Section 5: Water Management Strategies

5.1 Introduction

The following section introduces a diverse menu of water management strategies available to meet the water management objectives for the Antelope Valley Region. The State of California, through the Proposition 50, Chapter 8 Integrated Regional Water Management (IRWM) Plan Grant Program Guidelines (Guidelines), has identified 20 different water management strategies that are required for discussion to improve regional water resource management (11 are required for discussion). The IRWM Plan discusses the following 11 required water management strategies:

- Water supply reliability
- Groundwater management
- Water quality protection and improvement
- Water recycling
- Water conservation
- Stormwater capture and management
- Flood management
- Recreation and public access
- Ecosystem restoration
- Wetlands enhancement and creation
- Environmental and habitat protection and improvement

Additionally, the Regional Water Management Group (RWMG) evaluated the 9 additional management strategies identified in the State IRWM Plan Guidelines (CWC §§ 79562.5 and 79564) within the IRWM Plan, and not just those that are required to be considered. Therefore, the following strategies were also addressed:

- Conjunctive use
- Desalination
- Imported water
- Land use planning
- NPS pollution control
- Surface storage
- Watershed planning

- Water and wastewater treatment
- Water transfers

Additionally, Proposition 84 has suggested that IRWM Plans also consider those resource management strategies identified in the California Water Plan. In this report, we have aggregated the 20 different management strategies identified in the IRWM Plan Guidelines with those identified in the California Water Plan, into five water management strategy areas, as shown in Table 5-1. Descriptions of these water management strategies are provided below in Section 5.1.1. The five water management strategies are: Water Supply Management, Water Quality Management, Flood Management, Environmental Resource Management, and Land Use Management. For each management strategy, the actions and activities that are either underway or proposed for implementation in order to meet the objectives identified in Section 4 are described.

Many of the water management strategies described in the IRWM Plan Guidelines are currently being utilized in the management of water resources in the Antelope Valley Region. Strategies already practiced include: imported water, water and wastewater treatment, water quality protection and improvement, wetlands enhancement and creation, environmental and habitat protection and improvement, and stormwater capture and management.

The following water management strategies are being implemented in the Antelope Valley Region, but their application may not be widespread, and opportunities exist to expand and better integrate these strategies: flood management, groundwater management, conjunctive use, non-point source (NPS) pollution control, surface storage, water conservation, water recycling, watershed planning, and water supply reliability.

The following water management strategies are not currently utilized in the Antelope Valley Region because they are either infeasible (i.e., desalination), or under-funded: ecosystem restoration, recreation and public access, land use planning, and water transfers. Expanded utilization of these strategies could be implemented to enhance water supplies and improve water supply reliability.

TABLE 5-1
WATER MANAGEMENT STRATEGY MATRIX

Proposition 50 IRWMP Strategies Note: (a) Those strategies that must be considered to meet the minimum IRWM Plan Standards.	California Water Plan Strategies																						
	Agricultural lands stewardship	Agricultural water use efficiency	Conjunctive management and groundwater storage	Conveyance	Desalination	Drinking Water Treatment and Distribution	Economic incentives	Ecosystem restoration	Floodplain management	GW/aquifer remediation	Matching water quality to water use	Pollution prevention	Precipitation enhancement	Recharge areas protection	Recycled municipal water	Surface storage – CALFED	Surface storage – regional/local	System reoperation	Urban land use management	Urban runoff management	Urban water use efficiency	Water transfers	Water-dependent recreation	Watershed management
Water Supply Management																							
Water supply reliability[(a)]	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Groundwater management**			●						●	●		●		●	●				●	●		●		●
Water conservation[(a)]		●					●								●				●		●			●
Water recycling[(a)]			●							●	●				●				●		●			●
Conjunctive use			●							●				●								●		●
Surface storage				●												●	●	●						●
Water transfers			●	●						●				●								●		●
Desalination					●																			
Imported water						●										●	●	●				●		●
Water Quality Management																								
Water quality protection and improvement[(a)]						●			●	●	●	●		●	●				●	●				●
Water and wastewater treatment					●	●				●	●				●									●
Non-point source pollution control								●	●		●	●		●					●	●				●
Flood Management																								
Flood management[(a)]									●					●					●	●				●
Environmental Resource Management																								
Storm water capture and management[(a)]								●	●			●		●					●	●				●
Ecosystem restoration[(a)]								●				●												●
Env. and habitat protection and improvement[(a)]								●						●										●
Recreation and public access[(a)]																	●						●	●
Wetlands enhancement and creation[(a)]								●	●	●				●					●					●
Land Use Management																								
Land use planning	●	●	●	●			●	●	●	●	●	●		●	●		●		●	●	●		●	●
Watershed planning	●	●	●	●		●	●	●	●	●	●	●	●	●	●		●	●	●	●	●		●	●

5.1.1 Water Management Strategy Descriptions

Water Supply Management

Water supply reliability: Reliability is defined in this IRWM Plan as "how much one can count on a certain amount of water being delivered to a specific place at a specific time," and depends on the availability of water from the source, availability of the means of conveyance, and the level and pattern of water demand at the place of delivery. Opportunities for increased supply reliability in the Antelope Valley Region include the establishment of groundwater recharge basins, the implementation of conjunctive use projects utilizing recycled water and storm runoff, and the development of natural treatment systems, such as constructed habitat or open space area, to improve both water quality and storage capability.

Groundwater management: Groundwater has historically provided the majority of the total water supply in the Antelope Valley Region. Projected urban growth coupled with limits on the available local and imported water supply is likely to continue to increase the reliance on groundwater. Issues concerning water quality are also likely to influence how groundwater is managed in the Antelope Valley Region. Opportunities for management of the basin include reductions in impervious surfaces to increase infiltration, creation of recharge areas and spreading basins, management of stormwater flows and appurtenant water capture and conveyance systems. Future groundwater Basin management will depend on the pending adjudication.

Water conservation: Water conservation is a demand management measure which stresses the efficient utilization of water resources. Minimizing the use of water where possible through water efficiency measures helps to combat the inherent variability in the heavily relied upon imported and local supplies. Opportunities to expand water conservation in the Antelope Valley Region include, but are not limited to, implementation of Best Management Practices (BMPs), establishment of water efficiency ordinances, and development of evapotranspiration (ET) controllers for more efficient irrigation.

Water recycling: Recycled water is defined in the California Water Code to mean "water which, as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur." Water recycling is a term which encompasses the process of treating wastewater, storing, distributing, and using the recycled water. The uses to which recycled water can be applied (e.g., landscape and agricultural irrigation, cooling, etc.) depend upon the quality of the treated water and the quality required for subsequent uses. Currently the only recycled water in the Antelope Valley Region that is treated to a tertiary level is a small percentage of the wastewater at the Lancaster Water Reclamation Plant (WRP). This IRWM Plan includes a number of current and planned management actions to increase recycled water use in the Antelope Valley Region.

Conjunctive use: Conjunctive use refers to the coordination of surface water and groundwater resources to maximize the utility of an area's collective water resources. Conjunctive use involves using surplus surface water when available (e.g., storm runoff, surplus surface water flows, or recycled water) to recharge the groundwater basin containing adequate storage capacity. Groundwater banking is a form of conjunctive use wherein surplus surface water or

other available waters are injected or recharged for storage in the aquifer, and then extracted at a later time when surface water supplies are limited.

Surface storage: Surface storage is the use of reservoirs, whether on-stream or off-stream, or storage tanks, to collect water for later release and use. Surface water in the Antelope Valley Region is stored mainly in Littlerock Creek Reservoir and Lake Palmdale. Opportunities to enhance surface storage in the Antelope Valley Region include modification of these local reservoirs to increase storage capacity and operational flexibility, as well as the creation of new surface impoundments for recycled water and/or treated stormwater runoff.

Water transfers: A water transfer is defined in the California Water Code as "a temporary or long-term change in the point of diversion, place of use, or purpose of use due to a transfer or exchange of water or water rights." Transferring water supplies, or water rights, from one area to another is an important tool for water management in California, particularly agricultural to urban transfers. There is an opportunity in the Antelope Valley Region to integrate conjunctive use programs with water transfer projects.

Desalination: Desalination is a water treatment process for the removal of dissolved salts from water for beneficial use. Desalination is used on brackish (high-salinity) water as well as seawater. Due to the fact that groundwater within the Antelope Valley Region is not high in total dissolved solids (TDS), and that the basin is geographically distant from the ocean, desalination as a water management strategy is of low priority in the Antelope Valley Region. However, it could become a source of future imported water supply through inter-jurisdictional agreements.

Imported water: Imported water as a management strategy generally refers to bringing in, or importing, water from other areas. The largest source of imported water in California is the State Water Project (SWP). This strategy can be applied in three ways; by reducing dependence on imported water, by increasing use of imported water from new or existing sources, or by using imported water more efficiently. Imported water to the Antelope Valley Region is contracted through the Antelope Valley-East Kern Water Agency (AVEK), Littlerock Creek Irrigation District (LCID), and Palmdale Water District (PWD). Currently AVEK does not have enough storage available for its imported water, and therefore is unable to utilize its full Table A amount.

Water Quality Management

Water quality protection and improvement: This strategy regards the quality of potable water, the quality of the groundwater, and the quality of stormwater and urban runoff. The focus of water quality management in the Antelope Valley Region is on maintaining and improving the existing water quality and preventing future contamination. Opportunities for water quality protection and improvement include creation of water capture, conveyance, and recharge basins, which act as natural treatment systems, identification and mapping of potential contaminant areas, and upgrading treatment processes at existing WRPs and water treatment plants.

Water and wastewater treatment: As previously stated, the principle sources of water supply in the Antelope Valley Region are imported water and groundwater. Water treatment facilities in the Antelope Valley Region that treat this water are designed to treat raw water and produce drinking water that is safe for human consumption, which meets all regulatory State and Federal standards. Wastewater treatment facilities are designed to treat water that is discarded by a

community to a point that it becomes safe to return back to the environment or for reuse. Opportunities exist for recycled water through tertiary treatment of existing supplies.

Non-point source (NPS) pollution control: NPS pollution may come from a variety of sources; one specific point cannot usually be identified. NPS pollution primarily occurs when rainfall, snowmelt, or irrigation runs over land or through the ground, picks up pollutants, and deposits them into rivers, lakes, and coastal waters or introduces them into groundwater. The runoff can pick up both naturally-occurring and human-deposited pollutants and transport them to waterbodies. NPS control in the Antelope Valley Region is needed to address dry weather and nuisance water runoff.

Flood Management

Flood management: Flood management includes minimizing impacts of floods on buildings and farmland, removing obstacles in the floodplain, voluntarily or with compensation, preventing interference with the safe operation of flood management systems, preserving or restoring natural floodplain processes, educating the public about avoiding flood risks and about planning for emergencies, and reducing flooding risks to humans. Opportunities exist in the Antelope Valley Region for regional coordination of flood management activities.

Environmental Resource Management

Stormwater and urban runoff capture and management: Stormwater capture and management is linked to flood management. Stormwater capture involves inlets and conveyances that will deliver flows to detention and/or retention (recharge) basins. Any attempts to recharge flows should not worsen existing drainage conditions. There is an opportunity to address urban runoff and improve water quality utilizing the same stormwater infrastructure. Challenges include short duration/high intensity storm events, sedimentation, contaminants in the stormwater, and urban runnoff. Opportunities exist for regional coordination of stormwater, urban runoff and flood management activities.

Ecosystem restoration: The California Water Plan defines ecosystem restoration as “improving the condition of modified natural landscapes and biotic communities to provide for the sustainability and for the use and enjoyment of those ecosystems by current and future generations.” The benefits of ecosystem restoration in the Antelope Valley Region are numerous, and depending on the type of ecosystem restored, they can include: capturing and storing stormwater, groundwater recharge, flood protection, increasing water supply reliability, wildlife habitat creation, restoration and enhancement, water quality enhancement, flood management, and recreation.

Environmental and habitat protection and improvement: Risks to the environment and habitat in the Antelope Valley Region include pressures from growth and development, the loss of open space, invasive species, channelization, incompatible land uses, and other common problems associated with urbanization and pollution. Restoration, improvement, and protection of the Antelope Valley Region’s environmental resources have the potential to provide benefits related to water supply and water quality of the local surface and groundwater.

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. Opportunities exist in the Antelope Valley Region for protecting and/or creating new recreational areas or open space that can provide multiple benefits to other strategies including groundwater management, improvements in stormwater or urban runoff management, and to enhance flood management.

Wetlands enhancement and creation: The Antelope Valley Region does not have a significant amount of wetlands, and for this reason this scarce resource should be protected. Wetland and riparian projects can provide water quality, groundwater recharge, flood management and recreational opportunities. Thus, there may be opportunities in the future for the creation of wetland areas in the Antelope Valley Region to provide these additional benefits.

Land Use Management

Land use planning: Land use planning as a strategy generally refers to actions that can be taken by agencies with land use decision-making authority (i.e., cities, counties) to further the objectives set out in this IRWM Plan to better manage and protect local water and related environmental resources. Land use strategies can include long-range planning goals, objectives, general plan policies, ordinances, regulations, education and outreach programs, etc. Opportunities exist in the Antelope Valley Region for increased land use planning efforts such as the addition of water resource elements in the Antelope Valley Areawide General Plan, and the enactment of natural resource protection and efficiency ordinances. Other mechanisms for increased land use planning efforts can include the cities and counties providing incentives for private development that promotes features to improve water quality, enhance groundwater recharge, and reduce water demand.

Watershed planning: The California Water Plan defines watershed management as "the process of evaluating, planning, managing, restoring and organizing land and other resource use within an area of land that has a single common drainage point." The Antelope Valley Region is a good example of a geographical watershed. Managing the water and environmental resources within the Antelope Valley Region, as is being investigated through this IRWM Plan, is a means of watershed management.

5.1.2 Call for Projects

To identify the many potential projects in the Antelope Valley Region and to assess the collective contribution of these projects towards meeting the IRWM Plan objectives and planning targets, development of this IRWM Plan included a "Call for Projects" which gave stakeholders the opportunity to directly submit their projects and project concepts for consideration. Stakeholders could submit projects at any stage of development, including ideas about projects or project concepts. Avenues available for participating in the Call for Projects included the submission of projects via a project identification form, either submitted via electronic mail, by facsimile, or directly on-line via this IRWM Plan website (www.avwaterplan.org). Additionally, to increase participation and awareness in this IRWM Plan, a Call for Projects "Road Show" was conducted, in which the IRWM Plan consultant team visited one-on-one with many members of the Antelope Valley Regional Water Management Group (RWMG) to discuss project ideas. As of June 2007, approximately 50 projects were submitted for inclusion in this IRWM Plan.

While many of the projects lack detailed supporting information, the Call for Projects provided a mechanism to engage stakeholders in the process of sharing project information and discussing the issues related to the integration of projects. Many of the projects discussed in this section provide multiple benefits, spanning more than one strategy. Therefore, some assumptions were made with regard to what water management strategy a particular project would benefit the most, to begin the initial organization of the projects. For example, a groundwater recharge project generally was assumed to provide water supply benefits, with a secondary benefit of addressing water quality needs. Section 6, Water Management Strategy Integration, will delve into this issue further, by examining in more detail how these projects can be integrated to provide multiple benefits.

The information provided herein represents the outcome of the initial step in a process of bringing individual projects into the collaborative process implied by this IRWM Plan. Additional projects are likely to be added to the database, and it is expected that stakeholders will revise and update information on projects submitted.

5.2 Water Management Strategies

In the following sections, each of the five water management strategies are described generally; their objectives and planning targets are presented in Table 5-2; and current and planned activities and actions to meet those objectives are listed along with new project ideas and concepts submitted during the Call for Projects.

5.2.1 Water Supply Management Strategy

The water supply management strategy must include projects and actions that meet the water supply issues and needs of the Antelope Valley Region as discussed in Section 3. The key issues are: regional reliance on imported water; unmanaged groundwater use; limitations of existing facilities; and global warming effects. In order to gauge success in addressing these issues, the water supply management strategy must meet the following objectives as defined in Section 4.

TABLE 5-2
WATER SUPPLY OBJECTIVES

Objective	Planning Target
Provide reliable water supply to meet the Antelope Valley Region's expected demand between now and 2035.	Reduce (68,400 to 189,100 acre-feet per year [AFY]) mismatch of expected supply and demand in average years by providing new water supply and reducing demand, starting 2009. Provide adequate reserves (50,700 to 60,500 AFY) to supplement average condition supply to meet demands during single-dry year conditions, starting 2009. Provide adequate reserves (0 to 62,400 acre-feet [AF]/4-yr period) to supplement average condition supply to meet demands during multi-dry year conditions, starting 2009.
Establish contingency plan to meet water supply needs of Antelope Valley Region during a plausible disruption of SWP water deliveries.	Demonstrate ability to meet regional water demands without receiving SWP water for 6 months over the summer, by June 2010.
Stabilize groundwater levels at current conditions.	Manage groundwater levels throughout the basin such that a 10 year moving average of change in observed groundwater levels is greater than or equal to 0, starting January 2010.

5.2.1.1 Completed (Recent) Water Supply Management Activities/Actions

A number of recent activities have been conducted to investigate the water supply situation in the Antelope Valley Region. These activities have helped to identify the issues and needs of the Antelope Valley Region, and are the framework for the development of many of the supply management actions and activities that are listed in below.

Antelope Valley Integrated Urban Water Management Plan

Project Sponsor: Los Angeles County Department of Public Works (LADPW), Rosamond Community Services District (RCSD), Quartz Hill Water District (QHWD), Los Angeles County Sanitation Districts (LACSD)

Goals and Project Description: The goal of the Integrated Urban Water Management Plan (UWMP) was to coordinate water resource planning throughout the Antelope Valley Region.

The California Urban Water Planning Act requires urban water suppliers to describe and evaluate sources of water supply, efficient uses of water, demand management measures, implementation strategy and schedule, and other relevant information and programs. This information is used by the urban water supplier for development of an urban water management plan (UWMP) which is submitted to the Department of Water Resources (DWR) every five years. The Final Integrated UWMP was submitted to DWR in December 2005.

Antelope Valley Water Resource Study

Project Sponsor: The Antelope Valley Water Group (AVWG) is the Study's lead and sponsor. AVWG members include the Cities of Palmdale and Lancaster, Edwards Air Force Base (AFB), AVEK, Antelope Valley United Water Purveyors Association, Los Angeles County Waterworks Districts (LACWWDs), PWD, RCSD, and LACSD. The City of Palmdale was the contracting agency for the Study.

Goals and Project Description: AVWG was formed in 1991 to provide a means of communication for the Antelope Valley Region agencies with an interest in water. In an attempt to prepare a water resource study with a regional focus, rather than an individual focus, the AVWG initiated the Antelope Valley Water Resource Study.

The primary objective of the AVWG's water resource study was to develop consensus on a water resource management plan that addresses the need of the municipal and industrial purveyors to reliably provide the quantity and quality of water necessary to serve the growth projected by the planning agencies while concurrently addressing the need of agricultural users to have adequate supplies of reasonable cost irrigation water.

The Study, which was completed in 1995, provides an assessment of the water resources in the Antelope Valley Region, develops a water conservation program for the Antelope Valley Region, evaluates the feasibility of recycled water use, evaluates the feasibility of aquifer storage and recovery, discusses the effects of changes in groundwater levels, and provides a water resource protection plan.

AVEK Urban Water Management Plan

Project Sponsor: AVEK

Goals and Project Description: The goal of the UWMP was to assess the current and projected water supplies for AVEK's service area.

The California Urban Water Planning Act requires urban water suppliers to describe and evaluate sources of water supply, efficient uses of water, demand management measures, implementation strategy and schedule, and other relevant information and programs. This information is used by the urban water supplier for development of an UWMP which is submitted to DWR every five years. The AVEK UWMP was submitted to DWR in December 2005.

Palmdale Water District Final Master Plan Update

Project Sponsor: PWD

Goals and Project Description: The goal of the Final Master Plan Update, completed in 2001, was to evaluate the District's existing water distribution system and to determine system improvements over the next ten years, covering only the District's main system.

Final Facilities Planning Study, Antelope Valley Recycled Water Project

Project Sponsor: LACWWD 40

Goals and Project Description: The Antelope Valley Facilities Planning Study evaluated recycled water opportunities for the Antelope Valley Region and recommended a plan for delivering recycled water to the area. This project is discussed below as the North Los Angeles/Kern County Regional Recycled Water System.

Project benefits include:

Saving a significant amount of potable water currently provided either by local groundwater, local surface water or from imported SWP;

Potential to provide water for recharging the Antelope Valley Region's groundwater basin; Saving money that is currently being spent for potable water; Providing a valuable alternative for effluent management; and

Promoting the State's policies of beneficial reuse of recycled water to replace potable water where possible.

Palmdale Water District Urban Water Management Plan

Project Sponsor: PWD

Goals and Project Description: The goal of the UWMP was to assess the current and projected water supplies for PWD's service area.

The California Urban Water Planning Act requires urban water suppliers to describe and evaluate sources of water supply, efficient uses of water, demand management measures, implementation strategy and schedule, and other relevant information and programs. This information is used by the urban water supplier for development of an UWMP which is submitted to DWR every five years.

Study of Potential Recharge Sites in the Antelope Valley

Project Sponsor:	Antelope Valley State Water Contractors Association (AVSWCA)
Goals and Project Description:	This report was commissioned by the AVSWCA, to evaluate potential recharge and groundwater banking sites in the Antelope Valley Region, with the goal of increasing SWP water supply reliability. Several viable sites were identified that could recharge surplus SWP water for later use. Sites that ranked high in the evaluation process were sites on Amargosa Creek, Littlerock Creek, Big Rock Creek, and in the Kings Canyon/Myrick Canyon area. Big Rock Creek ranked highest.

GROUNDWATER RECHARGE/BANKING

LACWWD 40 Aquifer Storage and Recover (ASR) Project

Project Sponsor:	LACWWD 40
Goals and Project Description:	This past winter (’05-’06), LACWWD 40 used 4 wells to store approximately 1,500 AF in the groundwater basin (personal communication, David Pedersen, LACWWD 40). LACWWD 40 started the 2006 ASR program in November with 6 wells in operation, with a combined injection rate of 2,500 to 3,000 gallons per minute (gpm) (personal communication, David Pedersen, LACWWD 40). As proposed by the LACWWD 40, this project in the future could involve the expansion of the existing ASR project to include 15 injection wells to allow for the maximum injection rate.

5.2.1.2 Current Water Supply Management Activities/Actions

Current strategies being used to address the water supply issues include development of plans and studies, court action, investigations into groundwater recharge and groundwater banking programs, use of recycled water, demand management through conservation and water use efficiency, and efficiency upgrades through infrastructure improvements. These projects submitted are grouped into these categories, as shown below.

Antelope Valley Integrated Regional Water Management Plan

Project Sponsor: As required under the Guidelines, the IRWM Plan must be prepared by a Regional Water Management Group (RWMG) which consists of at least three agencies with water related responsibilities for the Antelope Valley Region. The RWMG includes AVEK, AVSWCA, Lancaster, Palmdale, LCID, LACSD 14 and 20, LACWWD 40, PWD, QHWD, and RCSD.

Goals and Project Description: The Antelope Valley IRWM Plan would allow for a more efficient management of the water resources for the Antelope Valley Region by encouraging coordination of all affected agencies within the Antelope Valley Region. Through the IRWM Plan process, agencies will work together to identify solutions to key water management issues for the Antelope Valley Region and thereby facilitate the implementation of necessary projects to reach the Antelope Valley Regions objectives. The IRWM Plan will also meet the requirements for the Assembly Bill (AB) 3030 plan.

City of Lancaster Groundwater Recharge Feasibility Study

Project Sponsor: City of Lancaster

Goals and Project Description: The purpose of this project was to investigate the feasibility of utilizing recycled water to recharge the groundwater within the Antelope Valley Region. The groundwater recharge feasibility study was initiated in March 2006, and a draft released in January 2007.

The study area for the report encompasses the Lancaster, Buttes and Pearland hydrogeologic sub-units of the Antelope Valley groundwater basin. Potential recycled water sources in the study area include the Lancaster WRP, the Palmdale WRP and the Rosamond Wastewater Treatment Plant (WWTP).

This study assessed institutional, regulatory, technical, and financial opportunities and challenges of groundwater recharge. These opportunities and challenges were studied in sufficient detail to provide local officials with the basis for decision on if and how the Antelope Valley Region should move forward with groundwater recharge.

The draft report found that groundwater recharge using recycled water could provide up to 30,000 AFY of new water supply to the Antelope Valley Region by 2025.

Palmdale Water District Reconnaissance Level Feasibility and Scoping Study for Recycled Water Recharge

Project Sponsor:	PWD
Goals and Project Description:	PWD's intent for this study is to build on prior work and identify potential projects to provide the planned use of recycled and other water sources for groundwater recharge and banking in the southeast portion of the Antelope Valley Region. It will also identify regulatory requirements, possible obstacles for permitting, and strategies for addressing them.

Palmdale Water District 2006 Water System Master Plan Update

Project Sponsor:	PWD
Goals and Project Description:	PWD's plan for improvements and expansion of its existing infrastructure is currently being developed in its 2006 Water System Master Plan Update. According to PWD's 2006 Strategic Plan, PWD is identifying additional water sources by investigating increasing the yield from Littlerock Reservoir, water conservation, recycled water (urban irrigation and groundwater recharge), additional Table A SWP water, and water transfers. The 2006 Update will also provide a plan for infrastructure upgrades, which include development of a hydraulic model for the existing system and identifying improvements needed to mitigate existing deficiencies.

COURT ACTIONS

Adjudication of the Groundwater Basin

Project Sponsor:	Involves multiple agencies, land owners, and stakeholder interests in the Antelope Valley Region
Goals and Project Description:	The Antelope Valley Groundwater Basin is currently in the early stages of adjudication. The adjudication will provide a means to effectively manage the basin to prevent future overdraft. A general adjudication has begun in the Los Angeles County Superior Court and the case is in the early stages (Antelope Valley Groundwater Cases, Judicial Council Coordination Proceeding No. 4408). One of the issues in the adjudication is whether the Antelope Valley Groundwater Basin, particularly the Lancaster Sub-Basin, may be in "overdraft," meaning that current pumping rates exceed the sustainable yield.

Antelope Valley Water Agencies' Water Bank

Project Sponsor: RCSD, LCID, QHWD, AVEK

Goals and Project Description: This water banking option would be similar to that proposed by Western Development and Storage below, with the exception that the three water purveyors and potentially AVEK would own and operate the water bank themselves. Potential advantages include reduced costs, more control, and an abbreviated schedule. Disadvantages include the need to conduct further study and the lack of an experienced agency with water banking experience. Furthermore, the water purveyors would be responsible for conducting the necessary technical studies, environmental documentation, and all capital costs.

Tejon Ranch Water Bank

Project Sponsor: Tejon Ranch

Goals and Project Description: In 2006, Tejon Ranch constructed and is operating a groundwater bank on its property. The bank is located less than 1 mile north of the East branch of the California Aqueduct. The recharge area of the bank currently includes nine basins and covers 120 acres. Thus far, Tejon Ranch has banked over 4,000 acre-feet of water imported into the Antelope Valley from the State Water Project. The approximate storage capacity of this bank in its current configuration is roughly 60,000 acre-feet. Tejon Ranch is willing to negotiate cooperative arrangements with public agencies and private parties who want to store and/or withdraw water from this water bank. Interested parties may contact Dennis Atkinson at Tejon Ranch (661-663-4240).

Expansion of Treatment Facilities

Project Sponsor: RWMG

Goals and Project Description: Expansion of the treatment facilities in the Antelope Valley Region would allow for the utilization of all the available SWP water from AVEK, PWD, and LCID for water banking or ASR.

Additional water from AVEK is a key element in the majority of the water supply strategies available to the Antelope Valley Region. AVEK's current treatment capacity to LACWWD 40 is 65 million gallons per day (mgd) (73,000 AFY). However, in order for the LACWWD 40 to utilize all of AVEK's additional water for water banking or ASR they would need to receive around 98,000 AFY. Thus, there is a significant need for expansion of the Quartz Hill Water Treatment Plant to meet the LACWWD 40's needs. It is anticipated that an expansion to 97 mgd should be sufficient to meet LACWWD 40 future demand (LACWWD 40 1999).

Planned LACWWD 40 facility improvements include new wells, reservoirs and pipelines throughout its system to meet current and projected water supply requirements. Additional connections with AVEK will be needed to maximize use of available imported water.

PWD also plans to expand its existing treatment plant to 35 mgd and is in the preliminary design stage for a new 10 mgd treatment plant.

QHWD plans to enlarge existing wells or drill new wells to meet additional demands. This will become increasingly more important as QHWD utilizes more groundwater to meet projected demands.

RCSD has expressed a need for new wells, a reservoir and additional transmission mains to meet projected demands (RCSD 2004). Additionally, RCSD will need to expand their imported water facilities to account for their significant increase in the use of SWP water.

Best Management Practices

Project Sponsor: LACWWD 40, AVEK, PWD, QHWD, RCSD

Goals and Project Description: Currently, all water agencies in the Antelope Valley Region utilize water conservation methods as a means to reduce demand during drought conditions. Additionally, LACWWD 40 is a member of the California Urban Water Conservation Council (CUWCC) and a signatory of the Memorandum of Understanding Regarding Urban Water Conservation in California (MOU). Signatories pledge to develop and implement the 14 Best Management Practices (BMPs) that are intended to reduce long-term urban water demands. These BMPs are functionally-equivalent to the demand management measures (DMMs) in CWC §10631(f)(1) and are as listed below.

- DMM 1. Water survey programs for single-family residential and multi-family residential customers.
- DMM 2. Residential plumbing retrofit.
- DMM 3. System water audits, lead detection, and repair.
- DMM 4. Metering with commodity rates for all new connections and retrofit of existing connections.
- DMM 5. Large landscape conservation programs and incentives.
- DMM 6. High-efficiency washing machine rebate programs.
- DMM 7. Public information programs.
- DMM 8. School education programs.
- DMM 9. Conservation programs for commercial, industrial, and institutional accounts.
- DMM 10. Wholesale agency programs.
- DMM 11. Conservation pricing.
- DMM 12. Water conservation coordinator.
- DMM 13. Water waste prohibition.
- DMM 14. Residential ultra-low-flush toilet replacement programs.

AVEK is not a signatory to the CUWCC MOU and is not a member of CUWCC. The only DMM that applies directly to a wholesaler is DMM 10, which AVEK currently implements. Additionally AVEK implements the following DMMs: 3, 4, 7, 8, and 12. AVEK also supports and encourages its retailers to implement the remaining DMMs.

LACWWD 40 has been a signatory to the CUWCC MOU since April 1996. LACWWD 40 has implemented or plans to implement 11 of the 14 DMMs as early as 2005. DMM 6 and DMM 14 are not planned for implementation since neither DMM is cost effective at this time. DMM 10 does not apply to water retailers.

PWD is not a signatory to the CUWCC MOU and is not a member of CUWCC. However, PWD currently implements or plans to implement 13 of the 14 DMMs as early as 2005. DMM 10 does not apply to water retailers.

QHWD is not a signatory to the CUWCC MOU and is not a member of CUWCC. However, QHWD currently implements or plans to implement 13 of the 14 DMMs as early as 2005. DMM 10 does not apply to water retailers.

RCSD is not a signatory to the CUWCC MOU and is not a member of CUWCC. However, RCSD currently implements or plans to implement 13 of the 14 DMMs as early as 2005. DMM 10 does not apply to water retailers.

5.2.1.3 Planned Water Supply Management Activities/Actions

The following projects were submitted during the "Call for Projects" to address the water supply management needs of the Antelope Valley Region. Strategies to address the water supply issues include groundwater recharge and groundwater banking, use of recycled water, demand management through conservation and water use efficiency, and efficiency upgrades through infrastructure improvements. These projects submitted are grouped into these categories, as shown below.

GROUNDWATER RECHARGE/BANKING

The following projects related to groundwater recharge and groundwater banking were submitted by the stakeholders during the Call for Projects.

Upper Amargosa Creek Recharge and Channelization Project

Project Sponsor:	City of Palmdale
Project Goals and Purposes:	This project will increase the Antelope Valley Region's water supply, increase the amount of protected natural habitat and provide improved flood prevention within the Amargosa Creek watershed.
Project Description:	Proposed project improvements include: expanding the size and capacity of the spreading ground of the natural recharge area; developing and preserving an ephemeral stream habitat; and channelization of Amargosa Creek (soft bottom) and providing a grade separation of 20th Street West over Amargosa Creek.
Quantifiable Benefits:	5,000 to 10,000 AFY; 15 acres open space/habitat; 20 acres flood protection.

Amargosa Water Banking and Storm Water Retention Project

Project Sponsor:	Submitted on behalf of John Goit, Sundale Mutual Water
Project Goals and Purposes:	The purpose of the project is to restore depressed water table levels in addition to providing stormwater, flood control, and open space benefits.
Project Description:	The Amargosa Water Banking and Storm Water Retention (Amargosa) Project involves banking water to restore the depressed water table to 250 to 335 feet below ground, thereby saving pumping costs. Additionally, the Amargosa Project may include the addition of check dams and holding basins to facilitate stormwater capture and improve flood control. These sites may double as open space/recreation areas.
Quantifiable Benefits:	Restoration of the depressed water table through water recharge could save approximately $450,000 annually in pumping costs.

Antelope Valley Water Bank

Project Sponsor:	Western Development and Storage (WDS)
Project Goals and Purposes:	Increase water supply reliability in the Antelope Valley Region by providing storage through development of a water bank.
Project Description:	The Antelope Valley Water Bank will provide 500,000 AF of storage in the Neenach Subbasin of the Antelope Valley Basin and the ability to recharge and recover 100,000 AFY. This storage could be used to regulate supplies on a seasonal and year-to-year basis by storing water when it is plentiful for later use when needed. The project is strategically located near imported water supply wheeling infrastructure (1 mile from AVEK West Feeder and 8 miles from East Branch of the SWP California Aqueduct) providing a geographically logical means to store and regulate supplies.
Quantifiable Benefits:	Recharge and recover 100,000 AFY; 1,630 acres open space/habitat

Aquifer Storage and Recovery Project: Injection Well Development

Project Sponsor:	LACWWD 40
Project Goals and *Purposes:*	This project would improve the reliability of the AVEK water supply.
Project Description:	The project involves the construction of ten new well sites in a groundwater depression area of the Antelope Valley Region to improve water supply reliability. The additional wells would be available for water injection during wet years and for water extraction during dry years.
Quantifiable Benefits:	12,000 AFY

Aquifer Storage and Recovery Project: Additional Storage Capacity

Project Sponsor:	LACWWD 40
Project Goals and Purposes:	This project would improve the efficiency of the AVEK water supply.
Project Description:	This project would increase the District's turnout capacity from AVEK through improvements made to existing infrastructure. Four older, smaller turnout pipelines would be replaced with larger ones to supply water to ASR wells.
Quantifiable Benefits:	More information required to quantify benefit.

Deep wells to Recapture Banked Water

Project Sponsor:	RCSD
Project Goals and Purposes:	To provide a way to capture banked groundwater when needed.
Project Description:	Drill and equip 6 deep wells between Avenue A and Rosamond Boulevard, 70th to 140th Street West.
Quantifiable Benefits:	More information required to quantify benefit.

Gaskell Road Pipeline

Project Sponsor:	RCSD
Project Goals and Purposes:	To provide a way to capture banked groundwater when needed.
Project Description:	Construct and operate a 30-inch diameter potable water pipeline on Gaskell Road, in Southeast Kern County, from 60th Street West to 140th Street West, with pumps, valves, meters, telemetry and remote controls from a centralized SCADA control point in Rosamond Community Services District's Operational Center.

Quantifiable Benefits: 100 to 1,000 AF

Groundwater Banking

Project Sponsor:	LACWWD 40
Project Goals and Purposes:	Increase water supply reliability through creation of a groundwater banking program.
Project Description:	The project would establish a groundwater bank to include 63,500 AF extraction capacity during dry years and 170,000 AF storage capacity.
Quantifiable Benefits:	63,500 AF

LCID East-Side Groundwater Recharge Project[13]

Project Sponsor:	Littlerock Creek Irrigation District
Project Goals and Purposes:	Increase imported water supply reliability in the Antelope Valley Region by developing storage and allowing for recharge.
Project Description:	The project is a groundwater recharge project on approximately 120 to 160 acres of Los Angeles County owned land on the east-side of the Valley at 117 and T. There are currently nonproductive County wells that could be used to recharge SWP water. LCID has wells on the property that could be used to facilitate the recharge operations.
Quantifiable Benefits:	More information required to quantify benefit.

Purchasing Spreading Basin Land

Project Sponsor:	RCSD
Project Goals and Purposes:	To provide land to spread water for percolation and water banking for other entities.
Project Description:	Purchase water spreading basins land in West Kern County from Avenue A to Rosamond B.
Quantifiable Benefits:	More information required to quantify benefit.

[13] This project was not submitted in time to be evaluated against the Plan objectives, water management strategies, AB 3030 guidelines, and IRWM Plan Preferences and shown in the Section 6 tables. It will evaluated in this manner along with any other project ideas that are submitted after this first go around before the final plan is adopted (between August and November).

Water Supply Stabilization Project – Westside Project

Project Sponsor:	AVEK, AVSWCA
Project Goals and Purposes:	Increase imported water supply reliability in the Antelope Valley Region by developing storage and allowing for recharge.
Project Description:	Imported water stabilization program that utilizes SWP water delivered to the Antelope Valley Region's westside for groundwater recharge and supplemental supply required for the Antelope Valley Region during summer peaking demand and anticipated dry years. This project includes additional facilities necessary for the delivery of untreated water for direct recharge (percolation basins) or indirect (in-lieu) recharge and for wells and pipeline for treated water conveyance.
Quantifiable Benefits:	5,000 AFY to 10,000 AFY; 15 acres open space; 20 acres flood management

Water Supply Stabilization Project – Eastside Project

Project Sponsor:	AVEK, AVSWCA
Project Goals and Purposes:	Increase imported water supply reliability in the Antelope Valley Region by developing storage and allowing for recharge.
Project Description:	This project is similar to AVEK's Westside Project, but is meant for the eastside of the Antelope Valley Region.
Quantifiable Benefits:	More than 1,000 AFY

RECYCLED WATER

The following recycled water projects were submitted by the stakeholders during the Call for Projects.

Groundwater Recharge Using Recycled Water Pilot Project

Project Sponsor:	City of Lancaster (LADPW, AVEK, LACSD 14)
Project Goals and Purposes:	Increase water supply reliability through use of recharged recycled water.
Project Description:	The Pilot Project would assess maximization of available recycled water by utilizing this valuable source to recharge the local over-draft groundwater basin, increasing the Antelope Valley Region's overall water resources. This project would recharge a blend of recycled water from the 1 mgd membrane bioreactor (MBR) plant at the Lancaster WRP with storm water and/or treated imported water at the City of Lancaster-proposed 100-acre storm water basin at 60th Street West and Avenue F. The Pilot project would allow of extraction of 2,500 AFY and create 100 acres of open space. Ultimately, this recharge project would recharge 50,000 AFY of blend water, with blend water consisting of 40,000 AFY of imported SWP water and 10,000 AFY of recycled water from Lancaster WRP. The baseline project would extract 48,000 AFY of recharged water, on average, via a new well field and deliver the water to wholesaler/retailer distribution system(s) and private agricultural users.
Quantifiable Benefits:	2,500 AFY and 100 acres open space; ultimately 48,000 AFY and 1,000 acres of open space.

Groundwater Recharge - Recycled Water Project

Project Sponsor:	PWD
Project Goals and Purposes:	Increase water supply reliability through stabilizing the groundwater supply and by using recycled water for recharge purposes whereas potable water would have been used otherwise.
Project Description:	This project involves groundwater recharge using recycled water from the Palmdale WRP. This project is anticipated to be similar to the Lancaster groundwater recharge project described below and have similar blending and extraction numbers (e.g., a blend of 10,000 AFY of recycled water and 40,000 AFY of SWP water). In order to have 40,000 AFY of SWP water to blend, this project would most likely end up being an AVSWCA project (or at least a joint venture type project with AVEK and/or LCID).
Quantifiable Benefits:	48,000 AFY

KC and LAC Interconnection Pipeline

Project Sponsor:	RCSD (LACSD as joint partner)
Project Goals and Purposes:	To carry recycled water from/to LA County Tertiary Treatment Plant into Kern County to LA County.
Project Description:	Place 36-inch piping between RCSD and Los Angeles County at Avenue A at 20th and 60th Streets West. Place piping north and south on 20th Street and 60th Street to existing recycled water pipelines.
Quantifiable Benefits:	More information required to quantify benefit.

North Los Angeles/Kern County Regional Recycled Water Project

Project Sponsor:	LACWWD 40
Project Goals and Purposes:	The overall goal of this project is to provide recycled water to the Antelope Valley Region, thereby reducing the Antelope Valley Region's dependence on SWP water.
Project Description:	The Los Angeles/Kern County Regional Recycled Water Project outlines the foundation of a regional recycled water system in the Antelope Valley Region. The proposed system would distribute recycled water throughout the service area and provide a backbone system that could accommodate minimum and maximum demands and allow significant deliveries of recycled water to recharge areas. The recommended plan's placement of the system components is based on an analysis of the service area demands, topography, and desired operating pressures. Specifically, the proposed system components of the recommended plan consist of: recycled water supply, a main pump station, booster pump stations, storage reservoirs, and distribution system. The construction of the recycled water supply system would be phased overtime and it is anticipated that all phases of construction would be completed by 2011. Recycled water users would include municipal medians, agriculture, commercial, golf courses, school yards, and parks as allowed by California Department of Health Services, Division 4, Title 22 (Title 22).
Quantifiable Benefits:	Quantifiable benefits include the increased use of approximately 64,780 AFY of recycled water by 2025.

Palmdale Power Project

Project Sponsor:	City of Palmdale
Project Goals and Purposes:	Construct a power generating facility that utilizes available recycled water.
Project Description:	Construction of a 570 Mega-Watt (MW) electricity generating facility. The Palmdale Power Project will be a hybrid design, utilizing natural gas combined cycle technology and solar thermal technology. The Palmdale Power Project would be a customer and end user of 3,200 AFY of reclaimed water.
Quantifiable Benefits:	Identified users of approximately 3,200 AFY of recycled water.

Tertiary Treated Water Conveyance & Incidental Groundwater Recharge of Amargosa Creek Avenue M to Avenue H

Project Sponsor:	City of Lancaster
Project Goals and Purposes:	The proposed project would create a demand for utilizing tertiary treated recycled water from the Lancaster WRP and provide a reliable means to dispose of recycled water.
Project Description:	This project involves the construction of a 12-inch lateral pipeline off the Regional Backbone at/near Ave M conveying tertiary treated water to a point approximately one mile west and designed to deliver recycled water into the Amargosa Creek channel. Tertiary treated water would travel northerly within the Amargosa Creek roughly 4.7 miles, creating incidental recharge en route until collecting at Lake Lancaster (retention basin north of Ave H). Here, it would be available for irrigation and dust control at the Antelope Valley Fair Grounds and extended use to the west side of Lancaster and surrounding Antelope Valley Region.
Quantifiable Benefits:	100 to 1,000 AFY

The following projects related to water conservation and water use efficiency were submitted by the stakeholders during the Call for Projects.

ET-Based Controller Program

Project Sponsor: PWD

Project Goals and Purposes: Improve water use efficiency on landscaped areas.

Project Description: This project involves the installation of ET-based irrigation controllers for landscaped areas. This project can assist water purveyors in the Antelope Valley Region in meeting BMPs for water use efficiency and will reduce runoff from over watering of landscaped areas.

Quantifiable Benefits: Approximately 240 AFY if used on 14 large landscape users in PWD's service area.

Implement Evapotranspiration (ET) Controller Program

Project Sponsor: LACWWD 40 (potential joint partners: City of Lancaster, City of Palmdale, PWD, AVEK, Building Industry Association [BIA], Antelope Valley Water Conservation Coalition [AVWCC], and homeowner associations).

Project Goals and Purposes: Improve water use efficiency on landscaped areas.

Project Description: Develop and implement an ET controller pilot program in the Antelope Valley Region that can be used as a model to a future mandatory program for new development. The pilot program will include the purchase and installation of (estimated) two weather stations in a selected residential development and replace (approximately) 300 manually adjusted irrigation controllers with weather-sensitive irrigation controllers for the District's qualified customers.

Quantifiable Benefits: 100 to 1,000 AFY

Precision Irrigation Control System

Project Sponsor: Leona Valley Town Council

Project Goals and Purposes: Improve water use efficiency on landscaped areas.

Project Description: The project is a proposed irrigation control system using electronic sensor probes at root level. Sensors relay data to a computer which controls irrigation valves, delivering a precise amount of water and effectively eliminating over-irrigation.

Quantifiable Benefits: More than 150 AFY

Ultra Low Flush Toilet (ULFT) Change Out Program

Project Sponsor: LACWWD 40

Project Goals and Purposes: Improve urban water use efficiency.

Project Description: The ULFT Change Out Program would distribute ULFTs to customers through one-day Saturday toilet distributions. The one-day distributions provide single-family residents with up to two free ULFTs. This proposal provides one annual one-day distribution events over a three-year duration. Each one-day event will include up to 1,500 ULFTs for District No. 40 per year. This proposal is consistent with BMP No. 14, Residential ULFT Replacement Programs to replace existing high-water-using toilets with ultra-low flush (1.6 gallons or less) toilets for residential customers.

Quantifiable Benefits: 1 to 100 AFY

Water Conservation Demonstration Garden

Project Sponsor: PWD

Project Goals and Purposes: Demonstrate savings from water efficient gardens.

Project Description: This project involves the construction of a water conservation demonstration garden that will educate the public on water use efficiency practices.

Quantifiable Benefits: Approximately 86,000 AF savings over a 20 year period.

Water Conservation School Education Program

Project Sponsor: LACWWD 40

Project Goals and Purposes: Promote water conservation awareness and encourage stewardship in the Antelope Valley Region.

Project Description: Develop and implement a school education program to promote water conservation awareness and encourage stewardship among school-age children (kindergarten through twelfth grade). This program is consistent with BMP No. 8, School Education Program to promote water conservation and water conservation related benefits, including working with school districts and private schools with within the District's service area to provide instructional assistance, educational materials, and classroom presentations that identify urban, agricultural, and environmental issues and conditions in the local watershed.

Quantifiable Benefits: More information required to quantify benefit.

Water Waste Ordinance

Project Sponsor:	LACWWD 40 (potential joint partners: City of Lancaster, City of Palmdale, Los Angeles County for unincorporated areas, water suppliers, etc.)
Project Goals and Purposes:	Reduce water demand during drought years through enforceable ordinances requiring more efficient use of water.
Project Description:	Develop a year-round conservation program as an enforceable ordinance to reduce the impacts of water demand during drought years. May include watering schedule ordinance, water waste ordinance, and landscape ordinance for new development.
Quantifiable Benefits:	More information required to quantify benefit.

WATER INFRASTRUCTURE IMPROVEMENTS

The following projects related to water infrastructure improvements were submitted by the stakeholders during the Call for Projects.

Avenue K Transmission Main, Phases I-IV

Project Sponsor:	LACWWD 40
Project Goals and Purposes:	Increase supply reliability through increases in infrastructure capacity and flexibility.
Project Description:	The project consists of four phases for a total of approximately 32,000 linear feet of 30-inch and 36-inch diameter steel transmission main. The proposed transmission main will have interconnections to the existing distribution system and will increase the capacity of the water system to meet the existing domestic and fire protection requirements.
Quantifiable Benefits:	Firms up existing supply

Avenue M and 60th Street West Tanks

Project Sponsor:	LACWWD 40
Project Goals and Purposes:	This project would provide the necessary system pressure, if the water from AVEK was diminished or not available. Thus providing for greater water supply reliability.
Project Description:	This project would include the design and construction of four (4) 3 mgd water storage tanks.
Quantifiable Benefits:	More information required to quantify benefit.

Littlerock Dam Sediment Removal Project

Project Sponsor:	PWD
Project Goals and Purposes:	Increase capacity and reliability of surface water storage in Littlerock Reservoir.
Project Description:	This project will remove up to 540,000 cubic yards of sediment that has been accumulated from runoff into Littlerock Reservoir, and up to 40,000 cubic yards on an annual basis after the initial sediment is removed. The project may include a grade control structure that will protect the identified habitat of the arroyo toad.
Quantifiable Benefits:	More than 1,000 AFY

Place Valves and Turnouts on Reclaimed Water Pipeline

Project Sponsor:	RCSD
Project Goals and Purposes:	To provide valving and controls to direct water to various pipelines for use by RCSD, AVEK, LACWWDs, etc.
Project Description:	Place various required turnouts, remove controlled valves, treatment stations, other control features to move water around.
Quantifiable Benefits:	100 to 1,000 AFY

RCSD's Wastewater Pipeline

Project Sponsor:	RCSD
Project Goals and Purposes:	This project would provide for a possible expansion of RCSD's recycled water services beyond the 0.5 mgd expansion in order to provide more recycled water in a quicker period of time. Bringing excess waste water from LAC would provide the inflow.
Project Description:	This project would include placing a 36-inch wastewater pipeline from LACSD to RCSD's WWTP. The total distance would be approximately 15 miles.
Quantifiable Benefits:	Increases potential users of recycled water

Other projects that could provide Water Supply Management benefits, as secondary to their main benefits include the following:

- 45th Street East Flood Control Basin (Q-East Basin)
- Avenue Q and 20th Street East Basin (Q-West Basin)
- Hunt Canyon Groundwater Recharge and Flood Control Basin (PWD)

- Stormwater Harvesting (Leona Valley Town Council)
- Lancaster WRP Stage V (LACSD)
- Lancaster WRP Stage VI (LACSD)
- Lancaster WRP Proposed Effluent Management Sites (LACSD)
- Palmdale WRP Existing Effluent Management Sites (LACSD)
- Palmdale WRP Stage V (LACSD)
- Palmdale WRP Stage VI (LACSD)
- Palmdale WRP Proposed Effluent Management Sites (LACSD)
- Partial Well Abandonment of Groundwater Wells for Arsenic Mitigation (LACWWD 40)
- Tropico Park Pipeline Project (RCSD)

5.2.2 Water Quality Management Strategy

The water quality management strategy must include projects and actions that meet the water quality issues and needs as discussed in Section 3. The key issues and needs are: meeting water quality regulations for groundwater recharge; needing to provide wastewater treatment for a growing population; being able to meet evolving regulations; and being able to handle emerging contaminants. In order to gauge success in addressing these issues, the water quality management strategy must meet the following objectives shown in Table 5-3 and as defined in Section 4.

TABLE 5-3
WATER QUALITY OBJECTIVES

Objective	Planning Target
Provide drinking water that meets customer expectations.	Continue to meet Federal and State standards as well as customer standards for taste and aesthetic.
Protect aquifer from contamination.	Prevent unacceptable degradation of aquifer according to the Basin Plan throughout the planning period.
	Map contaminated sites and monitor contaminant movement by December 2008.
	Identify contaminated portions of aquifer and prevent migration of contaminants by June 2009.
Protect natural streams and recharge areas from contamination.	Prevent unacceptable degradation of natural streams and recharge areas according to the Basin Plan throughout the planning period.
Maximize beneficial use of recycled water.	Increase infrastructure and policies to use 33% of recycled water by 2015, 66% by 2025, and 100% by 2035.

5.2.2.1 Completed (Recent) Water Quality Management Activities/Actions

PLANS AND STUDIES

A number of recent plans and studies have been conducted to investigate water quality issues within the Antelope Valley Region, as shown below.

Final Lancaster WRP 2020 Facilities Plan and Environmental Impact Report

Project Sponsor: LACSD14

Goals and Project Description: The intent of the Lancaster WRP 2020 Plan is as follows:

Provide wastewater treatment and effluent management capacity adequate to meet the needs of LACSD 14 through the year 2020 in an environmentally sound and cost-effective manner;

- Eliminate unauthorized effluent-induced overflows from Piute Ponds to Rosamond Dry Lake in the most expeditious manner possible and in consideration of the Regional Water Quality Control Board (RWQCB), Lahontan Region, in order to avoid any threatened nuisance condition as determined by Edwards AFB;
- Ensure recycled water of sufficient quality and quantity is available to satisfy emerging municipal reuse needs; and
- Comply with the requirements to maintain Piute Ponds.

The Lancaster WRP 2020 Plan project, 26 mgd Conventional Activated Sludge Tertiary Treatment, Agricultural Reuse, and Storage Reservoirs, addresses the aims listed above.

Final Palmdale WRP 2025 Facilities Plan and Environmental Impact Report

Project Sponsor: LACSD 20

Goals and Project Description: The overall intent of the Palmdale WRP 2025 Plan is to identify a project that meets the wastewater treatment and effluent management needs of LACSD 20 through year 2025 in a cost-effective and environmentally sound manner. Specifically:

Provide wastewater treatment capacity adequate to meet the needs of LACSD 20 through the year 2025;

Provide effluent management capacity adequate to meet the needs of LACSD 20 through the year 2025;

Provide a long-term solution for meeting water quality requirements set forth by regulatory agencies; and

Provide a wastewater treatment and effluent management program that accommodates emerging recycled water reuse opportunities.

The major components of the project are wastewater treatment facilities, effluent management facilities, and municipal reuse. Some processes of the wastewater treatment and effluent management facilities will be constructed to upgrade the treatment and effluent management level currently provided at the Palmdale WRP. For other processes, facilities will be expanded from 15.0 mgd to 22.4 mgd. These changes will be performed in stages.

Palmdale Water Reclamation Concept Study

Project Sponsor:	City of Palmdale, PWD, LACWWD 40, LACSD 20
Goals and Project Description:	The purpose of the Water Reclamation Concept Study was to evaluate three potential conceptual uses of recycled water produced by the Palmdale WRP, owned and operated by LACSD. The concepts considered included the following: Discharge of effluent into existing sand and gravel pits located in the eastern portion of the City of Palmdale to create a recreational facility. Recharge of local groundwater basins with highly treated effluent. Discharge of highly treated effluent into Lake Palmdale, which serves as the forebay for the PWD WRP. Each of these alternatives was evaluated at the conceptual level in an effort to identify feasibility and preliminary costs. The findings of the Study indicated that utilizing effluent for recreational purposes within gravel pits would not result in the utilization of a significant quantity of effluent. With this finding, such use was found not to be feasible unless combined with another alternative. The introduction of highly treated effluent into Lake Palmdale was not considered feasible as such discharge would not comply with the preliminary requirements established by the California Department of Public Health (DPH) for a similar proposal developed by the City of San Diego. The third alternative, discharge of highly treated effluent into local groundwater basins, was found to be technically feasible and would have costs similar to alternative water supplies available within the Antelope Valley Region. Implementing a groundwater recharge program would require resolution of a number of key regulatory issues, the outcome of which could greatly impact the cost of the program.

5.2.2.2 Current Water Quality Management Activities/Actions

Current strategies being used to address the water quality issues focus on the use of recycled water within the Antelope Valley Region, as shown below.

Chloramines Conversion Project

Project Sponsor:	LACWWD 40
Project Goals and Purposes:	Prevent deterioration of water quality due to differing treatment methods between purveyors.
Project Description:	This project involves the system-wide conversion from chlorine disinfection methods to chloramines disinfection techniques. This allows for the system to be compatible with AVEK's disinfection method and prevent the deterioration of water quality in the distribution system.
Quantifiable Benefits:	Improved water quality.

RCSD Recycled Water Project/Treatment Plant Expansion

Project Sponsor:	RCSD
Project Goals and Purposes:	The overall goal of the project is to provide approximately 1.5 mgd of recycled water to the RCSD service area, thereby reducing the dependence on SWP water.
Project Description:	Rosamond Wastewater Treatment Plant (WWTP), located in the City of Rosamond, is owned, operated, and maintained by the RCSD. Rosamond WWTP, which has a permitted capacity of 1.3 mgd treated an average flow of 1.1 mgd to undisinfected secondary standards for landscape irrigation on-site. RCSD planned to increase the capacity to 1.8 mgd in 2006 through the addition of 0.5 mgd tertiary treatment facility. The tertiary treatment facility will then be upgraded to 1.0 mgd in 2010. Design for the proposed treatment plant improvements is complete and has been approved by the State of California. Construction was delayed due to lack of funding. Once constructed, the plant would provide tertiary treated recycled water for landscape irrigation at median strips, parks, schools, senior complexes and new home developments.
Quantifiable Benefits:	The quantifiable benefits include the increased use of approximately 1.5 mgd of recycled water to the RCSD service area, thereby reducing dependence on SWP water.

5.2.2.3 Planned Water Quality Management Activities/Actions

The following planned activities and actions have been identified to improve water quality in the Antelope Valley Region by providing drinking water that meets customer expectations, protecting the aquifer from contamination, identifying and preventing future contaminant migration, and maximizing the beneficial reuse of wastewater. These projects were submitted by the stakeholders during the Call for Projects.

42nd Street East, Sewer Installation

Project Sponsor:	City of Palmdale
Project Goals and Purposes:	This project would reduce groundwater pollution by eliminating septic tanks currently in use by homes in the vicinity of 42nd Street East.
Project Description:	The City proposes to construct new sewer lines, and will require homes in the vicinity of 42nd Street East to connect to the system, thereby eliminating the use of septic tanks and the potential for groundwater pollution due to leaks and spills.
Quantifiable Benefits:	Groundwater quality would be improved and future contamination reduced through elimination of existing septic tanks.

Lancaster WRP Stage V

Project Sponsor:	LACSD
Project Goals and Purposes:	The proposed upgrades will help to maximize the beneficial use of recycled water to agricultural and other end users.
Project Description:	The project involves construction and design of a new pump station, storage reservoirs, and other ancillary facilities needed to increase effluent storage capacity to 21 mgd. The project also includes land acquisition needed for site development.
Quantifiable Benefits:	Providing recycled water to the 16,700 AFY of users included in the Section 3 water budget analysis. Water Quality benefits are not quantifiable at this time.

Lancaster WRP Stage VI

Project Sponsor:	LACSD
Project Goals and Purposes:	The proposed upgrades will help to maximize the beneficial use of recycled water to agricultural and other end users.
Project Description:	This next phase of project development includes the design and construction of a recycled water pump station, storage reservoir, and other ancillary facilities to increase capacity from 21 mgd to 26 mgd.
Quantifiable Benefits:	Providing recycled water to the 16,700 AFY of users included in the Section 3 water budget analysis. Water Quality benefits are not quantifiable at this time.

Lancaster WRP Proposed Effluent Management Sites

Project Sponsor:	LACSD
Project Goals and Purposes:	The proposed upgrades to the effluent management sites will help to maximize the beneficial reuse of wastewater to agricultural and other end users.
Project Description:	This project includes the following series of activities at proposed new effluent management sites: land acquisition, purchase and installation of irrigation equipment, development of an area-wide farm management plan, site development, completion of associated studies and permits, soil sampling, and well investigation of proposed effluent management sites.
Quantifiable Benefits:	Reduces further elevation of nitrate levels at management sites

Palmdale WRP Existing Effluent Management Sites

Project Sponsor:	LACSD
Project Goals and Purposes:	The proposed upgrades to the Palmdale WRP existing effluent management sites will improve overall water quality in the Antelope Valley Region and maximize the beneficial reuse of wastewater to agricultural and other end users.
Project Description:	This project includes monitoring, purchase and installation of irrigation equipment, and completion of other capital cost projects associated with the existing effluent management sites.
Quantifiable Benefits:	Reduces further elevation of nitrate levels at management sites

Palmdale WRP Stage V

Project Sponsor:	LACSD
Project Goals and Purposes:	The proposed upgrades will help to maximize the beneficial reuse of wastewater to agricultural and other end users.
Project Description:	This phase of the upgrade project includes the following series of activities: construction of an effluent pump station, force main, agricultural recycled water pump station, and an agricultural recycled water storage tank and reservoir; development of the new reservoir site and installation of monitoring wells; and design and construction of secondary/tertiary treatment facilities.
Quantifiable Benefits:	Providing recycled water to the 16,700 AFY of users included in the Section 3 water budget analysis. Water Quality benefits are not quantifiable at this time.

Palmdale WRP Stage VI

Project Sponsor:	LACSD
Project Goals and Purposes:	The proposed upgrades will help to maximize the beneficial reuse of wastewater to agricultural and other end users.
Project Description:	This project includes the design and construction of another agricultural recycled water force main, effluent pump station, and storage reservoir. In addition, a treatment plant expansion of 5 mgd is proposed at this stage.
Quantifiable Benefits:	Providing recycled water to the 16,700 AFY of users included in the Section 3 water budget analysis. Water Quality benefits are not quantifiable at this time.

Palmdale WRP Proposed Effluent Management Sites

Project Sponsor:	LACSD
Project Goals and Purposes:	The proposed upgrades to the Palmdale WRP proposed effluent management sites will improve overall water quality in the Antelope Valley Region and maximize the beneficial reuse of wastewater to agricultural and other end users.
Project Description:	This project includes the following series of activities at proposed new effluent management sites: land acquisition, purchase and installation of irrigation equipment, development of an area-wide farm management plan, site development, completion of associated studies and permits, groundwater monitoring, and well abandonment.
Quantifiable Benefits:	Reduces further elevation of nitrate levels at management sites

Partial Well Abandonment of Groundwater Wells for Arsenic Mitigation

Project Sponsor:	LACWWD 40
Project Goals and Purposes:	Remediate groundwater contaminated by arsenic in a cost-effective manner.
Project Description:	This project proposes arsenic mitigation of five groundwater wells using a proven and cost-effective non-treatment alternative to expensive treatment methods.
Quantifiable Benefits:	Prevents loss of groundwater pumping and existing supply and ensures water quality that meets MCL requirements.

PWD New Treatment Plant

Project Sponsor:	PWD
Project Goals and Purposes:	The proposed new treatment plant is intended to provide additional water treatment capacity for imported water, thereby improving water quality in the area and providing for additional supply.
Project Description:	This project involves the construction of a new water treatment plant at 47th Street East and the California Aqueduct, for the treatment of SWP and Littlerock Reservoir water. The initial capacity of the plant will be 10 mgd.
Quantifiable Benefits:	The new plant would be capable of treating up to 10 mgd of water.

QHWD Partial Well Abandonment of Groundwater Wells for Arsenic Mitigation

Project Sponsor:	Quartz Hill Water District (QHWD)
Project Goals and Purposes:	This project will decrease arsenic levels and thus will help QHWD reach compliance with EPA's new legal standard for arsenic (January 2006), This project will benefit several lower income regions of the district due to the location of the well.
Project Description:	This project will pull the pump from the well located on West Avenue L in Lancaster and "micro-grout" the region of strata that contains higher levels of arsenic. Doing so will localize these regions of strata using a cost-effective, non-treatment method.
Quantifiable Benefits:	Prevents loss of groundwater pumping and existing supply and ensures water quality that meets MCL requirements.

Other projects that could provide Water Quality Management benefits, as secondary to their main benefits include the following:

- Antelope Valley Water Bank (WDS)
- Groundwater Recharge Using Recycled Water (GWR-RW) Pilot Project (Lancaster)
- Groundwater Recharge - Recycled Water Project (PWD)
- North Los Angeles/Kern County Regional Recycled Water Project (LACWWD 40)
- RCSD Recycled Water Project/Treatment Plant Expansion (RCSD)
- Tertiary Treated Water Conveyance and Incidental Groundwater Recharge of Amargosa Creek Avenue M to Avenue H (Lancaster)
- Water Supply Stabilization Project – Westside Project (AVEK)
- Water Supply Stabilization Project – Eastside Project (AVEK)

5.2.3 Flood Management Strategy

The flood management strategy must include projects and actions that meet the flood issues and needs as discussed in Section 3. The key issues and needs are: lack of coordinated flood system or planning efforts throughout the Antelope Valley Region; poor water quality of runoff; nuisance water and dry weather runoff; difficulty providing flood management without interfering with groundwater recharge; incorporating water conservation where feasible; and desire of Edwards AFB to maintain operations on the dry lake beds. In order to gauge success in addressing these issues, the flood management strategy must meet the following objectives as defined in Section 4 and summarized in Table 5-4.

TABLE 5-4
FLOOD MANAGEMENT OBJECTIVES

Objective	Planning Target
Reduce negative impacts of stormwater, urban runoff, and nuisance water.	Coordinate a regional flood management plan and policy mechanism by the year 2010.

5.2.3.1 Completed (Recent) Flood Management Activities/Actions

PLANS AND STUDIES

The following are previous studies regarding flood and stormwater management and capture activities in the Antelope Valley Region.

Antelope Valley Comprehensive Plan of Flood Control and Water Conservation

Project Sponsor:	LADPW
Project Goals and Description:	This 1987 plan depicts proposed locations for flood control and water conservation, which are intended to provide a regional flood management system consisting of floodplain management and a drainage infrastructure "backbone" system. The plan was not intended for land use regulation; the plan is meant to be a prerequisite to the collection of fees from future subdividers. The plan proposes floodplain management in the hillside areas, structural improvements in the urbanizing area, and nonstructural management approaches in the rural areas. Structural improvements include detention and retention facilities, groundwater recharge basins, storm channels, and stormdrain infrastructure.

QHWD Stormwater Evaluation Study

Project Sponsor:	QHWD
Project Goals and Description:	The intent of the Study was to define the amount of stormwater flow into the basin, determine the amount lost to evaporation and percolation, evaluate the water quality, and estimate treatment costs. The study concentrated on a 15-acre stormwater basin within the district. Results from the study, if favorable, could lead to an expanded study of the Antelope Valley Region as a whole. Actual volumes of potential supply and associated operation costs have yet to be determined.

RCSD Master Control Plan

Project Sponsor:	RCSD
Project Goals and Description:	RCSD plans to work with Kern County, LA County and property owners to develop a master control plan to capture stormwater runoff for beneficial purposes. The system would be designed to minimize property damage.

5.2.3.2 Current Flood Management Activities/Actions

No current flood management activities or actions have been identified at this time.

5.2.3.3 Planned Flood Management Activities/Actions

PLANS AND STUDIES

The following planned activities and actions have been identified to reduce the negative impacts of flood water, improve the quality of water runoff, and/or reduce the extent of nuisance water. These projects were submitted by the stakeholders during the Call for Projects.

45th Street East Flood Control Basin (Q-East Basin)

Project Sponsor:	PWD
Project Goals and Purposes:	This project will integrate with the construction of the 45th Street East and Avenue P-8 detention basin for flood control, provide a possible groundwater recharge area, and provide for natural habitat preservation.
Project Description:	The project includes the construction of a new, approximately 2,083 AF drainage basin near 45th Street East and Avenue P-8, on property currently owned by the City of Los Angeles' Department of Airports.
Quantifiable Benefits:	Approximately 208 acres of new wildlife habitat would be created by this project. Water quality would also be expected to improve as a result of reduced contaminated stormwater runoff and capture of up to 2,083 AF.

Anaverde Detention Basin, Dam and Spillway at Pelona Vista Park

Project Sponsor:	City of Palmdale
Project Goals and Purposes:	This project would provide a new multipurpose flood control basin that would result in the creation of new wildlife habitat, meet conservation efforts, capture stormwater runoff and reduce nuisance water.
Project Description:	The City proposes to construct the Pelona Vista Dam located along Tierra Subida between Avenue S and Rayburn Road, including all necessary and associated grading, inlet/outlet structures, spillway, and storm drain piping as part of its stormwater collection and conveyance system.
Quantifiable Benefits:	The project has the ability to provide for wildlife habitat, conservation, and stormwater capture.

Avenue Q and 20th Street East Basin (Q-West Basin)

Project Sponsor:	PWD
Project Goals and Purposes:	Similar to the Q-East Basin described above, this project will integrate with the construction of the Avenue Q and 20th Street East detention basin for flood control, provide a possible groundwater recharge area, and provide for natural habitat preservation.
Project Description:	The project entails the acquisition and construction of an approximately 1,612 AF detention basin located between Avenue P-12 and Avenue Q, from 20th Street East to 30th Street East. (Conversely, and depending on site acquisition feasibility, the detention basin could be located on Los Angeles World Airport's property from Avenue P-8 to Avenue P-12.)
Quantifiable Benefits:	Approximately 161 acres of new wildlife habitat would be created by this project. Water quality would also be expected to improve as a result of reduced contaminated stormwater runoff and capture of up to 1,612 AF.

Barrel Springs Detention Basin and Wetlands

Project Sponsor:	City of Palmdale
Project Goals and Purposes:	This project will provide flood control for the City of Palmdale and provide for wetland enhancement and habitat protection.
Project Description:	Construction of an 878 AF detention basin in the Barrell Springs area upstream of Old Harold Road and 25th Street East, on a 40-acre, City-owned property.
Quantifiable Benefits:	The project would provide flood control for the City of Palmdale, and provide approximately 40 acres of wetland enhancement and habitat protection.

Hunt Canyon Groundwater Recharge and Flood Control Basin

Project Sponsor:	PWD
Project Goals and Purposes:	This project is intended to alleviate flooding concerns in the Antelope Valley Region through detention of excess stormwater runoff during severe storms. The basin would also provide new recharge area for raw aqueduct water.
Project Description:	The project entails construction of a new 3,000 AF detention/ recharge basin, located south of Pearblossom Highway at 57th Street East. The basin would be used to store aqueduct water to allow recharge into the aquifer, and would act as a detention basin during severe storms.
Quantifiable Benefits:	Approximately 300 acres of new wildlife habitat would be created by construction of this project. Water quality would be expected to improve as a result of reduced contaminated stormwater runoff and capture of up to 3,000 AF.

Quartz Hill Storm Drain

Project Sponsor:	Los Angeles Department of Public Works
Project Goals and Purposes:	The project consists of the design and construction of a reinforced concrete pipe storm drain to provide stormwater collection and conveyance within the unincorporated Los Angeles area of Quartz Hill. The proposed project would alleviate local flooding and have the potential to provide water conservation and improved water quality.
Project Description:	As such, the project proposes construction of a storm drain, including several lateral connections and catch basins, to provide stormwater collection and conveyance. The project would connect to existing and new drainage facilities, with the improvements located mainly along 50th Street, from Avenue M-8 to Avenue K-8.
Quantifiable Benefits:	Flood protection of 95 acres of County street right-of-way, and 1,108 acres of private property.

Stormwater Harvesting

Project Sponsor:	Leona Valley Town Council
Project Goals and Purposes:	Agriculture operations throughout the Leona Valley are an important economic and natural resource that requires a consistent and reliable source of irrigation water at reasonable cost. The collection and conveyance of stormwater for use as irrigation water would result in water conservation benefits, improved water supply, and reduced localized flooding.
Project Description:	This project includes the construction of stormwater collection of conveyance facilities, water filtration devices, and cisterns and collection tanks. Through advanced filtration methods, this project can also be expanded to create potable water for residential uses.
Quantifiable Benefits:	Once fully implemented, it is estimated that water conservation of up to 25 AFY could be realized. Expansion of the project to include the creation of potable harvested water for residential uses would further this benefit.

Other projects that could provide Flood Management benefits, as secondary to their main benefits include the following:

- 42nd Street East, Sewer Installation (Palmdale)
- Amargosa Creek Pathways Project (Lancaster)
- Amargosa Creek Recharge and Channelization Project (Palmdale)
- Amargosa Water Banking and Storm Water Retention Project (Goit)
- Groundwater Banking (LACWWD 40)
- Groundwater Recharge Using Recycled Water (GWR-RW) Pilot Project (Lancaster)
- Water Supply Stabilization Project – Westside Project (AVEK)
- Water Supply Stabilization Project – Eastside Project (AVEK)

5.2.4 Environmental Resource Management Strategy

The environmental resource management strategy must include projects and actions that meet the environmental issues and needs as discussed in Section 3. The key issues and needs are: growing public demand for recreational opportunities; conflict between industry, growth, and preserving open space; and protecting threatened and endangered species. In order to gauge success in addressing these issues, the environmental resource management strategy must meet the following objectives as defined in Section 4 and summarized in Table 5-5.

TABLE 5-5
ENVIRONMENTAL MANAGEMENT OBJECTIVES

Objective	Planning Target
Preserve open space and natural habitats that protect and enhance water resources and species in the Antelope Valley Region.	Contribute to the preservation of an additional 2,000 acres of open space and natural habitat, to integrate and maximize surface and groundwater management by 2015.

5.2.4.1 Completed (Recent) Environmental Resource Management Activities/Actions

PLANS AND STUDIES

There is one completed (recent) environmental resource management activity identified at this time.

Integrated Natural Resources Management Plan (INRMP) for Edwards Air Force Base (AFB), California

Project Sponsor:	Air Force Flight Test Center Environmental Management Office
Project Goals and Purposes:	The purpose of this plan is to help integrate environmental stewardship into the Base's military mission and to guide on-the-ground management of the installation's natural resources.
Project Description:	The final draft of Edwards AFB INRMP was completed in October 2002 to meet the requirements under the Sikes Improvement Act of 1997. The INRMP is based on ecosystem management principles and includes management plans for threatened and endangered species, fish and wildlife, forestry, grazing and cropland, pest management and land and outdoor recreation (Air Force 2002).
Quantifiable Benefits:	Identifies management principles to protect environmental habitat.

5.2.4.2 Current Environmental Resource Management Activities/Actions

The following presents two strategies currently being used to manage environmental resources in the Antelope Valley Region.

PLANS AND STUDIES

LA County General Plan Significant Ecological Areas (SEAs)

Project Sponsor:	Los Angeles County
Project Goals and Purposes:	Preservation of diversity is the main objective of the SEA designation, and connectivity between important natural habitats plays an important role in maintaining biotic communities.
Project Description:	SEAs are ecologically important or vulnerable land and water areas that are valuable as plant or animal communities and often important to the preservation of threatened or endangered species. Cumulatively, the SEAs contain resources that represent the biodiversity of Los Angeles County. SEAs are neither preserves nor conservation areas; they do not prohibit a reasonable use of property, although new development must be designed and built to accommodate the existing biological resources in a functioning condition.
Quantifiable Benefits:	Protection and preservation of environmental habitat.

RECYCLED WATER

Piute Ponds Reuse Sites

Project Sponsor:	LACSD
Project Goals and Purposes:	This project proivdes reuse water to create and maintain wetlands for environmental habitat.
Project Description:	This project involves reusing tertiary treated effluent on the 400 acres at Piute Ponds and approximately 90 acres in three impoundment areas within Edwards AFB
Quantifiable Benefits:	Maintains approximately 490 acres of wetlands.

5.2.4.3 Planned Environmental Management Activities/Actions

The following planned activities and actions have been identified to preserve existing open space and protect endangered species through habitat protection. These projects were submitted by the stakeholders during the Call for Projects.

HABITAT RESTORATION

Ecosystem and Riparian Habitat Restoration of Amargosa Creek: Avenue J to Avenue H

Project Sponsor:	City of Lancaster
Project Goals and Purposes:	This project provides better land use and natural area connectivity by establishing a riparian corridor that combines ecosystem restoration, habitat protection, acoustic and visual buffers, and wetlands creation and enhancement.
Project Description:	This project establishes riparian habitat along the eastern edge of the Amargosa Creek in elongated segments and sections resulting in a "Riparian Curtain" approximately extending from Ave J north to Ave H. This project requires site reconnaissance, coordination with California Department of Fish and Game (CDFG), various bio-assessments and planting plans prior to implementation and creation. Restoration projects such as this are holistic and enhance the environment, providing physical buffers and off-sets to impacts on the overall ecosystem of ephemeral and riparian habitat associated with Amargosa Creek.
Quantifiable Benefits:	100 to 1,000 AF of open space created

RECYCLED WATER

Tropico Park Pipeline Project

Project Sponsor:	RCSD
Project Goals and Purposes:	This project will provide a way of using tertiary water to develop and water a regional park north to Tropico Hill.
Project Description:	Place 16-inch recycled water pipeline from Gaskell Road north to Tropico regional Park area.
Quantifiable Benefits:	100 to 1,000 AF of open space created

Other projects that could provide Environmental Management benefits, as secondary to their main benefits include the following:

- 45th Street East Flood Control Basin (Q-East Basin)
- Amargosa Creek Recharge and Channelization Project (Palmdale)
- Amargosa Creek Pathways Project (Lancaster)
- Amargosa Water Banking and Storm Water Retention Project (None)

- Anaverde Detention Basin, Dam & Spillway at Pelona Vista Park (Palmdale)
- Antelope-Fremont Watershed Assessment and Plan (Antelope Valley Conservancy)
- Avenue Q and 20th Street East Basin (Q-West Basin)
- Barrel Springs Detention Basin and Wetlands (Palmdale)
- Hunt Canyon Groundwater Recharge and Flood Control Basin (PWD)
- Littlerock Dam Sediment Removal Project (PWD)
- Pelona Vista Project (PWD)

5.2.5 Land Use Management Strategy

The land use management strategy must include projects and actions that meet the land use issues and needs as discussed in Section 3. The key issues and needs are: tremendous pressure for growth in the Antelope Valley Region; and loss of local culture and values. In order to gauge success in addressing these issues, the environmental resource management strategy must meet the following objectives as defined in Section 4 and summarized in Table 5-6.

TABLE 5-6
LAND USE MANAGEMENT OBJECTIVES

Objective	Planning Target
Maintain agricultural land use within the Antelope Valley Region.	Preserve 100,000 acres of farmland in rotation through 2035.
Meet growing demand for recreational space.	Contribute to local and regional General Planning documents to provide 5,000 acres of parkland by 2035.
Improve integrated land use planning to support water management.	Coordinate a regional land use management plan by the year 2010.

5.2.5.1 Completed (Recent) Land Use Management Activities/Actions

No completed (recent) land use management activities have been identified at this time.

5.2.5.2 Current Land Use Management Activities/Actions

Identified current activities to manage land uses in the Antelope Valley Region are the regional general plans as shown below.

