

5.14 Integration and Implementation



Integration and Implementation

Concurrent with the preparation and development of integrated regional implementation actions conducted by the Pillars, SAWPA conducted several integration workshops throughout the OWOW 2.0 plan development to encourage collaboration and integration between the Pillars. These workshops served to promote further integration held among the Pillars with discussions of the linkages and integration. A shared vision for the watershed was discussed as described below:

1. A Watershed that is sustainable, drought-proofed and salt-balanced by 2030, and in which water resources are protected and water is used efficiently.
2. A Watershed that supports economic and environmental viability.
3. A Watershed that is adaptable to climate change.
4. A Watershed in which environmental justice deficiencies are corrected.
5. A Watershed in which interruptions to natural hydrology are minimized.
6. A water ethic is created at the institutional and personal level.

The integration of projects considered partnerships among different organizations, employing multiple water resource management strategies, supporting multiple beneficial uses, considering system-wide regional or watershed wide scales, and addressing different components of the hydrologic cycle.

The workshop meetings sought to promote integration, to investigate linkages and consider additional synergistic solutions. The workshops were facilitated by SAWPA and were held with the Pillar Co-chairs and several additional Pillar members. The goals of the workshop were shared with the group as follows:

- Inform – Increase awareness of proposed pillar implementation
- Evaluate – Linkages among proposed projects/programs
- Develop – Identify synergy and refine existing projects/programs to create anew

In discussion of integration, the benefits of an integrated system approach were reviewed with all participants. One of the advantages of the OWOW 2.0 planning process is the ability to address similar project objectives by local interests with a larger scale, integrated regional project. Resources devoted to implementing multiple smaller projects such as staffing, funding, and equipment may benefit from economies of scale when project proponents can work together on a regional project. All IRWM plans must contain provisions for reviewing project objectives and considering new, expanded, or even different solutions that meet multiple local needs.

SAWPA has stressed this strategy of a system’s approach to all stakeholders in outreach material, workshops and conferences associated with OWOW 2.0. Examples are shown below in **Figure 5.14-1**.

Figure 5.14-1 Strategy of a Systems Approach Examples

<p>Traditional Silo Approach</p> <ul style="list-style-type: none"> • Single purpose, single problem project • Little collaboration • Unintended downstream environmental consequences • Sectoral isolation of water resources • Lack of coordination of resources: <ul style="list-style-type: none"> ◊ Stormwater shunted out of the watershed ◊ Wastewater treated to increasingly high standards is dumped ◊ Clean water imported from faraway 	
<p>21st Century Approach Integrated Regional Water Management (IRWM)</p> <ul style="list-style-type: none"> • Multi-beneficial projects and programs linked together for improved synergy • Provides “Biggest Bang for the Buck” • Proactive innovative, and sustainable solutions • Watershed systems based approach • Promotes collaboration cross-sectoral integration among diverse water related agencies • Focuses on integrated regional solutions supporting local reliability and local prioritization • Integrates water supply, water quality, recycled water, stormwater management, water use efficiency, land use, energy, climate change, habitat, and disadvantage communities and tribes • Coordinates resources so that water is used multiple times <ul style="list-style-type: none"> ◊ Manages stormwater for drinking water ◊ Treats wastewater for irrigation and groundwater replenishment ◊ Builds or modify parks to support water efficiency, ecosystem habitat, and stormwater capture ◊ Improves water quality pollution prevention ◊ Addresses energy and water nexus 	

Pillar Recommended Implementation Actions

The OWOW 2.0 Plan reflects the interconnected needs of the Region, examines linkages and develops synergy and does not limit solutions to just the needs of specific entities in the watershed.

Opportunities for examining true integration were regular topics of discussion at OWOW pillar integration meetings. As the draft OWOW 2.0 plan was nearing completion, an increased focus was placed on sharing the pillar recommended implementation actions by each pillar and integration of these actions. This process of supporting implementation will continue even after the adoption of the OWOW 2.0 Plan as a new “Call for Projects” approach is contemplated in mid- 2014 in anticipation of Round 3 Prop 84 IRWM Implementation funding.

Shown below is the list of benefit elements that support a multi-benefit approach. The benefit acronym is listed alongside each of the recommended pillar implementation actions described further below.

1. WUE - Water supply reliability, water conservation, and water use efficiency
2. SCT - Stormwater capture, storage, clean-up, treatment, and management
3. RWE- Removal of invasive non-native species, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands
4. NPS -Non-point source pollution reduction, management, and monitoring
5. GWR -Groundwater recharge and management projects
6. CRR- Contaminant and salt removal through reclamation, desalting, and other treatment technologies and conveyance of reclaimed water for distribution to users
7. WQB-Water banking, exchange, reclamation, and improvement of water quality
8. FMP -Planning and implementation of multipurpose flood management programs
9. WPM-Watershed protection and management
10. DWT -Drinking water treatment and distribution
11. EFR- Ecosystem and fisheries restoration and protection
12. DAC – Disadvantaged community critical water supply and/or water quality improvements
13. CC – Climate change adaptation and mitigation

Details of each implementation actions are described in each pillar chapter and in **Table 5.14-1** through **Table 5.14-10**.

Table 5.14-1 Water Resource Optimization Pillar Implementation Actions

Title	Summary Description	Benefits
Water Rates that Encourage Conservation	Create incentive programs for retail water agencies in the watershed to reduce water demand and help meet SBX7-7 required demand reductions.	WUE
Water Conservation Public Education	Promote more public education of water use efficiency practices both indoor and outdoor.	WUE
Outdoor Conservation	Promote increased California friendly outdoor landscaping through incentives to reduce irrigation, currently at 60%-80%.	WUE
Reduce Evapotranspiration	Evapotranspiration might be reduced by developing and implementing programs to increase the amount of shaded area such as planting trees or constructing shade structures watershed-wide or strategic locations in the watershed.	WUE
Watershed Exchange Program	Upper Watershed foregoes development of more water recycling and provides future treated wastewater to the Lower Watershed via SAR. Lower watershed provides “replacement” water to upper/middle watershed	GWR, WUE, WQB
Wet Year Imported Water Storage Program	Upper watershed and MWDSC would implement this strategy. Goal: Change MWDSC place of storage from Central Valley to Santa Ana River Watershed Develop: MWDSC pricing structure to encourage more storage in watershed. Concept: Water stored in wet years for a reduced price. Water pumped in dry years for remaining Tier 1 price.	GWR, WUE, WQB
Enhanced Water Conservation at Prado Dam	<ul style="list-style-type: none"> - Corps & OCWD currently studying 505 ft year-round - Enhanced Project - Cannot start until Mainstem project complete - Would increase water storage elevation to: 510 ft or 514 ft - Benefit: ~10,000 AF 	SCT, WUE
Enhanced Santa Ana River Stormwater Capture below Seven Oaks Dam	Additional stormwater detained by Seven Oaks Dam could enable the diversion of up to 500 cfs and up to 80,000 acre-feet per year. This may require execution of new water rights agreement among SAR Watermaster parties.	SCT, FMP, GWR
Enhanced Stormwater Capture from the Tributaries of the Santa Ana River	Additional stormwater capture along the SAR tributaries could enhance capture of 28,000 AFY Specific locations in the watershed would need to be defined.	SCT, GWR

