	-	-	-	-	-	NA
254	Trail Improvements	PHLNHPA	Icrease recreational use by improving trail access to ADA standards at Sycamore Canyon. The existing trailhead is directly adjacent to a perennial stream.	X	-	-	-	-	-	-	-	NA
255	Develop Wellfield/Pipeline outside the APH	Producers pumping from the APH	Develop new wellfield outside APH w/ dedicated transmission pipeline	-	-	-	-	-	-	-	-	NA

Upper San Gabriel and Rio Hondo River Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
256	Olive Pit	Producers within the Main San Gabriel Basin	Construction of diversion works from Big Dalton Wash to Olive Pit. Water conveyed to Olive Pit will be percolated into the groundwater basin.	-	-	-	-	-	-	-	-	NA
257	Puente Hills Wildlife Corridor	Puente Hills Landfill Native Habitat Preservation	Project will create a habitat movement corridor between the Puente-Chino Hills & Whittier Narrows, either near Rose Hills Cemetery along Sycamore Canyon or down the north slope towards San Jose Creek.	-	-	-	-	-	-	-	-	NA
258	Habitat Restoration	Puente Hills Landfill Native Habitat Preservation Authority (PHLNHPA)	Restoration and/or enhancement of 10 acres of riparian habitat in several canyons in the Puente Hills. This will contribute to the health of the watershed, increase biodiversity and enhance the Puente-Chino Hills Wildlife Corridor.	X	-	-	-	-	-	-	-	NA
259	Puente Hills and Whittier Narrows Habitat Connection	Puente Hills Landfill Native Habitat Preservation, RMC	Provides critical linkage for interconnected urban wildlife corridor between Puente Hills and Whittier Narrows; acquisitions to link up publicly protected land to help complete the Puente-Chino Hills Wildlife Corridor	-	-	-	-	-	-	-	-	NA
260	Children's Native Plant Garden	Rancho Santa Ana Botanic Garden	Planning project for a 3/4 acre children's native plant garden for children ages 4-7. The garden will highlight regionally significant indigenous communities and will incorporate interpretive exhibits on plant-animal interactions.	-	-	-	-	-	-	-	-	NA
261	Native Plant Palettes for the San Gabriel River	Rancho Santa Ana Botanic Garden, RMC	This grant provides funding for development of a list of native plants that can be used as suitable vegetation palettes for establishment of native plants in the San Gabriel River Watershed.	-	-	-	-	-	-	-	-	NA
262	Raymond Basin Monitoring Wells Location 2	Raymond Basin Management Board	Construct additional monitoring wells	-	-	-	-	-	-	-	-	NA
263	Raymond Basin Monitoring Wells Location 3	Raymond Basin Management Board	Construct additional monitoring wells	-	-	-	-	-	-	-	-	NA
264	Capture of Additional Storm Runoff	Raymond Basin Management Board	Enhancement of recharge facilities within Raymond Basin	-	-	-	-	-	-	-	-	NA
265	Construct Pipeline from Arroyo Seco to Eaton Wash	Raymond Basin Management Board	Construct Pipeline & Pump back facility from Arroyo Seco to Eaton	-	-	-	-	-	-	-	-	NA
266	Raymond Basin Monitoring Wells Location 1	Raymond Basin Management Board	Construct additional monitoring wells	-	-	-	-	-	-	-	-	NA
267	Westside/Raymond Basin Conjunctive Use	Raymond Basin Producers	Construct additional groundwater treatment facilities	-	-	-	-	-	-	-	-	NA
268	Spread Water at Eaton Basin through injection Wells	Raymond Basin Producers, Raymond Basin Management Board	Additional spreading at Eaton Spreading Basin	-	-	-	-	-	-	-	-	NA
269	Spread Imported Treated Water for Groundwater Recharge Location 2	Raymond Basin Producers, Raymond Basin Management Board	Spread imported treated H2O at Sierra Madre & Eaton	-	-	-	-	-	-	-	-	NA
270	Spread Imported Treated Water for Groundwater Recharge Location 1	Raymond Basin Producers, Raymond Basin Management Board	Spread imported treated H2O at Sierra Madre & Eaton	-	-	-	-	-	-	-	-	NA
271	Watershed Education in Multilingual Communities	Regents of the Univ. of CA	University of California Cooperative Education and East LA College are cooperating to develop a multilingual watershed interpretation and education curriculum to English as Second Language learners. Surveys with students using the program are in progress.	-	-	-	-	-	-	-	-	NA
272	Montebello Hills Open Space	Rivers and Mountains Conservancy	This is the largest open space property in the Whittier Narrows (480 acres) located just to the west of the dam. It has been reported that this property contains a significant gnatcatcher population. Staff is aware that the City is updating it's general plan and expects that this site will ultimately include habitat, open space, commercial and housing elements.	-	-	-	-	-	-	-	-	NA
273	Policy Maker Education Program-Los Angeles and San Gabriel Rivers Watershed	Rivers and Mountains Conservancy	The RMC has joined with the Watershed Council to develop a critical path for policy maker education which will shape the direction of watershed improvement education among government entities charged with decision making power.	-	-	-	-	-	-	-	-	NA
274	Trail Connections Plan	Rivers and Mountains Conservancy, La Habra Heights	Map trails, areas to make regional connections,identify and implement creek and trail restoration areas	X	-	-	-	-	-	-	-	NA

Upper San Gabriel and Rio Hondo River Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
275	Wildwood Canyon-San Dimas	RMC	Acquisition of San Dimas portion of Wildwood Canyon for habitat & open space.	X	-	-	-	-	-	-	-	NA
276	Pellissier Trailhead	RMC	Owner/developer of adjacent site would like to develop this property as a pocket park for recreation use, including a bench & hitching post for equestrians.	-	-	-	-	-	-	-	-	NA
277	East LA Multipurpose Projects	RMC	The unincorporated ELA area has a serious shortage of open space. There are many potential projects which staff has identified for further investigation including, but not limited to: landscape and open space buffers adjacent to proposed light rail staging areas, cultural and historical interpretation of cemeteries, remnant wetlands adjacent to Obregon Park, open space improvements to the Whittier Blvd. commercial corridor. Staff proposes to incorporate analysis of potential projects as part of our work program development.	-	-	-	-	-	-	-	-	NA
278	Holistic Watershed Plan for East L.A.	RMC	Development of a plan to integrate unused and underutilized public properties back into the city as open space. RMC Board approved resolution for NPS technical assistance grant.	-	-	-	-	-	-	-	-	NA
279	Civic Center Park Relocation Project	RMC	NA	-	-	-	-	-	-	-	-	NA
280	Chadwick Property	RMC	NA	-	-	-	-	-	-	-	-	NA
281	Regional Bike Path Extension	RMC	NA	-	-	-	-	-	-	-	-	NA
282	Bodkin/Kissak Property	RMC	Acquisition for habitat, open space & passive recreation.	-	-	-	-	-	-	-	-	NA
283	Bradbury Habitat and Open Space	RMC	There are several undeveloped parcels within the City of Bradbury jurisdiction which are part of the wildlife corridor connection along the San Gabriel Foothills. It is also possible that these parcels are necessary for an east-west trail corridor.	-	-	-	-	-	-	-	-	NA
284	Subsequent Plans: Habitat, River/Tributaries, Monitoring and Assessment	RMC	Development of RMC's subsequent plans based on applicable regional and local plans.	-	-	-	-	-	-	-	-	NA
285	North Facing Slope of San Gabriels	RMC	NA	-	-	-	-	-	-	-	-	NA
286	Well #3 Enhancement	Rubio Canon Land and Water Assoc	Install curtain wall below well #3 to capture surface water from Rubio Canyon. Drill well to boost stream water to treatment plant. Well provides additional water for Rubio.	-	-	-	-	-	-	-	-	NA
287	Enhancement of Canyon Collection System	RUBIO CAÑON LAND AND WATER ASSOC.	the proposed project will include the installation of a weir, grout curtain, upgrade well #3, drill and equip a new water supply well and install appurtenant plumbing and distribution piping from the new well to convey water to the existing water treatment plant. In so doing the water supply derived from the canyon should significantly increase.	-	-	-	-	-	X	0	20	NA
288	Emerald Necklace Segment A:Alhambra Wash to Eaton Wash	San Gabriel & Lower Los Angeles Rivers & Mountains Conservancy, Amigos de L	Landscaping, restoring & beautifying areas along Rio Hondo	-	-	-	-	-	-	-	-	NA
289	Emerald Necklace Segment B:Eaton Wash to S. Edge of Peck Pk	San Gabriel & Lower Los Angeles Rivers & Mountains Conservancy, Amigos de L	Landscaping, restoring & beautifying areas along Rio Hondo	-	-	-	-	-	-	-	-	NA
290	Emerald Necklace Segment D:San Gabriel River to Walnut Creek	San Gabriel & Lower Los Angeles Rivers & Mountains Conservancy, Amigos de L	Landscaping, restoring & beautifying areas along Rio Hondo	-	-	-	-	-	-	-	-	NA
291	Emerald Necklace Segment C: Peck Rd Water Conserv. Pk to SGR	San Gabriel & Lower Los Angeles Rivers & Mountains Conservancy, Amigos de L	Restore and beautify 6 acres & include community park	-	-	-	-	-	-	-	-	NA
292	Arcadia Wash Naturalization Project	San Gabriel & Lower Los Angeles Rivers & Mountains Conservancy, Amigos de L	Develop design and construction drawings to naturalize parts of the channel that passes through the LA County Arboretum, Santa Anita Park and Golf Course. Other features include native landscaping, a trail, benches, educational signage, bridges, and other amenities.	-	-	-	-	-	-	-	-	NA
293	Northrop Grumman S11 & S12 Shallow Zone Extraction	San Gabriel Basin Water Quality Authority	The project is a groundwater treatment facility.	X	0	16	X	-	-	-	-	NA
294	United Technologies Corporation Puente Valley Operable Unit Shallow Zone Re	San Gabriel Basin Water Quality Authority	The project is a groundwater treatment facility.	X	0	242	X	-	-	-	-	NA
295	San Gabriel Valley Water Company Plant B7	San Gabriel Basin Water Quality Authority	The project is a groundwater treatment facility.	X	0	137	X	-	-	-	-	NA
296	Northrop Grumman Puente Valley Operable Unit Intermediate Zone Remedy	San Gabriel Basin Water Quality Authority	The project is a groundwater treatment facility.	X	0	242	X	-	-	-	-	NA
297	San Gabriel Valley Water Company Plant B5	San Gabriel Basin Water Quality Authority	The project is a groundwater treatment facility	X	0	1256	X	-	-	-	-	NA
298	Golden State Water Company Wells SG1 and SG2 Perchlorate Treatment Facility	San Gabriel Basin Water Quality Authority	The project is a groundwater treatment facility.	X	0	403	X	-	-	-	-	NA

Upper San Gabriel and Rio Hondo River Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
299	Golden State Water Company Wells SG1 and SG2 VOC Treatment Facility	San Gabriel Basin Water Quality Authority	The project is a groundwater treatment facility.	X	0	403	X	-	-	-	-	NA
300	City of Monterey Park Fern Well	San Gabriel Basin Water Quality Authority	The project is a groundwater treatment facility	X	0	129	X	-	-	-	-	NA
301	City of Monterey Park Well 12 and 15 Treatment Facility	San Gabriel Basin Water Quality Authority	The project is a groundwater treatment facility	X	0	725	X	-	-	-	-	NA
302	City of Monterey Park Wells Nos. 1, 3 and 10 Treatment Facility	San Gabriel Basin Water Quality Authority	The project is a groundwater treatment facility	X	0	386	X	-	-	-	-	NA
303	California Domestic Water Company Well No 14	San Gabriel Basin Water Quality Authority	The project is a groundwater treatment facility	X	0	805	X	-	-	-	-	NA
304	San Gabriel Valley Water Company Plant 8 1,4-Dioxane and Perchlorate Treatm	San Gabriel Basin Water Quality Authority	The project is a groundwater treatment facility	X	0	805	X	-	-	-	-	NA
305	San Gabriel Valley Water Company Plant 8 VOC Treatment	San Gabriel Basin Water Quality Authority	The project is a groundwater treatment facility	X	0	805	X	-	-	-	-	NA
306	Suburban Water Systems Wells 121 & 142	San Gabriel Basin Water Quality Authority	Project restores water supply lost due to contamination.	X	0	9678	-	-	-	-	-	NA
307	San Gabriel Basin Water Quality Authority 1,4Dioxane Hot Spot Removal Treat	San Gabriel Basin Water Quality Authority	The project is a groundwater treatment facility.	X	0	24	X	-	-	-	-	NA
308	La Puente Valley County Water District Demonstration Project	San Gabriel Basin Water Quality Authority	The project is a groundwater treatment facility	X	0	403	X	-	-	-	-	NA
309	San Gabriel Valley Water Company Plant B6	San Gabriel Basin Water Quality Authority	The project is a groundwater treatment facility	X	0	1256	X	-	-	-	-	NA
310	San Gabriel Valley Water Company Plant G4	San Gabriel Basin Water Quality Authority	The project is a groundwater treatment facility.	X	0	193	X	-	-	-	-	NA
311	Amarillo Mutual Water Company VOC Treatment Plant	San Gabriel Basin Water Quality Authority	The project is a groundwater treatment facility.	X	0	81	X	-	-	-	-	NA
312	City of Monterey Park Well 5 & Well 6 VOC Expansion & Perchlorate Treatment	San Gabriel Basin Water Quality Authority	The project is a groundwater treatment facility	X	0	338	X	-	-	-	-	NA
313	East Side Performing Settling Defendants and City of El Monte East Side Dee	San Gabriel Basin Water Quality Authority	The project is a groundwater treatment facility.	X	0	97	X	-	-	-	-	NA
314	East Side Performing Settling Defendants East Side Shallow Remedy	San Gabriel Basin Water Quality Authority	The project is a groundwater treatment facility.	X	0	40	X	-	-	-	-	NA
315	Hermetic Seal Site Extraction	San Gabriel Basin Water Quality Authority	The project is a groundwater treatment facility.	X	0	6	X	-	-	-	-	NA
316	West Side Performing Settling Defendants West Side Shallow Remedy	San Gabriel Basin Water Quality Authority	The project is a groundwater treatment facility.	X	0	29	X	-	-	-	-	NA
317	Adams Ranch Mutual Water Company VOC Treatment Plant	San Gabriel Basin Water Quality Authority	The project is a groundwater treatment facility.	X	0	113	X	-	-	-	-	NA
318	Golden State Water Company Encinita VOC Treatment Plant	San Gabriel Basin Water Quality Authority	The project is a groundwater treatment facility.	X	0	362	X	-	-	-	-	NA
319	City of Alhambra Phase II VOC Treatment Plant	San Gabriel Basin Water Quality Authority	The project is a groundwater treatment facility.	X	0	805	X	-	-	-	-	NA
320	Valley County Water District SA1	San Gabriel Basin Water Quality Authority	The project is a groundwater treatment facility	X	0	1256	X	-	-	-	-	NA
321	City of Monrovia VOC Treatment Plant	San Gabriel Basin Water Quality Authority	The project is a groundwater treatment facility.	X	0	644	X	-	-	-	-	NA
322	Marshall Canyon Conservation Corridor Phase I	San Gabriel Mountains Regional Conservancy and LA County Parks and Rec., RM	Funding for acquisition of properties identified in the MCCC draft Conceptual Area Protection Plan. Properties will be maintained as open space to preserve unique habitat, preserve a wildlife corridor, protect the UP_SG_RVR River watershed, and provide for passive recreation.	-	-	-	-	-	-	-	-	NA

Upper San Gabriel and Rio Hondo River Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
323	Marshall Canyon Conservation Corridor Phase II	San Gabriel Mountains Regional Conservancy and LA County Parks and Rec., RM	Funding for acquisition of properties identified in the MCCC draft Conceptual Area Protection Plan. Properties will be maintained as open space to preserve unique habitat, preserve a wildlife corridor, protect the UP_SG_RVR River watershed, and provide for passive recreation.	-	-	-	-	-	-	-	-	NA
324	San Gabriel River to Mount Baldy and other trail connections	San Gabriel Mountains Regional Conservancy, RMC	Nexus of trails at and near this site for hiking into the mountains, trail up to Mt. Baldy	-	-	-	-	-	-	-	-	NA
325	Brownfield Study-San Gabriel Valley	San Gabriel Valley Council of Governments	Brownfields in the San Gabriel Valley COG area were identified for possible open space and economic development opportunities. Currently, ranking of the sites for future development as open space uses is underway and the project should be complete in Fall 2006. Approximately $65,000 funding will be returned to the RMC due to a smaller scope of work than originally anticipated.	-	-	-	-	-	-	-	-	NA
326	Implementtation of Rio Hondo Watershed Plan	San Gabriel Valley Council of Governments, RMC	Implementation of the Rio Hondo Watershed Management Plan (RHWMP) provides an organizing framework for community stakeholders working together to develop a healthy watershed within the densely developed urban environment of the San Gabriel Valley. The RHWMP contains an overview of existing conditions within the watershed, discusses how these conditions should shape the selection and design of watershed improvement strategies, and presents recommended projects and other solutions proposed by community stakeholders who developed this watershed plan.	-	-	-	-	-	-	-	-	NA
328	Assessing the role of natural watershed areas in overall watershed water qu	SCCWRP, RMC	Study use the data currently being collected by SCCWRP to augment existing watershed models w/ contributions from natural areas.	-	-	-	-	-	-	-	-	NA
329	Evaluation of stream periphyton & its relationship to beneficial uses	SCCWRP, RMC	Study to build on previous sampling efforts w/ collection of addtl. Data on algal blooms	-	-	-	-	-	-	-	-	NA
330	Evaluation of watershed nutrient levels under a range of conditions using w	SCCWRP, RMC	Study to develop watershed models of nutrient loadings to determine effect of urbanization on nutrient loands.	-	-	-	-	-	-	-	-	NA
331	San Gabriel river watershed historical ecology project	SCCWRP, RMC	Provide additional resources to expand existing investigation of historic ecology	-	-	-	-	-	-	-	-	NA
332	Use of Radar rainfall data to improve the accuracy of watershed models	SCCWRP, RMC	Study use radar rainfall est. to model watershed runoff & pollutant loading	-	-	-	-	-	-	-	-	NA
333	Watershed-scale evaluation of stream condition & restoration opps.	SCCWRP, RMC	Better coordinate & prioritize restoration opportunities	-	-	-	-	-	-	-	-	NA
334	Black Fly Vector Research	SGMRC	On behalf of the Fly Fishers Club of Orange County, a funded research study conducted by consultants of the San Gabriel Mountains Regional Conservancy is evaluating the river's black fly populations, a source of fish food.	-	-	-	-	-	-	-	-	NA
335	Operation River: Steelhead Return	SGMRC	New Project-Phase I brings together matching funding, grants and highly motivated partnering organizations (e.g., TU, CCC) to pilot structural enhancements and other solutions to bring back steelhead. Multiple purposes, uses, benefits, solutions focused on: water quality, riparian/river habitats, integrated uses, alternative (research based) structures-emphasis on monitoring/assessment element.	-	-	-	-	-	-	-	-	NA
336	Early Tongva Site Land Acquisition	SGMRC & Glendora Conservancy, RMC	Adjacent to Gordon Mull open space acquisition project. Upgrades and enhances the Gordon Mull with Tongva Native American excavation site, artifacts, wildlife cache-natural springs, ponds. House,/museum/nature center on site.	-	-	-	-	-	-	-	-	NA
337	Marshall Cnyn. Cons. Cor. Phase II 3	SGMRC and Cnty of L.A. Pks and Rec, RMC	See #53 above	-	-	-	-	-	-	-	-	NA
338	Marshall Cnyn. Cons. Cor. Phase I	SGMRC and Cnty of L.A. Pks and Rec, RMC	See #53 above	-	-	-	-	-	-	-	-	NA
339	Marshall Cnyn. Cons. Cor. Phase II 2	SGMRC and Cnty of L.A. Pks and Rec, RMC	See #53 above	-	-	-	-	-	-	-	-	NA
340	Marshall Cnyn. Cons. Cor. Phase II 5	SGMRC and Cnty of L.A. Pks and Rec, RMC	See #53 above	-	-	-	-	-	-	-	-	NA
341	Marshall Cnyn. Cons. Cor. Phase II 1	SGMRC and Cnty of L.A. Pks and Rec, RMC	See #53 above	-	-	-	-	-	-	-	-	NA
342	Marshall Cnyn Cons. Cor. Phase I	SGMRC and Cnty of L.A. Pks and Rec, RMC	Funding for acquisition of properties identified in the MCCC draft Conceptual Area Protection Plan. Properties will be maintained as open space to preserve unique habitat, preserve a wildlife corridor, protect the UP_SG_RVR River watershed, and provide for passive recreation.	-	-	-	-	-	-	-	-	NA
343	Marshall Cnyn. Cons. Cor. Phase II 4	SGMRC and Cnty of L.A. Pks and Rec, RMC	See #53 above	-	-	-	-	-	-	-	-	NA
344	Project Connect: Creek/Community Connection	SGMRC, RMC	Continuing project-phase II extension of project to maximize funding, matching funds, project implementation.	-	-	-	-	-	-	-	-	NA
345	Environmental Discovery Center	SGMRC, RMC	Continuing project-enhancement, matching funds (Prop 13)	-	-	-	-	-	-	-	-	NA
346	Trails Framework Implementation	SGMRC, RMC	New/continuing project-Based on SGR Watershed trails framework project. GIS data and analysis recommendations.	-	-	-	-	-	-	-	-	NA
347	Environmental Quality Assessment Projects	SGMRC, RMC	New Project-focus on the new health issues arising for plants, wildlife, habitats, and people (e.g., disease corridors, vector control/mgmt, mortality sinks)	-	-	-	-	-	-	-	-	NA

Upper San Gabriel and Rio Hondo River Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
348	Tongva and other Education Corridor Projects	SGMRC, RMC	New/Continuing Project-based on implementation of reconnecting 2000, educational structures, signage, models will be implemented (notably Tongva cultural/Education projects).	-	-	-	-	-	-	-	-	NA
349	San Gabriel River Watershed Habitat	SGMRC, RMC	Continuing Project-Phase II continuing research, data collection, mapping, GIS (collaborative projects) to build on and add to phase I and SGR Watershed Management Plan focus.	-	-	-	-	-	-	-	-	NA
350	S.G. River Watershed Habitat Assessment Plan	SGMRC, RMC	Study to map & assess current habitat conditions in the SG River Watershed. Also evaluate the opportunities & constraints for habitat restoration along urban corridors, undeveloped areas & protected open spaces.	-	-	-	-	-	-	-	-	NA
351	S.G. River Watershed Mgmt Plan Phase II	SGMRC, RMC	Planning study by SGMRC will develop land use-based recommendations that address water quality & supply, habitat, recreation & open space, and land & water stewardship opportunities.	-	-	-	-	-	-	-	-	NA
352	Upper S.G. River W.S. Habitat Plan Implementation	SGMRC, RMC	Continuing project, Phase II, III. Based on input regarding case studies, pilot projects, research recommendations of the Upper SGR watershed management plan, priority implementation projects will be recommended for study (II), and/or project initiation/enhancement (III).	-	-	-	-	-	-	-	-	NA
353	Watershed Integrated Network	SGMRC, RMC	New Project-Focused on pulling together available materials and resources to construct: (1) one step or event programs; (2) continuing short term and long term programs-3 weeks to school year. Multiple educational approaches and deliverables will be assessed and plotted. Planning team: administrators, consultants, partners, educators, support facilitators, youth leaders, trainers. Research based.	-	-	-	-	-	-	-	-	NA
354	Watershed Water Quality Projects	SGMRC, RMC	New Pilot projects in partnership projects focusing on science based solutions to pollution/clean up of streams flowing into the San Gabriel River; stream keeping, monitoring and related long term management.	-	-	-	-	-	-	-	-	NA
355	Watershed Wide Arundo Control	SGMRC, RMC	Continuing project, multi agency partnerships, various funding. More science based approach to more effective long term, sustainable management of this "one of the worst" river/water/watershed weeds.	-	-	-	-	-	-	-	-	NA
356	River Walk	SGRMP	San Antonio "River Walk" project potential adjacent to the west bank of the San Gabriel River	-	-	-	-	-	-	-	-	NA
357	SGVMWD - Raymond Basin Feeder	SGVMWD, Cities of Alhambra and Sierra Madre	Extend the SGVMWD pipeline into Raymond Basin to provide replenishment water to increase groundwater recharge & reduce impacts of APH. Project includes 3 phases: 1 - Provide water to Santa Anita & Sierra Madre Spreading Grounds; 2 - provide water to Eaton Spreading Grounds; and 3 - provide water to Arroyo Seco.	-	-	-	-	-	-	-	-	NA
358	Puente-Chino Hills Gap Analysis	Sierra Club, RMC	This project is a study to evaluate the ecological implications of habitat fragmentation that may occur in the area between Harbor Blvd and Tonner Canyon.	-	-	-	-	-	-	-	-	NA
359	San Gabriel River watershed stream, spring and wetlands conservation easements	SMBRC	Establishes funds to secure conservation easements on the properties with streams, wetlands, or springs.	-	-	-	X	-	X	-	-	NA
360	San Gabriel River watershed floodplain acquisitions	SMBRC	This project acquires and landbanks floodplain or floodprone properties, including historically floodprone properties, anywhere in the SGR watershed, stream or wetland restoration/daylighting funds, or where not immediately feasible, short-term habitat en	-	-	-	X	-	-	280	5000	NA
361	Historical Ecology of the RMC Territory	So CA Coastal Water Research Project	This project will: 1) Define and prioritize historical research questions to meet restoration and management information needs; 2) Develop historical data archive and database; 3) Develop initial land use history map and timeline; 4) Digitize and georectify key historical data sets; and 5) Assess the relative value of different historical data sources to answer pressing environmental management questions.	-	-	-	-	-	-	-	-	NA
362	Riparian and Wetland Mapping of RMC Territory	So CA Coastal Water Research Project	The purpose of this project is to generate comprehensive up-to-date digital maps of: 1) wetland habitats (including estuaries, streams, lake wetlands, depressional wetlands and vernal pools), 2) riparian vegetation community composition, 3) riparian geomorphic boundary and 4) flood control infrastructure for the RMC Territory.	-	-	-	-	-	-	-	-	NA
363	Habitat Passage Around Santa Fe Dam	TBD	Project will provide a habitat linkage at this "pinchpoint" to complete the Puente Hills to san Gabriel Mountains habitat corridor. The U.S. Army Corps of Engineers (ACE) owns key parcels in this area. ACE is willing to partner with other agencies & private groups to identify opportunities for creating this linkage.	-	-	-	-	-	-	-	-	NA
364	Pacific Electric Rails-to-Trails Project	TBD	A proposed multi-city project will create an east-west bike trail on an abandoned rail line running parallel to Foothill Blvd. between Monrovia in the west and Claremeont in the east. The proposed bike trail design will need to take into account a potential light rail line which is being considered for this route. This trail may integrate with the Duarte Bike Trail, crossing the San Gabriel River at the Puente-Largo Bridge.	-	-	-	-	-	-	-	-	NA
365	Community Recreation Facility	Temple City, RMC	The project consists of the purchase and development of 3 parcels in an industrial area adjacent to Eaton Wash. It is anticipated that development will include outdoor grass fields and picnic areas and a community recreation facility.	-	-	-	-	-	-	-	-	NA
366	La Verne Open Space: Marshall Canyon Creek Connection	The LaVerne Land Conservancy, RMC	Inland Cities Corporation owns the property. The site contains a creek, native grasses and oaks. It flows directly into a stream. The site provides a connection between the Sierra La Verne Golf Course, the Marshall Canyon Creek and trail, and the Angeles National Forest. The Forest and several trails can be accessed from the property. It would also provide important habitat.	-	-	-	-	-	-	-	-	NA
367	La Verne Open Space ANF Connection (Project 1)	The LaVerne Land Conservancy, RMC	The La Verne Open Space project is an enhancement of open space that was purchased by the City of La Verne and will be operated by the La Verne Land Conservancy. There will be trailhead signage, improvements and interpretation to the local students and community groups.	-	-	-	-	-	-	-	-	NA
368	T.R.E.E.S.	Treepeople	This organization provides a wide range of services which could be integrated with many of RMC's projects. These services include integrated watershed management technical assistance and policy education, a mobile community tool bank, public education, outreach and volunteer coordination	-	-	-	-	-	-	-	-	NA
369	Watershed Education Outreach	TreePeople	NA	-	-	-	-	-	-	-	-	NA
370	Romvary Property	Trust for Public Land, RMC	Foothill property located to the west of Fish Canyon. Possible acquisition opportunity. Has significant views, there are existing fire roads for hiking. Provides Forest Service area linkage	-	-	-	-	-	-	-	-	NA
371	San Gabriel Mountains Water Company Land and Water Rights Analysis	Trust for Public Land, RMC	Use of a consultant to 1) identify all public and private water company land holdings and water rights in the San Gabriel Mountain and foothill portion of the San Gabriel River watershed; 2)work w/ LADWP & LACFCD to identify land ownership and flood control easements; 3) develop information into a GIS layer.	-	-	-	-	-	-	-	-	NA
372	Six Basin Comprehensive Groundwater Improvement Project Phase 2	TVMWD & Six Basins Watermaster	3 of 9 new GW production wells w/ treatment & dist. Pipelines	X	0	1500	X	-	-	-	-	NA
373	Six Basin Comprehensive Groundwater Improvement Project Phase 1	TVMWD & Six Basins Watermaster	6 of 9 new GW production wells w/ treatment & dist. Pipelines	X	0	3500	X	-	-	-	-	NA
374	SGVMWD - Metropolitan Interconnection 2 (Rancho Cucamonga)	TVMWD and WFA	Construction of new interconnection for WFA from SGVMWD's Devil Canyon-Azusa pipeline to Rialto Feeder or directly to surface water treatment plants.	-	-	-	-	-	-	-	-	NA
375	SGVMWD - Metropolitan Interconnection 1 (Upland)	TVMWD and WFA	Construction of new interconnection for TVMWD from SGVMWD's Devil Canyon-Azusa pipeline to Rialto Feeder or directly to surface water treatment plants.	-	-	-	-	-	-	-	-	NA

