



**APPENDIX A**

**PROGRAM ACTIVITY SUMMARY DESCRIPTIONS FOR FISCAL YEAR 2007-08**

**Watershed Activities Matrix for 2007-08 Activities**

ACTIVITY NAME	Collective Watershed Activity	Individual Watershed Activity	Regional Watershed Activity	HIGH PRIORITY POLLUTANTS TO BE ADDRESSED							COMPONENTS IN PROGRESS IN FISCAL YEAR 2007-08						Activity Status for Fiscal Year 2007-08*	Activity Description Location**
				Bacteria	TDS	Total Phosphorous	DO	Gross Pollutants	Turbidity	Planning / Development	Monitoring	Inspections	BMP Implementation	Source Identification	Outreach	Pollutant / Load Reduction		
<b>Activities to Address High Priority TTWQ Sources:</b>																		
Additional Dry Weather Monitoring (City of La Mesa)		X			X	X	X	X	X	X	X	X					N	Appendix A-1
Adopt a Park/Adopt A Block (La Mesa)		X			X	X	X	X	X	X	X						O	Appendix A-2
ALPHA Project for the Homeless Cleanup (City of San Diego)		X			X	X	X	X	X	X	X	X					O	Appendix A-3
Bacteria Source Investigation Tracking Study (City of San Diego)		X			X	X	X	X	X	X	X						N	Appendix A-4
Canine Corners Harry Griffith Park (La Mesa)		X			X	X	X	X	X	X	X						O	Appendix A-5
CBI Grant SDR Ocean Beach WQ Improvement Project, Phase II (City of San Diego)		X			X	X	X	X	X	X	X						O	Appendix A-6
Coastal Cleanup Day - Lake Murray & Alvarado Channel (City of La Mesa)		X			X	X	X	X	X	X	X	X					O	Appendix A-7
Forrester Creek Homeless Encampment Removal Project (City of El Cajon)		X			X	X	X	X	X	X	X						O	Appendix A-8
I Love a Clean San Diego Creek to Bay Cleanup Event Sponsorship (County of San Diego, City of La Mesa, City of San Diego)	X				X	X	X	X	X	X	X						O	Appendix A-9
Increase in Dry Weather Monitoring for Bacterial Indicators in Suspected Problem Areas (City of Santee)		X			X	X	X	X	X	X	X						O	Appendix A-10
Park Appreciation Days (City of La Mesa)		X			X	X	X	X	X	X	X						O	Appendix A-11
Porous Pavement and Model Municipal Operations Center Demonstration Project - Phase II (County of San Diego)		X			X	X	X	X	X	X	X						O	Appendix A-12
Prevention of the Release of Pet Fecal Matter in Public Parks (City of El Cajon, La Mesa, Santee, and County of San Diego)	X				X	X	X	X	X	X	X						O	Appendix A-13
San Diego River Park Foundation Cleanup Event Sponsorship (City of San Diego)		X			X	X	X	X	X	X	X						O	Appendix A-14
San Diego River Watershed Targeted Inspection (City of San Diego)		X			X	X	X	X	X	X	X						O	Appendix A-15
San Diego Riverbed Homeless Encampment Removal Project (City of Santee)		X			X	X	X	X	X	X	X						O	Appendix A-16
Trash Removal Activities in Santee (City of Santee)		X			X	X	X	X	X	X	X						O	Appendix A-17
Wet Weather Monitoring (La Mesa and Santee)		X			X	X	X	X	X	X	X						O	Appendix A-18
<b>Activities to Address Watershed High Priority Pollutants:</b>																		
Cabrillo Heights Park Rain Garden Infiltration Project - LID pilot (City of San Diego)		X			X	X	X	X	X	X	X						N	Appendix A-19
Coastal Cleanup Day Sponsorship (City of San Diego)		X			X	X	X	X	X	X	X						N	Appendix A-20
Forrester Creek Improvements (City of Santee)		X			X	X	X	X	X	X	X						O	Appendix A-21
Lakeside Ballfield Park (County of San Diego)		X			X	X	X	X	X	X	X						N	Appendix A-22
Land Acquisitions MSCP (County of San Diego)		X			X	X	X	X	X	X	X						N	Appendix A-23
Maintenance/Inspection of Forrester Creek Trash Barrier (City of El Cajon)		X			X	X	X	X	X	X	X						O	Appendix A-24
Municipal Rain Barrel Installation (City of San Diego)		X			X	X	X	X	X	X	X						N	Appendix A-25
Park Ridge Blvd Bacteria Treatment Project (City of San Diego)		X			X	X	X	X	X	X	X						N	Appendix A-26
San Diego River Flinn Springs Porous Pavement (County of San Diego)		X			X	X	X	X	X	X	X						O	Appendix A-27
San Diego River Indicator Bacteria Study (County of San Diego)		X			X	X	X	X	X	X	X						O	Appendix A-28
SDPD Western Division Green Lot Infiltration Project (City of San Diego)		X			X	X	X	X	X	X	X						N	Appendix A-29
Sweeping Route Posting and Enforcement (City of San Diego)		X			X	X	X	X	X	X	X						N	Appendix A-30
Woodglen Vista Creek Improvement Project (City of Santee)		X			X	X	X	X	X	X	X						O	Appendix A-31
Woodside Avenue Detention Basin (County of San Diego)		X			X	X	X	X	X	X	X						O	Appendix A-32
Strategic Plan Implementation (City of San Diego)		X			X	X	X	X	X	X	X						O	Appendix A-48
<b>Special Studies / Source ID / Pollution Reduction</b>																		