PLANS AND STUDIES

Antelope Valley Regional Conservation Roundtable

Project Sponsor:	Antelope Valley Conservancy
Project Goals and Purposes:	Facilitate consensus for regional approach to natural lands conservation.
Project Description:	Participants include City of Lancaster, City of Palmdale, County of Los Angeles, CDFG, Southern California Association of Governments (SCAG), California State Parks, County of Los Angeles Parks and Recreation, and project sponsor Antelope Valley Conservancy.
Quantifiable Benefits:	Preservation of natural lands.

Update Los Angeles County General Plan

Project Sponsor:	County of Los Angeles
Project Goals and Purposes:	Manage and preserve existing land uses and community character, including agricultural, residential, open space, etc. within the growing Los Angeles County, which includes the Antelope Valley Region, while providing for new recreational opportunities and infrastructure to support the population's needs.
Project Description:	Project includes updating the existing Los Angeles County General Plan.
Quantifiable Benefits:	Improved land use designations.

RECYCLED WATER

Apollo Lakes Reuse Project

Project Sponsor:	LACSD
Project Goals and Purposes:	Project goals include maintaining Apollo Lake for recreation uses.
Project Description:	This project involves using tertiary treated effluent to maintain Apollo Lakes for recreational uses.
Quantifiable Benefits:	Maintenance of recreational space.

5.2.5.3 Planned Land Use Management Activities/Actions

Two projects were submitted for inclusion in the IRWM Plan through the Call for Projects that provide direct benefits associated with land use management. Additional activities and actions that can be taken to preserve the existing agricultural uses in the Antelope Valley Region and to meet the growing demand for recreational area could include projects such as: expansion of agricultural lands, land acquisition for agricultural or recreational purposes, updates of regional specific plans that include preservation of agricultural and recreational lands, etc.

PLANS AND STUDIES

Antelope-Fremont Watershed Assessment and Plan

Project Sponsor:	Antelope Valley Conservancy
Project Goals and Purposes:	To facilitate a holistic, watershed-wide approach to land use planning that will help to ensure that watershed, conservation, and recreational assets creation will be equitably distributed and prudently planned throughout the Antelope Valley Region community.
Project Description:	The proposed project is the coordination and preparation of the Antelope-Fremont Watershed Assessment and Plan, a regional land use plan with emphasis on the preservation and restoration of sensitive natural systems of the Antelope-Fremont Watershed. Because this assessment and plan applies a systems approach -- the CalFed Approach -- to watershed stewardship, it will enhance capacity building of storage, aquifer recharge, and runoff treatment, reducing reliance on State Water supplies and enhancing water quality. It will inform regional projects and create land management plans to satisfy trustee agencies for regional conservation lands. Therefore, this project exponentially benefits all Antelope Valley Region projects' watershed habitat components, maximizing capacity building and integrating watershed stewardship in the community.
Quantifiable Benefits:	2,000 acres open space/habitat/conservation lands.

RECREATION

Amargosa Creek Pathways Project

Project Sponsor:	Lancaster
Project Goals and Purposes:	To construct a pathway in harmony with established riparian habitat within a flood control management basin, which captures stormwater and nuisance water runoff that sustains riparian habitat.
Project Description:	This project includes development of a top of bank trail or paseo along the eastern side of Lake Lancaster, and construction of a foot-bridge structure crossing the lake and connecting under Hwy 14 to link to the existing trailhead at the Antelope Valley Fairgrounds. The project integrates stormwater/flood control with natural riparian habitat enhancement and preservation, open/recreational space and land use management.
Quantifiable Benefits:	1 to 100 AF of open space

Other projects that could provide Land Use Management benefits, secondary to their main benefits include the following:

- Upper Amargosa Creek Recharge and Channelization Project (Palmdale)
- Antelope Valley Water Bank (WDS)
- North Los Angeles/Kern County Regional Recycled Water Project (LACWWD 40)
- Lancaster WRP Stage V (LACSD)
- Lancaster WRP Stage VI (LACSD)
- Lancaster WRP Proposed Effluent Management Sites (LACSD)
- Palmdale WRP Stage V (LACSD)
- Palmdale WRP Stage VI (LACSD)
- Palmdale WRP Existing Effluent Management Sites (LACSD)
- Palmdale WRP Proposed Effluent Management Sites (LACSD)
- Groundwater Recharge Using Recycled Water (GWR-RW) Pilot Project (Lancaster)
- Water Supply Stabilization Project – Westside Project (AVEK)
- Water Supply Stabilization Project – Eastside Project (AVEK)
- Ecosystem And Riparian Habitat Restoration of Amargosa Creek: Ave J to Ave. H (Lancaster)
- Piute Ponds Reuse Sites (LACSD)

Section 6: Project Integration and Objectives Assessment

Water management strategy integration is a process to design water management strategy alternatives to maximize regional benefits by identifying potential synergies, linkages, and gaps between the projects, actions and studies identified in Section 5, as well as within and across the water management strategy areas. The aim of this section is to assess whether the projects identified in Section 5 are sufficient to meet the needs of the Antelope Valley Region, and if not, to identify future planning actions in order to meet this purpose. Integration of the water management strategies (WMS) could occur in several ways:

- Integration "within" a water management strategy area (WMSA), wherein the identified current and planned projects, and project concepts, actions, and studies, are evaluated against their specific WMSA objectives (i.e., projects benefiting water supply are compared to the water supply objectives); and

- Integration "across" each WMSA, wherein the identified current and planned projects, and project concepts, actions and studies are evaluated against ALL the water management strategy area objectives identified in Section 4 (i.e., projects benefiting water supply may also benefit flood management, or water quality objectives). Integration "across" each WMSA will also include the following:

    - Geographical integration, wherein the areas benefited by the water management strategies are mapped to determine if any geographic overlaps or gaps exist, and then opportunities are identified to take advantage of being in the same geographical location and thus potentially provide multiple benefits, and

    - Comparison of each of the identified current and planned projects, and project concepts, actions, and studies to the Integrated Regional Water Management (IRWM) Guideline Strategies (presented in Section 5), the Assembly Bill (AB) 3030 Groundwater Management Guidelines objectives, the Integrated Regional Water Management (IRWM) Plan Guidelines Program Preferences, and the California Department of Water Resources (DWR) Statewide Priorities.

6.1 Integration and Objectives Assessment "within" a WMSA

Tables 6-1 and 6-2 illustrate whether the IRWM Plan objectives, for each WMSA, are met by a particular project, current or proposed, respectively. These tables allow for an evaluation of the projects within each WMSA; but also allows for an evaluation across the WMSAs, as described in more detail in Section 6.2 below.

Gaps are areas where the suite of current and proposed projects identified in Section 5 fail to meet or contribute to the IRWM Plan objectives. In order to address these gaps, alternative project concepts and ideas are presented and a preliminary evaluation of the pros and cons, as well as costs and benefits of the alternatives, are provided when available.

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TABLE 6-1
CURRENT PROJECTS VS. IRWM PLAN OBJECTIVES AND PLANNING TARGETS

Current Project/ Program Types and Activities	Water Supply Management								Water Quality Management										Flood Management		Environmental Management		Land Use Management						Contributes to Multiple Objectives
	Provide reliable water supply to meet the Region's expected demand between now and 2035.	*Reduce (68,400 to 189,100 AFY) mismatch of expected supply and demand in average years by providing new water supply and reducing demand, starting 2009.*	*Provide adequate reserves (50,700 to 60,500 AFY) to supplement average condition supply to meet demands during single-dry year conditions, starting 2009.*	*Provide adequate reserves (0 to 62,400 AFY) to supplement average condition supply to meet demands during multi-dry year conditions, starting 2009.*	Establish a contingency plan to meet water supply needs of the region during a plausible disruption of SWP water deliveries.	*Demonstrate ability to meet regional water demands without receiving SWP water for 6 months over the summer by June 2010.*	Stabilize groundwater levels at current conditions.	*Manage groundwater levels throughout the basin such that a 10 year moving average of change in observed groundwater levels is greater than or equal to 0, starting January 2010.*	Provide drinking water that meets customer expectations.	*Continue to meet Federal and State water quality standards as well as customer standards for taste and aesthetic.*	Protect aquifer from contamination.	*Prevent unacceptable degradation of aquifer according to the Basin Plan throughout the planning period.*	*Identify contaminated portions of aquifer and prevent migration of contaminants by June 2009.*	*Map contaminated sites and monitor contaminant movement by December 2008.*	Protect natural streams and recharge areas from contamination.	*Prevent unacceptable degradation of natural streams and recharge areas according to the Basin Plan throughout the planning period.*	Maximize beneficial use of recycled water.	*Increase infrastructure and establish policies to use 33% of recycled water by 2015, 66% by 2025, and 100% by 2035.*	Reduce negative impacts of storm water, urban runoff, and nuisance water.	*Coordinate a regional flood management plan and policy mechanism by the year 2010.*	Preserve open space and natural habitats that protect and enhance water resources and species in the region.	*Contribute to the preservation of an additional 2,000 acres of open space and natural habitat to integrate and maximize surface and groundwater management by 2015.*	Maintain agricultural land use within the Region.	*Preserve 100,000 acres of farmland in rotation through 2035.*	Meet growing demand for recreational space.	*Contribute to local and regional General Planning documents to provide 5,000 acres of recreational space by 2035.*	Improve integrated land use planning to support water management.	*Coordinate a regional land use management plan by the year 2010.*	
WATER SUPPLY MANAGEMENT																													
Plans & Studies																													
Antelope Valley Integrated Regional Water Management Plan																													
City of Lancaster Groundwater Recharge Feasibility Study *(Lancaster)*	X	X	X	X			X	X			X	X			X	X	X	X	X		X								WS, WQ, FM, EM
Palmdale Water District Reconnaissance Level Feasibility and Scoping Study for Recycled Water Recharge *(PWD)*	X																X	X			X	X							WS, WQ, EM
Palmdale Water District 2006 Water System Master Plan Update *(PWD)*	X	X	X	X			X	X	X	X							X	X											WS, WQ
Court Action																													
Adjudication of the Groundwater Basin							X	X			X	X	X	X	X	X													WS, WQ
Groundwater Recharge/Banking																													
Antelope Valley Water Agencies' Water Bank *(AVEK, LCID, QHWD, RCSD)*	X	X	X	X			X	X													X	X					X		WS, EM
Tejon Ranch Water Bank *(Tejon Ranch Water Company)*	X	X	X	X			X	X													X	X							WS, WQ, EM
Water Infrastructure Improvements																													
Expansion of Treatment Facilities *(RWMG)*	X	X	X	X					X	X							X	X											WS, WQ
Water Conservation/Water Use Efficiency																													
Best Management Practices *(AVEK, LACWWD40, PWD, QHWD, RCSD)*	X	X	X	X	X	X																							WS
WATER QUALITY MANAGEMENT																													
Water Infrastructure Improvements																													
Chloramines Conversion Project *(LACWWD40)*									X	X	X	X	X		X	X													WQ
RCSD Recycled Water Project/Treatment Plant Expansion *(RCSD)*	X	X	X	X													X	X									X		WS, WQ
FLOOD MANAGEMENT																													
None identified at this time																													
ENVIRONMENTAL MANAGEMENT																													
Plans & Studies																													
LA County General Plan Significant Ecological Areas (SEAs)																					X						X		FM
Recycled Water																													
Piute Ponds Reuse Sites																					X	X			X				EM, LM
LAND USE MANAGEMENT																													
Plans & Studies																													
Antelope Valley Regional Conservation Roundtable *(AV Conservancy)*																					X		X		X	X	X	X	EM, LM
Update Los Angeles County General Plan																					X		X		X		X		EM, LM
Recycled Water																													
Apollo Lakes Reuse Project																							X		X	X			LM
SUMMARY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X		X	X	X	X	

Legend
WS = Water Supply Management
WQ = Water Quality Management
FM = Flood Management
EM = Environmental Resources Management
LM = Land Use Management

TABLE 6-2
PLANNED PROJECTS VS. IRWM PLAN OBJECTIVES AND PLANNING TARGETS

Planned Project/ Program Types and Activities	Water Supply Management								Water Quality Management										Flood Management		Environmental Management		Land Use Management						Contributes to Multiple Objectives
	Provide reliable water supply to meet the Region's expected demand between now and 2035.	*Reduce (68,400 to 189,100 AFY) mismatch of expected supply and demand in average years by providing new water supply and reducing demand, starting 2009.*	*Provide adequate reserves (50,700 to 60,500 AFY) to supplement average condition supply to meet demands during single-dry year conditions, starting 2009.*	*Provide adequate reserves (0 to 62,400 AFY) to supplement average condition supply to meet demands during multi-dry year conditions, starting 2009.*	Establish a contingency plan to meet water supply needs of the region during a plausible disruption of SWP water deliveries.	*Demonstrate ability to meet regional water demands without receiving SWP water for 6 months over the summer by June 2010.*	Stabilize groundwater levels at current conditions.	*Manage groundwater levels throughout the basin such that a 10 year moving average of change in observed groundwater levels is greater than or equal to 0, starting January 2010.*	Provide drinking water that meets customer expectations.	*Continue to meet Federal and State water quality standards as well as customer standards for taste and aesthetic.*	Protect aquifer from contamination.	*Prevent unacceptable degradation of aquifer according to the Basin Plan throughout the planning period.*	*Identify contaminated portions of aquifer and prevent migration of contaminants by June 2009.*	*Map contaminated sites and monitor contaminant movement by December 2008.*	Protect natural streams and recharge areas from contamination.	*Prevent unacceptable degradation of natural streams and recharge areas according to the Basin Plan throughout the planning period.*	Maximize beneficial use of recycled water.	*Increase infrastructure and establish policies to use 33% of recycled water by 2015, 66% by 2025, and 100% by 2035.*	Reduce negative impacts of storm water, urban runoff, and nuisance water.	*Coordinate a regional flood management plan and policy mechanism by the year 2010.*	Preserve open space and natural habitats that protect and enhance water resources and species in the region.	*Contribute to the preservation of an additional 2,000 acres of open space and natural habitat to integrate and maximize surface and groundwater management by 2015.*	Maintain agricultural land use within the Region.	*Preserve 100,000 acres of farmland in rotation through 2035.*	Meet growing demand for recreational space.	*Contribute to local and regional General Planning documents to provide 5,000 acres of recreational space by 2035.*	Improve integrated land use planning to support water management.	*Coordinate a regional land use management plan by the year 2010.*	
WATER SUPPLY MANAGEMENT																													
Groundwater Recharge/Banking																													
Amargosa Creek Recharge and Channelization Project *(Palmdale)*	X	X	X	X			X	X											X		X	X				X			WS, FM, EM
Amargosa Water Banking and Storm Water Retention Project *(No financial sponsor identified)*	X	X	X	X			X	X											X		X	X			X	X	X		WS, FM, EM
Antelope Valley Water Bank *(WDS)*	X	X	X	X		X	X	X			X	X			X	X					X	X	X	X			X		WS, WQ, EM
Aquifer Storage and Recovery Project: Injection Well Development *(LACWWD40)*	X	X	X	X			X	X																			X		WS
Aquifer Storage and Recovery Project: Additional Storage Capacity *(LACWWD40)*	X																												WS
Deep wells to Recapture Banked Water *(RCSD)*	X	X	X	X			X	X																					WS
Gaskell Road Pipeline *(RCSD)*	X	X	X	X																									WS
Groundwater Banking *(LACWWD40)*	X	X	X	X		X	X	X											X		X	X					X		WS, FM, EM
Purchasing Spreading Basin Land *(RCSD)*																					X	X					X		EM
Water Supply Stabilization Project – Westside Project *(AVEK, AVSWCA)*	X	X	X	X	X	X	X	X			X	X			X	X					X	X	X	X			X		WS, EM, LM
Water Supply Stabilization Project – Eastside Project *(AVEK, AVSWCA)*	X	X	X	X	X	X	X	X			X	X			X	X					X	X	X	X			X		WS, EM, LM
Recycled Water																													
Groundwater Recharge Using Recycled Water (GWR-RW) Pilot Project *(Lancaster)*	X	X	X	X			X	X									X	X	X		X	X					X		WS, WQ, FM, EM
Groundwater Recharge - Recycled Water Project *(PWD)*	X	X	X	X			X	X									X	X	X		X	X					X		WS, WQ,FM, EM
KC & LAC Interconnection Pipeline *(RCSD)*																	X	X											WQ
North Los Angeles/Kern County Regional Recycled Water Project *(LACWWD40)*	X	X	X	X													X	X									X		WS, WQ
Tertiary Treated Water Conveyance & Incidental Groundwater Recharge of Amargosa Creek Avenue M to Avenue H *(Lancaster)*							X	X									X	X									X		WS, WQ
Water Conservation/Water Use Efficiency																													
ET-Based Controller Program *(PWD)*	X	X																	X								X		WS, FM
Implement Evapotranspiration (ET) Controller Program *(LACWWD40)*	X	X																	X								X		WS, FM
Precision Irrigation Control System *(Leona Valley Town Council)*	X	X															X	X	X	X			X				X		WS, WQ, FM, LM
Ultra Low Flush Toilet (ULFT) Change Out Program *(LACWWD40)*	X	X																											WS
Water Conservation Demonstration Garden *(PWD)*	X	X																	X								X		WS, FM, EM
Water Conservation School Education Program *(LACWWD40)*	X	X																	X										WS, FM, EM
Water Waste Ordinance *(LACWWD40)*	X	X																	X								X		WS, FM
Water Infrastructure Improvements																													
Avenue K Transmission Main, Phases I-V *(LACWWD40)*	X																												WS
Avenue M and 60th Street West Tanks *(LACWWD40)*	X				X	X																							WS
Littlerock Dam Sediment Removal Project *(PWD)*	X	X																			X								WS, EM
Place Valves and Turnouts on Reclaimed Water Pipeline *(RCSD)*	X																X	X											WS, WQ
RCSD's Wastewater Pipeline *(RCSD)*	X																X	X											WS, WQ

TABLE 6-2
PLANNED PROJECTS VS. IRWM PLAN OBJECTIVES AND PLANNING TARGETS

Planned Project/ Program Types and Activities	Water Supply Management								Water Quality Management										Flood Management		Environmental Management		Land Use Management						Contributes to Multiple Objectives
	Provide reliable water supply to meet the Region's expected demand between now and 2035.	*Reduce (68,400 to 189,100 AFY) mismatch of expected supply and demand in average years by providing new water supply and reducing demand, starting 2009.*	*Provide adequate reserves (50,700 to 60,500 AFY) to supplement average condition supply to meet demands during single-dry year conditions, starting 2009.*	*Provide adequate reserves (0 to 62,400 AFY) to supplement average condition supply to meet demands during multi-dry year conditions, starting 2009.*	Establish a contingency plan to meet water supply needs of the region during a plausible disruption of SWP water deliveries.	*Demonstrate ability to meet regional water demands without receiving SWP water for 6 months over the summer by June 2010.*	Stabilize groundwater levels at current conditions.	*Manage groundwater levels throughout the basin such that a 10 year moving average of change in observed groundwater levels is greater than or equal to 0, starting January 2010.*	Provide drinking water that meets customer expectations.	*Continue to meet Federal and State water quality standards as well as customer standards for taste and aesthetic.*	Protect aquifer from contamination.	*Prevent unacceptable degradation of aquifer according to the Basin Plan throughout the planning period.*	*Identify contaminated portions of aquifer and prevent migration of contaminants by June 2009.*	*Map contaminated sites and monitor contaminant movement by December 2008.*	Protect natural streams and recharge areas from contamination.	*Prevent unacceptable degradation of natural streams and recharge areas according to the Basin Plan throughout the planning period.*	Maximize beneficial use of recycled water.	*Increase infrastructure and establish policies to use 33% of recycled water by 2015, 66% by 2025, and 100% by 2035.*	Reduce negative impacts of storm water, urban runoff, and nuisance water.	*Coordinate a regional flood management plan and policy mechanism by the year 2010.*	Preserve open space and natural habitats that protect and enhance water resources and species in the region.	*Contribute to the preservation of an additional 2,000 acres of open space and natural habitat to integrate and maximize surface and groundwater management by 2015.*	Maintain agricultural land use within the Region.	*Preserve 100,000 acres of farmland in rotation through 2035.*	Meet growing demand for recreational space.	*Contribute to local and regional General Planning documents to provide 5,000 acres of recreational space by 2035.*	Improve integrated land use planning to support water management.	*Coordinate a regional land use management plan by the year 2010.*	
WATER QUALITY MANAGEMENT																													
Recycled Water																													
42nd Street East, Sewer Installation *(Palmdale)*											X	X	X		X	X											X		WQ
Lancaster WRP Stage V *(LACSD)*	X	X															X	X			X		X	X			X		WQ, LM
Lancaster WRP Stage VI *(LACSD)*	X	X															X	X			X		X	X			X		WQ, LM
Lancaster WRP Proposed Effluent Management Sites *(LACSD)*																	X	X					X	X			X		WQ, LM
Palmdale Power Project *(Palmdale)*																	X	X											WQ
Palmdale WRP Existing Effluent Management Sites *(LACSD)*											X	X	X	X			X	X					X	X			X		WQ, LM
Palmdale WRP Stage V *(LACSD)*	X	X									X	X	X	X			X	X					X	X			X		WQ, LM
Palmdale WRP Stage VI *(LACSD)*	X	X									X	X	X	X			X	X					X	X			X		WQ, LM
Palmdale WRP Proposed Effluent Management Sites *(LACSD)*											X	X	X	X			X	X					X	X			X		WQ, LM
Water Infrastructure Improvements																													
Partial Well Abandonment of Groundwater Wells for Arsenic Mitigation *(LACWWD40)*											X	X	X		X	X													WQ
PWD New Treatment Plant *(PWD)*	X	X	X	X					X	X																			WS, WQ
QHWD Partial Well Abandonment of Groundwater Wells for Arsenic Mitigation *(QHWD)*											X	X	X		X	X													WQ
FLOOD MANAGEMENT																													
Water Infrastructure Improvements																													
45th Street East Flood Control Basin (Q-East Basin) *(Palmdale)*							X	X											X		X	X					X		WS, FM, EM
Anaverde Detention Basin, Dam & Spillway at Pelona Vista Park *(Palmdale)*	X	X																	X		X	X					X		WS, FM, EM
Avenue Q and 20th Street East Basin (Q-West Basin) *(Palmdale)*	X	X																	X		X	X					X		WS, FM, EM
Barrel Springs Detention Basin and Wetlands *(Palmdale)*	X	X																	X		X	X					X		WS, FM, EM
Hunt Canyon Groundwater Recharge and Flood Control Basin *(Palmdale)*	X	X																	X		X	X					X		WS, FM, EM
Quartz Hill Storm Drain *(LAFCD)*																			X								X		FM
Stormwater Harvesting *(Leona Valley Town Council)*		X	X	X													X	X	X	X			X	X			X		WS, WQ, FM, LM
ENVIRONMENTAL MANAGEMENT																													
Habitat Restoration																													
Ecosystem & Riparian Habitat Restoration of Amargosa Creek: Avenue L to Avenue G *(Lancaster)*											X	X			X	X			X		X	X					X		EM, FM, LM
Recycled Water																													
Tropico Park Pipeline Project *(RCSD)*																	X	X							X	X	X		WQ, LM
LAND USE MANAGEMENT																													
Plans and Studies																													
Antelope-Fremont Watershed Assessment and Plan *(Antelope Valley Conservancy)*											X	X			X	X			X		X	X			X	X	X		LM, EM, FM
Recreation																													
Amargosa Creek Pathways: Phase II *(Lancaster)*							X				X				X		X		X	X	X	X			X	X	X	X	LM, EM
SUMMARY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

Legend
WS = Water Supply Management
WQ = Water Quality Management
FM = Flood Management
EM = Environmental Resources Management
LM = Land Use Management

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It was important to the Stakeholder group to identify objectives that were SMART[14], and one way to be *Measurable* is to be quantifiable. Therefore, the objectives in Section 4 include quantifiable planning targets to help gauge whether a particular objective has been met. For those projects that were far enough along in the planning stages to quantify the benefit, their benefit could be evaluated against its respective planning target. However, many of the projects submitted identified a 'benefit category' to a particular WMSA (e.g., water supply, water quality), but because they may have been conceptual projects or in the initial stages of planning their 'benefit' may not yet be quantified. Thus, these projects were evaluated more qualitatively, as whether they could contribute to the attainment of a particular objective. For example, one project concept submitted for evaluation is the establishment of an evapotranspiration (ET) based-controller program. Because this program was submitted as a concept project, with the number of potential users and other technical details not yet quantified, the amount of savings from this program would have to be determined as the project scope was more clearly defined. However, it is logical to assume that the program would result in some amount of conservation, which would reduce the demand for irrigation water by some percentage, and would therefore go towards meeting the water supply planning target of reducing the mismatch of expected supply and demand and contribute to the objective of providing a reliable water supply to meet demands between now and 2035.

As the AV IRWM Plan is updated and as project scopes are refined opportunities exist to reevaluate these projects, and evaluate whether this IRWM Plan is meeting the issues and needs of the Antelope Valley Region.

6.1.1 Water Supply WMSA

Issues and needs relating to the water supply for the Antelope Valley Region generally regard providing a reliable water supply to meet demands, and protecting the groundwater resource. As detailed in Section 3, the Antelope Valley Region will need either to increase supplies or decrease demands to fill the 163,500 AFY of projected mismatch by 2035, for an average water year. Section 4 presented the following objectives and planning targets identified by the Stakeholder group in order to address this deficit and these concerns:

Water Supply Objective 1. Provide reliable water supply to meet the Antelope Valley Region's expected demand between now and 2035.

- *Target:* Reduce (68,400 to 189,100 AFY) mismatch of expected supply and demand in average years by providing new water supply and reducing demand, starting 2009.
- *Target:* Provide adequate reserves (50,700 to 60,500 AFY) to supplement average condition supply to meet demands during single-dry year conditions, starting 2009.
- *Target:* Provide adequate reserves (0 to 62,400 AF/4-year period) to supplement average condition supply to meet demands during multi-dry year conditions, starting 2009.

[14] A SMART objective is one that is Specific, Measurable, Attainable, Relevant, and Time-Based.

Most of the water supply projects proposed by the stakeholders regard the establishment of recharge areas, water banking programs, and aquifer storage and recovery (ASR) programs. These projects demonstrate that the stakeholders view conjunctive use operations as essential in order to meet the water supply needs in the Antelope Valley Region, and lessen the gap between supply and demand currently and out into the future.

A number of water conservation projects were also submitted by the stakeholder group. These projects aim to reduce the gap between supply and demand by managing the demand side of the water balance equation. Thus, integration of those projects that manage the supply side with those that manage the demand side have the potential to maximize the quantifiable benefits even further.

As discussed in more detail in Tables 6-9 and 6-10 below, the water supply projects submitted by the Stakeholders show a range of new supply benefits, from 1 AFY to 48,000 AFY to meet demands during an average year, and between 12,000 to 100,000 AFY for a dry/multi-dry year.

Water Supply Objective 2. Establish a contingency plan to meet water supply needs of the Antelope Valley Region during a plausible disruption of State Water Project (SWP) water deliveries.

- *Target:* Demonstrate ability to meet regional water demands without receiving SWP water for 6 months over the summer by June 2010.

Water Supply Objective 2 was more difficult to evaluate in terms of whether the proposed projects adequately met this objective without the physical creation of a contingency plan. In order to meet this objective, the Antelope Valley Region would be required to rely on groundwater, recycled water, and demand management measures to provide sufficient supply. Given that many of the projects proposed were recharge programs, some of which have quantifiable benefits as mentioned above, it is likely that this IRWM Plan will contribute towards meeting this objective. Additionally, each water purveyor in the Antelope Valley Region has already developed their own Contingency Plans to address emergency situations in general as discussed in their Urban Water Management Plans.

Water Supply Objective 3. Stabilize groundwater levels at current conditions.

- *Target:* Manage groundwater levels throughout the basin such that a 10-year moving average of change in observed groundwater levels is greater than or equal to 0, starting January 2010.

As mentioned above, many of the projects proposed by the stakeholders are groundwater recharge projects and water banking programs. These projects and programs will require monitoring to identify which regions of the aquifer are best suited for these activities, and will require continued monitoring to ensure they are operating effectively. Monitoring and data collection are the first step in managing groundwater levels throughout the basin. Furthermore, this IRWM Plan limited groundwater extraction to the sum of natural recharge, artificial recharge, and return flow in the Water Budget analysis conducted in Section 3 to ensure future pumping in the Basin would not impact groundwater levels.

6.1.1.1 Future Planning Efforts and Actions to Fill the Identified Water Supply Management Gaps

Because it is difficult at this stage in the IRWM Plan process to quantify the potential benefits of all the projects, it is difficult to sufficiently assess whether the water supply projects adequately meet this IRWM Plan objectives. However, given the projected supply deficits, the uncertainty regarding the pending adjudication and the identified need for more data, the following future planning efforts and actions are options to better meet, or contribute towards meeting, the objectives identified for this strategy in addition to the proposed projects described in Section 5.

Aggressive Conservation. Implementing an aggressive water conservation program could conserve an average of 54,600 AFY in the Antelope Valley Region, assuming a 20 percent reduction in urban water demand by 2035. A determination would need to be made as to whether the amount of conservation that is required under this alternative would be achievable or insufficient.

As discussed in Section 5, all water agencies in the Antelope Valley Region currently utilize water conservation methods as a means to reduce demand during drought conditions. However, only Los Angeles County Waterworks District 40 (LACWWD 40) is a member of the California Urban Water Conservation Council (CUWCC) and a signatory of the Memorandum of Understanding Regarding Urban Water Conservation in California (MOU). Antelope Valley East Kern County Water Agency (AVEK), Palmdale Water District (PWD), Quartz Hill Water District (QHWD), and Rosamond Community Service District (RCSD) are not signatories to the CUWCC MOU and are not members of CUWCC; however, they each implement or plan to implement their own conservation methods.

An aggressive water conservation program would also include agricultural water conservation. On-farm water use can be reduced substantially without decreasing productivity through improved irrigation technologies and efficient water management practices.

The 1995 Antelope Valley Water Resource Study (Kennedy/Jenks 1995) estimated that full development of an identified water conservation program involving the City of Palmdale, City of Lancaster, Community of Rosamond, and an agricultural mobile lab program could save an estimated nearly 500,000 AF over the 1994 through 2020 planning period.

Develop Further Conjunctive Use Management. The number of water banking and ASR projects proposed by the Stakeholders are an indication of how important conjunctive use operations will be in order to meet the water supply needs in the Antelope Valley Region. Even more benefit can be seen from these conjunctive use types of projects by expanding their realm to include imported water, surface water, and treated groundwater.

The first option is to increase the amount of imported SWP water into the Antelope Valley Region for injection, either directly after treatment, or through blending with other supplies such as recycled water. The main issues associated with increasing use of imported SWP for conjunctive uses include cost, availability, and quality of SWP water (generally high in Total Dissolved Solids [TDS]).

The capture and recharge of surface water is another conjunctive use method available to the Antelope Valley Region. Most of the runoff into the Antelope Valley Region originates in the surrounding mountains. Rainfall records indicate that runoff sometimes may be available that could be retained and used for artificial groundwater recharge (USGS 1995). Surface water recharge could be increased by limiting development in key recharge areas of the Antelope Valley Region as well as by establishing effective methods to capture surface water. Surface water capture and recharge would need to be evaluated for feasibility prior to implementation to identify recharge areas, as discussed in Section 6.1.3.

Lastly, conjunctive uses could be expanded to the treatment of poor quality groundwater which could be extracted, treated, and then reinjected into the aquifer. The extraction would be accomplished through the increased use of existing wells and by the installation of additional wells, pumps, and wellhead treatment facilities. Existing or new distribution facilities such as pipelines and pumping stations would be used to transport this water to existing and planned treated water distribution facilities. Pumps and treatment facilities would use electrical power. A detailed geohydrologic investigation would be necessary prior to drilling on a site-by-site basis. Field studies and groundwater modeling activities would be needed to hydraulically evaluate where in the aquifer the additional extraction should come from and if the basin could handle increased pumping without negatively affecting groundwater levels. The pending adjudication would determine the feasibility of this alternative, and to what extent it could be implemented in the Antelope Valley Region.

Participate in Water Banks Outside of the Antelope Valley Region. Another potential water supply option is to participate in water banking programs outside of the Antelope Valley Region to bring water into the Antelope Valley Region. Such additional banks could include Wheeler Ridge Maricopa Water Storage District White-Wolf Ridge, the Chino Basin Groundwater Basin Storage and Recovery Program, the Semitropic Water Banking and Exchange Program, Calleguas Municipal Water District (CMWD) and Metropolitan Water District of Southern California (MWD), Los Posas ASR, and the Rosedale-Rio Bravo Water Storage District. It should be noted that while water banks operating outside of Antelope Valley Region are possibilities for the Antelope Valley Region, the feasibility of utilizing each still needs to be determined. Benefits to the Antelope Valley Region from utilization of these banks would be to increase water supply reliability for the Antelope Valley Region by increasing the number and mix of sites potentially available in which to bank water for later withdrawal and use. This would provide redundancy, and thus, protection of banked supplies from the possibility of infrastructure outages or contamination events. For example, if all banked supplies were located within the Antelope Valley Region and they subsequently became contaminated by an unwanted constituent, those supplies might become unavailable for use. Having supplies banked in other areas would allow them to be transported to the Antelope Valley Region in such an event. Likewise, the impacts of an infrastructure outage (such as an earthquake event along the California Aqueduct) could be mitigated if some portion of banked supplies were located outside the Antelope Valley Region.

The cost to participate in banking programs outside of the Antelope Valley Region vary according to the particular banking program, water right contract terms, geographic location and access to infrastructure, and other negotiation costs. The Buena Vista Water Storage District/Rosedale-Rio Bravo Water Storage District Water Banking and Recovery Program, located west of Bakersfield in Kern County, is an example of an outside banking program. The

Castaic Lake Water Agency (CLWA) participates in the program by paying a basic unit price of $448/AF for 11,000 AF, paid annually, with an averaged 10-year "look-in" escalator tied to the Southern California consumer price index and Kern County Water Agency's SWP costs, whichever is higher (Kennedy/Jenks Consultants 2007).

Another example of a banking program outside of the Antelope Valley Region is the Semitropic Water Storage District (Semitropic) groundwater storage program. Several participants in the Semitropic program may wish to sell all or part of their banked supplies. These participants include Vidler Water Company, the Newhall Land and Farming Company and various SWP contractors including MWD and Santa Clara Valley Water District (Kennedy/Jenks 2007). These banked supplies represent either Table A Amount banked "in-lieu" by overlying pumpers within Semitropic, or previously stored groundwater supplies that were purchased in-place. The amounts of water stored and attendant costs vary for this program based on the contribution to capital and operations and maintenance (O&M) negotiated by the participants at the time they join the Semitropic program. There is also a "second priority" program that requires no capital or O&M contribution and has lower up front costs and participation fees, but which also has lower delivery priority during periods in which other, higher priority participants may be taking delivery of their previously banked supplies. One such higher-priority participant is MWD. MWD has a reserved storage capacity of 350,000 AF in the Semitropic program. According to MWD's 2006/2007 Budget (MWD 2007), $3.4 million dollars is budgeted for the 2006/2007 participation in the program, which equates to approximately $971/AF. This cost per AF would include the required annual fee, the injection and extraction costs, and any other miscellaneous costs not expressly stated. Lower priority participants, like CLWA, pay a reduced cost per AF, which for CLWA is on the order of $52/AF not including actual energy costs and transmission fees (Boschman, W. 2002).

Create Regional Database for Groundwater Pumping. The analysis in Section 3 helped to identify a number of issues regarding the availability of accurate water resource data for the Antelope Valley Region. Municipal and Industrial (M&I) and major agricultural pumpers generally measure their groundwater extractions and submit this information to DWR. The pumpers that do not measure groundwater extractions are anticipated to be agricultural and small domestic water users. The existing databases do not have broad agreement for pumping within the same areas and it is thought that pumping is generally underreported (USGS 1995). Furthermore, there is a significant lack of groundwater pumping data available for the Kern County portion of the Antelope Valley Region and for the smaller mutuals in the Antelope Valley Region. By creating a regional database for groundwater pumping and a methodology for its management, this sort of data can be regularly obtained and made available for research studies such as this IRWM Plan and contribute to meeting the objective of stabilizing groundwater at current conditions. It is recommended that these data be regularly collected and compiled. For pumpers that do not monitor groundwater extractions, indirect methods, such as estimates based on power or consumption use, can be utilized for groundwater management purposes.

Use Alternative Sources of Water. Groundwater and imported SWP water make up the majority of the water supplies in the Antelope Valley Region, with groundwater historically providing between 50 and 90 percent of overall supply. The pending adjudication and variability of SWP in light of global climate change conditions calls into question the reliability of these sources. Another solution is to use alternative sources of water to meet demands. These other

sources could include water from the Central Valley of California (Central Valley Project [CVP] water) transfers from other water rights holders in the Sacramento Valley, water from other water supply systems (Los Angeles Department of Water and Power [LA DWP]), Article 21 water, treated stormwater captured and recharged into the ground, and desalinated water. In addition, alternative imported water sources from SWP contractors other than the Antelope Valley-East Kern Water Agency (AVEK) could be considered. There are a number of issues involved with the use of these other sources. The use of water from the CVP water would be transported to AVEK via SWP facilities, and as non-SWP water, its transmission by these facilities would have low priority. Therefore, the water supply would be less reliable than that of water that AVEK currently supplies, which would not meet Project objectives. Additionally, the permanent conveyance of this water through the Bay-Delta could result in economic and social impacts associated with transferring water from agricultural use to urban use. Water transfers from CVP contractors also would not likely be feasible because their water already has been allocated for other uses, including environmental restoration projects, and is not available for long-term, reliable sale or exchange. According to the Bureau of Reclamation website, annual payments shall be allocated so as not to exceed $6.00 per AF (October 1992 price levels) for agricultural water sold and delivered by the CVP, and $12.00 per AF (October 1992 price levels) for M&I water sold and delivered by the CVP (Section 3407[d][2][a] Restoration Fund).

Various SWP contractors (or their member agencies) hold contractual SWP Table A Amounts in excess of their demands. Due to the high annual fixed costs of SWP Table A Amounts, these agencies may wish to sell this excess to another contractor. Such Table A Amounts would be subject to the SWP annual allocation and SWP delivery reliability constraints. Potential sellers include the County of Butte and Kern County Water Agency (from its member agencies). The financial terms are variable, but recent “face value” costs range from $1,500/AF to over $3,000/AF (Kennedy/Jenks 2007). The buyer assumes all prospective SWP Transportation Minimum, Capital, O&M and variable power cost payments to DWR from the time the Table A sale is effective, through the life of the SWP contract.

Article 21 water refers to the SWP contract provision defining this supply as water that may be made available by DWR when excess flows are available in the Delta (i.e., when Delta outflow requirements have been met, SWP storage south of the Delta is full, and conveyance capacity is available beyond that being used for SWP operations and delivery of allocated and scheduled Table A supplies). Article 21 water is made available on an unscheduled and interruptible basis and is typically available only in average to wet years, generally only for a limited time in the late winter. Due to the short duration of its availability and capacity constraints at Edmonston Pumping Plant, Article 21 water is generally delivered most readily to agricultural contractors and to San Joaquin Valley banking programs. Therefore, Article 21 water is not considered a long-term reliable supply for the Antelope Valley Region. The basic rate for Article 21 water is the current SWP variable transmission rate which is generally between $10 to $20/AF. However, this amount can fluctuate depending on the distance to move the water from the Delta to where it is to be delivered, and the current conditions of the California energy market.

The SWP Contractors Authority (Authority) Dry-year Water Purchase Program allows for the purchase of water from many agents within the California water system on a one-time or short-term basis. Participants could increase reliability during drought years by participating in this program to supplement supplies. This program has historically operated only in years when the SWP allocation is below 50 percent, or when a potentially dry hydrologic season is combined

with expected low SWP carryover storage; it thus provides a contingency supplemental water supply. Typical water costs include an option payment (to hold water); the call price (actual purchase price); and loss of water due to movement through the Sacramento/San Joaquin Delta, in addition to SWP transmission costs. In 2005, the initial sign-up deposits of $15/AF were collected with the execution of a participation agreement. Of the initial deposit, $5/AF were held by the Authority to cover administrative costs for Authority operations and for 50 percent of the sellers' incurred regulatory documentation costs, with the condition that any unused portions of the administrative cost would be refunded to the buyer at the end of the Dry-year Program. The remaining $10/AF of the deposit would be paid to the seller as an option payment within 30 days of signing a buyer-seller agreement. The $10/AF option payment would guarantee the requested quantity of water would be available for a "call" on April 1 for a total price of $125/AF (including the $10 option). Individual Agreements were established with each of the sellers and were signed by each of the buyers. Basic terms of the agreements included: A $125/AF price (including a $10/AF non-refundable option fee which was sent within 30 days of the contract signature) for an April 1 call date. Call dates for the options could be extended to mid-April for an additional $10/AF ($135/AF total), or to May 2 for an additional $20/AF ($145/AF total) (the additional expenses for option extensions would offset farming preparation costs that would be invested in early April and would therefore be sacrificed when the land was fallowed as part of the provision to provide the transfer water).

Turnback Pools are a means in which SWP contractors with excess Table A Amount in a given hydrologic year may sell that excess to other contractors. This is included in a provision in the SWP water supply contracts. This provision is available in all year types, but is most in demand during dry periods, when Table A allocations are low and almost all contractors are seeking additional supplies. Of course, in those year types, less water is made available to the Turnback Pools. The program is administered by DWR and requires selling and buying contractors to adhere to a specific schedule by which options to water must be exercised. The total amount of water placed into the pools by the selling contractors is allocated to the participating buying contractors based on their contractual Table A Amounts. The water supply contract provides for Turnback Pools in a given water year. Pool "A," which must be purchased by March 1, is priced at 50 percent of the current SWP Delta water rate and the later Pool "B," which must be purchased by April 1, is priced at 25 percent of the current Delta water rate. In 2006, the Delta water rate was approximately $13/AF.

All of the above mentioned supply alternatives have issues related to capacity and delivery priority in the California Aqueduct and other SWP facilities. SWP contractors, via their water supply contracts with DWR, are allocated specified shares of "reach repayment" capacity in various reaches of the SWP system, starting at Banks Pumping Plant in the Delta and proceeding through the main stem of the Aqueduct and the Aqueduct branches to each contractor's delivery turnout(s). This share of capacity pertains to SWP supplies only, and provides each contractor with delivery priority for its SWP supplies. The water supply contracts also provide for the delivery of non-SWP supplies through the SWP system, provided that other contractors are not coincidentally utilizing all available capacity; these non-SWP supplies are delivered at a lower priority than SWP supplies.

Reach repayment capacity is often less than the actual constructed physical capacity of SWP facilities. Depending on location within the SWP system, some areas have ample capacity to move both full SWP Table A Amounts (including all of MWD's Table A Amount plus other

contractors full Table A Amounts) plus other non-SWP supplies. Other points in the system, notably the Edmonston Pumping Plant and the East Branch, have considerable physical capacity limitations.

It is generally accepted among the SWP contractors that, based on future demand forecasts for all contractors, wet years (which tend to lower service area demands), will result in ample capacity in the southerly reaches of the SWP system, even though Table A allocations are high (i.e., not all water will be needed in the contactors' service areas, and much of it will be banked in other locations or sold into the SWP Turnback Pools). Dry years (which tend to cause higher service area demands), will cause capacity constraints as southern contractors take water from the various banking programs in the San Joaquin Valley or from various dry year supply programs and attempt to deliver them within the same window of time (i.e., peak demand periods), even though Table A allocations are low. It is also generally accepted that all contractors in a given repayment reach will work cooperatively with DWR and each other to attempt delivery of all requested supplies, whether SWP or non-SWP. As additional contractors obtain additional supplies through time, this cooperative arrangement will be tested.

Utilization of desalinated water is also an alternate source of water that could be made available in the Antelope Valley Region. It is not likely that a desalination plant would be constructed in the Antelope Valley Region due to the distance from the ocean and the associated construction and operation costs. However, it is plausible to obtain desalinated water by exchange. For example, in this situation, AVEK could contribute a portion of the funds needed by another agency to develop a seawater desalination facility along the southern California coast, and water produced by this facility would be exchanged with AVEK for SWP water. A likely partner in such an arrangement could be The Metropolitan Water District of Southern California (MWD). If both parties agreed, AVEK would enter into a contract with MWD indicating that a portion of MWD's annual SWP Table A Amount would be delivered to AVEK in exchange for AVEK's contribution to a desalination facility to be constructed by MWD. AVEK would treat and distribute SWP water in existing AVEK facilities, and MWD would use water from the desalination facility in lieu of the SWP water exchanged with AVEK. All of these options present challenges in terms of conveyance, water quality, and cost. In general, the cost to desalinate seawater can cost anywhere from $500 to $2,000/AF (DWR 2005c).

Make Further Use of Recycled. Many of the Stakeholder-identified projects involve the use of recycled water, whether it be for injection in conjunctive use projects, for effluent management, or otherwise. Increasing this amount beyond what is already planned could help to further reduce the gap between future supply and demand. Since the use of recycled water is limited to landscaping and other non-potable uses, it would be important to identify uses for the water beyond those for which its uses are currently dedicated or planned. Particular concern should be paid to salinity concentrations in using recycled water. Numerous factors contribute to salinity in recycled water, including imported potable water sources and salts entering with each cycle of urban use for residential, commercial, or industrial purposes. Management of the salt imbalance is key because as salinity increases, irrigation water use increases to flush out salts that accumulate in the root zone, increasing overall water demand. Furthermore, industrial users incur extra costs for cooling towers, boilers, and manufacturing processes to deal with the high salinity water. This is especially important in a closed basin like the Antelope Valley Region. In addition, groundwater recharge can also be affected when source water quality does not satisfy regulatory requirements (i.e., Basin Plan Objectives). The annual cost to provide

recycled water to the Antelope Valley Region is currently estimated at $860/AF (LACWWD 40 2006).

Inability to Approve Further Development. The inability to approve further development assumes that the local retail water purveyors within the Antelope Valley Region decide there is insufficient water to issue "will serve" letters to supply development, and that local land use agencies respond by imposing a moratorium on new development in the Antelope Valley Region. The inability to approve new developments could result in considerable economic and social impacts to residential, commercial, industrial, and public/governmental users in the Antelope Valley Region if water deliveries were cut back or rationing occurred. Reduced deliveries could affect the ability of public and private property owners to water lawns, parks, golf courses, landscaping and open space areas, and could result in these areas dying off with resulting economic loss. Businesses that use high volumes of water may be forced to cut back production or close. Prohibitions on new development would result in a delay or failure to meet County of Los Angeles and the Cities of Lancaster and Palmdale's General Plan population, housing, and job projections for which local governments have planned and/or constructed infrastructure and expended funds. Disallowing new development would have potential economic consequences related to increased costs of housing in an already expensive southern California housing market, and developers with approved or recorded and unbuilt projects may experience economic loss if projects are delayed or cannot be completed. In addition, businesses considering relocating or expanding in the Antelope Valley Region may be reluctant to invest capital because of uncertainties related to water supplies, lack of affordable housing for employees, and stagnant local markets for goods and services. From 2002 to 2005, retail sales in the Antelope Valley Region[15] grew from $2.5 billion to $3.5 billion and over the same time period the number of new housing units grew by over 300 percent[16] (Greater Antelope Valley Economic Alliance 2007 Economic Roundtable Report). Should a moratorium on development be enforced in 2010, this increase in revenue growth will likely flatten or even decrease.

6.1.2 Water Quality WMSA

The issues and needs for water quality management in the Antelope Valley Region generally regard the desire to provide drinking water that meets current and future standards, protecting existing and future water sources from potential contamination, and making beneficial use of tertiary treated wastewaters for recycled water applications. The objectives and planning targets identified for this WMSA are:

Water Quality Objective 1. Provide drinking water that meets customer expectations.

- *Target:* Continue to meet Federal and State water quality standards as well as customer standards for taste and aesthetic throughout the planning period.

Projects that would help to meet this first water quality objective included the LACWWD 40's chloramines conversion project, which aims to prevent deterioration of water quality due to differing treatment methods between purveyors, and PWD's proposed new treatment plant and expansion of AVEK's treatment plants which would increase the Antelope Valley Region's

[15] Includes data for the Cities of Palmdale and Lancaster only.
[16] Includes data for the Cities of Palmdale and Lancaster only.

potable treatment capabilities. If the Antelope Valley Region is going to continue to meet this objective, these treatment facilities must be able to continue to meet current and emerging water quality standards.

Water Quality Objective 2. Protect aquifer from contamination.

- *Target:* Prevent unacceptable degradation of aquifer according to the Basin Plan throughout the planning period.
- *Target:* Map contaminated sites and monitor contaminant movement by December 2008.
- *Target:* Identify contaminated portions of aquifer and prevent migration of contaminants by June 2009.

As with the 2nd water supply objective mentioned above, many of the projects proposed by the stakeholders are groundwater recharge projects and water banking programs. These projects and programs will require monitoring to identify which regions of the aquifer are best suited for these activities, and will require continued monitoring to ensure they are operating effectively. Monitoring and data collection are the first steps in protecting the aquifer from contamination. Additional projects submitted that meet these objectives are LACWWD 40's arsenic mitigation project to remediate arsenic groundwater contamination, Los Angeles County Sanitation District's (LACSD's) projects to monitor the potential for contamination from effluent management practices, and the City of Palmdale's sewer elimination project which would reduce groundwater pollution by eliminating septic tanks currently in use by homes in the vicinity of 42nd Street East.

Water Quality Objective 3. Protect natural streams and recharge areas from contamination.

- *Target:* Prevent unacceptable degradation of natural streams and recharge areas according to the Basin Plan throughout the planning period.

Projects proposed by the stakeholders to address this objective include groundwater recharge projects, retention and detention basin projects, and flood control projects. These projects and programs will require monitoring to identify which locations best suited for these activities, and will require continued monitoring to ensure they are operating effectively. Monitoring and data collection are the first steps in protecting the natural streams and recharge areas from contamination.

Water Quality Objective 4. Maximize beneficial use of recycled water.

- *Target:* Increase infrastructure and establish policies to use 33 percent of recycled water by 2015, 66 percent by 2025, and 100 percent by 2035.

LACSD submitted a number of projects involving enhancements to their treatment facilities, helping to meet the increased infrastructure targets. Additionally, a number of the stakeholder-identified projects specify the use of recycled water for irrigation, effluent management, and recharge projects; many of which benefit not only water quality objectives, but also water supply and land use management objectives. There are a number of opportunities for integration

between water quality projects, including a proposed recharge basin that uses effluent from the Palmdale or Lancaster Water Reclamation Plants (WRPs) as a source of recharge water.

6.1.2.1 Future Planning Efforts and Actions to Fill the Identified Water Quality Management Gaps

Where this WMSA falls short in terms of meeting the water quality objectives is in protecting the groundwater aquifer from contamination, which includes identifying and mapping the contaminated portions of the aquifer and identifying potential future sources of contamination. Therefore, the following future planning efforts and actions are suggested to better meet the objectives identified for this strategy.

Identify Contaminated Portions of the Aquifer. The planning target, which is provided in order to gauge success on meeting the water quality management objectives, is to identify and prevent migration of contaminated portions of the aquifer. As this planning target was not directly met (it was considered indirectly met by those projects that have the potential to help meet this objective, i.e., projects that included groundwater monitoring wells) by the projects proposed in this IRWM Plan, it is being suggested as a future planning effort for the Antelope Valley Region.

Map Contaminated Portions of Aquifer by December 2008. The planning target, which is provided in order to gauge success on meeting the water quality management objectives, is to map the contaminated portions of the aquifer and monitor contaminant movement. As this planning target was not directly met (it was considered indirectly met by those projects that have the potential to help meet this objective, i.e., projects which included groundwater monitoring wells) by the projects proposed in this IRWM Plan, it is being suggested as a future planning effort for the Antelope Valley Region.

Establish a Well Abandonment Ordinance. Abandoned wells in the Antelope Valley Region present water quality problems in that they act as conduits for surface and subsurface pollutants. The establishment of a well abandonment ordinance would provide the policing authority to enforce the timely destruction of abandoned wells. The ordinance could provide the authority to require well destruction or rehabilitation as a condition upon sale of property, change of ownership or change of use. The ordinance could also require that new well applications be processed only after the applicant has demonstrated that all existing wells on all property they own are not in violation of the well ordinance.

Develop and Implement a Regional Groundwater Wellhead Protection Program. A Wellhead Protection Program (WPP) is a pollution prevention and management program used to protect underground sources of drinking water. A national WPP was established in 1986 by the Federal Safe Drinking Water Act. Some of the elements of these types of programs include the identification of recharge areas, zones of influence, groundwater flow directions, and potential contamination sources. This information is then compiled into a management plan, based on the assessment of alternatives for addressing potential sources of contamination, describing the local ordinances, zoning requirements, monitoring program and other local initiatives. The development of a regional WPP could additionally promote smart land use practices, including prohibiting new industrial, commercial and residential development in areas of sensitive groundwater recharge.

Develop Management Program for Nitrate and TDS. TDS and nitrate are of particular concern with regard to water quality in the Antelope Valley Region. TDS is concentrated in the groundwater over prolonged recharge of SWP water, especially since the Antelope Valley Region is a closed basin. Nitrates result from irrigation practices and effluent management. Development of a management program for these pollutants of concern, as well as for other emerging contaminants as they are identified, would contribute to meeting the objective of protecting the aquifer from contamination.

Expand the Water Quality Monitoring Program. Monitoring activities in the Antelope Valley Region include groundwater levels, groundwater quality, land surface subsidence, aquifer compaction, and streamflow. According to the DWR Bulletin 118 (2004), the United States Geologic Survey (USGS) actively monitors 262 wells for groundwater levels, 10 wells for miscellaneous water quality, and the Department of Health Services and cooperators monitor 248 wells in the Antelope Valley Region for Title 22 water quality compliance. Expansion of the existing water quality monitoring efforts would allow for more current data collection to better assess the state of the Antelope Valley Region's water quality and other groundwater parameters. These groundwater quality monitoring programs need to be continued in order to capture the effects of changes in management practices. As Phillips states in his 1993 USGS report, "the need for an ongoing monitoring program transcends the importance of the selection of management alternatives." Further, in order for a water quality monitoring program to be successful in the Antelope Valley Region, the information collected needs to be shared regionally (i.e., by establishing a clearinghouse) in order to integrate and synthesize the data.

As mentioned above, both TDS and nitrate are problems in the Antelope Valley Region. It would particularly be important to continue to monitor discharger's actions to reduce impact of discharge on groundwater and remedial measures.

6.1.3 Flood Management WMSA

Flood management issues in the Antelope Valley Region generally relate to management of stormwater flows of variable water quality, and the management of nuisance water (dry weather runoff). The objectives and planning targets identified for this WMSA are:

Flood Management Objectives. Reduce negative impacts of stormwater, urban runoff, and nuisance water.

- *Target:* Coordinate a regional flood management plan and policy mechanism by the year 2010.

Stakeholder-identified projects proposed to address flood management needs in the Antelope Valley Region include recharge, retention, and detention basins to control stormwater flows, and new storm drains to route storm flows and flood flows to such basins. Many of these projects meet the flood management objectives. For example, the City of Palmdale's detention/recharge basin projects control flood water, thereby meeting the objective of reducing the negative impacts of flood water. By allowing the flood water to recharge into the underlying aquifer, which can act as a preliminary treatment method, the water quality of the runoff water is improved, thereby meeting the second objective of improving water quality of runoff. Lastly, if detention/retention basins are constructed in a manner that links them to strategically placed

storm drain channels and outlets, the extent of nuisance water can be lessened, thereby meeting the third objective.

There are many opportunities for integration between flood management projects. Flood control basins can also be used to store raw aqueduct water, increasing groundwater recharge as well as supply reliability in the Antelope Valley Region. A debris basin can provide storage for silt, sand, gravel, or other debris from runoff. They can also be designated as open spaces, habitat and recreational areas or act as natural treatment areas for poor quality runoff.

Tables 6-1 and 6-2, however, indicate that there is an apparent gap in coordinating these flood management efforts throughout the Antelope Valley Region.

6.1.3.1 Future Planning Efforts and Actions to Fill the Identified Flood Management Gaps

To better meet the objectives identified for this strategy, the following future planning efforts and actions are suggested.

Coordinate a Flood Management Plan by 2010. The planning target, which is provided in order to gauge success on meeting the flood management objectives, is to coordinate a regional flood management plan and mechanism by the year 2010. As this planning target was not met by the projects proposed in this IRWM Plan, it is being suggested as a future planning effort for the Antelope Valley Region.

Stormwater Capture/Recovery Feasibility Study. Development of a regional stormwater capture/recovery feasibility study allows for a regional view of the existing stormwater management facilities (retention/detention basins, storm drains, etc.) to see how they can be better interconnected to provide a more comprehensive management system for the Antelope Valley Region. This type of planning effort would also identify opportunities for linkages to existing or planned recharge basins, open space, and habitat areas.

Increase small-scale flood management projects. Small-scale flood management projects could include modification of existing culverts and bridges, installation or modification of floodgates, stabilization of stream banks, and creation of small debris or flood/storm water retention basins throughout the Antelope Valley Region where needed. These minor physical flood mitigation projects wouldn't duplicate the more regional flood-prevention activities; rather, they would work to enhance them at a local level.

Encourage Low Impact Development (LID). LID is a relatively new concept for stormwater management. The objective of LID is to mimic a site's predevelopment hydrology by using design techniques that infiltrate, filter, store, evaporate, and detain runoff close to its source. Techniques are based on the premise that storm water management should not be seen as stormwater disposal. Instead of conveying and managing/treating stormwater in large, costly end-of-pipe facilities located at the bottom of drainage areas, LID addresses stormwater through small, cost-effective landscape features located at the lot level.

6.1.4 Environmental Resource WMSA

The main issues of concern regarding environmental resource management in the Antelope Valley Region are protection and preservation of open space and protection of endangered species. The following objectives and planning targets were identified to address these concerns:

Environmental Resource Objective 1. Preserve open space and natural habitats that protect and enhance water resources and species in the Antelope Valley Region.

- *Target:* Contribute to the preservation of an additional 2,000 acres of open space and natural habitat to integrate and maximize surface and groundwater management by 2015.

Two projects submitted for inclusion in the IRWM Plan had environmental resource management as their main benefit: Lancaster's Ecosystem and Riparian Habitat Restoration of Amargosa Creek: Avenue J to Avenue H, and RCSD's Tropico Park Pipeline Project. However, some of the projects that propose groundwater recharge areas designate such areas as open space (approximately 2,500 acres), which would help to meet the objectives for this strategy. Ongoing efforts to update the LA County General Plan, which include Significant Ecological Areas (SEAs) designated to protect sensitive species, as well as compliance and updating of the other planning documents approved for the Antelope Valley Region (e.g., the West Mojave Habitat Conservation Plan [HCP], the Kern County General Plan) will help to identify and then meet the environmental resource needs in the Antelope Valley Region.

6.1.4.1 Future Planning Efforts and Actions to Fill the Identified Environmental Resource Management Gaps

To better meet the objectives identified for this strategy, the following future planning efforts and actions are suggested.

Preserve 2,000 Acres of Open Space and Natural Habitat. The planning target, which is provided in order to gauge success on meeting the environmental management objectives, is to preserve 2,000 additional acres of habitat consistent with adopted regional plans. As this planning target was not met by the projects proposed in this IRWM Plan, it is being suggested as a future planning effort for the Antelope Valley Region. One potential way of preserving 2,000 acres of habitat is for the local conservancies to either purchase and/or establish conservation easements through land acquisitions.

Develop a HCP for the Antelope Valley Region. HCPs are developed to outline what steps must be taken to minimize and mitigate the impact of a permitted "take" on a threatened or endangered species. Many HCPs designate open space or habitat as mitigations of "take." Therefore, an HCP is a tool that could be used in the Antelope Valley Region for preserving and protecting open space and habitat.

Promote Land Conservation Projects that Enhance Flood Control, Aquifer Recharge, and Watershed and Open Space Preservation. Promotion of conservation projects could be done through the adoption of a Memorandum of Understanding (MOU) with municipalities in the

Antelope Valley Region to elicit and promote compliance with plans approved for the Antelope Valley Region including the area General Plans and the Mojave HCP.

6.1.5 Land Use Management WMSA

The main issues of concern regarding land use management in the Antelope Valley Region relate to the preservation of agricultural land and the ability to provide recreational opportunities for a growing population. The following objectives and planning targets were identified to address these concerns:

Land Use Management Objective 1. Maintain agricultural land use within the Antelope Valley Region.

- *Target:* Preserve 100,000 acres of farmland in rotation through 2035.

Land Use Management Objective 2. Meet growing demand for recreational space.

- *Target:* Contribute to local and regional General Planning documents to provide 5,000 acres of recreational space by 2035.

Land Use Management Objective 3. Improve integrated land use planning to support water management.

- *Target:* Coordinate a regional land use management plan by the year 2010.

Two projects were submitted for inclusion in the AV IRWM Plan through the Call for Projects that provide direct benefits associated with land use management; Amargosa Creek Pathways Project Phase II and the Antelope-Fremont Watershed Assessment and Plan. A number of the projects proposed by the Stakeholders identify agricultural lands for effluent management, and agricultural and recreational lands are likely to be addressed through the update of local general planning documents. These types of projects indirectly benefit land use management, but do not directly meet the objectives identified for the Antelope Valley Region. Employing land use planning as a strategy provides a way to better manage and protect local water supplies. Programs can be made available to assist in water conservation, protect and improve water quality, address stormwater capture and flooding, protect and enhance environmental habitat areas and recreational opportunities. Thus, implementing land use planning strategies can assist in achieving not only the land use management objectives, but also the overall AV IRWM Plan objectives.

6.1.5.1 Future Planning Efforts and Actions to Fill the Identified Land Use Management Gaps

Below are additional future planning efforts and actions that have been identified in order to better meet the land use management objectives.

Preserve Farmland. The planning target, which is provided in order to gauge success in meeting the land use management objectives, is to preserve 100,000 acres of farmland in rotation through 2035. This means that at any given time, approximately 25,000 acres of farmland are actively being farmed in the Antelope Valley Region. While some of the proposed

projects include farmland as a component that would contribute to this target, such as the Lancaster and Palmdale Effluent Management Sites which would effectively preserve approximately 12,000 acres of agricultural land, it is still being suggested as a future planning effort for the Antelope Valley Region because the planning target was not entirely met.

Build Public Parks and Recreational Amenities. The planning target, which is provided in order to gauge success in meeting the land use management objectives, is to increase public parks and recreational amenities by providing 5,000 acres of recreational space by 2035. As this planning target was not met by the projects proposed in this IRWM Plan, it is being suggested as a future planning effort for the Antelope Valley Region. As part of this planning effort, an Antelope Valley Region-wide inventory of existing water-related recreational opportunities could be developed that would aid in providing a needs assessment for future opportunities.

Create a Watershed Management Plan. There is currently no watershed management plan for the Antelope Valley Region. Watershed management plans are similar to this IRWM Plan in that they bring together a wide range of stakeholders, including city and county staff, resource managers and policy officials, and community organizations to protect and restore the aesthetic and function of the watershed where needed. Watershed management plans focus on the 'function' of a watershed, and thereby assess the health and value of watershed components.

Create Incentives for Landowners to Protect/Restore/Preserve Open Space. Land use agencies have the ability to create incentives and/or eliminate disincentives for landowners to protect and restore open spaces and habitat on their property. Technical assistance and financial incentives have proven effective in protecting and restoring privately held natural areas, which in turn helps to meet regional water quality, flood management and environmental management objectives.

Coordinate a Regional Land Use Management Plan by the Year 2010. Traditionally, cities and counties have the responsibility for land use planning, much of which is continued in the local and regional General Plans. These planning documents to some extent address water and environmental resources in the context of land use planning. However, through the coordination of a regional land use plan, these efforts can be combined to better manage and protect local water supplies, to improve water quality, reduce flooding, restore habitats and ecosystems, and provide recreational, educational, and access opportunities to the public for a potentially greater regional benefit.

6.2 Assess Projects for Multiple Benefits "across" WSMAs

Tables 6-1 and 6-2 also show whether or not a particular project contributes to more than one WMSA objective, which is an indication of the potential to provide multiple benefits. To provide an indication of the current level of integration of stakeholder projects, this integration is also summarized in Table 6-3, which identifies the number of projects within each type of possible benefit combination.

TABLE 6-3
BENEFIT COMBINATION GROUPS

Single Benefit Type	Number of Projects	Two Benefit Types	Number of Projects	Three or More Benefit Types	Number of Projects
WS	8	WS/WQ	9	WS/FM/EM	10
WQ	6	WS/FM	3	WS/WQ/EM	3
FM	2	WS/EM	2	WS/EM/LM	2
EM	1	WQ/LM	8	EM/FM/LM	2
LM	0	LM/EM	3	WS/WQ/FM/EM	3
				WS/WQ/FM/LM	2
Total	**17**		**25**		**22**

Note: Each project is only represented once 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 WS/WQ project.
WS = Water Supply, WQ = Water Quality, FM = Flood Management, EM = Environmental Management, LM = Land Use Management

Opportunities for maximizing the integration of water supply and water quality projects and simultaneously generating benefits for open space, habitat, and recreational uses can be accomplished with the projects proposed for the Antelope Valley Region, even if the identified stakeholder projects do not meet the planning targets. For example, a groundwater recharge project, which generally benefits water supply, can also benefit environmental resources by designating the recharge area as open space or habitat. Natural treatment systems can be integrated with storm drain systems to provide both flood management benefits and water quality improvements. If integrated with open space and habitat, natural treatment systems could also provide environmental benefits.

6.2.1 Geographic Integration

Geographic integration allows for further integration between the water management strategies. Proposed projects that could take advantage of being in the same geographical location could provide multiple benefits. In an Antelope Valley Region of over 2,400 square miles, opportunities for geographical integration are numerous. Figure 6-1 illustrates the location of the projects and management actions discussed in Section 5, and show the locations of the areas benefited by the water management strategies. Table 6-4 provides a key to Figure 6-1. Geographic integration was considered in the evaluation and prioritization of the projects (discussed in Section 7) as well as in the packaging implementation approach discussed in Section 8.

TABLE 6-4
PROJECT REFERENCE POINTS

Project Number	Project Name	Sponsor
	WATER SUPPLY MANAGEMENT	
23	Upper Amargosa Creek Recharge and Channelization Project	City of Palmdale
24	Amargosa Water Banking & Stormwater Retention Project	J. Goit/ Sundale Mutual
25	Antelope Valley Water Bank	Western Development and Storage
26	Aquifer Storage and Recovery Project: Injection Well Development	LACWWD 40
27	Aquifer Storage and Recovery Project: Additional Storage Capacity	LACWWD 40
28	Deep wells to Recapture Banked Water	RCSD
29	Gaskell Road Pipeline	RCSD
30	Groundwater Banking	LACWWD 40
31	LCID East-Side Groundwater Recharge Project	LCID
32	Purchasing Spreading Basin Land	RCSD
33	Water Supply Stabilization Project – Westside Project	AVEK
34	Water Supply Stabilization Project – Eastside Project	AVEK
35	Groundwater Recharge Using Recycled Water (GWR-RW) Pilot Project	City of Lancaster
36	Groundwater Recharge Recycled Water Project	PWD
37	KC & LAC Interconnection Pipeline	RCSD
38	North Los Angeles/Kern County Regional Recycled Water Project	LACWWD 40
39	Palmdale Power Project	City of Palmdale
40	Tertiary Treated Water Conveyance & Incidental Groundwater Recharge of Amargosa Creek Avenue M to Avenue H	City of Lancaster
41	ET Based Controller Program	PWD
42	Implement ET Controller Program	LACWWD 40
43	Precision Irrigation Control System	Leona Valley Town Council
44	Ultra-Low Flush Toilet Change-out Program	LACWWD 40
45	Water Conservation Garden	PWD
46	Water Conservation School Education Program	LACWWD 40
47	Waste Water Ordinance	LACWWD 40
48	Avenue K Transmission Main, Phases I-V	LACWWD 40
49	Avenue M and 60th Street West Tanks	LACWWD 40
50	Littlerock Dam Sediment Removal	PWD
51	Place Values and Turnouts on Reclaimed Water Pipeline	RCSD
52	RCSD WasteWater Pipeline	RCSD
	WATER QUALITY MANAGEMENT	
12	42nd Street East, Sewer Installation	City of Palmdale
13	Lancaster WRP Stage V	LACSD

Project Number	Project Name	Sponsor
14	Lancaster WRP Stage VI	LACSD
15	Lancaster WRP Proposed Effluent Management Sites	LACSD
16	Palmdale WRP Proposed Effluent Management Sites	LACSD
17	Palmdale WRP Stage V	LACSD
18	Palmdale WRP Stage VI	LACSD
19	Palmdale WRP Existing Effluent Management Sites	LACSD
20	Partial Well Abanondment of Groundwater Wells for Arsenic Mitigation	LACWWD 40
21	New PWD Treatment Plant	PWD
22	QHWD Partial Well Abanondment of Groundwater Wells for Arsenic Mitigation	QHWD
	FLOOD MANAGEMENT	
5	45th Street East Flood Control Basin (Q-East Basin)	City of Palmdale
6	Anaverde Detention Basin, Dam & Spillway at Pelona Vista Park	City of Palmdale
7	Avenue Q and 20th Street East Basin (Q-West Basin)	City of Palmdale
8	Barrel Springs Detention Basin and Wetlands	City of Palmdale
9	Hunt Canyon Groundwater Recharge and Flood Control Basin	City of Palmdale
10	Quartz Hill Storm Drain	LADPW
11	Stormwater Harvesting	Leona Valley Town Council
	ENVIRONMENTAL MANAGEMENT	
1	Ecosystem and Riparian Habitat Restoration of Amargosa Creek Ave J to Ave H	City of Lancaster
2	Tropico Park Pipeline Project	RCSD
	LAND USE MANAGEMENT	
3	Antelope-Fremont Watershed Assessment Plan	Antelope Valley Conservancy
4	Amargosa Creek Pathways Project	City of Lancaster

6.2.2 Compliance with, and Objectives Assessment for the IRWM Plan Guideline Strategies, AB 3030, IRWM Plan Guidelines Program Preferences, and Statewide Priorities

Tables 6-5 and 6-6 show how the Proposition 50 IRWM Guideline Strategies (which were correlated with the California Water Plan strategies in Table 5-1), the AB 3030 Groundwater Management Guidelines, the IRWM Plan Guideline Program Preferences, and the Statewide Priorities are met by each project, and project concept, action and study identified in Section 5, for current and planned projects, respectively.

