Appendix B

Watershed Activity Summary Sheets

2008 San Luis Rey WURMP

SAN LUIS REY RIVER WATERSHED
5-YEAR WURMP STRATEGIC PLAN

Table 4-1. Five-Year Strategic Plan

SAN LUIS REY RIVER WATERSHED	HA			Priority Pollutant		Implementation Schedule						
	903.1	903.2	903.3	Bacteria	Nutrients	FY 07-08			FY 08-09			FY 2010 through FY 2012
Watershed Activities Planned for Implementation in FY 07-08 and FY 08-09												
SLR-001: SLR Watershed Water Quality Monitoring Program	x			x	x	M			M			This program will continue through FY08/09
SLR-002: Bacteria Reduction Pilot Program at Oceanside Harbor Boat Wash Outfall	x			x		WQ						
SLR-003: Modular Wetland Installation at Oceanside Harbor Boat Wash Outfall	x			x					WQ			
SLR-004: Pet Waste Removal Pilot Project Along San Luis Rey Recreation Trail	x			x		WE			WQ	WE		
SLR-005: Pet Waste Bag Dispenser Program in County Parks	x			x		WQ			WQ			This activity will continue throughout the Permit cycle
SLR-006: Agricultural and Nursery Operations Runoff Assessment & Monitoring Program	x	x	x	x	x	M			M			
SLR-007: Water Quality Runoff Management and Agricultural Waiver Workshop	x	x	x	x	x	WE						This workshop will be conducted every two years
SLR-008: Guajome Lake Water Quality Monitoring Program	x			x	x	M			M			This activity will be reevaluated after FY 08-09
SLR-009: Nutrient Source Identification and Abatement: Guajome Lake	x				x	M	S		M	S		Future activity will be assessed based on program results
SLR-010: Lower SLR River Bacteria Source Tracking Study	x			x		M	S		M	S		
SLR-011: LID & Watershed Planning Education for Community Planners & Sponsor Groups	x	x	x	x	x	WE			WE			Completion is anticipated in FY 08-09
SLR-012: Land Acquisitions	x			x		WQ			*			* Unable to project land acquisitions in advance
Potential Future Activities												
SLR River Bacteria BMP Implementation	x			x		N/A						Contingent upon funding for prirotized BMPs
Pet Waste BMP Implementation Along SLR Recreation Trail	x			x								This project will continue as funding is secured
Restaurant Activity	x			x								Based upon results from pilot project implemented in Encinitas
Stormwater Quality Master Plans for Special Drainage Fee Areas												Contingent upon SDA fee increse in 2009
San Luis Rey River Park	x			x	x							

WQ = Watershed Water Quality Activity
WE = Watershed Education Activity
PP = Watershed Public Participation Activity
LU = Watershed-based Land Use Planning Activity

WQ = Watershed Water Quality Activity (not in active implementation)
WE = Watershed Education Activity (not in active implementation)
M = Watershed Water Quality Monitoring Activity
S = Source ID/Characterization Activity
D = Watershed Data Management/Assessment Activity
O = Other Watershed Activity

Watershed Activity Summary Sheets

WATERSHED ACTIVITY SUMMARY SHEET

TITLE: **San Luis Rey Watershed Water Quality Monitoring Program**

ID NUMBER: **SLR-001**

ACTIVITY DESCRIPTION

A primary component of the San Luis Rey WURMP is to identify and characterize the constituents of concern adversely affecting water quality in the San Luis Rey River Watershed. Therefore, the County of San Diego and the City of Oceanside began a coordinated sampling program in 2004 consisting of both field observations and field and analytical water quality sampling. This activity was developed collaboratively by the Watershed Copermittees within the San Luis Rey Watershed.

The activity includes the following tasks to be performed by the Watershed Copermittees:

- Update the monitoring plan as needed.
- Implement monitoring plan with field and laboratory analyses of constituents.
- Collect, compile, and analyze data.
- Prepare an annual written report including conclusions and recommendations.

A description of the monitoring program, including sampling locations, procedures, and analyses is included as Attachment A to the FY 2006-07 San Luis Rey WURMP Annual Report.

TMDL APPLICABILITY

N/A

TIME SCHEDULE FOR IMPLEMENTATION

Monitoring activities will be conducted at least quarterly and will continue through FY 08-09. The program will be reevaluated for continued relevance in future years.

PARTICIPATING WATERSHED COPERMITTEES

- City of Oceanside
- County of San Diego

OTHER PARTICIPATING ENTITIES

N/A

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria
- Nutrients

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

The collective watershed strategy identifies nutrients and bacteria as high priority water quality problems in the Mission HSA (903.11). This monitoring program is therefore consistent with the strategy.

EXPECTED BENEFITS

The expected benefit of this activity is to identify and characterize the constituents of concern adversely affecting water quality in the San Luis Rey River Watershed. This activity will provide useful information for the purpose of developing future program activities.

EFFECTIVENESS MEASUREMENTS

Activity effectiveness will be assessed by confirming completion of the monitoring program described above (Level 1). The water quality monitoring data collected as part of this activity may be useful for assessing changes in receiving water quality over time (Level 6).

WATERSHED ACTIVITY SUMMARY SHEET

TITLE: **Bacteria Reduction Pilot Program at Oceanside Harbor Boat Wash Outfall – Increased Cleaning Frequency and Additional Education Signage**

ID NUMBER: **SLR-002**

ACTIVITY DESCRIPTION

Oceanside Harbor has over 40 storm drains that carry flows a short distance to the harbor. One drain with historical bacterial exceedances receives flows from the harbor boat wash and a sewage dump for recreational vehicles (RV) via a separator vault.