Table 5.14-1 Water Resource Optimization Pillar Implementation Actions (Continued)

Title	Summary Description	Benefits
Riverside Basin Aquifer Storage and Recovery Project	Riverside Public Utilities, in partnership with Valley District and others are developing a design for a rubber dam that would cross the Santa Ana River and be used to divert flows, 12,800 AFY into off-stream recharge basins.	SCT, GWR
MS4 Credits	Under MS4, increase the amount of stormwater captured and recharged in the watershed by allowing owners to purchase “MS4 Credits” that could be applied to recharge projects in the watershed.	SCT, NPS
Re-Operate Flood Control Facilities	Working with flood control agencies re-operate flood control facilities with the goal of increasing stormwater capture increasing flood get away capacity and revising decades old storage curves. Without any impending storms, the flood control agencies may be able to release stormwater at a slower rate. This relatively minor operational change would make stormwater flows easier to capture and put to use. It also would result in impounding the water longer, which would increase artificial recharge during the “holding period”. This strategy has already been successfully implemented in some portions of the watershed	SCT, FMP
Size Flood Control Facilities for Stormwater Capture	Increase the size of existing, or new, detention basins. Larger detention basins would slow the flow and increase the recharge area, which would increase the amount of stormwater that is artificially recharged. In addition to this increased recharge, the larger basins also would provide greater flood protection.	SCT, FMP

Table 5.14-1 Water Resource Optimization Pillar Implementation Actions (Continued)

Title	Summary Description	Benefits
Increase Surface Water Storage	Helps offset drought and climate change while also increasing watershed sustainability and less dependence on imported water. This project would supplement but not replace existing or proposed groundwater storage.	WUE, WQB
Increase Groundwater Storage	Helps offset drought and climate change while also increasing watershed sustainability and less dependence on imported water.	WUE, WQB

Table 5.14-2 Beneficial Use Assurance Pillar Implementation Actions

Title	Summary Description	Benefits
Develop Regional BMPs to Manage Municipal Stormwater Discharges	Develop regional BMPs, infiltration and harvest & reuse projects to support efficiency and effective stormwater quality improvement.	SCT, NPS
Salt Removal Projects to Achieve Salt Balance	<ul style="list-style-type: none"> • Expand groundwater desalination to key groundwater basins where TDS and Nitrate concentrations are approaching discharge limits. Locations may include Elsinore Basin, Perris Basins in EMWD and Riverside Basins. • Support adoption of the Bay Delta Conservation Plan in order to promote reliability of low-TDS imported water supplies for use in the watershed. 	CRR, WUE
Coordinate Surface Water Quality Monitoring Program	Assess surface water quality monitoring in watershed for overlap. Align proposed SAR Watershed stormwater regional monitoring program, MS4 stormwater monitoring, TMDL monitoring, and POTW monitoring for cost efficiencies and reduction of redundancies.	WQB
Support Small Water Systems that do not have Resources for Monitoring and Proper Operations and Maintenance	Work with CDPH and county health departments to identify small system water providers which need assistance with providing safe drinking water. Preliminary investigations indicate needs and support for both San Bernardino and Riverside Counties.	DAC, DWT

Table 5.14-3 Water Use Efficiency Pillar Implementation Actions

Title	Summary Description	Benefits
Educational and Marketing Programs for Water Use Efficiency	<ul style="list-style-type: none"> • Video modules of simplified demonstrations and instructions • Contractor education programs • Alliances with private industry (Professional orgs, manufacturers, distributors) • Expanded marketing of Customer Handbook • Regional information and marketing such as Inland Empire Garden Friendly and similar • A truly simple irrigation scheduling tool 	WUE, CC
Technology and Training Programs for Water Use Efficiency	<ul style="list-style-type: none"> • Advancing emerging technologies such as smart irrigation controllers, high-efficiency nozzles, and new irrigation device technology • Creating a comprehensive package for consumers to promote use of smart irrigation controllers (e.g. rebates, stores, installers, training, and check-ups) • Advocating use of climate-appropriate plants and functional warm season turf throughout the region • Developing a “one-stop shop” that offers accessible and comprehensive water-efficient landscape planning programs 	WUE, CC
Incentive Programs for Water Use Efficiency	<p>Implement programs that allow water agencies to customize their rebates by adding additional incentives like MWDSC’s programs. Support programs that allow agencies to target markets, analyze data, and implement new approaches. Rebates have been proven to motivate residential and managed properties decision makers to invest in landscape water efficiency technologies.</p>	WUE, CC
Market Transformation for Water Use Efficiency	<ul style="list-style-type: none"> • Changing landscape design elements: increase pervious hard surfaces, pavers, and bioswales • Creating sample landscape plan templates • Using captured rainwater, recycled wastewater, graywater, or treated water for non-potable uses including irrigation • Positioning water-efficient gardens as in style and “hip” • Utilizing marketing suggestions from the WRI Landscape Water Use Efficiency statewide market survey: positives of water smart landscapes, the cost of doing nothing, children’s involvement, and responsibility for the environment 	WUE, CC