**ID NUMBER: SDR-A1**

**TITLE: Additional Dry Weather Monitoring**

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### **PROJECT SUMMARY**

The City of La Mesa (City) has been focused on eliminating pollutants from entering our receiving water bodies and identifying pollutant sources. Consequently, the City conducted additional non-storm water quality monitoring within the San Diego River Watershed. The purpose of the study was to evaluate the water quality of the discharged flow. Two sampling locations were identified within the Alvarado Drainage Basin. All water samples taken during this study in July 2008 were evaluated for the same suite of constituents measured in the City's annual Dry Weather Field Screening and Analytical Monitoring Program, receiving water body 303 (d) listings, and watershed constituent of concern listings as reported in the WURMP. This included measuring flow, temperature, pH, conductivity, turbidity, nitrate, ammonia, orthophosphate, dissolved oxygen, and MBAS in the field and total hardness, dissolved metals, chlorpyrifos, diazinon, surfactants, oil and grease, TDS, TSS, total coliform, fecal coliform, and enterococcus bacteria in the laboratory. Results have been received and are being analyzed.

### **PARTICIPATING JURISDICTIONS**

- City of La Mesa

### **WATERSHED PRIORITY POLLUTANTS ADDRESSED**

- Bacteria (high priority)
- TDS (high priority)
- Turbidity/TSS
- Diazinon
- Metals
- Total Phosphorous, Dissolved Oxygen, and pH (high priority)

### **HOW THIS ACTIVITY RELATES TO THE WATERSHED**

This activity is above and beyond the Dry Weather Field Screening and Analytical Monitoring Program. Analyzing samples of non-storm water discharge from two locations within the San Diego River Watershed provides insight into water quality leaving the City of La Mesa. It also enables the City to conduct potential follow-up investigation of potential pollutant sources. Monitoring is intended as a long-term activity; however, sampling locations may vary each year.

### **ACTIVITIES CONDUCTED DURING 2007-2008**

The following activities were conducted during 2007-2008:

- Identified two discharge locations to monitor within watershed.
- Conducted sampling in July 2008 inclusive of field monitoring and laboratory analysis.
- Prepare letter report analyzing data.

**ID NUMBER: SDR-A2**

**TITLE: Adopt A Park/Adopt A Block**

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**PROJECT SUMMARY**

The City of La Mesa has encouraged the public in participating in activities that help reduce pollutant load. Consequently, the City encourages a group of volunteers as part of the Adopt-a-Park and Adopt-a-Block Program. Volunteers are encouraged to routinely pick trash from various parks within the watershed or along their block. There are seven parks that are assigned to volunteers within the San Diego River Watershed that are maintained by the volunteer groups. Although specific amount of debris collected is not recorded, the groups effort is considered a load reduction from debris entering the storm drain system and receiving water body. Volunteers logged 2,794 service hours of time under these programs during this reporting period.