Two bacteria reduction pilot projects have been implemented in the past: installation of an antimicrobial fabric in FY 2006/07 and increased frequency of storm drain cleaning in FY 2007-08. The antimicrobial fabric did not display long-term effectiveness, possibly the result of added hydrocarbons and sediment in the runoff. The City then implemented monthly cleaning of the boat wash outfall in May 2007, which showed reductions in bacterial counts, though there were still some bacterial level exceedances which may be due to re-growth in the pipe. The City decided to increase the cleaning frequency to twice per month during high use summer months, which will be implemented during fiscal year 2007/08.

In order to supplement the additional cleanings, the City will install additional educational signage at the RV dump station in FY 2007/08 encouraging proper hook-up and removal of sewage pipes from RVs and the need to prevent spills while emptying RV sewage tanks.

TMDL APPLICABILITY

This activity is not specifically implemented in compliance with a TMDL. However, the Pacific Ocean Shoreline at the mouth of the San Luis Rey River is listed as impaired for indicator bacteria on the 2006 Clean Water Act 303(d) List of Water Quality Limited Segments. A TMDL is currently scheduled for development in 2008.

TIME SCHEDULE FOR IMPLEMENTATION

Increased frequency of cleaning will occur during high use summer months in FY 2007/08
Additional education signage is scheduled to be installed in FY 2007/08.

PARTICIPATING WATERSHED COPERMITTEES

- City of Oceanside

OTHER PARTICIPATING ENTITIES

N/A

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

The source of the bacteria has been clearly characterized. The City is moving forward with implementing pilot programs to determine the BMP, or combination of BMPs, that will be most effective in reducing bacterial exceedances from this outfall.

EXPECTED BENEFITS

The expected benefits of the program are to:

- Reduce bacterial concentrations that are discharged into the Oceanside Harbor.
- Determine the effectiveness of this BMP in the pilot study to assess the need for a change in BMPs or if additional BMPs need to be implemented.

EFFECTIVENESS MEASUREMENTS

A reduction in bacterial exceedances will determine the effectiveness of the two BMPs.

WATERSHED ACTIVITY SUMMARY SHEET

TITLE: **Bacteria Reduction Pilot Program at Oceanside Harbor Boat Wash Outfall – Modular Wetland**

ID NUMBER: **SLR-003**

ACTIVITY DESCRIPTION

Oceanside Harbor has over 40 storm drains that carry flows a short distance to the harbor. One drain with historical bacterial exceedance receives flows from the harbor boat wash and a sewage dump for recreational vehicles (RV) via a separator vault.

Two bacteria reduction pilot projects have been implemented in the past: installation of an antimicrobial fabric in FY 2006/07 and additional storm drain cleaning in FY 2007-08. The antimicrobial fabric did not display long-term effectiveness, possibly the result of added hydrocarbons and sediment in the runoff. The city then implemented monthly cleaning of the storm drain outfall in May 2007 which showed reductions in bacterial counts, though there were still some bacterial level exceedances which may be due to re-growth in the pipe. During fiscal year 2007/08 the City will increase the cleaning frequency to twice per month. Also, the City will install additional education signage during fiscal year 2007/08.

In addition to the above mentioned BMPs the City is working with a private company to install a modular wetland in the boat wash outfall drainage. This modular wetland has multiple features to capture, screen, separate and filter incoming water. A catch basin provides the first stage of treatment by capturing trash and litter, gross solids, and sediment. A perimeter filters provides a third stage of treatment by physically and chemically capturing various pollutants including bacteria. The wetland chamber provides the final stage of treatment through a combination of physical, chemical, and biological processes.

TMDL APPLICABILITY

This activity is not specifically implemented in compliance with a TMDL. However, the Pacific Ocean Shoreline at the mouth of the San Luis Rey River is listed as impaired for indicator bacteria on the 2006 Clean Water Act 303(d) List of Water Quality Limited Segments. A TMDL is currently scheduled for development in 2008.

TIME SCHEDULE FOR IMPLEMENTATION

The modular wetland is scheduled to be installed in fiscal year 2007/08. The site will be visited twice per month and water quality samples taken when flow is present.

PARTICIPATING WATERSHED COPERMITTEES

- City of Oceanside

OTHER PARTICIPATING ENTITIES

N/A

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

The source of the bacteria has been clearly characterized. The City is moving forward with implementing pilot programs to determine the BMP, or combination of BMPs, that will be most effective in reducing bacterial exceedances from this outfall.

EXPECTED BENEFITS

The expected benefits of the program are to:

- Reduce bacterial concentrations that are discharged into the Oceanside Harbor.
- Determine the effectiveness of this BMP in the pilot study to assess if the need for a change in BMPs or if additional BMPs need to be implemented.

EFFECTIVENESS MEASUREMENTS

A reduction in bacterial exceedances will determine the effectiveness of the modular wetland.

WATERSHED ACTIVITY SUMMARY SHEET

TITLE: **Pet Waste Removal Pilot Project Along San Luis Rey Recreation Trail**

ID NUMBER: **SLR-004**

ACTIVITY DESCRIPTION

This activity will encourage dog owners to pick up and dispose of pet waste while walking their dog in a targeted area of the City located along the Recreation Bike Trail which parallels the San Luis Rey River. This trail has high recreational traffic including walkers and bikers some of who walk and run their dogs along the trail. The goal of this project is to determine which types of educational BMPs will enact a behavioral change amongst people who do not pick up pet waste.

Three areas along this trail will be part of the project. One area will serve as the control area and no signage or additional BMPs will be installed. Another area will have signs installed stating "Pet Waste Transmits Disease" and with appropriate city codes on the sign. Another area will have signs installed as well as a dog waste bag dispenser and trash can for disposal. Targeted areas will be cleaned prior to the implementation of the various BMPs. The weight of the bags will be calculated before during and after the project to determine load reductions and the effectiveness of the various BMPs.