Table 5.14-4 Land Use and Water Pillar Implementation Actions

Title	Summary Description	Benefits
<p>Programs to Integrate Water Resource Management into Land Use Planning</p>	<ul style="list-style-type: none"> • Improve Interaction Between Water Resource Managers and Land Use Planners <ul style="list-style-type: none"> ○ Effectively incorporate proposed water supply protection and use factors into land use planning • OWOW /FCD partnership development or enhancement (links to Stormwater Pillar) • Land planning process enhancements <ul style="list-style-type: none"> ○ Early consideration of project concepts and designs • Focused training for Land Use Planners and Land Development Engineering Community • Incorporate recommendations of Alluvial Fan Task Force in land use planning 	<p>WPM, NPS</p>
<p>Programs that Support Watershed Integration, Identity Development and Implementation</p>	<ul style="list-style-type: none"> • Local land use authority process enhancement • Coordinate regional transportation planning to build-in key watershed sustainability priorities into plans that apply to the SAR Watershed. • Watershed-wide geodatabase integration, access portal, and planning and evaluation tool development. • Regulatory assessment and integration to support watershed sustainability project concepts and implementation. • Demonstration project site identification, project design, coordinated planning, construction, and maintenance. • Develop alternative compliance programs for MS4 Permit land development requirements 	<p>WPM, NPS</p>
<p>Program to Enhance Local Land Use Authority Process</p>	<ul style="list-style-type: none"> • In each SAR Watershed County <ul style="list-style-type: none"> ○ The Riverside City/County Arroyo-Watershed Program ○ The Newport Bay Conservancy Pilot Project ○ City of Ontario--New Model Colonies • Products of this project would include: <ul style="list-style-type: none"> ○ Watershed-Wide Land Use/ Water Resource Planning Guidelines Manual(s) ○ Model General Plan Water Element for the SAR Watershed ○ Watershed Coordination Forums and Training Workshops ○ Planning Commission Education and Outreach 	<p>WPM, NPS</p>
<p>Connect Watershed-wide Geodatabase Integration, Access Portal, and Planning and Evaluation Tools</p>	<ul style="list-style-type: none"> • Develop “Community Improvement Area” layer • Groundwater recharge areas (optimization with FCDs and Water Agencies) • Overlay with Water Quality/Resource/Habitat characteristics • Transportation Planning collaboration potential 	<p>WPM, NPS</p>

Table 5.14-4 Land Use and Water Pillar Implementation Actions (Continued)

Title	Summary Description	Benefits
Demonstration Projects Including Site Identification, Design, Coordinated Planning, Construction, and Maintenance	<ul style="list-style-type: none"> • One in each county • Green street/parking lot projects <ul style="list-style-type: none"> ○ Possible: Monte Vista Ave in the City of Montclair • Regional treatment/recharge for surface and stormwater runoff (follow example of Chino Basin)—Possible locations include Gibson, Victoria, and Metrolink Basins projects with City and County of Riverside and Western MWD <ul style="list-style-type: none"> ○ Joint projects with SBCFCD and SBVMWD ○ Additional SBFCFCD/IEUA projects in Chino Basin 	WPM, NPS, CC

Table 5.14-5 Stormwater: Resource and Risk Management Pillar Implementation Actions

Title	Summary Description	Benefits
Stormwater Policy/Procedure Recommendations	<ul style="list-style-type: none"> • Develop procedures and guidelines to ensure consideration of IRWM goals at project concept, planning, and design stages using OWOW Stormwater Resource and Risk Management Pillar to implement • Provide stricter land management in floodplains <ul style="list-style-type: none"> ○ Evaluate impacts of 500 year flood management standard 	WPM, NPS,
Align County Geodatabases Into a Comprehensive Watershed Geodatabase	<ul style="list-style-type: none"> • Accessible by all stakeholders, with data quality assurance and maintenance program • Maps developed to support development project conditions and acceptable BMPs <ul style="list-style-type: none"> ○ Infiltration emphasized in MS4s • Maps include all watershed data parameters • Aligning or connecting the three county geodatabase layers will support watershed project concepts, and identify likely project partners even across county lines <ul style="list-style-type: none"> ○ Includes FCD facility analyses for retrofit opportunities ○ Have been and will be reviewed by regulatory agencies ○ Provide access and develop user tools ○ Planning Tools ○ Outreach to Planning Departments • Implementation Tools <ul style="list-style-type: none"> ○ WQMP Templates ○ Regional BMP sites ○ Feasibility issues ○ Prioritize top three basins for potential recharge retrofit demonstration projects for each county in partnership with stakeholders 	SCT, GWR

Table 5.14-5 Stormwater Resource and Risk Management Pillar Implementation Actions (Continued)

Title	Summary Description	Benefits
Develop a Groundwater Recharge Optimization Plan for Existing and Potential Future Flood Control Facilities	<ul style="list-style-type: none"> • Chino Basin Watermaster Optimization Plan as a guide • Geodatabase tools provide preliminary project sites and priorities <ul style="list-style-type: none"> ○ Site lists have been developed by FCDs • Supports multi-benefits approach of recharge and flood protection while addressing MS4 Permit requirements • Costs/benefits need to be spread over FCD constituency • Identify top three sites for demonstration projects 	GWR, FMP
Develop Watershed-Based Tools for MS4 Stormwater Compliance	<ul style="list-style-type: none"> • Task Force approach with regulators in parallel with demonstration projects and MS4 Permit renewals • Regional water quality and/or infiltration sites <ul style="list-style-type: none"> ○ Off-site or Regional BMPs—BMPs will typically be implemented downstream from the project site • Water quality and/or water quantity credit system • Build on Orange County’s retention credit pilot project <ul style="list-style-type: none"> ○ Development projects contribute funds used for water quality/recharge/ habitat projects elsewhere in the watershed. ○ Current MS4 permits list project types which can comply via credits produced by alternative environmentally beneficial actions. • Identify pilot sites for watershed-based compliance 	SCT, GWR, WPM