**PARTICIPATING JURISDICTIONS**

- City of La Mesa

**WATERSHED PRIORITY POLLUTANTS ADDRESSED**

- Bacteria (high priority)
- TDS (high priority)
- DO (high priority)
- Turbidity

**HOW THIS ACTIVITY RELATES TO THE WATERSHED**

There are seven parks and numerous residential areas located within the San Diego River Watershed. Volunteers assigned to parks or within residential areas, routinely collect trash and debris within the watershed. These efforts result in a reduction in debris entering the storm water conveyance system and receiving water. Removal of debris constitutes a reduction in pollutants that are sources of bacteria, TDS and may reduce turbidity or low oxygen concentration in receiving waters due to eutrophication. This activity is considered by the City as a long-term activity.

**ACTIVITIES CONDUCTED DURING 2006-2007**

The following activities were conducted during this reporting period 2007-2008:

- Group organized to collect trash and debris from parks and neighborhood blocks, routinely
- Trash and debris removed from parks and street blocks and disposed of appropriately.

**TITLE:** Alpha Project for the Homeless, Inc. Cleanup Sponsorship  
**ID NUMBER:** SDR-A3

**ACTIVITY IMPLEMENTATION**

The City of San Diego (City) partnered with Alpha Project for the Homeless, Inc., through a Memorandum of Understanding to conduct trash and debris cleanups and potentially homeless encampment removals throughout the City's jurisdiction in various watersheds in FY 2008.

Alpha Project conducted a cleanup at 30 locations in the San Diego River Watershed Management Area (WMA) on 12 different dates in FY 2008. Approximately 136 workers participated to remove approximately 3.64 tons of trash and debris in FY 2008.

Based on this information, the effectiveness assessment section, and the total amount of trash removed leading to a load reduction of bacteria, a high priority water quality problem, the City requests credit for a trash cleanup activity as a watershed water quality activity.

In the Regional Board Comment letter<sup>1</sup>, Regional Board staff indicated that the City would need to provide locations selected, amount of trash collected at those locations and that the Copermittees would receive credit only for the first trash cleanup event in the fiscal year. Locations and trash information are provided in the Activity Implementation subsection of this summary sheet. The City, while reporting on multiple trash cleanup events that occurred within the watershed, acknowledges that it will only receive credit for the first one completed in the fiscal year. However, the City also acknowledges that trash cleanups provide more benefits than simply removal of trash – these are events that also involve education, outreach, and public participation. Therefore, the City may choose to continue to implement and report on more than one trash cleanup each year.

**TMDL APPLICABILITY**

- San Diego Region Beaches and Creeks Bacteria TMDL

**TIME SCHEDULE FOR IMPLEMENTATION**

The City will not continue the Alpha Project trash cleanup sponsorship in FY 2009. The reporting of this activity will cease with this annual report.

**PARTICIPATING WATERSHED COPERMITTEES**

- City of San Diego

**OTHER PARTICIPATING ENTITIES**

- Alpha Project for the Homeless, Inc.

**HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED**

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<sup>1</sup> Robertus, John H. "COMMENTS ON THE MARCH 2008 WATERSHED URBAN RUNOFF MANAGEMENT PLAN (WURMP) AND USEPA/REGIONAL BOARD APRIL 2008 WURMP ASSESSMENTS." September 23, 2008. (Place Number 710562: L Walsh)

- Bacteria

**CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**

Both the City’s *Strategic Plan for Watershed Activity Implementation* and the Collective Watershed Strategy for the San Diego River WMA identify bacteria as a high priority water quality problem throughout the WMA, and recommend implementing load reduction/source abatement activities to address it. Cleanups by Alpha Project result in load reduction of trash and debris directly and of bacteria indirectly through trash and debris as a source through trash and debris as a source.