TMDL APPLICABILITY

This section of the river is not under TMDL development or implementation. However, the Pacific Ocean Shoreline at the mouth of the San Luis Rey River is listed as impaired for indicator bacteria on the 2006 Clean Water Act 303(d) List of Water Quality Limited Segments. A TMDL is currently scheduled for development in 2008.

TIME SCHEDULE FOR IMPLEMENTATION

This activity is scheduled for planning during FY 2007-08 with implementation and assessment during FY 2008-09.

PARTICIPATING WATERSHED COPERMITTEES

- City of Oceanside

OTHER PARTICIPATING ENTITIES

A private firm will be hired to clean the area and conduct visual and quantitative assessments throughout the entirety of the project.

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

Bacteria has been identified as a priority water quality problem in the San Luis Rey River Watershed. Since this activity addresses a priority water quality problem and a priority source, it is consistent with the collective watershed strategy.

EXPECTED BENEFITS

This activity will result in reductions of bacteria from the San Luis Rey Recreation Trail. This pilot project will also determine which BMPs encourage people to pick up dog feces and dispose of the waste in a safe and environmentally sound way. Successful components of this pilot project will be shared with other copermittees for implementation in their watersheds and jurisdictions.

EFFECTIVENESS MEASUREMENTS

Load reductions will be calculated from each of the three specified areas by assessing the amount of fecal matter prior to implementation of the program and during program implementation by assessing how much fecal matter is placed in provided trash cans. Also, the number of pet waste bags used from the dispenser will be tabulated in addition to the bags personally brought by trail users.

WATERSHED ACTIVITY SUMMARY SHEET

TITLE: **Pet Waste Bag Dispenser Program in County Parks**

ID NUMBER: **SLR-005**

ACTIVITY DESCRIPTION

The County of San Diego maintains an inventory of pet waste dispensers in its parks. Two important goals of this program are to reduce the amount of pet waste found in parks and to educate the public on the need to cleanup after their pets. Realization of these goals will result in the reduction of pollutant loads, particularly bacteria and nutrients. In the San Luis Rey River Watershed, there are currently eight dispensers located in two County parks:

- Guajome Regional Park (7 dispensers)
- Live Oak Park (1 dispenser)

The County's jurisdictional goal for this five-year permit cycle is to increase the total number of parks with pet waste dispensers by 100% (i.e., from 26 parks to 52 parks).

TMDL APPLICABILITY

N/A

TIME SCHEDULE FOR IMPLEMENTATION

- Maintenance of existing pet waste dispensers – Ongoing
- Addition of new dispensers in County parks – To be determined

PARTICIPATING WATERSHED COPERMITTEES

- County of San Diego

OTHER PARTICIPATING ENTITIES

- None

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria
- Nutrients

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

Bacteria and nutrients have been identified as priority water quality problems in the San Luis Rey River Watershed. Parks have been identified as potential sources of bacteria and nutrients. Since this activity addresses a priority water quality problem and a priority source, it is consistent with the collective watershed strategy.

EXPECTED BENEFITS

This activity will result in reductions of bacteria and nutrients from County parks.

EFFECTIVENESS MEASUREMENTS

Activity effectiveness will be measured by tracking the number of pet waste bags distributed at each County park on an annual basis (Level 1). Bacteria load reductions (Level 4) will be estimated based on the number of bags distributed and the following assumptions obtained from a 2004 study completed by the County at the San Elijo Lagoon Ecological Reserve:

- Assumption 1: The average weight of pet waste per bag is approximately 0.2 lbs
- Assumption 2: In addition to the bags taken from the County's dispensers, an additional 30% of pet waste bags are brought to the parks by the pet owners themselves.

WATERSHED ACTIVITY SUMMARY SHEET

TITLE: **Agricultural and Nursery Operations Runoff Assessment and Monitoring Program**

ID NUMBER: **SLR-006**

ACTIVITY DESCRIPTION

The northeast area of Oceanside has a high concentration of nursery and agricultural operations that are potential sources of associated pollutants (according to the BLTEA) including organics, sediment, pesticides, nutrients and bacteria. This activity will conduct water quality monitoring upstream and downstream of agricultural and nursery operations to assess the impacts to water quality during dry and wet weather. Results will be used to prioritize and recommend Best Management Practices to agricultural and nursery operations to reduce and eliminate potentially contaminated runoff to the San Luis Rey River.

TMDL APPLICABILITY

N/A

TIME SCHEDULE FOR IMPLEMENTATION

This activity is scheduled to begin in 2007-08 with commitment from voluntary and non-voluntary growers and nurseries. A list of BMPs specific to each operation will be developed in cooperation with the United States Department of Agriculture-Natural Resources Conservation Service (USDA-NRCS), the UC Cooperative Extension, and the Farm Bureau. Implementation of those BMPs will occur in subsequent years.

PARTICIPATING WATERSHED COPERMITTEES

- City of Oceanside

OTHER PARTICIPATING ENTITIES

- US Department of Agriculture, Natural Resources Conservation Service
- University of California Cooperative Extension
- San Diego County Farm Bureau

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Nutrients
- Bacteria

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

Through the City's Dry Weather Monitoring Program and subsequent WURMP monitoring activities, it has been observed that areas within the City with heavy agricultural use have elevated nutrient and bacteria levels in the runoff to the San Luis Rey River. However, the specific sources have gone uncharacterized. The next step in the collective watershed strategy is to characterize the sources. To characterize the source(s) of the potential contamination, the City has built a relationship with several of the growers in the area and has received a commitment to

voluntarily allow the City to monitor the runoff upstream and downstream of their properties. Once these sources are characterized, the activity will move into an implementation phase to reduce and eliminate the pollutant sources. Because this activity targets private operations, the implementation of BMPs will be during subsequent years at the discretion of the grower.