Table 5.14-6 Natural Resources Stewardship Pillar Implementation Actions

Title	Summary Description	Benefits
Create Managed System and Restoration Targets	A plan for sustainable management of conservation areas with targeted restoration efforts is essential for preventing further deterioration of habitat. Consideration for characteristics of each of the main habitat types: Alluvial fan; Riparian, Wetland and Coastal and their specific ecosystems, will require habitat specific management plans and restoration criteria.	EFR, RWE
Establish Sustainable Wildlife Corridors and Expansion of Restored Areas	Using Riverside County Multi-Species Habitat Plan as a template, create sustainable wildlife corridors conduct across jurisdictional boundaries in San Bernardino and Orange County for watershed connectivity Coordinate among all of the current regional conservation plans, mitigation providers, resource conservation districts and non-profit conservation organizations.	EFR, RWE
Provide Sustainable Funding Sources for Ongoing Maintenance of Conservation Areas	Create a permanent funding program to assure funding for long-term protection of areas where habitat restoration efforts are occurring or need to occur. This kind of cooperative agreement will be critical to the ability of governmental and non-profit organizations to secure mitigation funding to do the necessary habitat restoration work needed in the watershed.	EFR
Project that Provides Invasive Vegetative Species Eradication and Maintenance Funding	Establish watershed wide non-native vegetation removal program to support habitat restoration and water savings. Removal program would address arundo removal of areas not currently addressed in the watershed as well as tamarisk removal.	EFR, WUE, CC, FMP
Pollutant Trading Programs	Constructed wetlands can be used to remove pollutants from surface runoff using natural processes. Formal pollutant trading programs provide the mechanism to pool funding from multiple, smaller sources to construct wetlands that would create habitat and increase the pollutant removal benefit.	WPM, EFR
Create Programs for Community Involvement in Habitat Conservation and Restoration	Some of the watershed’s high quality, water-oriented habitats are near disadvantaged communities, where little attention has been paid to stewardship of the local resources. Developing local “stewardship” of these habitats could benefit both the habitat and the community.	EFR, RWE

Table 5.14-7 Operational Efficiency and Water Transfers Pillar Implementation Actions

Title	Summary Description	Benefits
<p>Water Transfer Project between IEUA and OCWD: Wet Year and Dry Year Allocation</p>	<p>This project concept proposes a purchase by OCWD of up to 45,000 AF of imported water to be recharged by the IEUA member agencies during wet years. Water would be purchased at a reduced imported water rate from MWD reflecting the savings of not storing the SWP water at one of MWD’s own storage programs such as the Semitropic Water Storage District and/or Kern County Water Bank. During dry years, OCWD member agencies could request IEUA member agencies to increase their groundwater production for three years by up to 15,000 AF per year in-lieu of direct deliveries from MWD, while MWD increases deliveries in the Orange County area by an equal amount. Under this scenario, the net MWD deliveries during dry years (years that Water Supply Allocation Plan is implemented) will remain unchanged, without the need for MWD to produce water from its own storage accounts. At the same time, having the imported water stored in the SAR watershed will increase local supply reliability, and provide some financial incentive to both IEUA and OCWD member agencies.</p>	<p>WQB, WUE, GWR, CC</p>
<p>Water Recycling Project between EMWD and OCWD</p>	<p>EMWD has the capability to discharge 15,000 AFY of recycled water into Temescal Creek. The discharge will be provided in wet years when local use cannot occur for the benefit of OCWD member agencies. With the approval of the SAR Watermaster, this flow can be contractually added to OCWD’s SAR base flow allocation at Prado. The water quality of EMWD’s discharged recycled water may require some salinity mitigation by OCWD to meet the RWQCB Basin Plan Objective in Orange County. The GWRS will be used to provide the required mitigation for the discharged water, and EMWD will pay OCWD for the cost of that mitigation. As part of this project, OCWD will credit EMWD for the purified water that is recharged into the Orange County groundwater basin, and compensate EMWD when that water is produced by OCWD member agencies. To increase water supply reliability in the SAR Watershed, EMWD could use the revenues from this water transfer project for imported water banking during wet years in the San Jacinto Watershed groundwater basins.</p>	<p>WQB, WUE, GWR, CRR, CC</p>

Table 5.14-8 Disadvantaged and Tribal Communities Pillar Implementation Actions

Title	Summary Description	Benefits
DAC Water Supply or Water Quality Improvement Projects	<ul style="list-style-type: none"> Address poor water quality for the Edgemont Water District and County Water of Riverside District. Construct new sewer systems to address failing septic systems/undersized treatment facilities in Beaumont Cherry Valley. 	DAC, DWT
Tribal Water Management Projects	<ul style="list-style-type: none"> Provide funding support to water recycling facilities; that share mutual benefit to tribes and surrounding regions. Based on cooperative efforts among tribes and adjoining water agencies. 	DWT

Table 5.14-9 Government Alliance Pillar Implementation Actions

Title	Summary Description	Benefits
Government Alliance Coordination:	<ul style="list-style-type: none"> Provide resource guide to all government entities and publish updates of the Resource Guide and post them on SAWPA’s website. 	WPM

Table 5.14-10 Energy and Environmental Impact Response Pillar Implementation Actions

Title	Summary Description	Benefits
GHG Inventory of the Water Sector	Calculate the Watershed’s Carbon Footprint	CC
Promote Water Use Efficiency	Reduce Urban and Ag water demands; Build Resilient Communities; and Integrate water resources management practices; and Promote project collaboration and partnerships.	WUE, CC
Promote Alternative Energy Use to Reduce Embedded Water Use	Install Solar; Wind, Geothermal, Tidal, and Biomass Fuel capacity; and Implement any hydropower capabilities.	WUE, CC
Implement GHG Emission Offsets	Purchase Carbon Offsets; Plant Trees; Promote innovative approaches and solutions that foster community vitality, environmental quality, and economic prosperity.	WUE, CC, EFR
Review or Implement Effective Energy Efficiency Policies	Conduct a gap analysis on the watershed’s policies on dealing with Greenhouse Gas Emissions; Create an energy solutions campaign - save energy, reduce your carbon footprint; Review applicable laws and ordinances; and Promote and implement energy efficiencies and sound conservation practices.	CC, WPM
Inventory the Water Sector	Calculate the Watershed’s Carbon Footprint	WPM
Promote Electricity Conservation to Address Embedded Water Use	Region-wide Use Appliances and Vehicles that are efficient; Weatherization; Implement Temperature Controls (on A/C and Heating units; Install CFP Bulbs; Install LCD computer screens; and Use natural light.	CC, WPM

Regional Implementation Action Linkages

Upon review of the recommended pillar implementation actions, the participants in the workshops were asked to discuss linkages, overlaps and similarities among the actions.

The following questions were proposed:

1. Are any actions that are similar to one another overlap?
2. Is the action better if we combine overlapping aspects?
3. Are any actions dependent on another action, recommended here or separately, to be implemented?
4. Can we link or integrate any of the actions proposed?
5. Any new synergistic ideas for regional implementation actions?
6. Any areas of the watershed that need more attention where a regional implementation action would be desirable?