Upper San Gabriel and Rio Hondo River Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
376	Glendora Basin Conjunctive Use Project	TVMWD, City of Glendora, & Main San Gabriel Basin Watermaster	Extension of Three Valleys PM-26 untreated water svc.	X	0	1000	-	-	-	-	-	NA
377	Six Basins & Chino Basin Conjunctive Use Program Enhancement	TVMWD, Inland Empire Utiltities Agency, Six Basins Watermaster, Chino Basin	Replenishment connection to SGVMWD's Azusa Devil's pipeline	X	0	1000	-	-	-	-	-	NA
378	Foothill Basin Conjunctive Use Project	TVMWD, MWD, & Golden State Water Co.	New untreated water svc connection off MWD Foothill feeder.	X	0	3600	X	-	-	-	-	NA
379	CIC Surface and GW Treatment Project	TVMWD, USGVMWD, Covina Irrigating Co.	Upgrade of CIC tmt plant	X	0	5000	X	-	-	-	-	NA
380	Fulton Plant GW Treatment Project	TVMWD, Walnut Valley W.D., Rowland W.D.	New GW well w/ ion exchange wellhead treatment & storage	X	0	1500	X	-	-	-	-	NA
381	Watershed U. - Rio Hondo	UC Cooperative Extension	This educational project would develop a Watershed U. training program for Rio Hondo. Watershed U. is designed to increase communication among watershed stakeholders, and to engage local decision makers in the process.	X	-	-	X	-	X	-	-	Increase stakeholder participation in land and water stewardship through outreach and education.
382	Gravel Pits Reclamation/Study	UP_SG_RVR MWD, RMC, Sierra Club, RMC	Determine potential as new open space for restoration, habitat, and economic development	-	-	-	-	-	-	-	-	NA
383	San Gabriel Valley Water Recycling Direct Reuse Project (Phase III - Future)	Upper San Gabriel Valley Municipal Water District	Phase III will supply about 2,500 acre-feet per year (AFY) of recycled water to future customers such as Southern California Edison, Caltrans, City of El Monte, City of South El Monte, City of Irwindale and potentially the City of Arcadia. The project will be supplied by the Whittier Narrows Water Reclamation Facility, which is owned and operated by the Los Angeles County Sanitation District via the Phase IIA project.	X	2500	0	X	2.2	X	2500	0	NA
384	San Gabriel Valley Water Recycling Direct Reuse Project (Phase IIA - Expansion)	Upper San Gabriel Valley Municipal Water District	Phase IIA expansion will wholesale recycled water from the Whittier Narrows Water Reclamation Facility owned and operated by the Los Angeles County Sanitation District initially to two (2) potential customers (Whittier Narrows Golf Course and South El Monte High School) in the South El Monte and Whittier Narrows Area. Phase IIA expansion will supply about 750 Acre-feet per year (AFY) of recycled water and will conserve about 700 AFY of potable water and groundwater by reducing the demand on groundwater and imported water supply for irrigation purposes	X	1000	0	X	0.7	X	700	0	Irrigation for turf and landscape.
385	San Gabriel Valley Water Recycling Direct Reuse Project (Phase IIB - Existing)	Upper San Gabriel Valley Municipal Water District	Phase IIB is part of a planned multi-agency recycled water facility expansion. The facility expansion includes the construction of delivery facilities, inter-agency pipelines, pump stations, storage reservoirs and system appurtenances. Phase IIB will expand to the City of Industry, Rowland Water District, Suburban Water Systems, Walnut Valley Water District.	X	3700	0	X	3.3	X	3700	0	NA
386	S. G. Riv. Environmental Graphic Design Services Program	Upper SG Riv WS, RMC	NA	-	-	-	-	-	-	-	-	NA
387	Watershed Coordinated Invasives Management	Upper SG Riv WS, RMC	Education targeting technical, legislative, and public audience to initiate science based programs, demo projects, and other programs. Mapping, monitoring, analysis, GIS data collection will be included.	-	-	-	-	-	-	-	-	NA
388	Forest Master Plan Update	USFS	4 southern National Forests including Ageles, San Bernardino, Los Padres and Cleveland are updating their Master Plans. Plans address issues of resource mgt, recreational access issues, habitat & other concerns of forest stakeholders.	-	-	-	-	-	-	-	-	NA
389	Hwy 39/San Gabriel River Recreation Needs Assessment	USFS, Caltrans, SGMRC	SGRMC is developing a proposal to address issues relating to high usage along the Hwy 39 area of the river, for a Prop 13 Nonpoint Source Pollution grant. A needs assessment study will explore current recreational usage & needs as well as potential impacts on habitat & water quality.	-	-	-	-	-	-	-	-	NA
390	Main San Gabriel Basin Groundwater Cleanup	USGVMWD	Construction of VOCs treatment facilities w/in USGVMWD's service area.	-	-	-	-	-	-	-	-	NA
391	Main San Gabriel Basin Recharge	USGVMWD	Replace imported SPW with reclaimed water from San Jose Creek WRP Stage III to prevent long-term groundwater overdraft of the basin.	X	0	10000	-	-	-	-	-	NA
392	Synthetic Turf Athletic Fields	USGVMWD	Installation of five synthetic turf as an alternative to natural turf on athletic fields at schools.	X	60	0	-	-	-	-	-	NA
393	Whittier Narrows Recreation Area	USGVMWD	Reclaimed water supply to Whittier Narrows Recreation Area, Golf Course, and Legg Lake from Whittier Narrows WRP. Potential extensions to more users and possibly City of Arcadia.	X	0	4650	-	-	-	-	-	NA
394	Surface Water Treatment Plants	USGVMWD	Construction of Surface Water Treatment Plants in the vicinity of the Rio Hondo Coastal Spreading Grounds. Water in the Rio Hondo Spreading Grounds can be pumped out, diverted to Surface Water Treatment Plants and then delivered to customers.	-	-	-	-	-	-	-	-	NA
395	San Gabriel Valley Water Recycling Direct Reuse Project (Phase I -Existing)	USGVMWD	Phase I currently wholesales approximately 1,000 Acre-feet per year (AFY) of recycled water to San Gabriel Valley Water Company which is the local purveyor supplying Mill Elementary School, Gateway Park Industrial Park, Rio Hondo College, Rose Hills Memorial Park	X	1000	0	X	0.9	X	1000	0	Irrigation of turf and landscape.
396	San Gabriel Valley Water Recycling Direct Reuse Project (Phase I - Extension)	USGVMWD	Phase I extension will expand the current regional pipeline to a potential carpet mill located in the City of Industry with a potential demand of 600 Acre-feet per year (AFY) of recycled water to this potential customer via the local purveyor of San Gabriel Valley Water Company.	X	600	0	X	0.5	X	600	0	Irrigation of landscaping
397	San Gabriel Valley Water Recycling Direct Reuse Project (Phase I - Expansion)	USGVMWD	Phase I expansion will expand the current supply of recycled water from regional pipeline to Gates 15 and 17 of the Rose Hills Memorial Park located in the unincorporated portions of Los Angeles County and the City of Whittier. These areas have a potential demand of 600 Acre-feet per year (AFY) of recycled water which will be supplied via a local purveyor San Gabriel Valley Water Company.	X	600	0	X	0.5	X	600	0	Irrigation for landscaping

Upper San Gabriel and Rio Hondo River Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
398	San Gabriel Valley Water Recycling Direct Reuse Project (Phase IIA - Existing)	USGVMWD	Phase IIA will wholesale recycled water from the Whittier Narrows Water Reclamation Facility owned and operated by the Los Angeles County Sanitation District initially to one customer (Whittier Narrows Recreation Area) in the South El Monte and Whittier Narrows Area. Phase IIA can supply approximately 5,500 Acre-feet per year (AFY) of recycled water and will supply approximately 2,200 AFY during this phase. In addition, the project will conserve about 2,200 AFY of potable water and groundwater by reducing the demand on groundwater and imported water supply for irrigation purposes	X	2200	0	X	2	X	2200	0	NA
399	Rubber Dam Below Santa Fe Dam (San Gabriel River Storm Water Storage Proj2	USGVMWD	Installation of a rubber dam above the 10 Freeway to pond water for groundwater recharge. Water levels above the 10 Freeway in the San Gabriel River are low and increasing the water levels will enhance percolation. Within the Main San Gabriel Basin in the City of Irwindale.	-	5000	0	-	-	-	-	-	NA
400	Groundwater Recharge Program Concept	USGVMWD	Expansion of Treatment Feasibility Study @ San Jose Creek	-	-	-	-	-	-	-	-	NA
401	Rubber Dam Below Santa Fe Dam (San Gabriel River Storm Water Storage Proj1	USGVMWD	Installation of a rubber dam above the 10 Freeway to pond water for groundwater recharge. Water levels above the 10 Freeway in the San Gabriel River are low and increasing the water levels will enhance percolation. Within the Main San Gabriel Basin in the City of Irwindale.	X	5000	0	-	-	-	-	-	NA
402	San Gabriel Valley Recycled Water Demonstration Project	USGVMWD and SGVMWD	Replace an average of 8,100 AFY imported SWP water with recycled water from San Jose Creek WRP Stage III for groundwater recharge.	X	8100	10000	-	-	-	-	-	NA
403	Quarry Reclamation/Water Storage/Recreational Facilities Development Study	USGVMWD, RMC, Sierra Club	The Upper SGV MWD, Sierra Club, & the State of Calif. Rivers and Mountains Conservancy (RMC) initiated a study to identify potential reuse of gravel quarries for multiple purposes after mining is completed, including storm water capture & cleanup, recharge of storm water and imported water, flood reduction, recreation & habitat restoration, as well as aesthetic improvements.	X	5000	0	-	-	-	-	-	NA
404	Walnut Valley Water District 1	Walnut Valley W.D.	Recycled Water Master Plan. Future interconnection with East San Gabriel Valley Regional distribution system.	X	0	3000	-	-	-	-	-	NA
405	The Southeast San Gabriel Valley Groundwater Supply Project	Walnut Valley W.D., Rowland W.D.	This project will provide a local water supply for both the Walnut Valley and Rowland Water Districts, both solely dependent on imported water. This will be accomplished through the increased use of local groundwater sources involving extraction, delivery and treatment via in-pipe and reservoir blending.	X	4000	0	-	-	-	-	-	NA
406	Conjunctive Use for the Puente Basin	Walnut Valley W.D., Rowland W.D., TVMWD, Metropolitan	Export water from Main San Gabriel Basin to TVMWD's agencies. Export of groundwater from Main San Gabriel Basin will only be viable when there is a surplus amount of treated water available.	-	-	-	-	-	-	-	-	NA
407	Alosta Connection	Water purveyors in the Raymond & Main San Gabriel Basin	Construct new pipeline joining Metropolitan's Rialto Feeder to SGVMWD pipeline in San Dimas.	-	-	-	-	-	-	-	-	NA
408	Naturalize Storm Channels Concept	Watermaster	To naturalize by removing non-pervious material from the bottom of the storm channels, transitioning sides from concrete to natural stone & installing bridle paths and trees.	-	-	-	-	-	-	-	-	NA
409	Rubber Dams in Storm Channels Concept	Watermaster	Installation of a series of small rubber dams to capture runoff in channels.	-	-	-	-	-	-	-	-	NA
410	Small Recycled Water Systems at Schools & Shopping Centers	Watermaster	Retrofit by constructing underground storage facilities to capture runoff which can be channeled to underground storage & pumped out for irrigation uses.	-	-	-	-	-	-	-	-	NA
411	Use of Pervious Material for Roads Concept	Watermaster	Construction of roads with pervious material to limit runoff & enhance percolation	-	-	-	-	-	-	-	-	NA
412	Use of Artificial Turf as a Landscape Option Location 4	Watermaster	Installation of synthetic turf on golf courses, parks, schools and businesses to reduce water demands. Turf will allow rainfall to percolate for continued groundwater recharge.	-	-	-	-	-	-	-	-	NA
413	Use of Hazards at Golf Courses for Groundwater Recharge Concept Location 4	Watermaster	Increase amount of water hazards at golf courses for use as percolation basins.	-	-	-	-	-	-	-	-	NA
414	Recreational Use of Access Roads Concept Location 2	Watermaster	Remove paved access roads & replace with bridle paths and trees.	-	-	-	-	-	-	-	-	NA
415	Use of Artificial Turf as a Landscape Option Location 2	Watermaster	Installation of synthetic turf on golf courses, parks, schools and businesses to reduce water demands. Turf will allow rainfall to percolate for continued groundwater recharge.	-	-	-	-	-	-	-	-	NA
416	Use of Hazards at Golf Courses for Groundwater Recharge Concept Location 2	Watermaster	Increase amount of water hazards at golf courses for use as percolation basins.	-	-	-	-	-	-	-	-	NA
417	Use of Artificial Turf as a Landscape Option Location 3	Watermaster	Installation of synthetic turf on golf courses, parks, schools and businesses to reduce water demands. Turf will allow rainfall to percolate for continued groundwater recharge.	-	-	-	-	-	-	-	-	NA
418	Use of Hazards at Golf Courses for Groundwater Recharge Concept Location 3	Watermaster	Increase amount of water hazards at golf courses for use as percolation basins.	-	-	-	-	-	-	-	-	NA
419	Increased Deliveries through other Metropolitan Connections Location 1	Watermaster	Increase deliveries of imported water from Metropolitan to reduce drawdown in the Alhambra Pumping Hole (APH). This option may be expensive & would need a feasibility study.	-	-	-	-	-	-	-	-	NA
420	Use of Artificial Turf as a Landscape Option Location 5	Watermaster	Installation of synthetic turf on golf courses, parks, schools and businesses to reduce water demands. Turf will allow rainfall to percolate for continued groundwater recharge.	-	-	-	-	-	-	-	-	NA
421	Use of Hazards at Golf Courses for Groundwater Recharge Concept Location 5	Watermaster	Increase amount of water hazards at golf courses for use as percolation basins.	-	-	-	-	-	-	-	-	NA

Upper San Gabriel and Rio Hondo River Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
422	Increased Deliveries through other Metropolitan Connections Location 2	Watermaster	Increase deliveries of imported water from Metropolitan to reduce drawdown in the Alhambra Pumping Hole (APH). This option may be expensive & would need a feasibility study.	-	-	-	-	-	-	-	-	NA
423	Recreational Use of Access Roads Concept Location 1	Watermaster	Remove paved access roads & replace with bridle paths and trees.	-	-	-	-	-	-	-	-	NA
424	Use of Artificial Turf as a Landscape Option Location 6	Watermaster	Installation of synthetic turf on golf courses, parks, schools and businesses to reduce water demands. Turf will allow rainfall to percolate for continued groundwater recharge.	-	-	-	-	-	-	-	-	NA
425	Use of Hazards at Golf Course	Watermaster	Increase amount of water hazards at golf courses for use as percolation basins.	-	-	-	-	-	-	-	-	NA
426	Waste Water Scalping Plants (	Watermaster	Construction of smaller recycled water plants placed to enable areas to receive recycled water without installing costly pump stations, etc.	-	-	-	-	-	-	-	-	NA
427	Use of Artificial Turf as a Land	Watermaster	Installation of synthetic turf on golf courses, parks, schools and businesses to reduce water demands. Turf will allow rainfall to percolate for continued groundwater recharge.	-	-	-	-	-	-	-	-	NA
428	Use of Hazards at Golf Course	Watermaster	Increase amount of water hazards at golf courses for use as percolation basins.	-	-	-	-	-	-	-	-	NA
429	Floating Islands at Spreading (	Watermaster	Installation of floating islands at San Gabriel Canyon spreading Grounds (also gravel pits) to enhance natural habitat. Spreading facilities & gravel pits can still be used for percolation while acting as a habitat for local species.	-	-	-	-	-	-	-	-	NA
430	Green Visions Phase II	Watershed Conservation Authority	This Phase II project is to implement the major tasks identified in the Phase I framework, to identify and assess opportunities for habitat conservation and restoration, open space acquisition and recreational facilities development, and watershed protection efforts. The GIS planning tool and data sets will also be created. To retain its utility, the data infrastructure associated with this tool will need to be managed. This phase of the project will span at least two years, with a start date of January 1, 2005.	-	-	-	-	-	-	-	-	NA
431	Integrated Regional Water Ma	Watershed Conservation Authority	The project involved making preliminary findings regarding project opportunities and related criteria for the Integrated Regional Water Management Plan for the San Gabriel and Lower Los Angeles River Watershed Region	-	-	-	-	-	-	-	-	NA
432	RMC Work Program Implemer	Watershed Conservation Authority	NA	-	-	-	-	-	-	-	-	NA
433	Native Vegetation Palettes	Watershed Conservation Authority	The establishment of appropriate vegetation palettes is a necessary step in the process of establishing and conserving habitat within the RMC territory. Using data based upon historic and existing vegetation types within the San Gabriel River and Lower Los Angeles River Watersheds, this study will identify suitable plant palettes for projects that have a landscape component. The work will be carried out by a consultant team with a background in native plants of Southern California.	-	-	-	-	-	-	-	-	NA
434	Duck Farm Phase 1A	Watershed Conservation Authority, RMC	First sub-phase of implementation of the Concept Plans for the 57 acre park.	X	-	-	-	-	-	-	-	NA
435	Duck Farm Phase 1B	Watershed Conservation Authority, RMC	Second sub-phase of the implementation of the Duck Farm Concept plans for the 57 acre park.	X	-	-	-	-	-	-	-	NA
436	Duck Farm Phase 2	Watershed Conservation Authority, RMC	Implementation of the Concept plans for the southern half of the 57 acre Duck Farm park.	X	-	-	-	-	-	-	-	NA
437	San Gabriel River Discovery C	Watershed Conservation Authority, RMC	LADPR, RMC, and the UP_SG_RVR Valley MWD are jointly developing a new regional indoor/outdoor museum and conference center on the site of the existing Whittier Narrows Nature Center.	-	-	-	-	-	-	-	-	NA
438	El Encanto	Watershed Conservation Authority, RMC	The development of the concept plans for the 39.9 acre portion of the Azusa River Wilderness Park.	-	-	-	-	-	-	-	-	NA
439	Green Visions - Habitat, Trail a	Watershed Conservation Authority, RMC	The product of this grant is a framework for the Green Visions Plan. The deliverables included a plan inventory, online plan library and map, data scan and analytical framework and workshop.	-	-	-	-	-	-	-	-	NA
440	Rivers and Tributary Access Ir	Watershed Conservation Authority, RMC	The WCA has identified trail access and signage improvements as a critical need for the river corridors in our territory. While there is a tremendous need to add new open space and river parkway improvements, many of our existing parks and bikeway access points are unknown to the community because there is either inadequate or a total lack of signs for these sites.	-	-	-	-	-	-	-	-	NA
441	Long Term Mgt Plan: West Fo	West Fork Working Group	West Fork Working Group (WFWG) Plan addresses mgt of the West Fork, including cogswell Reservoir. WFWG includes the USDA Forest Service, LADPW, Calif Dept of Fish & Game, Calif. Trout, Inc., Main San Gabriel Basin Watermaster, San Gabriel Valley Protective Assn, and San Gabriel Water Committee. 6 objectives of the Plan include flood control, dam safety, water rights, fisheries optimization, recreation & land use mgt.	-	-	-	-	-	-	-	-	NA
442	Mission Creek Restoration Pro	Whittier Narrows Nature Center	Mission Creek drains from Legg Lake. The project calls for stabilization of the banks, the installation of a debris boom, and the reintroduction of native plants.	-	-	-	-	-	-	-	-	NA
443	Nike Site 29	Wildlife Corridor Conservation Authority, RMC	Coordinate the application for surplus property from the National Park Service of Nike Site 29, parcel 2. Once the Nike Site is acquired the staff will coordinate the agreements for operation and maintenance of the site as well as long term ownership of the property.	-	-	-	-	-	-	-	-	NA
444	Tonner Biological Corridor-AE	Wildlife Corridor Conservation Authority, RMC	Acquisition of the property will provide for habitat, low-impact recreation and hiking and biking. Numerous studies have identified this property as a regionally significant ecological area as part of the Tonner Biological Corridor. The areas has been identified as one of the Top Ten "Missing Linkages" in the South Coast Ecoregion of California. Prop A has set aside $10 million for WCCA. The City of Brea is negotiating to apply mitigation funds to acquisition of the site. Shell-AERA has filed development plans with LA County for 3,600 homes on the property. EIR is scheduled for release later in 2002.	-	-	-	-	-	-	-	-	NA
445	Whittier Narrows Dam Water C	WRD, LADPR	Los Angeles ACE office completed a feasibility study to expand the current water conservation pool behind the Whittier Narrows Dam from 2,500-acre feet at elevtion 201.6 feet up to as high as elevation 209 feet. The pool, to be built by the Water Replenishment District (WRD), will increase groundwater percolation for increased water supply.	-	-	-	-	-	-	-	-	NA

Lower San Gabriel and Los Angeles River Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
1	Avalon Gardens Community Garden Creekside Interface	Avalon Gardeners	This project will enhance the interface between the newly created Avalon gardens and the Compton Creek.	X	-	-	-	-	-	-	-	NA
2	Compton Creek Bike Trail: Alameda Gateway Connector (CIP#06-09)	CCTF	Trail: Tree Planting, Native Plants, Public Education	-	-	-	-	-	X	-	-	NA
3	Southeast Water Reliability Project	Central Basin MWD	System expansion that will loop the Rio Hondo (Torres) and Century (Ibbetson) systems for flow reliability.	X	0	5600	-	-	-	-	-	NA
4	Landscape Irrigation Classes	Central Basin MWD	This project proposes to offer landscape irrigation classes to the residents and customers within Central Basin MWD's service area to educate them about using less water and planting native plants instead of non-native, exotics that require much more water for growth.	-	-	-	-	-	-	-	-	Education
5	Synthetic Turf Program 3	Central Basin MWD	Central Basin hopes to expand Metropolitan Water District's Synthetic Turf Program by implementing it within its own service area.	-	-	-	-	-	-	-	-	Conservation
6	Weather-Based Irrigation Controller Program 4	Central Basin MWD	This project proposes to install Weather-Based Irrigation Controllers (WBICs) to reduce the amount of water that is used for landscape irrigation.	-	-	-	-	-	-	-	-	Conservation
7	Conductivity Controller Incentives	Central Basin MWD	This program provides prescriptive incentives for installation of conductivity and pH controllers.	X	0	90	-	-	-	-	-	NA
8	Industrial Process Audits and Incentives Program	Central Basin MWD	The program would facilitate the increase of process water use reduction and reuse technologies.	-	-	-	-	-	-	-	-	NA
9	Laundromat Retrofit	Central Basin MWD	This Program offers substantial incentives from multiple utilities to replace non-efficient washers and dryers with more efficient ones.	X	0	10	-	-	-	-	-	NA
10	Medical Facilities Retrofit Program	Central Basin MWD	This program would replace current equipment used at medical facilities with water efficient products. Such as; film processor recirculation systems, pre-rinse spray valves, high efficiency toilets, conductivity controllers for cooling towers.	-	-	-	-	-	-	-	-	NA
11	Supermarket Retrofit Program	Central Basin MWD	This program would replace current equipment used in supermarkets with water efficient products. Such as; pre-rinse spray valves, high efficiency toilets, water brooms and conductivity controllers for evaporative condensers.	-	-	-	-	-	-	-	-	NA
12	CBMWD/WBMWD Recycled Water Distribution Interconnection	Central Basin MWD	This project will connect the separate, but existing recycled water systems by cross-jurisdictional boundaries which will enable more recycled water to be distributed over both regions.	X	5000	20000	X	11	-	-	-	NA
13	Lynwood-South Gate Lateral Connection	Central Basin MWD	This project proposes to extend lateral lines off of the existing Central Basin Water Recycling distribution line to provide recycled water to customers in these cities.	-	0	1200	X	-	-	-	-	NA
14	Southeast Water Reliability Project Lateral Distribution Connections	Central Basin MWD	This project proposes to construct recycled water laterals to the cities of Vernon, Pico Rivera, Montebello, and portions of the City of Los Angeles and Los Angeles County to customers for the use of recycled water.	X	7000	8000	X	-	-	-	-	NA
15	Central Basin MWD/ UP_SG_RVR Valley Municipal Water District Interconnectio	Central Basin MWD	This project proposes to connect the Central Basin Water Recycling System to serve the cities within the San Gabriel Valley with recycled water. The interconnection will occur in the City of Montebello.	-	0	3000	X	-	-	-	-	NA
16	Water Quality Protection Project (WQPP)	Central Basin MWD	This project includes the remediation of a groundwater contamination plume located in the Whittier Narrows area and includes operation of wells that extract the trichloroethylene and perchloroethylene.	-	-	-	-	5	-	-	-	NA
17	Watts Gateway, Phase II	City Councilmember Janice Hahn	Beautification: Tree Planting, Native Plants, Public Education, Source Control	-	-	-	X	-	-	-	-	NA
18	Watts Gateway	City Councilmember Janice Hahn	Beautification: Tree Planting, Native Plants, Public Education, Source Control	-	-	-	-	-	X	-	-	NA
19	Bellflower Water System Improvement Program	City of Bellflower	This program will provide for the funding of the City's Water System Improvement Program comprised of a Water Master Plan Update, a Well Abandonment Program, a Pipeline Improvement Program, a System Interconnection Pipeline, a share in a Reservoir, MWD Connection and Water Supply Well, as well as a Fire Hydrant Replacement Program and Meter and Service Replacement Program.	X	100	1000	-	-	-	-	-	NA
20	NPDES Permit Compliance	City of Bellflower	Implement strategies like structural controls, hard construction, monitoring and education to meet tmdls.	-	-	-	X	-	-	-	-	NA
21	NPDES Permit Special Studies	City of Bellflower	To complete special studies required in the 12/2006 NPDES Permit	-	-	-	X	-	-	-	-	NA
22	Riverview Park	City of Bellflower	15 acre passive park adjacent to SG River bike path	-	-	-	-	-	X	0	15	NA
23	Sanitary Sewer Replacement MP	City of Bellflower	Repair and replace sewer system per Water Resources Control Board WDR for SSOs.	-	-	-	X	-	-	-	-	NA
24	Compton Creek Equestrian Trail, Phase I	City of Compton	Project will be located on the W. side of the Compton Creek within the City of Compton. Water quality concerns (bacteria) will be addressed by proper trail construction and maintenance practices.	-	-	-	X	-	X	-	-	Community participation--community members are interested in performing trail maintenance
25	Raymond Street Park renovation (including Baseball field)	City of Compton	NA	-	-	-	-	-	X	-	-	NA
26	Edison Transmission Corridor Multi-Use Trail	City of Compton	Transmission corridor running from Hemingway Park in Carson, through Compton on Greenleaf Boulevard, crossing the Compton Creek, and ultimately running to the LA River.	X	-	-	X	-	X	-	-	regional transportaion connections
27	Compton Creek Camera Monitoring and Lighting--Compton City	City of Compton	Project will be located along the Compton Creek Bike Trail near Compton High School, between Alondra Bl and Compton Bl	-	-	-	-	-	-	-	-	NA
28	Central Avenue Brick Yard	City of Compton	This large site has been used to dig clay out of the ground to make and store bricks. Now the City of Compton is taking the first steps towards re-zoning the site and attracting new development.	X	-	-	X	-	X	-	-	Potential for economic development
29	Gonzales Park Addition, Pedestrian Bridge, & Mural	City of Compton	Located at the future Horse Trail along the West Bank of the Compton Creek, this under-utilized corner of the existing Gonzales Park will be converted to a neighborhood that was previously cut off from the park	-	-	-	X	-	X	-	-	Transportation, connectivity
30	Cudahy River Drive Beautification	City of Cudahy	The project involves developing river front park(s) along River Drive Road, engaging and educating residents living in Cudahy about stormwater issues through a community mural, and providing a stormwater filtration system to help improve water quality in the County of Los Angeles River.	-	-	-	-	-	-	-	-	NA
31	City of Downey Groundwater Treatment Plant Project	City of Downey	Construct 25 MGD groundwater treatment plant at City-owned maintenance yard site. Need for treatment plant identified in City's 2003 Groundwater Master Plan.	X	0	17000	X	25	-	-	-	Remove contaminants that may otherwise threaten downgradient water purveyor groundwater supplies.
32	City of Downey Groundwater Well Supply Reliability Project	City of Downey	Design and construction of three 3,000 gpm deep aquifer groundwater wells and associated pipelines and appurtenances. New wells will replace old shallow wells that are susceptible to future surface and shallow aquifer contamination.	X	0	8000	-	-	-	-	-	New wells will provide additional pumping capacity required to meet future growth projections, thus eliminating the future need for treated MWD imported water.