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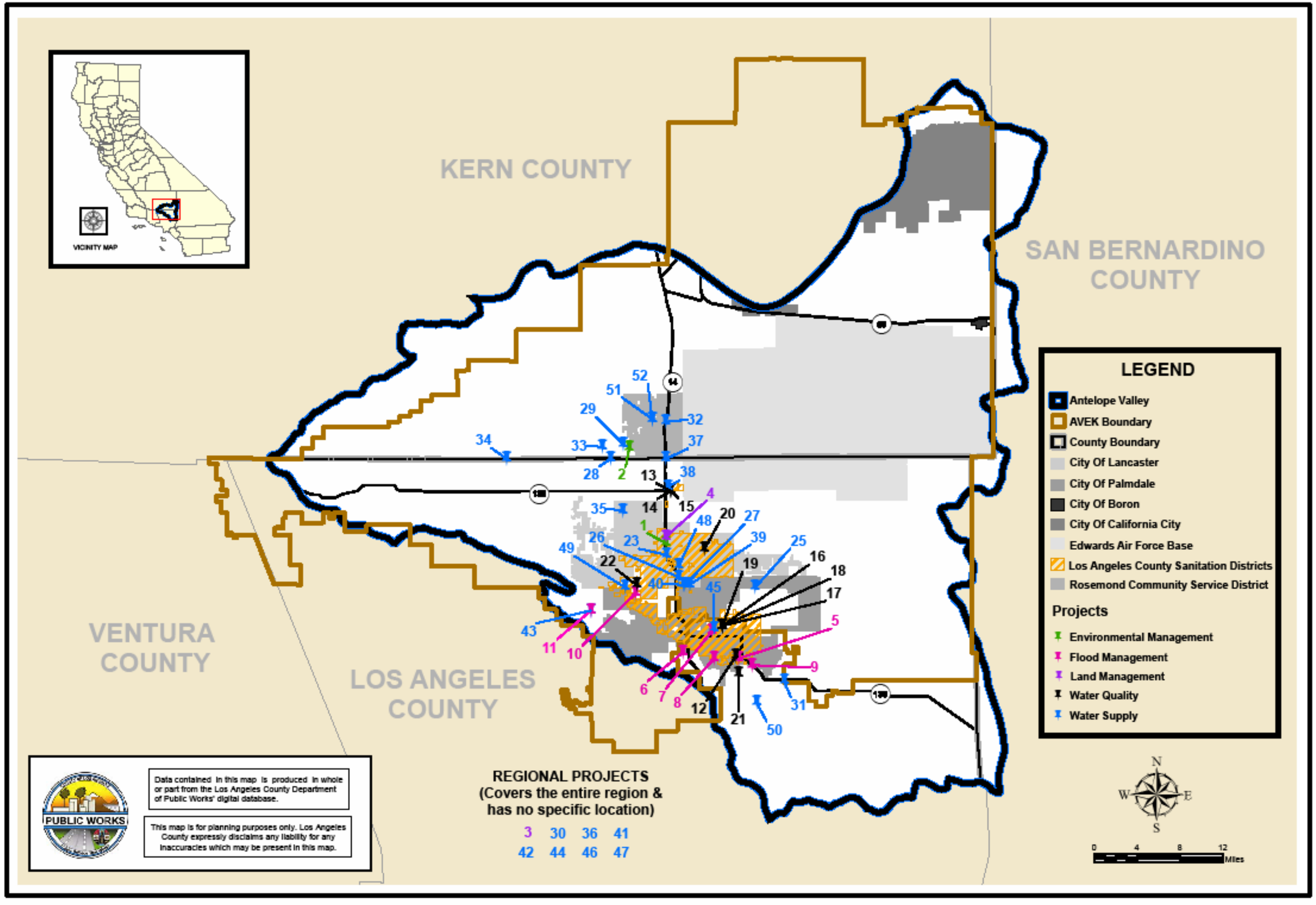

Figure 6-1 Antelope Valley IRWM Plan Project Locations

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TABLE 6-5
CURRENT PROJECTS VS. IRWM PLAN STRATEGIES, AB 3030, IRWM PLAN GUIDELINES, STATEWIDE PRIORITIES

Current Project/Program Types and Activities	Water Supply								Water Quality			Flood Mngt.		Environ. Resource Management				Land Use Mngt.		AB 3030 Guidelines																IRWM Plan Program Preferences						Statewide Priorities							
	Water Supply Reliability	Groundwater Management	Water Conservation	Water Recycling	Water Banking & Conjunctive Use	Imported Water	Surface Storage	Water Transfers	Desalination	Water Quality Protection and Improvement	Non-Point Source Pollution Control	Water and Wastewater Treatment	Flood Management	Storm water Capture and Management	Ecosystem Restoration	Environmental and Habitat Protection and Improvement	Recreation and Public Access	Wetlands Enhancement and Creation	Land Use Planning	Watershed Planning	The control of saline water intrusion.	Identification and management of wellhead protection areas and recharge areas	Regulation of the migration of contaminated groundwater.	The administration of a well abandonment and well destruction program.	Mitigation of conditions of overdraft.	Replenishment of groundwater extracted by water producers.	Monitoring of groundwater levels and storage.	Facilitating conjunctive use operations.	Identification of well construction policies.	The construction and operation by the local agency of groundwater contamination cleanup, recharge, storage, conservation, water recycling and extraction projects.	The development of relationships with state and federal regulatory agencies.	The review of land use plans and coordination with land use planning agencies to assess activities which create a reasonable risk of groundwater contamination.	Include integrated projects with multiple benefits.	Support and improve local and regional water supply reliability.	Contribute expeditiously and measurably to the long-term attainment and maintenance of water quality standards.	Eliminate or significantly reduce pollution in impaired waters and sensitive habitat areas, including areas of special biological significance.	Include safe drinking water and water quality projects that serve disadvantaged communities.	Include groundwater management and recharge projects that are located 1) in San Bernardino or Riverside counties; 2) outside of the service area of the Metropolitan Water District of Southern California; or 3) within one mile of established residential and commercial development.	Reduce conflict between water users or resolve water rights	Implementation of TMDLs that are established or under development.	Implementation of Regional Water Quality Control Board Watershed Management initiative Chapters, plans, and policies.	Implementation of the State Water Resource Control Board's Non-point Source Pollution Plan.	Assist in meeting Delta Water Quality Objectives.	Implementation of recommendations of the floodplain management task force, desalination ask force, recycling task force or State species recovery plan	Address environmental justice concerns.	Assist in achieving one or more goals of the CALFED Bay-Delta Program.
WATER SUPPLY MANAGEMENT																																														
Plans & Studies																																														
Antelope Valley Integrated Regional Water Management Plan	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	NA	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
City of Lancaster Groundwater Recharge Feasibility Study *(Lancaster)*	X	X		X	X						X	X									NA	X			X	X	X	X		X					X	X							X	X			X
Palmdale Water District Reconnaissance Level Feasibility and Scoping Study for Recycled Water Recharge *(PWD)*	X	X		X	X																NA	X			X	X		X		X					X	X							X	X			X
Palmdale Water District 2006 Water System Master Plan Update *(PWD)*	X		X	X			X	X													NA	X						X		X					X	X							X	X			X
Court Action																																															
Adjudication of the Groundwater Basin		X																			NA				X	X		X	X														X		X				
Groundwater Recharge/Banking																																															
Antelope Valley Water Agencies' Water Bank *(AVEK, LCID, QHWD, RCSD)*	X	X				X	X		X												NA	X			X	X	X	X		X					X	X							X				X
Tejon Ranch Water Bank *(Tejon Ranch Water Company)*	X	X				X	X														NA	X			X	X	X	X		X					X	X							X				X
Water Infrastructure Improvements																																															
Expansion of Treatment Facilities *(RWMG)*	X			X								X									NA														X	X	X			X			X	X	X	X
Water Conservation/Water Use Efficiency																																															
Best Management Practices *(AVEK, LACWWD40, PWD, QHWD, RCSD)*	X		X																		NA				X					X					X	X							X			X	X
WATER QUALITY MANAGEMENT																																															
Water Infrastructure Improvements																																															
Chloramines Conversion Project *(LACWWD40)*	X									X											NA														X	X	X	X	X				X				X
RCSD Recycled Water Project/Treatment Plant Expansion *(RCSD)*	X			X		X						X									NA				X					X					X	X	X		X				X	X			X
FLOOD MANAGEMENT																																															
None identified at this time																																															
ENVIRONMENTAL MANAGEMENT																																															
Plans & Studies																																															
LA County General Plan Significant Ecological Areas (SEAs)															X	X	X	X	X	X	NA														X			X						X			
Recycled Water																																															
Piute Ponds Reuse Sites															X	X	X	X																													
LAND USE MANAGEMENT																																															
Plans & Studies																																															
Antelope Valley Regional Conservation Roundtable *(Antelope Valley Conservancy)*	X		X												X	X	X	X	X	X	NA														X	X							X				X
Update Los Angeles County General Plan															X	X	X	X	X	X	NA														X											X	
Recycled Water																																															
Apollo Lakes Reuse Project																	X		X																												
SUMMARY	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	NA	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Legend
WS = Water Supply Management
WQ = Water Quality Management
FM = Flood Management
EM = Environmental Resources Management
LM = Land Use Management

TABLE 6-6
PLANNED PROJECTS VS. IRWM PLAN STRATEGIES, AB 3030, IRWM PLAN GUIDELINES, STATEWIDE PRIORITIES

Planned Project/Program Types and Activities	Water Supply								Water Quality			Flood Mngt.		Environ. Resource Management				Land Use Mngt.		AB 3030 Guidelines														IRWM Plan Program Preferences						Statewide Priorities								
	Water Supply Reliability	Groundwater Management	Water Conservation	Water Recycling	Water Banking & Conjunctive Use	Imported Water	Surface Storage	Water Transfers	Desalination	Water Quality Protection and Improvement	Non-Point Source Pollution Control	Water and Wastewater Treatment	Flood Management	Storm water Capture and Management	Ecosystem Restoration	Environmental and Habitat Protection and Improvement	Recreation and Public Access	Wetlands Enhancement and Creation	Land Use Planning	Watershed Planning	The control of saline water intrusion.	Identification and management of wellhead protection areas and recharge areas	Regulation of the migration of contaminated groundwater.	The administration of a well abandonment and well destruction program.	Mitigation of conditions of overdraft.	Replenishment of groundwater extracted by water producers.	Monitoring of groundwater levels and storage.	Facilitating conjunctive use operations.	Identification of well construction policies.	The construction and operation by the local agency of groundwater contamination cleanup, recharge, storage, conservation, water recycling and extraction projects.	The development of relationships with state and federal regulatory agencies.	The review of land use plans and coordination with land use planning agencies to assess activities which create a reasonable risk of groundwater contamination.	Include integrated projects with multiple benefits.	Support and improve local and regional water supply reliability.	Contribute expeditiously and measurably to the long-term attainment and maintenance of water quality standards.	Eliminate or significantly reduce pollution in impaired waters and sensitive habitat areas, including areas of special biological significance.	Include safe drinking water and water quality projects that serve disadvantaged communities.	Include groundwater management and recharge projects that are located 1) in San Bernardino or Riverside counties; 2) outside of the service area of the Metropolitan Water District of Southern California; or 3) within one mile of established residential and commercial development.	Reduce conflict between water users or resolve water rights	Implementation of TMDLs that are established or under development.	Implementation of Regional Water Quality Control Board Watershed Management initiative Chapters, plans, and policies.	Implementation of the State Water Resource Control Board's Non point Source Pollution Plan.	Assist in meeting Delta Water Quality Objectives.	Implementation of recommendations of the floodplain management task force, desalination ask force, recycling task force or State species recovery plan	Address environmental justice concerns.	Assist in achieving one or more goals of the CALFED Bay-Delta Program.
WATER SUPPLY MANAGEMENT																																												
Groundwater Recharge/Banking																																												
Amargosa Creek Recharge and Channelization Project *(Palmdale)*	X	X			X								X	X		X		X	X	X	NA	X			X	X		X		X				X	X				X			X	X			X
Amargosa Water Banking and Storm Water Retention Project *(No financial sponsor identified)*	X	X			X								X	X		X		X	X	X	NA	X			X	X		X		X				X	X				X			X	X			X
Antelope Valley Water Bank *(WDS)*	X	X			X	X		X		X			X	X					X	X	NA	X			X	X	X	X		X				X	X				X			X				X
Aquifer Storage and Recovery Project: Injection Well Development *(LACWWD40)*	X	X			X	X															NA	X			X	X		X	X	X				X	X				X							X
Aquifer Storage and Recovery Project: Additional Storage Capacity *(LACWWD40)*	X	X			X	X															NA				X	X		X		X				X	X				X			X				X
Deep wells to Recapture Banked Water *(RCSD)*	X	X			X																NA	X						X	X	X				X	X				X							X
Gaskell Road Pipeline *(RCSD)*	X				X																NA							X		X				X	X				X							X
Groundwater Banking *(LACWWD40)*	X	X			X	X													X	X	NA	X			X	X	X	X		X				X	X				X			X				X
Purchasing Spreading Basin Land *(RCSD)*	X	X			X														X	X	NA							X		X				X	X				X			X				X
Water Supply Stabilization Project – Westside Project *(AVEK, AVSWCA)*	X	X			X	X		X		X			X	X					X	X	NA	X			X	X	X	X		X				X	X				X			X				X
Water Supply Stabilization Project – Eastside Project *(AVEK, AVSWCA)*	X	X			X	X		X		X			X	X					X	X	NA	X			X	X	X	X		X				X	X				X			X				X
Recycled Water																																												
Groundwater Recharge Using Recycled Water (GWR-RW) Pilot Project *(Lancaster)*	X	X		X	X							X								X	NA	X			X	X		X		X				X	X				X			X	X			X
Groundwater Recharge - Recycled Water Project *(PWD)*	X	X		X	X							X								X	NA	X			X	X		X		X				X	X				X			X	X			X
KC & LAC Interconnection Pipeline *(RCSD)*	X			X																	NA									X				X	X				X			X	X			X
North Los Angeles/Kern County Regional Recycled Water Project *(LACWWD40)*	X	X		X	X	X						X							X	X	NA	X			X	X		X		X				X	X				X			X	X			X
Tertiary Treated Water Conveyance & Incidental Groundwater Recharge of Amargosa Creek Avenue M to Avenue H *(Lancaster)*	X	X		X	X							X									NA	X			X	X		X		X				X	X				X			X	X			X
Water Conservation/Water Use Efficiency																																												
ET-Based Controller Program *(PWD)*	X		X	X										X						X	NA				X					X	X				X				X			X				X
Implement Evapotranspiration (ET) Controller Program *(LACWWD40)*	X		X	X																X	NA				X					X	X				X				X			X				X
Precision Irrigation Control System *(Leona Valley Town Council)*	X		X	X										X						X	NA				X			X		X	X				X				X			X	X			X
Ultra Low Flush Toilet (ULFT) Change Out Program *(LACWWD40)*	X		X																		NA				X					X	X				X				X			X				X
Water Conservation Demonstration Garden *(PWD)*	X		X																	X	NA				X					X	X				X				X			X				X
Water Conservation School Education Program *(LACWWD40)*	X		X																	X	NA				X					X	X				X				X			X				X
Water Waste Ordinance *(LACWWD40)*	X		X									X								X	NA				X					X	X				X				X			X				X
Water Infrastructure Improvements																																												
Avenue K Transmission Main, Phases I-V *(LACWWD40)*	X						X														NA				X					X	X				X				X			X				X

TABLE 6-6
PLANNED PROJECTS VS. IRWM PLAN STRATEGIES, AB 3030, IRWM PLAN GUIDELINES, STATEWIDE PRIORITIES

Planned Project/Program Types and Activities	Water Supply									Water Quality			Flood Mngt.		Environ. Resource Management				Land Use Mngt.		AB 3030 Guidelines															IRWM Plan Program Preferences						Statewide Priorities								
	Water Supply Reliability	Groundwater Management	Water Conservation	Water Recycling	Water Banking & Conjunctive Use	Imported Water	Surface Storage	Water Transfers	Desalination	Water Quality Protection and Improvement	Non-Point Source Pollution Control	Water and Wastewater Treatment	Flood Management	Storm water Capture and Management	Ecosystem Restoration	Environmental and Habitat Protection and Improvement	Recreation and Public Access	Wetlands Enhancement and Creation	Land Use Planning	Watershed Planning	The control of saline water intrusion.	Identification and management of wellhead protection areas and recharge areas	Regulation of the migration of contaminated groundwater.	The administration of a well abandonment and well destruction program.	Mitigation of conditions of overdraft.	Replenishment of groundwater extracted by water producers.	Monitoring of groundwater levels and storage.	Facilitating conjunctive use operations.	Identification of well construction policies.	The construction and operation by the local agency of groundwater contamination cleanup, recharge, storage, conservation, water recycling and extraction projects.	The development of relationships with state and federal regulatory agencies.	The review of land use plans and coordination with land use planning agencies to assess activities which create a reasonable risk of groundwater contamination.	Include integrated projects with multiple benefits.	Support and improve local and regional water supply reliability.	Contribute expeditiously and measurably to the long-term attainment and maintenance of water quality standards.	Eliminate or significantly reduce pollution in impaired waters and sensitive habitat areas, including areas of special biological significance.	Include safe drinking water and water quality projects that serve disadvantaged communities.	Include groundwater management and recharge projects that are located 1) in San Bernardino or Riverside counties; 2) outside of the service area of the Metropolitan Water District of Southern California; or 3) within one mile of established residential and commercial development.	Reduce conflict between water users or resolve water rights	Implementation of TMDLs that are established or under development.	Implementation of Regional Water Quality Control Board Watershed Management initiative Chapters, plans, and policies.	Implementation of the State Water Resource Control Board's Non point Source Pollution Plan.	Assist in meeting Delta Water Quality Objectives.	Implementation of recommendations of the floodplain management task force, desalination ask force, recycling task force or State species recovery plan	Address environmental justice concerns.	Assist in achieving one or more goals of the CALFED Bay-Delta Program.
Avenue M and 60th Street West Tanks *(LACWWD40)*	X						X														NA				X									X	X								X				X
Littlerock Dam Sediment Removal Project *(PWD)*	X															X					NA				X									X	X								X				X
Place Valves and Turnouts on Reclaimed Water Pipeline *(RCSD)*	X			X																	NA				X					X				X	X								X		X		X
RCSD's Wastewater Pipeline *(RCSD)*	X			X								X									NA				X					X				X	X								X		X		X
WATER QUALITY MANAGEMENT																																																	
Recycled Water																																																	
42nd Street East, Sewer Installation *(Palmdale)*	X	X								X	X										NA		X							X														X	X	X			X
Lancaster WRP Stage V *(LACSD)*	X			X	X		X										X	X			NA										X	X	X	X								X				X
Lancaster WRP Stage VI *(LACSD)*	X			X	X		X					X					X	X	X		NA										X	X	X									X				X
Lancaster WRP Proposed Effluent Management Sites *(LACSD)*	X	X		X								X							X		NA	X	X		X	X	X	X			X	X	X								X				X
Palmdale Power Project *(Palmdale)*	X			X								X									NA										X	X									X				X
Palmdale WRP Existing Effluent Management Sites *(LACSD)*	X	X		X								X							X		NA	X	X		X	X	X	X			X	X	X								X				X
Palmdale WRP Stage V *(LACSD)*	X	X		X		X						X							X		NA						X				X	X	X								X				X
Palmdale WRP Stage VI *(LACSD)*	X	X		X		X						X							X		NA										X	X	X								X				X
Palmdale WRP Proposed Effluent Management Sites *(LACSD)*	X	X		X								X							X		NA	X	X		X	X	X	X			X	X	X								X				X
Water Infrastructure Improvements																																																
Partial Well Abandonment of Groundwater Wells for Arsenic Mitigation *(LACWWD40)*		X								X		X									NA		X							X					X	X	X	X						X				X
PWD New Treatment Plant *(PWD)*	X									X											NA				X						X	X	X						X					X				X
QHWD Partial Well Abandonment of Groundwater Wells for Arsenic Mitigation Project (*QHWD*)		X								X		X									NA		X							X					X	X	X	X						X				X
FLOOD MANAGEMENT																																																	
Water Infrastructure Improvements																																																
45th Street East Flood Control Basin (Q-East Basin) *(Palmdale)*	X	X	X		X						X		X	X		X					NA	X						X			X	X										X		X	X			X
Anaverde Detention Basin, Dam & Spillway at Pelona Vista Park *(Palmdale)*	X		X								X		X	X		X					NA	X						X			X	X										X		X	X			X
Avenue Q and 20th Street East Basin (Q-West Basin) *(Palmdale)*	X	X	X		X						X		X	X		X					NA	X						X			X	X										X		X	X			X
Barrel Springs Detention Basin and Wetlands *(Palmdale)*	X	X	X		X					X	X		X	X	X	X		X			NA	X			X			X			X	X										X		X	X			X
Hunt Canyon Groundwater Recharge and Flood Control Basin *(Palmdale)*	X	X	X		X					X	X		X	X		X					NA	X			X	X		X			X	X										X		X	X			X
Quartz Hill Storm Drain *(LAFCD)*	X		X							X	X		X	X							NA							X			X	X										X		X	X			X
Stormwater Harvesting *(Leona Valley Town Council)*	X		X	X	X		X	X					X	X							NA				X						X	X										X			X			X

TABLE 6-6
PLANNED PROJECTS VS. IRWM PLAN STRATEGIES, AB 3030, IRWM PLAN GUIDELINES, STATEWIDE PRIORITIES

Planned Project/Program Types and Activities	Water Supply									Water Quality			Flood Mngt.		Environ. Resource Management				Land Use Mngt.		AB 3030 Guidelines																IRWM Plan Program Preferences						Statewide Priorities							
	Water Supply Reliability	Groundwater Management	Water Conservation	Water Recycling	Water Banking & Conjunctive Use	Imported Water	Surface Storage	Water Transfers	Desalination	Water Quality Protection and Improvement	Non-Point Source Pollution Control	Water and Wastewater Treatment	Flood Management	Storm water Capture and Management	Ecosystem Restoration	Environmental and Habitat Protection and Improvement	Recreation and Public Access	Wetlands Enhancement and Creation	Land Use Planning	Watershed Planning	The control of saline water intrusion.	Identification and management of wellhead protection areas and recharge areas	Regulation of the migration of contaminated groundwater.	The administration of a well abandonment and well destruction program.	Mitigation of conditions of overdraft.	Replenishment of groundwater extracted by water producers.	Monitoring of groundwater levels and storage.	Facilitating conjunctive use operations.	Identification of well construction policies.	The construction and operation by the local agency of groundwater contamination cleanup, recharge, storage, conservation, water recycling and extraction projects.	The development of relationships with state and federal regulatory agencies.	The review of land use plans and coordination with land use planning agencies to assess activities which create a reasonable risk of groundwater contamination.	Include integrated projects with multiple benefits.	Support and improve local and regional water supply reliability.	Contribute expeditiously and measurably to the long-term attainment and maintenance of water quality standards.	Eliminate or significantly reduce pollution in impaired waters and sensitive habitat areas, including areas of special biological significance.	Include safe drinking water and water quality projects that serve disadvantaged communities.	Include groundwater management and recharge projects that are located 1) in San Bernardino or Riverside counties; 2) outside of the service area of the Metropolitan Water District of Southern California; or 3) within one mile of established residential and commercial development.	Reduce conflict between water users or resolve water rights	Implementation of TMDLs that are established or under development.	Implementation of Regional Water Quality Control Board Watershed Management initiative Chapters, plans, and policies.	Implementation of the State Water Resource Control Board's Non point Source Pollution Plan.	Assist in meeting Delta Water Quality Objectives.	Implementation of recommendations of the floodplain management task force, desalination ask force, recycling task force or State species recovery plan	Address environmental justice concerns.	Assist in achieving one or more goals of the CALFED Bay-Delta Program.
ENVIRONMENTAL MANAGEMENT																																															
Habitat Restoration																																															
Ecosystem & Riparian Habitat Restoration of Amargosa Creek: Avenue J north to Avenue H (Lancaster)										X	X		X	X	X	X		X	X	X	NA												X			X					X		X	X		X
Recycled Water																																															
Tropico Park Pipeline Project *(RCSD)*	X			X								X				X	X		X		NA												X	X								X		X	X		X
LAND USE MANAGEMENT																																															
Plans and Studies																																															
Antelope-Fremont Watershed Assessment and Plan *(Antelope Valley Conservancy)*	X		X							X	X		X	X	X	X	X	X	X	X	NA										X	X		X	X	X					X	X	X	X		X
Recreation																																															
Amargosa Creek Pathways Project *(Lancaster)*										X	X		X	X	X	X	X		X	X	NA												X			X							X			
SUMMARY	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	NA	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Legend
WS = Water Supply Management
WQ = Water Quality Management
FM = Flood Management
EM = Environmental Resources Management
LM = Land Use Management

Tables 6-7 and 6-8 additionally demonstrate how the identified future planning efforts, or "gap" projects, contribute to meeting these other objectives and priorities, as well as the IRWM Plan objectives.

The Proposition 50 IRWM Guideline Strategies were defined in Section 5.1.1, and the AB 3030 Guidelines defined throughout Section 3.

The IRWM Plan Guidelines include the following program preferences:

- Include integrated projects with multiple benefits. Support and improve local and regional water supply reliability.
- Contribute expeditiously and measurably to the long-term attainment and maintenance of water quality standards.
- Eliminate or significantly reduce pollution in impaired waters and sensitive habitat areas, including areas of special biological significance.
- Include safe drinking water and water quality projects that serve disadvantaged communities.
- Include groundwater management and recharge projects that are located (1) in San Bernardino or Riverside counties; (2) outside of the service area of the Metropolitan Water District of Southern California; or (3) within one mile of established residential and commercial development.

The following statewide priorities were established by the Department of Water Resources (DWR) and the State Water Resources Control Board (SWRCB):

- Reduce conflict between water users or resolve water rights.
- Implementation of Total Maximum Daily Loads (TMDLs) that are established or under development.
- Implementation of Regional Water Quality Control Board (RWQCB) Watershed Management Initiative chapters, plans, and policies.

  The Lahontan RWQCB Watershed Management Initiative includes the following regional priorities and targeted projects: monitor discharger actions to reduce adverse impacts to Edwards AFB operations and develop requirements for new disposal options; use Basin Plan amendment process to prescribe site-specific objectives for Piute Ponds; pollution and degradation of groundwater by nitrate and TDS; continue to monitor discharger's actions to reduce impact of discharge on groundwater and remedial measures; develop IRWM Plans; implement irrigation management measures; evaluate impacts from large-scale development and integration of sustainable land uses and landscape designs; identify conflicts between water supply and water quality; investigate loading contributions from residential and urban activities; mitigate groundwater overdraft; investigate nitrogen and salt loading contributions to ground and surface water;

demonstrate water reuse projects to lower demand on supply; and implement citizen monitoring.

- Implementation of the SWRCB's Nonpoint Source Pollution Plan.

  The Nonpoint Source Pollution Plan adopts a number of management measures as goals for six Nonpoint Source Pollution categories (agriculture, forestry, urban areas, marinas and recreational boating, hydromodification, and wetlands/riparian areas/vegetated treatment systems).

- Assist in meeting Delta Water Quality Objectives.

  Decision 1641 is an action by the SWRCB to establish water quality objectives for water users in the Delta. The Bay/Delta Water Quality Control Plan was developed as a means to attain these water quality objectives and includes the following components: implementation of flow objectives for specific water quality criteria in the Bay-Delta Estuary; a petition to change the point of diversion for the CVP and SWP in the southern Delta; and a petition to change 'in place of use' and 'purpose of use' of the CVP. Generally it was determined that projects within the Antelope Valley Region that increase the reliability of local supplies reduce the need for additional water supplies from the Bay-Delta region. Therefore, there is additional supply in the Bay-Delta available to contribute towards meeting Delta water quality objectives.

- Implementation of recommendations of the floodplain management task force, desalination task force, recycling task force or State species recovery plan.

  Recommendations of the floodplain management task force include, but are not limited to, floodplain mapping, land use planning in areas affected by flooding, alluvial floodplain management, and flood warning and local community flood response programs. Recommendations of the desalination task force were assumed not applicable due to it not being economical and environmentally appropriate in the Antelope Valley Region. Recommendations from the recycling task force include local agencies actively participating with the public in planning water recycling projects; creating recycled water ordinances; increasing public awareness to ensure a safe recycled water supply and encouraging economic and fiscal analyses for water recycling projects to provide true costs and benefits of such projects.

- Address environmental justice concerns.

  Projects that would benefit disadvantaged communities would go toward meeting this objective.

- Assist in achieving one or more goals of the CALFED Bay-Delta Program.

  The CALFED Bay-Delta Program objectives focus on water quality, ecosystem quality, water supply reliability, and levee system integrity in the Bay-Delta area. The potential for actions within the Antelope Valley Region to assist in achieving these goals is through the increase in the reliability of local water supplies, thereby reducing the need for additional imported water supplies from the Bay-Delta region.

TABLE 6-7
ALTERNATIVE "GAP" PROJECTS VS. IRWM PLAN OBJECTIVES

	Water Supply Management								Water Quality Management										Flood Management		Environmental Management		Land Use Management					
Local and Regional Plan Policies	Provide reliable water supply to meet the Region's expected demand between now and 2035.	*Reduce (68,400 to 189,100 AFY) mismatch of expected supply and demand in average years by providing new water supply and reducing demand, starting 2009.*	*Provide adequate reserves (50,700 to 60,500 AFY) to supplement average condition supply to meet demands during single-dry year conditions, starting 2009.*	*Provide adequate reserves (0 to 62,400 AFY) to supplement average condition supply to meet demands during multi-dry year conditions, starting 2009.*	Establish a contingency plan to meet water supply needs of the region during a plausible disruption of SWP water deliveries.	*Demonstrate ability to meet regional water demands without receiving SWP water for 6 months over the summer by June 2010.*	Stabilize groundwater levels at current conditions.	*Manage groundwater levels throughout the basin such that a 10 year moving average of change in observed groundwater levels is greater than or equal to 0, starting January 2010.*	Provide drinking water that meets customer expectations.	*Continue to meet Federal and State water quality standards as well as customer standards for taste and aesthetic.*	Protect aquifer from contamination.	*Prevent unacceptable degradation of aquifer according to the Basin Plan throughout the planning period.*	*Identify contaminated portions of aquifer and prevent migration of contaminants by June 2009.*	*Map contaminated sites and monitor contaminant movement by December 2008.*	Protect natural streams and recharge areas from contamination.	*Prevent unacceptable degradation of natural streams and recharge areas according to the Basin Plan throughout the planning period.*	Maximize beneficial use of recycled water.	*Increase infrastructure and establish policies to use 33% of recycled water by 2015, 66% by 2025 , and 100% by 2035.*	Reduce negative impacts of storm water, urban runoff, and nuisance water.	*Coordinate a regional flood management plan and policy mechanism by the year 2010.*	Preserve open space and natural habitats that protect and enhance water resources and species in the region.	*Contribute to the preservation of an additional 2,000 acres of open space and natural habitat to integrate and maximize surface and groundwater management by 2015.*	Maintain agricultural land use within the Region.	*Preserve 100,000 acres of farmland in rotation through 2035.*	Meet growing demand for recreational space.	*Contribute to local and regional General Planning documents to provide 5,000 acres of recreational space by 2035.*	Improve integrated land use planning to support water management	*Coordinate a regional land use management plan by the year 2010.*
Aggressive conservation	X	X	X	X	X	X																						
Develop further conjunctive use management	X	X	X	X			X	X											X	X	X	X	X	X	X	X	X	
Water Banks Outside of the Antelope Valley	X	X	X	X	X																							
Create regional database for groundwater pumping							X	X			X				X													
Use alternative sources of water	X	X	X	X	X																							
Make further use of recycled water	X	X	X	X													X	X										
Inability to approve further development		X			X																							
Identify contaminated portions of the aquifer											X	X	X	X	X	X												
Map contaminated portions of aquifer by December 2008.											X	X	X	X	X	X												
Establish a well abandonment ordinance											X																	
Develop and implement a regional Groundwater Wellhead Protection Program											X																	
Develop management program for nitrate and TDS											X	X	X	X	X	X												
Expand the water quality monitoring program											X	X	X	X	X	X			X	X								
Coordinate a flood management plan																			X	X							X	
Storm water capture/recovery feasibility study																			X	X								
Increase small-scale flood management projects	X	X	X	X															X		X	X						
Encourage Low Impact Development																	X		X		X						X	
Preserve acres of habitat																					X	X			X	X	X	
Develop a HCP for the Antelope Valley																					X	X			X	X	X	
Promote land conservation projects that enhance flood control, aquifer recharge, and watershed and open space preservation.											X	X			X	X			X		X	X	X	X	X	X	X	
Preserve farmland																							X	X	X		X	
Build public parks and recreational amenities																									X	X	X	
Create a Watershed Management Plan											X	X			X	X			X	X	X		X		X		X	
Create incentives for land owners to protect/restore/preserve open space											X	X			X	X			X		X	X	X	X	X			

TABLE 6-8
ALTERNATIVE "GAP" PROJECTS VS. IRWM PLAN STRATEGIES, AB 3030, IRWM PLAN GUIDELINES, STATEWIDE PRIORITIES, IRWM PLAN OBJECTIVES

	Water Supply									Water Quality			Flood Mngt.		Environ. Resource Management				Land Use Mngt.	
ALTERNATIVE "GAP" PROJECTS	Water Supply Reliability	Groundwater Management	Water Conservation	Water Recycling	Water Banking & Conjunctive Use	Imported Water	Surface Storage	Water Transfers	Desalination	Water Quality Protection and Improvement	Non-Point Source Pollution Control	Water and Wastewater Treatment	Flood Management	Storm water Capture and Management	Ecosystem Restoration	Environmental and Habitat Protection and Improvement	Recreation and Public Access	Wetlands Enhancement and Creation	Land Use Planning	Watershed Planning
Aggressive conservation	X		X	X			X					X							X	
Develop further conjunctive use management	X	X			X		X	X					X	X				X	X	X
Participated in water banks outside of the Antelope Valley	X	X			X	X	X	X												
Create regional database for groundwater pumping	X	X					X													
Use alternative sources of water		X			X	X	X	X	X											
Make further use of recycled water	X		X	X						X		X	X	X						
Inability to approve further development	X										X								X	
Identify contaminated portions of the aquifer	X	X								X	X									
Map contaminated portions of aquifer by December 2008	X	X								X	X									
Establish a well abandonment ordinance	X	X								X	X									
Develop and implement a regional Groundwater Wellhead Protection Program	X	X								X	X								X	X
Develop management program for nitrate and TDS	X	X								X	X	X							X	X
Expand the water quality monitoring program	X	X				X	X			X	X	X							X	X
Coordinate a flood management plan	X												X	X					X	X
Storm water capture/recovery feasibility study	X												X	X					X	X
Increase small-scale flood management projects	X												X	X					X	X
Encourage Low Impact Development	X												X	X					X	X
Preserve acres of habitat															X	X	X	X	X	X
Develop a HCP for the Antelope Valley															X	X	X	X	X	X
Promote land conservation projects that enhance flood control, aquifer recharge, and watershed and open space preservation.	X	X											X	X	X	X	X	X	X	X
Preserve farmland																			X	X
Build parks and recreational amenities																	X	X		
Create a Watershed Management Plan	X														X	X	X	X		X
Create incentives for land owners to protect/restore/preserve open space	X		X	X									X	X		X	X		X	X

	AB 3030 Guidelines												IRWM Plan Program Preferences						Statewide Priorities							
ALTERNATIVE "GAP" PROJECTS	The control of saline water intrusion.	Identification and management of wellhead protection areas and recharge areas	Regulation of the migration of contaminated groundwater.	The administration of a well abandonment and well destruction program.	Mitigation of conditions of overdraft.	Replenishment of groundwater extracted by water producers.	Monitoring of groundwater levels and storage.	Facilitating conjunctive use operations.	Identification of well construction policies.	The construction and operation by the local agency of groundwater contamination cleanup, recharge, storage, conservation, water recycling and extraction projects.	The development of relationships with state and federal regulatory agencies.	The review of land use plans and coordination with land use planning agencies to assess activities which create a reasonable risk of groundwater contamination.	Include integrated projects with multiple benefits.	Support and improve local and regional water supply reliability.	Contribute expeditiously and measurably to the long-term attainment and maintenance of water quality standards.	Eliminate or significantly reduce pollution in impaired waters and sensitive habitat areas, including areas of special biological significance.	Include safe drinking water and water quality projects that serve disadvantaged communities.	Include groundwater management and recharge projects that are located 1) in San Bernardino or Riverside counties; 2) outside of the service area of the Metropolitan Water District of Southern California; or 3) within one mile of established residential and commercial development.	Reduce conflict between water users or resolve water rights	Implementation of TMDLs that are established or under development.	Implementation of Regional Water Quality Control Board Watershed Management initiative Chapters, plans, and policies.	Implementation of the State Water Resource Control Board's Non-point Source Pollution Plan.	Assist in meeting Delta Water Quality Objectives.	Implementation of recommendations of the floodplain management task force, desalination ask force, recycling task force or State species recovery plan	Address environmental justice concerns.	Assist in achieving one or more goals of the CALFED Bay-Delta Program.
Aggressive conservation					X					X			X	X							X		X		X	X
Develop further conjunctive use management		X			X	X	X	X		X			X	X				X			X		X			X
Participated in water banks outside of the Antelope Valley						X		X		X	X		X	X				X			X		X			X
Create regional database for groundwater pumping			X				X						X	X												X
Use alternative sources of water					X	X		X		X	X		X	X				X			X			X		X
Make further use of recycled water					X	X		X		X			X	X	X						X			X		X
Inability to approve further development																										
Identify contaminated portions of the aquifer		X										X	X	X	X	X					X		X			X
Map contaminated portions of aquifer by December 2008		X										X	X	X	X	X					X		X			X
Establish a well abandonment ordinance			X	X					X			X	X	X	X	X					X		X			X
Develop and implement a regional Groundwater Wellhead Protection Program		X	X	X					X			X	X	X	X	X					X		X			X
Develop management program for nitrate and TDS		X	X									X	X	X	X	X					X		X			X
Expand the water quality monitoring program							X						X	X	X	X					X		X			X
Coordinate a flood management plan								X		X			X	X				X			X		X	X		X
Storm water capture/recovery feasibility study								X		X			X	X				X			X		X	X		X
Increase small-scale flood management projects								X		X			X	X				X			X		X	X		X
Encourage Low Impact Development												X	X	X							X		X	X		X
Preserve acres of habitat													X											X		
Develop a HCP for the Antelope Valley													X											X		
Promote land conservation projects that enhance flood control, aquifer recharge, and watershed and open space preservation.	X							X		X		X	X								X					
Preserve farmland												X	X													
Build parks and recreational amenities												X	X											X		
Create a Watershed Management Plan												X	X	X	X						X		X			X
Create incentives for land owners to protect/restore/preserve open space													X	X							X		X			X

6.3 Added Benefits of Integration

Integration of the water management strategies may provide additional benefits, as compared to implementing stand alone alternatives. These added benefits may include:

- facilitating cost sharing among agencies (economy of scale) and organizations,
- resolving potentially conflicting water management needs,
- avoiding duplication of planning, design, compliance, or implementation efforts,
- identifying and resolving jurisdictional, legal, regulatory, administrative, or water rights issues,
- enhancing efficiency of monitoring (e.g., combining monitoring efforts and reducing monitoring duplication) and data management,
- increasing public awareness, public education and outreach, and stakeholder involvement, and
- providing synergistic effects to optimize attainment of IRWM Plan objectives.

6.4 Conclusions

This IRWM Plan identifies projects and management actions that can be used to implement the projects in an integrated fashion to meet the AV IRWM Plan objectives and associated planning targets by 2035. The initial benefits for those projects far enough along in the planning stages to estimate benefit have been quantified showing that the projects will not provide the level of benefits needed to fully accomplish the Antelope Valley Region's quantified planning targets, particularly relative to the water supply, environmental resource, and land use management WMSAs. This provides the basis for discussion on how stakeholders may begin to contribute progress towards quantifiable targets. Table 6-9 provides a summary of the quantified benefits, for those projects that identified numerical benefits, for each WMSA, and assumes that all the projects proposed for this IRWM Plan were implemented. For example, Table 6-9 provides the projects that included quantifiable water supply benefit information, even if the numbers are very preliminary estimates. Note that some projects are likely to contribute a benefit to supply in one water year scenario more than another. For example, groundwater banking is a water management strategy that provides a dry/multi-dry year benefit, not an average year benefit because of the way that the banks are typically operated. An average water year, surplus water would be injected into the banks, and therefore this injected water would not go towards meeting demand for an average year, thus is not a "benefit" for an average year. During a dry water year, however, water would be extracted from the bank to help meet dry year demand and would then be a "benefit" for a dry year.

Therefore, Table 6-9 groups the projects and their expected benefits into the three water year scenarios; average, dry, and multi-dry.

TABLE 6-9
PROJECTS THAT PROVIDE QUANTIFIABLE WATER SUPPLY BENEFITS

Projects Organized by Water Year Scenario	Estimated Benefit
Average Year	
PWD's ET-Based Controller Program This project involves the installation of ET-based irrigation controllers for landscaped areas. PWD estimates that greater than 1,000 AFY could be saved through use of these controllers. *LACWWD 40's ET Controller Program* This project involves the installation of ET-based irrigation controllers for landscaped areas. LACWWD 40 anticipates that this project be jointly administered with the City of Palmdale, City of Lancaster, PWD, AVEK, the Building Industry Association, AVWCC, and homeowners associations.	> 1,000 AFY** ** Given that these projects overlap one another, their quantified benefits have been combined. However, these estimates are based on conceptual project descriptions and are therefore subject to change as the projects are more clearly defined.
Leona Valley Town Council's Precision Irrigation Control System This project is a proposed irrigation control system using electronic sensor probes at the root level. Preliminary estimates show a potential savings of more than 150 AFY.	> 150 AFY
LACWWD 40's Ultra Low Flush Toilet (ULFT) Change Out Program This project would distribute ULFT's to customers through one-day Saturday toilet distributions. Estimated savings are between 1 to 100 AFY.	1 to 100 AFY
Leona Valley Town Council's Stormwater Harvesting This project involves the collection and treatment of stormwater for use as irrigation supply. The project estimates that once fully implemented, a savings of 25 AFY could be realized.	25 AFY
PWD's Littlerock Dam Sediment Removal Project This project involves removing accumulated sediment from the Littlerock Reservoir which would increase its storage capacity. PWD estimates that greater than 1,000 AFY could be supplied through this capacity increase.	> 1,000 AFY

Projects Organized by Water Year Scenario	Estimated Benefit
Lancaster's Groundwater Recharge Using Recycled Water Pilot Project This Pilot project would recharge 2,500 AFY of blended recycled water and imported/stormwater. Ultimately the project could recharge as much as 50,000 AFY of blend water, with blend water consisting of 40,000 AFY of imported SWP water and 10,000 AFY of recycled water from Lancaster WRP. The baseline project would extract 48,000 AFY of recharged water, on average, via a new well field and deliver the water to wholesaler/retailer distribution system(s) and private agricultural users.	2,500 AFY and 100 acres open space; ultimately 48,000 AFY and 1,000 acres open space
PWD's Groundwater Recharge Using Recycled Water This project involves groundwater recharge using recycled water from the Palmdale WRP. This project is anticipated to be similar to the Lancaster groundwater recharge project described above and have similar blending and extraction numbers (e.g., a blend of 10,000 AFY of recycled water and 40,000 AFY of SWP water). In order to have 40,000 AFY of SWP water to blend, this project would most likely end up being an AVSWCA project (or at least a joint venture type project with AVEK and/or LCID).	48,000 AFY *** This project is still in the conceptual phase, however it is anticipated to be similar to the Lancaster project described above. Therefore, the same average annual extraction is assumed.
Palmdale's Amargosa Creek Recharge and Channelization Project This project includes expanding the size and capacity of the spreading grounds for natural recharge; developing and preserving an ephemeral stream habitat; and channelization of Amargosa Creek and providing a grade separation of 20th Street West over Amargosa Creek.	5,000 to 10,000 AFY; 15 acres of open space and 20 acres of flood protection.

Projects Organized by Water Year Scenario	Estimated Benefit
Dry Year and Multi-Dry Year	
Western Development & Storage's Antelope Valley Water Bank The Antelope Valley Water Bank is being designed to provide 500,000 AF of storage in the Neenach Subbasin of the Antelope Valley Region and the ability to recharge and recover 100,000 AFY. This project would also create approximately 1,700 acres of agricultural land.	40,400 - 100,000 AFY** ** Although these projects share the same source water (SWP water) and thus their benefits are limited to how much SWP is available to the Antelope Valley Region for recharge, they can be differentiated by the potential extraction capacities. Therefore, a range of the individual project benefits has been provided.
LACWWD 40's Groundwater Banking Project This project would establish a groundwater bank to include 63,500 AF extraction capacity during dry years and 170,000 AF storage capacity.	
AVEK's Water Supply Stabilization Project – Eastside and Westside Projects These projects establish groundwater banks in the Antelope Valley Region used to recharge imported SWP water.	
LACWWD 40's Injection Well Development Project This project involves the construction of 10 new Aquifer Storage and Recharge/Recovery (ASR) well sites. The additional wells would be available for water injection during wet years and for water extraction during dry years.	12,000 AFY

There are additional water supply capacity improvement projects that by themselves don't contribute to adding new supplies to the Antelope Valley Region, but allow for the additional use of existing supplies. These projects include but are not limited to: infrastructure improvements at AVEK's treatment plants, RCSD's Gaskell Road Pipeline project, and RCSD's valves and turnouts projects just to name a few. Refer to Section 5 or to Tables 6-1 and 6-2 for a listing of all the current and proposed projects.

Table 6-10 provides a summary of the projects that provide quantifiable benefits other than water supply.

TABLE 6-10
PROJECTS THAT PROVIDE OTHER QUANTIFIABLE BENEFITS

Projects	Estimated Benefit
Antelope Valley Conservancy's Antelope-Fremont Watershed Assessment and Plan This project would integrate with this IRWM Plan and consensus-based Antelope Valley Region Regional Conservation Roundtable, and create habitat management plans for proposed conservation lands.	2,000 acres open space/habitat, conservation lands
Palmdale's Barrel Springs Detention Basin and Wetlands This project would provide flood control, wetland enhancement, and habitat protection for the City of Palmdale.	40 acres of wetland/habitat
PWD's Avenue Q and 20th Street East Basin This project would provide for a possible groundwater recharge area and provide for natural habitat preservation.	160 acres of habitat; 1,600 AFY of stormwater capture
PWD's Hunt Canyon Groundwater Recharge and Flood Control Basin This project is intended to alleviate flooding concerns in the Antelope Valley Region through detention of excess stormwater runoff during severe storms.	300 acres of habitat; 3,000 AFY of stormwater capture
Los Angeles County Public Work's Quartz Hill Storm Drain This project would alleviate flooding and improve water quality in unincorporated areas of Los Angeles County.	1,200 acres of flood protection

Because quantified planning targets were not established for the flood management WMSA, that WMSA is not included in Table 6-11 below.

TABLE 6-11
SUMMARY OF QUANTIFIED BENEFITS

WMSA Benefit Type	Range	
Water Supply	1 AFY – 48,000 AFY (Avg. Year)	12,000 AFY – 100,000 AFY (Dry Year)
Water Quality	3,200 – 64,780 AFY recycled water demand	
Environmental Management	5,800 acres flood protection/stormwater capture	
Land Use Management	2,500 acres habitat/open space	

Table 6-12 provides a summary of how the stakeholder-identified projects contribute towards meeting the other evaluation criteria: Proposition 50 IRWM Strategies, AB 3030 Guidelines, IRWM Guideline Program Preferences, and Statewide Priorities. Proposed projects contributed to all but one Proposition 50 IRWM Strategy, desalination. Due to the Antelope Valley Region's distance from the ocean, and the economic cost of constructing a desalination plant and pipeline to the ocean, desalination is not an attractive strategy for the Antelope Valley Region at this time. However, should the Antelope Valley Region consider a future transfer or exchange which has desalinated water as a component, the IRWM Plan's contribution to meeting this objective could be re-evaluated. All of the AB 3030 Guidelines were cumulatively contributed to by the projects proposed in this IRWM Plan. Due to the Antelope Valley Region's distance from the ocean, and the widely-held assumption that it is a closed basin, saltwater intrusion was assumed to not be applicable to the Antelope Valley Region. All of the IRWM Guideline Program Preferences were cumulatively contributed to by the projects proposed in this IRWM Plan. Only one of the Statewide Priorities was not contributed to by the projects in this IRWM Plan: "implementation of TMDLs that are established or under development", because there are no TMDLs currently established for waters within the Antelope Valley Region.

TABLE 6-12
SUMMARY OF PROJECTS VS. PROP 50 STRATEGIES, AB 3030, IRWM PROGRAM PREFERENCES, AND STATEWIDE PRIORITIES

Other Evaluation Criteria	No. of Objectives Contributed to	No. of Projects
IRWM Proposition 50 Strategies	0	0
	1-5	39
	> 5	21
AB 3030 Guidelines	0	8
	1-5	40
	> 5	12
IRWM Program Preferences	0	1
	1-3	53
	> 3	6
Statewide Priorities	0	0
	1-4	55
	> 4	5

Section 7: IRWM Plan and Projects Evaluation and Prioritization

7.1 Introduction

This section presents a general discussion of the advantages of planning regionally for water resource management and evaluates the benefits of the Antelope Valley Integrated Regional Water Management (IRWM) Plan, including benefits to local and disadvantaged communities within the Antelope Valley Region, and positive impacts that this effort may have on other natural and community resources. Section 7 also describes the evaluation criteria and process that Stakeholders used to rank and prioritize IRWM projects, and presents those projects that Stakeholders have designated as high priority. High priority projects are those that the Stakeholders want to see implemented within the next two years; their implementation is discussed further in Section 8. Lastly, the benefit and costs of these high priority projects are provided in this section.

7.2 IRWM Plan Impacts and Benefits Assessment

The discussion below discusses the advantages of preparing a regional plan as opposed to individual local efforts and includes an evaluation of the potential benefits and impacts of Plan implementation within the Antelope Valley Region and in adjacent areas. A description of how this IRWM Plan responds to environmental justice concerns and its potential impacts on disadvantaged communities (DACs) is provided, as well as a preliminary evaluation of the impacts and benefits to other resources, such as air quality and transportation.

7.2.1 Advantages of Preparing a Regional Plan

There are many advantages to preparing a regional plan as opposed to implementing local efforts. Regional planning provides a means to maintain, protect, and restore natural resources within the Antelope Valley Region while also enhancing the quality of life for residents in the Antelope Valley Region. The Antelope Valley IRWM Plan provides a means to support environmental protection, quality of life issues, and economic development using the watershed boundary as the planning framework. This IRWM Plan allows for stakeholders in the community to join together in creating a vision for water resources in the Antelope Valley Region.

In creating the opportunity for collaboration, this IRWM Plan process facilitates the establishment of partnerships between local and state governments, community organizations and any other groups with the common goal of protecting water resources within the Antelope Valley Region. It is through the IRWM Plan process that community efforts can be coordinated to create a regionally focused plan to more efficiently reach the identified objectives and goals. Moreover, preparation of a regional plan allows for the communities to address water supply, water quality, flood management, and environmental and land use issues within the physical boundaries of the watershed rather than political boundaries.

The environmental benefits of preparing this IRWM Plan are clear: enhanced water supply reliability, improvements in water quality, protecting natural habitats and open space areas for their water resource function, controlling flooding and maintaining community cultural and land uses. The community benefits are, however, even more important in the Antelope Valley Region. This is exemplified by the coordination and collaboration of the Regional Water Management Group (RWMG), which was formed for the purposes of carrying out this IRWM Plan. The fact that the RWMG, and all the stakeholders who participated in the planning of this IRWM Plan, have come together to develop an action plan to address their concerns over water resources in the Antelope Valley Region, is a historical feat given the Antelope Valley Region's history.

The RWMG made significant progress by establishing a collaborative forum in the Antelope Valley Region to conduct water management planning, regional objective and planning target design, assembly and prioritization of a comprehensive list of potential implementation projects, and oversight of the planning and implementation grant application process. Establishment of the RWMG has already resulted in substantial benefits by bringing together the numerous disparate water interests within the Antelope Valley Region into a single, unified group with a common purpose and direction.

The implementation of projects and management actions contained in this IRWM Plan designed to improve local resources (**whether they be water supply, open space, recreational land, etc.**) will be more successful as a result of this high level of cooperation among the agencies that must work together to implement them. This level of achievement and the benefits could not be realized from implementation of just a local agency's projects alone.

7.2.1.1 Potential Adverse Impacts

The IRWM Plan Guidelines require an evaluation of potential negative or adverse impacts within the Antelope Valley Region and in adjacent areas from implementation of the IRWM Plan projects. Each project implemented as part of this IRWM Plan will require evaluation of its impacts pursuant to the California Environmental Quality Act (CEQA). Section 7.2.4 provides a preliminary impact analysis for the resources that could be impacted by the IRWM Plan. Generally, any impacts that would be considered adverse would likely be short-term construction related impacts such as air quality emissions and increases in noise levels from grading activities. It is assumed that any approving entity would comply with CEQA regulations and respond with appropriate mitigation measures to the extent that any significant environmental impacts would result.

7.2.2 Interregional Benefits and Impacts

As detailed in Sections 1 and 2, the drainage basin was chosen as the boundary for this IRWM Plan, not the boundary of the groundwater basin. This decision was made to be consistent with several scientific studies of the Antelope Valley Region that have used this larger drainage basin boundary so that similar data sets could be utilized, and the boundary also included key agencies dealing with similar water management issues such as increasing populations, limited infrastructure, and increasing pumping costs with shared water resources.

Because the Antelope Valley Region is bound by the San Gabriel Mountains to the south and southwest, and the Tehachapi Mountains to the northwest, coordination with agencies and organizations outside of these ranges, in Los Angeles County and Ventura County, for example, would provide little benefit. However, there exists the potential for interregional benefits and impacts from coordination with agencies and organizations in San Bernardino County which lies to the east, and with the other South Lahontan funding area groups that are beginning their own process of developing an IRWM Plan.

Other IRWM Plan groups in the Antelope Valley Region include Mojave (who already completed their plan), Mono County, Owens Valley, Lake Tahoe, and Alpine County. Implementation of this IRWM Plan includes a provision to identify opportunities as they arise to find synergies with these other regional IRWM Plans so that interregional benefits can be realized.

7.2.3 Benefits to Disadvantaged Communities

A DAC is defined as having an annual median household income that is less than 80 percent of the statewide annual median household income, which is $37,994 using Census 2000 data. The analysis of census tract data (refer to Section 1) determined that approximately 20 percent of the population in the Antelope Valley Region reside in DACs, having a median household income of less than $37,994. These DAC communities include Mojave, portions of the Cities of California City, Palmdale and Lancaster, and some County unincorporated areas.

Projects that have so far been included in this IRWM Plan are not located specifically within these communities but will benefit Palmdale, Lancaster, and County unincorporated area residents directly. Additionally, the RWMG is currently engaged in outreach to develop and include projects within and adjacent to these communities. The RWMG is accepting projects on an ongoing basis and will offer technical assistance to DAC communities when available. All project ideas and concepts can be submitted for consideration to this IRWM Plan, and will undergo the same process for evaluation as the current proposed projects.

The objectives of the IRWM Plan are to provide a reliable water supply to meet demands in the Antelope Valley Region, to meet water quality standards and protect existing supplies from contamination, to manage flood waters and provide adequate flood control, and to protect and preserve open space, habitat, recreational uses, and agricultural lands within the entire Antelope Valley Region. Outreach effort findings suggest that these objectives successfully capture the general desires of most residents in the Antelope Valley Region, and that local projects generally capture the specific expression of these desires.

Meeting these objectives benefits the Antelope Valley Region as a whole, not just in the vicinity of the individual project. DACs in the Antelope Valley Region will benefit from implementation of this IRWM Plan and are expected to play a greater role in developing, proposing, and sponsoring/cosponsoring projects in the near future due to the targeted outreach efforts in these communities.

7.2.4 Resource Specific Impacts

The following discussion provides an evaluation of the impacts and/or benefits to other resources, such as air quality and transportation. These resources are evaluated below for

implementation of this IRWM Plan as a whole. Each project will be required to undergo adequate CEQA review prior to project-specific implementation. The CEQA review will provide an evaluation of impacts to these other resources in much greater detail than discussed below.

Aesthetics. The IRWM Plan includes objectives that preserve habitat and open space which would maintain the beneficial visual aspects of these land uses. Projects that include construction activities would likely occur in areas that are already disturbed, or would include mitigation measures that would return disturbed areas to their pre-construction conditions.

Agricultural Resources. One of the objectives of the IRWM Plan is to preserve existing agricultural land and increase the amount of agricultural land used to facilitate conjunctive use operations. Therefore, impacts to agriculture from Plan implementation are likely to be beneficial.

Air Quality. Short-term air quality impacts could result from construction activities from some of the proposed projects. However, through the CEQA process most of these activities would be minimized through mitigation efforts, and no long-term air quality impacts would be expected.

Biological Resources. Short-term biological impacts could result from construction activities from some of the proposed projects. However, through the CEQA process most of these activities would be minimized through mitigation efforts and no long-term biological impacts would be expected. Additionally, the IRWM Plan includes habitat preservation as one of its objectives. Thus, if implemented, impacts to biological resources could be beneficial.

Cultural Resources. Impacts to cultural resources could result from construction activities from some of the proposed projects. However, through the CEQA process most of these activities would be minimized through mitigation efforts and no long-term cultural impacts would be expected.

Geology and Soils. All projects would be required to undergo geological feasibility studies which would specify the appropriate engineering standards the contractor would have to comply with during construction. Compliance with these standards would mitigate project site geological and soil impacts.

Hazards and Hazardous Materials. Hazards and hazardous materials impacts could result from construction activities from some of the proposed projects should a spill occur. However, through the CEQA process most of these activities would be minimized through mitigation efforts and best management practices and no long-term hazards impacts would be expected.

Hydrology and Water Quality. Overall impacts to hydrology and water quality would be beneficial because the majority of the projects in this IRWM Plan would improve water supply reliability and water quality.

A number of projects proposed in this IRWM Plan are water banking programs; some indicate the source of water to be banked, others focus on creation of the bank itself, and not the source of water. For example, AVEK's Eastside and Westside Water Supply Stabilization Projects assume the source of water will be SWP. Alternatively, the Western Development and Storage Banking Program will operate by extending invitations to agencies and other entities to import water into the bank; without specifying the source of the imported water. Concern for meeting

water quality regulations for groundwater recharge for the variety of source waters was discussed in Section 3.2.5.1.

Land Use and Planning. The projects proposed in this IRWM Plan were evaluated as to their consistency with local and regional General Plans (see Table 8-2). Therefore, no significant land use changes or inconsistencies with policies are anticipated.

Noise. Noise impacts could result from construction activities from some of the proposed projects. However, through the CEQA process most of these activities would be minimized through mitigation efforts and no long-term noise impacts would be expected.

Population and Housing. No adverse impacts to population and housing would occur. Plan implementation would help to meet the water demands of the existing and current population.

Public Services. Public services would not be adversely impacted by implementation of this IRWM Plan. The increased reliability of local water supplies could benefit fire protection efforts in the Antelope Valley Region.

Recreation. One of the objectives of the IRWM Plan is to meet the growing demand for recreational space. Therefore, impacts to recreation from Plan implementation are likely to be beneficial.

Transportation and Circulation. Transportation and circulation could be temporarily impacted during construction of some of the proposed projects that are located near roadways and main arteries. However, through the CEQA process most of these activities would be minimized through mitigation efforts and no long-term transportation and circulation impacts would be expected.

Utilities and Service Systems. Many of the projects proposed in this IRWM Plan are included to enhance water and wastewater treatment, enhance reliability of water supplies through infrastructure upgrades, and increase stormwater management and flood control operations. These types of projects would benefit the utilities and service systems in the Antelope Valley Region.

7.2.4.1 Impacts to Energy

The Antelope Valley Region has a variety of efforts planned or underway to both reduce water consumption with the corresponding reduction in energy use and to develop local energy supply. These efforts include water conservation, recycled water use, hydropower, and utilization of renewable resources, such as wastewater treatment plant digester gas recovery and solar power. As described in the IRWM Plan, the Antelope Valley Water Conservation Coalition is proposing the Comprehensive Water Conservation/Water Use Efficiency Program and the Cities of Palmdale and Lancaster are both proposing recycled water projects. The water use efficiency effort, in particular, has a direct impact to reducing the energy used to pump water over the Tehachapis. Recycled waters derive similar benefit by reducing the quantity of potable water that needs to be pumped through the State Water Project system.

The projects included in the AV IRWM Plan also contribute to the production of local energy. The proposed Palmdale Power Project in the City of Palmdale, is a hybrid of natural gas-fired

combined cycle generating equipment integrated with solar thermal generating equipment, and will have a net electrical output of 563 megawatts (MW). Critical process cooling water needs for the Plant will be met by the use of recycled water, as described in Section 3, thereby saving valuable potable water. Construction is planned to begin in 2008 and commercial operation planned in late 2010. The Palmdale Power Project is also designed to use solar photovoltaic technology to generate a portion of the project's output and thereby support the State of California's goal of increasing the percentage of renewable energy supplies.

Other examples of renewable energy in the region are the LACSD 14 and LACSD 20 projects. In 2003, the LACSD 14 entered into an agreement with Ingersoll-Rand (IR) to demonstrate their 250 kilowatt (kW) microturbine fueled by digester gas. At full power the microturbine will produce 250 kW of electricity and sufficient hot water to heat the water reclamation plant (WRP) digesters. The completed project will provide economical electricity and hot water to supply the plant's energy needs with a combined electrical and thermal efficiency of up to 51 percent. In the same time period as LACSD 14, LACSD 20 entered into an agreement with Quinn Power Systems to demonstrate a Fuel Cell Energy 250 kW fuel cell on digester gas. This program is the first digester gas application of the 250 kW unit. At full power the fuel cell will produce 250 kW of electricity and sufficient hot water to heat the WRP digesters. The completed project will provide economical electricity and hot water to supply the plant's energy needs with a combined electrical and thermal efficiency of up to 73 percent. Environmental benefits of these facilities include a reduction of greenhouse emissions, air emissions that are less than the gas flares, and the reduction of air emissions associated with less consumption of utility central generating plants. By generating power where it is needed there is also a reduced need for utility transmission and distribution facilities.

Through implementation of these projects and the AV IRWM Plan, there is the potential for an overall benefit to energy resources within the Antelope Valley Region.

7.3 IRWM Projects Evaluation and Ranking

The following discussion focuses on the potential benefits associated with the individual projects proposed as part of the plan, as well as how effectively they will work towards plan objectives and the feasibility of their future implementation. The intent of the project evaluation and prioritization process is to identify those projects and management actions the stakeholders would like to pursue first to begin addressing the Antelope Valley Region's issues and needs and to meeting the identified AV IRWM Plan objectives.

As discussed in Section 5 and shown in Tables 6-1 and 6-5, there are a number of current strategies being used to address the Antelope Valley Region's water management issues. These include the development of plans and studies, investigations into groundwater recharge and groundwater banking programs, and others. Many of these current efforts provide the basis for the stakeholder-identified projects. For example, the City of Lancaster's Groundwater Recharge Feasibility Study provided the technical analysis for the development of Lancaster's Groundwater Recharge Using Recycled Water Pilot Project.

Plans and actions currently underway are assumed to continue for the purposes of this IRWM Plan. It is the projects that were submitted by the stakeholders during the Call for Projects that illustrate the breadth of the activities that would be needed for the Antelope Valley Region to

meet its water management objectives. However, even if all of the projects proposed in this IRWM Plan were implemented in the Antelope Valley Region (discussed in Section 5 and shown in Table 6-2 and 6-6), there are still gaps that would need to be filled by alternative projects in order to meet the IRWM Plan objectives. Management actions suggested to fill these gaps were discussed in Section 6, and are also considered in the evaluation and prioritization exercise provided in this Section.

Therefore, the evaluation and ranking of the projects is focused mainly on those projects and management actions submitted by the stakeholders and the 'alternative gap' projects discussed in Section 6 that help fill the gaps between strategies. Through numerical ranking and qualitative assessment, each project was given a low, medium, or high priority ranking. Projects were evaluated and ranked according to the criteria listed below, and as shown in Table 7-1. Each evaluation criteria was assigned points, as described in more detail below. Initial scores provided an early indication of the potential final ranking of each project. Table 7-1 also allowed for stakeholder comments, which provided an additional method to evaluate the Projects.

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TABLE 7-1
PROJECT EVALUATION MATRIX

Planned Project/Program Types and Activities	READINESS TO PROCEED						Broad Support	Integration		No. of IRWM Plan Objectives & Targets Addressed	Six or more AB 3030 Elements Addressed	Six or More Water Mngt Strategies Addressed	No. of Regional Priorities Addressed	Four or more IRWM Plan Preferences Addressed	Five or more Statewide Priorities Addressed	Consistency w/ General Plans	Serves a DAC	Total Criteria Score	Stakeholder Comments/Discussion	Stakeholder's Priority (Low, Medium, High)
	CEQA Completed or Not Required	Cost Estimates Prepared (with some detail)	Cost/Benefit Detail			Schedule Prepared		Integrates Easily	Integration Detail											
			Cost Estimate	Benefit Estimate (if quantifiable)	Anticipated Funding Match Source															
Antelope Valley Water Bank *(WDS)*	1	1	$170M	100,000 AFY; 1,700 acres of agriculture	Antelope Valley Water Bank Banking Partners	1	1	1	Integrates with other groundwater banking projects in the region.	16	1	1	9	0	0	1	1	34	Source of water to be banked currently undetermined. The project is strategically located near imported water supply wheeling infrastructure (1 mile from AVEK West Feeder and 8 miles from East Branch of the SWP California Aqueduct) providing an excellent means to store and regulate supplies. The land will remain in agricultural production (carrots, onions, wheat, barley) when not being used for surface recharge (approximately 90% of the time) and provide associated habitat.	High
Water Supply Stabilization Project – Eastside Project *(AVEK, AVSWCA)*	0	0	$200M	It is likely that this project will provide a benefit similar to that of the westside project; therefore in range of 40,000 to 43,000 AFY.	Not specified	0	1	1	Integrates with existing (or proposed) treated water facilities, recycled water recharge, or stormwater collection and reuse.	17	1	1	9	0	0	1	1	32	Establishment of a regional groundwater bank by local entities would ensure that the benefits from implementation, including economic benefits, would remain within the Antelope Valley, thereby benefiting the community.	Medium
Water Supply Stabilization Project – Westside Project *(AVEK, AVSWCA)*	0	0	$230M	40,400 to 42,600 AFY	Not specified	0	1	1	Integrates with existing (or proposed) treated water facilities, recycled water recharge, or stormwater collection and reuse.	17	1	1	9	0	0	1	1	32	Land currently in escrow. The AVSWCA to issue an RFP for engineering services related to this project. Establishment of a regional groundwater bank by local entities would ensure that the benefits from implementation, including economic benefits, would remain within the Antelope Valley, thereby benefiting the community.	High
Antelope-Fremont Watershed Assessment and Plan *(Antelope Valley Conservancy)*	1	1	$45K	2,000 acres open space/habitat, conservation lands	Other grant funding and donations	1	0	0	Integrates existing research, plans, and projects, identifying opportunities and barriers, coordinating them into a consensus-based regional plan, and proposing approaches to identified gaps. The resultant plan will integrate with the Antelope Valley IRWM Plan and the consensus-based AV Regional Conservation Roundtable, and create habitat management plans for proposed conservation lands.	13	0	1	9	1	1	1	1	30	This project proposal would fund the 606 Studio to work with our regional stakeholders to coordinate a regional land use plan with emphasis on the preservation and restoration of sensitive natural systems of the Antelope-Fremont Watershed.	High, combine with the high prioritized regional land use management plan.
Groundwater Recharge Using Recycled Water (GWR-RW) Pilot Project *(Lancaster)*	0	1	$6M	2,500 AFY; 100 acres of open space	To be determined as part of the Pilot Project Fatal Flaw Analysis (refer to Project Template form in Appendix E)	1	1	1	Integrates the resources and capabilities of local municipalities, water purveyors and service providers to the benefit of the entire region and dove-tail into current groundwater banking plans, recycled water utilization plans and storm water management endeavors.	12	0	1	9	0	0	1	0	27	Feasibility and technical studies complete. Integrates with the regional recycled water project and LACSD projects.	High
Groundwater Banking *(LACWWD40)*	0	0	> $100M	It is likely that this projects overlaps the other regional water banking programs in the initial concept phase. Therefore, their individually estimated quantified benefits cannot be cumulatively totaled to provide an accurate estimate of future supply.	Not specified	0	1	1	Integrates with the WDS water bank, or a water banking program outside the Region (ex. Semitropic).	11	1	1	9	0	0	1	1	26	This project has great potential to be integrated with recreational, open space, and flood management opportunities.	Removed as a separate project/linked to other banking projects
Amargosa Water Banking and Storm Water Retention Project *(No current sponsor)*	0	0	$100K - $1M		Not specified	0	1	1	Integrates with several other types of projects including, but not limited to, other water banking programs, future recycled water recharge programs, water conservation programs, flood control programs, watershed management, and habitat/open space/recreation programs. Potential for integration with the City of Palmdale's Amargosa project.	12	0	1	9	0	0	1	0	25	Provides multiple benefits including stormwater capture, flood control, and open space areas.	Medium
Groundwater Recharge - Recycled Water Project *(PWD)*	0	0	> $10M	This project is still in the conceptual phase, however it is anticipated to be similar to the Lancaster project described above. Therefore, the same average annual extraction, 48,000 AFY, is assumed.	Not specified	0	1	1	Integrates with LACSD's Palmdale WRP projects. Could also integrate with recharge projects on the east side using SWP water.	12	0	1	9	0	0	1	0	25	The District hired Wildermuth Environmental to perform a reconnaissance-level study on doing groundwater recharge with recycled water from the Palmdale WRP.	Medium
Palmdale WRP Stage V *(LACSD)*	1	1	$95M	increase availability of recycled water to 16,800 AFY from Palmdale WRP when users identified.	Bonds, state revolving fund loans, and eventual ratepayer fee increases	1	1	1	Integrates with other projects with a recycled water demand by providing tertiary treated recycled water.	11	0	1	6	0	0	1	1	25	Includes design and construction of secondary/tertiary treatment facilities. Augments water supply by providing recycled water in lieu of potable for landscape irrigation, dust control, construction, and industrial process water.	High
Palmdale WRP Stage VI *(LACSD)*	1	1	~$62.4M (remaining cost starting 01/08)	increase availability of recycled water to 22,400 AFY from Palmdale WRP when users identified.	Bonds, state revolving fund loans, and eventual ratepayer fee increases	1	1	1	The project augments water supply by providing recycled water in lieu of potable for landscape irrigation, dust control, construction, and industrial process water.	11	0	1	6	0	0	1	1	25	Includes design and construction of agricultural recycled water force main and treatment plant expansion.	Medium
Amargosa Creek Recharge and Channelization Project *(Palmdale)*	0	0	$13.5M	5,000 - 10,000 AFY; 15 acres open space/habitat, 20 acres flood protection	$3M from Prop 50, $3.5M City of Palmdale, $2M State Water Contractors, $5M LACWWD40	0	1	1	Integrates with the construction of the 20th Street West bridge over the Amargosa Creek, the channelization of Amargosa Creek between 25th Street West and 20th Street West, and the natural habitat preservation, and with existing upstream and downstream Amargosa Creek improvements.	10	0	1	9	0	0	1	0	23	Provides multiple benefits including flood control and open space areas. The AVSWCA intends to issue an RFP for engineering services related to this project.	High/slightly modified project description to integrate with more project. Refer to project template in Appendix E.
Palmdale WRP Existing Effluent Management Sites *(LACSD)*	1	1	$5.2M	improved water quality and effluent management.	Bonds, state revolving fund loans, and eventual ratepayer fee increases	1	1	1	Integrates with water banking, groundwater recharge, habitat preservation and recreational space projects by supplying tertiary-treated recycled water.	9	1	0	6	0	0	1	1	23	Includes monitoring, irrigation equipment and misc capital costs associated with existing effluent management sites. Augments water supply by providing recycled water in lieu of potable for landscape irrigation, dust control, construction, and industrial process water.	High
Aquifer Storage and Recovery Project: Injection Well Development *(LACWWD40)*	1	1	$10M	12,000 AFY	75% from LACWWD40	1	1	1	Integrates with the well development project that increases our groundwater extraction capacity during the peak session.	6	1	0	8	0	0	1	1	22	Project includes 5 replacement wells, 6 wells currently in-design, and 4-5 conceptual wells north of Lancaster.	High
Lancaster WRP Stage V *(LACSD)*	1	1	$75M	increase availability of recycled water to 23,500 AFY from Lancaster WRP when users identified.	Bonds, state revolving fund loans, and eventual ratepayer fee increases	1	1	1	Integrates with water banking, groundwater recharge, habitat preservation and recreational space projects by supplying tertiary-treated recycled water.	8	0	1	6	0	0	1	1	22	Increases effluent storage capacity to 21 MGD. Augments water supply by providing recycled water in lieu of potable for landscape irrigation, dust control, construction, and industrial process water.	High

TABLE 7-1
PROJECT EVALUATION MATRIX

Planned Project/Program Types and Activities	READINESS TO PROCEED						Broad Support	Integration		No. of IRWM Plan Objectives & Targets Addressed	Six or more AB 3030 Elements Addressed	Six or More Water Mngt Strategies Addressed	No. of Regional Priorities Addressed	Four or more IRWM Plan Preferences Addressed	Five or more Statewide Priorities Addressed	Consistency w/ General Plans	Serves a DAC	Total Criteria Score	Stakeholder Comments/Discussion	Stakeholder's Priority (Low, Medium, High)
	CEQA Completed or Not Required	Cost Estimates Prepared (with some detail)	Cost/Benefit Detail			Schedule Prepared		Integrates Easily	Integration Detail											
			Cost Estimate	Benefit Estimate (if quantifiable)	Anticipated Funding Match Source															
Lancaster WRP Stage VI *(LACSD)*	1	1	~$51M (remaining cost starting 01/08)	increase availability of recycled water to 29,100 AFY from Lancaster WRP when users identified.	Bonds, state revolving fund loans, and eventual ratepayer fee increases	1	1	1	Integrates with water banking, groundwater recharge, habitat preservation and recreational space projects by supplying tertiary-treated recycled water.	8	0	1	6	0	0	1	1	22	Increases effluent storage capacity from 21 MGD to 26 MGD. Augments water supply by providing recycled water in lieu of potable for landscape irrigation, dust control, construction, and industrial process water.	Medium
Amargosa Creek Pathways Project *(Lancaster)*	1	1	$10M	1-100 AFY	Not specified	1	1	1	Integrates flood control, stormwater management, open space management and recreational/land use management with environmental synergy and conservation. A foot-bridge would connect existing trailheads and allow for pedestrian movement to and from the AV Fairgrounds.	10	0	1	4	0	0	1	1	22	Proactive environmental management, design based on habitat enhancement, ecosystem protection and wetlands creation that utilizes storm and municipal nuisance water, a natural effect of resulting riparian habitat on flood control & storm surge dissipation, as well as water quality via natural attenuation & incidental charge to groundwater aquifer.	High
North Los Angeles/Kern County Regional Recycled Water System *(LACWWD40)*	0	0	> $10M	Quantifiable benefits include the increased use of approximately 64,780 AFY of recycled water by 2025.	Not specified	1	1	1	Integrates with other planned recycled water projects such as the City of Lancaster's groundwater recharge with recycled water project, and will provide the infrastructure and recycled water for the City of Palmdale's Power Plant.	7	0	1	9	0	0	1	1	22	Provides the backbone system for recycled water throughout the Antelope Valley. CEQA has been initiated.	Broken down into Phases 1, 2, 3, 4. High priority given to Regional Recycled Water Project Phase 2. Medium priority given to Phases 3, and 4.
Partial Well Abandonment of Groundwater Wells for Arsenic Mitigation *(LACWWD40)*	1	1	$1.5M	0 AFY; prevents loss of groundwater pumping and existing supply	Not specified	1	1	1		5	0	0	7	1	0	1	1	20	5 wells successfully remediated. This project would remediate 3-5 additional wells.	High
QHWD Partial Well Abandonment of Groundwater Wells for Arsenic (*QHWD*)	1	1	$48K	0 AFY; prevents loss of groundwater pumping and existing supply	Not specified	1	1	1	LACWWD40 is currently investigating using this method to remedy higher arsenic levels in five additional well sites. QHWD plans to put this project out to bid during the same time and complete the proposed work concurrently.	5	0	0	7	1	0	1	1	20	This has proven to be a cost-effective non-treatment method for dealing with higher levels of arsenic located in one level of strata. The project will be beneficial to several lower income regions due to the location of the well.	High, combine with the high prioritized LACWWD40 arsenic project. Refer to project template in Appendix E
Ecosystem & Riparian Habitat Restoration of Amargosa Creek: Avenue J north to Avenue H *(Lancaster)*	1	1	$10M	100-1,000 AFY	Not specified	1	1	1	Integrates with other projects sited within or adjacent the Amargosa Creek to provide better land use and environmentally proactivity by establishing a riparian corridor that combines ecosystem restoration, habitat protection, acoustic and visual buffers, and wetlands creation and enhancement.	8	0	1	4	0	0	1	1	20	Restoration projects such as this are holistic and enhance the environment, providing physical buffers and off-sets to impacts on the overall ecosystem of ephemeral and riparian habitat associated with Amargosa Creek.	High
Palmdale WRP Proposed Effluent Management Sites *(LACSD)*	1	1	~$9.7M (remaining cost starting 01/08)		Bonds, state revolving fund loans, and eventual ratepayer fee increases	1	1	1	Integrates with water banking, groundwater recharge, habitat preservation and recreational space projects by supplying tertiary-treated recycled water.	5	1	0	6	0	0	1	1	19	Includes groundwater monitoring, well abandonment, land acquisition, planning, permitting, site development, etc. for agricultural effluent sites. Augments water supply by providing recycled water in lieu of potable for landscape irrigation, dust control, construction, and industrial process water.	Medium
Lancaster WRP Proposed Effluent Management Sites *(LACSD)*	1	1	~$9.7M (remaining cost starting 01/08)		Bonds, state revolving fund loans, and eventual ratepayer fee increases	1	1	1	Integrates with water banking, groundwater recharge, habitat preservation and recreational space projects by supplying tertiary-treated recycled water.	5	1	0	6	0	0	1	1	19	Includes land acquisition, irrigation equipment, farm management plan, site development, etc. for proposed effluent management sites. Augments water supply by providing recycled water in lieu of potable for landscape irrigation, dust control, construction, and industrial process water.	Medium
Stormwater Harvesting *(Leona Valley Town Council)*	0	0	$100K - $1M	150 AFY	Not specified	0	1	1	Integrates with Leona Valley "Precision Sensor" project in regard to furthering water conservation, as well as assistance in achieving goals of any regional conservation plan.	10	0	1	5	0	0	1	0	19	Would collect and treat stormwater for irrigation, helping to maintain agricultural operations in Leona Valley. Leona Valley	Low
Barrel Springs Detention Basin and Wetlands *(Palmdale)*	0	0	> $10M	40 acres open space/habitat	Not specified	0	1	1		6	0	1	7	0	1	1	0	18	Provides multiple benefits: flood control, wetland enhancement, and habitat protection.	Medium
Hunt Canyon Groundwater Recharge and Flood Control Basin *(Palmdale)*	0	0	> $10M	300 acres open space/habitat	Not specified	0	1	1		6	0	1	7	0	1	1	0	18	Project would alleviate flooding and have the potential to provide a recharge area for raw aqueduct water.	Medium
45th Street East Flood Control Basin (Q-East Basin) *(Palmdale)*	0	0	$20M - $25M	210 acres open space/habitat	Not specified	0	1	1	Integrates with the construction of the Avenue Q and 20th Street East detention basin for flood control, provide possible groundwater recharge, and the natural habitat preservation.	6	0	1	7	0	0	1	0	17		Low
Avenue Q and 20th Street East Basin (Q-West Basin) *(Palmdale)*	0	0	$10M - $15M	160 acres open space/habitat	Not specified	0	1	1	Integrates with the construction of the 45th Street East and Avenue P-8 detention basin for flood control, provide possible groundwater recharge, and the natural habitat preservation.	6	0	1	7	0	0	1	0	17		Low
Deep wells to Recapture Banked Water *(RCSD)*	0	0	$1M - $10M		Local + Gov't grants, loans	0	1	1	Will provide a way of capturing banked water when neededonce regional banking programs in place.	6	0	0	8	0	0	1	0	17		High/component high priority AVEK Westside project. Refer to AVEK Westside project template in Appendix E
Precision Irrigation Control System *(Leona Valley Town Council)*	1	0	$100K - $1M		Not specified	0	1	1	Integrates with other conservation efforts proposed for the Region.	8	0	0	5	0	0	1	0	17	Would support agricultural operations in Leona Valley. Would demonstrate effectiveness of 'smart' irrigation control in the Valley.	Highto be included high priority coordinated conservation program. Refer to Appendix E for Coordinated Conservation Program project template
PWD New Treatment Plant *(PWD)*	1	1	$50M	10 MGD treatment	Not specified	1	1	1		6	0	0	4	1	0	1	0	17	Would treat SWP and Littlerock Creek water.	Medium

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Planned Project/Program Types and Activities	READINESS TO PROCEED						Broad Support	Integration		No. of IRWM Plan Objectives & Targets Addressed	Six or more AB 3030 Elements Addressed	Six or More Water Mngt Strategies Addressed	No. of Regional Priorities Addressed	Four or more IRWM Plan Preferences Addressed	Five or more Statewide Priorities Addressed	Consistency w/ General Plans	Serves a DAC	Total Criteria Score	Stakeholder Comments/Discussion	Stakeholder's Priority (Low, Medium, High)
	CEQA Completed or Not Required	Cost Estimates Prepared (with some detail)	Cost/Benefit Detail			Schedule Prepared		Integrates Easily	Integration Detail											
			Cost Estimate	Benefit Estimate (if quantifiable)	Anticipated Funding Match Source															
Tertiary Treated Water Conveyance & Incidental Groundwater Recharge of Amargosa Creek Avenue M to Avenue H *(Lancaster)*	0	0	$100K - $1M		Not specified	0	1	1	Integrates by conjunctive use of Regional Backbone to recharge the over drafted regional groundwater aquifer. This project envisions utilizing tertiary treated recycled water from LWRP, integrating with LACSD14 by providing a flexible and reliable means to dispose of recycled water.	5	0	0	9	0	0	1	0	17	Depends on the regional recycled water backbone project. Would also integrate with LACSD projects by using tertiary treated water and with the proposed recharge projects.	Medium
Anaverde Detention Basin, Dam & Spillway at Pelona Vista Park *(Palmdale)*	0	1	>$10M		Not specified	0	1	1		6	0	1	5	0	0	1	0	16	The project is a multipurpose flood control basin with the ability to provide wildlife habitat, conservation, and storm water capture.	Low
Aquifer Storage and Recovery Project: Additional Storage Capacity *(LACWWD40)*	1	1	$500,000		Not specified	1	1	1	Integrates well with the LACWWD40 ASR Project: Injection Well Development.	1	0	0	8	0	0	1	1	16	Would help to improve efficiency of AVEK supply.	Medium
Implement Evapotranspiration (ET) Controller Program *(LACWWD40)*	1	1	$100K - $1M		Not specified	1	1	1	Integrates with other conservation efforts proposed for the Region.	4	0	0	5	0	0	1	1	16	Could be used as a model for a future mandated program for new development. Cost and schedule well defined, was included in a previous Proposition 50 Chapter 7 grant application.	High/to be included high priority coordinated conservation program. Refer to Appendix E for Coordinated Conservation Program project template
ET-Based Controller Program *(PWD)*	1	1	$135,000	240 AFY	Not specified	1	1	1	Integrates with landscape ordinances enacted by the cities and county. This project can assist water purveyors in the Antelope Valley in meeting Best Management Practices for water use efficiency, and will reduce runoff from overwatering of landscaped areas.	4	0	0	5	0	0	1	0	15	Could be integrated with LACWWDs ET-Controller project.	High/to be included high priority coordinated conservation program. Refer to Appendix E for Coordinated Conservation Program project template
Purchasing Spreading Basin Land *(RCSD)*	1	0	$1M - $10M		Local + Gov't grants, loans	0	1	1	Will provide land to spread water for percolation and water banking for other entities.	3	0	0	8	0	0	1	0	15	Supports regional water banking efforts.	High/component high priority AVEK Westside project. Refer to AVEK Westside project template in Appendix E
Tropico Park Pipeline Project *(RCSD)*	0	0	$1M - $10M		Local + Gov't grants, loans	0	1	1	Will provide a way of using tertiary water to develop and water a regional park north to Tropico Hill	5	0	1	6	0	0	1	0	15	Provides a way of using tertiary treated water to develop a regional recreational park. Integrates with the recycled water projects.	Medium
Water Conservation Demonstration Garden *(PWD)*	1	1	$9M	~86,000 AF over 20 years	Not specified	1	1	1	Integrates with other conservation efforts proposed for the Region.	4	0	0	5	0	0	1	0	15	Addresses water quality problems.	High/to be included high priority coordinated conservation program. Refer to Appendix E for Coordinated Conservation Program project template
Water Conservation School Education Program *(LACWWD40)*	1	1	$1M		Not specified	1	1	1	Integrates with other conservation efforts proposed for the Region.	3	0	0	5	0	0	1	1	15	County recently issued a new contract for this project, to be awarded soon.	High/to be included high priority coordinated conservation program. Refer to Appendix E for Coordinated Conservation Program project template
42nd Street East, Sewer Installation *(Palmdale)*	0	0	$100K - $1M		Not specified	0	1	1		6	0	0	4	1	0	1	0	14	Would reduce groundwater pollution by eliminating septic tanks.	Low
Ultra Low Flush Toilet (ULFT) Change Out Program *(LACWWD40)*	1	1	$100K - $1M		Not specified	1	1	1	Integrates with other conservation efforts proposed for the Region.	2	0	0	5	0	0	1	1	14	Cost and schedule well defined, was included in a previous Proposition 50 Chapter 7 grant application.	High/to be included high priority coordinated conservation program. Refer to Appendix E for Coordinated Conservation Program project template
Water Waste Ordinance *(LACWWD40)*	1	0	Unknown		Not specified	0	1	1	Integrates with local city ordinances	4	0	0	5	0	0	1	1	14	Could integrate with local city ordinances and policies.	High/to be included high priority coordinated conservation program. Refer to Appendix E for Coordinated Conservation Program project template
Littlerock Dam Sediment Removal Project *(PWD)*	0	1	$4M		Not specified	1	1	1		3	0	0	5	0	0	1	0	13	CEQA almost complete, provides protection for the Arroyo Toad.	High
Place Valves and Turnouts on Reclaimed Water Pipeline *(RCSD)*	1	1	$900,000		Local + Gov't grants, loans	0	1	1	Will provide valving and controls to direct water to various pipelines for use by RCSD, AVEK, LA County, etc.	3	0	0	5	0	0	1	0	13	Facilitates water delivery to new facilities and will connect with Tropico Park Pipeline project.	Low

TABLE 7-1
PROJECT EVALUATION MATRIX

Planned Project/Program Types and Activities	READINESS TO PROCEED						Broad Support	Integration		No. of IRWM Plan Objectives & Targets Addressed	Six or more AB 3030 Elements Addressed	Six or More Water Mngt Strategies Addressed	No. of Regional Priorities Addressed	Four or more IRWM Plan Preferences Addressed	Five or more Statewide Priorities Addressed	Consistency w/ General Plans	Serves a DAC	Total Criteria Score	Stakeholder Comments/Discussion	Stakeholder's Priority (Low, Medium, High)
	CEQA Completed or Not Required	Cost Estimates Prepared (with some detail)	Cost/Benefit Detail			Schedule Prepared		Integrates Easily	Integration Detail											
			Cost Estimate	Benefit Estimate (if quantifiable)	Anticipated Funding Match Source															
Avenue K Transmission Main, Phases I-IV *(LACWWD40)*	1	1	> $10M		Not specified	1	1	1		1	0	0	4	0	0	1	1	12	Provides multiple benefits, in-design.	High/linked to AVEK Westside project
Gaskell Road Pipeline *(RCSD)*	0	0	$8.5M		Local + Gov't grants, loans	0	1	1	Integrates with proposed banking projects.	4	0	0	5	0	0	1	0	12	In close proximity to proposed banking projects. Will provide way of capturing banked water when needed.	High/component high priority AVEK Westside project. Refer to AVEK Westside project template in Appendix F
RCSD's Wastewater Pipeline *(RCSD)*	0	1	$13M		Local + Gov't grants, loans	0	1	1	Integrates with the recycled water backbone project and LACSD upgrade projects.	3	0	0	5	0	0	1	0	12		High
Avenue M and 60th Street West Tanks *(LACWWD40)*	0	1	> $10M	Would provide 12 MG storage	Not specified	0	1	1		2	0	0	4	0	0	1	1	11	Would provide the necessary system pressure if water from AVEK was diminished or not available.	Low
Palmdale Power Project *(Palmdale)*	0	1	$1M - $10M	3,200 AFY of recycled water demand	Not specified	1	1	1	Integrates with the regional recycled water project. The Project will be a customer and end user of reclaimed water, linked to the regional recycled water backbone system.	2	0	0	4	0	0	1	0	11	Creates a demand for recycled water.	High/component of high priority Antelope Valley Recycled Water Project Phase 2. Refer to project template in Appendix F
Quartz Hill Storm Drain *(LAFCD)*	0	1	$6.9M	Flood protection of 95 acres, and 1,108 acres private property	Not specified	0	1	1	The project would alleviate local flooding and have the potential to provide water conservation and improved water quality.	2	0	1	4	0	0	1	0	11	New alignments being designed and may require land acquisition.	Medium
KC & LAC Interconnection Pipeline *(RCSD)*	0	0	$100K - $1M		Local + Gov't grants, loans	0	1	1	Integrates with the regional recycled water project.	2	0	0	5	0	0	1	0	10	Would allow for recycled water to be used in Kern County.	Medium
Alternative 'Gap' Projects																				
Develop further conjunctive use management	0	0	Not estimated		NA**	0	1	1		15	1	1	9	0	0	1	1	30	At this point in the IRWM Plan development, considered a recommended strategy to pursue.	
Create a Land use Management Plan	1	0	Not estimated		NA**	0	1	1		13	0	1	8	0	0	1	1	27	At this point in the IRWM Plan development, considered a recommended strategy to pursue.	High
Create a Watershed Management Plan	1	0	Not estimated		NA**	0	1	1		10	0	1	9	0	0	1	1	25	At this point in the IRWM Plan development, considered a recommended strategy to pursue.	
Promote land conservation projects that enhance flood control, aquifer recharge, and watershed and open space preservation.	0	NA	Not estimated		NA**	0	1	1		12	0	1	9	0	0	1	0	25	At this point in the IRWM Plan development, considered a recommended strategy to pursue.	
Expand the water quality monitoring program	1	0	Not estimated		NA**	0	1	1		8	0	1	8	1	0	1	1	23	At this point in the IRWM Plan development, considered a recommended strategy to pursue.	
Create incentives for land owners to protect, restore, preserve open space	1	0	Not estimated		NA**	0	1	1		10	NA	1	6	0	0	1	0	21	At this point in the IRWM Plan development, considered a recommended strategy to pursue.	
Develop management program for nitrate and TDS	1	0	Not estimated		NA**	0	1	1		6	0	1	8	1	0	1	1	21	At this point in the IRWM Plan development, considered a recommended strategy to pursue.	
Identify contaminated portions of the aquifer	1	0	Not estimated		NA**	0	1	1		6	0	0	8	1	0	1	1	20	At this point in the IRWM Plan development, considered a recommended strategy to pursue.	
Map contaminated portions of aquifer by December 2008.	1	0	Not estimated		NA**	0	1	1		6	0	0	8	1	0	1	1	20	At this point in the IRWM Plan development, considered a recommended strategy to pursue.	
Make further use of recycled water	1	1	Refer to Section 6		NA**	0	1	1		6	0	1	6	0	0	1	0	18	At this point in the IRWM Plan development, considered a recommended strategy to pursue.	
Aggressive conservation	1	1	Refer to Section 6		NA**	0	0	1		6	0	0	6	0	0	1	1	17	High expected cost, and not likely to be implemented unless in drought conditions.	
Use alternative sources of water	0	1	Refer to Section 6		NA**	0	1	1		5	0	1	7	0	0	1	0	17	Alternative sources of water vary considerably with regard to cost and reliability.	
Develop and implement a regional Groundwater Wellhead Protection Program	1	0	Not estimated		NA**	0	1	1		1	0	1	8	1	0	1	1	16	Integrates with Amargosa Creek projects and Lancaster's groundwater recharge project.	
Water banks outside of the Antelope Valley	0	0	Refer to Section 6		NA**	0	1	0		5	0	0	9	0	0	1	0	16	Could be politically charged. Issues have been raised regarding keeping water from the Antelope Valley within the Region.	
Increase small-scale flood management projects	0	NA	Not estimated		NA**	0	1	1		7	0	0	5	0	0	1	1	16	At this point in the IRWM Plan development, considered a recommended strategy to pursue.	
Establish a well abandonment ordinance	1	0	Not estimated		NA**	0	1	1		1	0	0	8	1	0	1	1	15	At this point in the IRWM Plan development, considered a recommended strategy to pursue.	
Create regional database for groundwater pumping	1	0	Not estimated		NA**	0	1	1		4	0	0	7	0	0	1	0	15	At this point in the IRWM Plan development, considered a recommended strategy to pursue.	
Preserve acres of farmland in rotation.	1	0	Not estimated		NA**	0	1	1		4	0	0	5	0	0	1	1	14	At this point in the IRWM Plan development, considered a recommended strategy to pursue.	
Preserve acres of habitat.	1	0	Not estimated		NA**	0	1	1		5	0	1	4	0	0	1	0	14	At this point in the IRWM Plan development, considered a recommended strategy to pursue.	
Encourage Low Impact Development	0	NA	Not estimated		NA**	0	1	1		4	0	0	6	0	0	1	1	14	At this point in the IRWM Plan development, considered a recommended strategy to pursue.	
Coordinate a flood management plan	1	0	Not estimated		NA**	0	1	1		3	0	0	5	0	0	1	1	13	At this point in the IRWM Plan development, considered a recommended strategy to pursue.	High
Develop a HCP for the Antelope Valley	0	0	Not estimated		NA**	0	1	1		5	0	1	4	0	0	1	0	13	At this point in the IRWM Plan development, considered a recommended strategy to pursue.	
Build public parks and recreational amenities	0	0	Not estimated		NA**	0	1	1		3	0	0	5	0	0	1	1	12	At this point in the IRWM Plan development, considered a recommended strategy to pursue.	
Storm water capture/recovery feasibility study	1	0	Not estimated		NA**	0	1	1		1	0	0	5	0	0	1	1	11	At this point in the IRWM Plan development, considered a recommended strategy to pursue.	
Inability to approve further development	1	0	Refer to Section 6		NA**	0	0	0		2	0	0	6	0	0	0	0	9	High expected cost, politically charged issue.	