These questions were posed particularly mindful of DWR IRWM Implementation requirements to develop work plans that identify linkages between and among actions that are critical to the success of the regional effort. From the discussions, a list of Pillar recommended implementation actions that best represent watershed-wide and system-wide solutions was defined. These are discussed in the next section. However, the Pillar Integration Workshop also covered a number of suggestions that would assist and support implementation as well as shown below.

- Support PUC rebates to implement for sustainability and water conservation in outreach to customers (PUC rebates for water conservation).
- Geodatabase concept affects a number of the Pillars so that it could be part of the Basin Plan.
- Add layers to the Geodatabase that shows the following:
 - Utility company information
 - Climate change scenarios
 - Layers of natural resources areas
 - Layers of Potential restoration areas
 - Layer of highly economical land to stay away from and BMP opportunities
 - Status of ongoing planning activities by agencies
- Promote Geographical integration
 - Scale up ideas for watershed wide basis
 - Example: Water softener ordinance IEUA
 - Program could scale up to stormwater capture
 - Increase rate of return in recycled water if this program would be watershed wide
- Tool that allows everyone to see what agencies are working on beneficial use and water quality
 - If a project will transfer water or use less water, using the new GHG emission calculation tools to save water and reduce GHG
 - San Bernardino County has a GHG emission calculation tool for developers, for water and energy reduction
 - Sea Level Rise can effect water quality – coordination between agencies must be done
- LID should be looking at a regional perspective (streets and landscape areas)
- The impacts of recharge to groundwater basins with contaminant plumes must be considered. IEUA did ordinance on controlling water softeners and everyone in the watershed can benefit from it

- Creating sustainable jobs should not be excluded from the discussion – (Habitat for Birds and Bees).
- WMWD has surf and turf program though it's very labor intensive and they help subsidize retrofit to residential properties, up to 6,000 sq ft
- Sea level rise is an issue that will affect other types of land use and costs
- Pillar meetings should keep going on a monthly basis
- The key to unwind the 303 (d) impaired water body listing dilemmas is to address problems at a sub-watershed scale
- A regional monitoring plan could save time and money
- Climate change is relevant to beneficial use (habitat and water quality)
- How do we go back and recapture conservation and industrial commercial? Innovative Mitigation!
- Work with regulatory agencies from the beginning of a project
 - Need to incorporate a forward vision
 - Begin a plan by integrating all water resource issues first
 - Bring in all agencies and other regional project proponents for innovative mitigation
- Legislation
 - Consider needs for changing legislation
 - Stormwater should not considered wastewater
 - Change “Water used” to “Water consumed”
 - Upstream water user and downstream water user – how do we give them credit for keeping water in the river?
 - Assimilative capacity with salt – How to get credit?

OWOW 2.0 Plan – Future Implementation

In preparing the OWOW 2.0 Plan, a series of Broad Planning/Management Guidance Strategies were distilled from that work and will serve to guide future planning and management in the watershed. The Strategies reflect a change in thinking about water resource management. Historically, water activities were organized into different silos and managers worked to achieve separate and individual goals that were thought to be unrelated. The water supplier's goal was to divert water for a growing population and economy without regard its impact on the environment. The flood control manager's goal was to channelize stormwater to get it out of the community before it could harm people and property or sink into the ground. The waste water manager's goal was to highly treat and dump waste into the river or ocean to be carried away. The environmentalists were isolated and recreation was left to its own devices. Managing the watershed and water resources as done in the past realized narrow singular goals but did so with tremendous unintended consequences. The list of endangered species only grew longer, as did the list of impaired water bodies. Societal values have changed, water and funds are scarcer, and together we have realized that the old way is no longer viable. SAWPA adopted its first Integrated Water Plan in 1998 and has been committed to this kind of watershed or system thinking ever since. **Figure 5.14-2** shows this relationship.

Figure 5.14-2 Depiction of Planning/Management Strategies



These Broad Planning/Management Guidance Strategies are not projects or programs themselves and are separate and distinct from priorities assigned to evaluate projects for funding that are often dependent on the grant sponsoring agency criteria. These Planning/Management Strategies are meant to guide planning efforts and are listed *in no particular ranked order or priority as shown below*.

Demand Reduction and Water Use Efficiency

Water use efficiency practices remain a key resource management priority for the watershed and a cost effective tool for reducing the gap between available supplies and projected demand. This is reflected through a reduced per capita water use as well as potentially reduced commercial and industrial water use. Though significant progress is anticipated with mandated reductions through 20% by 2020 legislation, more can be done. Many water use efficiency actions have been implemented locally but these can be scaled watershed-wide. These include water conservation rates that encourage budget based rates, Garden Friendly landscaping and landscape ordinance application, smart controllers and irrigation nozzles, and turf buy-back programs, to name a few. The last acre foot of water is often the most expensive, reducing that cost goes far to keep water rates stable.

Monitoring data shows wasteful irrigation runs off yards down streets and culverts collecting pet waste and pollution until it hits the receiving water with a toxic slug causing beach closures and fish kills. At great expense cities have been tasked to clean up this dry weather urban runoff pollution. This cost can be avoided with successful water use efficiency.

It is understood too that there is a direct link of water use efficiency with energy efficiency and GHG emission reduction.

Watershed Hydrology and Ecosystem Protection and Restoration

Implement cost-effective programs that will protect and restore our watershed's ecosystem and hydrologic system so that it will sustainably produce the array of services including water resources. Recognizing that the SAR Watershed has multiple interrelated parts, a holistic approach to solving issues of supply, quality, flood and ecosystem management is necessary. This approach recognizes that in order to achieve a healthy productive watershed, improvements starting at the top of the watershed with a healthy and managed forest effectively support downstream stormwater attenuation and runoff capture and water quality improvement. The emphasis is on source control rather than end-of-pipe treatment as a best management practice. Implementation actions under this priority include forest management, pollution prevention, low impact development, stormwater capture and flood management, and MS4 stormwater implementation.

Operational Efficiency and Transfers

Cooperative agreements that result in water transfers, exchanges, and banking have resulted in better use of water resources. With the rich groundwater storage opportunities available in the SAR Watershed, expanding the groundwater storage with a variety of available water sources can be more much more cost effective than new surface storage. Such agreements will result in our ability to stretch available supplies and replace the storage lost by a shrinking snowpack. Projects under this category occur by collaboration and cooperation among the multitude of agencies and entities in the watershed, and agencies that import water into the watershed. New banking agreements can represent both habitat mitigation banking as well as groundwater banking. These agreements can only occur by entities working together and opening doors to improved efficiency and increased water supply reliance.