**EFFECTIVENESS ASSESSMENT**

<b>Watershed: San Diego River</b>		
<b>ALPHA PROJECT FOR THE HOMELESS, INC. CLEANUP</b>		
<b>Assess the Efficiency and Effectiveness of Sponsoring Local Organization’s Cleanup Efforts to Remove Litter from Public Areas and Waterways</b>		
<b>Management Questions</b>	<ul style="list-style-type: none"> <li>• What is the load reduction associated with sponsorship?</li> <li>• What is the efficiency of the sponsored cleanup? (\$/person or \$/pound)</li> </ul>	
<b>Targeted Measurable Outcome(s)</b>	Achieve load reduction of bacteria (any amount) due to trash cleanup sponsorship	
<b>Assessment Method(s)</b>	<ul style="list-style-type: none"> <li>• Tabulation (e.g., number of participants)</li> <li>• Quantification (e.g., pounds of trash collected)</li> </ul>	
	Pounds of trash removed (Outcome Level 4)	3,640 lbs
	Number of participants (Outcome Level 1)	136
	Amount of money spent on cleanups (Outcome Level 1)	\$1,856.40
	Activity Efficiency (Total Cost/Total Pounds Removed)	\$0.51/lb

**Objectives**

The goal of the activity assessment is to determine the efficiency of load reduction associated with sponsoring trash cleanups.

**Analysis and Results**

Alpha Project conducted a cleanup at thirty locations in the San Diego River WMA on twelve different dates, with an estimated 136 workers. Approximately 3,640 pounds of trash and debris were removed, and at \$0.51 per pound the total cost of cleanups in the WMA was \$1,856.

**Conclusions**

The City will not continue the Alpha Project in FY 2009. The reporting of this activity will cease with this annual report. The project’s efficiency has been determined by comparing the load reduction to the amount of money spent on the cleanup events as shown above.



**TITLE:** Bacteria Source Investigation Tracking Study  
**ID NUMBER:** SDR-A4

**ACTIVITY IMPLEMENTATION**

The City of San Diego (City) is developing a San Diego River Bacterial Source Tracking Study (Study). The Study is a Tier II activity under the City of San Diego 5-Year Strategic Plan. As a Tier II study, the project aims to identify sources of specific bacterial pollutants in San Diego River. This project also qualifies as a watershed activity under the National Pollutant Discharge Elimination System (NPDES) permit.

A Monitoring Plan for Phase I of the San Diego River Bacterial Source Tracking Investigation will be developed. Phase I aims to identify bacterial sources in San Diego River.

The following objectives have been identified for Phase I of this study:

1. Verify priority sectors identified in the Watershed Priority Plan by characterizing bacterial loadings in the San Diego River Watershed Management Area (WMA) by targeting primary sources of high bacterial loading, including eating and drinking establishments, residential areas, commercial landscaping, animal-related facilities, golf courses, roads, areas of potential bacterial re-growth (ponds) and sources of human contamination.
2. Determine the presence/absence of human contamination within the WMA and pinpoint any sources of human contamination for abatement.
3. Determine the relative contribution of bacterial re-growth to bacterial loading in the River during wet and dry weather.
4. Determine the relative loading between sub-watersheds during wet weather, including the contribution of bacterial loads from adjacent jurisdictions.
5. Provide recommendations for the reduction of bacterial loading based on the information gathered from source assessments and loading estimates.

The objectives listed above will be met through conducting dry and wet weather monitoring surveys that incorporate bacterial load estimates and Quantitative Polymerase Chain Reaction (Q-PCR) analysis from sources likely to contribute to bacterial loading throughout the San Diego River WMA.

Through an assessment of bacterial loading, Q-PCR analysis, general water quality assessment and visual observations, the proposed monitoring plan will further quantify loads from likely sources of bacteria impacting San Diego River. The results of the investigation will provide the City with a clear understanding of the key bacterial sources within the WMA as well as the loads associated with dry and wet weather flows. This Study will assess whether human contamination is contributing to bacterial loading.

**TMDL APPLICABILITY**

- San Diego Region Beaches and Creeks Bacteria TMDL

**TIME SCHEDULE FOR IMPLEMENTATION**

A Monitoring Plan for Phase I of the San Diego River Bacterial Source Tracking Investigation will be completed in FY 2009. Monitoring will occur in FY 2009 and reporting will be completed in FY 2010.