Lower San Gabriel and Los Angeles River Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
33	Lakewood Boulevard and Florence Avenue Reclaimed Water Improvement Project	City of Downey	Design and extension of a reclaimed water main and associated facilities along Lakewood Boulevard from Fifth St. north to Telegraph Rd. and from the San Gabriel River west to Lakewood Blvd.	X	0	85	-	-	-	-	-	20% savings to reclaimed water users versus potable water
34	Furman Park Storm Drain Detention/Infiltration Project	City of Downey	Design and construction of a storm drain and detention/infiltration system to alleviate flooding from under capacity trunk lines, and capture, treat, and store stormwater runoff within Central Groundwater Basin Aquifers.	X	0	20	X	-	-	-	-	Alleviate flooding within the City of Downey and areas downstream
35	Furman Park/Rio Hondo Elementary School Reclaimed Water Main Extension and	City of Downey	Design and construction of reclaimed water irrigation improvements at Furman Park and extension of a reclaimed water main and associated facilities along Quinn St. from Rio Hondo Golf Course east to Furman Park and Rio Hondo Elementary School.	X	0	56	-	-	-	-	-	20% savings to reclaimed water users versus potable water
36	Dennis The Menace Park Storm Drain Detention/Infiltration Project	City of Downey	Design and construction of a storm drain and detention/infiltration system to capture, treat, and store stormwater runoff within Central Groundwater Basin Aquifers.	X	0	6	X	-	-	-	-	Alleviate flooding within the City of Downey and areas downstream
37	Reservoir Rehabilitation; Cottage ground and Cottage elevated reservoirs, S	City of Huntington Park	Replace two ground and one elevated reservoirs, associated pump houses, 16 water strippers.	X	1	100	-	-	-	-	-	reliability
38	Colorado Lagoon	City of Long Beach, Coastal Conservancy	The lagoon is part of the historic Los Cerritos Wetlands complex. It is a saltwater body that was created by dredging a mudflat and is connected by tide gate to Alamitos Bay through the Marine Stadium. The property is owned by the City of Long Beach and m	-	-	-	-	-	-	-	-	NA
39	Los Cerritos Wetland Acquisition	City of Long Beach, Parks, Recreation and Marine Department	Acquire the Bixby Ranch Co. portion of the Los Cerritos Wetland. This is the largest remaining privately owned wetland property in the San Gabriel River Estuary.	-	-	-	X	-	X	-	-	NA
40	RiverLink Overlooks	City of Long Beach, Parks, Recreation and Marine Department	The Los Angeles River Trail (LA RIO Trail) is a regional bicycle and pedestrian trail on the east bank of the Los Angeles River on top of the levee. Recreational usage would be greatly expanded if amenities such as shade, and rest areas were provided. This project would provide those amenities by widening the top of the levee for rest and overlook areas with shade canopies, spaced approximately 1 mile apart in Long Beach.	-	-	-	-	-	X	-	-	NA
41	Long Beach Sports Park Wetland Restoration	City of Long Beach, Parks, Recreation and Marine Department	Remove concrete lined storm water detention basin and restore original naturalized streambed enhanced to equal storm detention capacity, and planted with Los Angeles River Watershed native wetland and riparian plants. Amenities will include pedestrian trails and educational displays. Vegetated swales will collect and direct on-site runoff to the stream.	-	-	-	X	-	X	-	-	NA
42	Bouton Creek Channel Stream Restoration	City of Long Beach, Parks, Recreation and Marine Department	Bouton Creek is a box culvert storm drain channel that is adjacent to Bouton Creek and Whaley Parks. This project would remove the concrete bottom and one side to terrace the channel into the park and allow planting with native marsh and riparian plants.	X	-	-	X	-	X	-	-	NA
43	DeForest Wetland Water Reclamation	City of Long Beach, Parks, Recreation and Marine Department	Reclaim wastewater from the Los Angeles River and urban runoff through a treatment wetland for use in irrigation in DeForest Park.	X	-	-	-	-	-	-	-	NA
44	Drake/Chavez Greenbelt Wetland Habitat Restoration	City of Long Beach, Parks, Recreation and Marine Department	Restore a wetlands habitat to part a 25-acre greenbelt being developed adjacent to the Los Angeles River between Drake and Chavez Parks. The site is adjacent to the Los Angeles River Estuary and the proposed wetland would be a tidal influenced saltwater marsh. Pedestrian trails with educational displays, developed in cooperation with the Aquarium of the Pacific, will be included.	-	-	-	-	-	X	-	-	NA
45	Heather Creek and Los Cerritos Creek Channel Stream Restorations	City of Long Beach, Parks, Recreation and Marine Department	The Heather Creek and Los Cerritos Creek Channels are open box storm drain culverts that cross through Heartwell and Birdcage Parks, and Heather Creek runs adjacent to Wardlow Park in Long Beach. This project would remove the concrete bottom and one side-wall or walls, widening and terracing the channels to allow landscaping and a natural stream appearance where the channels cross through or border these parks.	X	-	-	X	-	X	-	-	NA
46	Highway Median Greening	City of Long Beach, Parks, Recreation and Marine Department	Long Beach has hundreds of miles of highways with median islands. Approximately half are paved and the other half are landscaped. The Long Beach Water Department proposed a project to convert the existing landscaped medians to recycled water. This project is to convert the paved medians to landscaped medians to reduce urban runoff, increase habitat areas and beautify what are usually economically depressed neighborhoods. Recycled water would be used to irrigate the medians.	X	-	-	X	-	X	-	-	NA
47	Jackson Creek Channel Stream Restoration	City of Long Beach, Parks, Recreation and Marine Department	The Jackson Creek Channel is an open box storm drain culvert that crosses through Scherer and Jackson Parks in Long Beach. This project would remove the concrete bottom and one sidewall, widening and terracing the channels to allow landscaping and a natural stream appearance where the channel crosses through Scherer and Jackson Parks.	X	-	-	X	-	X	-	-	NA
48	Porous Park Parking Lots	City of Long Beach, Parks, Recreation and Marine Department	There are 4,700 paved parking spaces in parks in Long Beach covering 43 acres of land. There are also seven miles of park roads covering 25 acres of land. This project is to replace those 68 acres of impervious pavement with porous concrete paving.	X	-	-	X	-	X	-	-	NA
49	Rainbow Lagoon Wetland Restoration	City of Long Beach, Parks, Recreation and Marine Department	Rainbow Lagoon is a three-acre salt-water wetland created approximately 40 years ago when the City filled the oceanfront adjacent to downtown Long Beach to create the location for the Long Beach Arena. It contains a tidal connection to the ocean although the water level is maintained at an elevation above sea level. Over time there has been an accumulation of sediments and nutrients in the lagoon that has lead to algae blooms, oxygen depletion, and habitat destruction. The lagoon needs to be restored to a more natural configuration to continue its important biological function as one of the only remnants of the Los River Estuary marshes.	-	-	-	-	-	X	-	-	NA
50	School Greening	City of Long Beach, Parks, Recreation and Marine Department	There are 30 elementary and middle schools in Long Beach with asphalt playgrounds averaging 3 acres in size. This project is to replace those 90 acres of impervious pavement with turf. The project would also revise the fencing around the playgrounds to allow them to be used by the public after school hours and on weekends without increasing the danger of vandalism.	X	-	-	X	-	X	-	-	NA

Lower San Gabriel and Los Angeles River Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
51	Wrigley Heights Wetland Habitat Restoration and Trail Development	City of Long Beach, Parks, Recreation and Marine Department	Capture urban and storm runoff from a 60-acre neighborhood to restore a wetland habitat on a portion of a 9-acre site partially adjacent to the Los Angeles River. Also, develop pedestrian and bicycle trails looping the site and providing an addition access point to the Los Angeles River Trail (LA Rio Trail).	-	-	-	X	-	X	-	-	NA
52	Sim's Pond Wetland Restoration	City of Long Beach, Parks, Recreation and Marine Department	Sim's Pond is a six-acre fresh water wetland created 27 years ago as a condition of approval of two housing developments. It was maintained for 25 years by the homeowners associations. It was dedicated to the City two years ago and is in need of restoration, including removal of invasive plants, removal of excessive sediment and creating better wildlife blinds to allow observation while creating better protection from disturbance.	-	-	-	-	-	X	-	-	NA
53	DeForest Wetland Habitat Restoration	City of Long Beach, Parks, Recreation and Marine Department	Restore a wetlands habitat to a 34-acre storm water detention basin with urban runoff and wastewater from the Los Angeles River as the water source. The wetland will also cleanse the water before discharging back into the River.	-	-	-	X	-	X	-	-	NA
54	West San Gabriel River Habitat Restoration and Bicycle Trail	City of Long Beach, Parks, Recreation and Marine Department	Restore a riparian habitat along three miles of the west bank of the San Gabriel River with bicycle trail on the river levee. The project would extend the bicycle trail through El Dorado Park to the City's on-street bicycle network and "trail-head" parking lots. It also includes a bridge across the San Gabriel River to connect to the regional bicycle paths on the east bank and along Coyote Creek.	-	-	-	-	-	X	-	-	Public Access – 3 miles of pedestrian and bicycle trails and, and off-highway connection to regional bicycle trail system
55	El Dorado Park Stream Restoration and Treatment Wetland	City of Long Beach, Parks, Recreation and Marine Department	The project is the conversion of an existing buried storm drain line running through El Dorado Regional Park into a stream. The storm drain lines drains an adjacent shopping center and a wetland would be created adjacent to the river to treat the water before discharge. Also included is the rerouting of an existing concrete culvert that drains the 605 Freeway into the treatment wetland, and the removal of the concrete channel.	-	-	-	X	-	X	-	-	NA
56	El Dorado Park Wetland Habitat Restoration	City of Long Beach, Parks, Recreation and Marine Department	Restore a wetlands habitat to a seven-acre storm water detention basin and a 15-acre utility corridor. Part of the site would be a treatment wetland to improve water quality for run-off from the park.	-	-	-	X	-	X	-	-	NA
57	Pollutant Treatment Train	City of Long Beach, Public Works	Pollutant Treatment Train is the removal of multiple pollutants from storm flows extracted by structural Best Management Practices (BMPs) within the storm drain system. From curbside catch basin inserts to permeable fore bays at pump stations.	-	-	-	-	-	-	-	-	The rivers outfall to the ocean. Pollutant removal will improve water and sediment quality, improve habitat and recreational uses and access. Reusing treated storm flows and ground water recharge will drive selection of BMPs.
58	Colorado Lagoon Restoration	City of Long Beach, Public Works	With limited tidal flushing, and urban runoff from a 1100-acre watershed depositing in the lagoon, sediment and water quality is degraded. The project will restore the marine ecosystem and support safe recreation while improving water and sediment quality and managing stormwater.	-	-	-	-	-	-	-	-	NA
59	El Dorado Lakes Reclaimed Water	City of Long Beach, Water Dept and Parks, Recreation and Marine Dept	Replace the use of well water to fill the four lakes in El Dorado Regional Park, and domestic water to fill the two lakes in the El Dorado Nature Center, with reclaimed water. Nano-filtration equipment will be utilized to clean the reclaimed water of excess nutrients and chemicals.	X	40	0	-	-	X	-	-	NA
60	DeForest Basin Habitat Restoration	City of Long Beach; Coastal Conservancy; County of Los Angeles; RMC	Implementation of DeForest Basin Habitat Restoration Plan	-	-	-	-	-	-	-	-	NA
61	Catch Basin Insert Installation	City of Los Angeles	Catch basin inserts are being installed in high trash generation areas throughout the City of LA. Ongoing project.	-	-	-	X	-	-	-	-	NA
62	Lower Los Angeles River Flood Control	City of Los Angeles, Bureau of Sanitation	This projects intends to reduce future flood risk by completed the plan, design, and implementation of projects in the Lower Los Angeles River Sub-Region. These projects are to relieve local flooding, improve drainage, and protect public health and property	-	-	-	-	-	-	-	-	eliminate approximately 12 problematic flooding sites
63	Norwalk Park Reservoir, Booster Pump Station & Well	City of Norwalk	This program will provide for the funding of a key element in the City's Water System Improvement Program comprised of the construction of a high capacity well, Reservoir & Booster Pump Station faculty located at the City's Norwalk Park. The project will increase groundwater water supply capability and serve as a primary distribution point to move water to the City's high and low pressure water systems.	X	1000	0	-	-	-	-	-	NA
64	Paramount Water Supply Well #15	City of Paramount	Construction of a Water Supply Well to enable City of Paramount to become less dependant on imported potable water supply from outside the County.	X	2500	0	-	-	-	-	-	NA
65	City of Paramount Storm Drain Improvements	City of Paramount	System wide storm drain improvements within the City of Paramount to better capture storm water runoff during large rain events as well as to upgrade catch basin filtration systems.	-	-	-	-	-	-	-	-	NA
66	Sanitary Sewer System Replacement/Upgrades	City of Paramount	Replace and/or upgrade existing sewer system identified as defiecent per the City Master Plan and as required per Water Resources Control Board WDR for SSO's	-	-	-	-	-	-	-	-	NA
67	New Well in Zone 1	City of Santa Fe Springs	Construction of new water well in zone 1 of the city.	-	0	3700	X	-	-	-	-	Utilize ground water and to provide another source of water production for emergency mutual aid.
68	New Well in Zone 2	City of Santa Fe Springs	Construction of new water well in zone 2 of the city.	-	0	3700	X	-	-	-	-	Utilize ground water and to provide another source of water production for emergency mutual aid.
69	Reclaimed Reservoir	City of Santa Fe Springs	Reclaimed Reservoir to provide added pressure to the reclaimed water system.	-	-	-	-	-	-	-	-	Potentially will allow for the reclaimed system to become interconnected with Santa Fe Springs and the City of Norwalk increasing the systems customer base
70	Regional Water Treatment Facility	City of Santa Fe Springs	Water treatment facility that would provide potable water by utilizing untreated state water, and the plant will have the technology to provide ground water clean up within the basin	-	0	6700	-	-	-	-	-	Ground water clean up, mutual aid for other interconnected cities
71	Sea Water Project	City of Santa Fe Springs	Develop and build a transmission main to carry sea water to the Lower San Gabriel Basin and utilize the water for Fire Fighting (Hydrants), and for each home to have a salt water service for toilets/urinals.	-	-	-	-	-	-	-	-	Significant decrease of potable water use.
72	Arsenic Treatment for Zone 2 Well	City of Santa Fe Springs	Arsenic removal in zone 2 well .	-	0	3700	X	-	-	-	-	Will allow a well in Zone 2 to pump water out.
73	Cast Iron Main Replacement Program	City of Santa Fe Springs	NA	-	-	-	-	-	-	-	-	NA
74	New Well in Zone 1.	City of Santa Fe Springs	Construction of new water well in zone 1 of the City.	-	-	-	-	-	-	-	-	Big savings for purchasing less water/
75	New Zone 1 Reservoir/Pump Station	City of Santa Fe Springs	NA	-	-	-	-	-	-	-	-	NA

Lower San Gabriel and Los Angeles River Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
76	New Zone 2 Reservoir/Pump Station	City of Santa Fe Springs	NA	-	-	-	-	-	-	-	-	NA
77	Phase 1 Transmission Main Investigation, Repairs, and Design	City of Santa Fe Springs	NA	-	-	-	-	-	-	-	-	NA
78	Phase 2 Transmission Main Investigation, Repairs, and Design	City of Santa Fe Springs	NA	-	-	-	-	-	-	-	-	NA
79	Portable generators for wells	City of Santa Fe Springs	NA	X	-	-	-	-	-	-	-	NA
80	Reservoir No. 2 Chloramination Facilities	City of Santa Fe Springs	NA	-	-	-	-	-	-	-	-	NA
81	Undersized Main Replacement Program	City of Santa Fe Springs	Upgrade to 8 inch main (includes hydrant upgrade)	-	-	-	-	-	-	-	-	NA
82	Recoating of Reservoir No 2	City of Santa Fe Springs	Recoating interior of reservoir.	X	-	-	-	-	-	-	-	NA
83	Recoating of Reservoir No. 1	City of Santa Fe Springs	Recoating interior of reservoir.	X	-	-	-	-	-	-	-	NA
84	Hamilton Bowl Stormwater Quality Improvements	City of Signal Hill	The project will construct modifications and/or devices in the Hamilton Bowl Detention Basin that will address various LA River TMDLs.	X	4040	404	-	-	-	-	-	NA
85	Recycled Water System	City of Signal Hill	The project will construct a recycled water system in the City of Signal Hill that could be expanded into areas of the City of Long Beach not currently served with recycled water. A concept system alignment has been established consisting of 3,000 feet of pipeline ranging in size from 4" to 12" in diameter. Potential irrigation and industrial recycled water users, such as Caltrans, have been identified. These users provide a total estimated recycled water demand of 404 acre-feet per year.	X	0	404	-	-	-	-	-	NA
86	Cha'wot Open Space Preservation and Stormwater Runoff Reduction	City of Signal Hill	This project proposes the purchase of up to 10 of 32 acres of available open space in the northerly hilltop area of Signal Hill to: Preserve existing nature and wildlife; Provide walking, hiking, and recreational opportunities; Naturally reduce stormwater runoff by preserving undeveloped open space;Reduce the demand for potable water by reducing the amount of land available for development.	-	-	-	-	-	-	-	-	NA
87	Cesar Chavez Park	City of South Gate	Cesar Chavez Park is a greenbelt within the City of South Gate. It is a transmission corridor and it runs through the city of South Gate between the Alameda Corridor and South Gate Park along Southern Avenue.	-	-	-	X	-	X	-	-	Site is already a park but needs more improvement. Could be a segment of a regional bikeway connecting with the LARIO Trail
88	Confluence Park	City of South Gate	Park is located on teh West Bank of the Rio Hondo approx 1 mile north of the confluence of the LA River and the Rio Hondo. Potential wetland habitat and water use efficiency benefits.	X	-	-	X	-	X	-	-	NA
89	Vernon Closed Distribution System	City of Vernon	Closed distribution system will improve system reliability.	-	-	-	-	-	-	-	-	Reliability/Redundency
90	Vernon Production Well 21	City of Vernon	Drill New Production Well	X	0	1500	X	2	-	-	-	Reduce and/or eliminate Reliance on MWD Water
91	Well 14 Rehabilitation Project	City of vernon	Rehabilitate Well	X	0	1500	X	2	-	-	-	Reduce and/or eliminate Reliance on MWD Water
92	Compton Creek Watershed Plan	Coastal Conservancy	Implement Compton Creek Watershed Plan	-	-	-	-	-	-	-	-	NA
93	Gage Triangle	Community and Neighbors for Ninth District Unity	Located in a parkless Los Angeles Neighborhood Council District, this small triangular median serves as a neighborhood gathering space and potential environmental education showplace	-	-	-	X	-	X	-	-	NA
94	Carnation Park	Compton Creek Watershed Coordinator	Potential stormwater treatment park space at State Street and Los Flores Boulevard in Lynwood. Opportunities to treat significant stormwater flow from South Gate and Lynwood.	X	-	-	X	-	X	-	-	Potential for Retention, Tree Planting, Water Reuse, Native Plants, Public Education
95	Implementation of Coyote and Carbon Creeks Watershed Management Plan	County of Orange, RMC	Implementation of the water quality, sustainable and greening projects withint the Watershed Plan.	-	-	-	-	-	-	-	-	NA
96	Confluence to Coast: Lower San Gabriel Regional BMP & Ecosystem Restoration	County of Orange, U.S. Army Corps of Engineers	Series of treatment wetlands and wet weather retention basins will treat storm and low flows from the Coyote Creek Watershed, providing clean water to the newly restored Los Cerritos Wetlands. This Confluence to Coast project will be a habitat and recreational corridor from the Bolsa Chica coast to the Puente Hills and San Gabriel Mountains.	-	-	-	-	-	-	-	-	NA
97	Cressy Street/Washington ES	CUSD	NA	-	-	-	X	-	X	-	-	NA
98	Compton Creek Camera Monitoring	Harbor/Watts Economic Development Corporation	Cameras will be installed along the compton creek to assist with sting operations to limit illegal dumping. The portion of the Creek passing closest to Watts will be the focus area.	-	-	-	X	-	X	-	-	Potential future regional bike transportation
99	Cash For Trash	Harbor/Watts Economic Development Corporation	Located in the Watts area, this project will help clean up illegal dump sites and liter by paying people to bring trash in to a central collection area. This project has economic development, homeless services, beautification, and environmental quality impacts.	-	-	-	X	-	X	-	-	NA
100	Cedar Street Pocket Park	Heal the Bay	Potential pocket park in a heavy residential dumping area adjacent to Compton Creek and the Compton Creek Bike Trail. There is local community support for this project.	-	-	-	X	-	X	-	-	Opportunity for local involvement
101	South Los Angeles Wetlands Park	LA City Council District 9	Located at Avalon and 53rd Street, Los Angeles, CA.	-	-	-	-	-	X	-	-	Education, Native Plants
102	South Compton Creek Wetlands	LA County Department of Public Works	East of Compton Creek and South of Santa Fe, this triangular area is already a stormwater detention basin. The area could be converted to a treatment wetland which detains/retains water, and offers a recreation benefit to people who are passing by on the adjacent South Compton Creek Bike Trail.	X	-	-	X	-	X	-	-	NA
103	Watts Cultural Crescent East	LA Neighborhood Land Trust	Park Improvement: Retention, Tree Planting, Water Reuse, Native Plants, Public Education	-	-	-	X	-	X	-	-	NA
104	San Gabriel River Regional Monitoring Program	LASGR Watershed Council	Integrated regional monitoring program for the San Gabriel River Watershed which improves coordination and cost effectiveness of independent monitoring efforts and provides a framework for periodic assessment of watershed condition. Proposed project is for full program implementation and special studies.	-	-	-	X	-	X	-	-	Note: costs are program costs per year
105	Conversion of non-Recirculation Car Wash Systems Project	LBWD	Complete the identification of and work successfully with car wash facilities in need of installing rinse-water recirculation equipment.	-	0	5	-	-	-	-	-	NA