Innovative Supply Alternatives

This strategy recognizes the need for more progress in a portfolio approach with expansion of innovative and effective 21st Century technology for water production, recycling, pumping, and desalinization. Traditionally, these projects serve as an important component to achieving water supply reliability. Moving forward, a broader range of tools are now available to us to serve both economic and environmental objectives. Projects under this category provide multiple benefits and thus can be mutually reinforcing. Brackish desalination and salinity management are necessary to sustain local supplies. Salinity management is essential for groundwater basin health in the watershed.

Remediation and Clean up.

Another strategy is implementing TMDLs and pollution remediation. Projects under this category must reflect projects that have region wide benefit, are integrated and have multiple benefits without a focus only on local or single purpose needs. Under this strategy, the focus is on preventing pollution and also dealing with the pollution that has already occurred. This reflects a desire to duplicate the success already established in the watershed to prevent pollution and then to remediate pollution. If we continue operating in ways that cause pollution, degrading the watershed, the list of TMDLs will continue to grow.

The Broad Planning/Management Guidance Strategies were presented and discussed with the Pillars and other stakeholders to possibly prioritize the five (5) strategies. The feedback received is that all five (5) strategies are a priority to the watershed. Depending on locality and progress made by entities within the watershed. However, each local entity should evaluate the water resources strategies that make the most sense at the higher watershed level over multiple decades as opposed to immediate or

parochial needs. It is true that factors such as of cost effectiveness, water supplies generated versus demand, environmental benefit, feasibility, and practicality must be considered. But as stakeholder of the watershed, entities are encouraged to consider the long term watershed planning approach as they consider competing alternatives to meet needs and give more merit or attention to strategies such as water use efficiency that has been traditionally found to be more cost effective in reducing water demands and generating water supply with additional benefits of dry weather urban runoff pollution reduction before other alternatives. Further projects should consider system wide benefits before other alternatives that can have multiple benefits downstream. This applies particularly to pollution prevention at the source rather than having to address a chain of unintended and possibly negative consequences downstream for future generations.

Shown below is a list of Pillar Recommended Implementation Actions that were prepared based on the Pillar work, Master Craftsmen work, and other stakeholder input. These regional implementation actions are not listed in priority or are in any particular order. They represent the integrated work of the Pillars that resulted from their collaboration internally and with other Pillars and are the solutions to the challenges that they identified in each of their Pillar chapters. This list does not represent a list of projects that been rated and ranked projects under the more formal Project Review Process defined under the OWOW 2.0 Plan. However, they are recommended implementation actions that reflect an emphasis on integration and system-wide solutions to the watershed challenges and include the 13 watershed-wide framework concepts previously discuss.

Each of the Pillars recommended watershed-wide implementation actions that could eventually become projects once they are more fully investigated and analyzed. Multi-agency project proponents for these implementation actions have not been identified yet. It is anticipated that these recommended actions may best help fulfill the vision of OWOW 2.0 Plan.

Appendix K shows projects submitted to SAWPA under the Round 2 “Call for Projects” conducted in 2012, and are rated and ranked based on the project criteria defined for OWOW Round 2. The process undertaken for project review for the OWOW Round 2 projects is discussed in **Chapter 6 Project/Program Review, Evaluation and Prioritization**.

Each of the pillars recommended implementation actions shown below, and must be further investigated and analyzed to fulfill future grant funding requirements. Further, multi-agency project proponents for these actions may not have been identified yet. It is anticipated that this list of Pillar recommended actions, shown in **Table 5.14-11**, will serve as planning guidance for possible watershed-wide implementation projects to be encouraged for funding under Proposition 84 Round 3, and can best help fulfill the vision of OWOW 2.0 Plan.

**Table 5.14-11 Pillar Recommended Implementation Actions
(In no particular order)**

Title	Summary Description
Water Budget Based Tiered Water Rates	Create incentive programs for retail water agencies in the watershed to adopt water budget-based tiered water rates.
Water Use Efficiency Incentive Program	Create an incentive program for expanded water use efficiency programs including cash for grass, landscape retrofit support, and California-friendly plant discounts. Utilize IEUA Residential Landscape Transformation Program and MWDOC Comprehensive Landscape Water Use Efficiency Programs as template.
Watershed Exchange Program	<ul style="list-style-type: none"> • Upper Watershed foregoes development of more water recycling and provides future treated wastewater to their Lower Watershed via SAR • Lower watershed provides “replacement” water to upper/middle watershed
Wet Year Imported Water Storage Program	<ul style="list-style-type: none"> • Upper watershed and MWDSC would implement this strategy • Goal: change MWDSC place of storage from Central Valley to Santa Ana River Watershed • Develop MWDSC pricing structure to encourage more storage in the watershed • Water stored in wet years for a reduced price. Water pumped in dry years for remaining Tier 1 price
Enhanced Water Conservation at Prado Dam	<ul style="list-style-type: none"> • Corps & OCWD currently studying 505 ft year-round • Enhanced Project <ul style="list-style-type: none"> ○ Cannot start until Mainstem project complete ○ Would increase water storage elevation to: 510 ft or 514 ft Benefit: ~10,000 AF
Enhanced Santa Ana River Stormwater Capture Below Seven Oaks Dam	Additional stormwater detained by Seven Oaks Dam could enable the diversion of up to 500 cfs and up to 80,000 acre-feet per year. This may require execution of new water rights agreement among SAR Watermaster parties.
Off River Storage and Supply Credits	Additional stormwater capture along the SAR tributaries could enhance capture/ recharge. Specific locations in the watershed would need to be defined. New recharge projects could allow for purchase of “MS4 Credits” by cities and counties as part of new development as a regional MS4 compliant recharge project.