EXPECTED BENEFITS

The benefit of this activity will be a characterization and prioritization of sources of high priority water quality problems in a high agricultural use area of the San Luis Rey watershed. The source identification will then lead to BMP recommendations for the reduction and elimination of high priority pollutants in irrigation and storm water runoff from agricultural operations to the San Luis Rey River.

EFFECTIVENESS MEASUREMENTS

Activity effectiveness will be measured by confirming that monitoring is conducted as planned (Level 1). Results will be used to prioritize and recommend Best Management Practices, where needed, to agricultural and nursery operations to reduce and eliminate potentially contaminated runoff to the San Luis Rey River.

WATERSHED ACTIVITY SUMMARY SHEET

TITLE: **Water Quality Runoff Management and Agricultural Waiver Workshop for Nurseries and Agricultural Businesses**

ID NUMBER: **SLR-007**

ACTIVITY DESCRIPTION

This free education workshop will target nurseries and agricultural businesses and provide owners and operators of a better understanding of water quality runoff management and how the conditional agricultural waiver for discharges will affect their operations. This workshop is being conducted to keep growers and operators updated on runoff regulations, available resources to address any runoff and stormwater related issues and to share information on how to conduct a site self-assessment prior to inspections. Growers from north San Diego County watersheds are invited to attend, including San Luis Rey, San Dieguito and the Carlsbad Hydrologic Unit. This workshop will typically be held every two years. The City of Oceanside will secure speakers, develop workshop announcement materials and moderate the workshop. Other co-permittees will assist with information dissemination to constituents within their jurisdictions and provide additional support during the workshop.

TMDL APPLICABILITY

N/A

TIME SCHEDULE FOR IMPLEMENTATION

The educational workshop will be conducted during the 2007-08 fiscal year and every two years thereafter.

PARTICIPATING WATERSHED COPERMITTEES

- City of Carlsbad
- City of Encinitas
- City of Escondido
- City of Oceanside
- City of Poway
- City of San Marcos
- City of Vista
- County of San Diego

OTHER PARTICIPATING ENTITIES

- County of San Diego, Agriculture Weights and Measures Division
- US Department of Agriculture, Natural Resources Conservation Service
- University of California Cooperative Extension
- Regional Water Quality Control Board
- San Diego County Farm Bureau
- Upper San Luis Rey Resource Conservation District
- Henry’s Farmers Market

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria
- Nutrients
- Sediment

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

This watershed education activity was selected beginning with a baseline watershed evaluation which incorporated water quality data and pollutant source information. Watershed Copermittees determined that the nursery and agricultural operations can contribute the above mentioned pollutants to the receiving waters. Thus, this workshop is designed to provide nursery and agricultural owners and operators with the tools they need to implement BMPs to reduce and eliminate polluted runoff from their operations. This workshop is hopefully the catalyst to implementing structural and operational BMPs at these facilities.

EXPECTED BENEFITS

This workshop will increase knowledge of growers by providing updated runoff regulations, information about the new agricultural waiver that became effective in 2008, how to conduct a site self-assessment to determine any runoff issues and the financial resources available to implement best management practices applicable to their operations.

EFFECTIVENESS MEASUREMENTS

This workshop is designed to educate the agriculture industry in coming into compliance with permit requirements (Level 1) and increase their knowledge and awareness of runoff related issues (Level 2). Three assessments will be used to determine the effectiveness of the workshop:

- Attendance goal.
- Score increase for pre- and post-quizzes.
- Number of businesses conducting a self site-assessment.

The attendance goal for this workshop is to have at least one representative from 20 north San Diego County agricultural operations. A short quiz will be provided to each attendee prior to the start of the meeting to assess their knowledge on topics being addressed by the speakers. The same quiz will be provided after the completion of all speakers. The quizzes will be analyzed with the goal increased in knowledge of issues related to water quality runoff management and the agricultural waiver. A self site-assessment form will be provided to each business in attendance. These businesses will be polled during the next six months to determine if the self site-assessment was conducted.

Planned Tasks	Targeted Outcome	Assessment Measures
Compile attendance list	20 businesses represented	# represented
Conduct pre- and post-quizzes	Knowledge increase	% knowledge increase
Conduct Self Site-Assessment	25% of attendees within six months of workshop	% of attendees conducting self-site assessment