Lower San Gabriel and Los Angeles River Subregion Projects

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				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
106	Conversion to Low-flow & non-Water Using Urinals Project	LBWD	Aggressively pursue the conversion to low-flow/ no water-using urinals from high-flow models in municipal and commercial buildings and other establishments.	-	0	20	-	-	-	-	-	NA
107	Hotel & Motel Laundry Notification Project	LBWD	Develop and implement program to work with every hotel and motel in Long Beach to implement programs that give patrons the option of not having their linen and towels washed daily.	-	0	150	-	-	-	-	-	NA
108	Marina Vista Coast-friendly Demonstration Garden	LBWD	Create one-acre California-Friendly Landscape demonstration garden at Marina Vista Park, overlooking the Pacific Ocean, demonstration approximately 9 different residential landscapes that promote native plants, wildlife habitat, run-off reduction, and water conservation. Purpose is to teach people why and how to change residential landscape from normal grass lawn to California-Friendly.	-	0	1500	-	-	-	-	-	1,500 af/yr reduction in polluted urban landscape runoff.
109	Reclamation Plant Chlorine Contact Tank Modifications	LBWD	Modify Chlorine Contact Tank No. 3 at the Long Beach Reclamation Plant to increase the supply of recycled water	-	0	5000	-	-	-	-	-	Reduce potable water demand
110	Sports Park Recycled Water Project	LBWD	Construct recycled water main in Spring Street to future Sports Park & nearby cemeteries	-	0	100	-	-	-	-	-	Reduce potable water demand/Agency cooperation
111	Beautiful Long Beach Landscape Grant Program	LBWD	Expand and increase marketing of program that provides funds for non-profit and public agencies to convert their publicly-accessible landscape to California-Friendly and to provide abundant educational and promotional efforts to accompany projects.	-	0	360	-	-	-	-	-	360 af/yr reduction in polluted urban landscape runoff.
112	Commercial & institutional ULFT & Urinal Conversion Program	LBWD	Develop regional program to aggressively market installation of ULFT and water-efficient urinals in CII settings.	-	0	79	-	-	-	-	-	NA
113	Commercial Kitchen Water-use Efficiency Project	LBWD	Identify and provide free water-use inspections to all commercial and other large industrial-type kitchen, providing free and/or rebated water-use efficiency devices; look into the feasibility of working in conjunction with local gas and electricity providers.	-	0	60	-	-	-	-	-	NA
114	Commercial Laundry Wash-water Recirculation Program	LBWD	Promote to and work with commercial laundries on the successful conversion to tunnel washers with recirculating system.	-	0	15	-	-	-	-	-	NA
115	Distribution System Leak Detection Project	LBWD	Undertake a demonstration project documenting the feasibility of installing and operating, and responding to, equipment designed to hear water leaking from distribution pipelines.	-	0	10	-	-	-	-	-	NA
116	eWaterUpdate	LBWD	Low-cost email-based system of notifying residential irrigators when and how much to irrigate based on weather conditions (CIMIS ETo)	-	0	1800	-	-	-	-	-	1,800 af/yr reduction in polluted urban landscape runoff.
117	Fire & Police Station Water-use Efficiency Program	LBWD	Use lessons learned at water-use efficiency effort at Long Beach Fire Station 4, to roll water-use efficiency out to the other municipal fire and police stations.	-	0	5	-	-	-	-	-	2.625 af/yr reduction in polluted urban landscape runoff.
118	Industrial Process-water Efficiency Program	LBWD	Conduct water audits of industrial customers to seek higher water-use efficiency in their processes.	-	0	75	-	-	-	-	-	NA
119	Irrigation System Upgrades for School District	LBWD	Replace the irrigation systems at targeted schools within the Long Beach Unified School District, some of which were installed many decades ago and are in disrepair.	-	0	12	-	-	-	-	-	12 af/yr reduction in polluted urban landscape runoff.
120	Large Landscape Irrigation Audit Program	LBWD	Expand program auditing large landscapes to include HOA and other irrigators.	-	0	125	-	-	-	-	-	125 af/yr reduction in polluted urban landscape runoff.
121	Large Landscape Irrigation Water Budget Program	LBWD	Enhance process of developing water budgets for irrigation customers, and report to them on a regular basis on their progress towards keeping actual water use within the budget.	-	0	313	-	-	-	-	-	313 af/yr reduction in polluted urban landscape runoff.
122	LB City College Horticulture Program	LBWD	Support the Long Beach City College Horticulture certification program to give greater emphasis on California-Friendly landscape when educating the next generation of landscape designers and contractors.	-	0	1500	-	-	-	-	-	1,500 af/yr reduction in polluted urban landscape runoff.
123	LBWD Demonstration Garden	LBWD	Create 1/4-acre California-Friendly Landscape demonstration garden at headquarters building with a very strong emphasis on web-based educational elements. Expect to influence landscape decisions by residential property owners for years to come. Purpose is to teach people why and how to change residential landscape from normal grass lawn to California-Friendly.	-	0	300	-	-	-	-	-	300 af/yr reduction in polluted urban landscape runoff.
124	Residential HECW Program	LBWD	Fund region-wide advertising of HECW rebate programs and provide rebates of $25 per unit to be added to the MWD incentive, plus administrative costs of issuing rebates (approximately $17- to $20-unit).	-	0	224	-	-	-	-	-	NA
125	Residential Landscape Design & Irrigation Classes	LBWD	Expand and market highly successful two-part program of educating residential customers about the essentials of landscape design, California-Friendly plants, irrigation systems, and landscape maintenance.	-	0	45	-	-	-	-	-	45 af/yr reduction in polluted urban landscape runoff.
126	Residential ULFT Program	LBWD	Fund region-wide advertising of ULFT rebate programs and provide rebates of $25 per unit to be added to the MWD incentive, plus administrative costs of issuing rebates (approximately $17- to $20-unit).	-	0	224	-	-	-	-	-	NA
127	Residential Water Audit Program	LBWD	Provide free water audits of residential customers, specifically targeting those using the most water.	-	0	100	-	-	-	-	-	50 af/yr reduction in polluted urban landscape runoff.
128	Residential Water-use Efficiency Devices Program (excluding ULFT & HECW)	LBWD	Create region-wide program for distribution of residential water-use efficiency devices such as shower heads and hose nozzles, and aggressively promote the program.	-	0	1000	-	-	-	-	-	NA
129	Water Ambassador Community Education Program	LBWD	Expand, enhance, and develop materials for replicating highly successful program that recruits senior citizen to volunteer their time to educate the public in general, and school children in particular, about water issues including water conservation.	-	0	30	-	-	-	-	-	NA
130	Water Softener Education Program	LBWD	Develop and aggressively market effective program for educating the public about the impact of water softeners on water supplies and, if the consumer chooses to use a water softener, which are the least damaging.	-	0	100	-	-	-	-	-	100 af/yr reduction in highly saline waste water.
131	Weather-based Irrigation Controller Program 5	LBWD	Add $100 per unit to MWD rebate (but only when DWR's contributions are not available) for WBIC rebate and exchange program.	-	0	850	-	-	-	-	-	850 af/yr reduction in polluted urban landscape runoff.
132	105 FWY Project	LBWD	Treat 105 FWY dewatering well discharge for potable consumption.	-	0	2000	X	-	-	-	-	Utilize existing groundwater which is being discharged into LA River
133	Street Median Conversions to Recycled Water	LBWD	Convert street median irrigation to recycled water	-	0	20	-	-	-	-	-	Reduce potable water demand
134	Cherry Avenue Recycled Water Pipeline	LBWD	Construct recycled water main in Cherry Avenue to serve north Long Beach area	-	0	500	-	-	-	-	-	Reduce potable water demand/Agency cooperation
135	Seawater Desalination	LBWD	Construct a 10mgd seawater desalination facility	-	0	11000	-	-	-	-	-	Reduce potable water demand
136	Trash Net Installed Upstream of Earthen Bottom Portion of Creek	Los Angeles C	Trash Capture: Trash Net or Screen, Public Education	-	-	-	X	-	-	-	-	NA
137	San Gabriel River Trash Net	Los Angeles County Flood Control District	Install a trash net along the San Gabriel River at the Westminster bridge crossing.	-	-	-	X	-	-	-	-	NA
138	New Injection Wells for the Alamitos Seawater Barrier	Los Angeles County Flood Control District	Installation of new injection wells to enhance the effectiveness of the Alamitos Seawater Barrier.	X	100	100	-	-	-	-	-	NA

Lower San Gabriel and Los Angeles River Subregion Projects

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139	Barrier Water Supply Facilities Improvements	Los Angeles County Flood Control District	The project prevents corrosion of the pipelines that supply water for injection into the region's groundwater aquifers. Improvements include the bonding of joints, installation of sacrificial anodes, and installation of test stations.	-	-	-	-	-	-	-	-	NA
140	Dominguez Gap Spreading Grounds – West Basin Percolation Enhancement	Los Angeles County Flood Control District	Install vertical trenches/drains through poorly draining strata underlying the bottom of the facility's West Basin to increase the basin's percolation capacity. Project concept needs to be performed to determine feasibility and water conservation benefit.	X	1000	0	-	-	-	-	-	NA
141	Lower Los Angeles River Area Linear Water Storage Feasibility Study	Los Angeles County Flood Control District	Explore the feasibility and water conservation benefit of installing rubber dams in the Los Angeles River, Compton Creek and Rio Hondo channels upstream of the Dominguez Gap Spreading Grounds to create temporary linear water storage for later groundwater recharge. Cost noted on form is for a feasibility study only. Water conservation benefit and implementation costs would be dependent upon study's findings.	X	1000	0	-	-	-	-	-	NA
142	Bellflower Project 1901	Los Angeles County Flood Control District	The project provides water quality enhancements for low flows outletting from storm drain Project 1901 in the City of Bellflower.	-	-	-	X	-	-	-	-	NA
143	La Mirada Creek Park Project	Los Angeles County Flood Control District	The initial study will analyze project alternatives to develop flood control, recreation, and habitat improvements for the regions located within La Mirada Park Creek.	-	-	-	-	-	X	0	10	Flood Control, Education
144	Paseo del Rio at San Gabriel Coastal Spreading Grounds	Los Angeles County Flood Control District	This multi-objective 128-acre LACDPW project will provide a bike trail, new native and drought-tolerant landscaping, shade structures and other park-like amenities to beautify open space surrounding the existing spreading grounds. The project entails limited public access, with passive recreational and educational opportunities. The occasional presence of surface water creates the appearance of a lake to be enjoyed by nearby residents and other visitors.	X	-	-	-	-	X	0	3	Education
145	San Gabriel Coastal Basin Spreading Grounds – Sediment Removal from Basins	Los Angeles County Flood Control District	Remove approximately 150,000 cubic yards of accumulated silt from the facility's three spreading basins to restore the basins' percolation and storage capacity. The percolation capacity of the facility used to be approximately 75 cubic feet per second (cfs); it is now about 20 cfs.	X	1000	0	-	-	-	-	-	NA
146	Compton Creek Pump Station Wetlands	Los Angeles County Flood Control District	Development of a treatment wetlands within the forebay of an existing pump station. Wetlands will treat flows from the Compton Creek watershed prior to being pumped to the Los Angeles River.	-	-	-	-	-	-	-	-	NA
147	Compton Creek Trash Net	Los Angeles County Flood Control District	Installation of a trash net along Compton Creek that would capture trash prior to its entering the earthen-bottom portion of the Creek.	-	-	-	-	-	-	-	-	NA
148	Dominguez Gap Wetlands	Los Angeles County Flood Control District	Development of a treatment wetlands within the East Basin of the Dominguez Gap Spreading Grounds. Treated flows will be routed to the West Basin for groundwater recharge.	-	-	-	-	-	-	-	-	NA
149	Flormount Regional Flood Relief Multiuse	Los Angeles County Flood Control District	Address regional flooding hazards through multiobjective watershed management solutions for the DDI 23 regional drainage system in the Los Angeles River watershed.	-	-	-	-	-	-	-	-	NA
150	Holistic Watershed Plan for East Los Angeles	Los Angeles County Flood Control District	Work with stakeholders to develop a watershed plan for the East Los Angeles area	-	-	-	-	-	-	-	-	NA
151	Laguna Retention Basin Enhancement	Los Angeles County Flood Control District	Development of an underutilzed area that can be transformed into a space for not only flood protection but also active and passive recreation, connecting open spaces in transit access points through pedestrian and bike trails, native landscaping and	-	-	-	-	-	-	-	-	NA
152	Lynwood Regional Flood Relief Multiuse	Los Angeles County Flood Control District	Address regional flooding hazards through multiobjective watershed management solutions for the Lynwood regional drainage system in the Los Angeles River watershed.	-	-	-	-	-	-	-	-	NA
153	Mid-Cities Watershed Plan	Los Angeles County Flood Control District	Develop a watershed plan for mid-cities (including Bell, unincorporated Walnut Park and Florence, Cudahy, Huntington Park, Maywood, Vernon, and South Gate) draining directly to the Los Angeles River.	-	-	-	-	-	-	-	-	NA
154	Paramount River Restoration	Los Angeles County Flood Control District	Develop a 3.5 acre site above Rosecrans Avenue on the east side of the Los Angeles River as a detention basin w/ native plantings.	-	-	-	-	-	-	-	-	NA
155	South Gate Riparian Restoration	Los Angeles County Flood Control District	Restore an area on the west side of the Los Angeles Rvier located south of Imperial Highway.	-	-	-	-	-	-	-	-	NA
156	Trash Removal Subregional Solution - East Compton Creek	Los Angeles County Flood Control District	Develop a subregional trash capture BMP for the East Compton Creek subwatershed in compliance with the LAR Trash TMDL	-	-	-	-	-	-	-	-	NA
157	Vernon Bikeway Extension	Los Angeles County Flood Control District	Develop a bike trail through the City of Vernon that extends from Atlantic Blvd to Downey Street along the Los Angeles River that would extend the existing LARIO trail	-	-	-	-	-	-	-	-	NA
158	Vernon Soccer Fields Multiuse	Los Angeles County Flood Control District	Develop multipurpose soccer fields, incorporating a detention basin (approx 20 acre-ft) on the east side of the Los Angeles River below Atlantic Boulevard.	-	-	-	-	-	-	-	-	NA
159	Wrigley Greenbelt Multiuse	Los Angeles County Flood Control District	Development of approximately 8 acres of land along the Los Angeles River between Willow Street and Wardlow Road for multiuse opportunities.	-	-	-	-	-	-	-	-	NA
160	Armstrong Area Revitalization	Los Angeles County Flood Control District	Working with the City of South Gate, acquire and develop 13 acres into a multiuse park with features to detain and treat stormwater.	-	-	-	-	-	-	-	-	NA
161	DDI 23 Regional Flood Relief Multiuse	Los Angeles County Flood Control District	Address regional flooding hazards through multiobjective watershed management solutions for the DDI 23 regional drainage system in the Los Angeles River watershed.	-	-	-	-	-	-	-	-	NA
162	Rio Hondo and San Gabriel Coastal Basin Spreading Grounds – Pipeline Connec	Los Angeles County Flood Control District	Construct a pipeline between Rio Hondo and San Gabriel Coastal Spreading Grounds to allow greater operational flexibility and greater intake of water during and after storms. Construct the intake structure at the Rio Hondo facility and the outlet structure at the San Gabriel facility.	X	1000	0	-	-	-	-	-	NA
163	Rio Hondo Coastal Basin Spreading Grounds – Sediment Removal from Basins	Los Angeles County Flood Control District	Remove approximately 700,000 cubic yards of accumulated sediment from the facility's spreading basins to restore the basins' percolation and storage capacity. The percolation capacity of the facility used to be approximately 400 cubic feet per second (cfs); it is now about 200 cfs.	X	1000	0	-	-	-	-	-	NA

Lower San Gabriel and Los Angeles River Subregion Projects

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164	Rio Hondo and San Gabriel Coastal Basin Spreading Grounds - Pipeline Connec	Los Angeles County Flood Control District	Construct a pipeline between Rio Hondo and San Gabriel Coastal Spreading Grounds to allow greater operational flexibility and greater intake of water during and after storms. Construct the intake structure at the Rio Hondo facility and the outlet structure at the San Gabriel facility.	X	1000	1000	-	-	-	-	-	NA
165	Pumpstation Forebay Water Quality Improvement	Los Angeles County Flood Control District	Modify an existing pumpstation along the Los Angeles River to install BMPs to improve water quality and comply with TMDLs	-	-	-	-	-	-	-	-	NA
166	Los Cerritos Wetlands Restoration	Los Cerritos Wetlands Authority, Coastal Conservancy	The Los Cerritos Wetlands complex is located at the mouth of the San Gabriel River. The Los Cerritos Wetlands Authority is in the process of acquiring the first property for this project, expected to close June 2006	-	-	-	-	-	X	0	300	NA
167	Gateway Center/Casino/Earthen Bottom Restoration	MRCA	A degraded wetland near the start of the earthen-bottom portion of Compton Creek. This site owned by the Crystal Park Casino and the developer of the Gateway Center.	X	-	-	X	-	X	-	-	NA
168	South Compton Creek Bike Trail Phase I	NA	Trail: Retention, Bioretention, Tree Planting, Native Plants, Public Education	-	-	-	-	-	X	-	-	NA
169	South Compton Creek Wetlands (Rancho Dominguez Railroad Wye)	NA	Wetland Habitat Creation: Retention, Tree Planting, Native Plants, Public Education	-	-	-	X	-	X	-	-	NA
170	Ham Park	NA	Park Space: Retention, Removal of Paving, Tree Planting, Water Reuse, Native Plants, Public Education	-	-	-	-	-	X	-	-	NA
171	Rose Park (Flower Street Traffic Circle) Enhancement	NA	Park Improvement: Retention, Tree Planting, Water Reuse, Native Plants, Public Education	-	-	-	X	-	X	-	-	NA
172	Lanzit Industrial Site	NA	Industrial Development: On-Site Retention, Porous Pavement, Evapotranspiration Controllers, Water Reuse, Native plants	-	-	-	X	-	X	-	-	NA
173	Graham Street Storm Drains	NA	Drainage Improvement: Retention, Porous Pavement, Removal of Paving, Tree Planting	-	-	-	X	-	-	-	-	NA
174	Ted Watkins Park Retrofit	NA	Park Improvement: Retention, Tree Planting, Water Reuse, Native Plants, Public Education	-	-	-	X	-	X	-	-	NA
175	LADWP 98th Street Transmission Corridor	NA	Wetland Habitat Creation: Retention, Bioretention, Tree Planting, Native Plants, Public Education	-	-	-	X	-	X	-	-	NA
176	South Central City Services Center (Central Avenue between 43rd Street and	NA	Green Building: On-Site Retention, Porous Pavement, Tree Planting, Water Reuse, Native Plants, Public Education	-	-	-	X	-	X	-	-	NA
177	Wildlife Road Crossing	PHLNHPA	Decrease wildlife mortailty and increase driver safety by installing an underpass, overpass or road enhancements at Hacienda Rd, Colima Rd and/or Turnbull Canyon Rd. This would contribute to the health and well-being of the watersheds and the Puente Chino Hills Wildlife Corridor.	X	-	-	-	-	-	-	-	NA
178	Outdoor Educational Programs	PHLNHPA	Increase outdoor educational outreach about issues such as watershed preservation. Involve youth, seniors and/or general public of the surrounding area to the Puente Hills.	X	-	-	-	-	-	-	-	NA
179	Trail Signage	PHLNHPA	Improve recreational experience of the watershed by purchasing and installing trail signs throughout the Puente Hills.	X	-	-	-	-	-	-	-	NA
180	Whittier Hills Trailhead	PHLNHPA	Increase recreational access to the Puente Hills by creating a new trailhead at the end of Hadley.	X	-	-	-	-	-	-	-	NA
181	Trail Access	PHLNHPA	Improve existing trails and trailheads to increase recreational opportunities within the Puente Hills and watershed.	X	-	-	-	-	-	-	-	NA
182	Puente Hills Visitor Center	PHLNHPA	Improve educational and recreational opportunities in the Puente Hills by developing a visitor center and amentities or improving existing structures.	X	-	-	-	-	-	-	-	NA
183	Preservation of the Puente Hills	Puente Hills Landfill Native Habitat Preservation Authority (PHLNHPA)	Acquisition of remaining open space within the jurisdiction of the PHLNHPA. This would contribute to the overall health of the Puente Chino Hills Widllife Corridor as well as protect the overall watersheds. There are several pre-identified parcels available for purchase, many of which contain distinct riparian areas.	X	-	-	-	-	-	-	-	NA
184	Habitat Restoration (non riparian)	Puente Hills Landfill Native Habitat Preservation Authority (PHLNHPA)	Increase biodiversity and health of watershed by restoring habitat in the Puente Hills. Involves removing non native species and if possible replacing with seeds or container stock.	X	-	-	-	-	-	-	-	NA
185	Citrus Heights Pico Rivera	Rivers and Mountains Conservancy	acquistion and development of parcel adjacent to San Gabriel river for trail connection and urban/storm runoff	X	-	-	-	-	-	-	-	NA
186	Aquarium of the Pacific Watershed Exhibit Expansion	Rivers and Mountains Conservancy	expansion of the Lower LA River and San Gabriel River Watershed exhibits	X	-	-	-	-	-	-	-	NA
187	Coyote Creek Improvements (Park)	Rivers and Mountains Conservancy (RMC), City of Los Alamitos	The site is comprised of a Southern California Edison Easement, and an Orange County Flood Control Easement. Los Alamitos Creek runs through the 6.6 acre site. Plans entail widening of Los Alamitos Creek channel to a creek configuration, with riparian willow, coastal sage scrub, and oak woodland habitat throughout the site with interpretive, wayfinding signage, trails, and recreation connection to the Coyote Creek regional bike trail adjacent to the site.	-	-	-	-	-	-	-	-	6.6 acres of open space and passive recreation adjacent to a regional bikeway
188	Train Depot Staging Area	Rivers and Mountains Conservancy, Bellflower	Trail and bike rest stop improvement	X	-	-	-	-	-	-	-	NA
189	Los Angeles River Bikeway Path Enhancement and Rehab	Rivers and Mountains Conservancy, City of Bell	Enhancement and rehabilitation of the LA River bikeway path between Gage and Florence Avenues, City of Bell. Part of the larger LADPW Watershed project	X	-	-	-	-	-	-	-	NA
190	Cudahy LA River Parkway Access Improvements	Rivers and Mountains Conservancy, Cudahy	improvements to the LA River Parkway connection, including passive park elements	X	-	-	-	-	-	-	-	NA
191	NASA Park	Rivers and Mountains Conservancy, Downey	Passive park elements, native plantings, trail connections, uses of stormwater BMPs for large adjacent parcels	X	-	-	-	-	-	-	-	NA

Lower San Gabriel and Los Angeles River Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
192	Santa Fe Springs Park Improvements & Nature Sanctuary	Rivers and Mountains Conservancy, Santa Fe Springs	Development of the park to include a nature sanctuary, connections to San Gabriel River trail	X	-	-	-	-	-	-	-	NA
193	South Gate LA River Parkway Access Improvements	Rivers and Mountains Conservancy, South Gate	Improvements to the LA River parkway at Hollydale park	X	-	-	-	-	-	-	-	NA
194	San Gabriel River Trail Connector to Pio Pico State Park	Rivers and Mountains Conservancy, Whittier	Connection of the SGR River Trail to Pio Pico State Park, including rail crossing	X	-	-	-	-	-	-	-	NA
195	Pio Pico State Park	RMC, Friends of Pio Pico	Improvements to Pio Pico State Park	X	-	-	-	-	-	-	-	NA
196	Bikeway Plan Gateway Council of Government Cities	RMC, Gateway COG, Paramount, Artesia, Cerritos, Bellflower	Bikeway trail connections, improvements along San Gabriel River and Los Angeles river	X	-	-	-	-	-	-	-	NA
197	Lynwood Meadows Nature Park	RMC, Lynwood	Conversion of industrial site to nature park with passive uses in the City of Lynwood	X	-	-	-	-	-	-	-	NA
198	Ralph C Dills Park Planning and Expansion	RMC, Paramount	Park expansion and master planning, Ralph C Dills Park, Paramount	X	-	-	-	-	-	-	-	NA
199	Watershed U.- San Pedro Bay	UC Cooperative Extension	This educational project would develop a Watershed U. training program for the San Pedro Bay. Watershed U. is designed to increase communication among watershed stakeholders, and to engage local decision makers in the process. Watershed U. - San Pedro Bay would focus on those issues affecting the San Pedro Bay and San Pedro Channel, so would integrate with the Los Angeles and San Gabriel Watershed U.-Programs to make the link between land-based practices and near-shore responses.	-	-	-	-	-	-	-	-	Increase stakeholder participation in land and water stewardship through outreach and education.
200	Watershed U. - Dominguez Channel	UC Cooperative Extension	This educational project would develop a Watershed U. training program for Dominguez Channel. Watershed U. is designed to increase communication among watershed stakeholders, and to engage local decision makers in the process.	X	-	-	X	-	X	-	-	Increase stakeholder participation in land and water stewardship through outreach and education.
201	Watershed U. - Compton Creek	UC Cooperative Extension	This educational project would develop a Watershed U. training program for Compton Creek. Watershed U. is designed to increase communication among watershed stakeholders, and to engage local decision makers in the process.	-	-	-	-	-	-	-	-	Increase stakeholder participation in land and water stewardship through outreach and education.
202	Watershed U.- San Gabriel	UC Cooperative Extension	This educational project would develop a Watershed U. training program for the San Gabriel River. Watershed U. is designed to increase communication among watershed stakeholders, and to engage local decision makers in the process.	X	-	-	X	-	X	-	-	Increase stakeholder participation in land and water stewardship through outreach and education.
203	Watershed U.- Puente/San Jose Hills	UC Cooperative Extension	This educational project would develop a Watershed U. training program for the streams flowing from the Puente and San Jose Hills to the San Gabriel River, including San Jose Creek, Walnut Creek, and portions of Coyote Creek. Watershed U. is designed to increase communication among watershed stakeholders, and to engage local decision makers in the process.	-	-	-	-	-	-	-	-	Increase stakeholder participation in land and water stewardship through outreach and education.
204	Watershed U. - Arroyo Seco	UC Cooperative Extension	This educational project would develop a revised Watershed U. training program for Arroyo Seco. Watershed U. is designed to increase communication among watershed stakeholders, and to engage local decision makers in the process.	-	-	-	-	-	-	-	-	Increase stakeholder participation in land and water stewardship through outreach and education.
205	Leo J. Vander Lans AWTF Expansion	Water Replenishment District of Southern California	The existing Leo J. Vander Lans AWTF provides approximately 3,000 acre-feet per year of recycled water to the Alamitos Seawater Intrusion Barrier. The expansion of the facility to approximately 6,000 acre-feet per year will meet 100% of the barrier's demand. The facility will take tertiary treated water from the LACSD's Long Beach WRP and further treat it through microfiltration and reverse osmosis.	X	1000	0	-	-	-	-	-	NA
206	105 Freeway to Dominguez Gap Barrier Pipeline	Water Replenishment District of Southern California	The 105 Freeway to Dominguez Gap Barrier Pipeline project will take water that is currently being wasted to the ocean as a result of Caltrans' dewatering operations and conserve it in the West Coast Groundwater Basin. This water, in addition to supplemental seasonally available imported water, will offset approximately 7,000 acre-feet per year of imported water that is currently being injected into the Dominguez Gap Barrier	X	1000	0	-	-	-	-	-	NA
207	Lower Central Basin Pipeline	Water Replenishment District of Southern California	The Lower Central Basin Pipeline project will convey water from the Montebello Forebay area of the Central Basin which has high groundwater levels, to areas of the lower Central Basin which have low groundwater levels. This additional extraction from the Montebello Forebay that will occur as part of this project will facilitate the capture of between 17,000 to 25,000 acre-feet per year of additional stormwater that would otherwise be wasted to the ocean.	X	1000	0	-	-	-	-	-	NA
208	Whittier Narrows Conservation Pool	Water Replenishment District of Southern California		-	-	-	-	-	-	-	-	NA
209	Compton High School Bikeway Habitat Park	Watershed Coordinator	Located behind Compton High School on the Compton Creek. This is an underused space between two playing fields that could be converted to a multi-use outdoor classroom, water-treatment plant, and pocket park.	-	-	-	-	-	-	-	-	Science education--outdoor classroom.
210	Lynwood Freeway Adjacent Opportunities	Watershed Coordinator	South of 105 Freeway on Louise Street Between Gertrude and Muriel, and South of 105 Freeway on Lynwood Road between Bullis and Fir. These parcels, on either side of the 105 freeway, are opportunities for stormwater retention and pocket parks	X	-	-	X	-	X	-	-	NA
211	WLCAC 96th and Central Pocket Park	Watershed Coordinator	Located at the northeast corner of Avalon and 96th street, this small public space is in need of an overhaul. A significant storm drain runs nearby, so there is a possibility of retainin some dry weather flow on site.	X	-	-	-	-	-	-	-	NA
212	VVEDC Vermont Avenue improvements	Watershed Coordinator	Significant stormdrains flow under the unusually wide roadway of Vermont avenue here. In addition, a spate of new development and community planning is going on surrounding the construction of a new county building.	X	-	-	-	-	-	-	-	NA