** These 'alternative' gap projects are suggested management actions that could be implemented to help meet the objectives of the Region. As such, they without identified project sponsors, and therefore, anticipated funding matches for their implementation are not appropriate for identification at this time.

CEQA Completed, or Not Required. Activities funded under Proposition 50 must be in compliance with the CEQA. Projects that have completed CEQA analyses or do not require CEQA review were given a point.

Cost Estimates Prepared (with some detail). As discussed in Section 5, the stakeholders were given the opportunity to directly submit their projects and project concepts for consideration through a "Call for Projects." The cost information provided herein represents the outcome of the initial step in a process of bringing individual projects into the collaborative process implied by this IRWM Plan. It should also be noted that stakeholders were encouraged to submit project concepts and thus the incompleteness of some cost information may be appropriate given that request. While many of the projects lack detailed supporting information, especially with regard to cost estimates, the Call for Projects process identified information that is readily available, needs to be identified, and provides a basis to move forward. Based on that process, a point was given to those projects that were farther along in their estimation of their project costs.

Table 7-1 also identifies the cost estimates if provided, and a description of the associated benefit if quantified. This allowed the Stakeholders to assess the projects cost/benefit ratio, even if just on a very preliminary level. Additionally, if the anticipated funding match source was known, that information was also identified in Table 7-1.

Schedule Prepared. Preference is given to those projects that demonstrate a 'readiness to proceed'. A point was given to those projects that had a schedule for implementation that was consistent with its project description and cost estimate.

The three evaluation criteria above: (1) CEQA, (2) Cost Estimation (including cost/benefit detail if available), and (3) Schedule, collectively gave the Stakeholders an indication of the readiness to proceed for a particular project.

Have Broad Support among AV IRWM Plan Stakeholders. It is ultimately up to the Antelope Valley Region Stakeholders to determine which water management projects and actions they wish to implement to address their issues and needs, and only those projects that are supported by the group are likely to move forward. Therefore, those projects that have broad support amongst the IRWM Plan stakeholders were given a point.

Integrates Easily with Other Projects. A key criterion for prioritization is the ability of a project to integrate with other projects and maximize linkages between projects. Those projects that could be integrated easily with other projects were given a point.

Number of IRWM Plan Objectives and Planning Targets Addressed. The IRWM Plan objectives and planning targets, identified in Section 4, were used to evaluate stakeholder-identified projects in Section 6. Priority was assumed to weigh more heavily on projects that meet more than one IRWM Plan objective. Therefore, for each project, the number of objectives that a project contributed to was tallied as its score for this criterion.

Six or More AB 3030 Elements Addressed. The Assembly Bill (AB) 3030 elements for a Groundwater Management Plan, identified in Section 3, were used to evaluate stakeholder-identified projects in Section 6. Those projects that contributed to six or more AB 3030 elements were given a point.

Six or More Water Management Strategies Addressed. The IRWM Plan water management strategies, identified and correlated with the California Water Plan strategies in Section 5, have been used to evaluate stakeholder-identified projects in Section 6. Those projects that contributed to six or more water management strategies were given a point.

REGIONAL PRIORITIES

Number of Regional Priorities Addressed. Regional priorities are intended to guide development of the IRWM Plan. Using the systemic approach of 'facilitated broad agreement' during one of the Stakeholder meetings, the following Regional priorities were developed. These priorities are inherently integrative to the objectives and planning targets identified in Section 4 that address the Antelope Valley Region's issues and needs. Based on discussions with the RWMG and the greater Stakeholder group, the following short-term (e.g., 3 to 5 years) and long-term (20 years) priorities have been identified for the Antelope Valley Region. For each project, the number of regional priorities that a project contributed to was tallied as its score for this criterion (refer to Table 7-1A).

Short-term Implementation Priorities (3-5-years)

- Complete the Antelope Valley IRWM Plan by January 1, 2008;
- 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 funding sources;
- Utilize a committee structure for continued development and implementation of the IRWM Plan;
- Develop programs and policies to increase groundwater recharge or better manage groundwater use; and
- Encourage cooperation in the short-term to develop regional groundwater banking programs.

Long-term Implementation Priorities (20 years)

- Maintain a committee structure to oversee plan implementation and continued stakeholder input;
- Optimize use of recycled water, conjunctive management, conservation, and stormwater to enhance water supply reliability;
- Provide adequate water and wastewater services to meet projected growth
- Protect groundwater supplies;
- Provide more efficient storage for imported water supply to increase its reliability;
- Preserve open space, agricultural land uses, conserve functional habitats, and protect special-status species;
- Continue to meet applicable water quality standards;
- Expand distribution systems to provide recycled water to new users; and
- Expand voluntary water conservation programs for residential, commercial, industrial and agricultural uses.

TABLE 7-1A
REGIONAL PRIORITIES MATRIX

	Short-Term Regional Priorities						Long-Term Regional Priorities								
Planned Project/ Program Types and Activities	**Complete AV IRWM Plan by January 1, 2008**	**Identify Gap Projects**	**Maximize Funding For Project Implementation**	**Utilize Committee for Continued Development/ AV IRWM Plan Implementation**	**Develop Programs/ Policies to Increase Groundwater Recharge/ Manage Use**	**Encourage Cooperation in Developing Regional Groundwater Banking**	**Maintain Committee for Continued AV IRWM Plan Implementation/ Stakeholder Input**	**Optimize Use of Recycled Water, Conjunctive Management, Conservation, Stormwater**	**Provide Adequate Water/ Wastewater Services to Meet Projected Growth**	**Protect Groundwater Supplies**	**Provide More Efficient Storage for Imported Water Supply**	**Preserve Open Space, Ag Lands, Conserve Functional Habitats & Protect Species**	**Continue to Meet Applicable Water Quality Standards**	**Expand Recycled Water Distribution Systems to New Users**	**Expand Voluntary Water Conservation Programs for Res/CII/Ag Users**
WATER SUPPLY MANAGEMENT															
Groundwater Recharge/Banking															
Amargosa Creek Recharge and Channelization Project *(Palmdale)*				X	X	X	X	X	X	X	X	X			
Amargosa Water Banking and Storm Water Retention Project *(No financial sponsor identified)*				X	X	X	X	X	X	X	X	X			
Antelope Valley Water Bank *(WDS)*				X	X	X	X	X	X	X	X	X			
Aquifer Storage and Recovery Project: Injection Well Development *(LACWWD40)*				X	X	X	X	X	X	X	X				
Aquifer Storage and Recovery Project: Additional Storage Capacity *(LACWWD40)*				X	X	X	X	X	X	X	X				
Deep wells to Recapture Banked Water *(RCSD)*				X	X	X	X	X	X	X	X				
Gaskell Road Pipeline *(RCSD)*				X			X	X	X					X	
Groundwater Banking *(LACWWD40)*				X	X	X	X	X	X	X	X	X			
Purchasing Spreading Basin Land *(RCSD)*				X	X	X	X	X	X	X	X	X			
Water Supply Stabilization Project – Westside Project *(AVEK, AVSWCA)*				X	X	X	X	X	X	X	X	X			
Water Supply Stabilization Project – Eastside Project *(AVEK, AVSWCA)*				X	X	X	X	X	X	X	X	X			
Recycled Water															
Groundwater Recharge Using Recycled Water (GWR-RW) Pilot Project *(Lancaster)*				X	X	X	X	X	X	X	X			X	
Groundwater Recharge - Recycled Water Project *(PWD)*				X	X	X	X	X	X	X	X			X	
KC & LAC Interconnection Pipeline *(RCSD)*				X			X	X	X					X	
North Los Angeles/Kern County Regional Recycled Water System *(LACWWD40)*				X	X	X	X	X	X	X	X			X	
Tertiary Treated Water Conveyance & Incidental Groundwater Recharge of Amargosa Creek Avenue M to Avenue H *(Lancaster)*				X	X	X	X	X	X	X	X			X	
Water Conservation/Water Use Efficiency															
ET-Based Controller Program *(PWD)*				X			X	X	X						X
Implement Evapotranspiration (ET) Controller Program *(LACWWD40)*				X			X	X	X						X
Precision Irrigation Control System *(Leona Valley Town Council)*				X			X	X	X						X
Ultra Low Flush Toilet (ULFT) Change Out Program *(LACWWD40)*				X			X	X	X						X
Water Conservation Demonstration Garden *(PWD)*				X			X	X	X						X
Water Conservation School Education Program *(LACWWD40)*				X			X	X	X						X
Water Waste Ordinance *(LACWWD40)*				X			X	X	X						
Water Infrastructure Improvements															
Avenue K Transmission Main, Phases I-V *(LACWWD40)*				X			X	X	X						
Avenue M and 60th Street West Tanks *(LACWWD40)*				X			X	X	X		X				
Littlerock Dam Sediment Removal Project *(PWD)*				X			X	X	X		X				
Place Valves and Turnouts on Reclaimed Water Pipeline *(RCSD)*				X			X	X	X					X	
RCSD's Wastewater Pipeline *(RCSD)*				X			X	X	X					X	
WATER QUALITY MANAGEMENT															
Recycled Water															
42nd Street East, Sewer Installation *(Palmdale)*				X			X		X				X		
Lancaster WRP Stage V *(LACSD)*				X			X	X	X				X	X	
Lancaster WRP Stage VI *(LACSD)*				X			X	X	X				X	X	
Lancaster WRP Proposed Effluent Management Sites *(LACSD)*				X			X	X	X				X	X	
Palmdale Power Project *(Palmdale)*				X			X	X						X	
Palmdale WRP Existing Effluent Management Sites *(LACSD)*				X			X	X	X				X	X	
Palmdale WRP Stage V *(LACSD)*				X			X	X	X				X	X	
Palmdale WRP Stage VI *(LACSD)*				X			X	X	X				X	X	
Palmdale WRP Proposed Effluent Management Sites *(LACSD)*				X			X	X	X				X	X	
Water Infrastructure Improvements															
Partial Well Abandonment of Groundwater Wells for Arsenic Mitigation *(LACWWD40)*				X	X		X	X	X	X			X		
PWD New Treatment Plant *(PWD)*				X			X		X				X		
QHWD Partial Well Abandonment of Groundwater Wells for Arsenic Mitigation *(QHWD)*				X	X		X	X	X	X			X		

TABLE 7-1A
REGIONAL PRIORITIES MATRIX

	Short-Term Regional Priorities						Long-Term Regional Priorities								
Planned Project/ Program Types and Activities	**Complete AV IRWM Plan by January 1, 2008**	**Identify Gap Projects**	**Maximize Funding For Project Implementation**	**Utilize Committee for Continued Development/ AV IRWM Plan Implementation**	**Develop Programs/ Policies to Increase Groundwater Recharge/ Manage Use**	**Encourage Cooperation in Developing Regional Groundwater Banking**	**Maintain Committee for Continued AV IRWM Plan Implementation/ Stakeholder Input**	**Optimize Use of Recycled Water, Conjunctive Management, Conservation, Stormwater**	**Provide Adequate Water/ Wastewater Services to Meet Projected Growth**	**Protect Groundwater Supplies**	**Provide More Efficient Storage for Imported Water Supply**	**Preserve Open Space, Ag Lands, Conserve Functional Habitats & Protect Species**	**Continue to Meet Applicable Water Quality Standards**	**Expand Recycled Water Distribution Systems to New Users**	**Expand Voluntary Water Conservation Programs for Res/CII/Ag Users**
FLOOD MANAGEMENT															
Water Infrastructure Improvements															
45th Street East Flood Control Basin (Q-East Basin) *(Palmdale)*				X	X		X	X	X	X		X			
Anaverde Detention Basin, Dam & Spillway at Pelona Vista Park*(Palmdale)*				X			X	X	X			X			
Avenue Q and 20th Street East Basin (Q-West Basin) *(Palmdale)*				X	X		X	X	X	X		X			
Barrel Springs Detention Basin and Wetlands *(Palmdale)*				X	X		X	X	X	X		X			
Hunt Canyon Groundwater Recharge and Flood Control Basin*(Palmdale)*				X	X		X	X	X	X	X				
Quartz Hill Storm Drain*(LAFCD)*				X			X	X	X						
Stormwater Harvesting*(Leona Valley Town Council)*				X			X	X	X			X			
ENVIRONMENTAL MANAGEMENT															
Habitat Restoration															
Ecosystem & Riparian Habitat Restoration of Amargosa Creek: Avenue J north to Avenue H *(Lancaster)*							X	X	X			X			
Recycled Water															
Tropico Park Pipeline Project*(RCSD)*				X			X	X	X			X		X	
LAND USE MANAGEMENT															
Plans and Studies															
Antelope -Fremont Watershed Assessment and Plan *(Antelope Valley Conservancy)*				X	X	X	X	X				X	X	X	X
Recreation															
Amargosa Creek Pathways Project *(Lancaster)*							X	X	X			X			
ALTERNATIVE "GAP" PROJECTS															
Aggressive conservation		X		X			X	X	X						X
Develop further conjunctive use management		X		X	X	X	X	X	X	X	X				
Water banks outside of the Antelope Valley		X		X	X	X	X	X	X	X	X				
Create regional database for groundwater pumping		X		X	X		X	X	X	X					
Use alternative sources of water		X		X	X		X	X	X	X					
Make further use of recycled water		X		X			X	X	X					X	
Inability to approve further development		X					X	X	X	X		X			
Identify contaminated portions of the aquifer		X		X	X		X	X	X	X			X		
Map contaminated portions of aquifer by December 2008		X		X	X		X	X	X	X			X		
Establish a well abandonment ordinance		X		X	X		X	X	X	X			X		
Develop and implement a regional Groundwate Wellhead Protection Program		X		X	X		X	X	X	X			X		
Develop management program for nitrate and TDS		X		X	X		X	X	X	X			X		
Expand the water quality monitoring program		X		X	X		X	X	X	X			X		
Coordinate a flood management plan		X		X			X	X	X						
Storm water capture/recovery feasibility study		X		X			X	X	X						
Increase small-scale flood management projects		X		X			X	X	X						
Encourage Low Impact Development		X		X			X	X	X			X			
Preserve acres of habitat		X		X			X					X			
Develop a HCP for the Antelope Valley		X		X			X					X			
Promote land conservation projects that enhance flood control, aquifer recharge, and watershed and open space preservation.		X		X	X	X	X	X		X	X	X			
Preserve farmland		X		X			X	X				X			
Build public parks and recreational amenities		X		X			X	X				X			
Create a Watershed Management Plan		X		X	X	X	X	X		X	X	X			
Create incentives for land owners to protect/restore/preserve open space		X		X			X	X				X			X

Four or More IRWM Plan Preferences Addressed. The IRWM Plan preferences were identified and used to evaluate stakeholder-identified projects in Section 6. Those projects that contributed to four or more IRWM Plan preferences were given a point.

Five or More Statewide Priorities Addressed. The statewide priorities were used to evaluate stakeholder-identified projects in Section 6. Those projects that contributed to five or more statewide priorities were given a point.

Consistency with General Plans. The local and regional general plan policies related to water supply, water quality, flood management, environmental resource management, and land use management are identified in Section 8 (Table 8-2) and used to evaluate stakeholder-identified projects. Those projects that demonstrated consistency with these general plan policies were given a point.

Serves a Disadvantaged Community. A DAC was assumed to benefit from a particular project if the project increased the reliability of water supply for the Antelope Valley Region as a whole, enhanced water quality in the Antelope Valley Region, or if the DAC was located within the service area of a proposed project. In this manner, a project was given a point if it was determined to benefit a DAC.

Table 7-1 provides a preliminary evaluation and ranking of the stakeholder-identified proposed projects via a tally of the total number of criteria met by each project. The projects were then evaluated for how well they can be integrated with each other. Additionally, the projects were reviewed for geographic coverage while using a mix of plan objectives and water management strategies to provide multiple benefits, as shown in the "Additional Comments" column in Table 7-1.

Table 7-1 was presented to the RWMG/Stakeholder group for further evaluation and prioritization. Additionally, the Stakeholders were given the opportunity to present support for their projects, to discuss the merits of the projects with the group, and to discuss how their projects could potentially be combined to create more regional, comprehensive, and logistically beneficial and efficient projects. Additionally, at this particular Stakeholder meeting, a number of Stakeholders presented modified versions of their projects to the group that they felt better integrated with the goals and objectives of the Antelope Valley Region as well as other projects.

The Stakeholders were then broken up into groups and asked to give a preliminary "priority" ranking to each project based on the information in Table 7-1 and the discussions presented at the meeting. The group was asked to assign priority under the assumption that any particular project *would be implemented with or without grant funding*. Priority was given as follows:

- A 'high' priority was assigned to projects the group would take action on within the next two (2) years.
- A 'medium' priority was assigned to projects the group would take action on within the next five (5) years.
- A 'low' priority was assigned to projects the group would take action on within the next 5 to 10 years.

A facilitated discussion led the Stakeholders to identify their high, medium, and low projects, as shown below in Table 7-2. Appendix F provides a more detailed breakdown of the high priority project schedules.

TABLE 7-2
PRIORITIZED PROJECT LIST

Priority	Project	Responsible Entity	Project Status	Project Schedule
WATER SUPPLY GROUNDWATER RECHARGE/BANKING INFRASTRUCTURE PROJECTS				
High	Antelope Valley Water Bank	WDS	Design	2001 to 2008
	Aquifer Storage and Recovery Project - Injection Well Development	LACWWD 40	Planning	2007 to 2010
	Upper Amargosa Creek Recharge, Flood Control & Riparian Habitat Restoration Project	Palmdale, AVEK	Planning	2006 to 2010
	Water Supply Stabilization Project – Westside	AVEK/AVSWCA/ LACWWD 40	CEQA/Permitting	2007 to 2009
Medium	Aquifer Storage and Recovery Project: Additional Storage Capacity	LACWWD 40	Planning	2010 to 2013
	Lower Amargosa Creek Recharge & Flood Control Project	J.Goit / Palmdale	Planning	2010 to 2013
	Water Supply Stabilization Project – Eastside Project	AVEK	Planning	2010 to 2013
WATER INFRASTRUCTURE PROJECTS				
High	Avenue K Transmission Main, Phases I-IV	LACWWD 40	Planning	2008 to 2010
	Littlerock Dam Sediment Removal Project	PWD	Planning/Design	2004 to 2009
	Waste Water Pipeline	RCSD	Planning	2008 to 2010
Low	Avenue M and 60 th Street West Tanks	LACWWD 40	Conceptual	2013 to 2018
	Place Valves and Turnouts on Reclaimed Water Pipeline	RCSD	Conceptual	2013 to 2018
RECYCLED WATER PROJECTS				
High	Antelope Valley Recycled Water Project Phase 2	LACWWD 40/Palmdale/ LACSD	Planning	2007 to 2009
	Groundwater Recharge Using Recycled Water Project	Lancaster	Pilot Study	2006 to 2009
Medium	Groundwater Recharge – Recycled Water Project	PWD	Planning	2010 to 2013

Priority	Project	Responsible Entity	Project Status	Project Schedule
	KC & LAC Interconnection Pipeline	RCSD	Planning	2010 to 2013
	Regional Recycled Water Project Phase 3	LACWWD 40/Palmdale/ LACSD	Planning	2010 to 2013
	Tertiary Treated Water Conveyance & Incidental Groundwater Recharge of Amargosa Creek Avenue M to Avenue H	Lancaster	Planning	2010 to 2013
Low	Regional Recycled Water Project Phase 4	LACWWD 40/Palmdale/LACSD	Planning	2013 to 1018
WATER CONSERVATION/WATER USE EFFICIENCY				
High	Comprehensive Water Conservation/Efficient Water Use Program	AVWCC/LACWWD /PWD	Planning	2007 to 2010
WATER QUALITY PROJECTS				
High	Lancaster WRP Stage V	LACSD	Design	2007 to 2010
	Palmdale WRP Existing Effluent Management Sites	LACSD	Design	2007 to 2010
	Palmdale WRP Stage V	LACSD	Design	2007 to 2010
	Partial Well Abandonment of Groundwater Wells for Arsenic Mitigation	LACWWD/ QHWD	Design	2007 to 2010
Medium	Lancaster WRP Stage VI	LACSD	Planning	2010 to 2013
	Lancaster WRP Proposed Effluent Management Sites	LACSD	Planning	2010 to 1013
	Palmdale WRP Stage VI	LACSD	Planning	2010 to 2013
	Palmdale WRP Proposed Effluent Management Sites	LACSD	Planning	2010 to 2013
	PWD New Treatment Plant	PWD	Planning	2010 to 2013
Low	42nd Street East, Sewer Installation	Palmdale	Conceptual	2013 to 2018
FLOOD MANAGEMENT PROJECTS				
High	Development of Coordinated Antelope Valley Flood Control Plan	Cities of Lancaster, Palmdale, LADPW, Kern County	Planning	2007 to 2009
Medium	Anaverde Detention Basin, Dam & Spillway at Pelona Vista Park	Palmdale	Planning	2010 to 2013

Priority	Project	Responsible Entity	Project Status	Project Schedule
	Barrel Springs Detention Basin and Wetlands	Palmdale	Planning	2010 to 2013
	Hunt Canyon Groundwater Recharge and Flood Control Basin	Palmdale	Planning	2010 to 2013
	Quartz Hill Storm Drain	LADPW	Planning	2010 to 2013
Low	45th Street East Flood Control Basin (Q-East Basin)	Palmdale	Conceptual	2013 to 2018
	Avenue Q and 20th Street East Basin (Q-West Basin)	Palmdale	Conceptual	2013 to 2018
	Storm water Harvesting	Leona Valley Town Council	Conceptual	2013 to 2018
ENVIRONMENTAL RESOURCE MANAGEMENT PROJECTS				
High	Ecosystem & Riparian Habitat Restoration of Amargosa Creek; Ave J to Ave H	Lancaster	Planning	2007 to 2008
Medium	Tropico Park Pipeline Project	RCSD	Planning	2010 to 2013
LAND USE MANAGEMENT PROJECTS				
High	Amargosa Creek Pathways Project	Lancaster	Planning	2007 to 2008
	Development of a Coordinated Land Use Management Plan	Cities of Lancaster, Palmdale, LADPW, Kern County /Antelope Valley Conservancy	Planning	2007 to 2009

Notes:
AVEK = Antelope Valley-East Kern Water Agency
AVSWCA = Antelope Valley State Water Contractors Association
AVWCC = Antelope Valley Water Conservation Coalition
LACSD = Los Angeles County Sanitation Districts
LACWWD 40 = Los Angeles County Waterworks District 40
LADPW = Los Angeles County Department of Public Works
PWD = Palmdale Water District
RCSD = Rosamond Community Services District

Based on the stakeholders determinations of the ranking process above, the suite of projects and alternatives given 'high' priority, were selected for implementation and discussed below in Section 7.4.

It is important to note that this AV IRWM Plan is meant to be a living document. As the AV IRWM Plan is updated, the opportunity exists to reevaluate the projects included in this IRWM Plan as their project scopes are refined, and a continual assessment of whether this IRWM Plan is meeting the issues and needs of the Antelope Valley Region will be conducted. Additionally, this IRWM Plan provides a mechanism for identifying new projects designed in accordance with the regional objectives, priorities, and management strategies. Therefore, a continual review of the prioritization is anticipated, and is described in more detail in Section 8, Implementation

Framework. Table 7-2 is also included as Appendix E. In this way, the Appendix can be more easily evaluated and adjusted rather than having to make changes to the entire IRWM Plan if changes are necessitated more frequently than the scheduled updates as described in Section 8.6.

7.4 Current High Priority Projects

The following provides descriptions of the high priority projects from Table 7-2. During the process of evaluating and prioritizing the projects, the Stakeholders found that a number of their individually submitted projects could be integrated to form enhanced projects that could reach more beneficiaries, integrate geographically to extend to further reaches of the Antelope Valley Region, and take advantage of synergies not previously noticed. The process enabled the stakeholders to look more carefully at their projects and at what phases they may want to implement in the near term, potentially ranking that a higher priority than a later phase in the project. For example, the Regional Recycled Water Project, which is the regional recycled water backbone system project, includes a number of implementation phases. Phase 2, which includes the connection to the Palmdale Power Plant, was given a high priority. Later phases of the project, Phases 3 and 4, were given medium and low priorities, respectively. For a full description of each of the high priority projects, refer to their project templates, which are provided in Appendix F.

Upper Amargosa Creek Recharge, Flood Control and Riparian Habitat Restoration Project (WS-1)

Project Sponsor:	City of Palmdale and Antelope Valley-East Kern Water Agency (AVEK)
Joint Agencies:	Antelope Valley State Water Contractors Association (AVSWCA), Los Angeles County Waterworks District No. 40 (LACWWD 40)
Project Description:	This project consists of the project previously entitled “Amargosa Creek Recharge and Channelization” with some modifications and additions included during the prioritization process. The project proposes the release of untreated aqueduct water into the Upper Amargosa Creek in order to recharge the most depressed and damage portion of the Antelope Valley Region’s groundwater basin. Per the Stetson Report, the Amargosa ranks as one of the top locations in the Antelope Valley Region for groundwater recharge. Project goals include increasing the Antelope Valley Region's water supply and the amount of open space and protected natural habitat, and providing improved flood prevention within the Amargosa Creek watershed. Proposed project improvements include: expanding the size and capacity of the spreading ground of the natural recharge area; developing and preserving an ephemeral stream habitat; channelization of Amargosa Creek (soft bottom) and providing a grade separation of 20th Street West over Amargosa Creek.
Project Integration:	Possible integration with Water Supply Stabilization Project- Westside Project (WS-2).
Project Benefits:	5,000 – 10,000 AFY, 15 acres open space; 20 acres flood protection
Total Cost:	$13.5 Million

Water Supply Stabilization Project- Westside Project (WS-2)

Project Sponsor:	AVEK
Joint Agencies:	AVSWCA, Rosamond Community Services District (RCSD), LACWWD 40
Project Description:	WS-2 is an imported water stabilization program that utilizes SWP water delivered to the Antelope Valley Region's westside for groundwater recharge and supplemental supply required for the Antelope Valley Region during summer peaking demand and anticipated dry years. This project increases imported water supply reliability in the Antelope Valley Region by developing storage and allowing for recharge. It includes the design and construction of additional facilities necessary for the delivery of untreated water for direct recharge (percolation basins) or indirect (in-lieu) recharge, and for wells and a pipeline for treated water conveyance. The project is considered an immediate water banking and groundwater recharge opportunity. It also incorporates the use of large acreage of farm land for spreading of water and rotating farm crops to increase percolation. Components of the Westside Project include but are not limited to: drilling and equipment of 6 deep wells between Avenue A and Rosamond Boulevard, 70th to 140th Street West (RCSD's "Deep Wells to Recapture Banked Water Project"); placing a new 36-inch pipeline on Gaskell Road, from 60th Street to 140th Street to transport water from well fields (RCSD's "Gaskell Road Pipeline Project"); and purchasing water spreading basins land in West Kern County from Avenue A to Rosamond B (RCSD" "Purchasing Spreading Basin Land Project").
Project Integration:	Possible integration with Upper Amargosa Creek Recharge Flood Control and Riparian Habitat Restoration Project (WS-1).
Project Benefits:	40,400 to 42,600 AFY
Total Cost:	$230 Million

Aquifer Storage and Recovery Project: Injection Well Development (WS-3)

Project Sponsor:	LACWWD 40
Joint Agencies:	AVEK
Project Description:	The ASR Injection Well Development project involves the construction of ten new well sites in a groundwater depression area of the Antelope Valley Region to improve water supply reliability. Using wells to access this depressed area of the Antelope Valley groundwater basin will allow for the storage of up to 3,300 AFY of excess imported water supplies during wet years and the extraction of up to 12,000 AFY during dry years. The District is already operating 11 wells in this capacity to store and recover available imported water.
Project Integration:	Integration with other water storage projects proposed in this IRWM Plan (WS-1 and WS-2)
Project Benefits:	12,000 AFY
Total Cost:	$10.0 Million

Antelope Valley Water Bank (WS-4)

Project Sponsor:	Western Development and Storage (WDS)
Joint Agencies:	WDS is offering storage to willing participants in this program.
Project Description:	The Antelope Valley Water Bank (AVWB) is estimated to provide 500,000 acre-feet (AF) of storage in the Neenach Subbasin of the Antelope Valley Basin and will have the ability to recharge and recover 100,000 AFY. Water recovery will take place through the use of 30 to 50 wells, many already existing, and will utilize water pumped into the AVEK West Feeder or the California Aqueduct. This additional storage capacity could be used to regulate supplies on a seasonal and year-to-year basis by storing water when it is plentiful for later use when needed. In addition to improving supply reliability, this project will assist in stabilizing groundwater levels, protecting the aquifer from contamination, and reducing nuisance water. Project land will remain in agricultural production when not being used for surface recharge and provide associated habitat. Potential participants in this banking program include water agencies or local mutuals that have access to state water.
Project Integration:	Potential integration with WS-2. In addition, water supplies stored in the AVWB could be delivered to all parts of the AVEK, Palmdale Water District (PWD), and Littlerock Creek Irrigation District (LCID) service territories in the Antelope Valley Region via immediately adjacent conveyances.
Project Benefits:	100,000 AFY; 1,700 acres of agriculture
Total Cost:	$170 Million

Antelope Valley Recycled Water Project Phase 2 (RW-1)

Project Sponsor:	City of Palmdale
Joint Agencies:	Los Angeles County Sanitation District (LACSD), Palmdale Water District (PWD), City of Lancaster, LACWWD 40
Project Description:	The Antelope Valley Recycled Water Project Phase 2 is one phase of the North Los Angeles/Kern County Regional Recycled Water Project combined with some modifications to benefit the entire Antelope Valley Region. The North Los Angeles/Kern County Regional Recycled Water Project outlines the foundation of a regional recycled water system in the Antelope Valley Region. It would distribute recycled water throughout the service area and provide a backbone system that could accommodate minimum and maximum demands and allow significant deliveries of recycled water to recharge areas. The recommended placement of the system components is based on an analysis of the service area demands, topography, and desired operating pressures. The proposed RW-1 project provides the addition of a recycled water connection between LACSD14 and LACSD20 Water Reclamation Plants (WRPs); provides recycled water to the existing eastside farmlands and provides the potential to bring recycled water to Littlerock Creek for recharge. RW-1 will also provide approximately 3,400 AFY of recycled water to a future power generating facility whose design is underway.

Project Integration:	Possible integration with Palmdale WRP Proposed Effluent Management Sites (WQ-2) and PWD's Groundwater Recharge-Recycled Water Pilot Project (RW-2).
Project Benefits:	8,400 AFY of recycled water
Total Cost:	$10.9 Million

Groundwater Recharge Using Recycled Water Pilot Project (RW-2)

Project Sponsor:	City of Lancaster
Joint Agencies:	LACSD, PWD, LACWWD 40
Project Description:	The Pilot Program was identified as the first and critical step forwards implementing a $200M, 50,000 AFY Lancaster Area GWR-RW project in the Groundwater Recharge Feasibility Study (RMC, 2007). The proposed program would build upon the regional recycled water project (RW-1) and LACSD projects. The proposed pilot project would assess the maximization of available recycled water for beneficial use by utilizing this valuable source to recharge the local groundwater basin, increasing the Antelope Valley Region's overall water resources and thus working to provide a reliable water supply. The pilot program would recharge a blend of stormwater and recycled water from the Lancaster Water Reclamation Plant. A supplemental blend supply (local groundwater, raw imported water or treated imported water) would likely be needed. Under the current proposal, recharge would occur at the City-proposed 100-acre stormwater basin at 60th Street West and Avenue F in Lancaster, CA. Up to 2,500 AF of water would be recharged annually, including 500 AF of recycled water. The recharged water would be pumped to serve either non-potable uses or municipal and industrial uses, after an initial monitoring phase is complete
Project Integration:	Integration with WS-2, RW-1, WQ-1, WQ-2, WQ-3.
Project Benefits:	2,500 AFY; 100 acres open space Ultimately 48,000 AFY and 1,000 acres open space.
Total Cost:	$6.0 Million

Comprehensive Water Conservation/Water Use Efficiency Program (WC-1)

Project Sponsor:	Antelope Valley Water Conservation Coalition (AVWCC), LACWWD, PWD
Joint Agencies:	AVWCC includes the Cities of Lancaster and Palmdale, local mutual water districts, AVEK, Antelope Valley College, Building Industry Association (BIA), and local developers.
Project Description:	The Comprehensive Water Conservation/Water Use Efficiency Program would include a number of water conservation and water use efficiency projects previously discussed in Section 5 including: PWD's & LACWWD 40's "ET-Based Controller Program", Leona Valley's "Precision Irrigation Control System"; PWD's "Water Conservation Demonstration Garden"; LACWWD 40's "Water Conservation School Education Program", "Ultra Low Flush Toilet (ULFT) Change Out Program", and "Waste Water Ordinance." Additionally, WC-1 would include a landscape/nuisance water ordinance.
Project Integration:	Project integrates with all the water supply projects in reducing the expected mismatch of supply and demand in 2035.
Project Benefits:	3,500 AFY by 2010 and ultimately 28,000 to 42,000 AFY
Total Cost:	$900,000

Avenue K Transmission Main, Phases I-IV (WI-1)

Project Sponsor:	LACWWD 40
Joint Agencies:	None
Project Description:	The Avenue K Transmission Main, Phases I-IV project consists of four phases for a total of approximately 32,000 linear feet of 30-inch and 36-inch diameter steel transmission main. The proposed transmission main will have interconnections to the existing distribution system and will increase the capacity of the water system to meet the existing domestic and fire protection requirements.
Project Integration:	Possibility to connect to WS-2
Project Benefits:	Firms up existing supply
Total Cost:	$10.0 Million

Littlerock Dam Sediment Removal Project (WI-2)

Project Sponsor:	PWD
Joint Agencies:	None

Project Description	The Littlerock Dam Sediment Removal Project will remove up to 540,000 cubic yards of sediment that has accumulated from runoff in Littlerock Reservoir, and up to 40,000 cubic yards on an annual basis after the initial sediment is removed. The project may include a grade control structure that will protect the identified habitat of the arroyo toad. The project is expected to increase capacity and reliability of surface water storage in Littlerock Reservoir, and could eventually feed into other regional water banking projects such as AVEK's eastside project. CEQA for the project is almost complete.
Project Integration:	Project integrates with the other water supply projects in reducing the expected mismatch between supply and demand in 2035.
Project Benefits:	1,000 AFY
Total Cost:	$5.5 Million

RCSD's Waste Water Pipeline (WI-3)

Project Sponsor:	RCSD
Joint Agencies:	None
Project Description:	This project would include placing a 36-inch wastewater pipeline from LACSD to RCSD's wastewater treatment plant. The total distance would be approximately 15 miles. This project would provide for a possible expansion of RCSD's recycled water services beyond the 0.5 mgd expansion in order to provide more recycled water in a quicker period of time.
Project Integration:	Integration with RW-1, WQ-1, WQ-2, and WQ-3, by connecting to their systems.
Project Benefits:	Adds additionally potential users of recycled water
Total Cost:	$13.0 Million

Lancaster Water Reclamation Plant Stage V Plant Expansion, Phase 1 (WQ-1)

Project Sponsor:	LACSD
Joint Agencies:	None
Project Description:	The Lancaster WRP Stage V project, Phase 1, involves construction and design of a new pump station, storage reservoirs, and other ancillary facilities needed to increase effluent storage capacity to 18 mgd. The project also includes land acquisition needed for site development. The proposed upgrades will help to maximize the beneficial use of recycled water to agricultural and other end users. CEQA for this project has been completed.
Project Integration:	Integrates with RW-1, RW-2, WQ-2, WQ-3
Project Benefits:	23,500 AFY of increased recycled water availablilty; benefit limited to identified users within delivery system
Total Cost:	$74.8 Million

Palmdale WRP Existing Effluent Management Sites (WQ-2)

Project Sponsor:	LACSD
Joint Agencies:	None
Project Description:	The proposed upgrades to the Palmdale WRP existing effluent management sites will improve overall water quality by extracting water in the Antelope Valley Region that is high in nitrates and maximizing its beneficial reuse by applying it to agricultural lands and redirecting it to other end users. This project includes monitoring, purchase and installation of irrigation equipment, and completion of other capital projects associated with the existing effluent management sites. CEQA for this project has been completed.
Project Integration:	Integrates with RW-1, RW-2, WQ-1, WQ-3
Project Benefits:	Improved groundwater water quality and effluent management
Total Cost:	$5.2 Million

Palmdale Water Reclamation Plant Stage V Plant Expansion (WQ-3)

Project Sponsor:	LACSD
Joint Agencies:	None
Project Description:	This plant expansion will upgrade the Palmdale WRP from oxidation ponds to tertiary treatment of 15 mgd of total plant flow. Proposed structural additions will also provide the capacity to deliver treated effluent to agricultural reuse sites and to store effluent during times of low demand, helping to maximize the beneficial use of recycled water. The project augments water supply by providing recycled water in lieu of potable water for landscape irrigation, dust control, construction, and industrial process water. This phase of the upgrade project includes the following series of activities: construction of an effluent pump station, force main, agricultural recycled water pump station, and an agricultural recycled water storage tank and reservoir; development of the new reservoir site and installation of monitoring wells; and design and construction of secondary/tertiary treatment facilities.
Project Integration:	Integrates with RW-1, RW-2, WQ-1, WQ-2
Project Benefits:	16,800 AFY of increased recycled water availability; benefit limited to identified users within delivery system.
Total Cost:	$94.6 Million

Partial Well Abandonment of Groundwater Wells for Arsenic Mitigation (WQ-4)

Project Sponsor:	LACWWD 40 and Quartz Hill Water District (QHWD)
Joint Agencies:	None
Project Description:	WQ-4 includes a combination of LACWWD 40's and QHWD's "Partial Well Abandonment of Groundwater Wells for Arsenic Mitigation" projects. WQ-4 proposes arsenic mitigation of six groundwater wells. The proposed method involves using grout with extremely small pour space to seal off localized regions of the well that contain higher levels of arsenic, resulting in an isolation of arsenic located in specific levels of strata and an overall decrease in contamination. This project will benefit several lower income areas that are served by these wells.
Project Integration:	Integrates with other water quality projects in protecting the Basin
Project Benefits:	Preventing loss of groundwater pumping and supply
Total Cost:	$1.5 Million

Ecosystem and Riparian Habitat Restoration of Amargosa Creek; Ave J to Ave H (EM-1)

Project Sponsor:	City of Lancaster
Joint Agencies:	None
Project Description:	The Ecosystem and Riparian Habitat Restoration of Amargosa Creek; Ave J north to Ave H establishes riparian habitat along the eastern edge of the Amargosa Creek in elongated segments and sections resulting in a "Riparian Curtain" approximately extending from Ave J north to Ave H. This restoration project is holistic in that it serves to enhance the environment and improve water quality, and helps to offset impacts on the overall ecosystem of ephemeral and riparian habitat associated with Amargosa Creek. By establishing a riparian corridor, this project provides habitat connectivity and protection; creates acoustic and aesthetic buffers; improves the existing network of wetlands; and works towards overall ecosystem restoration. This project requires site reconnaissance, coordination with California Department of Fish and Game (CDFG), various bio-assessments and planting plans prior to implementation and creation.
Project Integration:	Integrates with WS-1 and LM-1
Project Benefits:	100 – 1,000 AFY
Total Cost:	$10.0 Million

Coordinated Flood Management Plan (FM-1)

Project Sponsor:	Cities of Lancaster, Palmdale, LADPW, Kern County
Joint Agencies:	Edwards AFB would be an interested participant
Project Description:	The proposed project is the coordination of a flood management plan for the Antelope Valley Region by 2010. The Plan could include regional strategies to: improve and update flood management mapping and technology; coordinate mitigation efforts that address the level of risk associated with different areas and flood events; and direct the location, pattern and design of development in order to reduce flood damage, maximize groundwater recharge and meet other planning objectives throughout the Antelope Valley Region. A regional flood management plan could also include a regional communication and contingency plan, prepared so that regional and local authorities have the means to respond collaboratively to different flood events.
Project Integration:	Integrates with WS-1, EM-1, and LM-1
Project Benefits:	Improved flood management and protection for the Antelope Valley Region.
Total Cost:	To be provided once all project description components are more clearly defined.

Amargosa Creek Pathways Project (LM-1)

Project Sponsor:	City of Lancaster
Joint Agencies:	None
Project Description:	The Amargosa Creek Pathways Project, proposed by the City of Lancaster, includes development of a top of bank trail or paseo along eastern side of Lake Lancaster, and construction of a foot-bridge structure crossing the lake and connecting under Hwy 14 to link to the existing trailhead at the Antelope Valley Region Fairgrounds. The project integrates stormwater/flood control with natural riparian habitat enhancement and preservation, open/recreational space and land use management. The goal is to construct a pathway in harmony with established riparian habitat, within a flood control management basin which captures stormwater and nuisance water runoff that, in turn, sustains riparian habitat. This project will additionally increase the amount of protected natural habitat and provide improved flood control within the Amargosa Creek watershed.
Project Integration:	Integrates with WS-1 and EM-1
Project Benefits:	1 – 100 AFY
Total Cost:	$1.3 Million

Coordinated Land Use Management Plan (LM-2)

Project Sponsor:	Cities of Lancaster, Palmdale, LADPW, Kern County
Joint Agencies:	Antelope Valley Conservancy
Project Description:	The proposed project is the coordination of a land use management plan for the Antelope Valley Region. A regional land use plan that directs the Antelope Valley Region's growth towards existing urban centers will help protect agricultural lands, natural habitat and recreational open space, and will encourage the efficient use of water and economic resources dedicated to water utilities infrastructure improvements and expansions. It is likely that this effort will be combined with the "Antelope-Fremont Watershed Assessment and Plan" project described in Section 5. The watershed assessment project would fund the 606 Studio to work with regional stakeholders to coordinate a regional land use plan with emphasis on the preservation and restoration of sensitive natural systems of the Antelope Valley Region.
Project Integration:	Integrates with WS-1, WS-2, WS-4, RW-1, RW-2, WC-1, WQ-1, WQ-2, WQ-3, EM-1, and LM-1.
Project Benefits:	2,000 acres of habitat/conservation lands
Total Cost:	$45,000 to fund the development of the Antelope-Fremont Watershed Assessment and Plan portion of the Plan. Total cost of the Plan to be provided.

7.4.1 High Priority Projects Benefit/Cost Assessment

The IRWM Plan Guidelines require that an IRWM Plan demonstrate its economic and technical feasibility on a programmatic level (technical feasibility is discussed in Section 8). It is appropriate that both quantifiable and non-quantifiable benefits provided by projects be considered in relation to their costs. The potential benefit of each proposed project was initially identified in Section 5, and cumulatively considered in Section 6. It is likely, however, in this initial stage of Plan development, that a lack of detailed data regarding all benefits, especially costs, could preclude a rigorous quantitative comparison of all projects. Therefore, only those projects that have demonstrated priority status resultant from the analysis provided in Table 7-1 and with concurrence from the Stakeholders are assessed for their benefit to cost relationships. This analysis is presented in Table 7-3.

7.4.1.1 Integration of High Priority Projects

The combined implementation of these projects would provide multiple benefits to the Antelope Valley Region spanning a number of water management actions. All of the projects proposed for implementation are targeted at reducing the mismatch between supply and demand projected for the Region by 2035. The projects would facilitate the use of recycled water throughout the Region as well as improve water quality in the groundwater through interdependent recycled water projects, thereby providing a new water supply to the Region. Additionally, the suite of projects would reduce regional water demand by as much as 10 percent by 2035 through a regional water conservation program.

These priority projects work as an integrated package. Many of their components are dependant on each other, requiring continual coordination between agencies and Stakeholders. Implementation of these projects are discussion further in Section 8.

TABLE 7-3
BENEFIT/COST FOR HIGH PRIORITY PROJECTS

Project Code	Project	Quantified Water Supply Benefit	Other Benefits	Costs (in millions)
LM-1	Amargosa Creek Pathways Project	1 – 100 AFY		$1.3
RW-1	Antelope Valley Recycled Water Project Phase 2	8,400 AFY		$10.9
WS-4	Antelope Valley Water Bank	100,000 AFY	1,700 acres of agriculture	$170.0
WS-3	Aquifer Storage and Recovery Project: Injection Well Development	12,000 AFY		$10.0
WI-1	Avenue K Transmission Main, Phases I-IV	NA	Firms up supplies	$10.0
WC-1	Comprehensive Water Conservation/Water Use Efficiency Program	3,500 AFY	Ultimate benefit of 28,000 AFY to 42,000 AFY	$0.90
FM-1	Coordinated Flood Management Plan	NA	Would improve overall flood management and protection for the Antelope Valley Region	TBD
LM-2	Coordinated Land Use Management Plan	NA	2,000 acres open space	TBD
EM-1	Ecosystem & Riparian Habitat Restoration of Amargosa Creek; Ave J to Ave H	100 – 1,000 AFY		$10.0
RW-2	Groundwater Recharge Using Recycled Water (GWR-RW) Project	2,500 AFY	100 acres open space	$6.0
WQ-1	Lancaster WRP Stage V	See RW-1	48,000 AFY potential benefits when users identified	$74.8
WI-2	Littlerock Dam Sediment Removal Project	1,000 AFY		$5.5
WQ-2	Palmdale WRP Existing Effluent Management Sites	See RW-1	48,000 AFY potential benefits when users identified	$5.2
WQ-3	Palmdale WRP Stage V	See RW-1	48,000 AFY potential benefits when users identified	$94.6

Project Code	Project	Quantified Water Supply Benefit	Other Benefits	Costs (in millions)
WQ-4	Partial Well Abandonment of Groundwater Wells for Arsenic Mitigation	NA	Prevents loss of groundwater pumping and existing supply	$1.5
WI-3	RCSD's Waste Water Pipeline	NA	Provides potential future recycled water users	$13.0
WS-1	Upper Amargosa Creek Recharge, Flood Control & Riparian Habitat Restoration Project	5,000 – 10,000 AFY	15 acres open space; 20 acres flood protection	$13.5
WS-2	Water Supply Stabilization Project – Westside Project	40,400 to 42,600 AFY		$230.0

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Section 8: Framework for Implementation

This section develops a comprehensive implementation framework for the Integrated Regional Water Management (IRWM) Plan. The objective of this section is to develop a capital improvement program and financial plan for both construction and operation and maintenance (O&M) of the projects and management actions selected as 'high priority' within this IRWM Plan, as well as to identify a means for updating and maintaining the AV IRWM Plan throughout the planning horizon.

8.1 Framework Introduction

This subsection discusses the agencies and stakeholders that develop plans or participate in the development of plans in the Antelope Valley Region, and identifies the different scales at which planning occurs. How local agencies and stakeholders choose to link regional water issues and challenges with the IRWM Plan priorities, strategies, and objectives noted in Section 4, combine water management strategies, or determine which specific activities should occur for any specific water management strategy may vary based on the scale of planning. It is within this framework that the agencies and stakeholders expect to move toward the shared water management objectives, following a course of greater integration and coordination of water projects and programs in the Antelope Valley Region.

8.1.1 Existing Plans and Programs

A substantial number of federal, state and local/regional agencies and jurisdictions are responsible for, or participate in, the development and implementation of plans and programs that satisfy the water management strategies developed earlier in this report. Table 8-1 identifies those agencies and jurisdictions associated with each established water management strategy in order to demonstrate the coordination required to plan and implement these programs. This table suggests that substantial effort will be required to assure cross-agency coordination and integration for the development of regional plans and projects for individual water management strategies or that incorporate multiple water management strategies.

TABLE 8-1
AGENCIES AND JURISDICTIONS INVOLVED WITH PLANNING IN ANTELOPE VALLEY REGION

Water Management Strategy	Federal	State	Local/Regional
Water Supply Reliability		Department of Water Resources (DWR); State Water Resources Control Board (SWRCB)	Water Agencies; Lahontan Regional Water Quality Control Board (RWQCB)
Groundwater Management and Conjunctive Use		Department of Public Health (DPH); DWR; SWRCB	Cities of Palmdale and Lancaster; Los Angeles and Kern Counties; Antelope Valley State Water Contractors Association (AVSWCA); Lahontan RWQCB
Water Conservation	Bureau of Reclamation (BOR)	DWR; SWRCB	Cities of Palmdale and Lancaster; Water Agencies; Kern County
Water Recycling	Environmental Protection Agency (EPA)	DWR; DPH; SWRCB	Cities of Palmdale and Lancaster; Los Angeles County Sanitation Districts (LACSD) 14 and 20; Kern County; Lahontan RWQCB
Imported Water	BOR	DWR; SWRCB	Antelope Valley-East Kern Water Agency (AVEK); Palmdale Water District; and Littlerock Creek Irrigation District
Surface Storage	BOR; Army Corps of Engineers (ACOE)	DWR; SWRCB	Some cities; Los Angeles County Flood Control District (LAFCD); Kern County; Lahontan RWQCB
Water Transfers	BOR	DWR; SWRCB	Some Water Agencies; Lahontan RWQCB
Desalination	BOR	DWR	Not Applicable for Antelope Valley Region
Water Quality Protection & Improvement	EPA	DPH; DWR; SWRCB	Cities of Palmdale and Lancaster; Water Agencies; Los Angeles and Kern Counties, LACSD; Lahontan RWQCB
Non-point Source Pollution Control	EPA	DWR; SWRCB	Cities of Palmdale and Lancaster; Water Agencies; Los Angeles and Kern Counties; Lahontan RWQCB; Environmental and Watershed Groups
Water & Wastewater Treatment	EPA	DWR; SWRCB	Cities of Palmdale and Lancaster; LACSD 14 and 20; Kern County; Water Agencies; Lahontan RWQCB

Water Management Strategy	Federal	State	Local/Regional
Flood Management	BOR; ACOE	DWR; SWRCB	Cities of Palmdale and Lancaster; LAFCD; Kern County; Lahontan RWQCB
Stormwater Capture and Management	BOR; ACOE	DWR; SWRCB	Cities of Palmdale and Lancaster; LAFCD; Kern County; Lahontan RWQCB
Ecosystem Restoration	Fish and Wildlife Service (FWS); Forest Service; National Park Service (NPS); Natural Resources Conservation Service (NRCS); Bureau of Land Management (BLM)	California Department of Fish and Game (Fish and Game); State Parks	Cities of Palmdale and Lancaster; Los Angeles and Kern Counties; Environmental and Watershed Groups
Environmental and Habitat Protection and Improvement	ACOE; FWS; Forest Service; NPS; NRCS; BLM	Fish and Game; State Parks	Cities of Palmdale and Lancaster; Los Angeles and Kern Counties; Environmental and Watershed Groups
Recreation and Public Access	NPS	State Parks	Cities of Palmdale and Lancaster; Los Angeles and Kern Counties
Wetlands Enhancement and Creation	ACOE; FWS; Forest Service; NPS; NRCS	Fish and Game; State Parks	Cities of Palmdale and Lancaster; Los Angeles and Kern Counties
Land Use Planning	Forest Service; NPS	State Parks	Cities of Palmdale and Lancaster; Los Angeles and Kern Counties
Watershed Planning	ACOE; NPS		Cities of Palmdale and Lancaster; Los Angeles and Kern Counties; Environmental and Watershed Groups

8.1.2 Relationship to Local Planning

The AV IRWM Plan establishes broad objectives and planning targets for the entire Antelope Valley Region. The Antelope Valley Regional Water Management Group (RWMG) created for the development and implementation of the AV IRWM Plan cannot feasibly assume responsibility for meeting all of the objectives and planning targets. Thus, projects and management actions implemented by the AV IRWM Plan stakeholders will likely remain the primary means by which the IRWM Plan's objectives are contributed As acknowledged in a number of the stakeholder meetings, many of the local agencies increasingly acknowledge the value of collaboration in the planning, design, implementation, funding, monitoring and maintenance of integrated projects. Implementation of the AV IRWM Plan supports the development of integrated projects, provides a comprehensive framework that can support planning by individual agencies and jurisdictions, and encourages integrated planning for those issues that could benefit from a regional approach.

Numerous plans and studies related to water resources and land use management in the Antelope Valley Region have contributed to the development of the IRWM Plan. Thus, the AV IRWM Plan has been developed from and is consistent with local planning efforts in the Antelope Valley Region, as discussed below.

- General Plans: Plans of the counties and cities that comprise the Antelope Valley Region reflect local planning needs and issues. General Plans express the goals, actions and policies in a number of resource areas, including land use and water management. The Los Angeles County General Plan which covers a large majority of the Antelope Valley Region, in connection with the Antelope Valley Areawide General Plan and the Kern County General Plan specifically calls for a number of policies directly related to IRWM Plan objectives and planning targets such as increased water quality and reliability; water conservation; watershed management, wastewater recovery and reuse; avoidance and mitigation of pollution threats to drainages and groundwater reserves; open space preservation; and establishment of adequate public access and recreational opportunities. General Plans for the Cities of Palmdale and Lancaster offer similar themes of ensuring reliable water supply; maintaining open space and recreational opportunities; and protecting human health and safety and the environment through better floodplain management and ecosystem restoration. Table 8-2 lists applicable goals, policies and programs from each General Plan and compares them to the IRWM Plan objectives and planning targets, the IRWM Plan Strategies, AB 3030, IRWM Plan Guidelines, and Statewide Priorities.

- Lahontan Regional Water Quality Control Board Basin Plan: The AV IRWM Plan includes key strategies achieving water quality goals for the Antelope Valley Region identified in the Basin Plan developed by the Lahontan RWQCB. The control of Non-point Source Pollution throughout the Antelope Valley Region and restoration of water quality in local water bodies are particular aspects of the Basin Plan that are directly addressed by the IRWM Plan. A number of planning targets are identified to achieve this, such as preventing unacceptable degradation of the aquifer according to the Basin Plan throughout the planning period, identification of contaminated portions of the aquifer and prevention of migration, and mapping and monitoring contaminant movement. In addition, the AV IRWM Plan calls for coordination of a regional flood management plan and policy mechanism to reduce negative impacts of storm water, urban runoff and nuisance water. Projects designed to reduce, capture, and treat urban and stormwater runoff directly address the water quality objectives in the Basin Plan.

- Involvement of Land Use Decision Makers: Land use decisions have the potential to affect the water management strategies utilized in the AV IRWM 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 addition, the passage and implementation of water conservation or floodplain management ordinances can further address IRWM Plan objectives. 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 regulatory responsibility for the conservation and preservation of those spaces. Additionally, many 'open spaces' in the Antelope Valley Region are undeveloped rural lands under Los Angeles County jurisdiction. All of these agencies and jurisdictions have been involved in the AV IRWM Plan as part of the stakeholder process, or are active members of the Antelope Valley RWMG (e.g., cities and counties).

- Dynamics between IRWM Plan and Local Planning: The stakeholder process allows for interactive feedback to occur between local planning and regional IRWM Plan planning. Local planning is conducted by cities, counties, and local agencies and districts. Most of the cities in the Antelope Valley Region have participated either directly, or through the participation of a regional representative. Through the stakeholder workshops, the cities, counties and municipal agencies have advocated for their respective local planning needs and issues, which have been incorporated into the IRWM Plan. Subsequently, the outcomes from the AV IRWM Plan process have been disseminated by the representatives back to their local decision makers, allowing the IRWM Plan priorities, objectives and planning targets to be considered in local planning efforts where appropriate. For example, the Los Angeles County General Plan is currently being updated, and as feasible, the AV IRWM Plan can be used to inform that process in areas related to water resource management.

8.1.3 Relationship of Other Planning Documents to IRWM Plan Objectives

Other water resource management planning documents are also being used to help guide the AV IRWM Plan process. Many of these planning documents are sources of specific projects and programs that can be incorporated directly into the AV IRWM Plan's implementation plan. A general discussion follows of how these planning documents support IRWM Plan objectives related generally to optimizing local resources; complying with water quality standards; protecting and improving groundwater and drinking water quality; increasing watershed-friendly recreational space; protecting, restoring and enhancing natural processes and habitats; and maintaining and enhancing flood protection and infrastructure related to water resources and water quality. Such planning documents include, but are not limited to, Urban Water Management Plans (UWMP), local and regional General Plans, City Master Plans, conservation efforts, and Los Angeles County Flood Control District plans.

Provide reliable water supply to meet the Antelope Valley Region's expected demand between now and 2035. The quantity of supply necessary to meet future population growth and land use development through 2035 (as forecast in the Antelope Valley Region's General Plans) is documented in the UWMPs of the Antelope Valley Region. The AV IRWM Plan includes a number of projects described in these UWMPs, including several water conservation programs (education, evapotranspiration (ET)-based irrigation controllers, faucet aerators, xeriscaping, etc.). Recycled water and conservation master plans have also been developed by local government agencies and water agencies (or are identified to be developed as part of this IRWM Plan); the AV IRWM Plan will similarly implement a number of projects identified in those plans.