WATERSHED ACTIVITY SUMMARY SHEET

TITLE: **Guajome Lake Water Quality Monitoring Program**

ID NUMBER: **SLR-008**

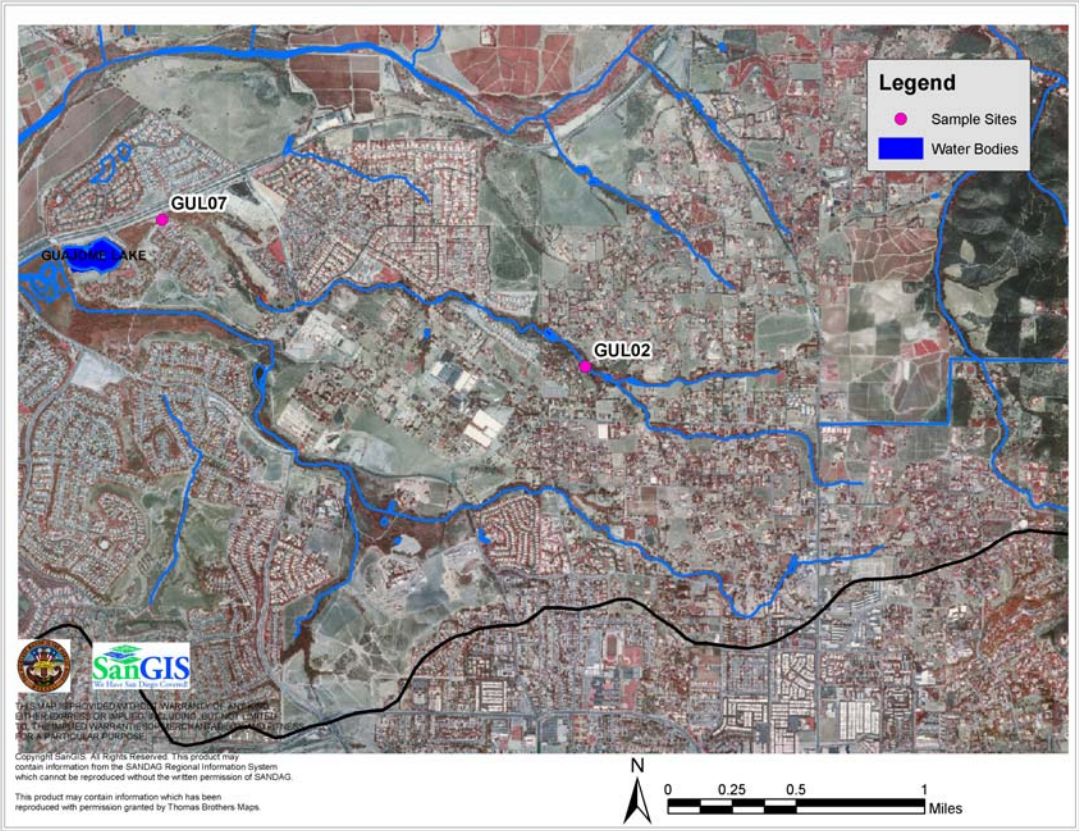
ACTIVITY DESCRIPTION

The County of San Diego is implementing a monitoring program to assess the contribution of urban runoff (specifically nutrients) to the eutrophication of Guajome Lake. On January 7, 2005 a joint reconnaissance of the Guajome Lake area was conducted with the City of Oceanside, the County Department of Agriculture, Weights, & Measures (AWM), the County Department of Parks and Recreation (DPR), and the County Department of Public Works (DPW). All drainages into and out of Guajome Lake were characterized and it was concluded that only the flows from the northern subbasin enter the lake. From February through April 2005, seven locations in the northern subbasin were monitored and two of those were selected as long-term monitoring sites. They included the East Channel Creek at Hutchison Street and Hidden Lake Lane (GUL02) and the East Channel Creek at Hitching Post Drive (GUL07). GUL2 is located in the middle of the subbasin and is co-located with the County of San Diego's dry weather monitoring site SLR04. GUL07 is located in the East Channel Creek and represents the bottom of the drainage. Preliminary investigations into land uses have identified potential sources to include residential, commercial nurseries, commercial horse facilities, and residential horse facilities.

The Guajome Lake water quality monitoring component includes the following tasks:

- Collection of samples to investigate ongoing contribution of nutrients to the lake
- Analysis of sampling results
- Identification of potential sources of phosphorous and nitrogen
- Preparation of a written report with conclusions and recommendations.

Study methods and results to date are described in detail in Attachment D of the FY 2006-07 WURMP Annual Report. A map of the two monitoring locations is shown below.



TMDL APPLICABILITY

While it may be supportive of TMDL goals, this activity is not specifically implemented as part of a TMDL compliance program. The 2006 Clean Water Act Section 303(d) List of Water Quality Limited Segments identifies Guajome Lake as impaired due to eutrophication.

TIME SCHEDULE FOR IMPLEMENTATION

Monitoring will be conducted approximately monthly.

PARTICIPATING WATERSHED COPERMITTEES

- County of San Diego

OTHER PARTICIPATING ENTITIES

- None

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- All

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

The collective watershed strategy identifies nutrients as a high priority water quality problem in the San Luis Rey WMA. This nutrient monitoring program is therefore consistent with the strategy.

EXPECTED BENEFITS

This activity is expected to better characterize urban runoff potentially contributing to the eutrophication problem in Guajome Lake. Preliminary investigations into land uses have also identified potential phosphorus and nitrogen sources to include residential areas, commercial nurseries, commercial horse facilities, and residential horse facilities. Further monitoring and investigation of potential sources will continue.

EFFECTIVENESS MEASUREMENTS

Activity effectiveness will be measured by confirming that monitoring is conducted as planned (Level 1). Results will be assessed over time to track any discernible changes in discharge and receiving water quality (Levels 5 and 6).

WATERSHED ACTIVITY SUMMARY SHEET

TITLE: **Nutrient Source Identification and Abatement: Guajome Lake**

ID NUMBER: **SLR-009**

ACTIVITY DESCRIPTION

The County of San Diego Departments of Public Works (DPW) and Agriculture, Weights, and Measures (AWM) will collaborate on a project to identify and abate the source(s) of elevated nutrient levels entering Guajome Lake. Nitrate concentrations have been observed to exceed dry weather action levels at the County's SLR 04 dry weather monitoring station (Hutchinson Street at Hidden Lake Lane) since 2002. Guajome Lake is listed as impaired for eutrophication on the 2006 Clean Water Act 303(d) List of Water Quality Limited Segments. Phosphorous is another nutrient potentially contributing to this problem. To date, follow up investigations conducted as part of the County's illicit discharge detection and elimination program have yielded little definitive information about the source(s) of this problem. This activity will consist of intensified water quality monitoring, source identification, inspection, education, and enforcement as determined necessary.

Planned tasks include:

- Compile an inventory and map of potential nitrate sources in the SLR 04 drainage area.
- Compile baseline information on BMP implementation and compliance history for nurseries within the SLR 04 drainage area.
- Perform frequent water quality screenings for nitrate, dissolved oxygen, and other parameters at SLR 04
- Perform additional upstream water quality monitoring and source investigations as appropriate to identify potential sources of the elevated nitrate levels.
- Conduct targeted inspections as necessary to abate sources of nitrates.
- Conduct targeted education activities as necessary to abate sources of nitrates.
- Conduct enforcement activities as necessary to abate sources of nitrates.