South Santa Monica Bay Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
1	Ballona Wetlands Expansion	?	Constructed wetlands/potential State park	-	-	-	-	-	X	-	-	NA
2	Del Rey Lagoon park Expansion	?	Del Rey Lagoon land acquisition and design process	-	-	-	-	-	X	-	-	NA
3	Del Rey neighborhood Council area Bike Racks on city streets	?	Place bike racks in business areas for shoppers and those going to eating establishments.	-	-	-	-	-	X	-	-	NA
4	UCLA Bicycle Master Plan	?	Ease bicycle congestion in and around UCLA campus	-	-	-	-	-	X	-	-	NA
5	Westwood Traffic Mitigation Wilshire Blvd.	?	Westside Bike working with City Council on traffic problem for bicycle riders.	-	-	-	-	-	X	-	-	NA
6	Westchester Bluffs Restoration	?	Remove non-natives and restore sage scrub.	-	-	-	-	-	X	-	-	NA
7	Ballona Creek Inflatable Dam	?	Install inflatable dam at a location in Ballona Creek to impound water for treatment and provide aesthetic benefits.	-	-	-	-	-	X	-	-	NA
8	Stone Canyon Creek Restoration	?	Removal of exotics/non-native vegetation and planting of native plants and trees	-	-	-	-	-	X	-	-	NA
9	Baldwin Hills Park Master Plan	Baldwin Hills Conservancy	Goal: develop program of resource stewardship, restore natural areas (including removal of non-native plants), improve recreation, culture, & educational experience.	-	-	-	-	-	X	-	-	NA
10	Exposition Light Rail	Caltrans	Light rail on abandoned rail. Includes bicycle trail. Ten segments are in project.	-	-	-	-	-	X	-	-	NA
11	Playa Vista Bicycle Trail	Caltrans	Bicycle trail	-	-	-	-	-	X	-	-	NA
12	Traffic Mitigation	Caltrans	Add two traffic lanes to existing Hwy. Eliminate bike lanes & sidewalks. Create more congestion-more auto pollution.	-	-	-	-	-	X	-	-	NA
13	Automated Meter Reading	City of Beverly Hills	The City of Beverly Hills is going to replace all its meters with automated meters that collect data frequently enough to assist in detecting leaks on private property.	X	233	0	-	-	-	-	-	NA
14	Waterwise/Firewise Demonstration Garden	City of Beverly Hills	Three City departments are working together to design and construct a water use efficeint garden that meets with hillside fire regulations.	X	-	-	-	-	-	-	-	NA
15	Storm Catch Basin Insert Installation	City of Beverly Hills	Inserts are installed in the catch basins located in the business triangle which has a history of high trash generation.	-	-	-	X	-	-	-	-	NA
16	High School Turf project	City of Beverly Hills; AYSO; BHUSD	Replace multi-use sports field with artificial turf	-	-	-	-	-	-	-	-	NA
17	Groundwater Recharge Sump for Carson City Hall	City of Carson	Construction and flow monitoring of two groundwater recharge sumps to receive roof drain runoff from City Hall Buildings. Currently the roof drains are routed directly to the storm drain system.	-	-	-	X	-	-	-	-	0.61 acres of flood control
18	Monitoring Program for JWPCP Marshland Enhancement Project	City of Carson and Sanitation Districts of Los Angeles County	Develop and implement project assessment and evaluation plan and monitoring plan in accordance with SWRCB guidance and AWQGP guidelines to assess water quality benefits and pollutant load reductions achieved by 17 acre wetland restoration and enhancement project that will function as an offline wetland treatment system for 2.16 million gallons per day of water from the Wilimington Drain. (The marsh construction program is fully funded but no funds are currently provided for monitoring and assessment.)	-	-	-	X	2	X	0	17	Education and habitat /wildlife viewing
19	Carson Freeway Wetland	City of Carson, Carson Redevelopment Agency	Acquire Brownfield property between the Dominguez Channel and the San Diego Freeway in the City of Carson and construct an engineered wetland to provide treatment of freeway storm water runoff and local dry weather flows from golf courses, local storm drains and/or the Dominguez Channel. Project includes linear jogging/bike path to provided critical recreational open space and enhance local redevelopment activity.	-	-	-	X	3	X	0	29	NA
20	Gardena Willows Wetlands - Weeds	City of Gardena	Control of basic and exotic weeds and resporation of the wetlands preserve. Control of non-native plants.	-	-	-	X	-	-	-	-	NA
21	Gardena Willows Wetlands - Education	City of Gardena	Interpretation and educaiton of Gardena Willows Wetlands. Contract for development and installation of two interpretive panels and related brochures.	-	-	-	-	-	-	-	-	x
22	Gardena Willows Wetlands - Erosion	City of Gardena	Correct erosion problems and improve maintenance of existing paths. Construct the remaining paths within the preserve making all paths handicap accessible.	-	-	-	-	-	-	-	-	Conservation Education
23	Gardena Willows Wetlands - Education 2	City of Gardena	Interpretation and educaiton of Gardena Willows Wetlands. Contract for development and installation of two interpretive panels and related brochures.	-	-	-	-	-	-	-	-	NA
24	Hermosa Strand Low Flow Infiltration Trench	City of Hermosa Beach	Dry and wet weather low flow runoff from eleven storm drains along a 1.5 mile stretch of beach including the downtown commercial corridor will be diverted into an engineered infiltration trench. The project will take advantage of the unsaturated coastal sandy soil to effectively distribute and infiltrate these low flows. The storm drains discharging along this stretch of beach will be equipped with a structural diversion system to allow pump low flows into the engineered trench while allowing higher flows to bypass the trench and flow directly to the existing ocean outfall. The storm drain flows discharging from the downtown commercial area will receive pretreatment for oil and grease removal before entering the engineered trench.	-	-	-	X	2	X	-	-	The project will reduce REC-1 bacteria exceedances caused by dry weather and first flush/low flow wet weather storm drain discharges at shoreline beaches along a 1.5 mile stretch of beach from Herondo Street to 26th Street in Hermosa Beach. The project will tie into existing storm drain system to divert, treat and infiltrate low flows currently impacting popular recreational beaches and a fishing pier.
25	Dominguez Watershed U.	City of Inglewood	Project would provide a training program designed to help people from local government, non-profit organizations, the business community, and citizen groups to work together and play effective roles in watershed management and to become stream stewards.	-	-	-	-	-	-	-	-	Outreach and collaboration
26	Sanford M. Anderson Water Treatment Plant - Study TTHM Reduction Alternativ	City of Inglewood	Pilot study for treatment plant effluent to meet Primary Drinking Water Regulation. Remove high total organic carbon (TOC) concentrations in groundwater by granular activated carbon (GAC) adsorption.	-	-	-	X	9	-	-	-	NA
27	Sanford M. Anderson Water Treatment Plant Improvements - Capacity and Water	City of Inglewood	Increase treatment plant capacity to 6,500 gpm (9.36 mgd) to supply 50% of maximum daily demand from local sources.	-	-	-	X	9	-	-	-	NA
28	Ballona Creek Stormwater Runoff Disinfection Project	City of Inglewood	Project will reduce the bacteria levels from stormwater runoff using ultra violet infiltration before the runoff empties in the Ballona Creek.	-	-	-	X	-	-	-	-	Public Information would be available
29	Rogers Park Watershed Runoff Treatment Reuse and Infiltration Project	City of Inglewood	Project is a subterranean dry and wet weather treatment, storage and infiltration system. It will incorporate cisterns, dry wells and infiltration pits.	-	-	-	X	-	-	-	-	Public information available, stormwater treatment, maintain and enhance current open space
30	Ballona Creek Stormwater Trash Capture System	City of LA	Install 3 full trash capture systems.	-	-	-	-	-	X	-	-	NA
31	Ballona Lagoon Improvements	City of LA	Removal of non-natives, dredge channel to improve tidal circulation and install fencing to reduce public access.	-	-	-	-	-	X	-	-	NA
32	(Venice) Grand Canal Restoration	City of LA	Funded by resident assessment program. Make Grand Canal similar to Venice network, possibly widening the lagoon, create a marine preserve with sloping banks, and decomposed granite paths.	-	-	-	-	-	X	-	-	NA
33	Sacatela Watershed Park	City of LA CD13	BMPs and native habitat plantings at X acres park. Significant project costs incurred by relocation of street light yard.	-	-	-	X	-	-	-	-	NA

South Santa Monica Bay Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
34	Del Rey Lagoon Improvements	City of LA Recreation & Parks	Improve tidal flushing ad plant native vegetation	-	-	-	-	-	X	-	-	NA
35	Fern Dell Enhancements	City of LA Recreation & Parks	Inclusion of regionally-adapted plants	-	-	-	-	-	X	-	-	NA
36	Bronson Canyon Enhancement	City of LA Recreation & Parks	Removal of non-natives and planting of California walnut and live oak.	-	-	-	-	-	X	-	-	NA
37	Lomita Integrated Storm to Vadose to Water Supply - Madonna Subdivision	City of Lomita with WRD, WBMWD	Reduce runoff and debris within watersheds, reduce spillover onto Malibu Road, construct bioswales on northern side of Malibu Road to increase depth of flow and increase inlet capacity	-	-	-	-	-	-	-	-	NA
38	Lomita Integrated Storm to Vadose to Water Supply - Moon Ave School	City of Lomita with WRD, WBMWD	Contain and reduce spillover from Tuna Canyon PCH, reduce runoff and debris from Tuna Canyon watershed, improve culvert crossings at PCH, improve low point drainage facilities	-	-	-	-	-	-	-	-	NA
39	Lomita Integrated Storm to Vadose to Water Supply - Walnut Street	City of Lomita with WRD, WBMWD	Contain and reduce spillover from Las Flores Canyon at PCH, reduce runoff and debris from Las Flores Canyon watershed, improve drainage facilities by constructing two new storm drain systems	-	-	-	-	-	-	-	-	NA
40	Lomita Integrated Storm to Vadose to Water Supply - Lomita Park Subdivision	City of Lomita with WRD, WBMWD	Contain and reduce spillover from Carbon Canyon north of NCH, implementing BMPs before directing runoff to Carbon Canyon Creek to prevent PCH flooding.	-	-	-	-	-	-	-	-	NA
41	Lomita Integrated Storm to Vadose to Water Supply - Robin Lane	City of Lomita with WRD, WBMWD, Egmond Associates Ltd.	Improve stormwater management and flood prevention by redirecting storm flows from PCH, collecting and implementing BMPs before discharging runoff.	-	-	-	-	-	-	-	-	NA
42	Postal Office Green Roof Structural BMPs	City of Los Angeles	Green Roof	-	-	-	-	-	-	-	-	NA
43	Palisades Park Structural BMPs	City of Los Angeles	Bioswales, Cisterns and Rain Barrel	-	-	-	-	-	-	-	-	NA
44	Vista de Mar Park/Imperial and Vista del Mar Lot Structural BMPs	City of Los Angeles	Bioretention, Infiltration Trench or Basin, Dry Well, Pervious Pavement	-	-	-	-	-	-	-	-	NA
45	Westchester Golf and Recreation Center Structural BMPs	City of Los Angeles	Cistern/Rain barrel and Local Storage and Reuse, Pervious Parking	-	-	-	-	-	-	-	-	NA
46	Loyola Village Branch Library Structural BMPs	City of Los Angeles	Cistern/Rain barrel and Local Storage and Reuse	-	-	-	-	-	-	-	-	NA
47	Del Rey Lagoon Park Structural BMPs	City of Los Angeles	Cistern/Rain barrel and Local Storage and Reuse	-	-	-	-	-	-	-	-	NA
48	Venice Beach Boardwalk Structural BMPs	City of Los Angeles	Perforated Culvert, Drywells, Bioswales, Bioretention, Revious Paving	-	-	-	-	-	-	-	-	NA
49	Westminster Park (dog park) Structural BMPs	City of Los Angeles	Cistern/Rain barrel and Local Storage and Reuse, Infiltration Trench	-	-	-	-	-	-	-	-	NA
50	Oakwood Recreation Park Structural BMPs	City of Los Angeles	Cistern/Rain barrel and Local Storage and Reuse, Pervious Parking	-	-	-	-	-	-	-	-	NA
51	Penmar Recreational Park Structural BMPs	City of Los Angeles	Cistern/Rain barrel and Local Storage and Reuse, Pervious Parking	-	-	-	-	-	-	-	-	NA
52	Temescal Canyon Park Structural BMPs	City of Los Angeles	Cistern/Rain barrel and Local Storage and Reuse	-	-	-	-	-	-	-	-	NA
53	Rustic Canyon Recreation Center Structural BMPs	City of Los Angeles	Cistern/Rain barrel and Local Storage and Reuse	-	-	-	-	-	-	-	-	NA
54	Will Rogers State Historical Park Structural BMPs	City of Los Angeles	Subsurface Constructed Wetland	-	-	-	-	-	-	-	-	NA
55	Barrington Recreational Park Structural BMPs	City of Los Angeles	Cistern/Rain barrel and Local Storage and Reuse	-	-	-	-	-	-	-	-	NA
56	Santa Ynez Canyon Park Structural BMPs	City of Los Angeles	Subsurface Constructed Wetland	-	-	-	-	-	-	-	-	NA
57	Hoag Canyon Acquisition	City of Los Angeles	Acquisiton of last undeveloped canyon in Ballona Creek Watershed. Restoration of modified reach of creek.	-	-	-	X	-	X	725	725	NA
58	South Bay Flood Control	City of Los Angeles, Bureau of Sanitation	This projects intends to reduce future flood risk by completed the plan, design, and implementation of projects in the South Bay Sub-Region. These projects are to relieve local flooding, improve drainage, and protect public health and property	-	-	-	-	-	-	-	-	eliminate approximately 14 problematic flooding sites
59	Lower Franklin Canyon Park	City of Los Angeles, Council District 5	Lower Franklin Canyon provides precious, underutilized open space which is a commodity in this highly urbanized area. The proposed project primarily addresses water quality, habitat and recreation needs, although a flood management strategy is also addressed.	X	1	100	X	-	X	0	156	NA
60	Santa Ynez Canyon Restoration	City of Los Angeles; Dept. of Recreation and Parks	This project proposes the revitalization of the canyon and associated Santa Ynez Creek by establishing native habitats, providing erosion and flood control measures, and improving water quality through the removal of large debris and the natural filtration of storm water and associated pollutants. Develop trails and improve passive recreational opportunities in the canyon areas. Install constructed wetlands to capture and treat runoff for the park and surrounding areas	-	-	-	X	-	X	-	-	NA
61	Mandeville Canyon Restoration	City of Los Angeles; Dept. of Recreation and Parks	This project proposes the revitalization of the canyon and associated Mandeville Canyon Creek by establishing native habitats, providing erosion and flood control measures, and improving water quality through the removal of large debris and the natural filtration of storm water and associated pollutants. Develop runoff culverts, channels, and energy dissipation zones to mitigate downstream flooding. Increase public access to the Canyon by improving the existing trails and access points.	-	-	-	X	-	X	-	-	NA

South Santa Monica Bay Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
62	Macarthur Park Lake Rehabilitation Project	City of Los Angeles; Dept. of Recreation and Parks	The project proposed to restore the retention basin so that its natural physical, biological, and chemical processes can improve water quality by maximizing pollutant removal. Project specifics include draining the lake, improving aeration and circulation system, installing trash capture inserts in storm drains, reconstructing walking paths using permeable surfaces, installing “smart” irrigation system, providing educational signage and kiosks identifying the water quality improvements benefits, and implementing various other Best Management Practices (BMP) throughout the park using a treatment train approach. BMPs will be based on the latest stormwater technology and may include bioswales and permeable surfaces	-	-	-	X	-	X	-	-	NA
63	Manhattan Beach Greenbelt Percolation Line	City of Manhattan Beach	This project will involve the construction of an underground percolation line for dry weather flows.	X	-	-	X	0.013	-	-	-	NA
64	Greenbelt Low-flow Infiltration Project	City of Manhattan Beach	This project will intercept dry weather flows, from an existing storm drain, and allow them to percolate into the ground. The pollutant load will be captured and prevented from discharging into the Santa Monica Bay. During a storm, the “first flush” will be stored for seepage into the ground later. The low flows will be screened by a CDS type unit and will then be directed to a series of 24” diameter underground plastic pipes (approx. 1800 lf) with perforated inverts for percolation into the ground. This project will improve water quality in the Santa Monica Bay as well as create additional capacity in the hydraulically deficient storm drain system downstream.	-	-	-	X	-	-	-	-	Flood Management for approximately 0.10 acre
65	Urban and Rain Water Diversion and Re-Use at City Parks	City of Redondo Beach	Construct diversion, treatment, storage and distribution facilities to re-use dry weather and wet weather runoff from local subwatersheds in 12 parks located throughout the City of Redondo Beach. All dry weather and up to a 0.3 inch/24hr storm events would be diverted, treated, stored and re-used to irrigate park landscaping.	X	-	-	-	-	-	-	-	NA
66	King Harbor Red Tide Mitigation	City of Redondo Beach	Install mechanical aeration and circulation devices throughout the harbor to increase the oxygen levels and provide increase circulation. These facilities can be activated prior to a red tide or other event that impedes proper circulation and oxygen levels in the harbor that would adversely impact the marine environment.	-	-	-	X	-	-	-	-	Marine wild life and habitat
67	Peninsula Village Green Building Review	City of Rolling Hills Estates	Provide a 50% match to developers for the cost associated with contracting for an external environmental review of green building aspects of development/redevelopment projects proposed within the Peninsula Village overlay zone. This would include review for incorporation of green building features that also achieve IRWMP objectives including: water conservation, water recycling, flood management, stormwater capture and management/reuse, water quality protection and improvement.	X	1	100	X	-	-	-	-	87 acres subject to green building review
68	Peninsula Village Regional Stormwater Mitigation Program	City of Rolling Hills Estates	Incorporate a system of structural stormwater BMPs into the streetscape master plan for Peninsula Village. This will be funded through a combination of developer fees and grant funding by creating a Regional Stormwater Mitigation Program which would provide stormwater SUSMP compliance for new development/redevelopment and also stormwater and urban runoff mitigation for existing developments within the Peninsula Village overlay zone.	X	1	100	X	0.9	-	-	-	significantly increase permeability of 45 acres
69	Chandler Sand & Gravel Redevelopment Infiltration Basin	City of Rolling Hills Estates	Incorporation of a stormwater infiltration/groundwater recharge/flood control basin into redevelopment of the former sand & gravel quarry, currently an inert landfill. Redevelopment plans for the property involve the construction of new homes and expansion of a private golf course. Basin would receive runoff from 500 acres including 250 acres outside the redevelopment project conveyed via five natural drainage courses. Property includes groundwater rights and the basin could either provide surface water source for golf course irrigation or serve as recharge for groundwater used for irrigation.	X	500	1000	X	0.5	-	-	-	500 acres flood control
70	Creation of Infiltration Zones at Existing Storm Drain Junction Boxes	City of Santa Monica	Retrofit an existing storm drain junction box/ location (5-10 boxes in total as part of this project). Auger through the storm drain manhole to create an infiltration zone below the storm drain line. This would allow dry weather flows and some wet weather to dump into this sump for infiltration.	-	-	-	-	-	-	-	-	NA
71	Los Angeles County and Santa Monica Fire Stations Structural BMPs	City of Santa Monica	Cistern/Rain barrel and Local Storage and Reuse, Infiltration BMPs at 4 Santa Monica Fire Stations #1(Headquarters),#2, #3, #4, #5 and 5 LA County Fire Stations (Venice Blvd, Butler Ave, Hollister Ave, Sunset Blvd, Carey/Embury, Veteran Ave., Liones)	-	-	-	-	-	-	-	-	NA
72	Beach Park Structural BMPs	City of Santa Monica	Local Storage or Infiltration	-	-	-	-	-	-	-	-	NA
73	Big Blue Bus Infiltration Pit	City of Santa Monica	Infiltration Pit	-	-	-	-	-	-	-	-	NA
74	Civic Center Structural BMPs	City of Santa Monica	Separation Screening, Catch-Basin Inserts, Infiltration, Storage Reuse or Permeable Pavers	-	-	-	-	-	-	-	-	NA
75	Memorial Park Expansion	City of Santa Monica	Bioretention, Infiltration Trench or Basin, Dry Well, Pervious Pavement	-	-	-	-	-	-	-	-	NA
76	Library and Skill Center Structural BMPs	City of Santa Monica	Cistern/rain barrells at Santa Monica and LA County Libraries (Main Library, Brentwood Library, Montana Library, Mahood Senior Center/Library, Venice Skill Center)	-	-	-	-	-	-	-	-	NA
77	Santa Monica Courthouse Structural BMPs	City of Santa Monica	Cistern, Rain Barrel	-	-	-	-	-	-	-	-	NA
78	The Lakes at El Segundo Golf Course Structural BMPs	City of Santa Monica	Cistern/Rain barrel and Local Storage and Reuse	-	-	-	-	-	-	-	-	NA
79	Parks Runoff Retrofit Reuse-Infiltration Projects b	City of Santa Monica	Retrofit an existing park and add to a new park runoff treatment, reuse and infiltration BMPs to deal with onsite and offsite runoff.	X	-	-	X	-	X	-	-	Removal of all or most runoff pollutants; if reuse of stormwater, need to check with State DHS, would offset a X amt. of potable water; need additional calcs.
80	16th Street Watershed Runoff Reuse Demonstration Project	City of Santa Monica	3 stage treatment, storage, infiltration and/or reuse project for all dry weather runoff, and up to 80% wet weather.	X	-	-	X	52	-	-	-	Removal of all or most runoff pollutants; if reuse of stormwater, need to check with State DHS, would offset a X amt. of potable water; need additional calcs.
81	Memorial Park Runoff Treatment, Reuse & Infiltration Project	City of Santa Monica	Improve water quality through provision of BMPs to control site runoff across bluff and the beach before reaching Santa Monica Bay	-	-	-	-	-	-	-	-	NA
82	Parks Runoff Retrofit Reuse-Infiltration Projects	City of Santa Monica	Retrofit an existing park and add to a new park runoff treatment, reuse and infiltration BMPs to deal with onsite and offsite runoff.	X	-	-	X	-	X	-	-	Removal of all or most runoff pollutants; if reuse of stormwater, need to check with State DHS, would offset a X amt. of potable water; need additional calcs.
83	Storm Drain Runoff Retrofit & Infiltration Stations	City of Santa Monica	Retrofit existing storm drain nexus points with deep infiltration zones for dry and wet weather capture and infiltration.	-	-	-	X	-	-	-	-	For infiltrated runoff, removal of ALL runoff pollutants.
84	Freeway Runoff Infiltration Demonstration Project	City of Santa Monica	Divert runoff from a section of the Santa Monica Freeway, treat and infiltrate along the side of the freeway.	-	-	-	X	-	-	-	-	For infiltrated runoff, removal of ALL runoff pollutants.
85	Well No 7&8	City of Torrance	The project objective is for the design and installation of structural parking lot BMPs and non-structural infiltration devices to provide ecological methods for water pollution control and mitigation of urban storm water runoff from PCH and adjacent beach	-	-	-	-	-	-	-	-	NA
86	Conversion of 237th Street/Walter Street and Walnut Ave. Sumps Tributary to	City of Torrance	This project would convert the 237th St./Walter St. and Walnut Ave. Sumps into an retention/infiltration basin BMPs for pending TMDL compliance and provide open spaces for wildlife habitat. Flows that previously went to these sumps are now tributary to the Harbor Lakes. This project would maximize the drainage area that could be tributary to these retention basins and also restore areas for wildlife use.	-	-	-	X	-	X	0	2	NA

South Santa Monica Bay Subregion Projects

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87	Conversion of 237th Street Sump Tributary to Harbor Lakes into Infiltration	City of Torrance	This project would convert the 237th St. Sump (31 acres) into an retention/infiltration basin BMPs for pending TMDL compliance and provide open spaces for wildlife habitat. Flows tributary to this sump are tributary to the Harbor Lakes. This project would maximize the infiltration from this drainage area and also restore areas for wildlife use.	-	-	-	X	9	X	0	1	NA
88	Conversion of Pioneer Storm Drain Sump Tributary to Dominguez Channel into	City of Torrance	This project would convert the Pioneer Sump into an infiltration or bio-filtration BMP for pending TMDL compliance and provide open spaces for wildlife habitat. This sump is tributary to the Dominguez Channel. This project would also restore areas for wildlife use.	-	-	-	X	-	X	0	3	NA
89	Yukon Well Development	City of Torrance	The project will construct three wells to reduce dependence on imported MWD water. The project will include land acquisition, well, treatment, and distribution construction.	X	1000	0	-	-	-	-	-	NA
90	Reduction of Harmful Nutrients in the water at the Madrona Marsh Preserve	City of Torrance, Friends of Madrona Marsh	Currently the Preserve receives water from rainfall and urban run-off. The water is rich in phosphates, nitrates, and other pollutants which we would like to reduce or remove through filtration or other means.	-	-	-	-	-	X	0	20	NA
91	Restoration, Madrona Marsh Preserve	City of Torrance, Friends of Madrona Marsh	Removal of non-native plant and replant area with native species.	-	-	-	-	-	X	0	30	NA
92	Project S.O.U.N.D. (saving our unique natural diversity)	City of Torrance, Friends of Madrona Marsh	Research, locate and collect seeds and cuttings from local native plants for growing and propagation of plants that are needed for restoration throughout the Dominguez watershed.	X	-	-	-	-	X	-	-	NA
93	Conversion of Henrietta Storm Drain Sump Tributary to Santa Monica Bay into	City of Torrance, SMBBB TMDL Jurisdictional Groups 5 & 6	This project would convert the Henrietta sump into an infiltration or bio-filtration BMP for bacteria TMDL compliance and provide open spaces for wildlife habitat and access for public use. This sump is tributary to the Santa Monica Bay, specifically the storm drain outlet that has bacteria TMDL exceedences. This project would also remove block walls and install wrought iron fences, provide public access and restore areas for wildlife use.	-	-	-	X	-	X	0	39	NA
94	Conversion of Amie Storm Drain Sump Tributary to Santa Monica Bay into Infi	City of Torrance, SMBBB TMDL Jurisdictional Groups 5 & 6	This project would convert the Amie sump into an infiltration or bio-filtration BMP for bacteria TMDL compliance and provide open spaces for wildlife habitat and access for public use. This sump is tributary to the Santa Monica Bay, specifically the storm drain outlet that has bacteria TMDL exceedences. This project would also remove block walls and install wrought iron fences, provide public access and restore areas for wildlife use.	-	-	-	X	5	X	0	4	NA
95	Conversion of Entradero Storm Drain Sump Tributary to Santa Monica Bay into	City of Torrance, SMBBB TMDL Jurisdictional Groups 5 & 6	This project would modify the Entradero sump to also function as an infiltration or bio-filtration BMP for bacteria TMDL compliance and provide open spaces for wildlife habitat. The sump is currently open for public use and has six baseball fields constructed in it. This sump is tributary to the Santa Monica Bay, specifically the storm drain outlet that has bacteria TMDL exceedences. This project would modify areas of the sump not used for public access to be used for wildlife habitat and storm water BMP.	-	-	-	X	69	X	0	25	NA
96	Improvements to Entradero Storm Drain Channel for Storm Water Infiltration	City of Torrance, SMBBB TMDL Jurisdictional Groups 5 & 6	This project would modify the Entradero Channel to improve infiltration BMP for bacteria TMDL compliance. The channel is currently has an asphalt bottom and dirt slopes. This channel is tributary to the Entradero Sump/Park which is tributary to the Santa Monica Bay, specifically the storm drain outlet that has bacteria TMDL exceedences. This project would replace the asphalt bottom and sides of the channel with a pervious material to improve infiltration of storm water while maintaining vegetation on the slopes that improve slope stability and act as a BMP.	-	-	-	X	-	-	-	-	NA
97	East Wilmington Greenbelt	Coastal Conservancy	Proposed park to provide recreation and habitat restoration in a park poor disadvantaged community adjacent to the harbor.	-	-	-	-	-	-	-	-	NA
98	East Wilmington Coastal Trail connection to Los Angeles River	Coastal Conservancy	Upper and Lower Coastal Trail connecting San Pedro and Wilmington to the LA River	-	-	-	-	-	-	-	-	NA
99	Harbor Regional Park	Coastal Conservancy	Proposed regional park connecting San Pedro residents, Peck and Leland Parks and Bandini Canyon to the waterfront.	-	-	-	-	-	-	-	-	NA
100	Pacific Overlook / Sunken City	Coastal Conservancy	New park at the end of N. Gaffey providing access and habitat restoration to Sunken Ciy.	-	-	-	-	-	-	-	-	NA
101	Cabrillo Salt Marsh Enhancement	Coastal Conservancy	Enhancement of existing salt marsh	-	-	-	-	-	-	-	-	NA
102	22nd Street Wetland	Coastal Conservancy	Enhancement of 22nd Street wetland in San Pedro	-	-	-	-	-	-	-	-	NA
103	Dominguez Channel Habitat Restoration	Coastal Conservancy	Habitat creation/restoration in and along the Dominguez Channel	-	-	-	-	-	-	-	-	NA
104	Chester L. Washington Golf Course Stream Restoration and Daylighting Projec	Coastal Conservancy	Restoration and daylighting of portions of Anderson Wash within CL Washington Golf Course	-	-	-	-	-	-	-	-	NA
105	Ballona Lagoon Preserve	Coastal Conservancy, City of LA	West side Ballona Lagoon Preserve: island expansion, planting of native veg, removal of concrete oil platform, deep pool dredging, public overlook platform & walkway.	-	-	-	-	-	X	-	-	NA
106	Ballona Wetlands Restoration	Coastal Conservancy, Dept. Fish and Game	Restore habitat and improve public access opportunities for all of the lands owned by the State of California, a total of 600 acres and the connected wetlands within the landscape context.	-	-	-	-	-	X	0	600	NA
107	Ballona Creek Debris Fences	County of LA	Install multiple debris fences to catch additional trash and debris.	-	-	-	-	-	X	-	-	NA
108	Education & Training for Careers in Native Plant & Water-wise Landscaping	CSU Dominguez Hills & El Camino College	Development of college-level certificate and BS degree programs focusing on native plant propagation and landscaping with native plants	X	-	-	-	-	X	-	-	NA
109	Swales for Schools Demonstration Project	CSU Dominguez Hills Dept. of Biology and Madrona Marsh Preserve, Torrance	A demonstration swale, using runoff water and planted with native plants, will be constructed at a local elementary school. Students, families and school staff will actively participate in construction & maintenance. Educational materials on water, conservation and ecology will be developed for classroom use.	X	-	-	-	-	X	-	-	This is designed as a demonstration project. It could be rolled out to other campuses once developed.