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TABLE 8-2
LOCAL REGIONAL PLAN POLICIES VS. IRWM PLAN STRATEGIES, AB 3030, IRWM PLAN GUIDELINES, STATEWIDE PRIORITIES

Local and Regional Plan Policies	Water Supply									Water Quality			Flood Management		Environmental Resource Management				Land Use Management		AB 3030 Guidelines												IRWM Plan Program Preferences						Statewide Priorities								Water Supply Management Objectives								Water Quality Management Objectives										Flood Management Objectives		Environmental Management Objectives		Land Use Management Objectives					
	Water Supply Reliability	Groundwater Management	Water Conservation	Water Recycling	Water Banking & Conjunctive Use	Imported Water	Surface Storage	Water Transfers	Desalination	Water Quality Protection and Improvement	Non-Point Source Pollution Control	Water and Wastewater Treatment	Flood Management	Storm water Capture and Management	Ecosystem Restoration	Environmental and Habitat Protection and Improvement	Recreation and Public Access	Wetlands Enhancement and Creation	Land Use Planning	Watershed Planning	The control of saline water intrusion.	Identification and management of wellhead protection areas and recharge areas	Regulation of the migration of contaminated groundwater.	The administration of a well abandonment and well destruction program.	Mitigation of conditions of overdraft.	Replenishment of groundwater extracted by water producers.	Monitoring of groundwater levels and storage.	Facilitating conjunctive use operations.	Identification of well construction policies.	The construction and operation by the local agency of groundwater contamination cleanup, recharge, storage, conservation, water recycling and extraction projects.	The development of relationships with state and federal regulatory agencies.	The review of land use plans and coordination with land use planning agencies to assess activities which create a reasonable risk of groundwater contamination.	Include integrated projects with multiple benefits.	Support and improve local and regional water supply reliability.	Contribute expeditiously and measurably to the long-term attainment and maintenance of water quality standards.	Eliminate or significantly reduce pollution in impaired waters and sensitive habitat areas, including areas of special biological significance.	Include safe drinking water and water quality projects that serve disadvantaged communities.	Include groundwater management and recharge projects that are located 1) in San Bernardino or Riverside counties; 2) outside of the service area of the Metropolitan Water District of Southern California; or 3) within one mile of established residential and commercial development.	Reduce conflict between water users or resolve water rights	Implementation of TMDLs that are established or under development.	Implementation of Regional Water Quality Control Board Watershed Management initiative Chapters, plans, and policies.	Implementation of the State Water Resource Control Board's Non-point Source Pollution Plan.	Assist in meeting Delta Water Quality Objectives.	Implementation of recommendations of the floodplain management task force, desalination Task force, recycling task force or State species recovery plan	Address environmental justice concerns.	Assist in achieving one or more goals of the CALFED Bay-Delta Program.	Provide reliable water supply to meet the Region's expected demand between now (2010) and 2035.	*Reduce (68,400 to 189,100 AFY) mismatch of expected supply and demand in average years by providing new water supply and reducing demand, starting 2009.*	*Provide adequate reserves (50,700 to 60,500 AFY) to supplement average condition supply to meet demands during single-dry year conditions, starting 2009.*	*Provide adequate reserves (0 to 62,400 AFY) to supplement average condition supply to meet demands during multi-dry year conditions, starting 2009.*	Establish a contingency plan to meet water supply needs of the region during a plausible disruption of SWP water deliveries.	*Demonstrate ability to meet regional water demands without receiving SWP water for 6 months over the summer bu June 2010.*	Stabilize groundwater levels at current conditions.	*Manage groundwater levels throughout the basin such that a 10 year moving average of change in observed groundwater levels is greater than or equal to 0.*	Provide drinking water that meets customer expectations.	*Continue to meet Federal and State water quality standards as well as customer standards for taste and aesthetic throughout the planning period.*	Protect aquifer from contamination.	*Prevent unacceptable degradation of aquifer according to the Basin Plan throughout the planning period.*	*Identify contaminated portions of aquifer and prevent migration of contaminants by June 2009.*	*Map contaminated sites and monitor contaminant movement by December 2008.*	Protect natural streams and recharge areas from contamination.	*Prevent unacceptable degradation of natural streams and recharge areas according to the Basin Plan throughout the planning period.*	Maximize beneficial use of recycled water.	*Increase infrastructure and establish policies to use 33% of recycled water by 2015, 66% by 2025, and 100% by 2035.*	Reduce negative impacts of storm water, urban runoff, and nuisance water.	*Coordinate a regional flood management plan and policy mechanism by the year 2010.*	Preserve open space and natural habitats that protect and enhance water resources and species in the region.	*Contribute to the preservation of an additional 2,000 acres of open space and natural habitat, to integrate and maximize surface and groundwater management by 2015.*	Maintain agricultural land use within the Region.	*Preserve 10,000 acres of farmland in rotation through 2035.*	Meet growing demand for recreational space.	*Contribute to local and regional General Planning documents to provide 5,000 acres of recreational space by 2035.*	Improve integrated land use planning to support water management	*Coordinate a regional land use management plan by the year 2010.*
COUNTY OF LOS ANGELES GENERAL PLAN (1990)																																																																										
Water Supply/Water Quality Policies																																																																											
General Goals and Policies																																																																										
Conserve the available supply of water and protect water quality.	X	X	X							X													X		X	X	X			X		X		X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X								
Maintain a balance between increased intensity of development and the capacity of needed facilities such as transportation, water and sewage systems.												X							X	X										X	X	X							X								X	X	X	X	X	X	X	X									X	X										
Land Use Element																																																																											
For development proposed within a non-urban hillside management area, defined by the General Plan as lands characterized by natural slopes of 25% or greater not designated for future urban use nor scheduled to receive an urban level of services, adequate water for domestic consumption and fire protection must be available. Connection to public sewers or provision of a central sewage treatment and disposal facility capable of adequately serving all lots within the development shall be required unless engineering studies clearly demonstrate the acceptability of private disposal systems from the standpoint of geology, sanitation and water quality.	X									X	X	X							X	X											X	X		X													X	X	X	X	X	X	X	X	X		X	X	X						X	X								
Conservation, Open Space and Recreation Element																																																																										
Protect groundwater recharge and watershed areas, conserve storm and reclaimed water, and promote water conservation programs.	X	X	X	X	X					X				X						X	X	X	X		X	X	X	X		X		X		X	X		X	X							X		X	X	X	X	X	X	X	X									X	X										
Encourage the maintenance, management and improvement of the quality of imported domestic water, ground water supplies, natural runoff, and ocean water.	X	X	X	X	X	X	X	X	X	X									X	X	X	X	X	X	X	X	X	X	X	X		X		X	X		X	X							X		X	X	X	X	X	X	X	X	X	X									x	X								
Encourage the maintenance of landscaped areas and pollution-tolerant plants in urban areas, integrate landscaping and open space into housing, commercial and industrial developments especially in urban revitalization areas. Use drought-resistant vegetation.	X		X																X	X										X		X	X	X			X								X		X	X	X	X	X	X	X	X																				
Protect watershed, streams, and riparian vegetation to minimize water pollution, soil erosion and sedimentation, maintain natural habitats, and aid in groundwater recharge.	X	X								X	X		X	X	X	X			X	X										X				X	X	X		X		X		X					X	X	X	X	X	X	X	X											X	X	X	X						
Minimize increased runoff, erosion, and siltation of streambeds that would limit the uses of streams and waterbodies for recreation and other beneficial water-related uses.										X	X		X	X	X	X	X		X	X										X		X		X	X	X				X		X			X																				X	X	X	X	X	X	X	X		
Public Facilities Element																																																																											
Encourage private firms and public agencies providing water and waste management services to cooperate with all levels of government in establishing, enacting, and enforcing consistent standards and criteria.	X			X					X	X		X							X	X											X	X			X		X		X	X	X	X	X	X	X	X									X	X	X	X	X	X	X	X	X	X	X	X								
Cooperate with federal, State, regional and local agencies to develop and implement new technologies in water and waste management while continuing existing methods until new alternatives are economically feasible.	X			X					X	X		X							X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X			X	X	X		X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X										
Design water and waste management systems which enhance the appearance of the neighborhoods in which they are located and minimize negative environmental impacts.												X							X													X			X		X		X						X																													
Improve coordination among operating agencies of all water and waste management systems.												X							X	X		X	X	X				X	X	X	X		X	X	X		X	X	X		X	X		X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							X	X
Encourage compatible, multiple use of water and waste management facilities, including public recreational utilization, where consistent with their original purpose and the maintenance of water quality.										X							X		X	X	X									X				X		X					X														X	X													X	X	X	X	X	X
Increase storage of potable water in underground aquifers through greater use of spreading grounds.	X	X			X														X	X		X			X	X				X				X				X									X	X	X	X	X	X	X	X																				
Encourage development and application of water conservation, including recovery and reuse of storm and waste water.	X		X	X									X	X											X					X				X										X			X	X	X	X	X	X	X	X									X	X										
Protect public health and prevent pollution of groundwater through the use of whatever alternative is necessary.	X	X			X		X			X	X	X							X	X		X	X	X		X	X	X	X	X	X	X			X					X	X	X			X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X												
Provide protection for groundwater recharge areas to ensure water quality and quantity.	X	X			X					X	X									X	X	X	X		X	X	X	X		X				X				X		X	X						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X												
Economic Development Element																																																																											
Vigorously support measures that will provide an adequate supply of high quality water for Southern California.	X	X	X	X	X	X	X	X	X	X	X	X							X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X		X	X	X								X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X												
Flood Management Policies																																																																											
General Goals and Policies																																																																											
Direct urban development and revitalization efforts to protect natural and man-made amenities and to avoid severe hazard areas such as flood prone areas, active fault zones, steep hillsides, landslide areas and fire hazard areas.													X	X		X			X													X												X	X																				X	X								
Land Use Element																																																																											
For development proposed within a non-urban hillside management area, defined by the General Plan as lands characterized by natural slopes of 25% or greater not designated for future urban use nor scheduled to receive an urban level of services, all water courses should be miantained in as natural a state as possible, minimizing modification of the natural carrying capacity or production of excessive siltation.													X	X		X			X													X												X																					X	X								
Conservation, Open Space and Recreation Element																																																																											
Restrict urban development in flood prone areas, and thus avoid major new flood control works.													X	X					X	X																								X		X																			X	X								
Encourage the multiple use of flood prone areas, and thus avoid major new flood control works.													X	X			X		X	X																								X	X	X																			X	X			X	X	X	X		
Safety Element																																																																											
Continue to review proposals and projects for expansion of existing development and construction of new facilities, especially critical facilities, within areas subject to floods and other high risk inundation areas, and disapprove projects which cannot mitigate the hazards to the satisfaction of responsible agencies.													X	X					X	X											X	X												X		X																			X	X								
Promote the use of flood plain management measures in high-risk inundation areas, and require expansion of existing and proposed new developments to be flood-proofed and secured to minimize future flood losses.													X	X					X	X											X													X		X																			X	X								
Encourage improvement of the existing flood control system capacity to ensure that it is capable of protecting existing development from rising amounts of runoff produced by increased urbanization.													X	X					X	X											X													X		X																			X	X								
Upgrade protection of the public from inundation hazards caused by structural failure and/or breaching of water storage tanks, debris basins, or dam and reservoir facilities.													X	X					X	X											X													X		X																			X	X								
Public Facilities Element																																																																											
Avoid or mitigate threats to pollution of the ocean, drainage ways, lakes and groundwater reserves.										X	X		X	X		X				X																X								X		X																			X	X	X	X						
Design flood control facilities to minimize alteration of natural stream channels.													X	X		X				X																										X																			X	X	X	X						

TABLE 8-2
LOCAL REGIONAL PLAN POLICIES VS. IRWM PLAN STRATEGIES, AB 3030, IRWM PLAN GUIDELINES, STATEWIDE PRIORITIES

Local and Regional Plan Policies	Water Supply									Water Quality			Flood Management		Environmental Resource Management				Land Use Management		AB 3030 Guidelines												IRWM Plan Program Preferences						Statewide Priorities								Water Supply Management Objectives								Water Quality Management Objectives										Flood Management Objectives		Environmental Management Objectives		Land Use Management Objectives					
	Water Supply Reliability	Groundwater Management	Water Conservation	Water Recycling	Water Banking & Conjunctive Use	Imported Water	Surface Storage	Water Transfers	Desalination	Water Quality Protection and Improvement	Non-Point Source Pollution Control	Water and Wastewater Treatment	Flood Management	Storm water Capture and Management	Ecosystem Restoration	Environmental and Habitat Protection and Improvement	Recreation and Public Access	Wetlands Enhancement and Creation	Land Use Planning	Watershed Planning	The control of saline water intrusion.	Identification and management of wellhead protection areas and recharge areas	Regulation of the migration of contaminated groundwater.	The administration of a well abandonment and well destruction program.	Mitigation of conditions of overdraft.	Replenishment of groundwater extracted by water producers.	Monitoring of groundwater levels and storage.	Facilitating conjunctive use operations.	Identification of well construction policies.	The construction and operation by the local agency of groundwater contamination cleanup, recharge, storage, conservation, water recycling and extraction projects.	The development of relationships with state and federal regulatory agencies.	The review of land use plans and coordination with land use planning agencies to assess activities which create a reasonable risk of groundwater contamination.	Include integrated projects with multiple benefits.	Support and improve local and regional water supply reliability.	Contribute expeditiously and measurably to the long-term attainment and maintenance of water quality standards.	Eliminate or significantly reduce pollution in impaired waters and sensitive habitat areas, including areas of special biological significance.	Include safe drinking water and water quality projects that serve disadvantaged communities.	Include groundwater management and recharge projects that are located 1) in San Bernardino or Riverside counties; 2) outside of the service area of the Metropolitan Water District of Southern California; or 3) within one mile of established residential and commercial development.	Reduce conflict between water users or resolve water rights	Implementation of TMDLs that are established or under development.	Implementation of Regional Water Quality Control Board Watershed Management initiative Chapters, plans, and policies.	Implementation of the State Water Resource Control Board's Non-point Source Pollution Plan.	Assist in meeting Delta Water Quality Objectives.	Implementation of recommendations of the floodplain management task force, desalination Task force, recycling task force or State species recovery plan	Address environmental justice concerns.	Assist in achieving one or more goals of the CALFED Bay-Delta Program.	Provide reliable water supply to meet the Region's expected demand between now (2010) and 2035.	*Reduce (68,400 to 189,100 AFY) mismatch of expected supply and demand in average years by providing new water supply and reducing demand, starting 2009.*	*Provide adequate reserves (50,700 to 60,500 AFY) to supplement average condition supply to meet demands during single-dry year conditions, starting 2009.*	*Provide adequate reserves (0 to 62,400 AFY) to supplement average condition supply to meet demands during multi-dry year conditions, starting 2009.*	Establish a contingency plan to meet water supply needs of the region during a plausible disruption of SWP water deliveries.	*Demonstrate ability to meet regional water demands without receiving SWP water for 6 months over the summer bu June 2010.*	Stabilize groundwater levels at current conditions.	*Manage groundwater levels throughout the basin such that a 10 year moving average of change in observed groundwater levels is greater than or equal to 0.*	Provide drinking water that meets customer expectations.	*Continue to meet Federal and State water quality standards as well as customer standards for taste and aesthetic throughout the planning period.*	Protect aquifer from contamination.	*Prevent unacceptable degradation of aquifer according to the Basin Plan throughout the planning period.*	*Identify contaminated portions of aquifer and prevent migration of contaminants by June 2009.*	*Map contaminated sites and monitor contaminant movement by December 2008.*	Protect natural streams and recharge areas from contamination.	*Prevent unacceptable degradation of natural streams and recharge areas according to the Basin Plan throughout the planning period.*	Maximize beneficial use of recycled water.	*Increase infrastructure and establish policies to use 33% of recycled water by 2015, 66% by 2025, and 100% by 2035.*	Reduce negative impacts of storm water, urban runoff, and nuisance water.	*Coordinate a regional flood management plan and policy mechanism by the year 2010.*	Preserve open space and natural habitats that protect and enhance water resources and species in the region.	*Contribute to the preservation of an additional 2,000 acres of open space and natural habitat, to integrate and maximize surface and groundwater management by 2015.*	Maintain agricultural land use within the Region.	*Preserve 10,000 acres of farmland in rotation through 2035.*	Meet growing demand for recreational space.	*Contribute to local and regional General Planning documents to provide 5,000 acres of recreational space by 2035.*	Improve integrated land use planning to support water management	*Coordinate a regional land use management plan by the year 2010.*
Environmental Resource Management Policies																																																																										
General Goals and Policies																																																																										
Protect areas that have significant natural resources and scenic values, including significant ecological areas, the coastal zone, and prime agricultural lands.															X	X	X	X	X																	X																																X	X	X	X				
Land Use Element																																																																										
Establish and implement regulatory controls that ensure compatibility of development adjacent to or within major public open space and recreation areas including National Forests, the National Recreation Area, and State and regional parks.															X	X	X		X																	X																																X	X						
Encourage more efficient use of land, compatible with, and sensitive to, natural ecological, scenic, cultural and open space resources.															X	X	X		X																	X																																X	X						
Establish land use controls that afford effective protection for significant ecological resources, and lands of major scenic value.															X	X			X																	X																																X	X						
It is the intent of General Plan policy to preserve the County's significant ecological resources and habitat areas in viable and natural conditions. Major factors influencing the realization of Plan objectives in this regard include the County's ability to accurately identify areas of significant resource value; the availability of financial and other resources necessary to support preservation, restoration, and enhancement efforts; and the competing priorities between resource preservation and other critical public needs.															X	X			X																																																		X	X						
Recognizing the resource values at stake and the constraints imposed by competing priorities and objectives, the General Plan seeks to provide a process for reconciling specific conflicts between proposed land use and the preservation of Significant Ecological Areas (SEAs). The Plan does not, however, suggest that this can be accomplished by applying a single set of regulatory standards to all SEAs. Nor does it infer that reasonable use of privately held lands within such areas shall be precluded without justification. Instead, the Plan recognizes that measures necessary to preserve and enhance SEAs will vary depending on the nature of resource values present and the degree of threat implied by potentially incompatible development. Within this context, general conditions and standards are provided to guide specific land use decisions. **(These conditions and standards are too numerous to list on this table, but are identified on pages LU-A12 through LU-A14 of the General Plan.)**															x	x			x																																																	X	X						
Protect known mineral resource reserves (including sand and gravel) from encroachment of incompatible land uses.																			X																																																	x							
Encourage the recycling of abandoned mineral extraction sites to recreational, industrial or other productive use.																	X		X																																																			X	X		
Mineral resource areas (MRAs) include existing surface mining activities, areas identified or to be identified as containing significant mineral resources by the State Mining and Geology Board, and areas suitable for the production of energy resources, including crude oil and natural gas. Within identified MRAs, proposed development other than open space, passive recreation, agriculture, extraction or surface mining shall be reviewed for compatibility with existing or potential mineral resource production. **(Compatibility factors identified for review are too numerous to list on this table, but are identified on page LU-A20 of the General Plan.)**																	X		X																																																		X	X	X	X		
Circulation Element																																																																										
Avoid construction of transportation facilities within SEAs unless found essential following a detailed analysis of alternatives including a "no project" alternative. If the facility is still found to be necessary, it shall be constructed in the most environmentally sensitive manner.																X			X																	X																																X	X						
Conservation, Open Space and Recreation Element																																																																										
Manage development in hillside areas to protect their natural and scenic character and to reduce risks from fire, flood, mudslides, erosion and landslides.													X	X		X			X																	X																													X	X	X	X						
Land Use Management Policies																																																																										
General Goals and Policies																																																																										
Accept and plan for a level and rate of population and economic growth consistent with improved environmental quality and the availability of air, water, and energy resources.	X																		X											X		X		X											X		X	X	X	X	X	X	X	X																			X	X
Promote a distribution of population consistent with service system capacity, resource availability, environmental limitations, and accessibility.	X																		X	X										X		X		X											X		X	X	X	X	X	X	X	X																			X	X
Stress the development of community parks particularly in areas of the greatest deficiency, and take advantage of opportunities to preserve large natural and scenic areas.																	X		X																										X																											X	X	X	X
Promote the efficient use of land through a more concentrated pattern of urban development, including the focusing of new urban growth into areas of suitable land.																			X													X													X																							X	X					X	X

TABLE 8-2
LOCAL REGIONAL PLAN POLICIES VS. IRWM PLAN STRATEGIES, AB 3030, IRWM PLAN GUIDELINES, STATEWIDE PRIORITIES

Local and Regional Plan Policies	Water Supply									Water Quality			Flood Management		Environmental Resource Management				Land Use Management		AB 3030 Guidelines												IRWM Plan Program Preferences						Statewide Priorities								Water Supply Management Objectives								Water Quality Management Objectives										Flood Management Objectives		Environmental Management Objectives		Land Use Management Objectives					
	Water Supply Reliability	Groundwater Management	Water Conservation	Water Recycling	Water Banking & Conjunctive Use	Imported Water	Surface Storage	Water Transfers	Desalination	Water Quality Protection and Improvement	Non-Point Source Pollution Control	Water and Wastewater Treatment	Flood Management	Storm water Capture and Management	Ecosystem Restoration	Environmental and Habitat Protection and Improvement	Recreation and Public Access	Wetlands Enhancement and Creation	Land Use Planning	Watershed Planning	The control of saline water intrusion.	Identification and management of wellhead protection areas and recharge areas	Regulation of the migration of contaminated groundwater.	The administration of a well abandonment and well destruction program.	Mitigation of conditions of overdraft.	Replenishment of groundwater extracted by water producers.	Monitoring of groundwater levels and storage.	Facilitating conjunctive use operations.	Identification of well construction policies.	The construction and operation by the local agency of groundwater contamination cleanup, recharge, storage, conservation, water recycling and extraction projects.	The development of relationships with state and federal regulatory agencies.	The review of land use plans and coordination with land use planning agencies to assess activities which create a reasonable risk of groundwater contamination.	Include integrated projects with multiple benefits.	Support and improve local and regional water supply reliability.	Contribute expeditiously and measurably to the long-term attainment and maintenance of water quality standards.	Eliminate or significantly reduce pollution in impaired waters and sensitive habitat areas, including areas of special biological significance.	Include safe drinking water and water quality projects that serve disadvantaged communities.	Include groundwater management and recharge projects that are located 1) in San Bernardino or Riverside counties; 2) outside of the service area of the Metropolitan Water District of Southern California; or 3) within one mile of established residential and commercial development.	Reduce conflict between water users or resolve water rights	Implementation of TMDLs that are established or under development.	Implementation of Regional Water Quality Control Board Watershed Management initiative Chapters, plans, and policies.	Implementation of the State Water Resource Control Board's Non-point Source Pollution Plan.	Assist in meeting Delta Water Quality Objectives.	Implementation of recommendations of the floodplain management task force, desalination Task force, recycling task force or State species recovery plan	Address environmental justice concerns.	Assist in achieving one or more goals of the CALFED Bay-Delta Program.	Provide reliable water supply to meet the Region's expected demand between now (2010) and 2035.	*Reduce (68,400 to 189,100 AFY) mismatch of expected supply and demand in average years by providing new water supply and reducing demand, starting 2009.*	*Provide adequate reserves (50,700 to 60,500 AFY) to supplement average condition supply to meet demands during single-dry year conditions, starting 2009.*	*Provide adequate reserves (0 to 62,400 AFY) to supplement average condition supply to meet demands during multi-dry year conditions, starting 2009.*	Establish a contingency plan to meet water supply needs of the region during a plausible disruption of SWP water deliveries.	*Demonstrate ability to meet regional water demands without receiving SWP water for 6 months over the summer bu June 2010.*	Stabilize groundwater levels at current conditions.	*Manage groundwater levels throughout the basin such that a 10 year moving average of change in observed groundwater levels is greater than or equal to 0.*	Provide drinking water that meets customer expectations.	*Continue to meet Federal and State water quality standards as well as customer standards for taste and aesthetic throughout the planning period.*	Protect aquifer from contamination.	*Prevent unacceptable degradation of aquifer according to the Basin Plan throughout the planning period.*	*Identify contaminated portions of aquifer and prevent migration of contaminants by June 2009.*	*Map contaminated sites and monitor contaminant movement by December 2008.*	Protect natural streams and recharge areas from contamination.	*Prevent unacceptable degradation of natural streams and recharge areas according to the Basin Plan throughout the planning period.*	Maximize beneficial use of recycled water.	*Increase infrastructure and establish policies to use 33% of recycled water by 2015, 66% by 2025, and 100% by 2035.*	Reduce negative impacts of storm water, urban runoff, and nuisance water.	*Coordinate a regional flood management plan and policy mechanism by the year 2010.*	Preserve open space and natural habitats that protect and enhance water resources and species in the region.	*Contribute to the preservation of an additional 2,000 acres of open space and natural habitat, to integrate and maximize surface and groundwater management by 2015.*	Maintain agricultural land use within the Region.	*Preserve 10,000 acres of farmland in rotation through 2035.*	Meet growing demand for recreational space.	*Contribute to local and regional General Planning documents to provide 5,000 acres of recreational space by 2035.*	Improve integrated land use planning to support water management.	*Coordinate a regional land use management plan by the year 2010.*
Land Use Element																																																																										
In urban areas, encourage the retention of economically viable agricultural production, e.g., high value crops such as strawberries, cut flowers, nursery stock, etc., through the identification and mitigation of significant adverse impacts resulting from adjacent new development.																			X																																																		X	X				
In non-urban areas outside of Potential Agricultural Preserves, encourage the retention and expansion of agriculture by promoting compatible land use arrangements and providing technical assistance to involved farming interests.																			X																																																		X	X				
Agricultural Opportunity Areas include large contiguous land areas either devoted to agricultural production or highly suitable for agricultural use due to the presence of favorable growing conditions such as climate, soils, and water. The intent of General Plan policy is to preserve and protect such resource areas from the intrusion of incompatible uses which conflict with or preclude viable agricultural activity. To this end, the Plan supports voluntary establishment of agricultural preserves such as those provided for by the CA Land Conservation Act. The Act provides incentives for the preservation of prime agricultural lands and sets forth specific criteria governing the creation and maintenance of recognized preserves.																			X												X																																							X	X				
Improved planning and tools to preserve agricultural resource areas should include the cooperative participation of farming interests, resource conservation districts, the County Agricultural Commissioner and other concerned State and federal agencies. More specifically, the Plan recommends the development and application of exclusive agricultural zones designed to minimize conflicts between agricultural and other urban and non-urban land uses. Such zones define compatible use types and intensities based upon the characteristics and needs of local agricultural activities.																			X												X																																							X	X				
Circulation Element																																																																											
Stress environmental compatibility (including air quality, noise, ecology, aesthetics, and health and safety) in developing transportation systems.													X			X			X													X				X																															X	X						
Conservation, Open Space and Recreation																																																																										
Protect significant agricultural resource areas and encourage the expansion of agricultural activities into underutilized lands such as utility rights of way and flood prone areas.													X						X																																																		X	X			X	X
Encourage open space easements and dedications as a means of meeting scenic, recreational and conservation needs.																X	X		X																																																X	X			X	X	X	X
Provide low intensity outdoor recreation in areas of scenic and ecological value compatible with protection of these natural resources.																	X		X																																																X	X			X	X	X	X
Develop a system of bikeways, scenic highways, and riding and hiking trails; link recreational facilities where possible.																	X		X																																																				X	X	X	X
Safety Element																																																																										
Encourage the use of nonurbanized segments of active fault zones for rural and open space purposes.																	X		X																																																X	X			X	X	X	X
ANTELOPE VALLEY AREAWIDE GENERAL PLAN (1986)																																																																											
Water Supply/Water Quality Policies																																																																											
Protect underground water supplies by enforcing controls on sources of pollutants.	X	X			X					X	X	X							X	X			X		X	X	X			X	X	X		X	X	X				X	X	X					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X								
Develop and use groundwater sources to their safe yield limits.	X	X			X					X										X					X	X	X	X		X				X				X	X								X	X	X	X	X	X	X	X																				
Use imported water, when available, to relieve overdrafted groundwater basins and maintain their safe yield for domestic uses outside of urban areas.	X	X			X	X													X	X					X	X	X			X				X	X			X	X								X	X	X	X			X	X																				
Encourage utilization of flood waters and reclaimed wastewater for groundwater recharge.	X	X		X									X	X						X		X				X	X			X				X				X						X									X	X									X	X	X	X								
Require a public or private sewerage system for land use densities which, if unsewered, would threaten nitrate pollution of groundwater, or where otherwise required by County regulations.		X								X	X	X				X			X				X							X		X			X	X	X			X													X	X			X	X	X	X	X	X			x	X								
Prohibit continued use of septic tanks where a community sewerage system has been installed or if identified groundwater pollution or vector problems exist.		X								X	X	X							X				X							X		X			X	X	X			X													X	X			X	X	X	X	X	X			x	X								
Continue to use land use planning and control as a tool in Water Quality Management.		X								X	X	X							X				X							X		X			X	X				X	X	X	X	X	X	X									X	X	X	X	X	X	X	X			X	X	X	X						
Maintain, where feasible, aquifer recharge zones to assure water quality and quantity.	X	X			X					X										X		X				X				X				X	X												X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X												
Protect and conserve valuable water resources by discouraging the use of high water consumptive, non-native plans for landscaping purposes.	X		X																X											X				X													X	X	X	X	X	X	X	X																				
Carefully consider, in all governmental and private actions related to sewage and solid waste disposal, the potential effects on local groundwater quality.		X								X	X	X							X												X	X			X		X				X	X					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X												
Protect and manage watershed areas to maximize water yield in combination with public needs for fire protection, maintenance of habitat and recreation.	X	X														X	X		X	X										X				X			X							X			X	X	X	X	X	X	X	X													X	X			X	X	X	X
Encourage a sustained yield management approach for renewable resources which includes consideration of watershed conservation, scenic quality, habitat protection and recreation.	X	X	X													X	X			X								X		X				X										X			X	X	X	X	X	X	X	X													X	X			X	X	X	X
Encourage the installation of water saving devices such as low-flow faucets, showerheads, etc., in newly constructed private and public structures.	X		X																X											X		X		X													X	X	X	X	X	X																						

TABLE 8-2
LOCAL REGIONAL PLAN POLICIES VS. IRWM PLAN STRATEGIES, AB 3030, IRWM PLAN GUIDELINES, STATEWIDE PRIORITIES

| Local and Regional Plan Policies | Water Supply: Water Supply Reliability | Water Supply: Groundwater Management | Water Supply: Water Conservation | Water Supply: Water Recycling | Water Supply: Water Banking & Conjunctive Use | Water Supply: Imported Water | Water Supply: Surface Storage | Water Supply: Water Transfers | Water Supply: Desalination | Water Quality: Water Quality Protection and Improvement | Water Quality: Non-Point Source Pollution Control | Water Quality: Water and Wastewater Treatment | Flood Management: Flood Management | Flood Management: Storm water Capture and Management | Environmental Resource Management: Ecosystem Restoration | Environmental Resource Management: Environmental and Habitat Protection and Improvement | Environmental Resource Management: Recreation and Public Access | Environmental Resource Management: Wetlands Enhancement and Creation | Land Use Management: Land Use Planning | Land Use Management: Watershed Planning | AB 3030 Guidelines: The control of saline water intrusion. | AB 3030 Guidelines: Identification and management of wellhead protection areas and recharge areas | AB 3030 Guidelines: Regulation of the migration of contaminated groundwater. | AB 3030 Guidelines: The administration of a well abandonment and well destruction program. | AB 3030 Guidelines: Mitigation of conditions of overdraft. | AB 3030 Guidelines: Replenishment of groundwater extracted by water producers. | AB 3030 Guidelines: Monitoring of groundwater levels and storage. | AB 3030 Guidelines: Facilitating conjunctive use operations. | AB 3030 Guidelines: Identification of well construction policies. | AB 3030 Guidelines: The construction and operation by the local agency of groundwater contamination cleanup, recharge, storage, conservation, water recycling and extraction projects. | AB 3030 Guidelines: The development of relationships with state and federal regulatory agencies. | AB 3030 Guidelines: The review of land use plans and coordination with land use planning agencies to assess activities which create a reasonable risk of groundwater contamination. | IRWM Plan Program Preferences: Include integrated projects with multiple benefits. | IRWM Plan Program Preferences: Support and improve local and regional water supply reliability. | IRWM Plan Program Preferences: Contribute expeditiously and measurably to the long-term attainment and maintenance of water quality standards. | IRWM Plan Program Preferences: Eliminate or significantly reduce pollution in impaired waters and sensitive habitat areas, including areas of special biological significance. | IRWM Plan Program Preferences: Include safe drinking water and water quality projects that serve disadvantaged communities. | IRWM Plan Program Preferences: Include groundwater management and recharge projects that are located 1) in San Bernardino or Riverside counties; 2) outside of the service area of the Metropolitan Water District of Southern California; or 3) within one mile of established residential and commercial development. | Statewide Priorities: Reduce conflict between water users or resolve water rights | Statewide Priorities: Implementation of TMDLs that are established or under development. | Statewide Priorities: Implementation of Regional Water Quality Control Board Watershed Management Initiative Chapters, plans, and policies. | Statewide Priorities: Implementation of the State Water Resource Control Board's Non-point Source Pollution Plan. | Statewide Priorities: Assist in meeting Delta Water Quality Objectives. | Statewide Priorities: Implementation of recommendations of the floodplain management task force, desalination Task force, recycling task force or State species recovery plan | Statewide Priorities: Address environmental justice concerns. | Statewide Priorities: Assist in achieving one or more goals of the CALFED Bay-Delta Program. | Water Supply Management Objectives: Provide reliable water supply to meet the Region's expected demand between now (2010) and 2035. | Water Supply Management Objectives: *Reduce (68,400 to 189,100 AFY) mismatch of expected supply and demand in average year's by providing new water supply and reducing demand, starting 2008.* | Water Supply Management Objectives: *Provide adequate reserves (50,700 to 60,500 AFY) to supplement average condition supply to meet demands during single-dry year conditions, starting 2009.* | Water Supply Management Objectives: *Provide adequate reserves (0 to 62,400 AFY) to supplement average condition supply to meet demands during multi-dry year conditions, starting 2009.* | Water Supply Management Objectives: Establish a contingency plan to meet water supply needs of the region during a possible disruption of SWP water deliveries. | Water Supply Management Objectives: *Increase water supply reliability for areas without receiving SWP water for 6 months over the summer by June 2010.* | Water Supply Management Objectives: Stabilize groundwater levels at current conditions. | Water Supply Management Objectives: *Manage groundwater levels throughout the basin such that a 10 year annual average rate of change in observed groundwater levels is greater than or equal to 0.* | Water Quality Management Objectives: Provide drinking water that meets customer expectations. | Water Quality Management Objectives: *Continue to meet Federal and State water quality standards as well as customer standards for taste and aesthetic throughout the planning period.* | Water Quality Management Objectives: Protect aquifer from contamination. | Water Quality Management Objectives: *Prevent unacceptable degradation of aquifer according to the Basin Plan throughout the planning period.* | Water Quality Management Objectives: *Identify contaminated portions of aquifer and prevent migration of contaminants by June 2009.* | Water Quality Management Objectives: *Map contaminated sites and monitor contaminant movement by December 2008.* | Water Quality Management Objectives: Protect natural streams and recharge areas from contamination. | Water Quality Management Objectives: *Prevent unacceptable degradation of natural streams and recharge areas according to the Basin Plan throughout the planning period.* | Water Quality Management Objectives: Maximize beneficial use of recycled water. | Water Quality Management Objectives: *Increase infrastructure and establish policies to use 33% of recycled water by 2015, 66% by 2025, and 100% by 2035.* | Flood Management Objectives: Reduce negative impacts of storm water, urban runoff, and nuisance water. | Flood Management Objectives: *Coordinate a regional flood management plan and policy mechanism by the year 2010.* | Environmental Management Objectives: Preserve open space and natural habitats that protect and enhance water resources and species in the region. | Environmental Management Objectives: *Contribute to the preservation of an additional 2,000 acres of open space and natural habitat, to integrate and maximize surface and groundwater management by 2015.* | Land Use Management Objectives: Maintain agricultural land use within the Region. | Land Use Management Objectives: *Preserve 10,000 acres of farmland in rotation through 2035.* | Land Use Management Objectives: Meet growing demand for recreational space. | Land Use Management Objectives: *Contribute to local and regional General Planning documents to provide 5,000 acres of recreational space by 2035.* | Land Use Management Objectives: Improve integrated land use planning to support water management | Land Use Management Objectives: *Coordinate a regional land use management plan by the year 2010.* |
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TABLE 8-2
LOCAL REGIONAL PLAN POLICIES VS. IRWM PLAN STRATEGIES, AB 3030, IRWM PLAN GUIDELINES, STATEWIDE PRIORITIES

	Water Supply									Water Quality			Flood Management		Environmental Resource Management				Land Use Management		AB 3030 Guidelines												IRWM Plan Program Preferences						Statewide Priorities								Water Supply Management Objectives								Water Quality Management Objectives										Flood Management Objectives		Environmental Management Objectives		Land Use Management Objectives					
Local and Regional Plan Policies	Water Supply Reliability	Groundwater Management	Water Conservation	Water Recycling	Water Banking & Conjunctive Use	Imported Water	Surface Storage	Water Transfers	Desalination	Water Quality Protection and Improvement	Non-Point Source Pollution Control	Water and Wastewater Treatment	Flood Management	Storm water Capture and Management	Ecosystem Restoration	Environmental and Habitat Protection and Improvement	Recreation and Public Access	Wetlands Enhancement and Creation	Land Use Planning	Watershed Planning	The control of saline water intrusion.	Identification and management of wellhead protection areas and recharge areas	Regulation of the migration of contaminated groundwater.	The administration of a well abandonment and well destruction program.	Mitigation of conditions of overdraft.	Replenishment of groundwater extracted by water producers.	Monitoring of groundwater levels and storage.	Facilitating conjunctive use operations.	Identification of well construction policies.	The construction and operation by the local agency of groundwater contamination cleanup, recharge, storage, conservation, water recycling and extraction projects.	The development of relationships with state and federal regulatory agencies.	The review of land use plans and coordination with land use planning agencies to assess activities which create a reasonable risk of groundwater contamination.	Include integrated projects with multiple benefits.	Support and improve local and regional water supply reliability.	Contribute expeditiously and measurably to the long-term attainment and maintenance of water quality standards.	Eliminate or significantly reduce pollution in impaired waters and sensitive habitat areas, including areas of special biological significance.	Include safe drinking water and water quality projects that serve disadvantaged communities.	Include groundwater management and recharge projects that are located 1) in San Bernardino or Riverside counties; 2) outside of the service area of the Metropolitan Water District of Southern California; or 3) within one mile of established residential and commercial development.	Reduce conflict between water users or resolve water rights	Implementation of TMDLs that are established or under development.	Implementation of Regional Water Quality Control Board Watershed Management initiative Chapters, plans, and policies.	Implementation of the State Water Resource Control Board's Non-point Source Pollution Plan.	Assist in meeting Delta Water Quality Objectives.	Implementation of recommendations of the floodplain management task force, desalination Task force, recycling task force or State species recovery plan	Address environmental justice concerns.	Assist in achieving one or more goals of the CALFED Bay-Delta Program.	Provide reliable water supply to meet the Region's expected demand between now (2010) and 2035.	*Reduce (68,400 to 189,100 AFY) mismatch of expected supply and demand in average years by providing new water supply and reducing demand, starting 2009.*	*Provide adequate reserves (50,700 to 60,500 AFY) to supplement average condition supply to meet demands during single-dry year conditions, starting 2009.*	*Provide adequate reserves (0 to 62,400 AFY) to supplement average condition supply to meet demands during multi-dry year conditions, starting 2009.*	Establish a contingency plan to meet water supply needs of the region during a plausible disruption of SWP water deliveries.	*Demonstrate ability to meet regional water demands without receiving SWP water for 6 months over the summer bu June 2010.*	Stabilize groundwater levels at current conditions.	*Manage groundwater levels throughout the basin such that a 10 year moving average of change in observed groundwater levels is greater than or equal to 0.*	Provide drinking water that meets customer expectations.	*Continue to meet Federal and State water quality standards as well as customer standards for taste and aesthetic throughout the planning period.*	Protect aquifer from contamination.	*Prevent unacceptable degradation of aquifer according to the Basin Plan throughout the planning period.*	*Identify contaminated portions of aquifer and prevent migration of contaminants by June 2009.*	*Map contaminated sites and monitor contaminant movement by December 2008.*	Protect natural streams and recharge areas from contamination.	*Prevent unacceptable degradation of natural streams and recharge areas according to the Basin Plan throughout the planning period.*	Maximize beneficial use of recycled water.	*Increase infrastructure and establish policies to use 33% of recycled water by 2015, 66% by 2025, and 100% by 2035.*	Reduce negative impacts of storm water, urban runoff, and nuisance water.	*Coordinate a regional flood management plan and policy mechanism by the year 2010.*	Preserve open space and natural habitats that protect and enhance water resources and species in the region.	*Contribute to the preservation of an additional 2,000 acres of open space and natural habitat, to integrate and maximize surface and groundwater management by 2015.*	Maintain agricultural land use within the Region.	*Preserve 10,000 acres of farmland in rotation through 2035.*	Meet growing demand for recreational space.	*Contribute to local and regional General Planning documents to provide 5,000 acres of recreational space by 2035.*	Improve integrated land use planning to support water management	*Coordinate a regional land use management plan by the year 2010.*
Land Use Management Policies																																																																										
Accommodate population and land use growth in a "centralized", rather than a uniformly "dispersed" pattern, providing for a broad range of densities and types of uses. Higher density and intensity uses will be structured at the "core" or "cores" of the community around which lower intensity uses will be grouped. Lowest density uses should be located at the periphery of the community.																X			X													X					X	X																													X	X						
Assign priorities for future land use growth in the Antelope Valley considering the following criteria: (a) Hazards or constraints of natural environmental systems on land use; (b) Sensitivities of natural environmental systems; and (c) Constraints of man-made systems.													X			X			X													X					X	X	X						X								X	X			X	X	X	X	X	X			X	X								
Encourage growth in and adjacent to existing urban, suburban, and rural communities.																			X											X																	X	X	X	X	X	X															X	X						
Maintain a general plan amendment procedure to permit "new communities" in or outside of existing communities, with proper consideration of environmental sensitivities and hazards, absorption of all appropriate costs by the developer, and evidence of overall community benefit.												X				X			X											X		X															X	X	X	X	X	X																						
Within designated Agricultural Opportunity Areas, carefully evaluate extension of urban and suburban uses (outside the urban areas and the rural communities) for its impact on adjacent agricultural operations.																			X			X										X							X																														X	X				
Encourage development of services to meet the needs of Antelope Valley residents including health, education, welfare, police and fire, governmental operations, recreation, cultural, and utility services. Such services should be expanded at a rate commensurate with population growth.												X					X		X											X		X															X	X	X	X	X	X																			X	X	X	X
Minimize travel time by centralizing community facilities, intensifying land use densities, minimizing outward expansion, and establishing centralized shopping and industrial facilities.																			X																																																								
Encourage the continued production of existing agricultural lands within the Antelope Valley.																			X			X																	X																														X	X				
Within the identified Agricultural Opportunity Areas designated on the Hazards and Resources map: (a) consider the implementation of California Land Conservation (Williamson) Act, (b) implement "right to farm" legislation to protect existing producers from inappropriate nuisance lawsuits, (c) require landowners who desire to construct non-agricultural structures or otherwise convert agricultural uses to non-agricultural uses to sign a covenant, prior to issuance of the needed building permits, preventing present and future landowners from seeking nuisance damages from properly maintained existing agricultural operations, (d) consider the use of such innovative techniques as "Transfers of Development Credits" and "Land Banks or Trusts" as aids in protecting existing agricultural operations.																			X																																																		X	X				
Where feasible, utilize designated open bottom flood control channels for horseback riding trails during the dry season.													X				X		X																																																				X	X	X	X
Establish a fund derived from monies from the sale of excess county-owned park lands in the Antelope Valley, and use this fund for the purposes of acquisition, consolidation, upgrading, and development of local parks within the Antelope Valley.																	X		X																										X																											X	X	X	X
KERN COUNTY GENERAL PLAN (2004)																																																																										
Water Supply/Water Quality Policies																																																																										
Land Use, Open Space and Conservation Element																																																																										
Ensure that water quality standards are met for existing users and future development.										X	X	X							X											X		X		X	X		X				X		X												X	X	X	X	X	X	X	X												
Ensure that adequate water storage, treatment, and transmission facilities are constructed concurrently with planned growth.	X						X					X							X								X			X		X														X																	X	X										
Encourage the development of the County's groundwater supply to sustain and ensure water quality and quantity for existing users, planned growth, and maintenance of the natural environment.	X	X			X							X							X	X							X	X		X		X		X	X			X			X		X				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X												
Flood Management Policies																																																																										
Land Use, Open Space and Conservation Element																																																																										
In order to minimize risk to Kern County residents and their property, new development will not be permitted in hazard areas in the absence of implementing ordinances and programs. These ordinances will establish conditions, criteria, and standards for the approval of development in hazard areas.													X						X													X												X																					X	X								
Encourage the preservation of the floodplain's flow conveyance capacity, especially in floodways, to be open space/passive recreation areas throughout the County.													X	X			X		X													X												X		X																			X	X					X	X	X	X
Construction of structures that impede water flow in a primary floodplain will be discouraged.													X	X					X													X												X																					X	X								
The County will allow lands which are within flood hazard areas, other than primary floodplains, to be developed in accordance with the General Plan and Floodplain Management Ordinance, if mitigation measures are incorporated so as to ensure that the proposed development will not be hazardous within the requirements of the Safety Element (Chapter 4) of the General Plan.													X						X													X												X																					X	X								
The County will comply with the Colbey-Alquist Floodplain Management Act in regulating land use within designated floodways.													X						X												X													X		X																			X	X								
Development within areas subject to flooding, as defined by the appropriate agency, will require necessary flood evaluations and studies.													X						X													X												X																					X	X								
Minimize the alteration of natural drainage areas. Require development plans to include necessary mitigation to stabilize runoff and silt deposition through utilization of grading and flood protection ordinances.													X	X		X																X												X		X																			X	X								
Designated flood channels and water courses, such as creeks, gullies, and riverbeds, will be preserved as resource management areas or in the case of urban areas, as linear parks whenever practical.													X				X		X													X												X		X																			X	X					X	X	X	X
Environmental Resource Management Policies																																																																										
Land Use, Open Space and Conservation Element																																																																										
Provide a balanced system of parks and recreational facilities to meet Kern County's diverse needs, and clearly define responsibility for the provision of these facilities.																	X		X																																																					X	X	X	X
Provide a variety of park and recreation programs that offer safe, equitable, and balanced recreation opportunities for all residents and visitors.																	X		X																																																					X	X	X	X
The provision of parks and recreational facilities of varying size, function, and location to serve County residents will be encouraged. Special attention will be directed to providing linear parks along creeks, rivers, and streambeds in urban areas.																	X		X																																																					X	X	X	X
Implement a level of service standard of 2.5 acres of park area per 1,000 residents.																	X		X																																																					X	X	X	X
The Kern County Parks and Recreation Department will evaluate the possibility of alternative funding sources for the development, rehabilitation, and operation of park and recreational facilities. These funding sources shall include the possible implementation of development fees and/or special assessment districts such as used for lighting and landscaping, under a County Service Area (CSA).																	X		X																																																					X	X	X	X
Land Use Management Policies																																																																										
Land Use, Open Space and Conservation Element																																																																										

TABLE 8-2
LOCAL REGIONAL PLAN POLICIES VS. IRWM PLAN STRATEGIES, AB 3030, IRWM PLAN GUIDELINES, STATEWIDE PRIORITIES

Local and Regional Plan Policies	Water Supply									Water Quality			Flood Management		Environmental Resource Management				Land Use Management		AB 3030 Guidelines												IRWM Plan Program Preferences						Statewide Priorities								Water Supply Management Objectives								Water Quality Management Objectives										Flood Management Objectives		Environmental Management Objectives		Land Use Management Objectives					
	Water Supply Reliability	Groundwater Management	Water Conservation	Water Recycling	Water Banking & Conjunctive Use	Imported Water	Surface Storage	Water Transfers	Desalination	Water Quality Protection and Improvement	Non-Point Source Pollution Control	Water and Wastewater Treatment	Flood Management	Storm water Capture and Management	Ecosystem Restoration	Environmental and Habitat Protection and Improvement	Recreation and Public Access	Wetlands Enhancement and Creation	Land Use Planning	Watershed Planning	The control of saline water intrusion.	Identification and management of wellhead protection areas and recharge areas	Regulation of the migration of contaminated groundwater.	The administration of a well abandonment and well destruction program.	Mitigation of conditions of overdraft.	Replenishment of groundwater extracted by water producers.	Monitoring of groundwater levels and storage.	Facilitating conjunctive use operations.	Identification of well construction policies.	The construction and operation by the local agency of groundwater contamination cleanup, recharge, storage, conservation, water recycling and extraction projects.	The development of relationships with state and federal regulatory agencies.	The review of land use plans and coordination with land use planning agencies to assess activities which create a reasonable risk of groundwater contamination.	Include integrated projects with multiple benefits.	Support and improve local and regional water supply reliability.	Contribute expeditiously and measurably to the long-term attainment and maintenance of water quality standards.	Eliminate or significantly reduce pollution in impaired waters and sensitive habitat areas, including areas of special biological significance.	Include safe drinking water and water quality projects that serve disadvantaged communities.	Include groundwater management and recharge projects that are located 1) in San Bernardino or Riverside counties; 2) outside of the service area of the Metropolitan Water District of Southern California; or 3) within one mile of established residential and commercial development.	Reduce conflict between water users or resolve water rights	Implementation of TMDLs that are established or under development.	Implementation of Regional Water Quality Control Board Watershed Management initiative Chapters, plans, and policies.	Implementation of the State Water Resource Control Board's Non-point Source Pollution Plan.	Assist in meeting Delta Water Quality Objectives.	Implementation of recommendations of the floodplain management task force, desalination Task force, recycling task force or State species recovery plan	Address environmental justice concerns.	Assist in achieving one or more goals of the CALFED Bay-Delta Program.	Provide reliable water supply to meet the Region's expected demand between now (2010) and 2035.	*Reduce (68,400 to 189,100 AFY) mismatch of expected supply and demand in average years by providing new water supply and reducing demand, starting 2009.*	*Provide adequate reserves (50,700 to 60,500 AFY) to supplement average condition supply to meet demands during single-dry year conditions, starting 2009.*	*Provide adequate reserves (0 to 62,400 AFY) to supplement average condition supply to meet demands during multi-dry year conditions, starting 2009.*	Establish a contingency plan to meet water supply needs of the region during a plausible disruption of SWP water deliveries.	*Demonstrate ability to meet regional water demands without receiving SWP water for 6 months over the summer bu June 2010.*	Stabilize groundwater levels at current conditions.	*Manage groundwater levels throughout the basin such that a 10 year moving average of change in observed groundwater levels is greater than or equal to 0.*	Provide drinking water that meets customer expectations.	*Continue to meet Federal and State water quality standards as well as customer standards for taste and aesthetic throughout the planning period.*	Protect aquifer from contamination.	*Prevent unacceptable degradation of aquifer according to the Basin Plan throughout the planning period.*	*Identify contaminated portions of aquifer and prevent migration of contaminants by June 2009.*	*Map contaminated sites and monitor contaminant movement by December 2008.*	Protect natural streams and recharge areas from contamination.	*Prevent unacceptable degradation of natural streams and recharge areas according to the Basin Plan throughout the planning period.*	Maximize beneficial use of recycled water.	*Increase infrastructure and establish policies to use 33% of recycled water by 2015, 66% by 2025, and 100% by 2035.*	Reduce negative impacts of storm water, urban runoff, and nuisance water.	*Coordinate a regional flood management plan and policy mechanism by the year 2010.*	Preserve open space and natural habitats that protect and enhance water resources and species in the region.	*Contribute to the preservation of an additional 2,000 acres of open space and natural habitat, to integrate and maximize surface and groundwater management by 2015.*	Maintain agricultural land use within the Region.	*Preserve 10,000 acres of farmland in rotation through 2035.*	Meet growing demand for recreational space.	*Contribute to local and regional General Planning documents to provide 5,000 acres of recreational space by 2035.*	Improve integrated land use planning to support water management	*Coordinate a regional land use management plan by the year 2010.*
To contain new development within an area large enough to meet generous projections of foreseeable need, but in locations which will not impair the economic strength derived from the petroleum, agriculture, rangeland, or mineral resources, or diminish the other amenities which exist in the County.																X			X																				X																														X	X				
Conserve prime agriculture lands from premature conversion.																			X																																																		X	X				
Areas designated for agricultural use, which include Class I and II and other enhanced agricultural soils with surface delivery water systems, should be protected from incompatible residential, commercial, and industrial subdivision and development activities.																			X													X							X																														X	X				
The County shall encourage qualifying agricultural lands to participate in the Williamson Act program or Farmland Security Zone program.																			X												X																																						X	X				
Ensure that the County can accommodate anticipated future growth and development while maintaining a safe and healthful environment and a prosperous economy by preserving valuable natural resources, guiding development away from hazardous areas, and assuring the provision of adequate public services.												X				X			X													X							X					X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X							
Discretionary projects shall analyze watershed impacts and mitigate for construction-related and urban pollutants, as well as alterations of flow patterns and introduction of impervious surfaces as required by the California Environmental Quality Act (CEQA), to prevent the degradation of the watershed to the extent practical.										X	X		X	X		X			X	X												X	X							X	X	X		X		X											X	X	X	X	X	X			X	X								
Ensure the protection of environmental resources and the development of adequate infrastructure with specific emphasis on conserving agricultural areas, discouraging unplanned urban growth, ensuring water supplies and acceptable quality for future growth, and addressing air quality issues.	X									X	X	X	X	X		X			X													X		X	X			X	X					X		X	X	X	X	X	X	X			X	X	X	X	X	X	X	X							X	X				
CITY OF LANCASTER GENERAL PLAN (1997, REVISED THROUGH 2001)																																																																										
Water Supply/Water Quality Policies																																																																										
Plan for the Natural Environment																																																																										
Work with Los Angeles County to require that all development projects within the city and its sphere of influence comply with discharge permit requirements established by the Regional Water Quality Control Board.										X	X	X							X	X			X									X			X	X				X	X																X	X	X	X	X	X												
Through the development review process, evaluate proposals to identify potential negative impacts on existing watershed areas, and to ensure inclusion of appropriate mitigation measures.	X									X	X	X							X	X												X		X				X																			X	X	X	X	X	X			X	X	X	X						
To ensure that land use changes will not increase the demand on local groundwater basin, the applicants for all General Plan and zoning ordinance amendments shall provide a factual statement of: current water demand; proposed water demand; potential conservation; and water from new sources.	X		X		X	X						X							X													X		X				X									X	X	X	X	X	X	X	X																				
Determine the desirability of adjudication of the local groundwater basin as a means of protecting the groundwater basin from future overdrafting.	X	X																	X	X					X									X					X														X	X																				
Cooperate with area water agencies to manage the use and quality of the groundwater basin in the Antelope Valley.	X	X								X	X	X							X	X						X	X	X		X		X		X	X												X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X								
In conjunction with local water purveyors, investigate the possibility of receiving additional AVEK water when available to store in the aquifer.	X				X	X	X												X	X						X				X				X				X									X	X	X	X	X	X	X	X																				
Work with Los Angeles County to ensure that individual wells are permitted only if it can be proven that an adequate supply of good quality water is available; restrict use of individual wells to areas where it is not feasible to connect to the community water system.	X	X								X									X	X		X		X					X																								X	X	X	X	X	X	X	X	X	X												
Meet on an annual basis with AVEK to review new technologies to expand available water resources. Technologies may include, but shall not be limited to, importation, desalinization, and conservation. Consider incorporating applicable new technologies into the development review process and general City operations.	X		X		X	X			X										X	X														X										X		X	X	X	X	X	X	X	X	X									X	X										
Encourage the use of reclaimed water and tertiary wastewater for irrigation and other non-contact uses.				X								X							X															X													X	X	X	X	X	X	X	X									X	X										
Promote the use of water conservation measures in the landscape plans and design of new developments.			X																X															X												X	X	X	X	X	X	X	X	X																				
Consider the potential impact of new development projects on the existing water supply.	X																		X													X		X												X	X	X	X	X	X	X	X	X																				
Plan for Physical Development																																																																										
Through the development review process, ensure coordination between landscape design and drainage plans for individual projects, to maximize percolation of surface water from the landscaped portion of the site. Swale designs in landscaped and turf areas should be employed to slow down runoff and maximize percolation.		X								X	X		X	X					X													X				X																	X	X											X	X								
Flood Management Policies																																																																										
Plan for the Natural Environment																																																																										
To minimize the impact of introducing impervious surfaces in new development, review and revise as necessary zoning and subdivision ordinance provisions related to maximum building and parking area coverage.										X	X		X	X					X													X				X								X		X																			X	X								
Plan for Public Health and Safety																																																																											
Assist and encourage the efforts of the State and local entities responsible for regular maintenance of the California Aqueduct and the Little Rock Dam to reduce the risk of seismic failure and to ensure that water levels are kept at or below the designed safe water levels, thereby reducing the risk of overtopping.							X						X	X					X											X	X	X		X										X		X																			X	X								
Minimize the potential for loss of life, physical injury, property damage, and social disruption resulting from a 100-year flood.													X	X					X													X												X		X																			X	X								
Manage flood hazards to ensure an acceptable level of risk and to facilitate rapid physical and economic recovery following a flood through the identification and recognition of potentially hazardous conditions and implementation of effective standards for location and construction of development.													X	X					X													X												X		X																			X	X								
In coordination with the City of Palmdale and Los Angeles County, update a regional drainage study, as applicable, and incorporate the results into the City's master drainage plan.													X	X					X																									X		X																			X	X								
Following completion of the update of the regional drainage study, above, formulate a program for abatement of flood hazards within existing developed areas.													X	X					X																									X		X																			X	X								
Ensure that no structure designed for human occupancy is constructed within the 100 year floodplain without being raised at a minimum, one foot above the floodplain. Retain undeveloped or vacant land within 100 year floodplains as very low density rural uses or open space where plans for construction of flood control facilities are absent.													X	X			X		X													X												X		X																			X	X					X	X	X	X

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	Water Supply									Water Quality			Flood Management		Environmental Resource Management				Land Use Management		AB 3030 Guidelines												IRWM Plan Program Preferences						Statewide Priorities								Water Supply Management Objectives								Water Quality Management Objectives										Flood Management Objectives		Environmental Management Objectives		Land Use Management Objectives					
Local and Regional Plan Policies	Water Supply Reliability	Groundwater Management	Water Conservation	Water Recycling	Water Banking & Conjunctive Use	Imported Water	Surface Storage	Water Transfers	Desalination	Water Quality Protection and Improvement	Non-Point Source Pollution Control	Water and Wastewater Treatment	Flood Management	Storm water Capture and Management	Ecosystem Restoration	Environmental and Habitat Protection and Improvement	Recreation and Public Access	Wetlands Enhancement and Creation	Land Use Planning	Watershed Planning	The control of saline water intrusion.	Identification and management of wellhead protection areas and recharge areas	Regulation of the migration of contaminated groundwater.	The administration of a well abandonment and well destruction program.	Mitigation of conditions of overdraft.	Replenishment of groundwater extracted by water producers.	Monitoring of groundwater levels and storage.	Facilitating conjunctive use operations.	Identification of well construction policies.	The construction and operation by the local agency of groundwater contamination cleanup, recharge, storage, conservation, water recycling and extraction projects.	The development of relationships with state and federal regulatory agencies.	The review of land use plans and coordination with land use planning agencies to assess activities which create a reasonable risk of groundwater contamination.	Include integrated projects with multiple benefits.	Support and improve local and regional water supply reliability.	Contribute expeditiously and measurably to the long-term attainment and maintenance of water quality standards.	Eliminate or significantly reduce pollution in impaired waters and sensitive habitat areas, including areas of special biological significance.	Include safe drinking water and water quality projects that serve disadvantaged communities.	Include groundwater management and recharge projects that are located 1) in San Bernardino or Riverside counties; 2) outside of the service area of the Metropolitan Water District of Southern California; or 3) within one mile of established residential and commercial development.	Reduce conflict between water users or resolve water rights	Implementation of TMDLs that are established or under development.	Implementation of Regional Water Quality Control Board Watershed Management initiative Chapters, plans, and policies.	Implementation of the State Water Resource Control Board's Non-point Source Pollution Plan.	Assist in meeting Delta Water Quality Objectives.	Implementation of recommendations of the floodplain management task force, desalination Task force, recycling task force or State species recovery plan	Address environmental justice concerns.	Assist in achieving one or more goals of the CALFED Bay-Delta Program.	Provide reliable water supply to meet the Region's expected demand between now (2010) and 2035.	*Reduce (68,400 to 189,100 AFY) mismatch of expected supply and demand in average years by providing new water supply and reducing demand, starting 2009.*	*Provide adequate reserves (50,700 to 60,500 AFY) to supplement average condition supply to meet demands during single-dry year conditions, starting 2009.*	*Provide adequate reserves (0 to 62,400 AFY) to supplement average condition supply to meet demands during multi-dry year conditions, starting 2009.*	Establish a contingency plan to meet water supply needs of the region during a plausible disruption of SWP water deliveries.	*Demonstrate ability to meet regional water demands without receiving SWP water for 6 months over the summer bu June 2010.*	Stabilize groundwater levels at current conditions.	*Manage groundwater levels throughout the basin such that a 10 year moving average of change in observed groundwater levels is greater than or equal to 0.*	Provide drinking water that meets customer expectations.	*Continue to meet Federal and State water quality standards as well as customer standards for taste and aesthetic throughout the planning period.*	Protect aquifer from contamination.	*Prevent unacceptable degradation of aquifer according to the Basin Plan throughout the planning period.*	*Identify contaminated portions of aquifer and prevent migration of contaminants by June 2009.*	*Map contaminated sites and monitor contaminant movement by December 2008.*	Protect natural streams and recharge areas from contamination.	*Prevent unacceptable degradation of natural streams and recharge areas according to the Basin Plan throughout the planning period.*	Maximize beneficial use of recycled water.	*Increase infrastructure and establish policies to use 33% of recycled water by 2015, 66% by 2025, and 100% by 2035.*	Reduce negative impacts of storm water, urban runoff, and nuisance water.	*Coordinate a regional flood management plan and policy mechanism by the year 2010.*	Preserve open space and natural habitats that protect and enhance water resources and species in the region.	*Contribute to the preservation of an additional 2,000 acres of open space and natural habitat, to integrate and maximize surface and groundwater management by 2015.*	Maintain agricultural land use within the Region.	*Preserve 10,000 acres of farmland in rotation through 2035.*	Meet growing demand for recreational space.	*Contribute to local and regional General Planning documents to provide 5,000 acres of recreational space by 2035.*	Improve integrated land use planning to support water management	*Coordinate a regional land use management plan by the year 2010.*
Require, as a prerequisite to development approval within the 100 year floodplain, that information be submitted by a qualified civil or hydrological engineer certifying the 100 year level.												X	X					X												X													X		X																			X	X								
Require, as a prerequisite to development approval, that drainage studies identify the facilities which are required to ensure that proposed development is adequately protected and that such development will not create or increase downstream or upstream flood hazards.												X	X					X												X											X		X		X																			X	X								
Through the development review process, encourage the use of pervious paving materials in hardscape areas; swale designs in landscape or grassy areas which slow runoff and maximize infiltration; and the discharge of roof drainage into pervious, greenbelt and seepage pit areas to reduce increases in downstream runoff resulting from new developments.											X		X	X					X												X			X									X		X		X																			X	X								
Require that street and storm drain flood control systems be designed to accommodate identified storm flows.												X	X					X												X											X		X		X																			X	X								
Ensure that major creeks, channels and basins are kept clear of obstruction, and are regularly maintained.												X	X		X																																																					X	X								
Coordinate with the EPA to develop an urban stormwater management ordinance.											X		X	X					X											X	X			X									X		X		X																			X	X								
Plan for Municipal Services and Facilities
Ensure that adequate flood control facilities are provided, which maintain the integrity of significant riparian and other environmental habitats in accordance with Biological Resources policies.												X	X		X			X																X							X		X		X																			X	X	X	X						
Ensure that mitigation is provided for all development in recognized flood prone areas. Any mitigation of flood hazard in one area shall not exacerbate flooding problems in other areas.												X	X					X												X									X				X		X																			X	X								
Environmental Resource Management Policies
Plan for the Natural Environment
Identify, preserve and maintain important biological systems within the Antelope Valley, and educate the general public about these resources, which include the Joshua Tree - California Juniper Woodlands, areas that support endangered or sensitive species, and other natural areas of regional significance.														X	X		X	X																X									X																							X	X						
Cooperate with federal, state and local agencies in developing the West Mojave multi-species habitat conservation plan.														X	X		X	X											X					X									X																							X	X						
Through the West Mojave Plan, initiate areawide studies to identify sensitive plants and animals within the study area.														X	X		X	X																X									X																							X	X						
In consultatioon with appropriate federal and State agencies, develop a comprehensive management program for significant biological resources to include areas identified by Los Angeles County as Significant Ecological Areas (SEAs) within city limits.														X	X		X	X																X									X																							X	X			X	X	X	X
Consider designation of environmentally sensitive areas as future park sites or open space resources and pursue acquisition of these sites.														X	X	X	X	X																X									X																							X	X			X	X	X	X
Conduct a study of potential funding mechanisms for long-term maintenance and protection of biological preserve areas. As part of this study, specifically assess the effectiveness of participating in an area wide assessment program to fund long-range maintenance of environmentally sensitive habitats.														X	X		X	X																X									X																							X	X						
Preserve significant desert wash areas to protect sensitive species that utilize these habitat areas.														X	X		X	X																X									X																							X	X						
As part of project specific environmental review, evaluate natural desert wash habitats which could be impacted by development to determine their potential to support special status plant and wildlife species. Areas of desert wash habitat considered to be highligh important to special status species, or that is occupied by these species, shall be protected.														X	X		X	X												X				X									X																							X	X						
Encourage the protection of open space lands in and around the Poppy Preserve, including Fairmont and Antelope Buttes, to preserve habitat for sensitive mammals, reptiles, and birds, including raptors.														X	X		X	X																									X																							X	X						
Plan for the Living Environment
Work with Los Angeles County and other public agencies to accept dedication of open space lands of regional significance, including watersheds, wildlife habitats, wetlands, historic sistes, and scenic lands. The City shall also encourage private entitites to preserve open space lands.														X	X		X	X																									X																							X	X						
Plan for Physical Mobility
Support and improve a roadway network that is sensitive to environmental issues such as, biological, land, and water resources, as well as air quality, while permitting continued development within the study area.										X	X					X			X												X				X							X																									X	X	X	X						
Land Use Management Policies
Plan for the Natural Environment
Plan for a natural park to encompass the Little Rock Wash area. This park should be large enough to protect resources by providing a buffer against intrusion from future surrounding land uses. Recreational uses should be allowed in the park which may be used to enhance the utility of the wash. Hiking, bicycling, and equestrian trails should be encouraged.														X	X	X		X												X				X																																	X	X			X	X	X	X
Protect lands currently in agricultural production from the negative impacts created when urban and rural land uses exist in close proximity, while recognizing the possibility of their long-term conversion to urban or rural uses.																			X												X																																							X	X				
Condition all new urban residential developments located within 500 feet of lands in agricultural production to require the notification of buyers and future residents that the property is subject to agricultural related nuisances.																			X												X																																							X	X				
Plan for the Living Environment
Provide sufficient neighborhood and community park facilities such that a rate of 5.0 acres of park land per 1,000 residents is achieved and distributed so as to be convenient to Lancaster residents.																	X		X																							X																													X	X	X	X
Provide opportunities for a wide variety of recreational activities and park experiences, including active recreation and passive open space enjoyment within a coordinated system of local, regional, and special use park lands.																	X		X																							X																													X	X	X	X
Work with Los Angeles County to establish joint use flood control/recreational facilities, including trails and open spaces along washes, as well as active recreational use of retention/detention basin facilities.												X	X				X		X																																																									X	X	X	X
Maintain an inventory of surplus federal, State, County, and local land wihtin and adjacent to the City; as funding becomes available, acquire such lands either through purchase or long-term lease agreements to provide park land where such lands are consistent with Master Plan of Parks.																	X		X											X													X																													X	X	X	X
Establish and maintain a hierarchical system of trails (including equestrian, bicycle, and pedestrian trails) which provides recreational opportunities and an alternative means of reaching schools, parks and natural areas, and places of employment, and which connects to regional trail systems.																	X		X																							X																													X	X	X	X

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	Water Supply Reliability	Groundwater Management	Water Conservation	Water Recycling	Water Banking & Conjunctive Use	Imported Water	Surface Storage	Water Transfers	Desalination	Water Quality Protection and Improvement	Non-Point Source Pollution Control	Water and Wastewater Treatment	Flood Management	Storm water Capture and Management	Ecosystem Restoration	Environmental and Habitat Protection and Improvement	Recreation and Public Access	Wetlands Enhancement and Creation	Land Use Planning	Watershed Planning	The control of saline water intrusion.	Identification and management of wellhead protection areas and recharge areas	Regulation of the migration of contaminated groundwater.	The administration of a well abandonment and well destruction program.	Mitigation of conditions of overdraft.	Replenishment of groundwater extracted by water producers.	Monitoring of groundwater levels and storage.	Facilitating conjunctive use operations.	Identification of well construction policies.	The construction and operation by the local agency of groundwater contamination cleanup, recharge, storage, conservation, water recycling and extraction projects.	The development of relationships with state and federal regulatory agencies.	The review of land use plans and coordination with land use planning agencies to assess activities which create a reasonable risk of groundwater contamination.	Include integrated projects with multiple benefits.	Support and improve local and regional water supply reliability.	Contribute expeditiously and measurably to the long-term attainment and maintenance of water quality standards.	Eliminate or significantly reduce pollution in impaired waters and sensitive habitat areas, including areas of special biological significance.	Include safe drinking water and water quality projects that serve disadvantaged communities.	Include groundwater management and recharge projects that are located 1) in San Bernardino or Riverside counties; 2) outside of the service area of the Metropolitan Water District of Southern California; or 3) within one mile of established residential and commercial development.	Reduce conflict between water users or resolve water rights	Implementation of TMDLs that are established or under development.	Implementation of Regional Water Quality Control Board Watershed Management initiative Chapters, plans, and policies.	Implementation of the State Water Resource Control Board's Non-point Source Pollution Plan.	Assist in meeting Delta Water Quality Objectives.	Implementation of recommendations of the floodplain management task force, desalination Task force, recycling task force or State species recovery plan	Address environmental justice concerns.	Assist in achieving one or more goals of the CALFED Bay-Delta Program.	Provide reliable water supply to meet the Region's expected demand between now (2010) and 2035.	*Reduce (68,400 to 189,100 AFY) mismatch of expected supply and demand in average years by providing new water supply and reducing demand, starting 2009.*	*Provide adequate reserves (50,700 to 60,500 AFY) to supplement average condition supply to meet demands during single-dry year conditions, starting 2009.*	*Provide adequate reserves (0 to 62,400 AFY) to supplement average condition supply to meet demands during multi-dry year conditions, starting 2009.*	Establish a contingency plan to meet water supply needs of the region during a plausible disruption of SWP water deliveries.	*Demonstrate ability to meet regional water demands without receiving SWP water for 6 months over the summer bu June 2010.*	Stabilize groundwater levels at current conditions.	*Manage groundwater levels throughout the basin such that a 10 year moving average of change in observed groundwater levels is greater than or equal to 0.*	Provide drinking water that meets customer expectations.	*Continue to meet Federal and State water quality standards as well as customer standards for taste and aesthetic throughout the planning period.*	Protect aquifer from contamination.	*Prevent unacceptable degradation of aquifer according to the Basin Plan throughout the planning period.*	*Identify contaminated portions of aquifer and prevent migration of contaminants by June 2009.*	*Map contaminated sites and monitor contaminant movement by December 2008.*	Protect natural streams and recharge areas from contamination.	*Prevent unacceptable degradation of natural streams and recharge areas according to the Basin Plan throughout the planning period.*	Maximize beneficial use of recycled water.	*Increase infrastructure and establish policies to use 33% of recycled water by 2015, 66% by 2025 , and 100% by 2035.*	Reduce negative impacts of storm water, urban runoff, and nuisance water.	*Coordinate a regional flood management plan and policy mechanism by the year 2010.*	Preserve open space and natural habitats that protect and enhance water resources and species in the region.	*Contribute to the preservation of an additional 2,000 acres of open space and natural habitat, to integrate and maximize surface and groundwater management by 2015.*	Maintain agricultural land use within the Region.	*Preserve 10,000 acres of farmland in rotation through 2035.*	Meet growing demand for recreational space.	*Contribute to local and regional General Planning documents to provide 5,000 acres of recreational space by 2035.*	Improve integrated land use planning to support water management.	*Coordinate a regional land use management plan by the year 2010.*
CITY OF PALMDALE GENERAL PLAN (2003)																																																																										
Water Supply/Water Quality Policies																																																																										
Environmental Resources Element																																																																										
Protect from pollutants or other materials which might degrade groundwater supplies, and enhance natural recharge areas such as the Little Rock and Big Rock Washes, and Amargosa and Anaverde Creeks, and ensure that no mineral resources recovery activities extend below the groundwater table.	X	X								X	X								X			X	X							X		X		X	X	X		X		X	X	X	X	X		X	X	X	X	X	X	X	X	X			X	X	X	X	X	X												
Cooperate with Los Angeles County Health Department and the Regional Water Quality Control Board in monitoring industrial and commercial uses utilizing hazardous or potentially polluting materials and fluids, to prevent their discharge into the groundwater aquifer.	X	X								X	X								X				X				X			X		X		X	X	X		X		X	X	X	X	X		X	X	X	X	X	X	X	X	X			X	X	X	X	X	X												
Promote water conserving landscape techniques, through the use of native and drought tolerant plant species and landscape design standards.	X		X																X															X												X	X	X																										
Require the use of water conserving appliances and plumbing fixtures in all new construction.	X		X																X															X												X	X	X																										
Coordinate with local water agencies to monitor ground water levels, State water allocations and development approvals, to assure that development does not outpace long-term water availability. In the event applicable water agencies notify the City that ground water levels and State water allocations are insufficient to serve existing development or projected development, the City will determine whether it is appropriate to reevaluate this General Plan and take other appropriate actions, as permitted by law.	X	X				X		X											X	X					X		X			X		X		X													X	X	X	X	X	X	X	X																				
Assess the feasibility of utilizing reclaimed water for landscape irrigation on a city-wide basis. Factors to be considered include the potential quantities of recliamed water as determined by the Sanitation Districts, and costs associated with developing infrastructure and delivery systems to facilitate utilization. Within those areas in which it is determined to be feasible to utilize reclaimed water, consider establishment of an ordinance requiring installation of secondary water delivery systems to service landscaped areas.	X			X															X											X				X													X	X	X	X	X	X	X	X									X	X										
Work with local water purveyors to assess the potential for capturing local run-off and utilization of imported water (water banking) for groundwater recharge within the Planning Area; through the land use planning process, ensure that important recharge areas are retained for that use.	X	X			X	X								X					X	X		X				X	X	X		X		X		X				X								X	X	X	X	X	X	X	X	X									X	X										
Continue to seek out long-range water management techniques as new technology is developed; promote implementation of systems which are feasible and appropriate to the Planning Area.	X	X	X	X	X														X	X						X	X	X		X				X												X	X	X	X	X	X	X	X	X									X	X										
Participate in regional efforts to retain imported water allocations and seek out other sources as they become available.	X	X			X	X													X	X						X		X		X				X												X	X	X	X	X	X	X	X	X																				
Public Services Element																																																																										
Ensure that all development in Palmdale is served by adequate water distribution and sewage facilities.	X									X		X							X													X					X																		X	X																		
Flood Management Policies																																																																										
Parks, Recreation and Trails Element																																																																										
Where feasible, utilize parks for joint use as flood control facilities.													X				X		X											X														X		X																			X	X					X	X	X	X
Environmental Resources Element																																																																										
Incorporate the use of flood control measures which maximize groundwater recharge and the use of floodways as native habitat.													X	X		X			X			X								X								X				X		X		X																			X	X	X	X						
Restrict building coverage and total impervious area in the vicinity of natural recharge areas.										X	X		X	X		X			X			X								X		X						X				X		X		X																			X	X								
Safety Element																																																																										
Preserve and restore the natural and beneficial values served by floodplains to the extent feasible, consistent with public health, safety, and welfare.													X		X	X		X	X													X			X	X						X		X		X																			X	X	X	X						
Promote open space and recreational uses in designated flood zones, unless mitigation of the hazard can allow other types of development.													X	X			X		X																									X		X																			X	X					X	X	X	X
Public Services Element																																																																										
Develop and maintain adequate storm drainage and flood control facilities.										X			X	X					X													X												X		X																			X	X								
Environmental Resource Management Policies																																																																										
Parks, Recreation and Trails Element																																																																										
Provide a network of open space areas to provide for passive recreation opportunities, enhance the integrity of biological systems, and provide visual relief from the developed portions of the City.																X	X		X																										X																						X	X			X	X	X	X
Encourage the placement of multi-use trails or Class I bikeways adjacent to or within open space corridors, except that the placement of these trails should not compromise the preservation of any sensitive environmental resources which may be present in the open space area.																X	X		X																																																X	X			X	X	X	X
Provide for access points into open space areas to encourage passive recreation activities such as hiking and nature study. These access points should be located at sites which can best tolerate human presence and not directly impact sensitive locations such as springs and archaeological sites.																X	X		X																																																X	X			X	X	X	X
Develop an open space network through preservation of corridors along fault zones, natural drainage courses and in hillside areas to connect with the large areas of open space designated on the General Plan Land Use Map.																X	X		X																																																X	X						
Environmental Resources Element																																																																										
Preserve significant natural and man-made open space areas that give Palmdale its distinct form and identity.															X	X	X		X																																																X	X						
Utilize the City's discretionary land use approval process to locate and retain areas for use as open space through dedication or other legal means. Develop criteria and guidelines to identify areas that should be so protected.															X	X	X		X																																																X	X						
Integrate natural hazard areas, such as floodways, seismic fault zones, and unstable soils, into the open space network in order to ensure public health, safety and welfare while preserving open space.													X		X	X	X		X																									X		X																					X	X						
Cooperate with private and public entities whose goals are to preserve natural and man-made open space. Develop criteria and guidelines to identify how to establish land trust open space locations.															X	X	X		X												X																																				X	X						
The following broadly defined areas will be designated as a Significant Ecological Area (SEA) overlay on the General Plan Land Use Map: Big Rock Wash, Little Rock Wash, Ritter Ridge, Portal Ridge and Alpine Butte. Biological surveys should be performed to determine the nature and extent of their ecological significance prior to any approval of new developments within the overlay area. Any development permitted in these areas must consider significant environmental resources and preserve environmental resources to the extent feasible.															X	X	X	X	X																	X																															X	X						
Promote only compatible, and where appropriate, passive recreational uses in natural areas determined to be ecologically significant, consistent with the particular needs and characteristics of each SEA, as determined by approved field observation reports.																X	X		X																																																X	X			X	X	X	X
Solicit and utilize all available sources of local, regional, state and federal funds to acquire significant wetland areas, in order to minimize the disturbance and prevent damage from erosion, turbidity, siltation, a loss of wildlife and vegetation, or the destruction of the natural habitat.															X	X		X	X	X											X																																				X	X						

TABLE 8-2
LOCAL REGIONAL PLAN POLICIES VS. IRWM PLAN STRATEGIES, AB 3030, IRWM PLAN GUIDELINES, STATEWIDE PRIORITIES

	Water Supply									Water Quality			Flood Management		Environmental Resource Management				Land Use Management		AB 3030 Guidelines												IRWM Plan Program Preferences						Statewide Priorities								Water Supply Management Objectives								Water Quality Management Objectives										Flood Management Objectives		Environmental Management Objectives		Land Use Management Objectives					
Local and Regional Plan Policies	Water Supply Reliability	Groundwater Management	Water Conservation	Water Recycling	Water Banking & Conjunctive Use	Imported Water	Surface Storage	Water Transfers	Desalination	Water Quality Protection and Improvement	Non-Point Source Pollution Control	Water and Wastewater Treatment	Flood Management	Storm water Capture and Management	Ecosystem Restoration	Environmental and Habitat Protection and Improvement	Recreation and Public Access	Wetlands Enhancement and Creation	Land Use Planning	Watershed Planning	The control of saline water intrusion.	Identification and management of wellhead protection areas and recharge areas	Regulation of the migration of contaminated groundwater.	The administration of a well abandonment and well destruction program.	Mitigation of conditions of overdraft.	Replenishment of groundwater extracted by water producers.	Monitoring of groundwater levels and storage.	Facilitating conjunctive use operations.	Identification of well construction policies.	The construction and operation by the local agency of groundwater contamination cleanup, recharge, storage, conservation, water recycling and extraction projects.	The development of relationships with state and federal regulatory agencies.	The review of land use plans and coordination with land use planning agencies to assess activities which create a reasonable risk of groundwater contamination.	Include integrated projects with multiple benefits.	Support and improve local and regional water supply reliability.	Contribute expeditiously and measurably to the long-term attainment and maintenance of water quality standards.	Eliminate or significantly reduce pollution in impaired waters and sensitive habitat areas, including areas of special biological significance.	Include safe drinking water and water quality projects that serve disadvantaged communities.	Include groundwater management and recharge projects that are located 1) in San Bernardino or Riverside counties; 2) outside of the service area of the Metropolitan Water District of Southern California; or 3) within one mile of established residential and commercial development.	Reduce conflict between water users or resolve water rights	Implementation of TMDLs that are established or under development.	Implementation of Regional Water Quality Control Board Watershed Management initiative Chapters, plans, and policies.	Implementation of the State Water Resource Control Board's Non-point Source Pollution Plan.	Assist in meeting Delta Water Quality Objectives.	Implementation of recommendations of the floodplain management task force, desalination Task force, recycling task force or State species recovery plan	Address environmental justice concerns.	Assist in achieving one or more goals of the CALFED Bay-Delta Program.	Provide reliable water supply to meet the Region's expected demand between now (2010) and 2035.	*Reduce (68,400 to 189,100 AFY) mismatch of expected supply and demand in average years by providing new water supply and reducing demand, starting 2009.*	*Provide adequate reserves (50,700 to 60,500 AFY) to supplement average condition supply to meet demands during single-dry year conditions, starting 2009.*	*Provide adequate reserves (0 to 62,400 AFY) to supplement average condition supply to meet demands during multi-dry year conditions, starting 2009.*	Establish a contingency plan to meet water supply needs of the region during a plausible disruption of SWP water deliveries.	*Demonstrate ability to meet regional water demands without receiving SWP water for 6 months over the summer bu June 2010.*	Stabilize groundwater levels at current conditions.	*Manage groundwater levels throughout the basin such that a 10 year moving average of change in observed groundwater levels is greater than or equal to 0.*	Provide drinking water that meets customer expectations.	*Continue to meet Federal and State water quality standards as well as customer standards for taste and aesthetic throughout the planning period.*	Protect aquifer from contamination.	*Prevent unacceptable degradation of aquifer according to the Basin Plan throughout the planning period.*	*Identify contaminated portions of aquifer and prevent migration of contaminants by June 2009.*	*Map contaminated sites and monitor contaminant movement by December 2008.*	Protect natural streams and recharge areas from contamination.	*Prevent unacceptable degradation of natural streams and recharge areas according to the Basin Plan throughout the planning period.*	Maximize beneficial use of recycled water.	*Increase infrastructure and establish policies to use 33% of recycled water by 2015, 66% by 2025, and 100% by 2035.*	Reduce negative impacts of storm water, urban runoff, and nuisance water.	*Coordinate a regional flood management plan and policy mechanism by the year 2010.*	Preserve open space and natural habitats that protect and enhance water resources and species in the region.	*Contribute to the preservation of an additional 2,000 acres of open space and natural habitat, to integrate and maximize surface and groundwater management by 2015.*	Maintain agricultural land use within the Region.	*Preserve 10,000 acres of farmland in rotation through 2035.*	Meet growing demand for recreational space.	*Contribute to local and regional General Planning documents to provide 5,000 acres of recreational space by 2035.*	Improve integrated land use planning to support water management.	*Coordinate a regional land use management plan by the year 2010.*
Preserve natural drainage courses and riparian areas where significant concentrations of ecological resources exist.															X	X		X	X	X																																															X	X						
Cooperate with the preparation and the implementation of the West Mojave Coordinated Management Plan for protection of desert tortoise and Mohave ground squirrel.															X	X		X	X												X																																				X	X						
Land Use Management Policies																																																																										
Parks, Recreation and Trails Element																																																																										
Adopt and implement a standard of 5 acres of parkland per 1,000 population for the City.																	X		X																																																				X	X	X	X
Of the 5 acre/1,000 population, active park land must comprise no less than 3 acres/1,000 population; open space may comprise 1 acre/1,000 population; and the remainder can be composed of other public recreational facilities including Desert Aire Golf Course, portions of school sites which provide recreation facilities or play fields accessible to the public, or other comparable facilities. Of the 3 acre/1,000 population standard for active park land, develop 2 acres as community or specialty parks and 1 acre as neighborhood parks.																	X		X																										X																						X	X			X	X	X	X
Ensure that park sites are located equitably, throughout the City, to maximize access to parks for all residents.																	X		X																										X																										X	X	X	X
Provide a variety of parks throughout the City, including community and neighborhood parks, to meet the needs of all residents.																	X		X																										X																										X	X	X	X
Explore various means of acquiring parkland and seek creative and flexible techniques to accomplish City park goals.																	X		X																																																				X	X	X	X
Collect park fees and review this fee annually, to provide financing for improvement of parkland in Palmdale.																	X		X																																																				X	X	X	X
Consider formation of a city-wide public financing district to provide funding for design, acquisition, construction and maintenance of parks throughout the City.																	X		X																																																				X	X	X	X
Continue to use the City's Capital Improvement Program as the mechanism for short-term planning for acquisition of park land and construction of park facilities.																	X		X																																																			X	X	X	X
Where appropriate, remodel or recycle existing vacant buildings, such as large retail or industrial buildings, for recreation uses.																	X		X																																																				X	X	X	X
When reviewing reclamation plans for quarries, incorporate provisions which allow reclaimed quarries to be used for appropriate recreational purposes.																	X		X																																																				X	X	X	X
Wherever feasible, incorporate uses which increase the public benefit of park land, and are compatible with the goal of providing active recreation opportunities.																	X		X																																																				X	X	X	X
Incorporate fire stations, maintenance yards, park-and-ride lots and other public facilities into parks, to share costs associated with land acquisition, provision of infrastructure and access and provision of shared parking, so long as the use does not conflict with providing active recreation opportunities.																	X		X																																																				X	X	X	X
Seek opportunities to develop regional parks or recreational facilities, which provide recreational benefits to a wide range of residents of the Antelope Valley, as a joint effort with the City of Lancaster.																	X		X																																																				X	X	X	X
Create linear parks along drainage courses, utility easements or other such features. Linear parks can include pedestrian paths, bikeways or par courses (fitness courses).																	X		X																																																				X	X	X	X
Where unique recreational demands exist, either within a neighborhood or city-wide, develop specialty parks, such as equestrian centers, sports complexes, amphitheater sites, arboretums or nature centers, to provide specific recreational opportunities.																	X		X																																																				X	X	X	X
Provide trail linkages through active park sites to connect nearby equestrian and multi-use trails, and bikeways.																	X		X																																																				X	X	X	X
On those park sites with steep slopes or other development constraints, leave natural areas for passive recreation pursuits.																	X		X																																																				X	X	X	X
Environmental Resources Element																																																																										
Identify significant farmlands pursuant to the State of California Important Farmlands Inventory and provide for their preservation as an interim use within the Planning Area.																			X												X																																								X	X				
Encourage the preservation of agricultural lands in non-urban areas and as an interim use where urban development is not anticipated for several years.																			X																																																				X	X				
Preserve agricultural uses as a means of retaining aquifer recharge both naturally and through treated water sources.	X	X			X														X			X								X				X													X	X	X	X			X	X															X	X				
WEST MOJAVE PLAN (2006)																																																																											
Environmental Resource Management Policies																																																																											
Biological Goals																																																																											
Protect sufficient habitat to ensure long-term tortoise population viability.															X	X			X																																																X	X						
Establish a minimum of three, preferably four, Desert Wildlife Management Areas that would be managed for the long-term survival and recovery of the desert tortoise, and which would also benefit other special-status plant and animal species.															X	X			X																																																X	X						
Establish an upward or stationary trend in the tortoise population of the West Mojave Recovery Unit for at least 25 years.															X	X			X																																																X	X						
Ensure genetic connectivity among desert tortoise populations, both within the West Mojave Recovery Unit, and between this and other recovery units.															X	X			X																																																X	X						
Delineate and maintain movement corridors between DWMAs, and with the Eastern Mojave Recovery Unit, the Eastern Colorado Recovery Unit, and the Northern Colorado Recovery Unit.															X	X			X																																																X	X						
Ensure a minimum width of two miles for movement corridors, and include provisions for major highway crossings.															X	X			X																																																X	X						
Reduce tortoise mortality resulting from interspecific (i.e., raven predation) and intraspecific (i.e., disease) conflicts that likely result from human-induced changes in the ecosystem processes.															X	X			X																																																X	X						
Maintain the hydrological processes that support the dense populations within the Rosamond Lake Basin.		X								X	X									X			X			X	X					X				X				X													X	X											X	X	X	X						
Conserve all suitable riparian nesting habitat.															X	X				X																X																															X	X						
Maintain groundwater levels in Mojave River that support the riparian habitat.		X													X	X				X			X			X	X					X				X				X													X	X													X	X						

Establish a contingency plan to meet water supply needs of the Antelope Valley Region during a plausible disruption of SWP water deliveries. Water supply needs, including a complete description of a purveyor's water supply portfolio and, forecasts for single- and multi-year droughts, are discussed in the UWMPs of the Antelope Valley Region. The reliability section within each UWMP requires purveyors to identify those actions needed to meet any such supply deficiencies. The AV IRWM Plan includes a number of projects described in these UWMPs, including various Best Management Practices (BMPs) (e.g., water conservation programs). Additionally, Water and Wastewater Master Plans developed for portions of the Antelope Valley Region identified necessary infrastructure improvements and additional storage requirements necessary to increase the reliability of the water supply available to the Antelope Valley Region. The AV IRWM Plan includes a number of projects described in the Master Plans.