TMDL APPLICABILITY

This activity is not specifically implemented in compliance with a TMDL. However, Guajome Lake is listed as impaired for eutrophication on the 2006 Clean Water Act 303(d) List of Water Quality Limited Segments. A TMDL is currently scheduled for development by 2019.

TIME SCHEDULE FOR IMPLEMENTATION

The proposed implementation schedule below is tentative subject to changes based on results obtained over the course of the project or unforeseen changes in departmental staffing or budgets.

Planned Tasks	FY 07-08	FY 08-09
Compile an inventory and map of potential nutrient sources in the SLR 04 drainage area.	X	
Compile baseline information on BMP implementation and compliance history for facilities and other sources within the SLR 04 drainage area (for the purposes of tracking improvements over time).	X	
Perform frequent water quality screenings for nutrients and other parameters at SLR 04	X	X
Perform additional upstream water quality monitoring and source investigations as appropriate to identify potential sources of the elevated nutrient levels.	X	X
Conduct targeted inspection activities as necessary to abate identified sources of nutrients.	X	X
Conduct targeted education activities as necessary to abate identified sources of nutrients.	X	X
Conduct targeted enforcement activities as necessary to abate identified sources of nutrients.	X	X

PARTICIPATING WATERSHED COPERMITTEES

- County of San Diego

OTHER PARTICIPATING ENTITIES

- None

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Nutrients

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

This activity is consistent with the collective watershed strategy in that nutrients are identified as a high priority water quality problem in the Mission HSA (HSA 903.11) and this activity is aimed at identifying and abating nutrient sources in the watershed.

EXPECTED BENEFITS

This project is expected to provide a better understanding of the source(s) of nutrients entering Guajome Lake upstream of the SLR 04 dry weather monitoring station. If it is determined that the contributing sources are subject to the County's Watershed Protection Ordinance, this activity is expected to improve BMP implementation and eliminate illicit discharges through a combination of inspection, education, and enforcement actions. It is possible that non-point sources, including resurfacing groundwater, are responsible for the elevated nutrient levels observed at SLR 04. If this is found to be the case, the County may be limited in its ability to address the problem at this location. Regardless, this activity will provide useful information for the purpose of developing future program activities.

EFFECTIVENESS MEASUREMENTS

Planned Tasks	**Level**	**Targeted Outcome**	**Assessment Measures**
Compile an inventory and map of potential nutrient sources in the SLR 04 drainage area.	1	Completion	Yes / No
Compile baseline information on BMP implementation and compliance history for facilities and other sources within the SLR 04 drainage area (for the purposes of tracking improvements over time).	1	Completion	Yes / No
Perform frequent water quality screenings for nutrient and other parameters at SLR 04	1	4 field screenings / yr at SLR 04	# field screenings / yr at SLR 04
	6	Reduction in exceedances of dry weather action level for nitrates measured at SLR 04 by 2012	% reduction in exceedances of dry weather action level for nitrates measured at SLR 04 by 2012
Conduct targeted inspection activities as necessary to abate identified sources of nutrients.	1	Inspection of 100% of nurseries in the SLR 04 drainage area by June 2009	% of nurseries inspected in the SLR 04 drainage area by June 2009
	3	Reduction in nursery BMP violations observed during nursery inspections in the SLR 04 drainage area by 2010	% change in nursery BMP violations observed during nursery inspections in the SLR 04 drainage area by 2010
Conduct targeted education activities as necessary to abate identified sources of nutrients	2	Improvement in stormwater knowledge assessment scores administered to nursery staff in the SLR 04 drainage area by 2012	% change in stormwater knowledge assessment surveys administered to nursery staff in the SLR 04 drainage area by 2012

WATERSHED ACTIVITY SUMMARY SHEET

TITLE: **Lower San Luis Rey River Bacteria Source Tracking Study**

ID NUMBER: **SLR-010**

ACTIVITY DESCRIPTION

This project will identify sources of bacterial contamination in the Lower San Luis Rey River and San Luis Rey River mouth and recommend appropriate actions and activities to eliminate the input of those bacterial sources.

TMDL APPLICABILITY

This activity is planned for future implementation of the recently adopted TMDL for Indicator Bacteria, Project 1 – Beaches and Creeks in the San Diego Region.

TIME SCHEDULE FOR IMPLEMENTATION

Monitoring will begin in the summer of 2008 and continue through the summer of 2009. The final report including results and BMP recommendations will be completed by March 2010. Planning, implementation and assessment of recommended BMPs and/or activities to reduce or eliminate the bacterial sources will be done in subsequent years.

PARTICIPATING WATERSHED COPERMITTEES

- City of Oceanside
- City of Vista
- County of San Diego

OTHER PARTICIPATING ENTITIES

A private consulting firm will be contracted to complete the work required under the grant. In addition, CoastKeeper and the Regional Water Quality Control Board will provide a staff person to serve on the TAC. The TAC members will offer oversight and guidance in the development, implementation, and reporting of the study.

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

This activity will identify the bacterial sources of contamination and provide recommendations for potential Best Management Practices to reduce or eliminate bacteria sources in the Lower San Luis Rey River and at the river mouth. Once these recommendations have been developed, planning, implementation, and assessment of BMPs will be conducted.

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

Because the sources of bacterial contamination in the Lower San Luis Rey River are not adequately characterized, characterization in the form of a source identification study is consistence with the collective watershed strategy. The City of Oceanside submitted and was awarded funding to implement this study. Once the sources have been better characterized, the City will move forward with developing and implementing BMPs to reduce and eliminate the bacterial source to the maximum extent practicable.