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110	Native Plant Gardening Workshops	CSU Dominguez Hills Dept. of Biology; possibly Madrona Marsh Preserve and C	Development of 4-session "hands on" workshop on home garden use of native plants. This workshop would be open to persons completing the 'Protector del Agua' series, and would complement that series.	X	-	-	-	-	-	-	-	NA
111	Effects of Recycled Water on Native Plants	CSU Dominguez Hills, Dept. of Biology	Greenhouse, garden and field research on the effects of recycled water on local native plants used for restoration and home/public plantings. The eventual aim is to find/develop native varieties tolerant of recycled water.	X	-	-	-	-	-	-	-	NA
112	City of Culver City Bicycle Master Plan	Culver City - MTA	BMP lays out streets and roads within CC limits. Application to MTA will assist in funding bike trails Class I, II, II. User-friendly streets make for ease of bike transportation.	-	-	-	-	-	X	-	-	NA
113	Enhance / Restore Habitat 1	Dominguez Watershed Advisory Council	1. Enhance / restore Wilmington Drain.	-	-	-	-	-	X	-	-	NA
114	Enhance / Restore Habitat 2	Dominguez Watershed Advisory Council	2. Enhance Machado Lake wetlands.	-	-	-	-	-	X	-	-	NA
115	Enhance / Restore Habitat 3	Dominguez Watershed Advisory Council	3. Enhance Gardena Willows.	-	-	-	-	-	X	-	-	NA
116	Enhance / Restore Habitat 4	Dominguez Watershed Advisory Council	4. Enhance Walteria Lake .	-	-	-	-	-	X	-	-	NA
117	Enhance / Restore Habitat 5	Dominguez Watershed Advisory Council	5. Enhance pocket wetlands.	-	-	-	-	-	X	-	-	NA
118	Enhance / Restore Habitat 6	Dominguez Watershed Advisory Council	6. Enhance and restore canyon habitats.	-	-	-	-	-	X	-	-	NA
119	Enhance / Restore Habitat 8	Dominguez Watershed Advisory Council	7. Daylight historic streams to restore wetlands.	-	-	-	-	-	X	-	-	NA
120	Enhance / Restore Habitat 9	Dominguez Watershed Advisory Council	8. Investigate feasibility and restore concrete-lined tributary channels.	-	-	-	-	-	X	-	-	NA
121	Increase use of pervious pavement during development and redevelopment.	Dominguez Watershed Advisory Council	Reduce Hardscape	-	-	-	-	-	X	-	-	NA
122	Increase Water Reuse 1	Dominguez Watershed Advisory Council	1. Increase use and expansion of the recycled water system.	-	-	-	-	-	X	-	-	NA
123	Increase Water Reuse 2	Dominguez Watershed Advisory Council	2. Increase installation of rain-water harvesting systems and cisterns.	-	-	-	-	-	X	-	-	NA
124	Increase Water Reuse 3	Dominguez Watershed Advisory Council	3. Develop and construct new alternative water sources.	-	-	-	-	-	X	-	-	NA
125	Reduce Discharge Impairments 1	Dominguez Watershed Advisory Council	6. Create wetlands to treat urban runoff.	-	-	-	-	-	X	-	-	NA
126	Reduce Discharge Impairments 2	Dominguez Watershed Advisory Council	7. Enhance existing detention/retention basins.	-	-	-	-	-	X	-	-	NA
127	Reduce Discharge Impairments 3	Dominguez Watershed Advisory Council	8. Rute flows to detention/retention basins to reduce flooding and treat runoff.	-	-	-	-	-	X	-	-	NA
128	Reduce Discharge Impairments 4	Dominguez Watershed Advisory Council	9. Construct DURRF for water treatment and reuse.	-	-	-	-	-	X	-	-	NA
129	Reduce Legacy Pollutants	Dominguez Watershed Advisory Council	3. Develop and implement a sediment management plan for Machado Lake.	-	-	-	-	-	X	-	-	NA
130	Reduce Trash	Dominguez Watershed Advisory Council	2. Install and maintain catch basin inserts in high priority areas.	-	-	-	-	-	X	-	-	NA

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131	Storm Water Station Structural BMPs	El Segundo	Cistern/Rain barrel and Local Storage and Reuse at El Segundo Stormwater Stations #16, #17 and #18	-	-	-	-	-	-	-	-	NA
132	Kuruvunga Springs Restoration	Gabrielino Tongva Springs Foundation	Restoration of Kuruvunga Springs as a cultural and educational resource, including restoration of native vegetation.	-	-	-	-	-	X	-	-	NA
133	Restoration and Education at the Gardena Willows Wetland Preserve	Gardena Willows Committee & City of Gardena	Further restoration and management of the Preserve and development of a Nature Center and educational programs	-	-	-	-	-	X	-	-	preservation of last remnant of Dominguez Slough in area with little open space
134	County Courthouse Structural BMPs	LA County	Cistern/Rain barrel and Local Storage and Reuse	-	-	-	-	-	-	-	-	NA
135	Marina Beach Water Quality Improvement Project	LA County Dept. of Beaches & Harbors	Construct a water infusion system or other appropriate flushing mechanism, install structural BMPs in surrounding parking lots, replace existing sediment if necessary.	-	-	-	-	-	X	-	-	NA
136	Marina del Rey / Ballona Creek Trail Beneficial Use Enhancement Project	LA County Dept. of Beaches & Harbors	Improve beneficial uses of lower reach of Ballona Creek by expanding non-water related recreational opportunities, enhancing habitat, and improving the pedestrian walkway.	-	-	-	-	-	X	-	-	NA
137	Oxford Flood Control Basin Enhancements	LA County Dept. of Beaches & Harbors	Install new fencing, lighting, irrigation, landscaping, bank improvements, interpretive signage and promenade along Washington Street, Admiralty Way and boundary with Admiralty Park.	-	-	-	-	-	X	-	-	NA
138	Public Parking Lot Structural BMP Project	LA County Dept. of Beaches & Harbors	Structural BMPs at Marina del Rey County-owned public parking lots.	-	-	-	-	-	X	-	-	NA
139	Ballona Wetlands Walkway	LA County DPW	Walkway from Pacific Ave. to the wetlands	-	-	-	-	-	X	-	-	NA
140	Sepulveda Feeded Interconnection	LA County Waterworks District No. 29	The objective of this project is to introduce a new primary source of water supply for the Marina Del Rey, Malibu and Topanga areas, to increase water supply reliability and provide redundancy to the District.	X	-	-	-	-	-	-	-	NA
141	Baldwin Hills to Ballona Trail BMPs (Baldwin Infiltration)	LA/DPW/BOS/WPD	The project objective is for the design and installation of structural parking lot BMPs and non-structural infiltration devices to provide ecological methods for water pollution control and mitigation of urban storm water runoff from PCH and adjacent beach	-	-	-	-	-	-	-	-	NA
142	Ballona Creek Disinfection	LA/DPW/BOS/WPD	Remove bottlenecks in storm drains by replacing them with large connector pipes, create new storm drain systems with more inlets, replace undersized catch basins, reduce spill over and runoff and debris from watersheds north of Pacific Coast Highway.	-	-	-	-	-	-	-	-	NA
143	Ballona Creek Street Retrofit	LA/DPW/BOS/WPD	The proposed project is a habitat restoration priority for restoring native watershed habitat adjacent to Triunfo Creek	-	-	-	-	-	-	-	-	NA
144	South Santa Monica Watershed Runoff Treatment, Reuse, and Infiltration Proj	LA/DPW/BOS/WPD	Improve water quality through provision of BMPs to control site runoff across the beach before reaching Santa Monica Bay; Replace exotic vegetation with native coastal landscaping	-	-	-	-	-	-	-	-	NA
145	Mar Vista Park Retrofit	LA/DPW/BOS/WPD	Improve all-weather public access across Zuma Creek by constructing raised causeway; Install runoff BMPs; Enhance fish habitat by removing physical barriers to upstream steelhead migration (request of CDFG).	-	-	-	-	-	-	-	-	NA
146	JWPCP Marshland Enhancement	LACSD	Restoration of vegetation and wildlife habitat value of the 17 acre freshwater JWPCP marshland that provides stormwater treatment and flood control. The project also includes educational and recreational facilities.	-	-	-	X	2	X	-	-	Enhance and protect habitat in one of our most habitat deficit watersheds in Los Angeles. The riparian vegetation provides foraging and nesting habitat for a variety of birds including the great egret.
147	Westside Recycling Project	LADWP	Construct 2,700 feet of pipeline (Phases 1C &1D) to deliver recycled water to customers on the Westside.	X	200	0	-	-	-	-	-	NA
148	Harbor Recycling Unit IV	LADWP	7,300 feet of piepline to deliver recylced water from Terminal Isalnd Advanced Waste Water Treatment Plant to the ConocoPhillips Refinery.	X	2800	0	-	-	-	-	-	NA
149	Harbor Recylcing Unit V	LADWP	8,000 feet of piepline to deliver recylced water from Terminal Isalnd Advanced Waste Water Treatment Plant to the Valero Refinery.	X	3500	0	-	-	-	-	-	NA
150	Construct up to a 25 mgd Seawater Desalination Plant the city of Los Angele	LADWP	The project proposes to construct up to a a 25mgd Seawater Desalination Plant in the Scattergood Generating Station for potable water use.	X	0	28000	-	-	-	-	-	NA
151	99th Street Wells Ammoniation Station	LADWP	Plan, design and construct the 99th Street Wells Ammoniation Station to add aqua ammonia to form a chloramine residual disinfectant in the water being supplied to customers from the 99th Street Well Field.	-	-	-	X	-	-	-	-	Required for system-wide conversion to chloramine disinfection
152	Manhattan Well Field Rehabilitation	LADWP	Project will construct six new production wells at LADWP's Manhattan Well Field in the Central Basin to restore the historic production capacity of the well field, and to improve operational reliability and flexibility	X	3000	0	-	-	-	-	-	The enhanced groundwater production capacity will allow the City to enter into a 15,000 - 30,000 acre-foot conjunctive use program in the Central Basin to better utilize local water resources
153	Manhattan Wells Ammoniation Station	LADWP	Plan, design and construct the Manhattan Wells Ammoniation Station to add aqua ammonia to form a chloramine residual disinfectant in the water being supplied to customers from the Manhattan Well Field.	-	-	-	X	-	-	-	-	The Manhattan Wells Ammoniation Station is required for Phase 3 of the system-wide conversion to chloramine disinfection. This station will treat the groundwater produced by the Manhattan Street Wells. The conversion to chloramine disinfection is necessary to reduce the level of disinfection byproducts, including THMs, in the water served to the consumer and comply with the requirements of the Federal Stage 2 Disinfectants and Disinfection Byproducts Rule which became effective on March 6, 2006.
154	Modifications at LA-29 (sunset)	LADWP	Coordinate with MWD for the installation of metering and increased pipe size at the LA-29 Connection. Project includes the installation of 250 feet of 60 inch steel pipe, and 2300 feet of 36-inch steel pipe. System monitoring facilities will also be installed.	-	-	-	-	-	-	-	-	Will provide metering of MWD supply into LADWP system. This project will increase reliability of system pressure when Upper Stone Canyon reservoir is taken out of service.
155	Mulholland Pump Station & Chlorine Station Replacement	LADWP	Design and construct a 2,300 gallon per minute capacity pump station and a new 6 ton-container capacity chlorination station	-	-	-	-	-	-	-	-	To provide pumped supply to the 946-ft service area and emergency disinfection for Lower Hollywood Reservoir. The current combined pump station and chlorination station building has deteriorated and is susceptible to seismic damage. The chlorination station is under sized.

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156	Los Angeles Harbor Bacteria TMDL - Low Flow Diversion	Los Angeles County Flood Control District	Develop low-flow diversions within the Los Angeles Harbor watershed to comply w/ the Harbor Bacteria TMDL.	-	-	-	-	-	-	-	-	NA
157	West Coast Basin Seawater Barrier Telemetry System	Los Angeles County Flood Control District	This project involves the installation of equipment to remotely monitor injection wells to improve the overall effectiveness and efficiency in the operation of the West Coast Basin Seawater Barrier.	X	1000	0	-	-	-	-	-	NA
158	Dominguez Channel Greenway	Los Angeles County Flood Control District	Development of a native landscaped greenway and bikeway along the Dominguez Channel.	-	-	-	-	-	-	-	-	NA
159	Olive Circle Cisterns Community Retrofit	Los Angeles County Flood Control District	Work w/ area residents to retrofit an unincorporated County community to install cisterns and BMPs to address flooding and water quality issues.	-	-	-	-	-	-	-	-	NA
160	Crenshaw Regional Flood Relief Multiuse	Los Angeles County Flood Control District	Address regional flooding hazards through multiobjective watershed management solutions for the Crenshaw regional drainage system in the Dominguez watershed.	-	-	-	-	-	-	-	-	NA
161	White Point Nature Preserve	Los Angeles Department of Recreation and Parks (LADRP)	Further implementation of the master Plan objectives for the 102 acre site, including habitat restoration, native gardens, interpretive exhibits/signage, trail enhancements and view stations. Retain and restrict rain/stormwater on site through native habitat restoration, smart irrigation, and stormwater/parking lot drainage BMPs.	-	-	-	X	-	X	0	90	NA
162	Golf Course BMPs — Harbor Park Golf Course	Los Angeles Department of Recreation and Parks (LADRP)	Installation of dry swale drainage systems throughout the golf course to replace existing concrete drainage channels for capture and infiltration of storm flows; installation of new wash rack systems at the golf course service yard with a new state-of-the art water treatment and recycling system to capture, treat and reuse mechanical equipment wash water.	-	-	-	X	-	-	-	-	NA
163	Machado Lake and Wilmington Drain Water Quality and Habitat Restoration Pro	Los Angeles Department of Recreation and Parks (LADRP)	Develop projects to improve water quality and habitat in the Wilmington Drain and the connected Machado Lake and lower wetlands. The site represents the only remaining natural wetlands in the L.A. Harbor area and serves a particularly important role in sustaining migratory and local bird populations in the L.A. area. The lake is a polluted freshwater system with limited water circulation and continuous siltation that outlets to the San Pedro Bay. The only source of water is urban and stormwater runoff conveyed primarily by the Wilmington Drain. The lake and surrounding habitat suffer from a variety of impairments and has numerous 303(d) listings. It also suffers from an overgrowth of emergent vegetation.	-	-	-	X	-	-	-	-	NA
164	Del Rey Lagoon Stormwater Storage and Reuse and Habitat Restoration	Los Angeles Department of Recreation and Parks (LADRP)	Installation of hydro-dynamic separators and underground detention tank, water treatment system, and facility pumping station. Shoreline restoration and native plants around the lagoon, and upgrades to the tidal gate for controlling tidal flows in the lagoon.	-	-	-	X	-	-	-	-	NA
165	Golf Course BMPs — Penmar Golf Course	Los Angeles Department of Recreation and Parks (LADRP)	Installation of dry swale drainage systems throughout the golf course to replace existing concrete drainage channels for capture and infiltration of storm flows; installation of new wash rack systems at the golf course service yard with a new state-of-the art water treatment and recycling system to capture, treat and reuse mechanical equipment wash water	-	-	-	X	-	-	-	-	NA
166	Potrero Canyon Park Phase III	Los Angeles Department of Recreation and Parks (LADRP)	Provide passive recreation, including trails, within the canyon, restore 7.9 acres of riparian habitat, install a variety of native plant material (beyond riparian area), build stormwater BMPs, construct interpretive signage, install a smart-weather based irrigation system, comply with Coastal Commission parking and access requirements.	-	-	-	X	-	X	0	10	NA
167	Golf Course BMPs — Rancho Park Golf Course	Los Angeles Department of Recreation and Parks (LADRP)	Installation of dry swale drainage systems throughout the golf course to replace existing concrete drainage channels for capture and infiltration of storm flows; installation of new wash rack systems at the golf course service yard with a new state-of-the art water treatment and recycling system to capture, treat and reuse mechanical equipment wash water	-	-	-	X	-	-	-	-	NA
168	Peck Park Canyon Project	Los Angeles Neighborhood Initiative	The Peck Park Canyon project revitalizes a seasonal stream that empties into the impaired San Pedro Bay and 31 acres of underutilized and under-maintained canyon open space in San Pedro. The project will improve water quality and flood management while it also creates a much-needed recreational and educational asset for the community through native plantings and the restoration and expansion of a neglected, rudimentary trail system.	-	-	-	-	-	-	-	-	Flood protection (Level of water quality and flood protection TBD through additional analysis conducted by LA City Bureau of Sanitation (to be completed in May/June 2006)
169	DBH Parking Lot 5 Bioretention Filter	Marina del Rey Watershed Responsible Agencies	Installation of Bioretention filter system to capture sheet flow from the parking lot	-	-	-	-	-	-	-	-	NA
170	Los Angeles County Fire Department	Marina del Rey Watershed Responsible Agencies	Install bioretention filter system to capture sheet flow from the parking lot.	-	-	-	-	-	-	-	-	NA
171	DBH Parking Lot 7 Cistern/Rain Barrel	Marina del Rey Watershed Responsible Agencies	Installation of cistern/rain barrel to store stormwater runoff from the parking lot, treat it and reuse it for the Admiralty Park irrigation	-	-	-	-	-	-	-	-	NA
172	Marina Del Rey Library Bioretention Filter System	Marina del Rey Watershed Responsible Agencies	Installation of Bioretention filter system to capture sheet flow from the parking lot	-	-	-	-	-	-	-	-	NA
173	Admiralty Park Cistern/Rain Barrel	Marina del Rey Watershed Responsible Agencies	Installation of Cistern/rain barrel to store stormwater from the surrounding areas	-	-	-	-	-	-	-	-	NA
174	Oxford Basin Regional Structural BMPs	Marina del Rey Watershed Responsible Agencies	Install regional structural BMPs at Oxford Basin to treat and reuse runoff captured from the upper watershed.	-	-	-	-	-	-	-	-	NA
175	Venice Boulevard	Marina del Rey Watershed Responsible Agencies	Implement structual BMPs such as biofiltration or other treatment technologies to treat runoff.	-	-	-	-	-	-	-	-	NA
176	Ballona Creek Recreation and Restoration Plan	Mountains Recreation and Conservation Authority	Restoration of the 7.2 mile of Ballona Creek Bike path will include creek side native plantings and parks, BMPs, bike path striping, way finding signage and improved connection between Baldwin Hills and the Pacific Ocean. Additionally, this project will increase visibility and public awareness of Ballona Creek restoration efforts.	-	-	-	X	-	X	0	6	NA

South Santa Monica Bay Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
177	Marina Del Rey Middle School Outdoor Classroom	Mountains Recreation and Conservation Authority	Construction of an outdoor classroom, grotto and stream course that will have interpretive elements regarding natural creek function, storm water management and watershed protection.	-	-	-	X	-	X	0	2	NA
178	SubSea Storage of LA River Peak Flows	MWD, DWP (but someone needs to ask them)	Place a roof over the subsea canyon at the terrestial end of the LA River. Stuff peak runoff water under the roof.	X	-	-	-	-	-	-	-	Leads to ultimate maximum water conservation with on the order of 300 kWh/af (imported ~2,500kWh/af, seawater ~4,400 kWh/af.
179	Topanga County Beach Infiltration	NA	Infiltration BMPs	-	-	-	-	-	-	-	-	NA
180	Infiltration BMPs for SMBBB TMDL Implementation for Jurisdictional Group 5, 6	NA	Permeable Paving, Vegetated Buffer Strips, Infiltration Trenches/Basins, Bioretention Cells, Wet Ponds, Constructed Wetlands and Leach Fields	-	-	-	-	-	-	-	-	NA
181	Palos Verdes Peninsula Stormwater Capture and Treatment Projects	NA	Stormwater Capture and Treatment Projects in the Palos Verdes Peninsula for reducing bacteria loads to Santa Monica Bay	-	-	-	-	-	-	-	-	NA
182	Silver Lake Reservoir wetlands and park conversion	NA	Convert reservoir from Emergency Supply to recreational wetland supplied by reclaimed water and seasonal runoff. Remove fences and provide trails and overlooks. Open up meadow as park. Project will decrease consumption of imported water.	X	-	-	X	-	X	-	-	NA
183	White Point Canyon	Palos Verdes Peninsula Land Conservancy & City of Rancho Palos Verdes	Re-establish (daylight) a natural stream corridor through White Point Canyon, a 2.3-acre coastal canyon through White Point Nature Preserve, by diversion of low flows from the existing 48-inch storm drain which discharges directly to the ocean at White Point. The project will provide a continuous water supply to support riparian habitat restoration in the canyon and provide water quality mitigation for dry weather and low-flow wet weather runoff, while maintaining the flood protection function of the primary storm drain system.	-	-	-	X	-	X	0	2	field education site for three local LAUSD elementary schools' native habitat studies
184	San Ramon Canyon	Palos Verdes Peninsula Land Conservancy & City of Rancho Palos Verdes	Installation of grade stabilization structures to provide stabilization of the stream channel and to minimize/control surficial land movement and discharge of sediment and debris during storm events. Stream bed stabilization to be accompanied by native habitat restoration of riparian and upland vegetation to further stabilize surficial soils in the canyon and provide habitat in a manner that limits/minimizes surface water infiltration which could aggravate the landslide.	-	-	-	X	-	X	0	37	surficial soil stabilization in landslide
185	Klondike Canyon	Palos Verdes Peninsula Land Conservancy & City of Rancho Palos Verdes	Native habitat restoration of 12 acres of canyon habitat to stabilize soils and minimize surficial land movement and discharge of sediment into Portuguese Bend cove. Approximately two acres of riparian habitat can be established within the canyon following non-native species eradication. Habitat restoration will be conducted in a manner that limits/minimizes surface water infiltration into the landslide complex by planting deep-rooted native shrubs and trees along the canyon to assist in stabilizing surficial soils and absorbing surface water and shallow groundwater to prevent infiltration into deeper geologic structures. Project to include construction of low-impact trail crossings of the canyon.	-	-	-	X	-	X	0	12	trail crossing for recreational access
186	Altamira Canyon to Abalone Cove	Palos Verdes Peninsula Land Conservancy & City of Rancho Palos Verdes	Native habitat restoration of canyon habitat to stabilize soils and minimize surficial land movement and discharge of sediment into the Abalone Cove State Ecological Preserve. Habitat restoration will be conducted in a manner that limits/minimizes surface water infiltration into the landslide complex by planting deep-rooted native shrubs and trees along the canyon to assist in stabilizing surficial soils and absorb surface water and shallow groundwater to prevent infiltration into deeper geologic structures. Project to include construction of low-impact trail crossings of the canyon.	-	-	-	X	-	X	0	75	trail crossing for recreational access
187	Portuguese, Paintbrush, and Ishibashi Canyons	Palos Verdes Peninsula Land Conservancy & City of Rancho Palos Verdes	Native habitat restoration of canyons to stabilize soils and minimize surficial land movement and discharge of sediment into Portuguese Bend cove. Habitat restoration will be conducted in a manner that limits/minimizes surface water infiltration into the landslide complex by planting deep-rooted native shrubs and trees along the canyon to assist in stabilizing surficial soils and absorbing surface water and shallow groundwater to prevent infiltration into deeper geologic structures. Project to include construction of low-impact trail crossings of the canyon.	-	-	-	X	-	X	0	72	trail crossings for recreational access
188	McCarrell Canyon	Palos Verdes Peninsula Land Conservancy & City of Rancho Palos Verdes	Modifications to existing debris basin at head of canyon and approach to storm drain inlet structure at the foot of the canyon to reduce peak flows, provide added flood protection and minimize discharge of sediment and debris to the ocean. Non-native vegetation contributing high volumes of debris will be eradicated and replaced with deeper-rooted riparian and coastal sage scrub plants in the structures at the head and foot of the canyon to provide water quality mitigation for dry weather and low flow wet weather runoff from upper developed areas. This will be accompanied by habitat restoration along the eastern side of the canyon and in lower areas where the habitat has been degraded.	-	-	-	X	-	X	0	71	flood protection
189	Agua Amarga-Lunada Canyon Preserve	Palos Verdes Peninsula Land Conservancy & City of Rancho Palos Verdes	Completion of invasive species eradication and restoration of riparian, coastal sage scrub and southern cactus scrub plant community habitat. A year-round flow of water is discharged to the head of the 20-acre Lunada Canyon via County of Los Angeles storm drain, the water then flows below ground surface along the base of the canyon which is the course of an historic blue line stream and re-emerges at the foot of the canyon at its confluence with Agua Amarga Canyon, also a blue-line stream. The 59-acre preserve provides year-round water quality mitigation of dry weather flows from developed areas and provides habitat for the coastal California gnatcatcher, a threatened species.	-	-	-	X	-	X	0	59	field education site for elementary schools' native habitat studies
190	Restoration of Philips Canyon	Palos Verdes Peninsula Land Conservancy and City of Rolling Hills Estates	Philips Canyon lies within the Linden H. Chandler Preserve in Rolling Hills Estates. Restoration to native vegetation has been completed in most of the riparian areas within the preserve, however there are adjacent, city owned properties with degraded riparian habitat that have been invaded by non-native Arundo species. Removal of this vegetation type will increase available water supply.	-	-	-	-	-	-	-	-	NA
191	Ballona Creek Trail and Bikeway Improvement Project	Partially funded by State Parks Recreational Trails Program. Baldwin Hills	Recreational objectives - bikeway improvements.	-	-	-	-	-	X	-	-	NA
192	Playa Vista	Playa Capital Corporation	Mixed commercial & residential community in part of the area, part will be sold to Trust for Public Lands, restoration of part of undeveloped portion of degraded salt & freshwater marshes is ongoing, some area to be transferred to state park system.	-	-	-	-	-	X	-	-	NA
193	South Beach Park Structural BMPs	Santa Monica	Bioretention, Infiltration Trench or Basin, Dry Well, Pervious Pavement	-	-	-	-	-	-	-	-	NA
194	Ocean View Park Structural BMPs	Santa Monica	Cistern/Rain barrel and Local Storage and Reuse, Infiltration	-	-	-	-	-	-	-	-	NA
195	Marine Park Structural BMPs	Santa Monica	Cistern/Rain barrel and Local Storage and Reuse, Infiltration	-	-	-	-	-	-	-	-	NA