**PARTICIPATING WATERSHED COPERMITTEES**

- City of San Diego

**OTHER PARTICIPATING ENTITIES**

- N/A

**HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED**

- Bacteria

**CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**

Both the City's *Strategic Plan for Watershed Activity Implementation* and the Collective Watershed Strategy for the San Diego River WMA identify bacteria as a high priority water quality problem in the WMA, and recommend implementing load reduction/source abatement activities to address them. Implementation of this activity will identify the potential sources or areas that are impacting water quality within the San Diego River, and provide specific management and Best Management Practices (BMPs) recommendations and implementation strategies to reduce bacterial loading from the identified sources.

**EFFECTIVENESS ASSESSMENT**

Effectiveness is not being assessed as this not an implementation or education activities. This study is filling pollutant source data gaps as identified above. Future activities implemented in response to the results of the monitoring study will be reported as separate activities.

**ID NUMBER: SDR-A5**

**TITLE: Canine Corners Harry Griffen Park**

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**PROJECT SUMMARY**

The City of La Mesa has encouraged the public in participating in activities that help reduce pollutant load. Consequently, the City encourages a group of volunteers known as the Canine Corners in cleaning up pet waste at Harry Griffen Park. This park is located within the San Diego River Watershed. Although specific amount of pet waste is not recorded, the group's effort is considered a load reduction for pet waste and a potential reduction in bacteria entering into the storm drain conveyance system.

**PARTICIPATING JURISDICTIONS**

- City of La Mesa

**WATERSHED PRIORITY POLLUTANTS ADDRESSED**

- Bacteria (high priority)
- TDS (high priority)
- Dissolved Oxygen (high priority)

**HOW THIS ACTIVITY RELATES TO THE WATERSHED**

Harry Griffen Park is located within the San Diego River Watershed. A volunteer group known as the Canine Corners, collect pet waste routinely from the park and dispose of it appropriately. These efforts result in a reduction of pet waste entering the storm water conveyance system and receiving water. Pet waste is considered a source that contributes to elevated levels of bacteria, reduction in dissolved oxygen and increased total dissolved solids. This is considered by the City as a long-term activity.

**ACTIVITIES CONDUCTED DURING 2007-2008**

The following activities were conducted during this reporting period 2007-2008:

- Group organized to routinely remove pet waste.
- Pet waste removed from park and disposed of appropriately.

**TITLE:** CBI Grant SDR Ocean Beach WQ Improvement Project,  
Phase II  
**ID NUMBER:** SDR-A6

### **ACTIVITY IMPLEMENTATION**

The San Diego-Ocean Beach Water Quality Improvement Project, Phase I included an initial focus on the San Diego River Watershed Management Area (WMA) and assumed that local sources (bird and dog feces) were not the primary cause of bacterial contamination at Dog Beach. The Phase I study sought to identify any potential infrastructure (either sanitary sewer or storm drain systems), urban runoff, and anthropogenic patterns that may be the primary causes of observed water quality degradation. Based on limited historical upstream monitoring results of bacterial contamination within the San Diego River WMA, the study design assumed the river may be transporting bacterial load downstream and causing beach closures at Dog Beach and Ocean Beach.

The scope for Phase II was developed from several key recommendations presented in the Phase I report in order to achieve the overall project goal to reduce beach postings and closures. In May 2004, the City of San Diego (City) initiated Phase II of this project. The Phase II study included the following components:

- Task 1 - Design, obtain environmental clearance permits for, and construct infrastructure improvements in Ocean Beach – San Diego River vicinity
- Task 2 - Conduct water quality monitoring to verify improvements to achieve beach posting reduction
- Task 3 - Develop a Kelp and Dog Waste Management Plan

The Phase II San Diego River – Ocean Beach Water Quality Improvement Project Report was submitted to the State Regional Water Quality Board on January 1<sup>st</sup>, 2008. Comments were received and integrated. The revised report was finalized on February 27, 2008. The recommendations were made and activities have occurred:

- *Phase II Design recommendations.* The design to modify the existing storm drain system and the outfall flap valves was performed. The design was initially divided into three components.
  - *Check valve replacement.* Both existing check valves were removed and replaced with counter balanced flap gates. This counter balancing was needed to assure that the storm drain had a bubble tight seal throughout the dry season. Coupled with this replacement was a new maintenance program which provided maintenance of the new flap gates each spring after the rainy season to clean the flap gates seats and remove any debris which may have been deposited in the seats during the rainy season. A sensor was also put on the flap gate to show when it was seated or not seated.
  - *Low Flow Diversion Improvements.* Physical improvements were required to the 60-inch Outfall 13 Diversion System. The flow volume

and control elevation were changed and a number of catch basins that were originally connected to Outfall 13 were reconnected to Outfall 14. Without these improvements, the tidal intrusion overloaded the low flow diversion system and the diversion valves were shut, which caused tidal mixing with contaminated low flows of urban runoff and bacteria. The 48-inch Outfall 14 Diversion System also had physical improvements.

- *Storm Drain Lining and Replacement.* Approximately 500 feet of pipe joints required sealing to make the joints watertight to prevent leakage. In addition, 4,000 feet of new piping was needed due to the increased head causes by more efficient flap gates.
- *Construction.* Construction occurred between FY 2005 and FY 2008.
- *Water quality monitoring.* The SAP was first approved in October 2004, with significant addendums in April 2006 and April 2007. During FY 2008, monitoring occurred at four locations on Dog Beach. Bacterial levels were assessed from Outfalls 13 and 14 discharges. Other various monitoring tasks occurred. After completion of the infrastructure improvements in September 2007, the monitoring program continued sampling at the diversion boxes and the outfalls, but discontinued sampling along the upstream river transect in favor of sampling at four beach locations across Dog Beach.
  - A total of 48 samples were collected at SDR-1 (San Diego River – Upstream at Sunset Cliffs Bridge) prior to the completion of construction related activities. Prior to construction completion, 29% of the samples would have exceeded AB411 standards.
  - A total of 48 samples were collected at SDR-2 (San Diego River – Upstream at Sunset Cliffs Bridge) prior to the completion of construction related activities. Prior to construction completion, 13% of the samples would have exceeded AB411 standards.
  - A total of 48 samples were collected at SDR-3 (San Diego River – Upstream at Sunset Cliffs Bridge) prior to the completion of construction related activities. Prior to construction completion, 13% of the samples would have exceeded AB411 standards.
  - A total of 48 samples were collected at SDR-4 (San Diego River – Upstream at Sunset Cliffs Bridge) prior to the completion of construction related activities. Prior to construction completion, 13% of the samples would have exceeded AB411 standards.
  - A total of 48 samples were collected at SDR-2 (San Diego River – Upstream at Sunset Cliffs Bridge) prior to the completion of construction related activities. Prior to construction completion, 19% of the samples would have exceeded AB411 standards.
  - A total of 35 samples were collected of the influent to Diversion Box 13. Of these, 25 samples were collected prior to the completion of construction related activities on April 16, 2006, and 10 samples were collected after the completion of construction related activities. Prior to construction completion, 88% of the samples would have exceeded AB411 standards. After construction, all (100%) of the samples would have exceeded AB411 standards.