EXPECTED BENEFITS

This activity will identify BMPs to reduce and eliminate bacterial loads to the San Luis Rey River. Project goals and desired outcomes are as follows: Assess and prioritize where and what sources and activities have contributed to bacterial impairment; contribute to future achievement of bacterial TMDL objectives by identifying current bacteria loads and effectively targeting sources and identifying BMPs and Management Measures; lead to future development of source-specific and watershed-wide bacterial source reduction management options capable of meeting TMDL implementation targets; future reduction of bacterial levels.

EFFECTIVENESS MEASUREMENTS

The effectiveness of this activity will be determined by the identification of bacterial sources contributing to water quality impairments. In addition, a list of BMPs developed as a result of this project will determine the effectiveness of the overall study.

WATERSHED ACTIVITY SUMMARY SHEET

TITLE: **Low Impact Development and Watershed Planning Education for Community Planning and Sponsor Groups**

ID NUMBER: **SLR-011**

ACTIVITY DESCRIPTION

This activity involves educating local planning and sponsor groups throughout the unincorporated County on low impact development (LID) and watershed planning principles, practices, and requirements. These groups act in an advisory capacity to local decision makers on a variety of issues, primarily discretionary planning projects. Because their input is valuable to the discretionary process, it is important that they have a strong understanding of regulations and guidelines that may affect the way watersheds are developed. Ultimately, the recommendations of local planning and sponsor groups have some influence over whether, and under what conditions, development projects are approved. LID and watershed planning education will aid local planning and sponsor groups in making informed recommendations on aspects of development projects that would affect watershed water quality.

Local planning and sponsor groups within the San Luis Rey Watershed include:

- Bonsall
- Fallbrook
- North Mountain/Palomar Mountain
- Pala-Pauma
- Valley Center
- Twin Oaks (North County Metro)
- Hidden Meadows (North County Metro)

TMDL APPLICABILITY

This activity is not specifically implemented in compliance with a TMDL.

TIME SCHEDULE FOR IMPLEMENTATION

- Develop Education Program – FY 2007-08
- Begin Education Efforts – FY 2007-08
- Complete Education Efforts – FY 2008-09

PARTICIPATING WATERSHED COPERMITTEES

- County of San Diego

OTHER PARTICIPATING ENTITIES

- None

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria
- Nutrients

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

New development has been identified as having potentially significant impacts on watershed health. As such, this activity is consistent with the collective watershed strategy.

EXPECTED BENEFITS

This activity is expected to result in better decision-making through increased understanding of watershed planning and LID principles, practices, and requirements.

EFFECTIVENESS MEASUREMENTS

Activity effectiveness will be assessed by tracking the number of presentations conducted, the number of participants in attendance, and the number and type of materials distributed (Level 1 Outcomes). The County will also consider distributing post-presentation evaluation forms that ask attendees to assess whether they learned something valuable (Level 2 Outcome).

WATERSHED ACTIVITY SUMMARY SHEET

TITLE: **Land Acquisitions**

ID NUMBER: **SLR-012**

ACTIVITY DESCRIPTION

The San Diego County Board of Supervisors approved the Multiple Species Conservation Program (MSCP) in 1997 as an integral part of the County's efforts to protect parks and open space. The goal of the MSCP (a 50-year program) is to maintain and enhance biological diversity in the region and maintain viable populations of endangered, threatened, and key sensitive species and their habitats. Land acquisition also provides a significant water quality benefit for the watersheds in which it occurs. MSCP acquisition precludes development from occurring and allows land to retain its natural perviousness.

The MSCP is a cooperative effort among the County and other local jurisdictions and the U.S. Fish and Wildlife Service and the California Department of Fish and Game (the Wildlife Agencies). These public partners work with various private landowners, conservation groups, and community planning groups, developers, and other stakeholders. An MSCP exists for the Currently, the County of San Diego is planning for extending the MSCP into both the northern and eastern portion of the County. The northern subarea plan should be approved during the lifetime of the current stormwater permit. While this plan has yet to be approved by the County of San Diego, lands have been and will continue to be acquired from willing sellers.

TMDL APPLICABILITY

While it may be supportive of TMDL goals, this activity is not specifically implemented as part of a TMDL compliance program.

TIME SCHEDULE FOR IMPLEMENTATION

The County of San Diego acquires land on an ongoing basis from willing sellers.

PARTICIPATING WATERSHED COPERMITTEES

- County of San Diego

OTHER PARTICIPATING ENTITIES

- U.S. Fish and Wildlife Service
- California Department of Fish and Game
- Private land owners
- Conservation groups
- Community planning groups
- Developers

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria
- Nutrients

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

Land acquisition is consistent with the collective watershed strategy in that it averts development, thereby eliminating the possibility of future sources in need of abatement or future pollutant loads in need of reduction.

EXPECTED BENEFITS

Acquisition preserves the land's perviousness and natural filtering capabilities. In this sense, it is preferable to either source abatement or pollutant load reduction because it avoids entirely the introduction of pollutant-generating activities to the watershed.

EFFECTIVENESS MEASUREMENTS

Activity effectiveness will be measured by tracking the number and total acreage of land acquisitions within the watershed on an annual basis. It may also be possible to estimate pollutant loadings avoided as a result of these acquisitions. The County will consider presenting load reduction estimations in WURMP Annual Reports if it determines that they are helpful for the purposes of assessing overall program effectiveness.

Potential Future Activity Summary Sheets

POTENTIAL FUTURE ACTIVITY SUMMARY SHEET

TITLE: **San Luis Rey River Bacteria BMP Implementation**

ID NUMBER: **SLR-TBD**

ACTIVITY DESCRIPTION

The San Luis Rey River Bacteria BMP Implementation activity will be initiated based on BMP recommendations from the Lower San Luis Rey Bacteria Source Tracking Study (Study). Planning, implementation and assessment of recommended BMPs and/or activities to reduce or eliminate the bacterial sources will be done after completion of the Study to the maximum extent practicable.