Title	Summary Description
Re-Operate Flood Control Facilities	Working with flood control agencies re-operate flood control facilities with the goal of increasing stormwater capture increasing flood get away capacity and revising decades old storage curves. Without any impending storms, the flood control agencies may be able to release stormwater at a slower rate. This relatively minor operational change would make stormwater flows easier to capture and put to use. It also would result in impounding the water longer, which would increase artificial recharge during the “holding period”. This strategy has already been successfully implemented in some portions of the watershed.
Increase Surface Water Storage	Helps offset drought and climate change while also increasing watershed sustainability and less dependence on imported water. This project would supplement but not replace existing or proposed groundwater storage.
Increase Groundwater Storage	Helps offset drought and climate change while also increasing watershed sustainability and less dependence on imported water.
Inland Empire Garden Friendly Demonstration and LID Project	Using the Inland Empire Garden Friendly Program as a template, a demonstration project is proposed to quantify the benefits of installing Inland Empire garden friendly products and further demonstrate Low Impact Development features in a DAC neighborhood. The project would be modeled in part after the successful City of Santa Monica Garden-Friendly Project, as well as the Elmer Avenue Neighborhood Retrofit project in the LA Basin.
DAC Water Supply or Water Quality Improvement Projects	Provide funding support to assure drinking water standards are met such as in the County Water Company of Riverside near Wildomar. Construct new sewer system for the areas that have failing septic systems/undersized treatment facilities like Beaumont Cherry Valley.
Wetlands Expansion Watershed wide	Create new wetlands along the tributaries of Santa Ana River to provide for natural water quality improvement, ecosystem restoration and recreational opportunities. Water supply for such wetlands would be dry weather urban runoff and available recycled water and would be patterned after the Mill Creek Wetlands in Chino Basin.
Title	Summary Description
Watershed-wide Multi-Use Corridor Program	Create multi-use corridors along SAR and its tributaries and Upper Newport Bay tributaries in all three counties in the watershed to provide for sustainable wildlife corridors, stormwater attenuation and capture, flood control, sediment reduction and erosion restoration, enhanced NPS pollution treatment, removal of non-native species, and creation of recreational trails,. In Riverside County, along Temescal Wash, San Bernardino, San Timoteo Wash, Orange County along Borrego Canyon Wash between Irvine Blvd., and Town Center Drive.

Multi-Species Habitat Plan for Gap Areas of Watershed	Create multi-species habitat plan for San Bernardino County and portions of Orange County. Though work is underway on the Upper Santa Ana Wash Land Management and Habitat Conservation Plan, there is no MSHCP covering the growing areas of southwestern San Bernardino County. Western Orange County is also not covered by an MSHCP.
Water Conservation Recharge Optimization Program	Establish a water conservation-recharge optimization plan for existing and potential future flood control facilities, using the example work of the Chino Basin Recharge Master Plan and implementation projects as a template.
Watershed-wide Geodatabase Access	Connect existing county or program-specific geodatabases to create a comprehensive watershed geodatabase that provides access to appropriate stakeholders, and set up a data quality control and maintenance program. The main component County MS4 geodatabases are well under way.
Forest Restoration Projects	Expand forest restoration through fuels reduction, meadow and chaparral restoration projects to strategic areas above major stormwater recharge basins for flood control, water supply and water quality benefits.
Residential Self-Regenerating Water Softener Removal Rebate Program	Removal of self regenerating water softeners has been proven as an effective strategy to reduce TDS levels at WWTP and assure future salt discharge requirements. The project provides watershed-wide rebates and would be a joint program among water agencies in the watershed.
Salt Removal Projects to Achieve Salt Balance	Expand groundwater desalination to key groundwater basins where TDS and Nitrate concentrations are approaching discharge limits. Locations may include Elsinore Basin, Perris Basins in EMWD and Riverside Basins.
Enhanced Stormwater Capture from the Tributaries of the Santa Ana River	Develop additional stormwater capture projects along the SAR tributaries that support key groundwater management zones identified by San Bernardino, Riverside, and Orange County Geodatabases. Early estimates indicated a capture potential of 12,000 AFY.
Title	Summary Description
Conjunctive Use Storage and Water Transfer Project using Wet Year and Dry Year Allocation	This project concept proposes a purchase by OCWD of up to 45,000 AF of imported water to be recharged by the IEUA member agencies during wet years. Water would be purchased at a reduced imported water rate from MWD reflecting the savings of not storing the SWP water at one of MWD's own storage programs such as the Semi-Tropic Water Storage District and/or Kern County Water Bank. In dry years, OCWD member agencies could request IEUA member agencies to increase their groundwater production for three years by up to 15,000 AF per year in-lieu of direct deliveries from MWD, while MWD increases deliveries in the Orange County area by an equal amount. Under this scenario, the net MWD deliveries during dry years (years that Water Supply Allocation Plan is

	implemented) will remain unchanged, without the need for MWD to produce water from its storage accounts. At the same time, having the imported water stored in the SAR watershed will increase local supply reliability, and provide some financial incentive to both IEUA and OCWD member agencies.
Salt Assimilative Capacity Building and Recycled Water Transfer Project	EMWD has the capability to discharge 15,000 AFY of recycled water into Temescal Creek. The recycled water discharge will be dependent on surplus recycled water available and not used within EMWD particularly during wet seasons. With the approval of the SAR Watermaster, this flow can be contractually added to OCWD’s SAR base flow allocation at Prado. The water quality of EMWD’s discharged recycled water may require some salinity mitigation by OCWD to meet the RWQCB Basin Plan Objective in Orange County. The GWRS will be used to provide the required mitigation for the discharged water, and EMWD will pay OCWD for the cost of that mitigation. As part of this project, OCWD will credit EMWD for the purified water that is recharged into the Orange County groundwater basin, and compensate EMWD when that water is produced by OCWD member agencies. To increase water supply reliability in the SAR Watershed, EMWD could use the revenues from this water transfer project for imported water banking during wet years in the San Jacinto Watershed groundwater basins.
Riverside Basin Aquifer Storage and Recovery Project	Riverside Public Utilities, in partnership with Valley District and others, are developing a design for a rubber dam that would cross the Santa Ana River and be used to divert flows while mitigating environment impacts. Creates, 28,000 AFY into off-stream recharge basins.
Watershed Invasive Plant Removal Project	The Santa Ana Watershed Association, the Front Country District Ranger on the San Bernardino National Forest and Southern California Edison had proposed a major an invasive plant eradication project for the Mill Creek Watershed. This project area covers the front (southern slopes) of the San Bernardino Mountains from Highway 18 through Waterman Canyon on the west to Highway 38 from the Mill Creek Ranger Station to Angelus Oaks, an area of approximately 172,773 acres. The proposed future 3-year work area in this proposal covers the Mill Creek Watershed from the Forest boundary to the headwaters. This project proposes to expand the San Bernardino Mountains Front Range Invasive Plant Removal Project to an invasive plant removal and restoration project in the Santa Ana River Watershed that has many partners and stakeholders extending from the coast to the headwaters.
Title	Summary Description
Regional BMPs to Manage Municipal Stormwater Discharges	Develop regional BMPs including infiltration, harvest & reuse, and biotreatment as proposed under current MS4 Permits. Initial phase would be located in MSAR Pathogen TMDL area and expand into other areas of the watershed under future phases to address pathogen treatment.
Watershed-wide coordinated surface water monitoring program	Surface water quality monitoring is not coordinated within the watershed leading to duplicative sampling in some areas and inadequate sampling in others. In some cases this may lead to 303(d) listings that do not reflect real impairments. A new program to coordinate surface water quality monitoring to enhance efficiency and reduce costs is proposed. Sources of monitoring