Stabilize groundwater levels at current conditions. There is the need, however, to develop a groundwater management plan for the Antelope Valley Region in order to provide a better understanding of the Antelope Valley Groundwater Basin and to recommend various strategies that result in a reliable water supply for all basin users and help meet increasing water demands. Therefore, the AV IRWM Plan meets the requirements for an AB 3030 Plan and establishes a groundwater management plan for the whole basin. The AV IRWM Plan also identifies projects that are intended to protect and enhance groundwater supply through conjunctive use operations and monitoring.

Provide drinking water that meets customer expectations. UWMPs for all water purveyors in the Antelope Valley Region document actions to address improving and/or maintaining high quality drinking water that meets the customers' expectations. Planning documents that address drinking water quality include the Antelope Valley Region's water treatment plant facilities plans and the Lahontan RWQCB Basin Plan, which includes water quality objectives for groundwater used for domestic supply. In addition, the DPH regulates drinking water quality standards and determines the levels at which potential toxins can be present in drinking water. Projects within the AV IRWM Plan designed to meet these documented objectives include expansion or upgrade of water treatment and water reclamation plants, as well as groundwater management programs for removal of contaminants.

Protect aquifer from contamination. The Lahontan RWQCB Basin Plan discusses and identifies a variety of water quality objectives for groundwater and surface waters within the Antelope Valley Region, to preserve and enhance overall water quality, and to protect regional waters from contamination and degradation. The AV IRWM Plan proposes several programs and projects aimed at improving, enhancing and protecting the aquifer from contaminants, including regional wellhead management planning and monitoring and mapping known or suspected plumes.

Protect natural streams and recharge areas from contamination. The Lahontan RWQCB Basin Plan designates beneficial uses for surface and groundwater resources and watersheds in the Antelope Valley Region, and includes objectives that must be attained or maintained to protect these uses and avoid contamination or degradation. A number of the local and regional General Planning documents also contain policies and programs aimed at improving the quality and use of surface waters and recharge areas. Thus, the plans and programs of those local and regional agencies and entities that are required to implement the specific projects and programs discussed above, will also implement this objective.

Maximize beneficial use of recycled water. Plans for improving and expanding infrastructure to accommodate and increase the beneficial use of recycled water in the Antelope Valley Region are contained in the capital improvement and strategic facilities plans of the wholesale and retail water agencies. The AV IRWM Plan identifies a variety of recycled water infrastructure expansion projects intended to increase beneficial use of recycled water in the Antelope Valley Region, and reduce overall potable demand.

Reduce negative impacts of storm water, urban runoff, and nuisance water. There are a number of local planning documents related to improving the quality of runoff and reducing adverse impacts of nuisance water on area streams and waterbodies that have informed IRWM Plan efforts, such as the Lahontan RWQCB Basin Plan. TMDL implementation plans are developed to meet EPA Clean Water Act requirements at a local level, and identify responsible agencies. The development of projects and programs to reduce, capture, infiltrate, and/or treat storm water runoff is the responsibility of National Pollutant Discharge Elimination System (NPDES) permit holders (and co-permittees) and/or Waste Discharge Requirements (WDR), which include the counties, cities, and point source dischargers. Projects and programs to reduce the presence of pollutants will be identified in TMDL-specific implementation plans prepared by the relevant jurisdictions for the affected water bodies if required, and the plans and programs developed by individual permittees.

Preserve open space and natural habitats that protect and enhance water resources and species in the Antelope Valley Region. The objective to preserve open space and natural habitats 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 or preservation activities occur, including those responsible for management of parks and open space (State Parks, counties and cities), resource management agencies (FWS, Forest Service, BLM, and Fish and Game), land use agencies (counties and cities), the local wastewater treatment entity (to the extent that wastewater discharge affects streams subject to restoration), and NPDES permit holders (where storm water discharge affects water quality in streams 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 objective.

Maintain agricultural land use within the Antelope Valley Region. Responsibility for protecting, preserving and maintaining agricultural land use within the Antelope Valley Region rests with the various governing agencies with discretionary oversight for land use development, including the counties and cities, and the NRCS. A variety of tax incentive programs (e.g., the Williamson Act and Los Angeles County Agricultural Opportunity Areas [AOA]) within these jurisdictions have been developed to support ongoing operations, in light of encroaching non-agricultural development. In addition, many of these agencies have right-to-farm policies and ordinances intended to reduce potential conflict from introduction of new commercial or residential development adjacent to farmlands or on prime agricultural land.

Meet growing demand for recreational space. Responsibility for the expansion or creation of new recreational space, including parkland and passive open spaces remains with the numerous jurisdictions within the Antelope Valley Region, including the park and recreation departments of the counties and cities, the Open Space District of Los Angeles County, the California Parks Department, and the NPS. The City of Palmdale and the City of Lancaster, for example, provide a standard of 5 acres of parkland per 1,000 residents, whereas Kern County

identifies a standard of 2.5 acres per 1,000 residents. Los Angeles County's standards are 4 acres per 1,000 residents of local parkland, and 6 acres per 1,000 residents of regional parkland. In addition, various private entities, such as land conservancies, trusts, and park support groups have developed or identified opportunities to promote and create additional parkland, open spaces and recreational space. Many of these agencies and groups have existing plans and policies, and most local watershed plans identify opportunities to expand recreation areas.

Improve integrated land use planning to support water management. Most land use planning policies within the local and regional plans, as discussed throughout this IRWM Plan, including those found specifically within the Antelope Valley Region's General Plans, identify a need or objective for improving integrated planning efforts across jurisdictional boundaries, as well as regional water management policies. One of the suggested management planning targets for the AV IRWM Plan calls for coordinating and developing a regional land use management plan by the year 2010, which directly implements the objectives and goals of the Antelope Valley Region's land use planning documents.

8.1.3.1 Implementation of Local Plans

Implementation of the AV IRWM Plan will address many of the policies and goals found in the planning documents of the Antelope Valley Region. By doing so, it also 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 planning documents. Altogether, the projects included in the AV IRWM Plan directly implement elements of a number of local plans and studies, including UWMPs, Water Recycling Master Plans, Water Conservation Master Plans, and Master Facilities Plans. The AV IRWM Plan also includes projects that meet the water quality objectives of the Lahontan RWQCB Basin Plan, and the water supply reliability, water quality, open space and recreation, and flood management goals, policies, and programs of the Antelope Valley Region's General Plans as discussed above.

8.2 Institutional Structure

8.2.1 Organizational Structures for Regional Collaboration

Several agencies with considerably different authorities and responsibilities share jurisdiction over aspects of the multi-faceted water management challenges faced by residents of the Antelope Valley. The complexity of many of these water management challenges make them difficult for any single agency to solve on their own. Water managers within the Antelope Valley Region recognized the potential value in joining resources to define and address these challenges collectively. In order to do this, the multiple agencies need some organized structure to work together effectively. As a result, eleven public agencies formed the Antelope Valley Regional Water Management Group (RWMG) to develop the AV IRWM Plan. The RWMG formed when the eleven agencies signed a Memorandum of Understanding (MOU). The MOU defined their mutual agreement to contribute funds to help develop this IRWM Plan, provide and share information, review and comment on drafts of this IRWM Plan, adopt the final Plan, and assist in future grant applications for the priority projects selected in this IRWM Plan. A copy of the signed MOU can be found in Appendix A. Under this current organizational structure, the

RWMG is the decision-making body responsible for formal decisions regarding the scope and content of this IRWM Plan.

Another type of organizational structure often used to allow multiple agencies to work collaboratively is a Joint Powers Authority (JPA). A JPA is formed when it is to the advantage of two or more public entities (e.g., local governments, or utility or transport districts) with common powers to consolidate their forces to acquire or construct a joint-use facility. Their bonding authority and taxing ability is the same as their powers as separate units. A JPA is distinct from the member authorities, and they have separate operating boards of directors, and these boards can be given any of the powers inherent in all of the participating agencies. In setting up a JPA, the constituent authorities must establish which of their powers the new authority will be allowed to exercise. A term and the membership and standing orders of the board of the authority must also be laid down. The joint authority can employ staff and establish policies independently of the constituent authorities.

A prominent JPA in the Antelope Valley Region is the Antelope Valley State Water Contractors Association (AVSWCA), formed in May 1999 by the three local SWP contractors of the Antelope Valley. The AVSWCA's Statement of Principals and Objectives are outlined in Section 1.2.1 of this IRWM Plan.

8.2.2 Governance Structure

Governance structure means "decision-making" structure or management structure. As described above, the AV IRWM Plan was developed using a governance structure established through an MOU that prescribed the roles and responsibilities for the RWMG. The RWMG has operated over the past year using a systematic approach called "facilitated broad agreement." As part of this approach, the RWMG was the governing body and invited stakeholder involvement beyond the MOU signatories through frequently scheduled stakeholder meetings. These meetings were conducted according to the following steps for collaboration:

- Adopt specific and measurable goals for the process
- Create a safe space for interaction
- Establish a clear course of action
- Demonstrate tangible progress
- Iterate until the group is satisfied

These meetings were led by a professional facilitator with no direct association or stake in the outcome of any actions considered within the Plan. Material for the Plan discussed in each meeting has been developed by a consultant team in cooperation with RWMG members and other stakeholders and made available for review and comment by the stakeholders. This governance structure and approach has worked well to create the Plan.

While the structure and approach has been successful to create the plan, the RWMG discussed whether the MOU and facilitated broad agreement approach would work well to implement and update the Plan after it is adopted. Several potential options were discussed including selection of one willing existing agency within the RWMG, (the City of Palmdale for example), that would

serve on behalf of the entire stakeholder group, or creation of a new legal entity, such as a new JPA to lead the collaboration with the stakeholder group and help implement the AV IRWM Plan.

The stakeholders decided that they would like to continue using the current approach of facilitated broad agreement to implement and update the AV IRWM Plan. However, several of the RWMG Members expressed a desire to form a more formal governance structure to implement the Plan over the next several years. The group has agreed to attempt to establish this formal entity to lead efforts to implement and update the Plan. The group has agreed to commission a new legal structure in time for receipt of potential grant funds by the middle of next year (2008).

The proposed Antelope Valley governance structure to promote effective collaboration through the IRWM planning horizon outlines expected roles and responsibilities of various participants. The stakeholders understand that creating a new governance structure that will maintain the positive momentum the group has demonstrated during the past year until the year 2035 may be a difficult task. Therefore, the governance structure outlined below is being proposed as a draft, and will be revisited and reworked in order to create the soundest structure for this group by the time the AV IRWM Plan is adopted in December 2007. See Table 8-3 for the Plan Adoption Schedule.

TABLE 8-3
AV IRWM PLAN ADOPTION SCHEDULE

Date	Adoption Item
July 2, 2007	Release Public Draft IRWM Plan
July 10, & July 18, 2007	Public Workshops held on Public Draft IRWM Plan
August 1, 2007	Public Comments Due on Public Draft IRWM Plan
August - September 2007	Stakeholder meetings to refine the Draft IRWM Plan
October 3, 2007	Release 2nd Public Draft IRWM Plan
November 2, 2007	Public Comments Due on 2nd Public Draft IRWM Plan
November - December 2007	Public Hearings & Adoption by RWMG Governing Bodies

8.2.2.1 Larger Stakeholder Group

The larger stakeholder group, or planning group, is a group of participants including the agencies that comprise the RWMG as well as an extensive mix of other cities and regulatory, environmental, industrial, agricultural, and land-use planning agencies that represent all areas of the Antelope Valley Region. The stakeholder group has met at a least once per month to allow for discussion of issues facing the Antelope Valley Region and to develop the AV IRWM Plan. Through the facilitated broad agreement approach, decisions on behalf of the group were made by this larger stakeholder group. The Stakeholder Group has agreed to continue to meet at least once per quarter (4 times per year) to review progress with Plan implementation and to consider updates to the Plan (such as newly proposed projects or management actions that address the Regional Plan objectives).

8.2.2.2 Regional Water Management Group

As described above, the RWMG was formed via MOU to contribute funds to help develop this IRWM Plan, provide and share information, review and comment on drafts of this IRWM Plan, adopt the final Plan, and assist in future grant applications for the priority projects selected in this IRWM Plan. In addition to these roles, it is proposed that the responsibilities of the RWMG be expanded to serve as an oversight body during grant administration, should the Antelope Valley Region successfully receive grant funds to help implement the Plan. In this capacity, the RWMG would work with local project sponsors (described below) to solicit feedback on the grant administration process and provide dispute resolution if needed. The RWMG would help ensure effective communication between the contracting entity (described below) and the project sponsors. Additionally, the RWMG would sustain an open dialogue with the State regarding progress on the AV IRWM Plan implementation and continue to provide feedback on project progress. Refer to Figure 8-1 for a schematic of this proposed model. The group currently intends to replace the RWMG with a newly formed entity, such as a JPA, to serve in a similar capacity.

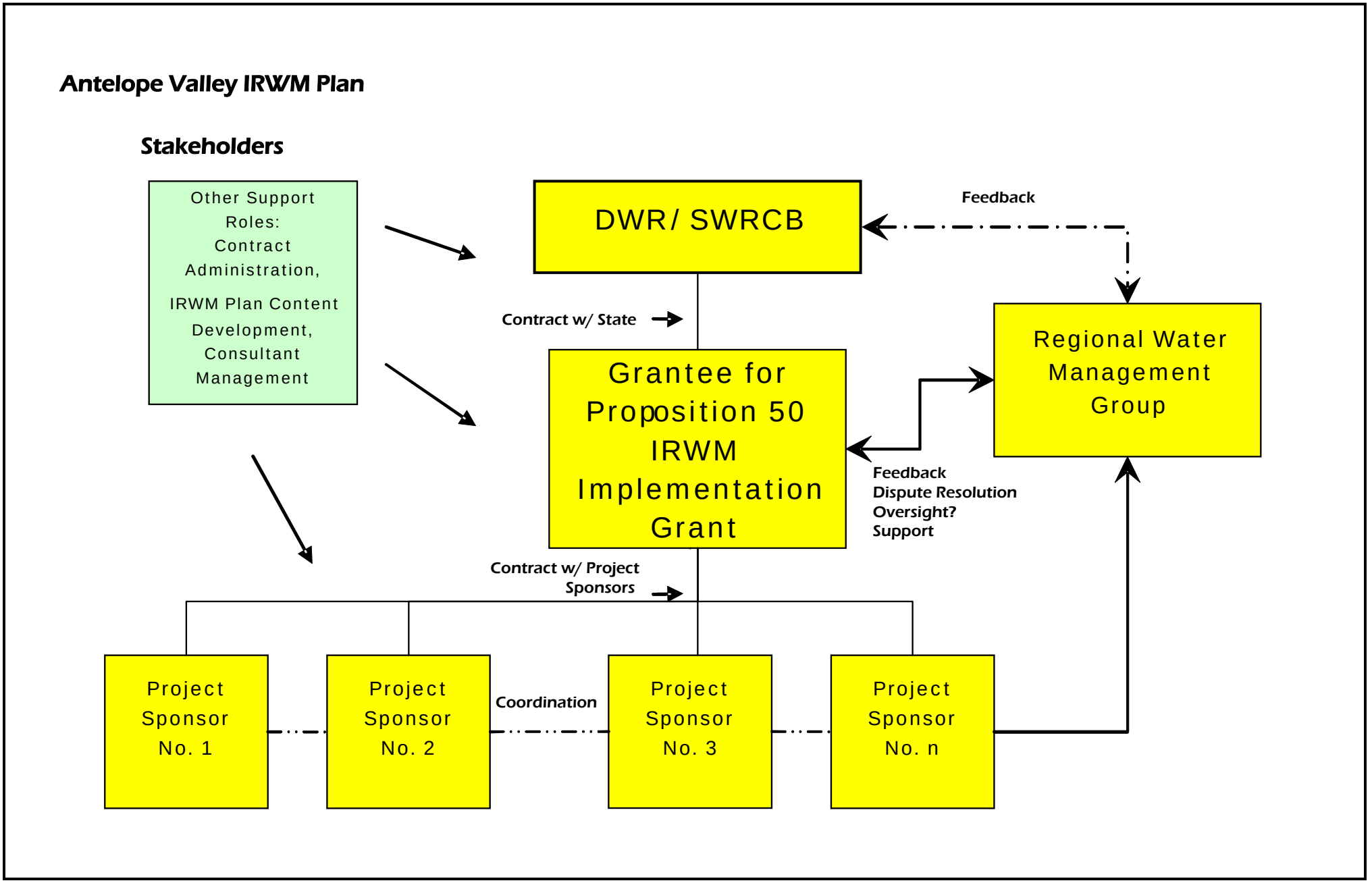

Figure 8-1 Potential Governance Structure Model

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8.2.2.3 Regional/State Interface Contracting Entity

Governing the development, implementation, and updating of the AV IRWM Plan is different than administration or governance of potential grant funding for implementation projects. The Proposition 50 Guidelines require identification of a single contracting agency, or eligible grant recipient, should a contract be awarded and funding be received from DWR. Grant administration includes the ability to receive and administer funds to the awarded sponsored projects, to prepare the necessary progress reports and invoicing reports, to make investigations, and to execute, and file such documents and agreements with DWR as required.

The AVSWCA has taken the initiative to propose to its board to serve on behalf of the entire RWMG as the legal entity to submit the Antelope Valley Region's application for Proposition 50 funds and to administer grant funds with the DWR. Some of the assumed responsibilities for this entity includes (but is not limited to): filing the grant application with the State; providing additional information if requested; having sufficient cash flow to buffer any delays in administering the grant; having sufficient staff to prepare and comply with all reporting requirements of the grant; and having generally acceptable accounting practices. All of these requirements are laid out in the grant agreement between the State and the contracting agency once the grant award is made.

Additionally, the AVSWCA would then contract with the implementing agencies or local project sponsors (in a manner consistent with the contract terms between AVSWCA and the State) as described below. This contractual arrangement will require some clarification of the existing operating guidelines of AVSWCA to specify its roles and responsibilities and terms of service for committee members and a process for the administration of the grant funds, as well as clarification of the contracting terms with the project sponsors. In this manner, liability passed on from the State to the AVSWCA, would also be transferred through to the individual local project sponsors.

8.2.2.4 Local Project Sponsors

Local project sponsors are those IRWM Plan stakeholder agencies or entities having projects that are included as part of the AV IRWM Plan, and whose projects have been decided by the larger stakeholder group that they should be included in the Proposition 50 grant application. Local project sponsors are assumed to implement their projects with or without the receipt of grant funding. As mentioned above, the local sponsors would enter into a contract with the contracting entity, or 'grantee' with the State when grant funds are awarded to support implementation of their sponsored project, and would therefore be bound to the conditions of that contract.

8.2.2.5 Other Support Roles

Additional roles and responsibilities for successful regional coordination for implementation and future refinement of this IRWM Plan not included within the roles and responsibilities of the Regional/State Contracting Entity and the Local Project Sponsors as they are described above include:

- Contract Administration*:* The Regional Water Management Group may want to continue contracting for outside services collectively in the future. Since the RWMG does not have contracting authority under an MOU, they require an existing agency to serve on their behalf. An example of this is the role that LACWWD 40 has served to administer a contract to engage a third-party consultant to prepare the IRWM Plan including preparation of a request for proposals, evaluation of consultant proposals, award of the contract, and general oversight of the contract.

- IRWM Plan Content Development: The RWMG has agreed to update the AV IRWM Plan at least every two years as further study and planning is conducted, projects continue to be developed and objectives and priorities are adjusted. There will be an ongoing process for keeping the proposed project list up-to-date, through regular quarterly updates with additional meetings and revision as needed before major grant applications, as conditions change, funding is identified, projects are implemented and objectives revised.

- Consultant Management: The stakeholder group may determine that a consultant is needed to assist in these other support roles. Managing the consultant will also need to be a defined responsibility.

8.3 Implementation of High Priority Projects

8.3.1 Lead Agency

The lead agencies are those agencies that have the principal responsibility for carrying out or approving the high priority projects proposed in the IRWM Plan. The lead agency is also generally responsible for determining the appropriate environmental document under the California Environmental Quality Act (CEQA), as well as for its preparation. Entities responsible for project implementation are identified in Section 7.3 in Table 7-2. The lead agencies for each of the high priority projects are also identified in their high priority project template forms, which can be found in Appendix F.

8.3.2 Implementation Schedules

High priority projects have been defined as those that the stakeholders want to have implemented, or want to take action on, within the next two years. Specific timelines for some of the high priority projects were identified in Section 7.3 in Table 7-2. Their detailed implementation schedules are also identified in their high priority project template forms, which can be found in Appendix F. Also included in Appendix F is a summary table which provides the high priority project schedules broken down even further into phases (i.e., planning, demonstration, design, construction) as well as cost information.

8.3.3 Financial Needs of Selected High Priority Projects

The financial needs of the selected high priority projects will cover both the construction costs and the cost of operation and maintenance (O&M) throughout the IRWM Plan planning horizon. Refer to Section 7 for an estimate of the total cost of each of the high priority projects. Refer to

the project template forms in Appendix F for information on the detailed cost breakdown for construction costs, O&M costs, administration costs, and other relevant costs associated with each of the projects. The anticipated funding match for each high priority project is also indicated on these forms. Also included in Appendix F is a summary table which provides the high priority project schedule and cost information.

Future funding will be needed to implement all the projects proposed in this IRWM Plan. The Cities of Palmdale and Lancaster, PWD, and others have already spent or committed large funding amounts on recycled water infrastructure, desert landscaping, modified ordinances and recycled water pilot projects. While many of the cities and agencies have funding mechanisms (impact fees, conservation fees, rate increases, etc.,) in place to fund their projects, there is still more need than there are financial resources available.

8.3.4 Beneficiaries and Funding/Financing Options

The potential beneficiaries of the IRWM Plan implementation are the stakeholders represented by the RWMG and include: all water users; residents; retail water purveyors; local jurisdiction/land use planning agencies; local, State, and Federal regulatory agencies; the environment; the building industry; the agricultural/farm industry; wastewater agencies; mutual water companies; the media; and others within the Antelope Valley Region jurisdiction.

Initial funding for the IRWM Plan effort was provided by the RWMG through a MOU. The funding/financing partners for the selected high priority projects are identified in the project template forms found in Appendix F. There are opportunities for grant funding that are available to the stakeholders in the Antelope Valley Region and that are well suited to many of their projects. Additional funds for O&M of the implemented projects will be included in future funding requests and provided by local agencies through matching funds. The source of these funds may include: water and wastewater general funds, capital improvement funds, general funds from local Cities, County departments, private organizations, member dues, etc. Table 8-4 provides a summary of the funding opportunities that are available, broken into local, state, and federal funding sources. Table 8-5 shows which of these potential funding opportunities may potentially be well suited to the stakeholder identified projects in the IRWM Plan.

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TABLE 8-4
POSSIBLE FUNDING OPPORTUNITIES

LOCAL						
Local funding opportunities include bonds and property taxes for capital, parcel taxes, existing capital improvement budgets, local sales taxes, utility fees, gasoline taxes, and water sales.						
STATE						
Funding Category	**Program**	**Brief Description**	**Key Points**	**Eligibility**	**Submit Grant Application**	**Contact**
Proposition 50						
Conservation/Water Use Efficiency (WUE)	Prop 50-Chapter 7(g) Department of Water Resources (DWR) WUE Grant Program	Program primarily funds projects not locally cost effective, and that provide water savings, or in-stream flows that are beneficial to the Bay-Delta or the rest of the state. Consideration also for water quality and energy efficiency.	Two step on-line process application process: first step is concept proposal and second step is detailed on-line submittal.	Cities, counties, districts, tribes, non-profits; also utilities and mutual water companies for Section A, also universities, colleges, state and federal for section B.	DWR will post its 2007 WUE Proposal Solicitation Package Draft Recommendations of grant-funded projects on website in June 2007. http://www.grantsloans.water.ca.gov/grants/efficiency.cfm	Baryohay Davidoff, DWR (916) 651-9666
Water Quality	Prop 50-Chapter 4 Department of Health Services (DHS) Safe Drinking Water Grants	Chapter 4a1: Small Community Water System Facilities: upgrade monitoring, treatment, or distribution infrastructure of small community water systems; must be in noncompliance with a safe drinking water standard	Project Funding: $5,000-$2 million	Small Community Water Systems: < 1,000 connections or 3,300 people 25% to disadvantaged communities	The universal preapplication (Prop 50, 84, and State Revolving Fund [SRF]) will be available for access from this website on June 1, 2007 http://www.dhs.ca.gov/ps/ddwem/funding/default.htm	Mark Bartson (707) 576-2734; state level (916) 449-5600
Water Quality	Prop 50-Chapter 4 DHS Safe Drinking Water Grants	Chapter 4a2: Demonstration Projects & Studies for Contaminant Treatment: Development and demonstration of new treatment and related facilities for water contaminant removal and treatment	Project Funding: $50,000-$2 million	Public water systems under DHS 25% to disadvantaged communities	The universal preapplication (Prop 50, 84, and SRF) will be available for access from this website on June 1, 2007 http://www.dhs.ca.gov/ps/ddwem/funding/default.htm	Mark Bartson (707) 576-2734; state level (916) 449-5600
Water Quality	Prop 50-Chapter 4 DHS Safe Drinking Water Grants	Community Water System Monitoring Facilities: Water quality monitoring facilities and equipment; must be in non-compliance with a safe drinking water standard	Project Funding: $5,000-$2 million	Public water systems under DHS 25% to disadvantaged communities	The universal preapplication (Prop 50, 84, and SRF) will be available for access from this website on June 1, 2007 http://www.dhs.ca.gov/ps/ddwem/funding/default.htm	Mark Bartson (707) 576-2734; state level (916) 449-5600
Water Quality	Prop 50-Chapter 4 DHS Safe Drinking Water Grants	Drinking Water Source Protection: For planning, preliminary engineering, detailed design, construction, education, land acquisition, conservation easements, equipment purchase, and implementing the elements of a Source Water Protection program	Project Funding: $50,000-$2 million	Public water systems under DHS 25% to disadvantaged communities	The universal preapplication (Prop 50, 84, and SRF) will be available for access from this website on June 1, 2007 http://www.dhs.ca.gov/ps/ddwem/funding/default.htm	Mark Bartson (707) 576-2734; state level (916) 449-5600
Water Quality	Prop 50-Chapter 4 DHS Safe Drinking Water Grants	Disinfection By-Product Treatment Facilities: To meet DBP safe drinking water standards, must be in non-compliance with the EPA Stage 1 DBP Rule MCLs or treatment technique	Project Funding: $50,000-$2 million	Public water systems under DHS 25% to disadvantaged communities	The universal preapplication (Prop 50, 84, and SRF) will be available for access from this website on June 1, 2007 http://www.dhs.ca.gov/ps/ddwem/funding/default.htm	Mark Bartson (707) 576-2734; state level (916) 449-5600
Water Quality	Prop 50-Chapter 4 DHS Safe Drinking Water Grants	Southern California Projects to Reduce Demand on the Colorado River: Assist in meeting drinking water standards and in meeting the state's commitment to reduce Colorado River water use to 4.4 MAF per year	Project Funding: $50,000-$20 million Max grant for a regional project: $20 million per application up to a max of $60 million	Public water systems under DHS 25% to disadvantaged communities	The universal preapplication (Prop 50, 84, and SRF) will be available for access from this website on June 1, 2007 http://www.dhs.ca.gov/ps/ddwem/funding/default.htm	Mark Bartson (707) 576-2734; state level (916) 449-5600
Water Quality	Prop 50-Chapter 6(b) DHS Safe Drinking Water Grants	Demonstration Projects and Studies for Contaminant Removal: Treatment or removal technology for the following contaminants: Petroleum products, such as MTBE and BTEX, N-Nitrosodimethylamine (NDMA), Perchlorate, Radionuclides, such as radon, uranium, and radium, Pesticides and herbicides, Heavy metals, such as arsenic, mercury, and chromium, Pharmaceuticals and endocrine disrupters	Project Funding: $50,000-$5 million No more than 30% of the funds can address a single contaminant Must address existing problems in CA	Public water systems under DHS 25% to disadvantaged communities	The universal preapplication (Prop 50, 84, and SRF) will be available for access from this website on June 1, 2007 http://www.dhs.ca.gov/ps/ddwem/funding/default.htm	Mark Bartson (707) 576-2734; state level (916) 449-5600
Water Quality	Prop 50-Chapter 6c Safe Drinking Water Grants	Ultraviolet (UV) and Ozone Disinfection	Project Funding: $50,000-$5 million; must address an Maximum Contaminant Level (MCL) compliance violation, surface water treatment microbial requirements, or other mandatory disinfection that can only be met by UV/ or ozone; the water system must demonstrate that it can operate and maintain the treatment facilities; ozone treatment projects shall be designed and operated to minimize residual disinfection byproduct formation from the ozone treatment	Public water systems under DHS 25% to disadvantaged communities	The universal preapplication (Prop 50, 84, and SRF) will be available for access from this website on June 1, 2007 http://www.dhs.ca.gov/ps/ddwem/funding/default.htm	Mark Bartson (707) 576-2734; state level (916) 449-5600

TABLE 8-4
POSSIBLE FUNDING OPPORTUNITIES

Funding Category	Program	Brief Description	Key Points	Eligibility	Submit Grant Application	Contact
Water Security	Prop 50-Chapter 3 Water Security Program	DHS Water security grants for protection of state, local, and regional drinking water systems http://www.dhs.ca.gov/ps/ddwem/Prop50/2006PPLs/default.htm	Grants cannot be used for the routine responsibilities or projects previously required by a DHS compliance order, permit or regulation. Grants can be used for: warning systems, fencing, protective structures; contamination treatment facilities, emergency interconnections; communications systems, and other projects; Response Plan, Emergency Notification Plan; $10 million maximum grant per project; $50,000 minimum; 1 to 1 local resource match to grant award (except small and DAC)	State, local, and regional drinking water systems under DHS regulation; 25% reserved for disadvantaged communities	The universal preapplication (Prop 50, 84, and SRF) will be available for access from this website on June 1, 2007 http://www.dhs.ca.gov/ps/ddwem/funding/default.htm	Mark Bartson (707) 576-2734; state level (916) 449-5600
Water Management	Prop 50-Chapter 8 Integrated Regional Water Management Program, Round 2	Implementation grants for: water supply reliability, water conservation, water use efficiency; stormwater capture, storage, treatment and management; removal of invasive non-native specie, creation and restoration of wetlands, open space and watershed lands; NPS reduction; groundwater recharge/management; desalination; water banking, exchange, reclamation; improvement of water quality; flood control programs; stormwater capture/ percolation; improve wildlife habitat; watershed management; and demonstration projects to develop new drinking water treatment/ distribution.	Approximately $64 M available for SoCal region; Max award is $25 M (any award from Round 1 to be considered against this cap). 10% funding match requested. On-stream or off-stream surface water storage facilities are not eligible.	Public Agencies, Non-profits, and Members of a Regional Water Management Group	PSP released: June 2007 Step 1: August 1, 2007 Step 2: January 2008. http://www.grantsloans.water.ca.gov/grants/integregio.cfm	Norman Shopay, DWR (916) 651-9218 or Scott Couch, State Water Board (916) 341-5658
Proposition 84 (by chapter)						
Multiple Topics	Prop 84 Water supply/flood protection, etc.	In general, this bond law would provide funding for flood control, Integrated Regional projects, water quality, etc.	$5.388 Billion major grants for local entities through IRWMPs. $210 M earmarked for Los Angeles sub-region	IRWMP is a primary tool of Prop 84	Final Guidelines November 2007; TBD	Judy Colvin (916)651-9665 jcolvin@water.ca.gov
Chapter 2 Safe Drinking Water	DHS	Emergency/Urgent water supply protection	$10 M budget; max grant $250,000	Interregional	The universal preapplication (Prop 50, 84, and SRF) will be available for access from this website on June 1, 2007 http://www.dhs.ca.gov/ps/ddwem/funding/default.htm	DHS (916) 449-5600
Chapter 2 Safe Drinking Water	DHS	Small Community & Disadvantaged Communities (DAC)	$180 M budget, max grant $5 million	Interregional	The universal preapplication (Prop 50, 84, and SRF) will be available for access from this website on June 1, 2007 http://www.dhs.ca.gov/ps/ddwem/funding/default.htm	DHS (916) 449-5600
Chapter 2 Safe Drinking Water	DHS	State Share of Safe Drinking Water SRF Projects	$50 M budget	Interregional	The universal preapplication (Prop 50, 84, and SRF) will be available for access from this website on June 1, 2007 http://www.dhs.ca.gov/ps/ddwem/funding/default.htm	DHS (916) 449-5600
Chapter 2 Safe Drinking Water	SWRCB	State Share State Water Pollution Control Revolving Fund	$80 M budget	Interregional	Final Guidelines November 2007; TBD	Judy Colvin (916)651-9665 jcolvin@water.ca.gov
Chapter 2 Safe Drinking Water	DHS	loans and grants to Prevent GW Pollution to drinking water	$60 M budget	Interregional	The universal preapplication (Prop 50, 84, and SRF) will be available for access from this website on June 1, 2007 http://www.dhs.ca.gov/ps/ddwem/funding/default.htm	DHS (916) 449-5600
Chapter 2 Safe Drinking Water	DWR	IRWMP - see Prop 50 Chapter 8 description above	$215 M budget	4-Los Angeles/Ventura	Final Guidelines November 2007; TBD	Judy Colvin (916)651-9665 jcolvin@water.ca.gov
Chapter 2 Safe Drinking Water	DWR	IRWMP - see Prop 50 Chapter 8 description above	$100 M budget	Interregional	Final Guidelines November 2007; TBD	Judy Colvin (916)651-9665 jcolvin@water.ca.gov

TABLE 8-4
POSSIBLE FUNDING OPPORTUNITIES

Funding Category	Program	Brief Description	Key Points	Eligibility	Submit Grant Application	Contact
Chapter 2 Safe Drinking Water	SWRCB	Reduce agriculture runoff pollution into surface waters	$15 M budget	Interregional	Final Guidelines November 2007; TBD	Judy Colvin (916)651-9665 jcolvin@water.ca.gov
Chapter 3 Flood Control	DWR	Floodplain mapping	$30 M budget	Interregional	Final Guidelines November 2007; TBD	Judy Colvin (916)651-9665 jcolvin@water.ca.gov
Chapter 3 Flood Control	DWR	Flood Control Projects	$275 M budget	Interregional	Final Guidelines November 2007; TBD	Judy Colvin (916)651-9665 jcolvin@water.ca.gov
Chapter 3 Flood Control	DWR	Flood Corridor Project (Water Code 79037)	$36 M budget; max $5 M	Interregional	Final Guidelines November 2007; TBD	Judy Colvin (916)651-9665 jcolvin@water.ca.gov
Chapter 3 Flood Control	DWR	State Share Flood Control Project	$180 M budget	Interregional	Final Guidelines November 2007; TBD	Judy Colvin (916)651-9665 jcolvin@water.ca.gov
Chapter 4 Planning	DWR	Plan and Feasibility studies/ climate chg evaluate impacts on flood and water systems, integration of flood and water systems, modeling, reservoir operations	$65 M budget	Interregional	Final Guidelines November 2007; TBD	Judy Colvin (916)651-9665 jcolvin@water.ca.gov
Chapter 5 Protection	DWR	State Water Project (SWP) obligations for wildlife, recreation per water code Section 11912	$54 M budget	Interregional	Final Guidelines November 2007; TBD	Judy Colvin (916)651-9665 jcolvin@water.ca.gov
Chapter 5 Protection	Secretary Resources	California River Parkways Act Projects	$72 M budget	Interregional	Final Guidelines November 2007; TBD	Judy Colvin (916)651-9665 jcolvin@water.ca.gov
Chapter 5 Protection	DWR	Urban streams restoration program	$18 M budget	Interregional	Final Guidelines November 2007; TBD	Judy Colvin (916)651-9665 jcolvin@water.ca.gov
Chapter 5 Protection	California Conservation Corps	California Conservation Corps incl $25M for fuel reduction and stream/river restoration and $20M for acquisition and dev of local conserv corps and local res. Cons activities	$45 M budget	Interregional	Final Guidelines November 2007; TBD	Judy Colvin (916)651-9665 jcolvin@water.ca.gov
Chapter 5 Protection	SWRCB	Matching Grants to prevent stormwater contamination	$90 M budget	Interregional	Final Guidelines November 2007; TBD	Ms. Erin Ragazzi Division of Financial Assistance Project Development Section 1A (916) 341-5733
Chapter 6 Forest and Wildlife Conservation	Wildlife Conservation Board? SWRCB? CDF??DFG	Forest and wildlife conservation projects	$180 M budget	Interregional	Final Guidelines November 2007; TBD	Judy Colvin (916)651-9665 jcolvin@water.ca.gov

TABLE 8-4
POSSIBLE FUNDING OPPORTUNITIES

Funding Category	Program	Brief Description	Key Points	Eligibility	Submit Grant Application	Contact
Chapter 6 Forest and Wildlife Conservation	SWRCB	Protect/recover Threatened/Endangered species, natural corridors, old growth/riparian and wetlands, implement CA Comprehensive Wildlife Strategy	$135 M budget	Interregional	Final Guidelines November 2007; TBD	Judy Colvin (916)651-9665 jcolvin@water.ca.gov
Chapter 6 Forest and Wildlife Conservation	University of California	up to $25m of $135m for Natural Reserve System for training		Interregional	Final Guidelines November 2007; TBD	Judy Colvin (916)651-9665 jcolvin@water.ca.gov
Chapter 6 Forest and Wildlife Conservation	Wildlife Conservation Board? SWRCB? CDF??DFG	Natural Community Conservation Plans	$90 M budget	Interregional	Final Guidelines November 2007; TBD	Judy Colvin (916)651-9665 jcolvin@water.ca.gov
Chapter 6 Forest and Wildlife Conservation	SWRCB	Protect ranches, farms, oak woodlands	$45 M budget	Interregional	Final Guidelines November 2007; TBD	Judy Colvin (916)651-9665 jcolvin@water.ca.gov
Chapter 8 Parks and Nature Education	Department of Parks and Recreation	Improve Public Access by Develop, acquire, interpret, restore & rehabilitate State Park system & resources	$400 M budget	Interregional	Final Guidelines November 2007; TBD	Judy Colvin (916)651-9665 jcolvin@water.ca.gov
Chapter 8 Parks and Nature Education	Department of Parks and Recreation	Grants for nature education and facilities	$100 M budget	Interregional	Final Guidelines November 2007; TBD	Judy Colvin (916)651-9665 jcolvin@water.ca.gov
Chapter 9 Sustainable	TBD by Legislation	Urban greening that reduce energy, conserve water, improve air/water quality, incl not less than $20M for urban forestry projects	$90 M budget	Interregional	Final Guidelines November 2007; TBD	Judy Colvin (916)651-9665 jcolvin@water.ca.gov
Chapter 9 Sustainable	Department of Parks and Recreation	Competitive grants for local and regional parks	$400 M budget	Interregional	Final Guidelines November 2007; TBD	Judy Colvin (916)651-9665 jcolvin@water.ca.gov
Chapter 9 Sustainable	TBD by Legislation	Plan grants and incentives for regional and local land use plans designed to promote water conservation, reduce auto use/fuel consumption, encourage greater infill/compact dev, protect natural res/ag lands, revitalize urban/comm centers	$90 M budget	Interregional	Final Guidelines November 2007; TBD	Judy Colvin (916)651-9665 jcolvin@water.ca.gov
Proposition 82						
Water Supply	DWR	New Local Water Supply: water supply development projects and feasibility studies (loan)	Construction of dams, reservoirs, water storage tanks, well field development projects, recycled water distribution facilities; $5 million per eligible project; $500.000 per eligible feasibility study	local public agency	Continuous filing	David Rolph (916) 651-9635
Proposition 1E						
Flood management	Prop 1E Disaster Preparedness and Flood Prevention Bond Act of 2006 (Overview)	The Strategic Growth Plan levees proposals would authorize a $4 billion general obligation bond on the November 2006 ballot to pay for levee repairs and improvements, upgrade flood protection for urban areas, improve emergency response capabilities, and provide grants for stormwater flood management projects.	For state-federal project levees and the Delta ($3B) Flood Control Subventions ($500M) Flood protection corridors, bypasses, and alluvial floodplains ($290M) Stormwater Flood Management Grants ($300M)		Available and Upcoming/TBD	

TABLE 8-4
POSSIBLE FUNDING OPPORTUNITIES

Funding Category	Program	Brief Description	Key Points	Eligibility	Submit Grant Application	Contact
Flood management	Prop 1E Disaster Preparedness and Flood Prevention Bond Act of 2006	Evaluation, repair, rehab, reconstruction, replacement of levees, weirs, bypasses and facilities of the State Plan of Flood Control	$3 billion; $200 M except for Folsom Dam		Criteria to be posted on flood SAFE website upon approval of the Bond Expenditure Plan	George Qualley (916) 574-0384
Flood management	Prop 1E Disaster Preparedness and Flood Prevention Bond Act of 2006	Payment of state share of non-federal costs for projects not in the State Plan for Flood Control	$500 M		Available and Upcoming/TBD	Dena Uding (916) 574-2745
Flood management	Prop 1E Disaster Preparedness and Flood Prevention Bond Act of 2006	Protection, creation, and enhancement of flood protection corridors and bypasses	$290 M		Floodway Corridor program: rules released September 2007; application package released January 2008; submittal deadline April 2008	Earl Nelson (916) 574-1244
Flood management	Prop 1E Disaster Preparedness and Flood Prevention Bond Act of 2006	Grants for stormwater flood management projects w-nonstate cost share of not less than 50%; not part of State Plan for Flood control, multiple benefits, comply with Basin Plans, consistent with IRWMP	$300 M		Available and Upcoming/TBD	TBD
Proposition 13						
Water Conservation	DWR	Agricultural Water Conservation: voluntary, cost effective projects or programs to improve agricultural water use efficiency, and feasibility studies for such projects	Canal or ditch piping or lining projects; tailwater recovery projects; and replacement of leaking distribution system components; $5 million per eligible project	Local public agencies and incorporated mutual water companies	Continuous filing; application being updated http://www.grantsloans.water.ca.gov/loans/conservation.cfm	Baryohay Davidoff (916) 651-9666
Other						
Water Quality	Department of Health Services	Drinking Water State Revolving Fund: Provide low interest loans and/or grants to assist public water systems in achieving and maintaining compliance with the Safe Drinking Water Act (SDWA)	Project must be needed to comply with SDWA and project must be on program's priority list; system must meet technical, managerial, and financial requirements; all applications are for loans; financial review determines if grant funds apply; $100,000 per planning study; $20 million per project and $30 million per entity per cap grant; disadvantaged communities can receive a zero interest loan and disadvantage public and mutual systems may receive partial grant funding	Must be a public water system	The universal preapplication (Prop 50, 84, and SRF) will be available for access from this website on June 1, 2007 http://www.dhs.ca.gov/ps/ddwem/funding/default.htm	Steve Woods (916) 449-5624
Water Supply	State Department of Housing and Community Development	Community Development Block Grant (CDBG) program: Project must principally benefit low income persons/households; for example: create jobs for low income persons, provide housing units for low income households, and provide clean water to residents of community with over half of its residents being low income	Pay for project feasibility study, final plans and specs, site acquisition and construction, and grant administration costs; pay for one time assessment fees for low income families; pay for installation of private laterals and hook up fees for low income families; Each allocation sets funding award limits in their annual NOFA (typically $500,000)	cities or counties that are not under HUD's CDBG entitlement program; jurisdictions can pay for their own system or give the funds to private or public water providers	Notices of Funding Availability released each year http://www.hud.gov/offices/cpd/communitydevelopment/programs/	Patrick Talbot (916) 552-9361
Conservation	Department of Parks and Recreation	Land and Water Conservation Fund-For acquisition or development projects. Acquisition projects shall be for outdoor recreation, development projects shall include the construction of new and/or renovation of existing facilities for outdoor recreation. http://www.parks.ca.gov/default.asp?page_id=21360	50% reimbursement, match can be money, services, or real property		2008 TBD	TBD
Environment	Resources Agency	Environmental Enhancement and Mitigation Program-Resource Lands: Projects for the acquisition, restoration, or enhancement of watersheds, wildlife habitat, wetlands, forests, or other natural areas. Roadside Recreational: projects for the acquisition and/or development of roadside recreational opportunities	no match required	Local, state, federal government and non-profit	FY 2007-2008 TBD http://resources.ca.gov/eem/	TBD

TABLE 8-4
POSSIBLE FUNDING OPPORTUNITIES

Funding Category	Program	Brief Description	Key Points	Eligibility	Submit Grant Application	Contact
Habitat	Department of Parks and Recreation	Habitat Conservation Fund: The program provides funds to local governments under the California Wildlife Protection Act of 1990. http://www.parks.ca.gov/default.asp?page_id=21361		Counties and districts are eligible to apply. Eligible districts are defined in Subdivision (b) of Section 5902 of the Public Resources Code.	Applications must be postmarked or delivered to the California Department of Parks and Recreation, no later than October 1, 2007	TBD
Land Acquisition	Wildlife Conservation Board (WCB): various funding sources	Land Acquisition Program: Acquires real property or rights in real property on behalf of DFG and also grant funds to acquire real property or rights in real property (contact South Coast Region Headquarters) 4949 Viewridge Avenue, San Diego, CA 92123 (858) 467-4201 http://www.wcb.ca.gov/Pages/land_acquisition_program.htm	Project Funding: continuous; depends on available sources.	governmental entities or nonprofit organizations	The WCB accepts applications for funding on a continuous basis depending on available funding sources.	TBD
Restoration	WCB: Restoration	California Riparian Habitat Conservation Program: Projects that develop coordinated conservation efforts aimed at protecting and restoring the state's riparian ecosystems, including trees and other vegetation and the physical features normally found on the stream banks and flood plains associated with healthy streams. Habitat Enhancement and Restoration Program: eligible enhancement and restoration projects must provide for the long-term maintenance of the restored and/or enhanced habitat.	Project funding: continuous; depends upon available sources Contract Regional Fish and Game Headquarters for information.	Non-profit conservation organizations and federal, state, or local government agencies. Program allows cooperative project agreements with agencies of state, local agencies or non-profit organizations.	The WCB accepts applications for funding on a continuous basis depending on available funding sources.	TBD
Wastewater/Watershed	Environmental Protection Agency (EPA)-SWRCB	Clean Water State Revolving Fund (SRF) Program: Projects for publicly-owned wastewater treatment facilities. Funds may be used to better the quality of watersheds and protect groundwater resources through planning, design, and construction; to build or rehabilitate sewer collection systems and urban wet weather flow control activities, including stormwater and sanitary and combined sewer control measures. The program also funds a publicly or privately-owned nonpoint source and estuary management projects, such as controlled runoff from ag. land, conservation tillage, soil erosion, development of stream bank buffer zones, and wetlands protection and restoration. Estuary management projects may include restoration of wildlife habitat and sewage pump-out facilities.	Program also offers significant funding for nonpoint source pollution control and estuary protection, assistance to a variety of borrowers and partnerships with other funding sources. Matching funds are not required. http://www.swrcb.ca.gov/funding/srf.html	Borrowers range from municipalities, communities of all sizes, farmers, homeowners, small businesses, and nonprofit organizations. CWSRF's partner with banks, nonprofits, local governments, and other federal and state agencies	Continuous application process, currently accepting applications. $200-$300 Million Annually available The final 2007/2008 SRF Project Priority List is scheduled for adoption by the State Water Board consideration at the July 17, 2007 Board Meeting	TBD
Water Quality	EPA-SWRCB	State Revolving Fund Loan Nonpoint Source Protection Program: Address water quality problems associated with discharges from nonpoint source dischargers and for estuary enhancement. http://www.swrcb.ca.gov/funding/srf.html	Planning study to determine cost effective alternative, CEQA compliance, dedicate source repayment and compliance with certain Federal requirements.	Point source dischargers, municipalities and nonpoint source dischargers, public and private entities	Continuous application process, currently accepting applications. $200-$300 Million Annually available The final 2007/2008 SRF Project Priority List is scheduled for adoption by the State Water Board consideration at the July 17, 2007 Board Meeting	TBD
Water Supply	California Infrastructure and Economic Development Bank (i-bank)	Infrastructure State Revolving Fund (ISRF) Program: Provides financing for construction and/or repair of publicly owned water supply and treatment systems including these components: drainage, supply, flood control, treatment and distribution	Eligible uses include: to acquire land, construct, and/or repair water collection and treatment systems, including equipment; $10 million maximum per project; annual jurisdiction funding caps; Interest rate is 67% of Thompson's Municipal Market Index for A rated security; up to 30 year terms; continuous filing	Applicant must be a local municipal entity; project must meet tax-exempt financing criteria	Continuously accepting applications.	Diane Cummings (916) 324-4805
FEDERAL						
Funding Category	**Program**	**Brief Description**	**Key Points**	**Eligibility**	**Submit Grant Application**	**Contact**
Water and Waste Disposal	United States Department of Agriculture (USDA) Rural Development	Water and Waste Disposal program that provides for additional security for commercial lenders that finance community water systems	Funds may be used for costs associated with planning, design, and construction of new or existing systems; eligible projects include storage, distribution, source development; no funding limits, but average project size is $3-5 million	banks and other commercial lenders are eligible applicants; cities towns public bodies and census designated places with populations less than 10,000	Continuous filing; need update for FY 2007-2008	Dave Hartwell USDA State Office (530) 792-5817

TABLE 8-4
POSSIBLE FUNDING OPPORTUNITIES

Funding Category	Program	Brief Description	Key Points	Eligibility	Submit Grant Application	Contact
Desalination	United States Bureau of Reclamation (USBR)	Desalination and Water Purification Research and Development Program: purpose of program is to address a broad range of desalting and water purification needs in order to increase the supply of usable water available to the US. With a focus on the desalination of water as one solution for increased water demands, this program supports attempts to develop cost effective methods of producing usable water from salty and brackish water. http://www.usbr.gov/pmts/water/research/DWPR/index.html	Matching funds are required. Applicants must generally provide a minimum 75% of project costs in non-Federal cash or in-kind resources. Approximately 25% of applications received are awarded funds in a typical year.	Individuals, Institutions of higher education, commercial or industrial organizations, private entities (including State and local governments), Indian Tribal governments, and the US-Mexico bi-national research foundations and inter-university research programs established by the two countries.	Update pending; check website	TBD
Environment	EPA	Source Reduction Assistance: The purpose of this program is to provide an overall benefit to the environment by preventing the generation of pollutants at the source. This program seeks projects that support source reduction, pollution prevention, and/or source conservation practices. Source reduction activities include: modifying equipment or technology; modifying processes or procedures; reformulating or redesigning products; substituting raw materials; and generating improvements in housekeeping, maintenance, training, or inventory control. Pollution prevention activities reduce or eliminate the creation of pollutants by: using raw materials, energy, water or other resources more efficiently; protecting natural resources by conservation; and resource conservation practice activities; prevent pollution, promote the re-use of materials and/or conserve energy and materials.		Units of state, local, and tribal government; independent school district governments; private or public colleges and universities; nonprofits; and community-based grassroots organizations.	Proposal submission deadline June 18, 2007 http://www.epa.gov/p2/pubs/grants/srap07.htm	TBD
Restoration	US Fish and Wildlife Service (USFWS)	Wildlife Restoration Grants (SWG): Development and implementation of programs that benefit wildlife and their habitat, including species that are not hunted or fished. Both planning and implementation of programs are permitted.	25% Match required.	All state fish and wildlife agencies may submit grant proposals.	Continuous filing http://www.fws.gov/grants/state.html	TBD
Restoration	NFWF	Five-Star Restoration Program: Purpose of the program is to support community-based wetland, riparian, and coastal habitat restoration projects. Applicants must demonstrate that measurable ecological, educational, social, and/or economic benefits are expected to result from the completion of the project. Preferences will be given to the projects that: 1) Are part of a larger watershed or community stewardship effort; 2) Include specific provisions for long term management and protection; and 3) Demonstrate the value of innovative, collaborative approaches to restoring the nation's waters.	There are no matching requirements; however, applicants are strongly encouraged to show funding support from other sources. Matching funds include cash and/or in-kind goods and services and can be from both federal and non-federal sources. Five Star Restoration Grant applications can be downloaded from the NFWF website at http://www.nfwf.org/programs/5star-rfp.cfm	State and local agencies, private landowners, and other interested parties.	Proposals for Five Star Restoration Grants are due in early March each year. Grant applicants are notified in late May early June each year.	TBD
Restoration	US Fish and Wildlife Service (USFWS)	Partners for Fish and Wildlife Program: Restoration projects may include, but are not limited to, the following: 1) Restoring wetland hydrology by plugging drainage ditches, breaking the drainage systems, installing water control structures, dike construction, and re-establishing old connections with waterways; 2) planting native trees and shrubs in formally forested wetlands and other habitats; 3) planting native grasslands and other vegetation; 4) installing fencing and off-stream livestock watering facilities to allow for restoration of stream and riparian areas; 5) removal of exotic plants and animals that compete with native fish and wildlife and alter their natural habitats; 6) prescribed burning as a method of removing exotic species and to restore natural disturbance regimes necessary for some species survival; 7) reconstruction of in-stream aquatic habitat through bio-engineering techniques, and 8) re-establishing fish passage for migratory fish and removing barriers to movement.	There is no formal application process. Applicants will work with Fish and Wildlife Service biologists for their region to develop a plan for their proposed project. 50% match of the project's cost. Matching fund can be in cash or in-kind resources from non-Service sources. The entire program cannot pay for more than 50% of the combined costs of all projects.	Tribes, schools, local governments, businesses, and organizations. Any privately-owned land is potentially eligible for restoration under this program.	http://www.fws.gov/grants/state.html	TBD

TABLE 8-4
POSSIBLE FUNDING OPPORTUNITIES

Funding Category	Program	Brief Description	Key Points	Eligibility	Submit Grant Application	Contact
Water Conservation	USBR	Challenge Grant Program: Through the Challenge Grant Program, Reclamation provides 50/50 cost share funding to irrigation and water districts and states for projects focused on water conservation, efficiency, and water marketing. Projects are selected through a competitive process, based on their ability to meet the goals identified in Water 2025: Preventing Crises and Conflict in the West. The focus is on projects that can be completed within 24 months that will help to prevent crises over water.	Funding for Water 2025 Challenge Grant projects is awarded on a competitive basis through a merit-based review process performed by a Technical Proposal Evaluation Committee (TPEC), comprised of experts in various disciplines from across Reclamation. Priority is given to projects that will be completed within 24 months from the date of the award, and that will decrease the likelihood of conflict over water. Projects are prioritized and selected based on the application by the TPEC on the following criteria: 1) The extent to which the project involves water marketing; 2) The amount of water conserved as a percent of average annual supply; 3) Likelihood that the estimated project benefits will be attained; 4) Demonstration of the applicant's financial ability to complete the project; 5) the costs are reasonable for the work proposed; 6) Evidence of collaboration and stakeholder involvement in the project; 7) the proposed work is located in a "hot spot" (hot spots are geographic problem areas identified on Potential Water Supply Crises by 2025 illustration	Grants valued at only $1.3 M were awarded in 2006 versus awards valued at $9.9 M the previous year. Budget amount pending.	The FY 2008 budget request for *Water 2025* is $11 million http://www.doi.gov/water2025/grant.html	TBD
Watershed	EPA	EPA Wetlands Program Development Grants: Projects that promote the coordination and acceleration of research, investigations, experiments, training, demonstrations, surveys, and studies relating to the causes, effects, extent, prevention, reduction, and elimination of water pollution http://www.epa.gov/owow/wetlands/grantguidelines/	Three priority areas identified by the EPA: Developing a comprehensive monitoring and assessment program; improving the effectiveness of compensatory mitigation; and refining the protection of vulnerable wetlands and aquatic resources. Typically $25,000 to $250,000, but no set amount. 25% match required. Not currently soliciting RFPs	States, tribes, local governments, interstate associations, intertribal consortia, and national non-profit, non-governmental organizations are eligible to apply.	2008 schedule TBD http://www.epa.gov/owow/wetlands/grantguidelines/	TBD
Watershed Conservation	National Park Service	Rivers, Trails, and Conservation Assistance Program: Purpose is to conserve rivers, preserve open space, and develop trails and greenways. The program provides staff assistance to help build partnerships to achieve community set goals, assess resources, develop concept plans, engage in public participation, and identify potential sources of funding. This program provides technical assistance only in the planning phases of conservation activities. No funding will be awarded to successful applicants. The following is a partial list of river project areas accepted by the agency: Community waterfronts; Economics; Floodplain planning; Hydro (re) licensing; Watersheds; Water trails; and wild and scenic water areas.	Projects will be evaluated on how they meet the following criteria: 1) A clear anticipated outcome leading to on the ground success; 2) commitment, cooperation, and cost-sharing by interested public agencies and nonprofit organizations; 3) Opportunity for significant public involvement; 4) Protection of significant natural and/or cultural resources and enhancement of outdoor recreational opportunities; and 5) Consistency with the National Park Service mission and RTCA goals.	Nonprofits, community groups, tribes, or tribal governments; and state or local government agencies.	Applications are due August 1st for assistance during the next fiscal year. http://www.nps.gov/rtca/	TBD

TABLE 8-4
POSSIBLE FUNDING OPPORTUNITIES

Funding Category	Program	Brief Description	Key Points	Eligibility	Submit Grant Application	Contact
Wetlands	Natural Resources Conservation Service	Watershed Protection and Flood Prevention: Purpose of the program is to support activities that promote soil conservation and the preservation of the watersheds of rivers and streams throughout the US. This program seeks to preserve and improve land and water resources by preventing erosion, floodwater, and sediment damages. Program supports work of improvement associated with: 1) Flood prevention including structural and land treatment measures, 2) conservation, development, utilization, and disposal of water, or 3) conservation and proper utilization of land. Successful applicants under this program receive support for watershed surveys and planning, as well as watershed protection and flood prevention operations. Funding for watershed surveys and planning is intended to assist in the development of watershed plans to identify solutions that use conservation practices, including nonstructural measures, to solve problems.	Matching funds are not required: applicants must generally provide matching ranging from 0%-50% in cash or in-kind resources depending on such factors as project type and the kinds of structural measures a project proposes.	States, local governments, and other political subdivisions; soil or water conservation districts; flood prevention or control districts and tribes. Potential applicants must be able to obtain all appropriate land and water rights and permits to successfully implement proposed projects.	Update pending http://www.nrcs.usda.gov/programs/watershed/index.html	TBD
Wetlands	US FWS	North American Wetlands Conservation Act (NACWA): projects must provide long-term protection of wetlands and wetlands dependent fish and wildlife.	Partners must minimally match the grant request at a 1 to 1 ratio.	Organizations and individuals who have developed partnerships to carry out wetlands conservation projects in the US, Canada, and Mexico.	Continuous filing http://www.fws.gov/grants/state.html	TBD
Wildlife Conservation	NFWF	The National Fish and Wildlife Foundation operates a conservation grants program that awards matching grants, on a competitive basis, to eligible grant recipients, including federal, tribal, state, and local governments, educational institutions, and non-profit conservation organizations. Project proposals are received on a year-round revolving basis with two decision cycles per year. Grants typically range from $25,000-$250,000, based upon need. http://nfwf.org/guidelines.cfm	Matching grants are awarded to projects that: 1) Address priority actions promoting fish and wildlife conservation and the habitats on which they depend; 2) Work proactively to involve other conservation and community interests; 3) Leverage available funding; and 4) Evaluate project outcomes.	The Foundation is mandated by Congress to ensure that each federal dollar awarded is leveraged with a non-federal dollar or equivalent goods and services. The foundation refers to these funds as matching funds. As a policy, the Foundation seeks to achieve at least a 2:1 ratio return on its project portfolio - $2 raised in matching funds to every federal dollar awarded.	Project Pre-Proposal Received by April 1, and Sept. 1; Project Full Proposal Due June 1 and Nov 1 http://www.nfwf.org/AM/Template.cfm?Section=Browse_All_Programs	TBD

TABLE 8-5
IRWM PLAN PROJECTS VS. FUNDING OPPORTUNITIES

		State Programs																							Federal Programs									
Project Sponsor	**Project Name**	**Prop 50 -** (Ch 3) Water Security Program	**Prop 50 -** (Ch 4) Drinking Water Source Protection	**Prop 50 -** (Ch 6) Safe Drinking Water Grants	**Prop 50 -** (Ch 7) DWR WUE Grant Program	**Prop 50 -** (Ch 8) IRWMP, Round 2	**Prop 84 -** (Ch 2) Safe Drinking Water, Water Quality, and Other Projects	**Prop 84 -** (Ch 3) Flood Control Projects	**Prop 84 -** (Ch 4) Statewide Water Planning	**Prop 84 -** (Ch 5) Protection of Rivers, Lakes, Streams	**Prop 84 -** (Ch 6) Forest and Wildlife Conservation	**Prop 84 -** (Ch 8) Parks and Nature Education Facilities	**Prop 84 -** (Ch 9) Sustainable Communities & Climate Change	**Prop 82 -** Water Supply Development Projects	**Prop 1E -** Flood Management	**Prop 13 -** Ag Water Conservation	**Other -** DHS - Drinking Water SRF grant/loans for public water systems	**Other -** Community Development Block Grant Program	**Other -** Dept.of Parks and Rec. Land and Water Conservation Fund Program	**Other -** Environmental Enhancement and Mitigation Program (Wetlands, habitat)	**Other -** Dept. of Parks and Rec. Habitat Conservation Fund	**Other -** Wildlife Conservation Board: Land Acquisition	**Other -** Wildlife Conservation Board: Restoration	**Other -** EPA-SWRCB Clean Water State Revolving Fund (SRF) Program	**Other -** CA Infrastructure & Economic Development Bank Infrastructure SRF Program	USDA Rural Development: Water and Waste Disposal Program	USBR Desalination & Water Purification Research Program	EPA Source Reduction Assistance Program	USFWS Wildlife Restoration Grants	NFWF Programs	USBR Challenge Grant Program	EPA Wetlands Program Development Grants	NPS Rivers, Trails, and Conservation Assistance Program	NRCS Watershed Protection and Flood Prevention
Antelope Valley Conservancy	Antelope-Fremont Watershed Assessment and Plan				X					X	X		X						X	X	X	X		X					X	X	
AVEK	Water Supply Stabilization Project – Westside Project					X								X																		
AVEK	Water Supply Stabilization Project – Eastside Project													X																		
Antelope Valley Water Conservation Coalition	Comprehensive Water Conservation/Efficient Water Use Program				X	X			X				X			X				X										X		
Cities of Lancaster, Palmdale, LAFCD, Kern County	Develop Coordinated Antelope Valley Flood Control Plan							X	X						X				X													X
Antelope Valley Conservancy, Cities of Lancaster, Palmdale, LA County	Development of a Coordinated Land Use Management Plan								X		X								X	X		X								X		X
City of Lancaster	Groundwater Recharge Using Recycled Water (GWR-RW) Pilot Project					X								X																		
City of Lancaster	Tertiary Treated Water Conveyance & Incidental Groundwater Recharge of Amargosa Creek Avenue M to Avenue H													X																		
City of Lancaster	Amargosa Creek Pathways Project				X	X		X					X		X										X				X	X		X	
City of Lancaster	Ecosystem & Riparian Habitat Restoration of Amargosa Creek: Avenue J north to Avenue H				X	X				X	X		X							X	X	X		X				X	X		X	
City of Palmdale	Barrel Springs Detention Basin and Wetlands				X			X		X					X								X		X							X
City of Palmdale	Anaverde Detention Basin, Dam & Spillway at Pelona Vista Park							X							X										X							X
City of Palmdale	Hunt Canyon Groundwater Recharge and Flood Control Basin							X							X										X							X
City of Palmdale	Avenue Q and 20th Street East Basin (Q-West Basin)							X							X										X							X

TABLE 8-5
IRWM PLAN PROJECTS VS. FUNDING OPPORTUNITIES

		State Programs																							Federal Programs									
Project Sponsor	**Project Name**	**Prop 50 -** (Ch 3) Water Security Program	**Prop 50 -** (Ch 4) Drinking Water Source Protection	**Prop 50 -** (Ch 6) Safe Drinking Water Grants	**Prop 50 -** (Ch 7) DWR WUE Grant Program	**Prop 50 -** (Ch 8) IRWMP, Round 2	**Prop 84 -** (Ch 2) Safe Drinking Water, Water Quality, and Other Projects	**Prop 84 -** (Ch 3) Flood Control Projects	**Prop 84 -** (Ch 4) Statewide Water Planning	**Prop 84 -** (Ch 5) Protection of Rivers, Lakes, Streams	**Prop 84 -** (Ch 6) Forest and Wildlife Conservation	**Prop 84 -** (Ch 8) Parks and Nature Education Facilities	**Prop 84 -** (Ch 9) Sustainable Communities & Climate Change	**Prop 82 -** Water Supply Development Projects	**Prop 1E -** Flood Management	**Prop 13 -** Ag Water Conservation	**Other -** DHS - Drinking Water SRF grant/loans for public water systems	**Other -** Community Development Block Grant Program	**Other -** Dept.of Parks and Rec. Land and Water Conservation Fund Program	**Other -** Environmental Enhancement and Mitigation Program (Wetlands, habitat)	**Other -** Dept. of Parks and Rec. Habitat Conservation Fund	**Other -** Wildlife Conservation Board: Land Acquisition	**Other -** Wildlife Conservation Board: Restoration	**Other -** EPA-SWRCB Clean Water State Revolving Fund (SRF) Program	**Other -** CA Infrastructure & Economic Development Bank Infrastructure SRF Program	USDA Rural Development: Water and Waste Disposal Program	USBR Desalination & Water Purification Research Program	EPA Source Reduction Assistance Program	USFWS Wildlife Restoration Grants	NFWF Programs	USBR Challenge Grant Program	EPA Wetlands Program Development Grants	NPS Rivers, Trails, and Conservation Assistance Program	NRCS Watershed Protection and Flood Prevention
City of Palmdale	45th Street East Flood Control Basin (Q-East Basin)							X							X									X								X
City of Palmdale	42nd Street East, Sewer Installation		X				X																	X	X								X
City of Palmdale	Upper Amargosa Creek Recharge, Flood Control, & Riparian Habitat Restoration Project					X		X							X					X					X								X
City of Palmdale	Palmdale Power Project					X																											
LACSD	Lancaster WRP Stage V					X																		X	X								
LACSD	Lancaster WRP Stage VI																							X	X								
LACSD	Lancaster WRP Proposed Effluent Management Sites																							X	X								
LACSD	Palmdale WRP Existing Effluent Management Sites					X																		X	X								
LACSD	Palmdale WRP Stage V					X																		X	X								
LACSD	Palmdale WRP Stage VI																							X	X								
LACSD	Palmdale WRP Proposed Effluent Management Sites																							X	X								
LACWWD40	Aquifer Storage and Recovery Project: Injection Well Development					X								X											X								
LACWWD40	Aquifer Storage and Recovery Project: Additional Storage Capacity													X											X								
LACWWD40	Groundwater Banking													X												X							
LACWWD40	Implement Evapotranspiration (ET) Controller Program				X	X							X			X														X			

TABLE 8-5
IRWM PLAN PROJECTS VS. FUNDING OPPORTUNITIES

		State Programs																								Federal Programs									
Project Sponsor	**Project Name**	**Prop 50 -** (Ch 3) Water Security Program	**Prop 50 -** (Ch 4) Drinking Water Source Protection	**Prop 50 -** (Ch 6) Safe Drinking Water Grants	**Prop 50 -** (Ch 7) DWR WUE Grant Program	**Prop 50 -** (Ch 8) IRWMP, Round 2	**Prop 84 -** (Ch 2) Safe Drinking Water, Water Quality, and Other Projects	**Prop 84 -** (Ch 3) Flood Control Projects	**Prop 84 -** (Ch 4) Statewide Water Planning	**Prop 84 -** (Ch 5) Protection of Rivers, Lakes, Streams	**Prop 84 -** (Ch 6) Forest and Wildlife Conservation	**Prop 84 -** (Ch 8) Parks and Nature Education Facilities	**Prop 84 -** (Ch 9) Sustainable Communities & Climate Change	**Prop 82 -** Water Supply Development Projects	**Prop 1E -** Flood Management	**Prop 13 -** Ag Water Conservation	**Other -** DHS - Drinking Water SRF grant/loans for public water systems	**Other -** Community Development Block Grant Program	**Other -** Dept.of Parks and Rec. Land and Water Conservation Fund Program	**Other -** Environmental Enhancement and Mitigation Program (Wetlands, habitat)	**Other -** Dept. of Parks and Rec. Habitat Conservation Fund	**Other -** Wildlife Conservation Board: Land Acquisition	**Other -** Wildlife Conservation Board: Restoration	**Other -** EPA-SWRCB Clean Water State Revolving Fund (SRF) Program	**Other -** CA Infrastructure & Economic Development Bank Infrastructure SRF Program	USDA Rural Development: Water and Waste Disposal Program	USBR Desalination & Water Purification Research Program	EPA Source Reduction Assistance Program	USFWS Wildlife Restoration Grants	NFWF Programs	USBR Challenge Grant Program	EPA Wetlands Program Development Grants	NPS Rivers, Trails, and Conservation Assistance Program	NRCS Watershed Protection and Flood Prevention
LACWWD40	Water Waste Ordinance				X	X							X																					
LACWWD40	Water Conservation School Education Program				X	X						X																						
LACWWD40	Ultra Low Flush Toilet (ULFT) Change Out Program				X	X							X																					
LACWWD40	Avenue M and 60th Street West Tanks													X														X						
LACWWD40	Avenue K Transmission Main, Phases I-IV					X								X														X						
LACWWD40	Partial Well Abandonement of Groundwater Wells for Arsenic Mitigation	X	X	X		X	X										X																	
LACWWD40	North Los Angeles/Kern County Regional Recycled Water System (All Phases)					X								X																				
LADPW	Quartz Hill Storm Drain							X							X												X	X						
Leona Valley Town Council	Precision Irrigation Control System				X	X							X			X																		
Leona Valley Town Council	Stormwater Harvesting				X	X		X					X		X	X																		
No Current Sponsor/J. Goit	Amargosa Water Banking & Stormwater Retention Project							X																										
PWD	Littlerock Dam Sediment Removal					X																												
PWD	Water Conservation Demonstration Garden				X	X						X	X			X																		
PWD	Groundwater Recharge - Recycled Water Project													X																				
PWD	New PWD Treatment Plant						X										X											X						

TABLE 8-5
IRWM PLAN PROJECTS VS. FUNDING OPPORTUNITIES

		State Programs																							Federal Programs									
Project Sponsor	**Project Name**	**Prop 50 -** (Ch 3) Water Security Program	**Prop 50 -** (Ch 4) Drinking Water Source Protection	**Prop 50 -** (Ch 6) Safe Drinking Water Grants	**Prop 50 -** (Ch 7) DWR WUE Grant Program	**Prop 50 -** (Ch 8) IRWMP, Round 2	**Prop 84 -** (Ch 2) Safe Drinking Water, Water Quality, and Other Projects	**Prop 84 -** (Ch 3) Flood Control Projects	**Prop 84 -** (Ch 4) Statewide Water Planning	**Prop 84 -** (Ch 5) Protection of Rivers, Lakes, Streams	**Prop 84 -** (Ch 6) Forest and Wildlife Conservation	**Prop 84 -** (Ch 8) Parks and Nature Education Facilities	**Prop 84 -** (Ch 9) Sustainable Communities & Climate Change	**Prop 82 -** Water Supply Development Projects	**Prop 1E -** Flood Management	**Prop 13 -** Ag Water Conservation	**Other -** DHS - Drinking Water SRF grant/loans for public water systems	**Other -** Community Development Block Grant Program	**Other -** Dept.of Parks and Rec. Land and Water Conservation Fund Program	**Other -** Environmental Enhancement and Mitigation Program (Wetlands, habitat)	**Other -** Dept. of Parks and Rec. Habitat Conservation Fund	**Other -** Wildlife Conservation Board: Land Acquisition	**Other -** Wildlife Conservation Board: Restoration	**Other -** EPA-SWRCB Clean Water State Revolving Fund (SRF) Program	**Other -** CA Infrastructure & Economic Development Bank Infrastructure SRF Program	USDA Rural Development: Water and Waste Disposal Program	USBR Desalination & Water Purification Research Program	EPA Source Reduction Assistance Program	USFWS Wildlife Restoration Grants	NFWF Programs	USBR Challenge Grant Program	EPA Wetlands Program Development Grants	NPS Rivers, Trails, and Conservation Assistance Program	NRCS Watershed Protection and Flood Prevention
PWD	ET-Based Controller Program				X	X							X			X																	
QHWD	Partial Well Abandonement of Groundwater Wells for Arsenic Mitigation	X	X	X		X	X										X							X									
RCSD	KC & LAC Interconnection Pipeline						X							X										X									
RCSD	Place Valves and Turnouts on Reclamaimed Water Pipeline													X										X									
RCSD	Purchasing Spreading Basin Land					X																		X									
RCSD	Deep wells to Recapture Banked Water					X								X										X									
RCSD	Gaskell Road Pipeline					X								X										X									
RCSD	Tropico Park Pipeline Project													X										X									
RCSD	RCSD's Wastewater Pipeline					X								X										X									
Western Development & Storage, LLC	Antelope Valley Water Bank					X								X																			

Notes:
DHS = Department of Health Services
DWR = Department of Water Resources
Ch = Chapter
EPA = Environmental Protection Agency
IRWMP = Integrated Regional Water Resources Management Plan
NFWF = National Fish and Wildlife Foundation
NPS = National Park Service
NRCS = National Resources Conservation Service
Prop = Proposition
SRF = State Revolving Fund
USBR = Unites States Bureau of Reclamation
USFWS = United States Fish and Wildlife Service

8.3.4.1 Financial Packaging Strategy

As described in Section 8.3.4, there are many funding programs outside of the Antelope Valley Region that could provide financial opportunities for Stakeholder identified projects. As these funding opportunities become available, the list of prioritized projects in the AV IRWM Plan would be integrated to fit the future funding criteria. In this manner, a process would be established for integrating packages of projects for future funding programs. Included in the discussion was the list of high priority projects, the total project cost, the local cost share, the quantified project benefits, and the number of IRWM Plan objectives the projects contributed to. For example, the current opportunity is Proposition 50, Chapter 8, Round 2 Grant funding. Utilizing this process of strategic packaging, the Stakeholders collectively discussed which of the priority projects could be benefited the most by being funded through Proposition 50 Round 2 funds, and those that could be packaged for future funding opportunities such as for Proposition 84 or Proposition 1E.

The initial resulting priority package for Proposition 50 Round 2 as determined by the Stakeholders is shown below in Table 8-6. Local match percentages are preliminary estimates and will not be finalized until the grant application has been submitted. For project details on project cost, and local match sources, refer to the high priority project templates provided in Appendix F.