South Santa Monica Bay Subregion Projects

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196	Crescent Bay Park-Green Beach Parking Lot Structural BMPs	Santa Monica	Infiltration	-	-	-	-	-	-	-	-	NA
197	Mary Hotchkiss Park Structural BMPs	Santa Monica	Cistern/Rain barrel and Local Storage and Reuse, Infiltration	-	-	-	-	-	-	-	-	NA
198	Los Amigos Park Structural BMPs	Santa Monica	Cistern/Rain barrel and Local Storage and Reuse, Infiltration	-	-	-	-	-	-	-	-	NA
199	Joslyn Park Structural BMPs	Santa Monica	Cistern/Rain barrel and Local Storage and Reuse, Infiltration	-	-	-	-	-	-	-	-	NA
200	Santa Monica City Hall Structural BMPs	Santa Monica	Cistern/Rain barrel and Local Storage and Reuse, Infiltration	-	-	-	-	-	-	-	-	NA
201	Clover Park Structural BMPs	Santa Monica	Infiltration	-	-	-	-	-	-	-	-	NA
202	Virgina Avenue Park Structural BMPs	Santa Monica	Infiltration	-	-	-	-	-	-	-	-	NA
203	Christine Emerson Reed Park Structural BMPs	Santa Monica	Cistern/Rain barrel and Local Storage and Reuse, Infiltration	-	-	-	-	-	-	-	-	NA
204	Schader and/or Park Dr. Park Structural BMPs	Santa Monica	Cistern/Rain barrel and Local Storage and Reuse, Infiltration	-	-	-	-	-	-	-	-	NA
205	Douglas Park Structural BMPs	Santa Monica	Cistern/Rain barrel and Local Storage and Reuse, Infiltration	-	-	-	-	-	-	-	-	NA
206	Centinela Basin Dry-Weather Runoff Diversion & BMP	SMBRC	City of Santa Monica is implementing project	-	-	-	-	-	X	-	-	NA
207	Lafayette Park Creek Daylighting and Park Expansion	SMBRC	Daylight buried creek running through Lafayette Park. Acquire 2 parcels at intersection of Wilshire and Hoover, totally 2.8 acres. Install BMPs and relocate active recreation to that corner.	X	-	-	X	-	X	2.8	2.8	NA
208	Silverlake Reservoir Recycled Water Wetland	SMBRC	Convert Silverlake Reservoir to a wetland utilizing reclaimed water from a local sewage treatment plant and seasonal local stormwater runoff. Remove fencing and provide trails and habitat viewing areas.	-	-	-	-	-	-	-	-	NA
209	Upper Sepulveda Channel BMPs	SMBRC	BMPs and upland habitat plantings along Sepulveda Channel along Sepulveda Blvd near Sunset.	-	-	-	X	-	-	-	-	NA
210	Middle Sepulveda Channel BMPs	SMBRC	Development of BMPs, upland habitat enhancements and greenway trail along Sepulveda Channel in Palms/West LA area.	-	-	-	X	-	X	-	-	NA
211	Deep Canyon Basin Conversion	SMBRC	Convert detention basin to wetland. Spring flows from upstream currently flow into concrete basin and to stormdrain.	-	-	-	-	-	X	-	-	NA
212	Del Rey Lagoon BMPs	SMBRC	Improve tidal flushing, water temperatures, and water quality at Del Rey lagoon. Increase aquatic habitat.	-	-	-	X	-	X	-	-	NA
213	Grand Canal BMPs	SMBRC	Improve quality of surface runoff draining into the Venice Canal/Grand Canal system through installation of street end BMPs. Improve upland/tidal channel habitat interface.	-	-	-	X	-	X	-	-	NA
214	Centinela Creek Daylighting	SMBRC	Daylight historic Centinela Creek through Edward Vincent Park.	-	-	-	X	-	X	-	-	NA
215	Ladera County Park Daylighting	SMBRC	Daylight historic creek through Ladera County Park	-	-	-	X	-	X	-	-	NA
216	Oxford Basin Treatment Wetland	SMBRC	Treatment wetland and BMPs to improve water quality of Oxford Basin.	-	-	-	X	-	-	-	-	NA
217	Centinela Channel Greenway	SMBRC	Development of upland habitat enhancements and greenway trail along approximately 3.5 miles of Centinela Channel from its confluence with Ballona Creek upstream to approximately La Cienega Blvd. Implementation of portions of Lower Ballona Ecosystem Resto	-	-	-	X	-	X	18	40	NA
218	Lower Sepulveda Channel Greenway	SMBRC	Development of upland habitat enhancements and greenway trail along approximately 1 mile of Sepulveda Channel in Mar Vista. Will provide bicycle trail connectivity from Ballona Creek to Culver Blvd bike trail and Washington Blvd.Feasibility analysis of n	-	-	-	X	-	X	6	12	NA
219	Lafayette Park Creek Daylighting and Park Expansion	SMBRC	Acquisiton of 2.8 acres and daylighting of buried stream through park.	-	-	-	-	-	-	-	-	NA
220	10 Freeway native prairie enhancements & BMPs	SMBRC	Habitat enhancements and bioswales utlizing native grasses and wildflowers to treat runoff from 10 freeway from downtownt to Santa Monica. Project to include monitoring component for testing of effectiveness of native grasses for biofiltration/metals upt	X	-	-	X	-	X	-	-	NA
221	Benedict Channel Greenway	SMBRC	Development of upland habitat enhancements and greenway trail along approximately 1 mile of Benedict Creek Channel in Cheviot Hills vicinity. Feasibility analysis of naturalization of channel invert/one side of channel.	-	-	-	X	-	X	6	12	NA
222	Golf Course Creek Restorations	SMBRC	Provides 50% matching funds to support creek daylighting and restoration at private golf courses. Relevant creeks include Kenter Creek (Brentwood Country Club), Benedict Creek (Los Angeles Country Club), and Arroyo del Jardin de las Flores (Wilshire Coun	X	-	-	X	-	X	-	-	NA
223	Ballona watershed floodplain acquisitions	SMBRC	This project acquires and landbanks floodplain or floodprone properties, including historically floodprone properties, anywhere in the Ballona Creek watershed, stream or wetland restoration/daylighting funds, or where not immediately feasible, short-term	-	-	-	X	-	-	280	900	NA
224	Ballona Greenroofs Initiative	SMBRC	Provides 50% matching funds to private property owners in zones of Ballona watershed with 75% or greater impermeable lot coverages as incentive to establish greenroofs to detain runoff. Property owners committing to maintaining natives on greenroof recei	-	-	-	X	-	X	-	-	NA
225	Ballona watershed stream, spring and wetlands conservation easements	SMBRC	Establishes funds to secure conservation easements on the properties with streams, wetlands, or springs.	-	-	-	X	-	X	50	10000	NA
226	Kenter Creek naturalization improvements	SMBRC	Creates matching fund for homeowners who engage in restoration of Kenter Creek through their property. Restoration activities can include: removal of hydromodifications (rock, concrete, etc), restoration of appropriate meander, habitat, grading of appro	X	-	-	X	-	X	-	-	NA
227	Lower Ballona Ecosystem Restoration Implementation	SMBRC	Contribute match to federal funds for implementation of Lower Ballona Ecosystem Restoration Feasibility Study	-	-	-	X	-	-	27	150	NA
228	Habitat Patchwork Parks	SMBRC	Acquisition and development of 1/8 acre-1/2 acre nativescape passive parks with BMPs for every .25 square mile of residential area in Westalke, Koreatown, Lafayette Square, Mid-City, West Adams, Jefferson Park, North University Park, Harvard Heights, Expo	-	-	-	X	-	X	12.5	50	NA
229	MacArthur Park Wetland Conversion	SMBRC	This site was historically a wetland. The project seeks to convert the lake to a wetland using reclaimed water and seasonal runoff. Water levels will be managed in the rainy season to make the lake a detention basin with treatment wetland capability.	X	-	-	X	-	X	-	-	NA
230	Arroyo del Jardin de las Flores naturalization improvements	SMBRC	Creates matching fund for homeowners who engage in restoration of Arroyo del Jardin de las Flores through their property. Restoration activities can include: removal of hydromodifications (rock, concrete, etc), restoration of appropriate meander, habita	X	-	-	X	-	X	-	-	NA

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231	Stone Creek naturalization improvements	SMBRC	Creates matching fund for homeowners who engage in restoration of Stone Creek through their property. Restoration activities can include: removal of hydromodifications (rock, concrete, etc), restoration of appropriate meander, habitat, grading of approp	X	-	-	X	-	X	-	-	NA
232	Stone Canyon Reservoir Wetland Conversion	SMBRC	Convert reservoir from Emergency Supply to wetland supplied by reclaimed water and seasonal runoff. Project will reduce consumption of imported water and increase habitat.	X	-	-	-	-	X	-	-	NA
233	Ferndell BMPs	SMBRC	Improve quality of surface runoff draining into Ferndell Creek through implementation of BMPs. Remove/replace hydraulic constriction of Ferndell Road over the creek by replacement with a bridge.	-	-	-	X	-	X	-	-	NA
234	Wonderland Creek Enhancements	SMBRC	Provides matching funds to property owners on Wonderland Creek to support habitat restoration projects.	-	-	-	X	-	X	-	-	NA
235	Benedict Canyon Spring Restorations	SMBRC	Matching funds to restore springs and spring-fed creeks running through private property in the Benedict Canyon sub-drainage of the Ballona Creek Watershed. Restoration actions may include: daylighting of culverted reaches of creek, BMPs to protect spri	X	-	-	X	-	X	2	4	NA
236	Upper Franklin Canyon Creek Restoration	SMBRC	Restoration of upper Franklin Creek, including restoration of natural channels through detention basin, parking lot(conc. channel), and roadside swale areas. Redirect main flows to historic creek channel, install roadside BMPs to protect water quality an	-	-	-	X	-	X	-	-	NA
237	Hollywood Reservoir	SMBRC	Convert reservoir from Emergency Supply to wetland supplied by reclaimed water and seasonal runoff. Project will reduce consumption of imported water and increase habitat.	X	-	-	-	-	X	-	-	NA
238	Ballona Creek Litter Monitoring Project	SMBRC (Prop. 12)	Implemented by LAC-DPW	-	-	-	-	-	X	-	-	NA
239	Ballona Watershed BMP Prioritization	SMBRC (Prop. 12)	To be implemented by watershed cities and County	-	-	-	-	-	X	-	-	NA
240	Ballona Wetlands Dunes Restoration	SMBRC (Prop. 12)	Implemented by Friends of Ballona Wetlands	-	-	-	-	-	X	-	-	NA
241	Ballona Creek Water Quality Improvement Project	SMBRC (Prop. 12)	Implemented by Culver City	-	-	-	-	-	X	-	-	NA
242	Ballona Creek Water Quality Improvement Project - CDS installations	SMBRC (Prop. A)	Implemented by City of LA DPW	-	-	-	-	-	X	-	-	NA
243	Jefferson Blvd/Ballona Creek BMPs	SMBRC/MRCA	Installation of BMPs along Jefferson Blvd and industrial properties south of Ballona Creek to improve water quality that drains into creek.	-	-	-	X	-	-	-	-	NA
244	Ballona Creek Trail and Bikeway Improvements - Phase I	SMMC	Improvements to bike trail access points, landscaping, signage, and public outreach.	-	-	-	-	-	X	-	-	NA
245	Ballona Creek Treatment Wetlands Park	Surfrider Foundation & Ballona Wetlands Land Trust	Acquire as much of the remaining land in Parcel D as feasible (site of Playa Vista development) for the purpose of reconstructing wetlands and utilizing them to capture, treat and re-charge/re-use/store storm water and dry-weather urban run-off discharged into the lower Ballona Creek Watershed (particularly that entering Centinela Creek). An application for funding by City of Los Angeles' Proposition O received positive remarks. The district City Councilman and Mayor could initiate discussions with the landowners, as was done in 2003 when 439 acres of wetlands were purchased by the State of California.	X	-	-	X	-	X	-	-	While detailed estimates will not be available until after a feasibility study is completed at the Ballona Wetlands site, it is reasonable to assume effectiveness roughly comparable to the constructed wetlands at the San Joaquin Marsh which is used to filter urban storm runoff in the Irvine Ranch Water District (IRWD) service area. According to Norris Brandt (P.E. from IRWD), that 68 acre constructed wetland has a maximum flow of 5 cu ft./s, and reduces the following pollutants by the these percentages: • 70% nitrogen reduction • 30% of phosphorous reduction • 25% of bacteria / pathogens reduction • 15% of heavy metals reduction If the entire Area D in Playa Vista were converted to wetlands, it would cover an area 3 times as large as the San Joaquin Marsh thus could theoretically handle 15 cu ft/s of flow.
246	Ballona Creek Treatment Wetland Park	Surfrider Foundation & Ballona Wetlands Land Trust	Acquire as much of the remaining land in Parcel D as feasible (site of Playa Vista development) for the purpose of reconstructing wetlands and utilizing them to capture, treat and re-charge/re-use/store storm water and dry-weather urban run-off discharging into the lower Ballona Creek Watershed (specifically, diverting Centinela Creek and surrounding storm drains).	X	-	-	X	-	X	-	-	While detailed estimates will not be available until after our feasibility study is completed at the Ballona Wetlands site, it is reasonable to assume effectiveness roughly comparable to the constructed wetlands at the San Joaquin Marsh which is used to filter urban storm runoff in the Irvine Ranch Water District (IRWD) service area. According to Norris Brandt (P.E. from IRWD), that 68 acre constructed wetland has a maximum flow of 5 cu ft./s, and reduces the following pollutants by the these percentages: • 70% nitrogen reduction • 30% of phosphorous reduction • 25% of bacteria / pathogens reduction • 15% of heavy metals reduction If the entire Area D in Playa Vista were converted to wetlands, it would cover an area 3 times as large as the San Joaquin Marsh thus could theoretically handle 15 cu ft/s of flow.
247	Centinela Creek Trail Greenway	TBD	Multiple objectives	-	-	-	-	-	X	-	-	NA
248	Creek to Baldwin Hills Trail under Utility Lines	TBD	Bicycle , hiking, & habitat connection, including stormwater retention, recreation, etc.	-	-	-	-	-	X	-	-	NA
249	Public Education and Outreach	TBD	Develop an education and outreach program for the public and business to encourage source reduction (reduced packaging) and discourage litter.	-	-	-	-	-	X	-	-	NA
250	Creekside Campus and Park Native Landscaping / BMPs 1	TBD	Watershed improvements; overlay of existing open space uses	-	-	-	-	-	X	-	-	NA

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251	Creekside Campus and Park Native Landscaping / BMPs 2	TBD	Watershed improvements; overlay of existing open space uses	-	-	-	-	-	X	-	-	NA
252	Creekside Campus and Park Native Landscaping / BMPs 3	TBD	Watershed improvements; overlay of existing open space uses	-	-	-	-	-	X	-	-	NA
253	Watershed U. - South Bay/Palos Verdes	UC Cooperative Extension	This educational project would develop a Watershed U. training program for communities in the Souht Bay and Palos Verdes Penninsula. Watershed U. is designed to increase communication among watershed stakeholders, and to engage local decision makers in the process.	X	-	-	X	-	X	-	-	Increase stakeholder participation in land and water stewardship through outreach and education.
254	Watershed U. - Ballona Creek	UC Cooperative Extension	This educational project would develop a Watershed U. training program for Ballona Creek. Watershed U. is designed to increase communication among watershed stakeholders, and to engage local decision makers in the process.	X	-	-	X	-	X	-	-	Increase stakeholder participation in land and water stewardship through outreach and education.
255	Ballona Creek Entrance Channel Modifications	USACE	Modification of entrance to Marina del Rey & mouth of Ballona Creek.	-	-	-	-	-	X	-	-	NA
256	Lower Ballona Creek Restoration Study	USACE	Lower Ballona Creek Restoration study	-	-	-	-	-	X	-	-	NA
257	Marina del Rey entrance channel dredging	USACE	Periodic maintenance dredging in Main, North, & South entrance channels & mouth of Ballona Creek to maintain navigable depths.	-	-	-	-	-	X	-	-	NA
258	MDR & BC Sediment Control Management Plan Feasibility Study	USACE	Sediment control management plan to reduce sedimentation & contamination within MDR's navigation channels from Ballona Creek discharges.	-	-	-	-	-	X	-	-	NA
259	Ballona Creek Maintenance	USACE & LA Co DPW	Maintenance	-	-	-	-	-	X	-	-	NA
260	Modification of Ballona Creek Channel	Various	Modification of Ballona Creek Channel	-	-	-	-	-	X	-	-	NA
261	Community Gardens	Verde Coalition	Acquisition of land and conversion to permanent community gardens to meet following objectives: 1)sustainable food source focused on low-income communities, though not exclusively so; 2) preserve undeveloped land for infiltration and capture of rainfall. The Coalition has a goal of 100 new community gardens.	-	-	-	-	-	X	40	0	NA
262	Community Gardens	Verde Coalition	Community Gardens can be developed in association with the Community Living Rooms, or other park lands. They can serve as part of a neighborhood-based BMP, with cisterns or biofiltration devices filtering runoff. It is possible they could also be integr	-	-	-	-	-	X	40	0	NA
263	Outdoor Community Living Rooms	Verde Coalition	Acquisitions and development of mini parks in densely populated working class neighborhoods that serve dual function: to create community socializing space while providing environmental benefits of capturing & filtering runoff, & utilizing native and low	-	-	-	-	-	X	12.5	50	NA
264	Westlake District Minipark	Verde Coalition	Acquisition of parcel at 8th and Alvarado. Brownfields clean up site. Landscape park with native upland habitat and provide passive park features. Install BMPs to collect & treat local runoff.	-	-	-	X	-	-	0.125	0.5	NA
265	Goldsworthy Desalter Expansion	Water Replenishment District of Southern California	This project will remediate an existing saline plume located in the West Coast Groundwater Basin through advanced treatment consisting of reverse osmosis. The existing Goldsworthy Desalter products approximately 3,000 acre-feet per year and is provided to the City of Torrance.	X	1000	0	-	-	-	-	-	NA
266	Harbor/South Bay Lateral Expansion	West Basin MWD	This project expands the West Basin Water Recycling distribution line to the Palos Verdes Peninsula.	-	-	-	-	-	-	-	-	NA
267	WBMWD Harbor Expansion Project	West Basin MWD	This project proposes to extend the existing West Basin Water Recycling System distribution line through the Ocean Trails Golf Course and potentially other customers near the Harbor area.	-	0	10000	X	9	-	-	-	NA
268	Palos Verdes Lateral Expansion	West Basin MWD	This project expands the West Basin Water Recycling distribution line to the Palos Verdes Peninsula.	-	2100	2100	-	-	-	-	-	NA
269	Carson Regional Water Recycling Project	West Basin MWD	This project proposes to extend the current recycled water distribution line from the Carson Regional Water Recycling Plant to the future site of the BP Hydrogen Fuel Plant as well as other customers along the pipeline.	-	0	17485	X	16	-	-	-	NA
270	Provide 100% recycled water to the West Coast Barrier-17.5 mgd (Phase VI Ex	West Basin MWD	This project proposes to provide 100% recycled water for injection into the West Coast Barrier and are currently supplying 75% of recycled water and 25% of imported water. This expansion will provide a total of 17,500 AFY.	-	17500	17500	-	17	-	-	-	NA
271	West Basin Water Recycling Plant Phase V Expansion	West Basin MWD	This project proposes to expand the existing West Basin Water Recycling Facility in the City of El Segundo. Phase V will allow an additional 21mgd of recycled water to be delivered within its service area, most notably to the BP Hydrogen Plant and other customers in the Palos Verdes Peninsula.	X	23500	23500	-	23	-	-	-	NA
272	West Basin Water Recycling Plant Phase VI Expansion	West Basin MWD	West Basin will complete Phase IV of its expansion in 2006, allowing an additional capacity of 30mgd of recycled water to be distributed throughout its service area.	X	33600	33600	-	34	-	-	-	NA
273	West Basin and Central Basin Recycled Water Distribution Interconnection	West Basin MWD	This project will connect the separate, but existing recycled water systems by cross-jurisdictional boundaries which will enable more recycled water to be distributed over both regions.	X	5000	20000	X	11	-	-	-	NA
274	Construct a 20-mgd Seawater Desalination Plant in West Basin	West Basin MWD	The project proposes to construct a 20mgd Seawater Desalination Plant in West Basin's service area for potable water use.	-	20000	20000	-	20	-	-	-	Water reliability, higher water quality
275	C. Marvin Brewer Desalter Expansion	West Basin MWD	This project proposes to expand the capacity of the treatment facility by 500 AFY to allow for increased reliability and redundancy.	X	500	500	-	-	-	-	-	NA
276	Dry-weather Runoff and Stormwater Capture Study	West Basin MWD	This study would look at alternative uses of the dry-weather runoff water that can potentially be captured, treated to reduce contaminants and beneficially reuse the water where feasible rather than sending it to the rivers and ocean.	-	-	-	-	-	-	-	-	NA
277	Synthetic Turf Research and Demonstration Program	West Basin MWD	The District plans on researching the different types of synthetic turf available to determine the feasibility of and best type for areas within West Basin's service area. The demonstration aspect includes installing synthetic turf in a location(s) within West Basin's service area to monitor the durability and conditions of the synthetic turf.	-	-	-	-	-	-	-	-	Conservation
278	West Coast Basin Groundwater Aquifer Protection Project	West Basin MWD	The project proposes to provide reliability of the facilities to protect the entire existing groundwater supply (aquifer).	X	-	-	X	45	-	-	-	Water Reliability, 8,000 AFY of Recycled Water Injected
279	Landscape Irrigation Classes 1	West Basin MWD	This project proposes to offer landscape irrigation classes to the residents and customers within West Basin MWD's service area to educate them about using less water and native plants instead of non-native, exotics that require much more water for survival	-	-	-	-	-	-	-	-	Education

South Santa Monica Bay Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
280	Water Conservation Program	West Basin MWD	Partner with the South Bay COG and the Westside Cities COG for Water Conservation Program- Assist the District in promoting programs and distributing incentives for devices to residents.	X	-	-	-	-	-	-	-	Education
281	Complete Restroom Retrofits	West Basin MWD	This program provides free hardware devices for commercial restrooms including high-efficient toilets, waterless urinals, and faucets.	-	0	16	-	-	-	-	-	NA
282	Conductivity Controller Incentives 2	West Basin MWD	This program provides prescriptive incentives for installation of conductivity and pH controllers.	-	0	90	-	-	-	-	-	NA
283	High- Efficiency Toilet Rebates	West Basin MWD	This program provides high-efficiency toilet rebates to residents and businesses.	-	0	5	-	-	-	-	-	NA
284	Industrial Process Improvement	West Basin MWD	This program will build on Metropolitan Water District's existing program to provide customized incentives based upon the amount of water saved. This program will target industrial processes such as food processing, textiles, fabricated metals, electronics and industrial laundries.	-	0	130	-	-	-	-	-	NA
285	Irrigation Equipment/Water Budget	West Basin MWD	This program offers customized incentives including matching heads, pressure regulators and weather-based irrigation controllers for landscape customers including multi-family, commercial and institutional.	-	0	58	-	-	-	-	-	NA
286	Laundromat Retrofits	West Basin MWD	This Program offers substantial incentives from multiple utilities to replace non-efficient washers and dryers with more efficient ones.	-	0	10	-	-	-	-	-	NA
287	Pre-Rinse Spray Valve Installs	West Basin MWD	The program involves the installation of pre-rinse spray valves at food services locations.	-	0	84	-	-	-	-	-	NA
288	Residential ULFT/HECW Rebates	West Basin MWD	This program involves providing rebated to residents and businesses with ultra-low flush toilet and high- efficiency toilet and high- efficiency clothes washer rebates.	-	0	36	-	-	-	-	-	NA
289	Complete Restroom Retrofits Location 2	West Basin MWD	This program provides free hardware devices for commercial restrooms including high-efficient toilets, waterless urinals, and faucets.	-	16	8	-	-	-	-	-	NA
290	Conductivity Controller Incentives Location 2	West Basin MWD	This is a new program that provides prescriptive incentives for installation of conductivity and pH controllers. Funding for this program will allow the District to hire a vendor to educate commercial owners about the rebates available for equipment that conserves water. The benefits would include a reduction of wastewater generated, benefiting the LA County Sanitation Districts, and potable water used. Partners may include MWD, LADWP, and the Sanitation Districts.	-	90	45	-	-	-	-	-	NA
291	High- Efficiency Toilet Direct Installation 2	West Basin MWD	This program provides free installation of high-efficiency toilets to the multi-family sector, which includes apartment complexes, condos, senior apartments, and other residential multi-family facilities.	-	5	2	-	-	-	-	-	NA
292	Industrial Process Improvement Location 1	West Basin MWD	This is a new program that will build on Metropolitan Water District's existing program to provide customized incentives based upon the amount of water saved. This program will target industrial processes such as food processing, textiles, fabricated metals, electronics and industrial laundries.	-	130	65	-	-	-	-	-	NA
293	Irrigation Equipment/Water Budget Location 2	West Basin MWD	This program offers landscape audits and customized incentives for matching heads, pressure regulators and weather-based irrigation controllers for landscape customers including multi-family, commercial and institutional and provides water audits on the landscape sites. The water budgets will be created and the budget and a listing of recommended equipment upgrades will be given to the large landscape customers. The target market will be large landscape customers, specifically home owner associations.	-	58	29	-	-	-	-	-	NA
294	Laundromat Retrofits Location 2	West Basin MWD	This is a new program that offers substantial incentives from multiple utilities (Gas Company, Edison, and MWD) to replace non-efficient washers and dryers with more efficient devices. Some utilities currently provide funding for energy-efficient washer machines, so additional funding will expand the program to allow for more rebate incentives.	-	10	5	-	-	-	-	-	NA
295	Save-A-Buck Program Location 2	West Basin MWD	The Save-A-Buck Commercial, Industrial and Institutional (CII) program provides rebates to businesses, schools and other facilities for commercial clothes washers, waterbrooms, cooling tower conductivity controllers, pre-rinse spray nozzles, x-ray machine recirculating devices and commercial toilets and urinals. Funding for this program would be for conducting workshops, providing more rebate incentives (marketing materials), and hiring an auditor to perform water and energy audits for businesses, schools and other facilities. This is a new program through the partnership between the District and the South Bay Cities Council of Governments. It can be expanded to include other partners such as the Westside Cities COG.	-	62	42	-	-	-	-	-	NA
296	Residential High-Efficiency Clothes Washer Rebates Location 2	West Basin MWD	This program involves providing rebates to residents and businesses with high- efficiency clothes washer rebates. This program has both water and energy savings components. MWD currently provides a rebate that will end in December 2006. This program would be kick started thereafter, but before HECWs are mandated, and provide 2000 rebates per year at approx. $250,000	-	36	18	-	-	-	-	-	NA
297	Smart Controller Distributions Location 2	West Basin MWD	This is a new program that offers free smart controllers to single-family landscapes to more-efficiently irrigate landscapes. There is funding currently budgeted in the District's Conservation Budget for Fiscal Year 2006-07 for installation of the devices. This program would provide free product distributions at events similar to toilet distributions and potential partners include MWD and DWR.	-	10	5	-	-	-	-	-	NA
298	Supermarket Retrofits Location 2	West Basin MWD	This is a new program that will provide and install free pre-rinse spray valves, high-efficiency toilets, wireless urinals, and waterbrooms for supermarkets and food stores. The District would partner with MWD.	-	12	6	-	-	-	-	-	NA
299	Supermarket Retrofits Location 1	West Basin MWD	North Santa Monica Bay, Ballona Creek, Lower Santa Monica Bay, and Dominguez Watersheds	X	6	0	-	-	-	-	-	NA
300	Construct Treatment Wetlands Study	West Basin MWD	The purpose of this project is to identify sites that would be suitable to act as a treatment wetland to treat urban runoff of TMDLs before it enters into the rivers and ocean.	-	-	-	-	-	-	-	-	NA
301	West Hollywood Bicycle Master Plan	West Hollywood MTA	Planning and implementation underway	-	-	-	-	-	X	-	-	NA
302	Telco Wetland Restoration	Wetlands Recovery Project	Restoration and protection of this small remnant wetland in one of our most highly urbainzed watersheds.	X	-	-	X	-	X	-	-	Increase stakeholder participation in land and water stewardship through outreach and education.
303	Albertoni Farms Wetland Restoration	Wetlands Recovery Project	Restoration and protection of this 26-acre remnant wetland in one of our most highly urbainzed watersheds.	X	-	-	X	-	X	-	-	Enhance and protect habitat in one of our most habitat deficit watersheds in Los Angeles. The riparian vegetation provides foraging habitat for woodlands raptors including Cooper's hawk, red shouldered hawk and open areas provide foraging for red tail hawk.
304	Lomita Vernal Pool	Wetlands Recovery Project	The Lomita Vernal Pool is a remnant pool of the Los Angeles Coastal Prairie that once covered 95 sq kilometers from Ballona Bluff to the Palos Verdes Peninsula. The pool is in a fenced undeveloped parcel within a residential area east of Lomita City Hall. Lomita General Plan states that sensitive habitat for the western spade-foot toad (Spea hammondii) occurs near City hall, whcih corresponds to this pool's location. this pool needs to be stored and protected as habitat for the western spade-foot toad.	X	-	-	X	-	X	-	-	Enhance and protect habitat in one of our most habitat deficit watersheds in Los Angeles. The riparian vegetation provides foraging and nesting habitat for a variety of birds.
305	Walteria Lake	Wetlands Recovery Project	Walteria Lakes functions both as a water retention and recharge basin and is approximately 100 acres in size. The baisn is owned by LA County and is hydraulically linked to Machado Lake. Riparian vegetation is present in the bottom of the basin. Habitat needs to be enhanced and protected in this basin.	X	-	-	X	-	X	-	-	Enhance and protect habitat in one of our most habitat deficit watersheds in Los Angeles. The riparian vegetation provides foraging and nesting habitat for a variety of birds.