	data would come from MSAR Watershed TMDL, SWQSTF, MS4 Stormwater Permits, and SCCWRP Bio-assessment Program.
Watershed Urban Runoff Management Fund	Establishing a Watershed Based Urban Runoff Management Fund to support the implementation of stormwater management programs. Components of this program could include the regulatory basis for a watershed based program, the legal basis and authority for the fund, the agreements, and programmatic elements.
Santa Ana River Sediment Transport	Building upon an OCWD demonstration project, implementation of a full scale project that allows for the appropriate transfer of sediment to maximize recharge operations, restore habitat, and reduce operation costs.
Transportation Corridor Stormwater Capture and Treatment	New uses of the current transportation right-of-ways can be expanded for capturing rain runoff and replenishing groundwater basins.
Modified Watershed Brine Management System	Optimizing the water used to transport brine so that less water is lost to the ocean through increased concentrating of brine or delivery to the Salton Sea for beneficial use.
Water Industry Energy Use Reduction Incentive Program	Supporting regional purchase and installation programs of water resource related greener energy projects that reduce capital costs and green house gas emissions.
Watershed Land Use Planning Tool Kit	Developing a tool kit that translates water principles to support watershed planning decisions and implements a jurisdictional outreach effort for relevant regional, county and city planning agencies that encourages adoption of the guidance ideology into General Plans and zoning codes at the local level.

From Concept to Reality – Next Steps for OWOW Implementation

Implementation of the Watershed-based Implementation Concepts just described requires a collaborative multi-jurisdictional effort to be successful. Two types of efforts are envisioned: (1) implementation of Water Resources Infrastructural Conceptual Projects; and (2) Watershed Sustainability Guidance and Programs. Implementation of infrastructural conceptual projects have both institutional (regulatory, jurisdictional, economic) and technical (planning, design and construction) elements. The biggest challenge to successful implementation is not the technical issues; it is the institutional issues that will be associated with any project. We have the technical skills to build the infrastructure; however, developing the institutional support across the watershed, which is required to actually build the infrastructure, requires substantial work. Developments of Watershed-based Guidance and Programs have similar challenges. From a technical standpoint, we have numerous experts throughout the watershed that have the skills and knowledge to develop the projects and programs. On the ground, implementation of the guidance will require a significant focus on the institutional issues.

With these distinctions (technical vs. institutional) in mind, the following recommendations are made to move forward particularly as the future grant funding opportunities arise:

- Identify a champion(s) for each conceptual implementation action or project, one who has the time and resources to commit to the effort.
- Form teams that are responsible for the various project elements, but led by the project champion(s). Recommended teams and examples of their potential responsibilities could include:
 - Financial – This team develops either the means to finance a project (including state/federal grant development) or develops economically sound programs to support watershed management activities, e.g., establishment and operation of an Urban Mitigation Fund to support regional stormwater treatment.
 - Regulatory – This team’s job is to eliminate or minimize regulatory barriers or steer projects in a manner to work around such barriers. They would identify regulatory issues associated with implementation of an infrastructure project or implementation of elements of a guidance document. This team would work directly with the regulatory agencies to resolve conflicts and overcome barriers; they would also lead the effort to develop regulatory documents, e.g., prepare permit applications or complete CEQA requirements for the implementation of an infrastructure project.
 - Legal – Experts can provide critical information regarding legal issues such as making sure existing legally binding agreements, e.g., water rights, are not impacted by a project. If they are impacted, they would develop options and provide means for working around such barriers.
 - Marketing – Outreach is a key to success of any watershed project. The marketing team would be responsible for developing stakeholder support, preparing outreach materials, and coordinating outreach activities, including arranging for experts from the other teams to attend outreach events to share their knowledge.
 - Technical – The technical team includes the skill sets needed to design the project or develop the technical aspects of a guidance document. For infrastructure projects, the team would begin with a 10% planning level design, which then would be used by the other teams to initiate their efforts. Once agreement is reached on the planning level concept, the various financial, regulatory, legal and marketing needs can be defined,

and the other teams can go to work while the technical team moves forward with design. Similarly, for guidance development, the technical team would first develop the technical framework, methods, or ideas that will comprise the guidance. With that understanding developed, the other teams would go to work to lay the groundwork, where needed, to increase the likelihood of implementation across the watershed.

- Empower the teams to work autonomously with oversight by the champion. The project champion(s) would ensure the work of the various teams is shared as needed.
- Decision makers need to be at the table leading the teams. The staff of the decision makers can certainly do the heavy lifting, but decision makers are needed to drive the process forward, especially when the inevitable speed bumps arise. A commitment to work to the 30% design level will develop project and program concepts that can engage and encourage the input from other potential partners and encourage project development beyond the single purpose project.
- Investing in 30% level design (preliminary design) is helpful to the permitting process as the 10-15% design concepts sometimes leave many unanswered questions for regulators resulting in lower commitment to the project initially due to uncertainty.

Preliminary design and feasibility analysis of the projects will improve eligibility for future IRWM grant funding rounds. As project development occurs and regional multi-benefits are more clearly defined, it is likely such projects will be highly rated under future funding rounds through Prop 84 IRWM grant program. With the lion's share of Prop 84 **Chapter 2 Governance, Outreach, and Integration** called out for the Santa Ana River Watershed occurring under the next and final round of Prop 84 amounting to \$73.5 million; greater funding support will be available to support regional implementation projects and projects that benefit larger geographic areas of the watershed. Disadvantaged communities and Native American Tribes will be provided special consideration and attention particularly to find adjoining agencies, cities, counties or NGOs that may serve as the sponsoring entity for new water supply or water quality improvement projects.