TABLE 8-6
PACKAGE SELECTED FOR PROPOSITION 50, ROUND 2 GRANT APPLICATION

	Project Name	Total Cost (Millions $s)[a]	Prop 50 Funding[a]	Local Match[a]	% Match[a]	WS benefits (AFY)
RW-1	Antelope Valley Recycled Water Project Phase 2	$10.90	$3.00	$7.90	72%	8,400
WS-1	Upper Amargosa Creek Recharge, Flood Control & Riparian Habitat Restoration Project	$13.50	$3.00	$10.50	78%	10,000
WC-1	Comprehensive Water Conservation/Water Use Efficiency Program	$0.90	$0.63	$0.27	30%	3,500
WI-2	Littlerock Dam Sediment Removal	$5.50	$1.10	$4.4	80%	1,000
WQ-1	Lancaster Stage V	$74.80	$7.50	$67.30	90%	NA
WQ-3	Palmdale Stage V	$94.60	$7.50	$87.10	92%	NA
RW-2	Groundwater Recharge Using Recycled Water Pilot Project	$6.00	$2.00	$4.00	67%	2,500
	Grant Administration Costs		$0.5			
	Total Package	**$206.20**	**$25.23[b]**	**$181.47**	**88%**	**25,400[c]**

Notes:
(a) Total project cost, funding request amounts, and local match estimates are preliminary amounts that the Stakeholders have identified in order to come up with a suite of packages best suited for the current funding opportunity at this time. These estimates will continue to be refined until the Proposition 50, Step 2 application Proposal Solicitation Package is prepared.
(b) The maximum amount that can be requested is $25 million.
(c) This total package benefit has been revised from the original estimate of 72,200 AFY in the Draft AV IRWM Plan submitted for Public Review and referenced in some of the letters of support contained in Appendix H.

One benefit of using this approach is to more accurately compare this IRWM Plan's performance with regards to meeting its planning targets as shown in Table 8-7. When new projects are implemented their benefits can be added to the table and the percentages recalculated. Measuring IRWM Plan performance is discussed further in Section 8.5.3 below.

TABLE 8-7
COMPARISON OF CUMULATIVE PROJECT BENEFITS
TO SELECTED PLANNING TARGETS

WMSA Benefit Type	Planning Target	Quantified Benefit	% of Target
Water Supply (AFY)			
Reduce mismatch of supply (X) and demand (Y) in average years	68,400 to 189,100 AFY	25,400 AFY	13%
Supplement average supply to meet dry year demand	50,700 to 60,300 AFY	0 AFY	0%
Supplement average supply to meet multi-dry demand	0 to 62,400 AFY	0 AFY	0%
Water Quality			
Increase in recycled water use by 2015 (33 %)	13,200 AFY	10,900 AFY	83%
Increase in recycled water use by 2025 (66 %)	36,300 AFY	10,900 AFY	30%
Increase in recycled water use by 2035 (100 %)	65,000 AFY	10,900 AFY	17%
Environmental Management			
Open Space & Habitat (acres) by 2015	2,000	115	6%
Land Use Management			
Farmland in rotation (acres)	100,000	TBD	TBD
Public parks and recreational amenities (acres)	5,000	TBD	TBD

8.4 Data Management

This section discusses the importance of collecting, managing, disseminating and utilizing data to create a sustainable integrated plan. A comprehensive data management approach will help to quickly identify data gaps, detect and avoid duplication, support statewide data needs, and integrate with other regional and statewide programs.

A wide variety of information is necessary to effectively manage water. The kinds of data needed include information regarding water quality, quantity, population demographics, climate and rainfall patterns, treatment plant effluent, habitat locations and needs, water costs, and more. Data is vitally important to agencies trying to maximize operating efficiency and design projects with limited budgets. The types of data available, current relevance and trends, and knowledgeable people that can interpret the data are all important. Equally important is the opportunity for Federal and State agencies to view local data for their own monitoring needs and to better understand local conditions.

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. A comprehensive data management approach will help to quickly identify data gaps, detect and avoid duplicate data collection efforts, support statewide data needs, and integrate with other regional and statewide programs.

Information needs to be available to regional leaders, stakeholders, and the public to facilitate effective planning and decision-making. A comprehensive data management approach will help to quickly identify data gaps, detect and avoid duplicate data collection efforts, support statewide data needs, and integrate with other regional and statewide programs.

As part of this IRWM Plan, the data management strategies described below will be applied to coordinate data collection between implementation projects, leverage existing data available from ongoing statewide and regional programs, and provide timely data to stakeholders and the public, and consolidate information to be used in other state programs. These strategies are explained in more detail below.

8.4.1 Management and Data Reporting

Dissemination of data to stakeholders, agencies, and the general public is integrated into the AV IRWM Plan process to ensure overall success. A requirement of the Proposition 50 Guidelines is the routine reporting on project performance. The routine collection of this data naturally lends itself to the routine collection and reporting that is required as part of the AV IRWM Plan process. The stakeholders have suggested, as one potential option which would have to be agreed to by the RWMG, that the AVSWCA, as the potential grant contracting entity, compile the reporting of this IRWM Plan and work individually with the project proponents to receive updates on individual project progress. It was suggested that a standardized reporting format be created which the AVSWCA could use to compile this data, which could then be uploaded to the project website described in more detail below. Data collected or produced as part of the AV IRWM Plan will then be presented and disseminated during quarterly meetings as discussed in Section 8.6.1.

A public website has been created to store data and information about the AV IRWM Plan process so that the public can find information about public meeting dates, agendas, and notes. The website provides information on the AV IRWM Plan process and posts annual reports and relevant documents that can downloaded. Data collected during the AV IRWM Plan process will be available on the website as well. The website will also provide links to other existing monitoring programs to promote data between these programs and the AV IRWM Plan. 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.

The AV IRWM Plan website, www.avwaterplan.org, provides a mechanism for stakeholders to upload project information regarding water supply, water quality, and other benefits of the project, which will be collected in a database to manage, store, and disseminate information to the public. A data collection template will be available on the website in the future so that data collected during the AV IRWM Plan can be stored and managed in a consistent format. This template will be compatible with those used in the statewide Groundwater Ambient Monitoring and Assessment (GAMA) and the Surface Water Ambient Monitoring Program (SWAMP) programs to assist in the sharing and integration of data with these programs.

8.4.2 Statewide Data Needs

This subsection identifies statewide data needs including information required to evaluate the effectiveness of projects that produce non-traditional data.

Data sets and reports will be reviewed for their applicability to the Antelope Valley Region and statewide data needs. This knowledge will provide information necessary to identify data gaps, and data gaps represent information crucial to a greater understanding of the Antelope Valley Region and help develop context for future projects (as discussed in Section 8.5.2 below). The IRWM Plan can identify multi-objective projects that integrate appropriate management strategies to meet the statewide water supply, water quality, and beneficial use needs.

The AV IRWM Plan process will also collect non-traditional data (i.e., summarizing the effectiveness of water conservation programs throughout the Antelope Valley Region) in a comprehensive way that can be a powerful contribution to statewide water management efforts. Comprehensive data collection and measurement of these efforts will provide leadership and guidance to growing metropolitan areas throughout California.

8.4.3 Existing Monitoring Efforts

This subsection will provide the existing surface and groundwater level and quality monitoring efforts in the Antelope Valley Region and will identify opportunities for additional monitoring and/or for partnership.

Overall the AV IRWM process has identified a need for better coordination of groundwater level and quality monitoring efforts in the Region. As discussed in more detail below, there is some coordination of groundwater monitoring efforts in the Region, and there is local historical data (accumulated and consolidated by C. Seal through the assistance of the Antelope Valley College) that has been collected which can be made available for coordination with these efforts. However there are still portions of the basin which are not well mapped, or where there are data gaps. One of the planning targets for the Plan calls for additional mapping and monitoring of the groundwater basin, which will help to address these identified problems, as well as the plan performance measures once they are better refined.

8.4.3.1 Surface Water

Surface water for the Region comes from the state aqueduct and Littlerock Reservoir. According to PWD, of the two surface water sources, normally the State water is more prevalent (dependant on the amount of snow pack in the northern sierras and rainfall in northern California in any given year), whereas, water from Littlerock Reservoir is less prevalent (dependent on the amount of snow pack and rainfall in the local mountains in any given year). Both of these waters are transferred either from the aqueduct or Littlerock dam into Palmdale Lake to provide local storage. This surface water is then filtered and disinfected to make it safe for potable uses. See Section 8.4.3.2 below for the discussion of drinking water quality monitoring.

8.4.3.2 Drinking Water

Drinking water quality is monitored through the following means:

- Safe Drinking Water Act (SDWA) compliance monitoring and reporting: All public water systems are required to produce water that complies with the SDWA. To this end, specific monitoring information is required and conducted routinely. Results of the monitoring are reported to the California DPH. 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 EPA 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. The information from the monitoring program for the Antelope Valley Region will be compiled and submitted to the State as well as be available on the website.

8.4.3.3 Groundwater

AVEK and the USGS have coordinated groundwater monitoring efforts in the Antelope Valley Region for several years. Groundwater monitoring is also required in areas on and surrounding the Edwards Air Force Base (AFB) as well as regional landfills.

8.4.4 Integration of Data into Existing State Programs

Data collected as part of this IRWM Plan can be used to support existing state programs such as the SWAMP, GAMA, and California Environmental Resources Evaluation System (CERES).

- Surface Water Ambient Monitoring Program (SWAMP): All the surface water data collected as part of the IRWM Plan will be consistent with SWAMP database comparability guidelines. Data will be collected in a database that is compatible with the SWAMP database and will be exported annually to the state database using the required data submission formats. Where appropriate IRWM Plan sampling activities will be performed according to SWAMP quality assurance requirements.

- Groundwater Ambient Monitoring and Assessment (GAMA): Groundwater data collection efforts as part of the IRWM Plan will be coordinated with the needs of the GAMA program so that the data can be shared and integrated into the GAMA database. 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 submitted, integrated and shared.

- California Environmental Resources Evaluation System (CERES): All data and reports will be sent to CERES so that information will be available and useful to a wide variety of users.

8.5 Technical Analysis and Plan Performance

8.5.1 Technical Analysis

This subsection describes how the projects identified for implementation in the AV IRWM Plan are supported through technical studies, including the commission and recommendations from a Technical Advisory Committee (TAC) (discussed in Section 3 and in more detail in Section 8.5.1.1 below), to help document the Antelope Valley Region's water supply picture and the ability of the projects to meet their intended objectives.

The projects identified for implementation in the AV IRWM Plan are supported through technical studies and reports that document their ability to meet the intended objectives. The technical support for these projects and related project concepts on a programmatic level is summarized by IRWM Plan objective below.

Provide reliable water supply to meet the Antelope Valley Region's expected demand between now and 2035. Projects selected to meet this objective could include water conservation, desalination, recycled water projects, and groundwater recharge projects. Water conservation projects typically involve educational programs, ultra low flush toilet change out programs and the use of proven technology, such as irrigation controllers. The technical feasibility of desalting projects has been well established and efficiency is increasing due to improvements in membrane technology. However, economic feasibility of desalting projects would need further consideration. Recycled water projects utilize treatment processes for producing water that meets Title 22 standards. Groundwater recharge projects would require technical feasibility and hydrogeological studies.

Establish a contingency plan to meet water supply needs of the Antelope Valley Region during a plausible disruption of SWP water deliveries. Projects selected to meet this objective are similar to the projects of the previous objective and include water conservation, desalination, recycled water projects, and groundwater recharge projects. The same technical support described above would apply.

Stabilize groundwater levels at current conditions. The objective will be implemented though management of groundwater, groundwater banking and aquifer storage and recovery projects utilizing State Water Project (SWP) and/or recycled water, and likely under the direction of the adjudication. Conceptual level studies have been conducted to determine the feasibility of using recycled water for groundwater recharge.

Provide drinking water that meets customer expectations. 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.

Protect aquifer from contamination. Groundwater protection involves pumping management and monitoring injection water quality. Groundwater models have been developed for the Antelope Valley Region and the USGS has conducted studies related to injection, storage and recovery in Lancaster. As stated above, conceptual level studies have been conducted to determine the feasibility of using recycled water for groundwater recharge.

Protect natural streams and recharge areas from contamination. Projects that will meet this objective include stream restoration and wetlands restoration, as well as projects that are developed from integrated land use management planning documents. Stream restoration projects are supported through a number of studies that document proven hydromodification techniques.

Maximize beneficial use of recycled water. This objective will be met through several recycled water projects including using reclaimed water for injection, storage, and recovery. Recycled water projects utilize treatment processes for producing water that meets Title 22 standards. Groundwater recharge projects would require technical feasibility and hydrogeological studies.

Reduce negative impacts of storm water, urban runoff, and nuisance water. 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.

Preserve open space and natural habitats that protect and enhance water resources and species in the Antelope Valley Region. The Antelope Valley Conservancy, local General Planning documents and local agencies have developed a number of documents that identify potential opportunities for preserving existing open space and creating additional open space and recreation. Projects identified under this objective include ecosystem and riparian habitat restoration.

Maintain agricultural land use within the Antelope Valley Region. Projects that will assist in the maintenance of agricultural land use within the Antelope Valley Region include the utilization of recycled water for irrigation purposes as well as the implementation of water conservation practices including the use of precision irrigation control systems.

Meet growing demand for recreational space. The Antelope Valley Conservancy, local General Planning documents and local 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 assists in determining planning criteria such as appropriate density as well as how to allow access while minimizing the negative impacts of human activity on the natural environment.

Improve integrated land use planning to support water management. The local General Planning documents have identified a number of water management resource strategies that integrate with land use planning efforts. Coordination of projects proposed in this IRWM Plan with those planning documents will help to achieve this objective. Further, the Antelope Valley Conservancy is actively working to enhance watershed based management planning with the Antelope Valley which integrates with the need to coordinate a regional land use management plan.

8.5.1.1 Technical Advisory Committee (TAC)

As discussed in Section 3, a TAC was formed to discuss the water budget elements for the Antelope Valley Region, including water supply and water demand issues. The TAC consisted of 13 representatives from 11 agencies including local land use owners, the County Farm Bureaus, and water/wastewater management agencies. These representatives were nominated by the stakeholder groups; nominations were open to all participants. The TAC summarized and reviewed approximately 12 documents regarding the water budget elements. In a day long workshop on March 28, 2007, the TAC discussed the key assumptions and data used in those documents to address each of the water budget elements and reached board agreement for how to proceed with Section 3 of this IRWM Plan. The TAC focused on sources of agricultural acreage data, crop water use requirements, estimates of natural recharge, and estimates of return flow for agricultural, urban, and wastewater users. The primary TAC recommendations included the following (refer to Section 3 for discussion of all assumptions):

Urban Water Demands:

- Remove assumption about baseline conservation; allows for use of conservation as a management action
- Evaluate household-based population projections and compare to per capita projections
- Assume groundwater extractions by smaller mutuals are 5 percent of municipal and industrial (M&I) pumping until additional data is received

Agricultural Water Demand:

- Compare sources of Agricultural acreage data from:
  - Agricultural Commissioner
  - Farm Advisor Inspection Reports
  - AVEK Satellite Imagery
- Present and use County Farm Advisor's Crop Water Requirements
- Assume Agricultural demand remain at 2005 levels for projections

Groundwater:

- Add discussion of change in groundwater levels
- Add groundwater contour maps

Natural Recharge:

- Assume recharge occurring in alluvial fans
- Assume deep percolation on valley floor is 0 AFY
- Discuss previous estimates of recharge
- Assume a **range** of natural recharge approximately 30,300 to 81,400 AFY for projections

Agricultural Return Flows:

- Assume irrigation efficiency of 75 percent, thus:
  - Return flow = 33 percent of required water
  - Return flow = 25 percent of applied water
- Remove 10-year time delay for agricultural return flows to reach groundwater table

Wastewater Return Flow:

- Assume return flow rate is 10 percent of applied water

Urban Return Flow:

- Assume irrigation efficiency is same as for agriculture (75 percent) thus:
  - Return flow = 25 percent of applied water
- Assume outdoor water use is 70 percent of total urban use
- Verify indoor/outdoor ratio

8.5.2 Data Gaps

This subsection discusses the data sets and reports used for preparation of this IRWM Plan and discussion of data gaps that were identified. Numerous data sets and reports were reviewed for their applicability to the Antelope Valley Region and statewide data needs. This knowledge provided the information necessary to identify the data gaps. Data gaps represent information crucial to a greater understanding of the Antelope Valley Region and help develop context for future projects and management actions.

Data gaps that have already been identified during the preparation of the AV IRWM Plan and discussed in Section 3, Issues and Needs, include the ability to quantify:

- Actual agricultural pumping
- Agricultural acreage by crop-type
- Outdoor verses Indoor water use
- Groundwater Return Flows
- Water Demand by Water Sector for the Antelope Valley Region
- Subsurface Flow
- Consumptive Use Losses in the Basin
- The amount of water available for recovery from surface water runoff, particularly from Amargosa Creek
- The amount of water available for recovery through stormwater capture
- Natural groundwater recharge
- Groundwater recharge loss due to septic removal
- Safe yield of the basin
- Historical and current groundwater pumping records

It is recommended that additional monitoring and studies be conducted to fill in these data gaps.

8.5.3 IRWM Plan Performance

8.5.3.1 Performance Measures

This subsection develops measures that will be used to evaluate strategy performance, monitoring systems that will be used to gather performance data, and mechanisms to adapt strategy implementation and operations based on performance data collected.

Generally, the success of the AV IRWM Plan will depend on how well the individual plan objectives are accomplished. Achievement of all of these objectives will, in large part, determine the success of local integrated regional water management planning processes. Additionally, the success may be attributed to the AV IRWM Plan when individual projects meet their goals and objectives and help to cumulatively and positively address individual plan objectives.

This IRWM Plan is a dynamic document, part of an ongoing local effort to achieve integration of local water management. The process, through stakeholder participation and plan revisions, will continue for many years and will be an effective mechanism for addressing the water management issues facing the Antelope Valley Region. As a consequence, on an ongoing basis, plan objectives, regional priorities, and statewide priorities will be reviewed for relevance and modified as needed to ensure the overall IRWM Plan reflects changing needs and continues to be effective. Additionally, the projects identified for future implementation will be reviewed and evaluated periodically to ensure that current plan objectives will be met and that the proposed projects offer the greatest benefit possible. Periodically, a new set of projects will be developed to address plan objectives and State and regional priorities.

Performance measures for each of the planning targets discussed in Section 4 are addressed below. These measures are based on the AV IRWM Plan objectives, and were developed to allow progress of the overall IRWM Plan to be measured. 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 AV IRWM Plan.

It is recognized that more detail is needed for a number of these performance measures in order for them to sufficiently be measurable and implementable. Therefore, the Stakeholder group has agreed to continue to refine these performance measures as the draft Plan is finalized and adopted. However, in the meantime, in order to develop measures that will realistically provide the Stakeholder group with a mechanism to measure its progress out until the year 2035, the group has decided to commission a 'Performance Advisory Committee' or PAC. The PAC will research, collaborate, and recommend a set of performance measures to the larger Stakeholder group for inclusion into the final Plan.

Reduce (68,400 to 189,100 AFY) mismatch of expected supply and demand in average years by providing new water supply and reducing demand, starting 2009.
Implementation of a project with a quantifiable benefit, either supply enhancement, or demand reduction with a known timeline for implementation or realization of the benefit will allow for measurement of this planning target. For example, on the demand management side, the performance of this planning target could be measured through the number of water conservation devices provided. Each agency participating in a water conservation program should maintain records of water conservation devices provided to customers, primarily ultra low

flush toilets (ULFT). The number of water conservation devices provided on an annual basis should be recorded and an equivalent volume of water conserved should be submitted for inclusion in a central data management program as described in Section 8.4. The volume of recycled water produced will be monitored by the treatment plants and records will be maintained by the governing agency. This target will also be met by additional potable water produced and stored. Annual total volumes of recycled water produced, potable water produced, and potable or recycled water stored will be recorded by the individual agencies managing the projects and included in a central data management program as described in Section 8.4.

Provide adequate reserves (50,700 to 60,500 AFY) to supplement average condition supply to meet demands during single-dry year conditions, starting 2009. Implementation of a project with a quantifiable benefit, either supply enhancement, or demand reduction with a known timeline for implementation or realization of the benefit will allow for measurement of this planning target. For example, on the demand management side, the performance of this planning target can be measured through the number of water conservation devices provided. Each agency participating in a water conservation program should maintain records of water conservation devices provided to customers, primarily ultra low flush toilets (ULFT). The number of water conservation devices provided on an annual basis should be recorded and a calculated equivalent volume of water conserved should be submitted for inclusion in a central data management program as described in Section 8.4. The volume of recycled water produced will be monitored by the treatment plants and records will be maintained by the governing agency. This target will also be met by additional potable water produced and stored. Annual total volumes of recycled water produced, potable water produced, and potable or recycled water stored will be recorded by the individual agencies managing the projects and included in a central data management program as described in Section 8.4.

Provide adequate reserves (0 to 62,400 AF/4-year period) to supplement average condition supply to meet demands during multi-dry year conditions, starting 2009. Implementation of a project with a quantifiable benefit, either supply enhancement, or demand reduction with a known timeline for implementation or realization of the benefit will allow for measurement of this planning target. For example, on the demand management side, the performance of this planning target can be measured through the number of water conservation devices provided. Each agency participating in a water conservation program should maintain records of water conservation devices provided to customers, primarily ultra low flush toilets (ULFT). The number of water conservation devices provided on an annual basis should be recorded and a calculated equivalent volume of water conserved should be submitted for inclusion in a central data management program as described in Section 8.4. The volume of recycled water produced will be monitored by the treatment plants and records will be maintained by the governing agency. This target will also be met by additional potable water produced and stored. Annual total volumes of recycled water produced, potable water produced, and potable or recycled water stored will be recorded by the individual agencies managing the projects and included in a central data management program as described in Section 8.4.

Demonstrate ability to meet regional water demands without receiving SWP water for 6 months over the summer, by June 2010. In the event of a temporary loss of SWP for 6 months over the summer, the Antelope Valley Region would be short approximately

37,150 AFY from the normal supply. Knowing that this is the volume of water required to meet regional water demands without 6 months of SWP, the volume of water conserved, produced, or stored can be measured and evaluated against this target volume. Each agency participating in a water conservation program should maintain records of water conservation devices provided to customers, primarily ultra low flush toilets (ULFT). The number of water conservation devices provided on an annual basis should be recorded and a calculated equivalent volume of water conserved should be submitted for inclusion in a central data management program as described in Section 8.4. The volume of recycled water produced will be monitored by the treatment plants and records will be maintained by the governing agency. This target will also be met by additional potable water produced and stored. Annual total volumes of recycled water produced, potable water produced, and potable or recycled water stored will be recorded by the individual agencies managing the projects and included in a central data management program as described in Section 8.4.

Manage groundwater levels throughout the basin such that a 10-year moving average of change in observed groundwater levels is greater than or equal to 0, starting January 2010. The performance of this planning target can be measured through monitoring groundwater levels and recording volumes of groundwater pumped and banked. Groundwater levels should be monitored, at a minimum, on a monthly basis to account for seasonal variations. In order to sufficiently measure the performance of this planning target, a number of details about measuring needs to be identified including, but not limited to: the number of groundwater monitoring wells, which wells to be monitored, which subbasins to be monitored, who will collect the data, and how it will be handled. The data acquired through these monitoring efforts will be included in a central data management program as described in Section 8.4.

Continue to meet Federal and State water quality standards as well as customer standards for taste and aesthetics throughout the planning period. Water quality data will be monitored per California Drinking Water Standards as established by the California Department of Public Heath (DPH). In order to sufficiently measure the performance of this planning target, a number of details about measuring need to be identified including, but not limited to: the water quality parameters to be monitored, the locations of the sampling sites, and the frequency of sampling. The data acquired through these monitoring efforts will be recorded by the individual agencies responsible for providing drinking water and included in a central data management program as described in Section 8.4.

Prevent unacceptable degradation of aquifer according to the Basin Plan throughout the planning period. This planning target will be accomplished by monitoring groundwater quality. The quality of injected potable water and recycled water will also be monitored to ensure that the injected water meets Basin Plan requirements. In order to sufficiently measure the performance of this planning target, a number of details about measuring need to be identified including, but not limited to: identification of affected subbasins, establishing groundwater monitoring wells, the number of wells to be monitored, the water quality parameters, the frequency of monitoring, who will collect the data, and how it will be handled. The data acquired through the groundwater monitoring, as well as monitoring of the injected water, will be included in a central data management program as described in Section 8.4.

Map contaminated sites and monitor contaminant movement, by December 2008. Contaminated sites can be categorized by reviewing historical land use to identify potential high

risk uses including industrial, agricultural or military. Groundwater quality monitoring will also be an effective means of mapping contaminated sites and monitoring contaminant movement. In order to sufficiently measure the performance of this planning target, a number of details about measuring need to be identified including, but not limited to: identification of which areas of the aquifer are at risk and should be monitored, the number of groundwater monitoring wells needed per site, the frequency of monitoring at each site, what parameters will be monitored, who will collect the data, and how it will be handled. The data acquired through these monitoring efforts will be recorded and included in a central data management program as described in Section 8.4.

Identify contaminated portions of aquifer and prevent migration of contaminants, by June 2009. As with the previous planning target, groundwater quality monitoring will be an effective means of identifying contaminated portions of the aquifer. The prevention of contaminant migration will also be measured through groundwater quality monitoring. In order to sufficiently measure the performance of this planning target, a number of details about measuring need to be identified including, but not limited to: identification of the contaminant and contaminant sources, identify whether contaminants is a non-point source or point source pollutant, identify options for source reduction, set up the process for groundwater monitoring including the number of groundwater monitoring wells, the frequency of monitoring at each site, what parameters will be monitored, who will collect the data, and how it will be handled. The data acquired through these monitoring efforts will be included in a central data management program as described in Section 8.4.

Prevent unacceptable degradation of natural streams and recharge areas according to the Basin Plan throughout the planning period. The prevention of unacceptable degradation of natural streams and recharge areas will be measured through surface water monitoring efforts. In order to sufficiently measure the performance of this planning target, a number of details about measuring need to be identified including, but not limited to: identification of potentially affected natural streams and recharge areas, establishing groundwater monitoring wells, the number of wells to be monitored, the water quality parameters, the frequency of monitoring, who will collect the data, and how it will be handled. The data acquired through these monitoring efforts will be included in a central data management program as described in Section 8.4.

Increase infrastructure and establish policies to use 33 percent of recycled water by 2015, 66 percent by 2025, and 100 percent by 2035. This planning target will be measured simply by recording the annual volume of recycled water produced, and the annual volume of recycled water distributed. The recycled water infrastructure is already planned for expansion, as shown by the LACWWD 40 Regional Recycled Water Backbone System and the LACSD's tertiary treatment facility upgrades. An additional means to measure this planning target could be to require that the local planning agencies, as part of their new development approval, establish policies that would require new developments to require the use of recycled water for non-potable uses. The data acquired through these monitoring efforts will be included in a central data management program as described in Section 8.4.

Coordinate a regional flood management plan and policy mechanism by the year 2010. The progress of this planning target will be measured by recording the annual volumes of stormwater captured. This planning target can also be measured through water quality monitoring of natural recharge areas. In order to sufficiently measure the performance of this

planning target, a number of details about measuring need to be identified including, but not limited to: identification of flood prone areas, set up the process for water quality monitoring including the number of groundwater monitoring wells, the frequency of monitoring at each site, what parameters will be monitored, who will collect the data, and how it will be handled. The data acquired through these monitoring efforts will be included in a central data management program as described in Section 8.4.

Contribute to the preservation of an additional 2,000 acres of open space and natural habitat, to integrate and maximize surface water and groundwater management by 2015. This planning target will be measured by recording the acreages of open space or natural habitats created, restored or enhanced. A stakeholder process would help to identify projects that could provide the open space and this information could be compiled and mapped for future project concepts or integration with other IRWM Plan projects. This data will be included in a central data management program as described in Section 8.4.

Preserve 100,000 acres of farmland in rotation through 2035. This planning target will be measured by surveying the acreages of agricultural land created and quantifying the number of water resource projects that integrate agricultural land with irrigation practices. This data will be included in a central data management program as described in Section 8.4.

Contribute to local and regional General Planning documents to provide 5,000 acres of recreational space by 2035. The performance of this planning target will be measured by the number of recreational opportunities available for residents and visitors; visitation records can be monitored; community meetings would contribute to identification of recreational opportunities; and the annual total number of opportunities will be included in a central data management program as described in Section 8.4. For other recreational areas, general planning estimations can be used to estimate the number of visitors on an annual basis. This data should also be submitted to the central data management program as described in Section 8.4.

Coordinate a regional land use management plan by the year 2010. Quarterly progress reports on the implementation of land use management projects will be issued through the ongoing process established for updating the IRWM Plan and used to monitor the progress of this planning target. The establishment of land use policies and land use data in a GIS format will also contribute to the attainment of this planning target. The quarterly progress reports will be included in a central data management program as described in Section 8.4.

Table 8-8 summarizes projects monitoring and program performance measures.

TABLE 8-8
PROJECT MONITORING AND PROGRAM PERFORMANCE MEASURES

Planning Target	Desired Outcome	Output Indicators	Outcome Indicator	Measurement Tools and Methods	Decisions Needed/Unknowns	Overall (2035) Program Performance
Reduce (68,400 to 189,100 AFY) mismatch of expected supply and demand in average years by providing new water supply and reducing demand, starting 2009.	% reduction in 5 year increments; to be researched further by the PAC & provided in the final IRWMP	To be researched further by the PAC	Volume water banked in 5 year increments; to be researched further by the PAC & provided in the final IRWMP	To be researched further by the PAC	What projects are we going to implement first? Which will be begin to measure?	Total volume of additional project water or banked water
Provide adequate reserves (50,700 to 60,500 AFY) to supplement average condition supply to meet demands during single-dry year conditions, starting 2009.	% reduction in 5 year increments; to be researched further by the PAC & provided in the final IRWMP	To be researched further by the PAC	Volume water banked in 5 year increments; to be researched further by the PAC & provided in the final IRWMP	To be researched further by the PAC	To be researched further by the PAC	Total volume of additional project water or banked water
Provide adequate reserves (0 to 62,400 AF/4-year period) to supplement average condition supply to meet demands during multi-dry year conditions, starting 2009.	% reduction in 5 year increments; to be researched further by the PAC & provided in the final IRWMP	To be researched further by the PAC	Volume water banked in 5 year increments; to be researched further by the PAC & provided in the final IRWMP	To be researched further by the PAC	To be researched further by the PAC	Total volume of additional project water or banked water

TABLE 8-8
PROJECT MONITORING AND PROGRAM PERFORMANCE MEASURES

Planning Target	Desired Outcome	Output Indicators	Outcome Indicator	Measurement Tools and Methods	Decisions Needed/Unknowns	Overall (2035) Program Performance
Demonstrate ability to meet regional water demands without receiving SWP water for 6 months over the summer, by June 2010.	Provide a diversity of water supply sources to meet peak demands over the summer	Estimated SWP demand during 6-month summer period Estimate of maximum savings from aggressive conservation program Estimate of recycled water demand Estimate of banked water amount	Percent change in SWP water deliveries over the 6-month period Percent change in groundwater extractions from using banked water	AVEK, PWD, LCID Table A deliveries, groundwater extraction records; to be researched further by the PAC & provided in the final IRWMP	To be researched further by the PAC	Total volume of water stored
Manage groundwater levels throughout the basin such that a 10-year moving average of change in observed groundwater levels is greater than or equal to 0, starting January 2010.	Increase groundwater levels in subsidence areas, prevent further subsidence in problem areas	Groundwater contour levels, historical and future	Percent change in groundwater extractions	Well monitoring, GAMA Program methodology will be followed, when applicable	How many wells? Which subbasins? Frequency of sampling?	Observed groundwater level improvements

TABLE 8-8
PROJECT MONITORING AND PROGRAM PERFORMANCE MEASURES

Planning Target	Desired Outcome	Output Indicators	Outcome Indicator	Measurement Tools and Methods	Decisions Needed/Unknowns	Overall (2035) Program Performance
Continue to meet Federal and State water quality standards as well as customer standards for taste and aesthetics throughout the planning period.	To be researched further by the PAC	Monitoring to ensure compliance	Compliance with Consumer Confidence Reporting (CCR) and EPA's unregulated contaminant monitoring rule reporting	Standard lab methods for water quality testing, EPA Protocols, CCR Reporting Protocols	To be researched further by the PAC	Observed water quality improvements
Prevent unacceptable degradation of aquifer according to the Basin Plan throughout the planning period.	Reduce risks from arsenic, nitrate, and other problem pollutants	Monitoring of groundwater quality	Difference between background or baseline groundwater quality and goals for arsenic, nitrate, and other problem pollutants	Basin Plan standards; standard lab methods for water quality testing; GAMA Program methodology will be followed, when applicable	Locations of sampling site? Frequency of sampling? How many wells? Existing USGS wells?	Observed water quality improvements
Map contaminated sites and monitor contaminant movement, by December 2008.	Set up a process for mapping and monitoring contaminated sites	To be researched further by the PAC	To be researched further by the PAC	GAMA Program methodology will be followed, when applicable	To be researched further by the PAC	Observed water quality improvements
Identify contaminated portions of aquifer and prevent migration of contaminants, by June 2009.	Identify contaminated sites	To be researched further by the PAC	To be researched further by the PAC	GAMA Program methodology will be followed, when applicable	To be researched further by the PAC	Observed water quality improvements

TABLE 8-8
PROJECT MONITORING AND PROGRAM PERFORMANCE MEASURES

Planning Target	Desired Outcome	Output Indicators	Outcome Indicator	Measurement Tools and Methods	Decisions Needed/Unknowns	Overall (2035) Program Performance
Prevent unacceptable degradation of natural streams and recharge areas according to the Basin Plan throughout the planning period.	Reduce risks from urban runoff	To be researched further by the PAC	To be researched further by the PAC	To be researched further by the PAC	To be researched further by the PAC	To be researched further by the PAC
Increase infrastructure and establish policies to use 33 % of recycled water by 2015, 66% by 2025, and 100% by 2035.	Increased use of recycled water, which would decrease demand on other resources, such as imported water or groundwater.	New users for 40,000 AFY in 2015, 55,000 AFY in 2025, and 65,000 AFY of recycled water under contract by 2035.	Volume of recycled water created: 40,000 AFY in 2015, 55,000 AFY in 2025, and 65,000 AFY in 2035 of recycled water will be used in the urban or agricultural setting where it is not currently used.	Use would be measured through meters. Monitoring will be consistent with the permit requirements for the use sites.	Users, if not already identified.	Total volume of recycled water created

TABLE 8-8
PROJECT MONITORING AND PROGRAM PERFORMANCE MEASURES

Planning Target	Desired Outcome	Output Indicators	Outcome Indicator	Measurement Tools and Methods	Decisions Needed/Unknowns	Overall (2035) Program Performance
Coordinate a regional flood management plan and policy mechanism by the year 2010.	Reduction of health and safety risks due to flooding; integration of flood management and land use activities to maximize the value of public infrastructure expenditures; restoration of natural flood processes.	Enhanced infrastructure upgrades (wastewater treatment plant upgrade and road and drainage upgrades); stormwater capture projects	Hydrographs resemble historical; perceived difference in public perception; fiscal reduction for local agency capital improvement and sustaining water quality; increase floodplain function relative to sediment storage and flood attenuation	Volume of stormwater capture and water quality monitoring and sampling through LA County Flood Control District protocols; opinions received through public comments.	What constituents to monitor? Frequency of monitoring? Location of worst flooding sites? What problem areas to address first?	Total volume of runoff captured, infiltrated, and/or treated Observed water quality improvements
Contribute to the preservation of an additional 2,000 acres of open space and natural habitat, to integrate and maximize surface water and groundwater management by 2015.	Identify near-term open space and natural habitat opportunities in the Antelope Valley	Stakeholder-coordinated meetings with implementation partners to develop community projects	Community consensus and agreement on project list/alternatives, as developed through meetings and coordination	Community meeting agendas and minutes; community list and map of possible open space or natural habitat opportunities	To be researched further by the PAC	Total acreage of open space or natural habitats created, restored or enhanced

TABLE 8-8
PROJECT MONITORING AND PROGRAM PERFORMANCE MEASURES

Planning Target	Desired Outcome	Output Indicators	Outcome Indicator	Measurement Tools and Methods	Decisions Needed/Unknowns	Overall (2035) Program Performance
Preserve 100,000 acres of farmland in rotation through 2035.	The agricultural community in the Antelope Valley stays economically healthy and land use remains in agriculture.	Landowners working with local water agencies in coordinated water banking rotation projects;	Number of water-resource integrated projects	Survey of landowners	To be researched further by the PAC	Total acreage created
Contribute to local and regional General Planning documents to provide 5,000 acres of recreational space by 2035.	Provide low impact recreational opportunities for residents and visitors into the future.	Stakeholder-coordinated meetings with implementation partners to develop community projects	Community consensus and agreement on project list/alternatives, as developed through meetings and coordination	Community meeting agendas and minutes; community list and map of possible recreational opportunities	To be researched further by the PAC	Total acreage of recreational space created Total number of Trail/Park visitors

TABLE 8-8
PROJECT MONITORING AND PROGRAM PERFORMANCE MEASURES

Planning Target	Desired Outcome	Output Indicators	Outcome Indicator	Measurement Tools and Methods	Decisions Needed/Unknowns	Overall (2035) Program Performance
Coordinate a regional land use management plan by the year 2010.	Identification of data gaps, preparation of detailed land use maps for the Antelope Valley Region, identification of policies to protect land uses in the Valley, identification of land use management opportunities	Data gaps discussion in plan, land use survey GIS maps in plan, proposed land use policies in plan, proposed land use management opportunities in plan.	Planned monitoring to fill data gaps, recommended land use projects from GIS mapping, recommended policies for land use management, recommended projects to provide land use management.	Quarterly progress reports, databases with monitoring data, number of projects for land uses, number of policies for land use.	To be researched further by the PAC	Adoption of a regional land use management plan

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8.6 Future AV IRWM Plan Activities

8.6.1 Process for Developing Future Projects

The development of the AV IRWM Plan provided an opportunity for the Stakeholders to identify, evaluate and prioritize their projects and management actions. Those that were given a 'high' priority are those that they collectively decided to pursue within the next two years. The 'medium' and 'low' projects are those projects that the group still feels are important to implement in order to help meet the objectives and goals for the Antelope Valley Region, however their implementation is not as timely as the 'high' priority projects. Therefore, the 'medium' and 'low' priority projects will need to be revisited by the Stakeholder group at a later date for further evaluation to determine when it is most appropriate for their implementation and action. Additionally, as these projects, whether 'high', 'medium', or 'low,' are implemented in the Antelope Valley Region, the Stakeholders may see their issues and needs begin to shift, warranting the call for new types of projects. For example, should the adjudication place a restraint on the amount of groundwater that can be extracted from the groundwater basin by the year 2015, the group will need to look more closely at those projects that don't rely on groundwater to meet their needs. Or if a new contaminant is discovered in the Antelope Valley Region, they will have to adapt and identify projects and management actions to address those needs as they arise. Therefore, the process for developing future projects must be flexible, and allow for changing conditions. Any potential future project or management action will be assessed on how well it can be integrated within the Antelope Valley Region and within the existing projects to provide multiple benefits.

As projects are developed and/or refined in the future, the continued or new involvement of some state and/or federal agencies as identified in Table 8-1 may be warranted.

8.6.1.1 Responsiveness of Decision-Making to Regional Changes

As the IRWM Plan is updated and developed through the planning horizon, there will be a process to revisit the evaluation, assessment, and ranking process outlined herein to identify changes that should be made to the criteria and prioritization in response to new regional conditions and project implementation status. If changes are deemed appropriate, then the priority project list (as shown in Table 7-2 and in Appendix E) will be re-assessed and re-prioritized using the modified criteria and/or other evaluation criteria determined by the Stakeholder group.

8.6.1.2 Assessing Responses to Project Implementation

As projects are implemented in the Region as part of this Plan, project performance will be assessed and outcomes will be monitored, and the results from this monitoring will be used to guide future project implementation. Specific mechanisms for monitoring project performance are presented in Table 8-8.

8.6.1.3 Altering Project Sequencing Based on Project Implementation Responses

The results from monitoring project performance will be used to guide future project implementation and sequencing. If project monitoring reveals that a project is progressing as planned and regional changes do not necessitate revisiting project implementation, then changes to project sequencing are not anticipated. However, if project monitoring reveals that a project is not producing the anticipated result, the governance structure will dictate the responsible party to work with the project proponent to identify and implement corrective actions.

8.6.2 Future AV IRWM Plan Updates

The AV IRWM Plan is a dynamic planning document. The AV IRWM Plan at a minimum will be updated every two years as further study and planning is conducted, projects continue to be developed and objectives and priorities are adjusted. There will be an ongoing process for keeping the proposed project list up-to-date, through regular quarterly updates with additional meetings and revision as needed before major grant applications, as conditions change, funding is identified, projects are implemented and objectives revised.

As stated in Section 8.4.1, the AV IRWM Plan website, www.avwaterplan.org, provides a mechanism for stakeholders to upload project information, including submittal of new project ideas and concepts. Appendix E contains the prioritized list of projects in the AV IRWM Plan. Appendix G contains the electronic list of projects in this IRWM Plan.

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Section 10: Glossary and Acronym List

GLOSSARY OF TERMS

Term	Definition
- A -	
ACRE-FOOT	The quantity of water required to cover one acre to a depth of one foot; equal to 43,560 cubic feet, or approximately 325,851 gallons.
ADJUDICATION	A case that has been heard and decided by a judge. In the context of an adjudicated groundwater basin, landowners or other parties have turned to the courts to settle disputes over how much groundwater can be extracted by each party to the decision.
ADOPTED IRWM PLAN	The version of the IRWM Plan that is adopted by the governing bodies of at least three or more member agencies to the Regional Water Management Group (RWMG), two of which have statutory authority over water supply, as evidenced by resolutions.
AGRONOMIC RATE	The rate of nutrient application to fulfill a plant's nitrogen requirements while minimizing the amount of nutrients that passes to groundwater.
ALLUVIUM	Sediment deposited by flowing water, such as in a riverbed, flood plain or delta.
ALLUVIAL AQUIFER	Earth, sand, gravel or other rock or mineral materials laid down by flowing water, capable of yielding water to a well.
ANTELOPE VALLEY REGION	The Antelope Valley Region, as defined for the purposes of this IRWM Plan, follows the Antelope Valley's key hydrologic features, bounded by the San Gabriel Mountains to the south and southwest, and the Tehachapi Mountains to the northwest, forming a well-defined triangular point at the Valley's western edge. The Region covers portions of northern Los Angeles and southeastern Kern Counties, and encompasses the majority of the AVEK service area.
APPLIED WATER DEMAND	The quantity of water that would be delivered for urban or agricultural applications if no conservation measures were in place.
AQUIFER	An underground layer of rock, sediment or soil, or a geological formation/unit that is filled or saturated with water

Term	Definition
	in sufficient quantity to supply pumping wells.
ARID	A term describing a climate or region in which precipitation is so deficient in quantity or occurs so infrequently that intensive agricultural production is not possible without irrigation.
ARTICLE 21 WATER	Refers to the SWP contract provision defining this supply as water that may be made available by DWR when excess flows are available in the Delta. Article 21 water is made available on an unscheduled and interruptible basis and is typically available only in average to wet years, generally only for a limited time in the late winter.
ARTIFICIAL RECHARGE	The addition of water to a groundwater reservoir by human activity, such as irrigation or induced infiltration from streams, wells, or recharge/spreading basins. See also GROUNDWATER RECHARGE, RECHARGE BASIN.
- B -	
BEDROCK AQUIFER	A consolidated rock deposit or geological formation of sufficient hardness and lack of interconnected pore spaces, but which may contain a sufficient amount of joints or fractures capable of yielding minimal water to a well.
BENEFICIAL USES	Include fish, wildlife habitat, and education, scientific and recreational activities which are dependent upon adequate water flow thorough rivers, streams and wetlands. The Regional Water Quality Control Board's Basin 4A Plan categorizes beneficial uses per water quality standards.
BEST MANAGEMENT PRACTICE (BMP)	An urban water conservation (water use efficiency) measure that the California Urban Water Conservation Coalition agrees to implement among member agencies. The BMP's are intended to reduce long-term urban water demand.
BRACKISH WATER	Water containing dissolved minerals in amounts that exceed normally acceptable standards for municipal, domestic, and irrigation uses. Considerably less saline than sea water.
- C -	
CLOSED BASIN	A topographic water basin with no outlet to the ocean
CONFINED AQUIFER	A water-bearing subsurface stratum that is bounded above and below by formations of impermeable, or relatively impermeable, soil or rock.
CONJUNCTIVE USE	The operation of a groundwater basin in coordination with a surface water storage and conveyance system. The purpose

Term	Definition
	is to recharge the basin during years of above average water supply to provide storage that can be withdrawn during drier years when surface water supplies are below normal.
CONSERVATION	*Urban water conservation or water use efficiency* includes reductions realized from voluntary, more efficient, water use practices promoted through public education and from state-mandated requirements to install water-conserving fixtures in newly constructed and renovated buildings. *Agricultural water conservation or agricultural water use efficiency*, means reducing the amount of water applied in irrigation through measures that increase irrigation efficiency. See NET WATER CONSERVATION.
CRITICAL DRY PERIOD	A series of water-deficient years, usually an historical period, in which a full reservoir storage system at the beginning is drawn down (without any spill) to minimum storage at the end.
CRITICAL DRY YEAR	A dry year in which the full commitments for a dependable water supply cannot be met and deficiencies are imposed on water deliveries.
CUBIC FEET PER SECOND (cfs)	A unit of measurement describing the flow of water. A cubic foot is the amount of water needed to fill a cube that is one foot on all sides, about 7.5 gallons.
- D -	
DECISION 1641	An action by the State Water Resources Control Board (SWRCB) to establish water quality objectives for water users in the Delta. The Bay/Delta Water Quality Control Plan was developed as a means to attain these water quality objectives.
DESALTING/DESALINATION	A process that converts sea water or brackish water to fresh water or an otherwise more usable condition through removal of dissolved solids.
DISADVANTAGED COMMUNITY	A community with an annual median household income that is less than 80 percent of the statewide annual median household income (CWC § 79505.5 (a)).
DISTRIBUTION UNIFORMITY (DU)	The ratio of the average low-quarter depth of irrigation water infiltrated to the average depth of irrigation water infiltrated, for the entire farm field, expressed as a percent.

Term	Definition
DRAINAGE BASIN	The area of land from which water drains into a river; as, for example, the Sacramento River Basin, in which all land area drains into the Sacramento River. Also called, "WATERSHED."
DRY-WEATHER RUNOFF	Urban runoff that enters the drainage system due to human activities such as car washing and lawn irrigation. Dry-weather runoff can also result from illicit connections to the stormwater or sewer systems.
- E -	
EFFICIENT WATER MANAGEMENT PRACTICE (EWMP)	An agricultural water conservation measure that water suppliers could implement. EWMPs are organized into three categories: 1) Irrigation Management Services; 2) Physical and Structural Improvements; and 3) Institutional Adjustments.
EFFLUENT	Waste water or other liquid, partially or completely treated or in its natural state, flowing from a treatment plant.
EMPIRICAL YIELD	See SAFE YIELD (GROUNDWATER)
EPHEMERAL	An ephemeral water body is one that exists for only a short period of time following precipitation or snowmelt. This is not the same as an intermittent or seasonal water body which exists for a longer period of time.
EVAPOTRANSPIRATION (ET or ETo)	The quantity of water transpired (given off), retained in plant tissues, and evaporated from plant tissues and surrounding soil surfaces. Quantitatively, it is expressed in terms of depth of water per unit area during a specified period of time.
- F -	
FINAL IRWM PLAN	The version of the IRWM Plan that is deemed ready for adoption by 50 percent or more of the representatives from the RWMG member agencies.
FIRM YIELD	The maximum annual supply of a given water development that is expected to be available on demand, with the understanding that lower yields will occur in accordance with a predetermined schedule or probability.
FOREBAY	A groundwater basin immediately upstream or upgradient from a larger basin or group of hydrologically connected basins. Also, a reservoir or pond situated at the intake of a pumping plant or power plant to stabilize water levels.

Term	Definition
- G -	
GROUNDWATER	Water that occurs beneath the land surface and completely fills all pore spaces of the alluvium or rock formation in which it is located.
GROUNDWATER BASIN	A groundwater reservoir, together with all the overlying land surface and underlying aquifers that contribute water to the reservoir.
GROUNDWATER MINING	The withdrawal of water from an aquifer greatly in excess of replenishment; if continued, the underground supply will eventually be exhausted or the water table will drop below economically feasible pumping lifts.
GROUNDWATER OVERDRAFT	The condition of a groundwater basin in which the amount of water withdrawn by pumping exceeds the amount of water that replenishes the basin over a period of years.
GROUNDWATER RECHARGE	Increases in groundwater quantities or levels by natural conditions or by human activity. See also ARTIFICIAL RECHARGE.
GROUNDWATER STORAGE CAPACITY	The space contained in a given volume of deposits. Under optimum use conditions, the usable groundwater storage capacity is the volume of water that can, within specified economic limitations, be alternately extracted and replaced in the reservoir. (Directly related to SAFE YIELD).
GROUNDWATER TABLE	The upper surface of the zone of saturation (all pores of subsoil filled with water), except where the surface is formed by an impermeable body.
- H -	
HYDRAULIC CONDUCTIVITY	A property of vascular plants, soil or rock, that describes the ease with which water can move through pore spaces or fractures. It depends on the permeability of the material and on the degree of saturation.
- I -	
INSTREAM USE	Use of water that does not require diversion from its natural watercourse. For example, the use of water for navigation, recreation, fish and wildlife, esthetics, and scenic enjoyment.
IRRIGATION EFFICIENCY	The efficiency of water application. Computed by dividing evapotranspiration of applied water by applied water and converting the result to a percentage. Efficiency can be computed at three levels: farm, district, or basin.

Term	Definition
IRRIGATION RETURN FLOW	Applied water that is not transpired, evaporated, or deep percolated into a groundwater basin, but that returns to a surface water supply.
- L -	
LACUSTRINE	In geology, the sedimentary environment of a lake.
LAND SUBSIDENCE	Land subsidence is the lowering of the land-surface elevation from changes that take place underground. Overdrafting of aquifers is the major cause of subsidence in the southwestern United States.
LEACHING	The flushing of salts from the soil by the downward percolation of applied water.
- M -	
MAXIMUM CONTAMINANT LEVEL (MCL)	The maximum level of a drinking water contaminant allowed under the federal Safe Water Drinking Act. MCLs set under National Primary Drinking Water Regulations are legally enforceable standards that apply to public water systems.
M&I	Municipal and Industrial (water use); generally urban uses for human activities.
MILLIGRAMS PER LITER (MG/L)	The mass (milligrams) of any substance dissolved in a standard volume (liter) of water. One liter of pure water has a mass of 1000 grams. For dilute solutions where water is the solvent medium, the numerical value of mg/l is very close to the mass ratio expressed in parts per million (ppm).
MINERALIZATION (OF GROUNDWATER)	The addition of inorganic substances, usually dissolved from surface or aquifer material, to groundwater.
NATURALLY OCCURRING CONTAMINANTS (IN GROUNDWATER)	A deleterious substance present in groundwater which is of natural origin, i.e., not caused by human activity.
- N -	
NATURAL HABITAT	See OPEN SPACE.
NET WATER CONSERVATION	The difference between the amount of applied water conserved and the amount by which this conservation reduces usable return flows.
NET WATER DEMAND	The applied water demand less water saved through conservation efforts (= net applied water = actual water used).

Term	Definition
NON-POINT SOURCE POLLUTION	A diffuse discharge of pollutants throughout the natural environment. See POINT SOURCE.
- O -	
OPEN SPACE	Open space can mean natural open space, passive and active recreation which may or may not be compatible with natural habitats or natural open space preservation. As an example, open space can mean soccer fields, playgrounds, etc and should not be considered as natural habitat. See also NATURAL HABITAT.
OVERDRAFT	Withdrawal of groundwater in excess of a basin's perennial yield. See also PROLONGED OVERDRAFT.
- P -	
PARTS PER MILLION (PPM)	A ratio of two substances, usually by mass, expressing the number of units of the designated substance present in one million parts of the mixture. For water solutions, parts per million is almost identical to the milligrams per liter.
PER-CAPITA WATER USE	The amount of water used by or introduced into the system of an urban water supplier divided by the total residential population; normally expressed in gallons per-capita-per-day (gpcd).
PERCHED GROUNDWATER	Groundwater supported by a zone of material of low permeability located above an underlying main body of groundwater with which it is not hydrostatically connected.
PERCOLATION	The downward movement of water through the soil or alluvium to the groundwater table.
PERENNIAL YIELD	Perennial yield is an estimate of the long-term average annual amount of water that can be withdrawn without inducing a long-term progressive drop in water level. The term "safe yield" is sometimes used in place of perennial yield, although the concepts behind the terms are not identical: the older concept of "safe yield" generally implies a fixed quantity equivalent to a basin's average annual natural recharge, while the "perennial yield" of a basin or system can vary over time with different operational factors and management goals.
PERMEABILITY	The capability of soil or other geologic formation to transmit water.

Term	Definition
PLAYA	A dry lakebed, also known as an alkali flat. Playas consist of fine-grained sediments infused with alkali salts and are devoid of vegetation.
PLAYA DEPOSIT	A thick salt deposit that forms over time through the accumulation of layers of dissolved minerals from rocks. Dissolved salts that form a playa deposit are laid by rainfall that rapidly evaporates once reaching the earth's surface.
POINT SOURCE	Any discernable, confined and discrete conveyance site from which waste or polluted water is discharged into a water body, the source of which can be identified. See also NON-POINT SOURCE.
POLLUTION (OF WATER)	The alteration of the physical, chemical, or biological properties of water by the introduction of any substance into water that adversely affects any beneficial use of water.
POTABLE WATER	Water suitable for human consumption without undesirable health consequences. Drinkable. Meets Department of Health Services drinking water requirements.
PROLONGED OVERDRAFT	Net extractions in excess of a basin's perennial yield, averaged over a period of ten or more years.
PROPOSITION 50	The "Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002", as set forth in Division 26.5 of the California Water Code (commencing with § 79500).
- Q -	
QUATERNARY GEOLOGY	Younger of the two geologic periods of the Cenozoic era of geologic time lasting from 2 million years ago to the present. Comprising all geologic time from the end of the Tertiary period to today.
- R -	
REACH REPAYMENT CAPACITY	SWP contractors, via their water supply contracts with DWR, are allocated specified shares of "reach repayment" capacity in various reaches of the SWP system. This share of capacity pertains to SWP supplies only, and provides each contractor with delivery priority for its SWP supplies. Reach repayment capacity is often less than the actual constructed physical capacity of SWP facilities.
RECHARGE BASIN	A surface facility, often a large pond, used to increase the infiltration of water into a groundwater basin.

Term	Definition
RECYCLED WATER	Urban wastewater that becomes suitable for a specific beneficial use as a result of treatment.
REGIONAL PRIORITIES	The short-term and long-term issues and/or objectives that are determined to be most important on the Region's needs.
REGIONAL WATER MANAGEMENT GROUP	A group that, at a minimum, includes three or more local public agencies, at least two of which have statutory authority over water management, which may include but is not limited to water supply, water quality, flood control, or storm water management. The Antelope Valley Regional Water Management Group includes Antelope Valley-East Kern Water Agency, Palmdale Water District, Quartz Hill Water District, Littlerock Creek Irrigation District, City of Palmdale, City of Lancaster, Los Angeles County Sanitation District Nos. 14 & 20, Rosamond Community Services District, and Los Angeles County Waterworks District No. 40, Antelope Valley.
REVERSE OSMOSIS	Method of removing salts from water by forcing water through a membrane.
RETURN FLOW	The portion of withdrawn water that is not consumed by evapotranspiration and returns instead to its source or to another body of water.
REUSE	The additional use of once-used water.
RIPARIAN	Of, or on the banks of, a stream or other of water.
RIPARIAN VEGETATION	Vegetation growing on the banks of a stream or other body of water.
RUNOFF	The surface flow of water from an area; the total volume of surface flow during a specified time.
- S -	
SAFE YIELD (GROUNDWATER)	The maximum quantity of water that can be withdrawn from a groundwater basin over a long period of time without developing a condition of overdraft. Sometimes referred to as sustained yield.
SAG POND	An enclosed depression formed where active or recent fault movement results in impounded drainage.

Term	Definition
SALINITY	Generally, the concentration of mineral salts dissolved in water. Salinity may be measured by weight (total dissolved solids), electrical conductivity, or osmotic pressure. Where seawater is the major source of salt, salinity is often used to refer to the concentration of chlorides in the water. See also TDS.
SERIOUS OVERDRAFT	Prolonged overdraft that results, or would result, within ten years, in measurable, unmitigated adverse environmental or economic impacts, either long-term or permanent. Such impacts include but are not limited to seawater intrusion, other substantial quality degradation, land surface subsidence, substantial effects on riparian or other environmentally sensitive habitats, or unreasonable interference with the beneficial use of a basin's resources.
SEAWATER INTRUSION	Occurs when extractions exceed freshwater replenishment of groundwater basins and causes seawater to travel laterally inland into fresh water aquifers.
SECONDARY TREATMENT	In sewage treatment, the biological process of reducing suspended, colloidal, and dissolved organic matter in effluent from primary treatment systems. Secondary treatment is usually carried out through the use of trickling filters or by an activated sludge process.
SHEET FLOW	Shallow-depth, low velocity water flow.
SILT	A sedimentary material composed of very fine particles intermediate in size between sand and clay.
SILTATION	The deposition or accumulation of silt.
SPREADING BASIN	See RECHARGE BASIN.
SPREADING GROUNDS	See RECHARGE BASIN.
STAKEHOLDER	An individual, group, coalition, agency or others who are involved in, affected by, or have an interest in the implementation of a specific program or project.
SOLUTE	A substance dissolved in another substance, usually the component of a solution present in the lesser amount.
SUBSIDENCE	See LAND SUBSIDENCE.

Term	Definition
- T -	
TABLE A AMOUNT	A reference to the amount of water listed in “Table A” of the contract between the State Water Project (SWP) and the contracting agencies and represents the maximum amount of water an agency may request each year.
TERTIARY GEOLOGY	Geologic time period between roughly 65 million and 2 million years ago.
TERTIARY TREATMENT	In sewage, the additional treatment of effluent beyond that of secondary treatment to obtain a very high quality of effluent.
TOTAL DISSOLVED SOLIDS (TDS)	A quantitative measure of the residual minerals dissolved in water that remain after evaporation of a solution. Usually expressed in milligrams per liter (mg/l) or in parts per million (ppm). See also Salinity.
TURBIDITY	A measure of cloudiness and suspended sediments in water. Water high in turbidity appears murky and contains sediments in suspension. Turbid water may also result in higher concentrations of contaminants and pathogens, that bond to the particles in the water.
TURNBACK POOLS	A means in which SWP contractors with excess Table A Amount water in a given hydrologic year may sell that excess to other contractors. This is included in a provision in the SWP water supply contracts. The program is administered by DWR.
- W -	
WASH	A wash, also called an arroyo, is a usually dry creek bed or gulch that temporarily fills with water after a heavy rain, or seasonally.

Term	Definition
WATER MANAGEMENT STATEGIES	Specified categories of approaches to meet regional objectives. According to the IRWM Grant Program Guidelines, the water management strategies include, but are not limited to, ecosystem restoration, environmental and habitat protection and improvement, water supply reliability, flood management, groundwater management, recreation and public access, storm water capture and management, water conservation, water quality protection and improvement, water recycling, wetlands enhancement and creation, conjunctive use, desalination, Imported water, land use planning, non-point source pollution control, surface storage, watershed planning, water and wastewater treatment, and water transfers.
WATER MANAGEMENT STRATEY ALTERNATIVE	A set of projects, project concepts, actions, and/or studies that when implemented together would fill the gaps, minimize the overlaps, maximize benefits for multiple water management strategies, and ultimately achieve the regional planning objectives.
WATER MANAGEMENT STRATEGY AREA	A group of similar or related water management strategies to make the Antelope Valley IRWM Plan development more efficient and manageable. (data collection, management, and dissemination).
WATER MANAGEMENT STRATEGY INTEGRATION	A process to design water management strategy alternatives to maximize regional benefits by identifying potential synergies, linkages, and gaps between water management strategies and evaluating geographical distribution of project benefits.
WATER MANAGEMENT STRATEGY OBJECTIVE	A goal for the Region to achieve in order to meet the needs for a water management strategy. A quantifiable objective can be used to allow future measurement of progress towards accomplishment of the objectives (e.g., conserve 10,000 AFY of drinking water by 2030).
WATER QUALITY	A term used to describe the chemical, physical, and biologic characteristics of water with respect to its suitability for a particular use.
WATER QUALITY CONTAMINATION	For the purposes of the IRWM Plan, any increase in water constituent levels over the State or Federal standards is considered contamination.
WATER QUALITY DEGRADATION	Any increase in water constituent levels over naturally occurring levels is considered degradation.

Term	Definition
WATER RECLAMATION	The treatment of water of impaired quality, including brackish water and seawater, to produce a water of suitable quality for the intended use.
WATER RIGHT	A legally protected right, granted by law, to take possession of water occurring in a water supply and to divert the water and put it to beneficial uses.
WATERSHED	The area or region drained by a reservoir, river, stream, etc.; drainage basin.
WATER TABLE	The surface of underground, gravity-controlled water.

ACRONYM LIST

Acronym	Meaning
AB	Assembly Bill
AF	acre-foot
AFB	Air Force Base
AFY	acre-feet per year
ASR	Aquifer Storage and Recharge/Recovery
AVEK	Antelope Valley-East Kern Water Agency
AVSWCA	Antelope Valley State Water Contractors Association
AVWCC	Antelope Valley Water Conservation Coalition
BIA	Building Industry Association
BLM	Bureau of Land Management
BMP	Best Management Practice
CAS	Conventional Activated Sludge
CCD	Census County Division
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CDFA	California Department of Food and Agriculture
CEQA	California Environmental Quality Act
cfs	cubic feet per second
CIMIS	California Irrigation Management Information System
CIP	Capital Improvements Plan
CLWA	Castaic Lake Water Agency
CMWD	Calleguas Municipal Water District
CUWCC	California Urban Water Conservation Council
CVP	Central Valley Project
CWA	Clean Water Act
DAC	Disadvantaged Communities

Acronym	Meaning
DPH	Department of Public Health
DMM	Demand management measure
DU	Distribution Uniformity
DWMA	Desert Wildlife Management Area
DWR	Department of Water Resources
EIR	Environmental Impact Report
ESA	Federal Endangered Species Act
ETc	Evapotranspiration (for a particular crop)
ETo	Evapotranspiration (general or reference)
EWMP	Efficient Water Management Practice
FEIR	Final Environmental Impact Report
FWSMPU	Final Water System Master Plan Update
gal	gallon
GIS	Geographic Information System
gpcd	gallons per-capita-per-day
gpd	gallons per day
gpm	gallons per minute
GWR-RW	Groundwater Recharge Using Recycled Water
GWR	Groundwater recharge
HCP	Habitat Conservation Plan
° F	degree Fahrenheit
IRWM Plan	Integrated Regional Water Management Plan
IUWMP	Integrated Urban Water Management Plan
IWRP	Integrated Water Resources Plan
JPA	Joint Powers Authority
LACSD	Los Angeles County Sanitation District
LACWWD 40	Los Angeles County Waterworks District No. 40
LADPW	Los Angeles Department of Public Works
LADWP	Los Angeles Department of Water and Power
LAFCO	Local Area Formation Commission
Lancaster	Lancaster, City of
LAWA	Los Angeles World Airports
LCID	Littlerock Creek Irrigation District
LWRP	Lancaster Water Reclamation Plant
M&I	municipal & industrial
MBR	Membrane bioreactor
MCL	Maximum Contaminant Level
MG	million gallon
mgd	million gallons per day
mg/L	milligrams per liter
MHI	median household income
MOA	Memorandum of Agreement

Acronym	Meaning
MOU	Memorandum of Understanding
MW	megawatt
MWD	Municipal Water District
NLFC	Newhall Land and Farming Company
NPDES	National Pollutant Discharge Elimination System
O&M	operations and maintenance
OEHHA	Office of Environmental Health Hazard Assessment
NRCS	Natural Resource Conservation Service
PHG	Public Health Goal
ppb	parts per billion
ppm	parts per million
Palmdale	Palmdale, City of
PID	Palmdale Irrigation District
PWD	Palmdale Water District
PWRP	Palmdale Water Reclamation Plant
QHWD	Quartz Hill Water District
RCSD	Rosamond Community Services District
RO	reverse osmosis
ROC	reactive organic compound
RRBWSD	Rosedale-Rio Bravo Water Storage District
RWMG	Regional Water Management Group
RWQCB	Regional Water Quality Control Board
RWQCB-LR	Regional Water Quality Control Board – Lahontan Region
SB	Senate Bill
SCAG	Southern California Association of Governments
SEA	Significant Ecological Area
Semitropic	Semitropic Water Storage District
SMART	Specific Measurable Attainable Relevant Time-based
SWP	State Water Project
SWRCB	State Water Resources Control Board
TDS	Total Dissolved Solids
THM	Trihalomethanes
TTHM	Total Trihalomethanes
TMDL	Total Maximum Daily Load
TOC	total organic carbon
TTP	Tertiary Treatment Plant
UCCE	University of California Cooperative Extension
ug/L	micrograms per liter
ULFT	Ultra Low Flush Toilet
(uS/cm)	microsiemens per centimeter
U.S.	United States
USACE	U.S. Army Corps of Engineers

Acronym	Meaning
USBR	U.S. Bureau of Reclamation
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UWMP	Urban Water Management Plan
WDR	Waste Discharge Requirements
WMS	Water Management Strategy
WMSA	Water Management Strategy Area
WRP	Water Reclamation Plant
WSMP	Water System Master Plan
WSMS	Water Supply Management Strategy
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant

Appendix A

Memorandum of Understanding

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MEMORANDUM OF UNDERSTANDING

THIS MEMORANDUM OF UNDERSTANDING (MOU), made and entered into on this 9th day of January by and between the Antelope Valley-East Kern Water Agency, Palmdale Water District, Quartz Hill Water District, Littlerock Creek Irrigation District, Antelope Valley State Water Contractors Association, City of Palmdale, City of Lancaster, County Sanitation District No. 14 of Los Angeles County, County Sanitation District No. 20 of Los Angeles County, Rosamond Community Services District, and Los Angeles County Waterworks District No. 40, Antelope Valley, hereinafter referred to as "DISTRICT," and in the aggregate hereinafter referred to as "parties":

WITNESSETH

WHEREAS, the parties are designated as a "Regional Water Management Group" under the California Water Code Division 6, Part 2.2, known as the *Integrated Regional Water Management Planning Act of 2002*, hereinafter referred to as "ACT"; and

WHEREAS, Section 10531 of the ACT includes the following declarations:

(a) Water is a valuable natural resource in California and should be managed to ensure the availability of sufficient supplies to meet the State's agricultural, domestic, industrial, and environmental needs. It is the intent of the Legislature to encourage local agencies to work cooperatively to manage their available local and imported water supplies to improve the quality, quantity, and reliability of those supplies.

(b) Improved coordination among local agencies with responsibilities for managing water supplies and additional study of groundwater resources are necessary to maximize the quality and quantity of water available to meet the State's agricultural, domestic, industrial, and environmental needs.

(c) The implementation of the Integrated Regional Water Management Planning Act of 2002 will facilitate the development of integrated regional water management plans, thereby maximizing the quality and quantity of water available to meet the State's water needs by providing a framework for local agencies to integrate programs and projects that protect and enhance regional water supplies.

WHEREAS, Section 10537 of the ACT states that "Regional Water Management Group" means a group in which three or more local public agencies, at least two of which have statutory authority over water supply, participate by means of a joint powers agreement, memorandum of understanding, or other written agreement, as appropriate, that is approved by the governing bodies of those local public agencies; and

WHEREAS, under the ACT, the parties propose to collaboratively prepare an Integrated Regional Water Management Plan for the Antelope Valley, hereinafter referred to as "PLAN," as set forth in this MOU; and

WHEREAS, the study area for the PLAN includes all, or a portion of, the service areas of the Antelope Valley-East Kern Water Agency, Palmdale Water District, Quartz Hill Water District, Littlerock Creek Irrigation District, Antelope Valley State Water Contractors Association, City of Palmdale, City of Lancaster, County Sanitation District No. 14 of Los Angeles County, County Sanitation District No. 20 of Los Angeles County, Rosamond Community Services District, and DISTRICT within the Antelope Valley; and

WHEREAS, the DISTRICT is willing to administer a contract ("CONTRACT") to engage a third-party consultant ("CONSULTANT") to prepare the PLAN, including preparation of a request for proposals, evaluation of CONSULTANT proposals, award of the CONTRACT, and general oversight of the CONTRACT; and

WHEREAS, the Antelope Valley-East Kern Water Agency, Palmdale Water District, Quartz Hill Water District, Littlerock Creek Irrigation District, Antelope Valley State Water Contractors Association, City of Palmdale, City of Lancaster, County Sanitation District No. 14 of Los Angeles County, County Sanitation District No. 20 of Los Angeles County, and Rosamond Community Services District are willing to provide the CONSULTANT with the necessary data to prepare the PLAN and to review and comment on the draft versions of the PLAN; and

WHEREAS, the "CONSULTANT COSTS" for preparation of the PLAN consist of all amounts paid to the CONSULTANT upon completion of the PLAN; and

WHEREAS, the CONSULTANT COSTS are currently estimated to amount to $325,000 with DISTRICT'S share being $60,000, Antelope Valley-East Kern Water Agency's share being $50,000, Palmdale Water District's share being $60,000, Quartz Hill Water District's share being $5,000, Littlerock Creek Irrigation District's share being $5,000, City of Palmdale's share being $50,000, City of Lancaster's share being $45,000, County Sanitation District No. 14 of Los Angeles County's share being $22,500, County Sanitation District No. 20 of Los Angeles County's share being $22,500, and Rosamond Community Services District's share being $5,000, and

100 percent*

WHEREAS, the FINAL PLAN is defined to be the version of the PLAN that is deemed ready for adoption by ~~50 percent XXXXXX~~ of the representatives from the DISTRICT, Antelope Valley-East Kern Water Agency, Palmdale Water District, Quartz Hill Water District, Littlerock Creek Irrigation District, Antelope Valley State Water Contractors Association, City of Palmdale, City of Lancaster, County Sanitation District No. 14 of Los Angeles County, County Sanitation District No. 20 of Los Angeles County, and Rosamond Community Services District, where each agency has one representative.

*Exception taken per AVEK Board action on January 09, 2007.

WHEREAS, the ADOPTED PLAN is defined to be the version of the PLAN that is adopted by the governing bodies of at least three or more member agencies to the Regional Water Management Group, two of which have statutory authority over water supply, as evidenced by resolutions substantially similar to the sample included as Exhibit A.

NOW, THEREFORE, in consideration of the mutual benefits to be derived by the parties and of the promises herein contained, it is hereby agreed as follows:

(1) ANTELOPE VALLEY-EAST KERN WATER AGENCY AGREES:

a. To provide and share all necessary and relevant information, data, studies, and/or documentation for the PLAN in its possession as may be requested by the CONSULTANT within thirty (30) calendar days of the request by the CONSULTANT or such information and data, should it be provided at a later date, may not be incorporated in the PLAN due to time constraints.

b. To review and comment on the draft and final versions of technical reports and the draft PLAN within twenty-one (21) calendar days from the date of receipt of said documents from the DISTRICT or Antelope Valley-East Kern Water Agency's comments may not be incorporated in the FINAL PLAN.

c. To present the FINAL PLAN to its governing body for consideration and adoption within forty-five (45) calendar days from the date of receipt of the FINAL PLAN.

d. To provide a contribution in the amount of $50,000 towards the CONSULTANT COSTS collectively shared by the DISTRICT, Antelope Valley-East Kern Water Agency, Palmdale Water District, Quartz Hill Water District, Littlerock Creek Irrigation District, City of Palmdale, City of Lancaster, County Sanitation District No. 14 of Los Angeles County, County Sanitation District No. 20 of Los Angeles County, and Rosamond Community Services District.

e. To deposit the contribution in the amount of $50,000 with the DISTRICT within thirty (30) calendar days of execution of this MOU.

f. To prepare, review, and approve future grant applications for implementation of the ADOPTED PLAN.

(2) PALMDALE WATER DISTRICT AGREES:

a. To provide and share all necessary and relevant information, data, studies, and/or documentation for the PLAN in its possession as may be requested by the CONSULTANT within thirty (30) calendar days of the request by the CONSULTANT or such information and data, should it be provided at a later date, may not be incorporated in the PLAN due to time constraints.

b. To review and comment on the draft and final versions of technical reports and the draft PLAN within twenty-one (21) calendar days from the date of receipt of said documents from the DISTRICT or Palmdale Water District's comments may not be incorporated in the FINAL PLAN.

c. To present the FINAL PLAN to its governing body for consideration and adoption within forty-five (45) calendar days from the date of receipt of the FINAL PLAN.

d. To provide a contribution in the amount of $60,000 towards the CONSULTANT COSTS collectively shared by the DISTRICT, Antelope Valley-East Kern Water Agency, Palmdale Water District, Quartz Hill Water District, Littlerock Creek Irrigation District, City of Palmdale, City of Lancaster, County Sanitation District No. 14 of Los Angeles County, County Sanitation District No. 20 of Los Angeles County, and Rosamond Community Services District.

e. To deposit the contribution in the amount of $60,000 with the DISTRICT within thirty (30) calendar days of execution of this MOU.

f. To prepare, review, and approve future grant applications for implementation of the ADOPTED PLAN.

(3) QUARTZ HILL WATER DISTRICT AGREES:

a. To provide and share all necessary and relevant information, data, studies, and/or documentation for the PLAN in its possession as may be requested by the CONSULTANT within thirty (30) calendar days of the request by the CONSULTANT or such information and data, should it be provided at a later date, may not be incorporated in the PLAN due to time constraints.

b. To review and comment on the draft and final versions of technical reports and the draft PLAN within twenty-one (21) calendar days from the date of receipt of said documents from the DISTRICT or Quartz Hill Water District's comments may not be incorporated in the FINAL PLAN.

c. To present the FINAL PLAN to its governing body for consideration and adoption within forty-five (45) calendar days from the date of receipt of the FINAL PLAN.

d. To provide a contribution in the amount of $5,000 towards the CONSULTANT COSTS collectively shared by the DISTRICT, Antelope Valley-East Kern Water Agency, Palmdale Water District, Quartz Hill Water District, Littlerock Creek Irrigation District, City of Palmdale, City of Lancaster, County Sanitation District No. 14 of Los Angeles County, County Sanitation District No. 20 of Los Angeles County, and Rosamond Community Services District.

e. To deposit the contribution in the amount of $5,000 with the DISTRICT within thirty (30) calendar days of execution of this MOU.

f. To prepare, review, and approve future grant applications for implementation of the ADOPTED PLAN.

(4) LITTLEROCK CREEK IRRIGATION DISTRICT AGREES:

a. To provide and share all necessary and relevant information, data, studies, and/or documentation for the PLAN in its possession as may be requested by the CONSULTANT within thirty (30) calendar days of the request by the CONSULTANT or such information and data, should it be provided at a later date, may not be incorporated in the PLAN due to time constraints.

b. To review and comment on the draft and final versions of technical reports and the draft PLAN within twenty-one (21) calendar days from the date of receipt of said documents from the DISTRICT or Littlerock Creek Irrigation District's comments may not be incorporated in the FINAL PLAN.

c. To present the FINAL PLAN to its governing body for consideration and adoption within forty-five (45) calendar days from the date of receipt of the FINAL PLAN.

d. To provide a contribution in the amount of $5,000 towards the CONSULTANT COSTS collectively shared by the DISTRICT, Antelope Valley-East Kern Water Agency, Palmdale Water District, Quartz Hill Water District, Littlerock Creek Irrigation District, City of Palmdale, City of Lancaster, County Sanitation District No. 14 of Los Angeles County, County Sanitation District No. 20 of Los Angeles County, and Rosamond Community Services District.

e. To deposit the contribution in the amount of $5,000 with the DISTRICT within thirty (30) calendar days of execution of this MOU.

f. To prepare, review, and approve future grant applications for implementation of the ADOPTED PLAN.

(5) ANTELOPE VALLEY STATE WATER CONTRACTORS ASSOCIATION AGREES:

a. To provide and share all necessary and relevant information, data, studies, and/or documentation for the PLAN in its possession as may be requested by the CONSULTANT within thirty (30) calendar days of the request by the CONSULTANT or such information and data, should it be provided at a later date, may not be incorporated in the PLAN due to time constraints.

b. To review and comment on the draft and final versions of technical reports and the draft PLAN within twenty-one (21) calendar days from the date of receipt of said documents from the DISTRICT or Antelope Valley State Water Contractors Association's comments may not be incorporated in the FINAL PLAN.

c. To present the FINAL PLAN to its governing body for consideration and adoption within forty-five (45) calendar days from the date of receipt of the FINAL PLAN.

d. To prepare, review, and approve future grant applications for implementation of the ADOPTED PLAN.

(6) CITY OF PALMDALE AGREES:

a. To provide and share all necessary and relevant information, data, studies, and/or documentation for the PLAN in its possession as may be requested by the CONSULTANT within thirty (30) calendar days of the request by the CONSULTANT or such information and data, should it be provided at a later date, may not be incorporated in the PLAN due to time constraints.

b. To review and comment on the draft and final versions of technical reports and the draft PLAN within twenty-one (21) calendar days from the date of receipt of said documents from the DISTRICT or City of Palmdale's comments may not be incorporated in the FINAL PLAN.

c. To present the FINAL PLAN to its governing body for consideration and adoption within forty-five (45) calendar days from the date of receipt of the FINAL PLAN.

d. To provide a contribution in the amount of $50,000 towards the CONSULTANT COSTS collectively shared by the DISTRICT, Antelope Valley-East Kern Water Agency, Palmdale Water District, Quartz Hill Water District, Littlerock Creek Irrigation District, Cit of Palmdale, City of Lancaster, County Sanitation District No. 14 of Los Angeles County, County Sanitation District No. 20 of Los Angeles County, and Rosamond Community Services District.

e. To deposit the contribution in the amount of $50,000 with the DISTRICT within thirty (30) calendar days of execution of this MOU.

f. To prepare, review, and approve future grant applications for implementation of the ADOPTED PLAN.