South Santa Monica Bay Subregion Projects

Project ID	Project Title	Project Proponent	Project Description	Water Supply			Water Quality		Open Space			Other Benefits
				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
306	El Dorado Detentin Basin	Wetlands Recovery Project	This small basin consists of wide grassy slopes and soft bottom that supports numerous eucalyptus trees forming a wide canopy and providing bird habitat.This habitat needs to be enhanced and protected.	X	-	-	X	-	X	-	-	Enhance and protect habitat in one of our most habitat deficit watersheds in Los Angeles. The riparian vegetation provides foraging and nesting habitat for a variety of birds.
307	Ocean Retention Basin	Wetlands Recovery Project	Ocean Retention Basin is a large, deep basin characterized by steep side slopes predominately vegetated with non-species. The floor of the baisn appears to be groomed on a regular basis is esstentially bare. Native riparian vegetation occurs at an inley located at the northeast corner of the basin consisting of cattails, willows, and mule fat. This habitat needs to be enhanced and protected.	X	-	-	X	-	X	-	-	Enhance and protect habitat in one of our most habitat deficit watersheds in Los Angeles. The riparian vegetation provides foraging and nesting habitat for a variety of birds.
308	Del Amo Dentention Basin	Wetlands Recovery Project	Del Amo Detention Basin is a large deep basin with steep sides. The vegetation on the slopes is primarily non-native grasses with several large acacia shrubs. Several large willows and scattered mule fat occur on the basin floor. For part of the year the basin holds standing water (wetland). This habitat needs to be stored through removal of non-natives.	X	-	-	X	-	X	-	-	Enhance and protect habitat in one of our most habitat deficit watersheds in Los Angeles. The riparian vegetation provides foraging and nesting habitat for a variety of birds.
309	Amie Basin	Wetlands Recovery Project	Amie Basin is primarily a nuisnce-flow basin for retentionof storm water. It is constructed with steep cement sidewalls sloping to a soft clay bottom. Riparian vegetation is present consisting of willow, mulefat, and sycamores which provides for bird habi	X	-	-	X	-	X	-	-	Enhance and protect habitat in one of our most habitat deficit watersheds in Los Angeles. The riparian vegetation provides foraging and nesting habitat for a variety of birds.

Regional Projects

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				Quality	Quantified Minimum (AFY)	Quantified Maximum (AFY)	Quality	Quantified Benefit (MGD)	Quality	Quantified Minimum (Acres)	Quantified Maximum (Acres)	Description
1	CalFedHomeWater	Gerald Chernick Proponent	CalFed Home-Water establishes the strategic water reserves for both the LA County and the Antelope Valley Water Plan by using proven reservoir and lake development programs.	X	-	-	X	-	X	-	-	The Strategic Water Reserves Program uses the habitat, housing and secondary water development success models used in Raging Waters,Descanso Gardens, KOA RV,County RV Parks and the economics of 32 million annual visitors with the worlds largest market of snow skiers
2	Brine to Potable Water & Energy	Assorted Water & Energy Agencies	Use Forward, http://tinyurl.com/rtlsh, or Reverse Osmosis to produce pure water from groundwater or wastewater. Produce biodiesel from algae, http://tinyurl.com/rtlsh, while the algae remove pollutants from the brine reject water.	X	-	-	X	-	-	-	-	A conjunctive use with imported water. Produces biodiesel for transportation fuel. (Note that hydrogen is bogus. Go to November 2. Click on Alec Brooks at http://www.hydrogenhighway.ca.gov/sb76/sb76.htm.)
3	Salton Sea & Owens Lake remediation with algae to biodiesel project	Assorted Water & Energy Agencies	Produce biodiesel from algae, http://tinyurl.com/rtlsh, while the algae remove pollutants from the brine reject water. If necessary use Forward, http://tinyurl.com/rtlsh, or Reverse Osmosis to reduce water salinty or to concentrate salts for burial. See	X	-	-	X	-	-	-	-	Prevents 90 tons per day of dust. Every 100,000 acres can produce 1.5 billion gallons of biodiesel per year. By comparison, the US uses ~ 60 B gallons of diesel and 120 B gallons of gasoline each year.
4	Salton Sea & Owens Lake remediation with algae to biodiesel project	Assorted Water & Energy Agencies	Produce biodiesel from algae, http://tinyurl.com/rtlsh, while the algae remove pollutants from the brine reject water. If necessary use Forward, http://tinyurl.com/rtlsh, or Reverse Osmosis to reduce water salinty or to concentrate salts for burial. See	X	-	-	X	-	-	-	-	Prevents 90 tons per day of dust. Every 100,000 acres can produce 1.5 billion gallons of biodiesel per year. By comparison, the US uses ~ 60 B gallons of diesel and 120 B gallons of gasoline each year.
5	Irrigation credits/subsidies trading	Assorted Water Agencies	Some people agree their property will not be irrigated. Others pay the non-irrigators in order to have water for irrigating. No property too small.	X	-	-	X	-	-	-	-	NA
6	Catch Basin Labels	City of LA	The project labels catch basins throughout the City of LA. Approximately 11,500 in Ballona Creek.	-	-	-	-	-	X	-	-	NA
7	Catch Basin Screens and Inserts	City of LA	This is an ongoing effort by the City of LA that upon completion will have installed 10,000 screens and inserts.	-	-	-	-	-	X	-	-	NA
8	End of line trash capture systems	City of LA	This is an ongoing effort by the City of LA that upon completion will have installed 10 end of line devices.	-	-	-	-	-	X	-	-	NA
9	Full trash capture systems	City of LA	This is an ongoing effort by the City of LA that upon completion will have installed 10 full capture devices.	-	-	-	-	-	X	-	-	NA
10	North/East/Central LA Bicycle Projects	City of LA	Projects connected with new subway system	-	-	-	-	-	X	-	-	NA
11	Speedway BMPs 1&2	City of LA	A variety of BMPs will be implemented in the area to treat trash and oil/grease, and also alleviate flooding.	-	-	-	-	-	X	-	-	NA
12	Avenue F-8 and 60th Street West Drainage Basin	City of Lancaster	Design and construction of an approximately 160 acre drainage basin to intercept flow from west Antelope Valley. The basin will be located at the NW corner of Avenue F-8 and 60th Street West.	-	-	-	-	-	-	-	-	NA
13	Area C Trail	Environmental Now	Trail	-	-	-	-	-	X	-	-	NA
14	Watershed Education for Policy Makers	LA & San Gabriel Rivers Watershed Council	Develop a Los Angeles-County focused watershed education program for elected and appointed officials. The program would use a variety of delivery methods appropriate to busy policy makers to provide information on the relationship between integrated water management for a greater local water supply, improved water quality, open space preservation, and enhancement of recreation opportunities.	X	-	-	-	-	-	-	-	NA
15	Neighborhood Demonstration Project	LA/SG Rivers Watershed Council	Develop a integrated approach to water management by retrofitting a small neighborhood with BMPs.	-	-	-	-	-	X	-	-	NA
16	One Less Car	LACBC	Estimated 300,000,000 miles driven daily in LA. At 22 MPG: Total Gas=136,363,636 gallons; Hydrocarbons=18,502,202 lbs.; Carbon Dioxide = 2,748,000,000 lbs.; Nitrous Oxide = 9,185,022 lbs. (Based on EPA420-F-97-037)	-	-	-	-	-	X	-	-	NA
17	Water Replenishment District	LACSD	USGS study to sample wells at the inlet to San Gabriel Spreading Grounds; and two studies that are re-visitations of the epidemiological survey.	-	0	10000	-	-	-	-	-	NA
18	Los Angeles County Storm Drain Initiativen Tools	LACSD; LADPW	The Storm Drain Initiative (SDI) Tools are a collection of geographical information systems (GIS) applications that will provide significant improvements to existing watershed management practices such as emergency spill response, Best Management Practices, dry-weather diversions and point source identification, TMDL and permit enforcement, and maintenance and urban watershed management. This proposal follows the successful completion of the SDI, which was a multi-jurisdictional collaborative effort to develop a complete GIS database of the storm water infrastructure within Los Angeles County.	X	-	-	X	-	-	-	-	Improvements in spill response, BMP management, source control, dry-weather diversions,NPDES and TMDL compliance, and maintenance management.
19	Case Studies	LADWP	Develop case studies for onsite reuse of process water; target and promote reuse project funding through Technical Assistance Program	-	-	-	-	-	-	-	-	NA
20	City Facilities Program	LADWP	Target water savings opportunities at all City facilities	-	-	-	-	-	-	-	-	NA
21	Clothes Washer Rebate	LADWP	Continue rebates for higher efficiency washers, marketing program at point of purchase	X	2250	0	-	-	-	-	-	NA
22	Commercial Rebate Program	LADWP	Expansion of existing menu-based rebate program, supplementing additional measures beyond ULF toilets	X	5000	0	-	-	-	-	-	NA
23	In-House Rebate Processing	LADWP	Establish permanent LADWP processing center for water/energy efficiency rebates	-	-	-	-	-	-	-	-	NA
24	Landscape Assessment	LADWP	Recast use of CBOs for landscape assessment, limited interior measures, and leak detection	-	-	-	-	-	-	-	-	NA
25	Minor Water Quality Improvements at LADWP Reservoirs	LADWP	Plan, design, and construct minor water quality improvement facilites for various reservoirs.	-	-	-	-	-	-	-	-	NA
26	Multi-Family Metering - New Construction	LADWP	Service-based incentive (expedited service connections, reduced connection fees)	-	-	-	-	-	-	-	-	NA
27	Native Plants/Synthetic Turf	LADWP	Develop program to promote use of native plants and synthetic turf to reduce the amount of water that is unsed for landscape irrigation	-	-	-	-	-	-	-	-	NA
28	Non-Residential Metering - New Construction and Retrofit	LADWP	Service-based incentive (expedited service connections, reduced connection fees)	-	-	-	-	-	-	-	-	NA
29	Non-Residential New Construction Program	LADWP	Rebates for highest efficiency toilets, cooling towers, clothes washers, smart irrigation systems, and native plant palettes	-	-	-	-	-	-	-	-	NA
30	Pool Cover Program	LADWP	Rebates for swimming pool covers to reduce the amount of water that is naturally evaporated	-	-	-	-	-	-	-	-	NA
31	Rainwater Catchment Program	LADWP	Rebates for cisterns when captured water is used for irrigation to reduce water demand	-	-	-	-	-	-	-	-	NA
32	Residential New Construction	LADWP	Rebates for highest efficiency toilets, clothes washers, smart irrigation systems, and native plant palettes	-	-	-	-	-	-	-	-	NA
33	Smart Irrigation Controllers	LADWP	Develop program to promote installation of smart irrigation controllers to reduce the amount of water that is used for landscape irrigation	X	0	450	-	-	-	-	-	NA

Regional Projects

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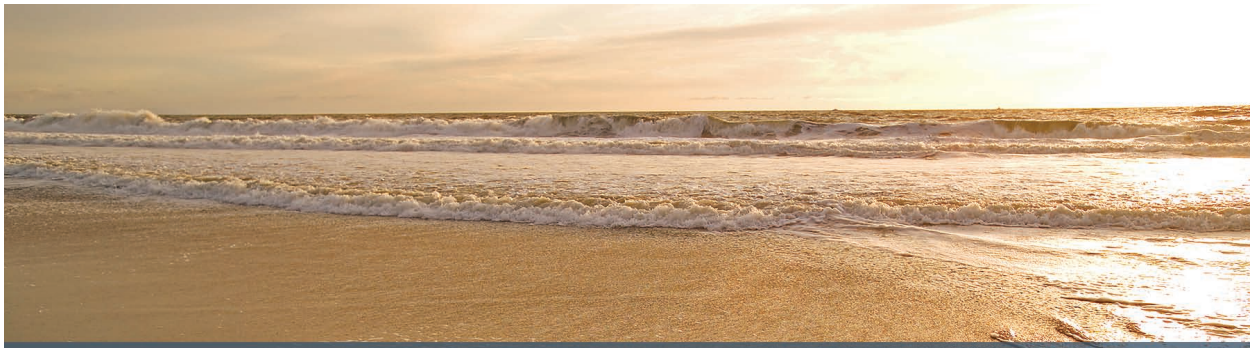
34	Southern California Gas Company Partnership	LADWP	Leverage program offerings with So. Cal. Gas Company for dishwashers, faucet aerators, shower heads, and home water use surveys	-	-	-	-	-	-	-	-	NA
35	Tank & Reservoir Inlet-Outlet Modifications	LADWP	Plan, design and construct new inlet and outlet piping, mixer systems, and/or chemical monitoring and control systems at water storage facilities throughout the distribution system.	-	-	-	-	-	-	-	-	NA
36	Technical Assistance Program	LADWP	Expansion of existing program services to include comprehensive incentive packages to target the wider range of conservation opportunities	-	-	-	-	-	-	-	-	NA
37	ULF Toilet Exchange Program	LADWP	Distribute ULF toilets and dispose of old toilets	X	0	250	-	-	-	-	-	NA
38	Admiralty Way Widening	NA	Incorporation of Cistern/rain barrel, grassy swale and/or retention grading into the Admiralty Way widening project	X	36	72	X	-	-	-	-	NA
39	LACFD Admiralty Way Bioretention Filter System	NA	Installation of Bioretention filter system to capture sheet flow from the parking lot	-	-	-	-	-	-	-	-	NA
40	Low-Flow Storm Drain Diversion Program	NA	NA	-	-	-	-	-	-	-	-	NA
41	Marina Beach Water Quality Improvement Project (Increase Basin D Circulatio	NA	NA	-	-	-	-	-	-	-	-	NA
42	Neighborhood Cisterns	NA	Multifaceted: Collect runoff from residential lots (gravity feed_ to cisterns on public land or righ of ways. Tiered pricing of water--imported water for green big lawn cost most: put in native plants and quality for lower cost cistern water--who pays for piping? less or no water in drought years but native plants will survive.	X	1000	0	-	-	-	-	-	NA
43	Venice Blvd Structural BMPs	NA	Use of On-site structural BMPs on potential locations identified in J 1/4 Wet Weather TMDL IP	X	-	-	-	-	-	-	-	NA
44	Infiltration BMPs for SMBBB TMDL Implementation for Jurisdictional Group 5, 6	NA	Permeable Paving, Vegetated Buffer Strips, Infiltration Trenches/Basins, Bioretention Cells, Wet Ponds, Constructed Wetlands and Leach Fields	-	-	-	-	-	-	-	-	NA
45	Regional Habitat & Agriculture Mitigation Bank	Not Available	Habitat and agriculture lands set aside (banked) regionally, for example: thousands of acres of Ventura County agriculture banked by Caltrans for future agricultural lands which would be impacted by Caltrans projects throughout Southern California.	-	-	-	-	-	-	-	-	NA
46	Ballona Watershed Storm Drain Map	Santa Monica Baykeeper	Map of all stormdrains in Ballona Creek Watershed	-	-	-	-	-	X	-	-	NA
47	Ventura-Los Angeles Recycled Water Backbone	This is a Bureau of Reclamation concept from the mid-1990s.	A 50 mgd connection of recycled water systems connecting the the watersheds between the Ventura River and the Tijuana River.	X	-	-	-	-	-	-	-	Can be a large conjuctive use with Colorado River & Northern California to survive droughts and levee failures.
48	Establish a Stormwater Retention Site	Various	Establish a stormwater retention site in the upper watershed, to reduce stormwater flows and promote infiltration.	-	-	-	-	-	X	-	-	NA
49	Parking Lot Retrofit	Various	Retrofit a large parking lot, to remove curbs and install porous pavement.	-	-	-	-	-	X	-	-	NA
50	Public School Site Retrofit	Various	Retrofit public school site, to reduce impervious surfaces, retain, stormwater, plant native vegetation, increase shade (and reduce energy costs).	-	-	-	-	-	X	-	-	NA
51	Retrofit a large site	Various	Retrofit a large site (e.g., college campus, movie studio) to retain stormwater, either above or under ground, and include native vegetation	-	-	-	-	-	X	-	-	NA
52	Retrofit a Street Segment	Various	Retrofit / re-engineer a segment of a street, to replace curbs with grassed swales and install porous pavement.	-	-	-	-	-	X	-	-	NA
53	Retrofit of a Linear Corridor	Various	Retrofit a linear corridor (e.g., median, utility corridor, former rail line) to retain stormwater and plant native vegetation	-	-	-	-	-	X	-	-	NA
54	Strategic Site Improvements	Various	Strategic Site Improvements (e.g., identify a specific site for retrofit that can take advantage of proximity of a park and open channel and accomplish multiple benefits).	-	-	-	-	-	X	-	-	NA
55	Urban Stream(s) Restoration	Various	Restoration of urban streams, including Scatela Creek, and other remnant streams, including Wilshire Country Club, Longwood Drive / 8th Street, Stone Canyon Creek.	-	-	-	-	-	X	-	-	NA
56	Public Park Retrofit	Watershed Cities	Retrofit of public parks to retain stormwater, plant native vegetation, and replace non-native vegetation where appropriate with use.	-	-	-	-	-	X	-	-	NA



REFERENCES

Arroyo Seco Foundation and Northeast Trees. 2006. Arroyo Seco Watershed Restoration Feasibility Study

American Society of Civil Engineers and Water Environment Foundation. 1998. Urban Runoff Quality Management

American Society of Civil Engineers, Los Angeles Section and Regional Watershed Infrastructure Funding Workgroup, Funding Subcommittee. 2005. Draft Report - Evaluation of Watershed Management Funding Options for Los Angeles County. September 14.

American Society of Civil Engineers, Los Angeles Section and Regional Watershed Infrastructure Funding Workgroup, Public Outreach Subcommittee. 2006. Draft Strategic Plan. June 2.

Brown and Caldwell, et al. 2006a. Open Space Technical Memorandum, May 15.

Brown and Caldwell, et al. 2006b. Water Quality Technical Memorandum, May 15.

Brown and Caldwell, et al. 2006c. Water Supply Technical Memorandum, May 15.

Brown and Caldwell, et al. 2006d. Integrated Water Management Strategy Technical Memorandum, May 31.

Brown and Caldwell, et al. 2006e. Benefits and Costs Assessment Technical Memorandum, August 18.

Brown and Caldwell, et al. 2006f. Project Integration Technical Memorandum, August 18.

Brown and Caldwell, et al. 2006g. Implementation Plan Technical Memorandum, September 1.

Brown and Caldwell. 1998. Costs of Storm Water Treatment for Los Angeles NPDES Permit Area. Prepared for the California Department of Transportation.

Brown et al. 2005. Assessment of Best Management Practice Effectiveness. September

Calfed Bay-Delta Program. 2004. Calfed Bay-Delta Program Annual Report.

California Coastal Commission. 2006. State of the California's Critical Coastal Areas Report. January 26.

California Coastal Conservancy. 2000. Wetlands of the Los Angeles River, Profiles and Restoration Opportunities.

California Department of Fish and Game. 2005. The Status of Rare, Endangered, and Threatened Plants and Animals of California, 2000-2004.

California Department of Water Resources. 2003a. California's Groundwater, Bulletin 118 Update 2003.

California Department of Water Resources. 2003b. Recycled Water 2030, Recommendations of California's Recycled Water Task Force, June.

California Department of Water Resources. 2004. Integrated Regional Water Management Grant Program Guidelines, November.

California Department of Water Resources. 2005. California Water Plan Update 2005 (Bulletin 160-05), December.

California Environmental Protection Agency, State Water Resources Control Board, Nonpoint Source Pollution Control Program . 2001. Opportunity, Responsibility, Accountability, January.

California Floodplain Management Task Force. 2002. California Floodplain Management Report. December.

California Regional Water Quality Control Board, Los Angeles Region. Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties. adopted June 1994.

California Regional Water Quality Control Board, Los Angeles Region. 2000. Standard Urban Stormwater Mitigation Plan for Los Angeles County and Cities in Los Angeles County. March 8.

California Regional Water Quality Control Board, Los Angeles Region. 2001. Total Trash Total Maximum Daily Loads for the Los Angeles River Watershed. January 25.

California Regional Water Quality Control Board, Los Angeles Region. 2004. Watershed Management Initiative Chapter. October.

California Resources Agency, San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy, and Santa Monica Mountains Conservancy. 2000. Common Ground, from the Mountains to the Sea. October.

California State University, Los Angeles, Center for Spatial Analysis and Remote Sensing. 1999. Urban Environment Initiative. July

California State Water Resources Control Board. 2000. California's Nonpoint Source Pollution Control Program, California Management Measures For Polluted Runoff. January.

California State Water Resources Control Board. 2003. 2002 CWA Section 303(d) List of Water Quality Limited Segments, February.

California State Water Resources Control Board. 2005. California Nonpoint Source Encyclopedia, August.

California State Water Resources Control Board. 2006. 2005-06 Consolidated Grants Program Guidelines, January.

California State Water Resources Control Board. 1979. California Marine Waters Area of Special Biological Significance Reconnaissance Survey Report, Mugu Lagoon to Latigo Point, Ventura and Los Angeles Counties. Water Quality Monitoring Report 79-5. March.

California Stormwater Quality Association. 2003. California Stormwater BMP Handbook, New Development and Redevelopment. January

California Watershed Council, Integrated Planning Workgroup. 2004. Principles for Integrated Planning in Watersheds. October

California Wilderness Coalition and The Nature Conservancy of California. 2002. Missing Linkages, Restoring Connectivity to the California Landscape. November, 2.

Calleguas Creek Watershed Management Plan Committee. 2002. Calleguas Creek Watershed Management Plan, Participants Review Draft.

Castelle, A. J., A. W., Johnson and C. Conolly. 1994. Wetland and Stream Buffer Size Requirements - A Review, Journal of Environmental Quality 23: 878-882.

CDM, 2004. Infrastructure Asset Management, A Practical Guide for Utility and Public Works Directors.

CDM, 2005. Draft Technical Report, Upper San Gabriel River Watershed Management Plan. January.

Dallman, Suzanne and Piechota, Tom. 1999. Stormwater: Asset Not Liability, Los Angeles and San Gabriel Rivers Watershed Council.

Desalination Task Force. 2003. Desalination Task Force Report, Final Draft. September 19.

Faber, P.A., E. Keller, A. Sands, and B. M. Massey. 1989. The Ecology of Riparian Habitats of the Southern California Coastal Region.

Goodwin, C. N., C. P. Hawkins, and J. L. Kershner. 1997. Riparian Restoration in the Western United States: Overview and Perspective. Restoration Ecology 5: 4-14.

Gordon, Peter, et al. 2002. An Economic Impact Evaluation of Proposed Stormwater Treatment for Los Angeles County, University of Southern California School of Engineering and School of Public Policy, Planning, and Development. November.

Governor's Office of Planning and Research. 2003. State of California General Plan Guidelines. October.

Gumprecht, Blake. 1999. The Los Angeles River: Its Life, Death and Possible Rebirth, John Hopkins University Press.

Heal the Bay. 2005. Fish Migration Barrier Severity and Steelhead Habitat Quality in the Malibu Creek Watershed. Produced for California State Coastal Conservancy and California Department of Parks and Recreation.

Heal the Bay. 2005. Fish Migration Barrier Severity and Steelhead Habitat Quality in the Malibu Creek Watershed

Hise, Greg, William Deverell, Laurie Olin. 2000. Eden by Design: The 1930 Olmstead-Bartholomew Regional Plan for the Los Angeles Region, University of California Press.

Las Virgenes Malibu Conejo Council of Governments and Los Angeles County Department of Public Works. 2001. Watershed Management Area Plan for the Malibu Creek Watershed. January

Leadership Committee of Greater Los Angeles County. 2006. Interim Draft Integrated Regional Water Management Plan, June 28.

Los Angeles and San Gabriel Rivers Watershed Council. 2001. Beneficial Uses of the Los Angeles and San Gabriel Rivers.

Los Angeles and San Gabriel Rivers Watershed Council. 2005. Compton Creek Watershed Management Plan. June.

Los Angeles and San Gabriel Rivers Watershed Council. 2005. Los Angeles Basin Water Augmentation Study, Phase II Final Report. August.

Los Angeles City, Department of Public Works, Bureau of Sanitation and Department of Water and Power. 2005. Integrated Resources Plan Draft Environmental Impact Report. November.

Los Angeles County Department of Public Works and Dominguez Watershed Advisory Council. 2004. Dominguez Watershed Management Master Plan. April.

Los Angeles County Department of Public Works, Ballona Creek Rennaissance, Los Angeles City Watershed Protection Division, National Park Service Rivers, Trails, and Conservation Assistance Program, & Santa Monica Bay Restoration Commission. 2004. Ballona Creek Watershed Management Plan. September.

Los Angeles County Department of Public Works. 2004a. A Common Thread Rediscovered, San Gabriel River Corridor Master Plan, Public Review Draft. Prepared by Moore Iacofano Goltsman. March.

Los Angeles County Department of Public Works. 2004b. Sun Valley Watershed Management Plan. May.

Los Angeles County Departments of Public Works, Parks and Recreation, and Regional Planning, Los Angeles River Master Plan. 1996.

Los Angeles County Flood Control District. 1991. Hydrology Manual

Metropolitan Water District of Orange County and Irvine Ranch Water District. 2004. Residential Runoff Reduction Study. July

Metropolitan Water District of Orange County, Irvine Ranch Water District, and Metropolitan Water District of Southern California. 2001. Westpark Study

Metropolitan Water District of Southern California. 2004. Integrated Water Resources Plan Update.

Mitsch, W.J. & Gosselink, J.G. 1986. Wetlands. Van Nostrand Reinhold, N.Y.

National Park Service, Rivers, Trails and Conservation Assistance. 1995. Economic Impact of Protecting Rivers, Trails and Greenway Corridors.

National Recreation and Park Association. 1990. Recreation, Park and Open Space Standards and Guidelines.

National Water Research Institute and Awwa Research Foundation. 2003. Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse, Second Edition. May

Public Policy Institute of California, and University of Southern California. 2005. PPIC Statewide Survey; Special Survey of Los Angeles, March.

Public Policy Institute of California. 2002. California Counts, Population Trends and Profiles, Volume 3, Number 5. May.

Rairdan, Charles. 1998. Regional Restoration Goals in the Greater Los Angeles Drainage Area: A Landscape-Level Comparison of Recent Historic and Current Conditions Using Geographic Information Systems. Ph.D. Dissertation, University of California, Los Angeles.

River Project, The, In Progress. Tujunga Watershed Management Plan. http://www.theriver-project.org

San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy, et al. 2004. Rio Hondo Watershed Management Plan. October.

San Gabriel Mountains Regional Conservancy. 2005. Watershed Management Plan for the San Gabriel River Above Whittier Narrows, Draft Technical Report. January 18. http://www.rmc.ca.gov/plans/sgr_wmp.html

Santa Ana Watershed Project Authority. 2005. Santa Ana Integrated Watershed Plan 2005 Update. June.

Santa Monica Bay Restoration Project. 2001. Santa Monica Bay Restoration Plan.

Santa Monica City. 2003. Santa Monica Sustainable City Plan. February 11.

Southern California Association of Governments. 2004. Southern California Compass Growth Vision Report. June.

Southern California Wetland Recovery Project Science Advisory Panel. 2002. Improving Regional Planning of Wetland Ecosystem Restoration and Management in Southern California.

Southern California Wetlands Recovery Project. 2001. Regional Restoration Strategy. November.

Sutula, M. and Stein, E. 2003. Habitat Value of Natural and Constructed Wetlands Used to Treat Urban Runoff: A Literature Review. Prepared for the California Costal Conservancy. June.

Tu, Mandy, Hurd, Callie, and Randall, John M. 2001. Weed Control Methods Handbook: Tools and Techniques for Use in Natural Areas

U.S. Department of Agriculture, Forest Service. 2005. Land Management Plan, Part 1, Southern California National Forests Vision. September.

US Army Corps of Engineers and Los Angeles County Department of Public Works. 2001. Los Angeles and San Gabriel Rivers Watershed Feasibility Study: Preliminary Draft Feasibility Report

Wolch, J., T. Longcore, J. Devinny, and J.P. Wilson. 2004. Green Visions Plan for 21st Century Southern California: A Guide for Habitat Conservation, Watershed Health, and Recreational Open Space. 1. Analytic Frameworks for the Green Visions Plan. University of Southern California GIS Research Laboratory and Center for Sustainable Cities, Los Angeles, California. December.

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