TMDL APPLICABILITY

This activity is planned for future implementation of the recently adopted TMDL for Indicator Bacteria, Project 1 – Beaches and Creeks in the San Diego Region.

TIME SCHEDULE FOR IMPLEMENTATION

To be determined

PARTICIPATING WATERSHED COPERMITTEES

- City of Oceanside
- City of Vista
- County of San Diego

OTHER PARTICIPATING ENTITIES

To be determined

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

To be determined

EXPECTED BENEFITS

To be determined

EFFECTIVENESS MEASUREMENTS

To be determined

POTENTIAL FUTURE ACTIVITY SUMMARY SHEET

TITLE: **Pet Waste BMP Implementation Along San Luis Rey Recreation Trail**

ID NUMBER: **SLR-TBD**

ACTIVITY DESCRIPTION

Based on the assessment of BMPs implemented under the Pet Waste Removal Pilot Project along the San Luis Rey Recreation Trail, additional BMPs will be installed that were determined to be effective in getting dog walkers to pick up and properly dispose of waste along the trail.

TMDL APPLICABILITY

This section of the river is not under TMDL development or implementation. However, the Pacific Ocean Shoreline at the mouth of the San Luis Rey River is listed as impaired for indicator bacteria on the 2006 Clean Water Act 303(d) List of Water Quality Limited Segments. A TMDL is currently scheduled for development in 2008.

TIME SCHEDULE FOR IMPLEMENTATION

To be determined

PARTICIPATING WATERSHED COPERMITTEES

- City of Oceanside

OTHER PARTICIPATING ENTITIES

To be determined

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

To be determined

EXPECTED BENEFITS

To be determined

EFFECTIVENESS MEASUREMENTS

To be determined

POTENTIAL FUTURE ACTIVITY SUMMARY SHEET

TITLE: **Restaurant Activity**

ID NUMBER: **SLR-TBD**

ACTIVITY DESCRIPTION
Based on the assessment of the Pilot Restaurant Activity conducted by the City of Encinitas in 2008, effective components of that project will be implemented within the San Luis Rey Watershed.

TMDL APPLICABILITY
N/A

TIME SCHEDULE FOR IMPLEMENTATION
To be determined

PARTICIPATING WATERSHED COPERMITTEES
- City of Oceanside

OTHER PARTICIPATING ENTITIES
To be determined

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED
- Bacteria

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY
To be determined

EXPECTED BENEFITS
To be determined

EFFECTIVENESS MEASUREMENTS
To be determined

POTENTIAL FUTURE ACTIVITY SUMMARY SHEET

TITLE: **Stormwater Quality Master Plans for Special Drainage Fee Areas**

ID NUMBER: **SLR-TBD**

ACTIVITY DESCRIPTION

The County of San Diego is in the process of preparing Storm Water Quality Master Plans (SWQMPs) for ten Special Drainage Fee Areas (SDAs). The SWQMPs address water quality impacts within each area, and are being prepared concurrently with a GIS-based Drainage Facilities Master Plan (DFMP). The County has identified a need to replace or upgrade portions of the drainage systems within its SDAs to meet current drainage design standards. In the process of planning for the proposed drainage facility improvements, the County is seizing the opportunity to identify potential regional BMPs that would assist in improving watershed water quality and minimize associated drainage facility maintenance costs.

Ultimately, the SWQMPs will identify and prioritize for implementation a list of potential regional BMPs. BMPs could include extended detention basins, hydrodynamic separators, or other BMP types. Prioritization criteria will include considerations of cost, BMP type, location, land use, and funding. Construction of recommended BMPs is contingent upon the approval of SDA fee increases by the County Board of Supervisors.

SWQMPs with the potential to propose BMPs in the San Luis Rey River Watershed include:

- SDA 10 (North County Metro)

TMDL APPLICABILITY

N/A

TIME SCHEDULE FOR IMPLEMENTATION

SWQMPs are in various stages of completion. Construction of recommended BMPs is contingent upon approval of SDA fee increases by the County Board of Supervisors. The Board is likely to consider fee increases in 2009. Construction is therefore unlikely to occur anytime before FY 2009-10.

PARTICIPATING WATERSHED COPERMITTEES

- County of San Diego

OTHER PARTICIPATING ENTITIES

- None

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

To be determined

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

To be determined

EXPECTED BENEFITS

The SWQMPs will recommend regional structures or devices intended to improve watershed water quality. Regional BMPs address large mixed-use watershed areas, rather than smaller watersheds from individual development projects.

EFFECTIVENESS MEASUREMENTS

To be determined

POTENTIAL FUTURE ACTIVITY SUMMARY SHEET

TITLE: **San Luis Rey River Park**

ID NUMBER: **SLR-TBD**

ACTIVITY DESCRIPTION
The San Luis Rey River Park Master Plan includes development of an 8.5-mile length of San Luis Rey corridor between I-15 and the old Bonsall Bridge in North San Diego County to address a need for public recreational park land, trails and land preservation, in coordination CalTrans SR-76 realignment and the North County MSCP. The San Luis Rey River Park Master Plan Programmatic Environmental Impact Report (PEIR) document is currently out for public review and comment. Several project components under consideration will have the potential to improve watershed water quality, including: 1) land acquisition for purposes of conservation, 2) Low Impact Development (LID) features in the park itself, and 3) policies and or programs to abate the effect of pets in the park.

TMDL APPLICABILITY
N/A

TIME SCHEDULE FOR IMPLEMENTATION
To be determined

PARTICIPATING WATERSHED COPERMITTEES
- County of San Diego

OTHER PARTICIPATING ENTITIES
To be determined

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED
- Bacteria
- Nutrients

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY
To be determined

EXPECTED BENEFITS
To be determined

EFFECTIVENESS MEASUREMENTS
To be determined