(7) CITY OF LANCASTER AGREES:

a. To provide and share all necessary and relevant information, data, studies, and/or documentation for the PLAN in its possession as may be requested by the CONSULTANT within thirty (30) calendar days of the request by the CONSULTANT or such information and data, should it be provided at a later date, may not be incorporated in the PLAN due to time constraints.

b. To review and comment on the draft and final versions of technical reports and the draft PLAN within twenty-one (21) calendar days from the date of receipt of said documents from the DISTRICT or City of Lancaster's comments may not be incorporated in the FINAL PLAN.

c. To present the FINAL PLAN to its governing body for consideration and adoption within forty-five (45) calendar days from the date of receipt of the FINAL PLAN.

d. To provide a contribution in the amount of $45,000 towards the CONSULTANT COSTS collectively shared by the DISTRICT, Antelope Valley-East Kern Water Agency, Palmdale Water District, Quartz Hill Water District, Littlerock Creek Irrigation District, City of Palmdale, City of Lancaster, County Sanitation District No. 14 of Los Angeles County, County Sanitation District No. 20 of Los Angeles County, and Rosamond Community Services District.

e. To deposit the contribution in the amount of $45,000 with the DISTRICT within thirty (30) calendar days of execution of this MOU.

f. To prepare, review, and approve future grant applications for implementation of the ADOPTED PLAN.

(8) COUNTY SANITATION DISTRICT NO. 14 OF LOS ANGELES COUNTY AGREES:

a. To provide and share all necessary and relevant information, data, studies, and/or documentation for the PLAN in its possession as may be requested by the CONSULTANT within thirty (30) calendar days of the request by the CONSULTANT or such information and data, should it be provided at a later date, may not be incorporated in the PLAN due to time constraints.

b. To review and comment on the draft and final versions of technical reports and the draft PLAN within twenty-one (21) calendar days from the date of receipt of said documents from the DISTRICT or County Sanitation District No. 14 of Los Angeles County's comments may not be incorporated in the FINAL PLAN.

c. To present the FINAL PLAN to its governing body for consideration and adoption within forty-five (45) calendar days from the date of receipt of the FINAL PLAN.

d. To provide a contribution in the amount of $22,500 towards the CONSULTANT COSTS collectively shared by the DISTRICT, Antelope Valley-East Kern Water Agency, Palmdale Water District, Quartz Hill Water District, Littlerock Creek Irrigation District, City of Palmdale, City of Lancaster, County Sanitation District No. 14 of Los Angeles County, County Sanitation District No. 20 of Los Angeles County, and Rosamond Community Services District.

e. To deposit the contribution in the amount of $22,500 with the DISTRICT within thirty (30) calendar days of execution of this MOU.

f. To prepare, review, and approve future grant applications for implementation of the ADOPTED PLAN.

(9) COUNTY SANITATION DISTRICT NO. 20 OF LOS ANGELES COUNTY AGREES:

a. To provide and share all necessary and relevant information, data, studies, and/or documentation for the PLAN in its possession as may be requested by the CONSULTANT within thirty (30) calendar days of the request by the CONSULTANT or such information and data, should it be provided at a later date, may not be incorporated in the PLAN due to time constraints.

b. To review and comment on the draft and final versions of technical reports and the draft PLAN within twenty-one (21) calendar days from the date of receipt of said documents from the DISTRICT or County Sanitation District

No. 20 of Los Angeles County's comments may not be incorporated in the FINAL PLAN.

c. To present the FINAL PLAN to its governing body for consideration and adoption within forty-five (45) calendar days from the date of receipt of the FINAL PLAN.

d. To provide a contribution in the amount of $22,500 towards the CONSULTANT COSTS collectively shared by the DISTRICT, Antelope Valley-East Kern Water Agency, Palmdale Water District, Quartz Hill Water District, Littlerock Creek Irrigation District, City of Palmdale, City of Lancaster, County Sanitation District No. 14 of Los Angeles County, County Sanitation District No. 20 of Los Angeles County, and Rosamond Community Services District.

e. To deposit the contribution in the amount of $22,500 with the DISTRICT within thirty (30) calendar days of execution of this MOU.

f. To prepare, review, and approve future grant applications for implementation of the ADOPTED PLAN.

(10) ROSAMOND COMMUNITY SERVICES DISTRICT AGREES:

a. To provide and share all necessary and relevant information, data, studies, and/or documentation for the PLAN in its possession as may be requested by the CONSULTANT within thirty (30) calendar days of the request by the CONSULTANT or such information and data, should it be provided at a later date, may not be incorporated in the PLAN due to time constraints.

b. To review and comment on the draft and final versions of technical reports and the draft PLAN within twenty-one (21) calendar days from the date of receipt of said documents from the DISTRICT or Rosamond Community Services District's comments may not be incorporated in the FINAL PLAN.

c. To present the FINAL PLAN to its governing body for consideration and adoption within forty-five (45) calendar days from the date of receipt of the FINAL PLAN.

d. To provide a contribution in the amount of $5,000 towards the CONSULTANT COSTS collectively shared by the DISTRICT, Antelope Valley-East Kern Water Agency, Palmdale Water District, Quartz Hill Water District, Littlerock Creek Irrigation District, City of Palmdale, City of Lancaster, County Sanitation District No. 14 of Los Angeles County, County Sanitation District No. 20 of Los Angeles County, and Rosamond Community Services District.

e. To deposit the contribution in the amount of $5,000 with the DISTRICT within thirty (30) calendar days of execution of this MOU.

f. To prepare, review, and approve future grant applications for implementation of the ADOPTED PLAN.

(11) DISTRICT AGREES:

a. To administer a CONSULTANT CONTRACT for the PLAN, including preparation of a request for proposals, evaluation of CONSULTANT proposals, award of a CONSULTANT CONTRACT, and oversight of the CONSULTANT services.

b. To facilitate stakeholder meetings.

c. To provide and share all necessary and relevant information, data, studies, and/or documentation for the PLAN in its possession as may be requested by the CONSULTANT within thirty (30) calendar days of the request by the CONSULTANT or such information and data, should it be provided at a later date, may not be incorporated in the PLAN due to time constraints.

d. To provide each agency with copies of the draft and final versions of technical reports and the draft PLAN within seven (7) calendar days from the date of receipt of said documents from the CONSULTANT, and to transmit comments to the CONSULTANT within seven (7) calendar days from the date of receipt of said documents from each agency.

e. To review and comment on the draft and final versions of technical reports and the draft PLAN within twenty-one (21) calendar days from the date of receipt of said documents from the DISTRICT or DISTRICT's comments may not be incorporated in the PLAN.

f. To present the FINAL PLAN to its governing body for consideration and adoption within forty-five (45) calendar days from the date of receipt of the FINAL PLAN.

g. To provide a contribution in the amount of $60,000 towards the CONSULTANT COSTS collectively shared by the DISTRICT, Antelope Valley-East Kern Water Agency, Palmdale Water District, Quartz Hill Water District, Littlerock Creek Irrigation District, City of Palmdale, City of Lancaster, County Sanitation District No. 14 of Los Angeles County, County Sanitation District No. 20 of Los Angeles County, and Rosamond Community Services District.

h. To prepare, review, and approve future grant applications for implementation of the ADOPTED PLAN.

(12) IT IS MUTUALLY UNDERSTOOD AND AGREED AS FOLLOWS:

a. If the governing body of the Antelope Valley-East Kern Water Agency, Palmdale Water District, Quartz Hill Water District, Littlerock Creek Irrigation District, Antelope Valley State Water Contractors Association, City of Palmdale, City of Lancaster, County Sanitation District No. 14 of Los Angeles County, County Sanitation District No. 20 of Los Angeles County, Rosamond Community Services District or DISTRICT does not adopt the PLAN within forty-five (45) calendar days from the date of receipt of the FINAL PLAN, such action or inaction shall constitute withdrawal from the Regional Water Management Group. An agency which withdraws from the Regional Water Management Group may be reinstated when the agency adopts the FINAL PLAN and agrees to any additions and/or amendments to the MOU.

b. Upon completion of the ADOPTED PLAN, the DISTRICT shall prepare a final accounting (the "Accounting") of all final actual CONSULTANT COSTS for review by the Antelope Valley-East Kern Water Agency, Palmdale Water District, Quartz Hill Water District, Littlerock Creek Irrigation District, City of Palmdale, City of Lancaster, County Sanitation District No. 14 of Los Angeles County, County Sanitation District No. 20 of Los Angeles County, and Rosamond Community Services District.

c. If the funds deposited with the DISTRICT exceed the CONSULTANT COSTS, based upon the Accounting, the DISTRICT shall refund the excess funds to the Antelope Valley-East Kern Water Agency, Palmdale Water District, Quartz Hill Water District, Littlerock Creek Irrigation District, City of Palmdale, City of Lancaster, County Sanitation District No. 14 of Los Angeles County, County Sanitation District No. 20 of Los Angeles County, and Rosamond Community Services District in proportion to their contribution towards the CONSULTANT COSTS within sixty (60) days after completion of the PLAN.

d. If the CONSULTANT COSTS exceed the funds deposited with the DISTRICT, the Antelope Valley-East Kern Water Agency,* Palmdale Water District, Quartz Hill Water District, Littlerock Creek Irrigation District, City of Palmdale, City of Lancaster, County Sanitation District No. 14 of Los Angeles County, County Sanitation District No. 20 of Los Angeles County, and Rosamond Community Services District will supplement this MOU to fund the additional portion of the CONSULTANT COSTS in excess of the funds deposited with the DISTRICT in proportion to their original contributions towards the CONSULTANT COSTS.

*Exception taken per AVEK Board action on January 09, 2007.

e. This MOU may be amended or modified only by mutual written consent of all parties.

f. The Regional Water Management Group shall terminate twenty (20) years after the date of execution unless renewed by mutual written consent from all parties prior to expiration.

g. All parties agree to release the DISTRICT of any liability and in connection with all claims arising out of this MOU, including relating to the CONTRACT with the CONSULTANT, and including in connection with any and all claims by third parties relating to the CONSULTANT's work under the CONTRACT and/or any violation or alleged violation of the ACT as a result thereof, including pursuant to Civil Code Section 1542, which states:

> "A general release does not extend to claims which the creditor does not know or suspect to exist in his or her favor at the time of executing the release, which if known by him or her must have materially affected his or her settlement with the debtor."

h. Notwithstanding the foregoing and notwithstanding any provision of law, including as contained in the California Government Code, and including Sections 895 *et. seq.*, therein, any and all liability or expenses (including attorneys' and experts' fees and related costs) to the DISTRICT for claims by third parties or CONSULTANT and injury to third parties or CONSULTANT, arising from or relating to this MOU shall be allocated among the parties on the basis of the percent of contribution required of each party under this MOU. As an example only, the percentage of contribution of Antelope Valley-East Kern Water Agency is 15 percent. Each party shall reimburse the DISTRICT for its allocated share of the costs described herein within thirty (30) calendar days of issuance of an invoice by the DISTRICT. The term "injury" shall have the meaning prescribed by Section 810.8 of the Government Code. This provision shall survive termination of this Agreement.

i. If any provision of this MOU is held, determined or adjudicated to be illegal, void, or unenforceable by a court of competent jurisdiction, the reminder of this MOU shall be given effect to the fullest extent possible.

j. Any correspondence, communication, or contact concerning this MOU shall be directed to the following:

ANTELOPE VALLEY-EAST KERN WATER AGENCY:

Mr. Russell E. Fuller
General Manager
6500 West Avenue N
Palmdale, CA 93551

PALMDALE WATER DISTRICT:

Mr. Dennis LaMoreaux
General Manager
2029 East Avenue Q
Palmdale, CA 93550

QUARTZ HILL WATER DISTRICT:

Mr. Dave Meraz
General Manager
42141 50th Street West
Quartz Hill, CA 93536

LITTLEROCK CREEK IRRIGATION DISTRICT:

Mr. Brad Bones
General Manager
35141 North 87th Street East
Littlerock, CA 93543

ANTELOPE VALLEY STATE WATER CONTRACTORS ASSOCIATION:

Ms. Barbara Hogan
Chairperson
c/o Palmdale Water District
2029 East Avenue Q
Palmdale, CA 93550

CITY OF PALMDALE:

Mr. Leon Swain
Public Works Director
38250 Sierra Highway
Palmdale, CA 93550

CITY OF LANCASTER:

Mr. Randy Williams
Public Works Director
44933 Fern Avenue
Lancaster, CA 93534

COUNTY SANITATION DISTRICT NO. 14 OF LOS ANGELES COUNTY:

Mr. James F. Stahl
Chief Engineer and General Manager
County Sanitation Districts of Los Angeles County
1955 Workman Mill Road
Whittier, CA 90601

COUNTY SANITATION DISTRICT NO. 20 OF LOS ANGELES COUNTY:

Mr. James F. Stahl
Chief Engineer and General Manager
County Sanitation Districts of Los Angeles County
1955 Workman Mill Road
Whittier, CA 90601

ROSAMOND COMMUNITY SERVICES DISTRICT:

Mr. Claud Seal
Assistant General Manager
3179 35th Street
Rosamond, CA 93560

DISTRICT:

Mr. Manuel del Real
Assistant Deputy Director
Waterworks & Sewer Maintenance Division
County of Los Angeles
Department of Public Works
P.O. Box 1460
Alhambra, CA 91802-1460

k. Each person signing this MOU represents to have the necessary power and authority to bind the entity on behalf of which said person is signing and each of the other parties can rely on that representation.

l. This MOU may be executed in counterparts, each counterpart being an integral part of this MOU.

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IN WITNESS WHEREOF, the parties hereto have caused this MOU to be executed by their respective officers, duly authorized, by ANTELOPE VALLEY-EAST KERN WATER AGENCY; and

ANTELOPE VALLEY-EAST KERN
WATER AGENCY

By _____

APPROVED AS TO FORM:

By _____
Legal Counsel

IN WITNESS WHEREOF, the parties hereto have caused this MOU to be executed by their respective officers, duly authorized, by Palmdale Water District; and

Palmdale Water District

By _____
General Manager

APPROVED AS TO FORM:

By _____
Legal Counsel

IN WITNESS WHEREOF, the parties hereto have caused this MOU to be executed by their respective officers, duly authorized, by Quartz Hill Water District; and

Tier No. 3 Level of
Contribution - $5000.00

Quartz Hill Water District

By Dave Meraz
Dave Meraz,
General Manager

APPROVED AS TO FORM:

By
Legal Counsel
Brad Weeks, Esq.

By: Allen D Flick Sr.
Allen Flick, Sr.
Quartz Hill Water District
Board President

Approved at the Regular Board Meeting, held on Thurs., September 14, 2006.

Attested
By: Denise E. Burks
Denise Burks,
Board Secretary

Carried: 4-0

Ayes: P.Powell, J. powell, A. Flick, F. Tymon
Noes: ø

Abstained: ø

Absent: Ben Harrison, Jr.
Passed on 8-7-06

IN WITNESS WHEREOF, the parties hereto have caused this MOU to be executed by their respective officers, duly authorized, by Littlerock Creek Irrigation District; and

Littlerock Creek Irrigation District

By _____
Brad Bones, General Manager

APPROVED AS TO FORM:

By _____
Legal Counsel

IN WITNESS WHEREOF, the parties hereto have caused this MOU to be executed by their respective officers, duly authorized, by ANTELOPE VALLEY STATE WATER CONTRACTORS ASSOCIATION; and

ANTELOPE VALLEY STATE WATER CONTRACTORS ASSOCIATION

By Barbara Hogan
Barbara Hogan

APPROVED AS TO FORM:

By Dayne Lemmon
Legal Counsel

IN WITNESS WHEREOF, the parties hereto have caused this MOU to be executed by their respective officers, duly authorized, by City of Palmdale; and

City of Palmdale

By _____
James C. Ledford
Mayor

APPROVED AS TO FORM:

By _____
Wm. Matthew Ditzhazy
City Attorney

Attest:

By: _____
Victoria L. Hancock, CMC
City Clerk

IN WITNESS WHEREOF, the parties hereto have caused this MOU to be executed by their respective officers, duly authorized, by CITY OF LANCASTER; and

APPROVED BY DEPT. HEAD _____

CITY OF LANCASTER

By _____

Bishop Henry W. Hearns
Mayor

APPROVED AS TO FORM:

By _____
Legal Counsel

Attest:

_____
City Clerk

IN WITNESS WHEREOF, the parties hereto have caused this MOU to be executed by their respective officers, duly authorized, by County Sanitation District No. 14 of Los Angeles; and

County Sanitation District No. 14
of Los Angeles County

By _____
Chief Engineer and General Manager

ATTEST:

By _____
Secretary to the Board

APPROVED AS TO FORM:

Lewis, Brisbois, Bisgaard, and Smith LLP

By _____
District Counsel

IN WITNESS WHEREOF, the parties hereto have caused this MOU to be executed by their respective officers, duly authorized, by County Sanitation District No. 20 of Los Angeles; and

County Sanitation District No. 20
of Los Angeles County

By _____
Chief Engineer and General Manager

ATTEST:

By _____
Secretary to the Board

APPROVED AS TO FORM:

Lewis, Brisbois, Bisgaard, and Smith LLP

By _____
District Counsel

IN WITNESS WHEREOF, the parties hereto have caused this MOU to be executed by their respective officers, duly authorized, by ROSAMOND COMMUNITY SERVICES DISTRICT; and

ROSAMOND COMMUNITY
SERVICES DISTRICT

By _____

APPROVED AS TO FORM:

By _____
Legal Counsel

IN WITNESS WHEREOF, the parties hereto have caused this MOU to be executed by their respective officers, duly authorized, by DISTRICT.

DISTRICT:

LOS ANGELES COUNTY
WATERWORKS DISTRICT NO. 40

By _____
for Director of Public Works

APPROVED AS TO FORM:

RAYMOND G. FORTNER, JR.
County Counsel

By _____
Deputy

Exhibit A

RESOLUTION OF THE *[governing body of agency]*, ADOPTING THE INTEGRATED REGIONAL WATER MANAGEMENT PLAN FOR THE ANTELOPE VALLEY

WHEREAS, the Antelope Valley-East Kern Water Agency, Palmdale Water District, Quartz Hill Water District, Littlerock Creek Irrigation District, Antelope Valley State Water Contractors Association, City of Palmdale, City of Lancaster, County Sanitation District No. 14 of Los Angeles County, County Sanitation District No. 20 of Los Angeles County, Rosamond Community Services District, and Los Angeles County Waterworks District No. 40, Antelope Valley are designated as a "Regional Water Management Group" under the California Water Code Division 6, Part 2.2, known as the *Integrated Regional Water Management Planning Act of 2002*, hereinafter referred to as "ACT"; and

WHEREAS, under the ACT, the parties collaboratively prepared an Integrated Regional Water Management Plan for the Antelope Valley that meets the requirements of the ACT, hereinafter referred to as "PLAN"; and

WHEREAS, Section 10531 of the ACT includes the following declarations:

(d) Water is a valuable natural resource in California, and should be managed to ensure the availability of sufficient supplies to meet the state's agricultural, domestic, industrial, and environmental needs. It is the intent of the Legislature to encourage local agencies to work cooperatively to manage their available local and imported water supplies to improve the quality, quantity, and reliability of those supplies.

(e) Improved coordination among local agencies with responsibilities for managing water supplies and additional study of groundwater resources are necessary to maximize the quality and quantity of water available to meet the state's agricultural, domestic, industrial, and environmental needs.

(f) The implementation of the Integrated Regional Water Management Planning Act of 2002 will facilitate the development of integrated regional water management plans, thereby maximizing the quality and quantity of water available to meet the state's water needs by providing a framework for local agencies to integrate programs and projects that protect and enhance regional water supplies.

WHEREAS, the adoption of the PLAN will allow the Antelope Valley Region to compete for State grant funding available under Proposition 50, proposed Proposition 84, and other future State and/or Federal grant programs.

NOW, THEREFORE, BE IT RESOLVED, that the *[governing body of agency]*, hereby adopts the PLAN.

The foregoing Resolution was adopted on the____day of_____, 2007, by the *[governing body of agency]*, as the governing body of the *[agency]*.

By _____

APPROVED AS TO FORM:

By _____
Legal Counsel

Appendix B

Stakeholder Meeting Materials

- Stakeholder Meeting Programs
- Stakeholder Meeting Sign In Sheets

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Stakeholder Meeting Programs

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Bios

Tracie Billington is the Chief of Special Projects within the Department of Water Resources Division of Planning and Local Assistance. She oversees various grant and loan programs including the Proposition 50 Integrated Regional Water Management Grant Program, Proposition 13 Groundwater Storage Program, and the Local Groundwater Assistance Grant Program. She has been with DWR since 2000 and prior to joining DWR she worked in the hazardous waste field.

Dan Lafferty graduated from Marquette University and has worked for the Los Angeles County Department of Public since 1986. In his 20 year career he has served in Public Works Water Resources Division, as Disaster Services Coordinator, and in his current position as Assistant Division Engineer in the Watershed Management Division. Dan Chaired the committee that developed the strategic plan for Public Works to implement watershed management as an approach to its historic mission of providing flood hazard mitigation and water conservation. He has a law degree from Loyola Law School and is a member of the California Bar. His present responsibilities include overseeing the water quality compliance efforts on behalf of the County and implementing watershed management projects and programs in areas tributary to Santa Monica Bay.

Kirby Brill has served as the General Manager at Mojave Water Agency since October 2000. Mr. Brill has worked in the public and private sectors during his 20 plus years of experience in Water Resources management. Prior to his employment at Mojave Water Agency, Mr. Brill was the Executive Director at San Gabriel Basin Water Quality Authority. He has also served as the Head of the Hydrogeology Department at Orange County Water District. Mr. Brill received his Bachelor of Science degree in Civil Engineering with a minor in Geology from California State University, Fullerton. He also holds a Master of Business Administration, Technology Management degree from the University of Phoenix, and he is a licensed Professional Engineer in the State of California.

Antelope Valley Integrated Regional Water Management Plan

Kick-off Meeting

May 31, 2006, 9 a.m. – 12 noon

Larry Chimbole Cultural Center
(38350 Sierra Highway, Palmdale)

Why is IRWM Planning Important?

Regional collaboration can promote a more efficient, comprehensive, and effective approach to water resources management while being responsive within a regional context to the needs of individual communities and jurisdictions. In addition, as State funding is becoming more oriented toward regional planning, it is in the Antelope Valley Region's best interests to develop an Integrated Regional Water Management (IRWM) Plan to successfully compete for future funding opportunities. The Antelope Valley Region IRWM Plan will serve as the blueprint to facilitate this type of regional cooperation.

Today, local agencies, organizations, cities, and county government are working together to develop an IRWM Plan for the Region that is inclusive and provides opportunities for cost effective solutions to address the water resource needs of the Region.

Check http://ladpw.org/WWD/avirwmp/ for additional information.

Goals for IRWM Plan:

- Develop a comprehensive plan to meet the Antelope Valley's future regional needs for water supply reliability by evaluating opportunities for water recycling, water conservation, groundwater management, conjunctive use, water transfers, water quality improvement, storm water capture and management, flood management, recreation and public access, and environmental and habitat protection and improvement;
- Foster coordination, collaboration and communication among public agencies in the Antelope Valley and other interested stakeholders to achieve greater water-use efficiencies, enhance public services, and build public support for vital projects; and
- Improve regional competitiveness for future State and Federal grant funding.

Meeting Agenda:

- 9:00 Welcome, Introductions, Meeting Agenda and Objectives (Ariki)
- 9:10 Overview of IRWM Process and Relation to the California Water Plan (Billington)
- 9:30 Overview of the Watershed Management Approach and IRWM process in the Los Angeles Basin (Lafferty)
- 9:45 Overview of Mojave Water Agency and its IRWM process (Brill)
- 10:00 Discussion of Antelope Valley IRWM Goals, Governance Structure and Stakeholder Process (Pedersen)
- 10:20 Break
- 10:30 Breakout Session (Rydman)
  - ✓ Discussion of Antelope Valley IRWM Issues and Objectives
  - ✓ Discussion of Projects and Project Concepts
- 11:30 Discussion of Antelope Valley IRWM Plan Outline and Schedule (Kim)
- 11:45 Q & A and Next Steps (Ariki)

Meeting Objectives:

- Provide background information on the Prop 50 Chapter 8 IRWM program.
- Discuss development of IRWM Plan in the Antelope Valley.
- Establish communications and build working relationships.

Bios

Paul McCarthy began work with the Department of Regional Planning in 1973 after graduating from USC with a Master's Degree in Public Administration and a Bachelor's Degree in Political Science and Urban Planning from the University of California at Northridge.

He is currently serving as Supervising Regional Planner in charge of the update of the Countywide General Plan. Working in the Advanced Planning Division is a new experience for him which he began March 1, 2006 following the retirement of Lee Stark.

The vast majority of his career has been spent with the Current Planning Division of the Department including time served in the Zoning Permits Section which processed all Conditional Use Permit applications for the Department. More recently he has supervised the Land Divisions Section which is responsible for processing all Parcel Map and Tract Map applications within the unincorporated portions of the County for eight years. He has also supervised Research and Enforcement Section for most of the past five years while working closely with the District Attorney's Public Integrity Division on a corruption investigation. The investigation resulted in the conviction of a former employee who is currently serving a term of four years in State prison. The Research and Enforcement Section processes all of Certificate of Compliance and Lot Line Adjustment applications.

In the aforementioned capacities he has regularly attended meetings of the Greater Antelope Valley Association of Realtors to brief them on planning issues of concern to the Antelope Valley and has served as a member of the District Attorney's Real Estate Fraud Task Force.

Both the Zoning Permits and Land Divisions experience has given him many hours of experience testifying before the Regional Planning Commission and the Board of Supervisors, City Councils and numerous community groups regarding a wide range of project proposals.

Laurie Lile is the Planning Director for the City of Palmdale.

Brian S. Ludicke is the Planning Director for the City of Lancaster. He has been with the City of Lancaster Planning Department since 1983. He is also a native of the Antelope Valley.

Antelope Valley Integrated Regional Water Management Plan

2nd Stakeholder Meeting

June 28, 2006, 9 a.m. – 12 noon

City of Palmdale – City Council Chambers
(38300 Sierra Highway, Palmdale CA 93550)

Invitees' List

The following is a list of the Antelope Valley Region's stakeholders currently invited to participate in the planning process.

State Water Project Contractors
- Antelope Valley-East Kern Water Agency
- Littlerock Creek Irrigation District
- Palmdale Water District

Retail Water Purveyors
- Los Angeles County Waterworks District #40, Antelope Valley
- Quartz Hill Water District
- Rosamond Community Services District

Local Jurisdictions / Land-Use Planning Agencies
- City of Palmdale
- City of Lancaster
- City of California City
- City of Boron
- Los Angeles County Department of Regional Planning
- Kern County Planning Department

Regulatory Agencies / State Agencies
- Lahontan Regional Water Quality Control Board
- California Department of Health Services
- California State Parks
- California State Department of Fish and Game

Environmental Community
- Antelope Valley Resource Conservation District
- Sierra Club

Building Industry
- Building Industry Association - Antelope Valley Chapter
- Building Industry Association - Kern County Chapter

Agricultural / Farm Industry
- Los Angeles County Farm Bureau
- Kern County Farm Bureau

Wastewater Agency
- County Sanitation District Nos. 14 and 20 of Los Angeles County

Others
- U.S. Borax
- Edwards Air Force Base
- Mutual Water Companies

Meeting Objectives:

- Provide a brief recap of the kick-off meeting to the new stakeholders.
- Understand the vision of the various land-use planning agencies for the future of the Antelope Valley.
- Discuss the steps to form the Regional Water Management Group for the Antelope Valley IRWM plan.
- Discuss the scope of work, preliminary budget, and proposed schedule for the Antelope Valley IRWM plan.

Meeting Agenda:

- 9:00 Welcome, Introductions, Meeting Objectives and Agenda (Ariki)
- 9:10 Recap of the May Meeting (Ariki)
- 9:30 Overview of Los Angeles County's General Plan Element for the Antelope Valley (McCarthy)
- 9:50 Overview of City of Palmdale's General Plan (Lile)
- 10:10 Overview of City of Lancaster's General Plan (Ludicke)
- 10:30 Panel Discussion (McCarthy, Lile, and Ludicke)
- 11:15 Break
- 11:25 Discussion of Formation of Regional Water Management Group (Pedersen)
- 11:35 Discussion of Proposed Work Plan, Preliminary Budget, and Tentative Schedule (Cotton)
- 11:50 Q&A and Next Meeting (Ariki)

Bios

Dennis D. LaMoreaux serves as the PWD General Manager. Mr. LaMoreaux has been employed by the District since March, 1989. Originally hired as the Assistant Engineer-Manager, he was promoted to General Manager in September, 1994. His responsibilities are chiefly to oversee the day-to-day District operations and implementation of Board policies. His previous employment was with private consulting firms in California and Wyoming where he was involved in design and inspection of projects. He is licensed as a Civil Engineer in California who graduated from the University of Wyoming with a B.S. Degree in Civil Engineering in 1984.

Leon E. Swain is serving as Director of Public Works, City of Palmdale. Mr. Swain has served in various capacities with 4 public works agencies in his 25-year career in public works. Most recently he has served with the City of Palmdale's Department of Public Works for 17 years, the last 3 years as the City's Director of Public Works. Previous to that, he served with the Los Angeles County Department of Public Works for over 5 years. Mr. Swain has been involved with water resource planning efforts in the Antelope Valley since 1990.

Mr. Swain is a registered civil engineer in the states of California and Maine and holds a Bachelor of Science Degree in Civil Engineering and a Masters Degree in Public Administration.

Mr. Swain is a current board member and past-president of the American Public Works Association - Southern California Chapter, High Desert Branch and was a past-president and board member of the Professional Engineering Association of the Antelope Valley.

James R. "Randy" Williams, PE is serving as Director of Public Works for the City of Lancaster since July of 2003, Mr. Williams brought considerable engineering experience with him to guide the efforts of the City's Public Works Department. Educated at the U. S. Naval Academy and the Georgia Institute of Technology, he earned bachelors degrees in mechanical and civil engineering and a masters degree in structural engineering. Having served 27 years at naval bases around the world, 10 years as public works director for large navel bases, Mr. Williams retired as a Captain of the Navy's Civil Engineer Corps. Mr. Williams also served five years as the Director of Public Works for the City of Poway in San Diego County, and another five years as Program Manager and Managing Engineer for the San Diego office of Boyle Engineering Corporation. He was responsible for overseeing and guiding the design and construction for a nearly $300 million water project that included a 310 foot high concrete dam; several miles of large diameter pipelines; 4 ½ miles of new roads through mountainous, undeveloped area; a bridge; a 20,000 horsepower pumping station; and a 35 million gallon per day ultra-filtration, membrane potable treatment plant. Mr. Williams served three years on the Board of Directors for the San Diego County Water Authority and as chairman for several committees including the Board's Water Policy Committee. He is licensed as a professional engineer in California and Hawaii.

Antelope Valley Integrated Regional Water Management Plan

3rd Stakeholder Meeting

July 26, 2006, 9 a.m. – 12 noon

Larry Chimbole Cultural Center
(38350 Sierra Highway, Palmdale CA 93550)

Antelope Valley Regional Water Management Group

Formation of a Regional Water Management Group is needed:

- To meet the requirements of Water Code Section 10540,
- To finance preparation of the Integrated Regional Water Management (IRWM) Plan,
- To adopt the IRWM Plan, and
- To submit future grant applications.

A Regional Water Management Group must:

- Consist of three or more local public agencies, at least two of which have statutory authority over water supply, and
- Participate by means of a Memorandum of Understanding (MOU).

The following is a list of the agencies that have currently expressed interest in joining the Antelope Valley Regional Water Management Group:

- Los Angeles County Waterworks District No. 40, Antelope Valley
- Antelope Valley-East Kern Water Agency
- Palmdale Water District
- Quartz Hill Water District
- Littlerock Creek Irrigation District
- City of Palmdale
- City of Lancaster
- Los Angeles County Sanitation District Nos. 14 & 20
- Los Angeles County Farm Bureau

Meeting Objectives:

- Provide a brief recap of the 2nd stakeholder meeting for any new stakeholders.
- Understand the issues, concerns, challenges and/or vision of various stakeholders for the future water resources management in the Antelope Valley.
- Discuss the next steps to form the Regional Water Management Group for the Antelope Valley IRWM Plan.
- Review the final scope of work, preliminary fee proposal, and schedule for the Antelope Valley IRWM Plan.

Meeting Agenda:

- 9:00 Welcome, Introductions, Meeting Objectives and Agenda (Ariki)
- 9:10 Recap of the June Meeting (Ariki)
- 9:30 Palmdale Water District's Vision of the Future (LaMoreaux)
- 9:50 City of Palmdale's Vision for Integrated Regional Water Management Plan for the Antelope Valley (Swain)
- 10:10 Smooth Sailing in the Antelope Valley (Williams)
- 10:30 Panel Discussion (LaMoreaux, Swain, and Williams)
- 11:15 Break
- 11:25 Review of Draft MOU, Preliminary Budget, and Cost-sharing Criteria (Pedersen)
- 11:40 Discussion of Final Work Plan, Preliminary Fee Proposal, and Tentative Schedule (Cotton)
- 11:55 Q&A and Next Meeting (Ariki)

"Coming together is a beginning. Keeping together is progress. Working together is success." - Henry Ford

We want to hear from you!

The Antelope Valley Region is collaborating to develop an Integrated Regional Water Management (IRWM) Plan that focuses on water resource management while creating a platform for future funding and **we need your input!**

Come share your ideas and help us to plan for the future!

Get Involved:

- **Attend the next stakeholder meeting on August 30, 2006.**
- **Visit our website at http://www.avwaterplan.org to find more information about the Antelope Valley IRWM process and future stakeholder meetings, to get on the mailing list, and to submit projects and project ideas.**

Antelope Valley Integrated Regional Water Management Plan

4th Stakeholder Meeting

August 30, 2006, 9 a.m. – 11:30 a.m.

Larry Chimbole Cultural Center
(38350 Sierra Highway, Palmdale CA 93550)

Antelope Valley Regional Water Management Group

Formation of a Regional Water Management Group is needed

- To adopt the Integrated Regional Water Management (IRWM) Plan ; and
- To submit future grant applications

A Regional Water Management Group must

- Consist of three or more local public agencies, at least two of which have statutory authority over water supply; and
- Participate by means of an Memorandum of Understanding (MOU)

The following is a list of the agencies that are expected to be members of the Antelope Valley Regional Water Management Group (10 total):

- Los Angeles County Waterworks Dist. No. 40
- Antelope Valley-East Kern Water Agency
- Palmdale Water District
- Quartz Hill Water District
- Littlerock Creek Irrigation District
- City of Palmdale
- City of Lancaster
- Los Angeles County Sanitation Dist. No. 14 & 20
- Rosamond Community Services District
- Antelope Valley State Water Contractors Association

Meeting Objectives:

- Provide a brief recap of the 3rd stakeholder meeting for any new stakeholders.
- Understand the issues, needs, challenges and/or vision of various stakeholders for the future water resources management in the Antelope Valley.
- Review the final MOU for the Regional Water Management Group and provide an update on the status of participation.
- Review the revised scope of work, budget, and schedule for the Antelope Valley IRWM Plan.

Meeting Agenda:

- 9:00 Welcome, Introductions, Meeting Objectives and Agenda (Ariki)
- 9:05 Recap of the July Meeting (Ariki)
- 9:15 Rosamond Community Services District—North Antelope Valley Perspective for IRWM Plan (Neufeld and Seal)
- 9:35 Quartz Hill Water District's Vision for the Antelope Valley IRWM Plan (Meraz)
- 9:55 Los Angeles County Waterworks District No. 40's Vision for the Antelope Valley IRWM Plan (Pedersen and Kim)
- 10:15 Q & A
- 10:30 Break
- 10:45 Review of the Final MOU for the Regional Water Management Group and Update on the Status of Participation (Pedersen)
- 10:55 Discussion of Revised Scope of Work, Budget, and Schedule (Kim and Cotton)
- 11:10 Opportunities for Professional Facilitation (Kirby)
- 11:25 Next Meeting (Ariki)

Bios

Gretchen Gutierrez has been the Executive Director for the Antelope Valley Building Industry Association (BIA) for 10+ years. Prior to her joining the BIA, she was with two national homebuilders, serving as Marketing Director for projects throughout LA & Ventura Counties. Having grown up in a construction family provided a solid background for the homebuilding industry. Gretchen holds a Bachelor's Degree in Criminal Law and serves on a number of community charity organizations board of directors.

Ray Tremblay is serving as the LA County Sanitation Districts' Monitoring Section Head. Mr. Tremblay has been employed by the Districts since 1993. He has also served with the Districts sewerage operations and construction management sections. Educated at the University of Michigan, he earned his Bachelor's degree in Civil Engineering and Master's degree in Environmental Engineering. He is a registered civil engineer in the state of California. His responsibilities are chiefly to ensure regulatory compliances at the Districts' water reclamation plants in Northern Los Angeles County.

John Goit is the Vice President of Sundale Mutual Water Company and serves as the Director of the Los Angeles County Farm Bureau.

Laura Blank is the Executive Director of the Los Angeles County Farm Bureau.

Antelope Valley Integrated Regional Water Management Plan

5th Stakeholder Meeting

September 27, 2006, 9 a.m. – 11 a.m.

Larry Chimbole Cultural Center
(38350 Sierra Highway, Palmdale CA 93550)

Antelope Valley Regional Water Management Group

Formation of a Regional Water Management Group is needed

- To adopt the Integrated Regional Water Management (IRWM) Plan ; and
- To submit future grant applications

A Regional Water Management Group must

- Consist of three or more local public agencies, at least two of which have statutory authority over water supply; and
- Participate by means of an Memorandum of Understanding (MOU)

The following is a list of the agencies that are expected to be members of the Antelope Valley Regional Water Management Group (11 total):

- Los Angeles County Waterworks Dist. No. 40
  (Recommendation to Board for approval of $60,000 on Oct. 10)
- Antelope Valley-East Kern Water Agency
  (Board's approval of $50,000 on 8/29)
- Palmdale Water District
  (Board's approval of $60,000 on 8/23)
- Quartz Hill Water District
  (Board's approval of $5,000 on 9/14)
- Littlerock Creek Irrigation District
  (Board's approval of $5,000 on 8/23)
- City of Palmdale
  (City Council's approval of $50,000 on 8/2)
- City of Lancaster
  (Recommendation to City Council for approval on 9/26)
- Los Angeles County Sanitation Dist. No. 14
  (Recommendation to Board for approval on 9/27)
- Los Angeles County Sanitation Dist. No. 20
  (Recommendation to Board for approval on 9/27)
- Rosamond Community Services District
  (Board's approval of $5,000 on 8/23)
- Antelope Valley State Water Contractors Association

Meeting Objectives:

- Provide a brief recap of the 4th stakeholder meeting.
- Understand the issues, needs, challenges and/or vision of various stakeholders for the future water resources management in the Antelope Valley.
- Present the final MOU to form the Regional Water Management Group for the Antelope Valley IRWM Plan.
- Present Consultant's scope of work and budget.
- Discuss next steps for the Antelope Valley IRWM Plan development.

Meeting Agenda:

- 9:00 Welcome, Introductions, Meeting Objectives and Agenda (Ariki)
- 9:05 Recap of the August Meeting (Ariki)
- 9:15 County Sanitation District Nos. 14 and 20 of Los Angeles County's vision for water resources management in the Antelope Valley (Tremblay)
- 9:35 Housing Trends in the Antelope Valley (Gutierrez)
- 9:55 Water Banking in the Armagosa Creek (Goit and Blank)
- 10:15 Q&A
- 10:30 Update on Status of MOU for Regional Water Management Group (Pedersen)
- 10:35 Review of Proposed Scope of Work for Professional Facilitation (Pedersen)
- 10:45 Review of Consultant's Budget & Discussion of Next Steps for the IRWM Plan Development (Cotton)
- 10:55 Next Meeting (Ariki)

"Coming together is a beginning. Keeping together is progress. Working together is success." - Henry Ford

We want to hear from you!

The Antelope Valley Region is collaborating to develop an Integrated Regional Water Management (IRWM) Plan that focuses on water resource management while creating a platform for future funding.

Come share your ideas and help us to plan for the future!

Get Involved:

- **Attend the next stakeholder meeting on December 13, 2006.**
- **Visit our website at http://www.avwaterplan.org to find more information about the Antelope Valley IRWM process and future stakeholder meetings, to get on the mailing list, and to submit potential projects.**

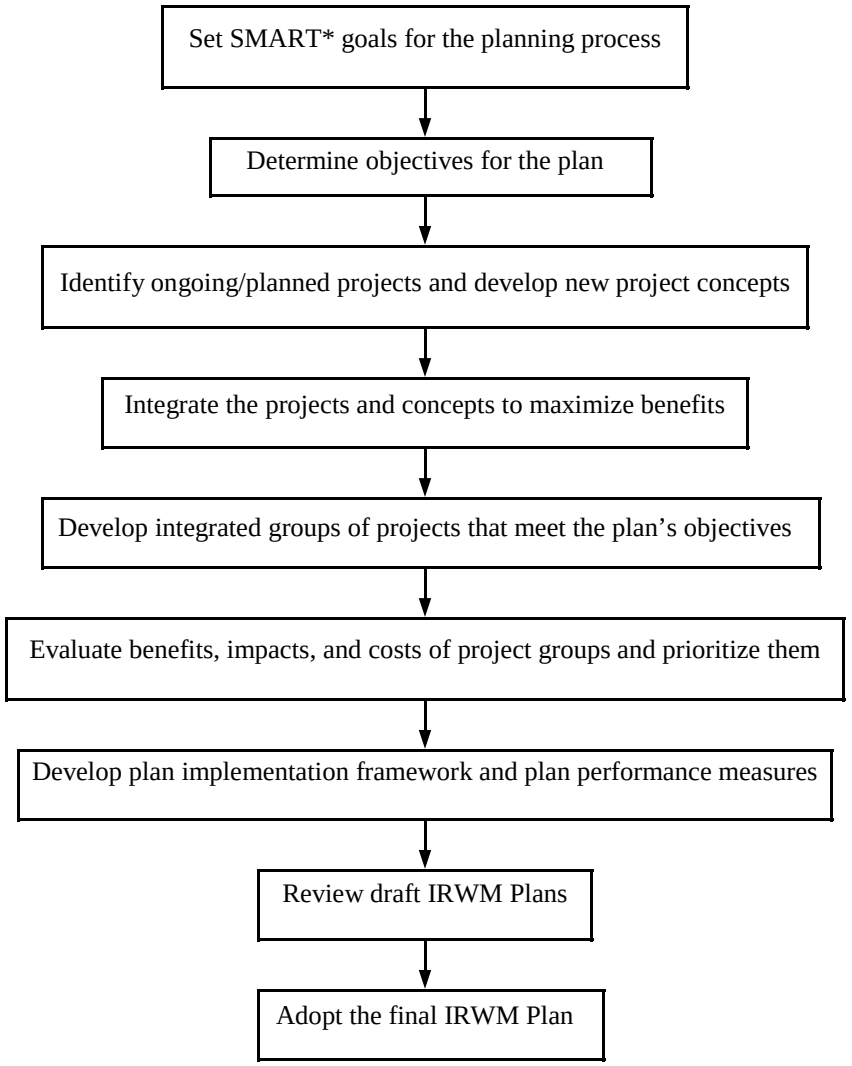
Antelope Valley Integrated Regional Water Management Plan

6th Stakeholder Meeting

November 1, 2006, 9 am. – 12 noon

Larry Chimbole Cultural Center
(38350 Sierra Highway, Palmdale CA 93550)

Antelope Valley Integrated Regional Water Management Planning Process Lite



*SMART stands for Specific, Measurable, Attainable, Relevant, and Time-based.

Meeting Objectives:

- Discuss logistics and approach to create the IRWM Plan.
- Review Section 1 of the IRWM Plan.
- Discuss objectives for the IRWM Plan.

Meeting Agenda:

- 9:00 – Welcome and Introductions (Ariki)
    - Meeting Objectives and Agenda
    - Recap of the September Meeting
- 9:15 – Logistics and Approach to Create IRWM Plan (Kirby)
    - Project Team and Roles
    - Updated Schedule
    - Approach to Planning
    - Set Goals to Accomplish within One Year
    - Discuss Decision Making
- 10:15 – Break
- 10:30 – Introduce First Draft of Section 1 of IRWM Plan (Cotton)
    - Region Description
    - Issues, Needs, and Challenges
    - Current and Planned Projects
    - Discuss Next Steps
- 11:00 – Begin Identifying Quantifiable Objectives (Kirby)
- 11:45 – Next Meeting (Ariki)

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Antelope Valley Integrated Regional Water Management Plan

7th Stakeholder Meeting

December 13, 2006, 9 am. – 12 noon

Larry Chimbole Cultural Center
(38350 Sierra Highway, Palmdale CA 93550)

Meeting Code of Conduct

In order to foster open dialogue and meaningful discussion during meetings of the Antelope Valley Integrated Regional Water Management Planning Group, I promise to:

- Be **willing** – I choose to participate fully.
- Be **kind** – I choose to treat others with dignity and respect.
- Be **open** – I choose to consider new ideas and perspectives.
- Be **truthful** – I choose to share accurate facts about my situation.

Meeting Objectives:

- Refine and adopt process goals
- Update stakeholder group regarding status of Plan document
- Discuss how other significant regional water management efforts will relate to formulation of IRWM Plan
- Refine Plan Objectives

Meeting Agenda:

- 9:00 – Present News and Developments (Ariki)
- 9:15 – Review Code of Conduct and Refine Process Goals (Kirby)
- 10:15 – Describe Progress on Plan Content (Kirby)
- 10:25 – Discuss Coordination and Interactions with Other Regional Water Management Actions (Kirby)
  - Bob Neufeld (Rosamond) will give a presentation on status of adjudication and thoughts for how the IRWM Planning group can interact with adjudication efforts
  - Gene Nebeker (Antelope Valley Groundwater Agreement Association) will give a presentation about ideas motivating petition to DWR to form a Water Storage District
  - Other (TBD)
- 11:15 – Continue Discussing Plan Objectives (Kirby)
- 11:45 – Next Steps (Kirby)
  - Introduce information to use for project description and evaluation
  - Discuss agenda items for next stakeholder meeting
  - Discuss possibility of increasing duration of stakeholder meetings to 4 hours

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Get Involved:

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Antelope Valley Integrated Regional Water Management Plan

8th Stakeholder Meeting

January 31, 2006, 9 a.m. – 11:30 a.m.

Larry Chimbole Cultural Center
(38350 Sierra Highway, Palmdale CA 93550)

Meeting Code of Conduct

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- Be **kind** – I choose to treat others with dignity and respect.
- Be **open** – I choose to consider new ideas and perspectives.
- Be **truthful** – I choose to share accurate facts about my situation.

Meeting Objectives:

- Discuss water management issues, needs, challenges, and priorities for the Antelope Valley
- Develop plan objectives and planning targets
- Compile project data and information through call for projects

Meeting Agenda:

- 9:00 – Current Status of MOU and Discuss Recent Development in Propositions 50, 84, and 1E Grant Administration (Ariki)
- 9:15 – Discuss Notice, Resolution, and Public Hearings to Prepare IRWM/AB303 Plan (Ariki)
- 9:25 – Provide Update on Public Outreach Subcommittee Activities (Gallardy)
- 9:35 – Discuss Level of Agreement for Sections 1 & 2 (Kirby)
- 9:40 – Present Summary of Section 3 (Kirby)
- 10:30 – Develop Plan Objectives (Kirby)
- 11:10 – Discuss Call for Projects (Kirby)
- 11:25 – Next Steps (Kirby)

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Come share your ideas and help us to plan for the future!

Get Involved:

- **Visit our website at http://www.avwaterplan.org to find more information about the Antelope Valley IRWM process and future stakeholder meetings, to get on the mailing list, and to submit potential projects.**

Antelope Valley Integrated Regional Water Management Plan

9th Stakeholder Meeting

February 28, 2007, 9 a.m. – 11:30 a.m.

Larry Chimbole Cultural Center
(38350 Sierra Highway, Palmdale CA 93550)

Meeting Code of Conduct

In order to foster open dialogue and meaningful discussion during meetings of the Antelope Valley Integrated Regional Water Management Planning Group, I promise to:

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- Be **open** – I choose to consider new ideas and perspectives.
- Be **truthful** – I choose to share accurate facts about my situation.

Meeting Objectives:

- Provide update on recent and upcoming events
- Describe comments on Draft Section 3 Issues and Needs
- Discuss formation of a Technical Advisory Committee (TAC)
- Adopt Plan Objectives (Section 4)
- Preview Section 5 Water Management Strategies

Meeting Agenda:

- 9:00 - Provide Update on Recent and Upcoming Events (Ariki)
- 9:15 - Provide Update on Public Outreach Subcommittee Efforts (Gallardy)
- 9:20 - Discuss Section 3 Comment Matrix and TAC Formation (Kirby)
- 10:00 - Discuss Section 4 Comment Matrix and Adopt Plan Objectives (Kirby)
- 10:45 - Provide Project Road Show Update and Introduce Draft Section 5 (Kirby)
- 11:25 - Next Steps (Kirby)

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Come share your ideas and help us to plan for the future!

Get Involved:

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Antelope Valley Integrated Regional Water Management Plan

10th Stakeholder Meeting

March 28, 2007, 9 a.m. – 11:30 a.m.

Larry Chimbole Cultural Center
(38350 Sierra Highway, Palmdale CA 93550)

Meeting Code of Conduct

In order to foster open dialogue and meaningful discussion during meetings of the Antelope Valley Integrated Regional Water Management Planning Group, I promise to:

- Be **willing** – I choose to participate fully.
- Be **kind** – I choose to treat others with dignity and respect.
- Be **open** – I choose to consider new ideas and perspectives.
- Be **truthful** – I choose to share accurate facts about my situation.

Meeting Objectives:

- Provide update on recent and upcoming events
- Discuss potential changes in plan development schedule
- Adopt Plan Objectives (Section 4)
- Preview Section 6 Water Management Strategy Integration & Objectives Assessment

Meeting Agenda:

- 9:00 - Provide update on recent and upcoming events (Ariki)
- 9:15 - Provide update on Public Relations Subcommittee efforts (Gallardy)
- 9:20 - Present status of Technical Advisory Committee formation (Kirby)
- 9:25 - Discuss how to respond to change in Prop 50 application schedule (Kirby)
- 10:15 - Review comments on Draft Sections 4 & 5 and adopt plan objectives (Kirby)
- 10:45 - Introduce Draft Section 6 Water Management Strategy Integration & Objectives Assessment (Kirby)
- 11:25 - Next steps (Kirby)

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Come share your ideas and help us to plan for the future!

Get Involved:

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Antelope Valley Integrated Regional Water Management Plan

11th Stakeholder Meeting

April 25, 2007, 9 a.m. – 2:30 p.m.

Larry Chimbole Cultural Center
(38350 Sierra Highway, Palmdale CA 93550)

Meeting Code of Conduct

In order to foster open dialogue and meaningful discussion during meetings of the Antelope Valley Integrated Regional Water Management Planning Group, I promise to:

- Be **willing** – I choose to participate fully.
- Be **kind** – I choose to treat others with dignity and respect.
- Be **open** – I choose to consider new ideas and perspectives.
- Be **truthful** – I choose to share accurate facts about my situation.

Steps to Collaboration

1. Adopt SMART goals for the process
2. Create a safe space for interaction
3. Establish a clear course of action
4. Demonstrate tangible progress
5. Iterate until group is satisfied

Meeting Agenda:

- 9:00 - Provide update on recent and upcoming events (Ariki)
- 9:15 - Discuss accelerated schedule & budget (Kirby)
- 9:45 - Discuss TAC recommendations and revised Section 3 (Kirby)
- 10:45 - Adopt plan objectives (Section 4) (Kirby)
- 11:30 - Lunch
- 1:00 - Discuss Draft Section 6 (Actions vs. Objectives) (Kirby)
- 1:45 - Preview Section 7 (Priorities) (Kirby)
- 2:20 - Next steps (Kirby)

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We want to hear from you!

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Come share your ideas and help us to plan for the future!

Get Involved:

- **Visit our website at http://www.avwaterplan.org to find more information about the Antelope Valley IRWM process and future stakeholder meetings, to get on the mailing list, and to submit potential projects.**

Antelope Valley Integrated Regional Water Management Plan

12th Stakeholder Meeting

May 2, 2007, 9 a.m. – 2:30 p.m.

PWD Board Room
(2029 East Avenue Q, Palmdale California)

Meeting Code of Conduct

In order to foster open dialogue and meaningful discussion during meetings of the Antelope Valley Integrated Regional Water Management Planning Group, I promise to:

- Be **willing** – I choose to participate fully.
- Be **kind** – I choose to treat others with dignity and respect.
- Be **open** – I choose to consider new ideas and perspectives.
- Be **truthful** – I choose to share accurate facts about my situation.

Steps to Collaboration

1. Adopt SMART goals for the process
2. Create a safe space for interaction
3. Establish a clear course of action
4. Demonstrate tangible progress
5. Iterate until group is satisfied

Meeting Agenda:

- Provide introduction to Prop 50 Round 2 grant application process
- Discuss required elements of an IRWM Plan
- Prioritize projects and management actions of the Plan
- Nominate potential projects and management actions for Prop 50 grant application
- Next steps

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We want to hear from you!

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Come share your ideas and help us to plan for the future!

Get Involved:

- **Visit our website at http://www.avwaterplan.org to find more information about the Antelope Valley IRWM process and future stakeholder meetings, to get on the mailing list, and to submit potential projects.**

Antelope Valley Integrated Regional Water Management Plan

13th Stakeholder Meeting

May 16, 2007, 9:30 a.m. – 2:30 p.m.

LA County Lancaster Public Library
(601 W. Lancaster Blvd., Lancaster CA)

Meeting Code of Conduct

In order to foster open dialogue and meaningful discussion during meetings of the Antelope Valley Integrated Regional Water Management Planning Group, I promise to:

- Be **willing** – I choose to participate fully.
- Be **kind** – I choose to treat others with dignity and respect.
- Be **open** – I choose to consider new ideas and perspectives.
- Be **truthful** – I choose to share accurate facts about my situation.

Steps to Collaboration

1. Adopt SMART goals for the process
2. Create a safe space for interaction
3. Establish a clear course of action
4. Demonstrate tangible progress
5. Iterate until group is satisfied

Meeting Agenda:

- Provide update on comments to DWR on the Prop 50 Round 2 guidelines and PSPs
- Public outreach update
- RWMG funding commitment update
- Review project priority lists and next steps
- Discuss implementation framework/governance structure
- Discuss formation of grant application focused review team
- Next steps

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Get Involved:

- **Visit our website at http://www.avwaterplan.org to find more information about the Antelope Valley IRWM process and future stakeholder meetings, to get on the mailing list, and to submit potential projects.**

Antelope Valley Integrated Regional Water Management Plan

14th Stakeholder Meeting

May 30, 2007, 9 a.m. – 2:30 p.m.

Larry Chimbole Cultural Center
(38350 Sierra Highway, Palmdale CA 93550)

Meeting Code of Conduct

In order to foster open dialogue and meaningful discussion during meetings of the Antelope Valley Integrated Regional Water Management Planning Group, I promise to:

- Be **willing** – I choose to participate fully.
- Be **kind** – I choose to treat others with dignity and respect.
- Be **open** – I choose to consider new ideas and perspectives.
- Be **truthful** – I choose to share accurate facts about my situation.

Steps to Collaboration

1. Adopt SMART goals for the process
2. Create a safe space for interaction
3. Establish a clear course of action
4. Demonstrate tangible progress
5. Iterate until group is satisfied

Meeting Agenda:

- Update on May 23rd meeting with the State to discuss comments on the draft Prop 50 Round 2 Guidelines and PSPs
- Public outreach update
- High priority projects
  - Benefit/cost analysis
  - Various funding opportunities
  - Projects for Prop 50 grant application
- Implementation framework
  - Governance structure
  - Technical analysis/plan performance measures

"Coming together is a beginning. Keeping together is progress. Working together is success." - Henry Ford

We want to hear from you!

The Antelope Valley Region is collaborating to develop an Integrated Regional Water Management (IRWM) Plan that focuses on water resource management while creating a platform for future funding.

Come share your ideas and help us to plan for the future!

Get Involved:

- **Visit our website at http://www.avwaterplan.org to find more information about the Antelope Valley IRWM process and future stakeholder meetings, to get on the mailing list, and to submit potential projects.**

Antelope Valley Integrated Regional Water Management Plan

15th Stakeholder Meeting

June 13, 2007, 9 a.m. – 11:30 a.m.

Larry Chimbole Cultural Center
(38350 Sierra Highway, Palmdale CA 93550)

Meeting Code of Conduct

In order to foster open dialogue and meaningful discussion during meetings of the Antelope Valley Integrated Regional Water Management Planning Group, I promise to:

- Be **willing** – I choose to participate fully.
- Be **kind** – I choose to treat others with dignity and respect.
- Be **open** – I choose to consider new ideas and perspectives.
- Be **truthful** – I choose to share accurate facts about my situation.

Steps to Collaboration

1. Adopt SMART goals for the process
2. Create a safe space for interaction
3. Establish a clear course of action
4. Demonstrate tangible progress
5. Iterate until group is satisfied

Meeting Agenda:

- Update on the Prop 50 Round 2 Guidelines and PSPs
- Information on CA DHS drinking water funding programs
- Public outreach update
- Preview of draft IRWM Plan

Stakeholder Meeting Sign-In Sheets

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6-1-05

Antelope Valley Reclamation Mtg.

Name	Affiliation	Phone / E-mail
Matt Tebbetts	Kennedy/Jenks	858-676-3621 MattTebbetts@KennedyJenks.com
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Steve Dassler	City of Lancaster	661 723-6088 sdassler@cityoflancasterca.org
Randy Williams	Lancaster	(661) 723-6044 RWilliams@CityofLancasterCa.org
Curtis Paxton	PWD	(661) 947-4111 x146 cpaxton@palmdalewater.org
Mike Mischel	COP	(661) 267-5275 mmischel@cityofpalmdale.org
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Carl Hunter	"	"
Lynn Takaichi	KJC	805 486-0607 LYNNTAKAICHI@KENNEDYJENKS.COM
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Adam Ariki	LA Co DPW	(626) 300-3302 AAriki@LADPW.org

July 13 - Wed - 10 -

6-13-05

Antelope Valley Reclamation Mtg

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8/17/05

Name	Affiliation	Phone/email
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Andy Rutledge	AVEK-WA	661-943-3201 " " " "

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Antelope Valley Integrated Regional Water Management Plan
Stakeholders
07-05-30

Last Name	First Name	Title	Organization	Address	City	State	Zip	Phone	Fax	E-Mail	Signature
Allday	John									johna@laurendevelopment.com	
Allen	Dan		City of California City							pwdir@ccis.com	
Anderson	Jeff		Little Baldy Wayer Co.					661-261-9226		Littlebaldywater@aol.com	
Anley	Phil	Manager	White Fence Farms Mutual Water Company No. 3	2606 West Avenue N-8	Palmdale	CA	93551	661-266-8850			
Argo	Johnny		LA Co. Sans Districts/Director Assoc. of Rural Town Councils					661-433-5888		jargo@lacsd.org	
Argo	Wayne	President	Antelope Valley Town Councils					661-257-4841 X25		jargo@lacsd.org	
Ariki	Adam	Assistant Division Engineer	Los Angeles County Waterworks Districts	900 S. Fremont Ave.	Alhambra	CA	91803	626-300-3302	626-300-3385	aariki@dpw.lacounty.gov	
Badillo	Debby	Reporter	Mojave Desert News	P.O. Box 2544	California City	CA	93505	760-373-8365		debby4@earthlink.net	
Bailey	Harold	Project Manager	RMC Water and Environment		Santa Monica	CA	90404			hbailey@rmcwater.com	
Baker	Jess		Palm Ranch Irrigation District					661-943-4558			
Barnes	Tom	Resources Manager	Antelope Valley East Kern Water Agency	6500 W. Avenue	Palmdale	CA	93550	661-943-3201	661-943-3204	tbavekwa@aol.com	
Barrett	Melinda	Water Conservation Program Manager	DPW	1000 S Fremont Ave	Alhambra	CA	91803			mbarrett@dpw.lacounty.gov	
Beeby	Robert		SAIC					805-564-6139		beebyr@saic.com	
Bergquist	Sutida	Associate Engineer	CDHS	1449 W. Temple St.	Los Angeles	CA	90026	213-580-3126		sbergqui@dhs.ca.gov	
Bhuta	Nivan		SAIC							nivan.bhuta@saic.com	
Blank	Laura	Executive Director	LA County Farm Bureau	1228 12th Street West, Suite .	Palmdale	CA	93510	661-274-9709	661-274-0637	exec@lacfb.org	
Boetsch	Gerald		Edwards AFB					661-227-9520		gerald.boetsch@edwards.af.mil	
Bones	Brad	GM	Littlerock Creek Irrigation District	35141 87th Street	Little Rock	CA	93543	661-944-2015	661-944-3668	lcid3@skylynx.us	
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Antelope Valley Integrated Regional Water Management Plan
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Last Name	First Name	Title	Organization	Address	City	State	Zip	Phone	Fax	E-Mail	Signature
Boron	CSD		Boron CSD							boroncsd@yahoo.com	
Brooks	James	President	Sun Village Town Council	37114 n. 94th East	Little Rock	CA	93543	**661-609-7212**		jbrooks@dslextreme.com	
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Antelope Valley Integrated Regional Water Management Plan
Stakeholders
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Last Name	First Name	Title	Organization	Address	City	State	Zip	Phone	Fax	E-Mail	Signature
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Antelope Valley Integrated Regional Water Management Plan
Stakeholders
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Last Name	First Name	Title	Organization	Address	City	State	Zip	Phone	Fax	E-Mail	Signature
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Harrison	Ben		Quartz Hill Water District					**661-943-6931**			
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Hickling	Norm	Deputy	Supervisor Antonvich	1113 Avenue H-4, Ste A	Palmdale	CA	93551	**661-726-3600**	**661-942-5069**	NHICKLING@LACBOS.ORG	
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Antelope Valley Integrated Regional Water Management Plan
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Last Name	First Name	Title	Organization	Address	City	State	Zip	Phone	Fax	E-Mail	Signature
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Antelope Valley Integrated Regional Water Management Plan
Stakeholders
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Last Name	First Name	Title	Organization	Address	City	State	Zip	Phone	Fax	E-Mail	Signature
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Ledbetter	David		City of Lancaster Community Development Department	City of Lancaster/Community Development Department				**661-723-6105**		**dledbetter@cityoflancasterca.org**	
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Lee	Kerjon							**626-458-4348**		**kelee@dpw.lacounty.gov**	
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LoFreso	Carolyn	Project Coordinator	US Department of Agriculture Natural Resources Conservation Service Mojave Desert-Mountain Resources	1525 N Norma St, Ste C	Ridecrest	CA	93555	**760-446-1974**	**760-446-3743**	**carolyn.lofreso@ca.usda.gov**	
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Mc Carthy	Paul		Los Angeles County Dept of Regional Planning					**213-974-6427**		**pmccarthy@planning.co.la.ca.us**	
McCraken	Jeff	President of Board	Green Valley County Water District	39520 Calle Casada	Green Valley	CA	91390	**661-270-0836**	**805-270-0836**		
Medeiros	Greg	VD	Centenniel					**661-222-3260**			
Mele	Thomas	Enviromental Engineer	Tybrin Corp. Edwards AFB					**277-9162**		**thomas.mele.ctr@edwards.af.mil**	
Messersmith	Ruby	General Manager	North Edwards Water District	01 Claymine Road, P.O. Box 1	North Edwards	CA	93523	**760-769-4520**			
Mischel	Mike	City Engineer	City of Palmdale					**661-267-5275**		**mmischel@cityofpalmdale.org**	

Antelope Valley Integrated Regional Water Management Plan
Stakeholders
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Last Name	First Name	Title	Organization	Address	City	State	Zip	Phone	Fax	E-Mail	Signature
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Morris	Kenneth (Chip)			335-A East Ave K-6	Lanvaster	CA	93535	**661-949-6319**	**661-723-6965**	**cmorris@fire.lacounty.gov**	
Morrow	Rob	Project Engineer	RMC Water and Environment		Santa Monica	CA	90404			**rmorrow@rmcwater.com**	
Munz	Terry	President	County Farm Bureau, LA					**661-274-9709**			
Mlynar	John		City of Palmdale					**661-267-5116**		**jmlynar@cityofpalmdale.org**	
Nagle	Roxanne		Kennedy Jenkins Consultants								
Neal	Robert			City of Lancaster						**rneal@cityoflancasterca.org**	
Nebeker	Gene							**310-440-8862**		**enebeker@adelphia.net**	
Nellor	Margie	President	NEA							margie@nellorenvironmental.com	
Nelson	Vicki	President	Antelope Acres Twon Council					**661-942-2198**		**nelsonacres3@yahoo.com**	
Neufeld	Robert	G.M.	Rosamond Community Services District							**rneufeld@rosamondcsd.com**	
Newton	Grazyna	Field Engineer	State DHS	1449 W. Temple St.	Los Angeles	CA	90026	**213-580-5734**	**213-580-5711**	**gnewton@dhs.ca.gov**	
Ngov	Thong		Los Angeles County Department of Public Works	900 S Fremont Ave	Alhambra	CA	91802	**626-458-4319**		tngov@dpw.lacounty.gov	
Nguyen	Paul	Soil Conservationist	USDA NRCS		Lancaster	CA	93534	**661-945-2604**		**paul.nguyen@ca.usda.gov**	
Nishikawa	Tracy	Research Hydrologist	U.S. Geological Survey	4165 Spruance Rd. Suite 200	San Diego	CA	92101	**619-225-6148**	**619-225-6101**	**tnish@usgs.gov**	
Ojeda	Jose	Superintendent	California Water Service Company	5015 West Ave L 14 Suite 2	Quartz Hill	CA	93536	**661-943-9001**	**213-755-2301**		
Oviatt	Lorelei H.	Supervising Planner	Kern County Planning Department	2700 "M" Street, Suite 100	Bakersfield	CA	3301-237	**661-862-8866**		**loreleio@co.kern.ca.us**	
Park	Matthew	Executive Director	Kern County Farm Bureau	801 South Mount Vernon Ave.	Bakersfield	CA	93307	**661-397-9635**		**kcfb@kerncfb.com**	
Paxton	Curtis	Assistant GM	Palmdale Water District	2029 E. Ave. Q	Palmdale	CA	93551	**661-947-4111 Ext 146**	**666-947-8604**	**cpaxton@palmdalewater.org**	

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Pedersen	David	Senior Civil Engineer	Los Angeles County Waterworks Districts	900 S. Fremont Ave.	Alhambra	CA	91803	**626-300-3317**	**626-300-3385**	**dpederse@ladpw.org**	
Penna	Tony		Inland Energy	14390 Civic Drive	Victorville	CA	92392	**760-843-5450**	**760-843-5759**	**tonypenna@inlandenergy.com**	
Pepito	Al		California State Parks Department		Mojave	CA		**661-726-1668**		**al@parks.ca.gov**	
Phair	Gordon	Senior Civil Engineer	City of Palmdale	38250 Sierra Hwy.	Palmdale	CA	93550	**661-267-5300**	**661-267-5622**	**gphair@cityofpalmdale.org**	
Pomeroy	Vance	President	Juniper Hills Town Council	29319 N. 121 st East	Juniper Hills	CA	93543	**661-944-7474**		**punchbowl4@earthlink.net**	
Powell	James									**smilebysmile@msn.com**	
Ralphs	Ruth		Golden Valley Mutual Water								
Randall	Jane		Three Points Liebre Town Council					**661-285-1882**		jrandall@water.ca.gov	
Rasgio	Bill	President	Westside Park Mutual Water Company	40317 11th St. W	Palmdale	CA	93551	**661-272-4512**			
Reed	Chad	General Manager	Quartz Hill Water District	42141 50th St. W	Quartz Hill	CA	93536			**creed@qhwd.org**	
Reed	Wendy	Director	Antelop Valley Conservancy	PO Box 3133	Quartz Hill	CA	93586	**661-943-9000**		**avconvervancy@yahoo.com**	
Rich	Thomas	Vice President	Leona Valley Town Council	9250 Elizabeth Lake Rd.	Leona	CA	93551	**661-270-0099**		**rrych@cs.com**	
Ritch	Willard	President of Board	Aqua J Water Company	9133 East Avenue J	Lancaster	CA	93539	**661-946-1387**			
Rizzo	David	Director	AVEK	P.O. Box 893	Lancaster	CA	93584	**661-305-7658**	**661-946-8253**	**drizzo@grimmway.com**	
Rose	Patty	Office Manager	Rosamond Community Services District	2700 20th Street West	Rosamond	CA	93560	**661-256-3411**			
Ross	Gail	Manager	Lake Elizabeth Mutual Water Company	14960 Elizabeth Lake Road	Lake Hughes	CA	93532	**661-724-1806**	**805-724-1806**		
Rydman	Dave	Associate Civil Engineer	Los Angeles County Waterworks Districts	900 S. Fremont Ave.	Alhambra	CA	91803	**626-300-3351**	**626-300-3385**	**drydman@dpw.lacounty.org**	
Schroeter	Jim	City Engineer	City of California City	21000 Hacienda Blvd.	California City	CA	93505	**760-373-8661**			
Scott	Randy		LA Fire Department							**rscott@lacofd.org**	

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Scroggins	Wayne		A V. Park					**661-948-5880**			
Scruggs	Mary	Sr. Eng. Geologist	CA DWR, DPCA					**916-654-1324**		**mscrugg@waterca.gov**	
Seal	Claud	Staff Engineer	Rosamond Community Services District	3179 35th St.	Rosamond	CA	93560	**661-256-3411**		**cseal@rosamondcsd.com**	
Semchuck	Alisha	Reporter	Antelope Valley Press	37404 Sierra Hwy	Palmdale	CA	93550	**661-267-4214**		**asemchuck@avpress.com**	
Sheahan	Tom		Geomatrix Consultants, Inc							**tsheahan@geomatrix.com**	
Short	Tonya	Office Administrator	Kern County BIA					**661-633-1316**		**tonya@kernbia.com**	
Shott	Phillip		Palm Ranch Irrigation District	42116 50th St. West	Quartz Hill	CA	93586	**661-943-2469**	**805-943-2460**		
Skeen	James		LA Daily News					**661-267-5743**		**james.skeen@dailynews.com**	
Sloan	William		US Borax							**wsloan@mofo.com**	
Smotherman	Tom							**661-724-1104**		tpsmo@verizon.net	
Souza	Kurt		CDHS							ksouza1@dhs.ca.gov	
Sprague	Jan		Califorina City					**760-373-7442**		**admclk1@ccis.com**	
Sprunger	Murry		Dorado Mutual Water Co.					**661-947-8189**		**dsprunger@adelphia.net**	
Stage	Anne/Joe							**728-0270**		**anneacres@aol.com**	
Stringer	Charles		Western Development & Storage	5700 Wilshire Blvd., Suite 330	Los Angeles	CA	90036	**323-936-9303**	**323-930-9114**	cmstringer@westerndev.com	
Sutterfield	Troy	Vice President	Quartz Hill Town Council	42026 N. 52nd Stree West	Quartz Hill	CA	93536	**661-943-3788**		**tvsutterfield@msn.com**	
Swain	Leon	Director of Public Works	City of Palmdale	38250 Sierra Hwy.	Palmdale	CA	93550	**661-267-5300**	**661-262-5322**	**lswain@cityofpalmdale.org**	
Takaichi	Lynn	Chairman	Kennedy Jenks Consultants	1000 Hill Rd #200	Ventura	CA	93003	**805-658-0607**	**805-658-8604**	**lynntakaichi@kennedyjenks.com**	
Takata	Jan									**jtakata@cao.co.la.ca.us**	

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Tebbetts	Matt		Kennedy Jenks Consultants	355 W. Bernardo Drive Suite 3	San Diego	CA	92127	**858-676-7506**	**858-676-3625**	**MattTebbetts@KennedyJenks.com**	
Tenneboe	Annette	Enviromental Scientist	partment of Fish and Game - San Joaquin Valley and Southern	1234 East Shaw Avenue	Fresno	CA	93710	**559-243-4014 x220**	**559-243-4020**	**ATENNEBOE@DFG.CA.GOV**	
Terrill	Russell	General Manager	Boron Community Services District	P.O. Box 1060	Boron	CA	3596-106	**760-762-6127**			
Tetu	Dennis	President	Littlerock Town Council	9259 Eat Avenue t-4	Little Rock	CA	93543	**661-944-4583**			
Thibault	Leo		Littlerock Creek Irrigation District					**661-944-1384**		**jole719@aol.com**	
Thomas	Donna	President	Mojave Desert-Mountain RC&D	1525 N Norma St, Ste C	Ridecrest	CA	93555	**760-446-1974**	**760-446-3743**	**m.rcnd@mchsi.com**	
Tremblay	Ray	Division Engineer	LACSD	1955 Workman Mill						**rtremblay@lacsd.org**	
Trow	Jeff	Contractor	Foothill Associates							jeff.trow@foothill.com	
Tylen	Larry		Leona Valley Town Council	40255 98th Street West	Leona	CA	93551	**661-270-1070**	**661-270-3212**	**tccprez@roadrunner.com**	
Tyman	Frank		Quartz Hill Water District					**661-943-3654**		**frank@qnet.com**	
Ukkestad	John	President	AV United Water Purveyors	2008 West M12 Ave	Palmdale	CA	93551	**661-272-0015**	**661-943-3576**	**wff@qnet.com**	
Ukkestad	John	President	White Fence Farms Mutual Water Co.	41901 20th St. West	Palmdale	CA	93551	**661-943-3316**	**805-943-3316**	**wff@qnet.com**	
Upton-Knittle	Alexis			Leona Valley Town Council Secretary						**auk9@earthlink.net**	
Walters	Laura							**948-3785**		lwalters@lacofd.org	
Wangsgard	Chris							**661-724-7871**		kathywangsgard@aol.com	
Way	William	City Manager	California City	21000 Hacienda Blvd.	California City	CA	93505	**760-373-8661**	**760-373-7511**	**citymgr@ccis.com**	
Webb	Rick		Rosamond Town Council							rwebb6@sbcglobal.net	
Weeks	Brad	Attorney At Law	Charlton Weeks LLP	1007 Wt Ave M-14, Ste.A	Palmdale	CA	93551	**661-265-0969**	**661-265-1650**	**brad@charltonweeks.com**	
Weinstock	Henry	Attorney	Tejon Ranch							HWeinstock@Nossaman.com	

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Weisenberger	Neal		Antelope Valley East Kern Water Agency							**nweisenberger@avc.edu**	
Welling	James		Kern Co. - Don Maben					**661-824-7000**		**wellingj@co.kern.ca.us**	
Wells	Dick	Director	PWD		Palmdale	CA	93582	**661-285-9355**		**dwells@palmdalewater.org**	
Werner	Andrew		WDS	5700 Wilshire Blvd., Suite 330	Los Angeles	CA	90035	**323-244-5756**	**323-930-9114**	**andrewwerner@westerndev.com**	
West	Nicole		City of Lancaster					**661-723-5893**		**nwest@cityoflancasterca.org**	
West	Tom		RMC Water and Environment	1601 Cloverfield Blvd.	Santa Monica	CA	90404	**310-309-5170**	**213-947-1317**	**twest@rmcwater.com**	
Williams	Randy	Director of Public Works	City of Lancaster					**661-723-6044**		**rwilliams@cityoflancasterca.org**	
Williams	Steven		City of Palmdale					**661-267-5100**		**swilliams@cityofpalmdale.org**	
Withrow	Nancy	Soil Cons. Student	NRCS		Lancaster	CA		**945-2604**			
Wood	Greg		Rosamond Community Services District					**661-256-3411**		**gwood@lacsd.org**	
Wood	Mary	Director	Westside Park Mutual Water Co	40317 11th St.	Palmdale	CA	93551	**661-273-2997**	**661-266-7938**	**maryjw@rglobal.net**	
Wood	Phil	Director	Westside Park Mutual Water Co					**877-500-3880**		**maryjw@rglobal.net**	
Wood	Robert		Leona Valley Town Council					**661-270-9745**		robertwood840@sbcglobal.net	
Woodling	John									**woodling@water.ca.gov**	
Young	Ray		Edgemont Acres Mutual Water Co.					**661-769-4166**		**ryoung@ccis.com**	
Yun	Joe	Environmental Scientist	Dept of Water Resources, State of California	901 P Street, P.O. Box 942836	Sacramento	CA	94236	**916-651-9222**	**916-651-9292**	jyun@water.ca.gov	
Zahuter	Susan							**661-724-2043**		3pointsliebremountain@gmail.com	
Zorba	Peter	Enviromental Engineer	City of Lancaster	44933 N Fern Street	Lancaster	CA	93594	**661-723-6234**	**661-725-6182**	**pzorba@cityoflancasterca.org**	
			Antelope Park Mutual Water Company	P.O. Box 1712	Lancaster	CA	93539	**661-945-2238**	**805-945-2238**	**No email or web information**	

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			El Dorado Mutual Water Company	P.O. Box 900519	Palmdale	CA	93590	**661-947-3255**	**805-947-3255**		
			Shadow Acres Mutual Water Company	P.O. Box 900669	Palmdale	CA	93590	**661-947-0200**	**805-947-0200**		
			Sunnyside Farms Mutual Water Company	P.O. Box 901025	Palmdale	CA	93591	**661-947-3437**	**805-947-3437**		