- A total of 35 samples were collected of the influent to Diversion Box 14. Of these, 25 samples were collected prior to the completion of construction related activities on April 16, 2006, and 10 samples were collected after the completion of construction related activities. Prior to construction completion, 92% of the samples would have exceeded AB411 standards. After construction, all (90%) of the samples would have exceeded AB411 standards.
- A total of 112 samples were collected at the discharge point of Outfalls 13 and 14. Of these, 95 samples were collected prior to the completion of the flap gate replacement in December 2006 and 17 samples were collected after the completion. Prior to construction completion, 75% of the samples would have exceeded AB411 standards. After construction, only 35% of the samples would have exceeded AB411 standards.
- A total of 30 samples were collected at Station DB1 at Dog Beach. Of these, 13 samples were collected prior to the completion of the flap gate replacement in December 2006 and 17 samples were collected after the completion. Prior to construction completion, 15% of the samples would have exceeded AB411 standards. After construction, only 6% of the samples would have exceeded AB411 standards.
- A total of 30 samples were collected at Station DB1 at Dog Beach. Of these, 13 samples were collected prior to the completion of the flap gate replacement in December 2006 and 17 samples were collected after the completion. Prior to construction completion, 31% of the samples would have exceeded AB411 standards. After construction, only 24% of the samples would have exceeded AB411 standards.
- A total of 30 samples were collected at Station DB7 at Dog Beach. Of these, 13 samples were collected prior to the completion of the flap gate replacement in December 2006 and 17 samples were collected after the completion. Prior to construction completion, 39% of the samples would have exceeded AB411 standards. After construction, 41% of the samples would have exceeded AB411 standards.
- A total of 29 samples were collected at Station DB8 at Dog Beach. Of these, 13 samples were collected prior to the completion of the flap gate replacement in December 2006 and 16 samples were collected after the completion. Prior to construction completion, 6% of the samples would have exceeded AB411 standards. After construction, only 6% of the samples would have exceeded AB411 standards.
- *Kelp and Dog Waste Management Plan.* This Plan provides Best Management Practices (BMPs) to implement at Dog Beach to minimize the negative impact decaying kelp and dog waste can have on water quality.

Conclusions were made regarding Tasks 1 through 3. Task 1 was completed with the successful design, permitting and construction. Task 2 was completed with the extensive pre- and post- water quality monitoring conducted throughout this study area. Implementation of this project was found to be effective in reducing AB411 exceedances at Dog Beach. However, continued bacterial loading from the primary sources identified

in these studies need to be addressed throughout the management plan provided with this report. Task 3 was completed with the development and implementation of the Kelp and Dog Waste Management Plan.

**TMDL APPLICABILITY**

- San Diego Region Beaches and Creeks Bacteria TMDL

**TIME SCHEDULE FOR IMPLEMENTATION**

Tasks planned for FY 2009 include:

- Implementation of the Kelp and Dog Waste Management Plan is ongoing.
- Continued monitoring under the AB411 program will assess the long term effectiveness of the BMPs in reducing beach closures.

**PARTICIPATING WATERSHED COPERMITTEES**

- City of San Diego

**OTHER PARTICIPATING ENTITIES**

- N/A

**HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED**

- Bacteria

**CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**

Both the City’s *Strategic Plan for Watershed Activity Implementation* and the Collective Watershed Strategy for the San Diego River WMA identify bacteria as a high priority water quality problem, and recommend implementing load reduction/source abatement activities to address it.

By continuing to implement the Kelp and Dog Waste Management Plan and to continue to monitor the BMP effectiveness, bacteria loading can be reduced and assessed. This study indicated that kelp was a media for bacterial regrowth.

**EFFECTIVENESS ASSESSMENT**

<b>Watershed: San Diego River</b>	
<b>CBI GRANT SDR OCEAN BEACH WQ IMPROVEMENT PROJECT, PHASE II</b>	
<b>Assess the Efficiency and Effectiveness of Storm Drain Modifications</b>	
<b>Management Questions</b>	<ul style="list-style-type: none"> <li>• According to water quality monitoring conducted in Task 2 of the project, was there an improvement in water quality post-construction?</li> </ul>
<b>Targeted Measurable Outcome(s)</b>	<ul style="list-style-type: none"> <li>• Receiving water quality improvement</li> </ul>
<b>Assessment Method(s)</b>	<ul style="list-style-type: none"> <li>• Quantification (e.g., use drainage area and rainfall information to calculate estimated load reduction)</li> <li>• Monitoring (e.g., collect special study information to collect concentrations and flows to estimate load reduction)</li> </ul>

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• Reporting (e.g., estimates of load reduction from 3 <sup>rd</sup> party data)						
	Station	Total # Samples	# Pre-Construction Samples	% Exceeding AB411	# Post-Construction Samples	% Exceeding AB411
<b>Data Recorded</b>	SDR-1	48	48	29%	.	.
	SDR-2	48	48	13%	.	.
	SDR-3	48	48	13%	.	.
	SDR-4	48	48	13%	.	.
	SDR-2	48	48	19%	.	.
	Div. Box 13	35	25	88%	10	100%
	Div. Box 14	35	25	92%	10	90%
	Outfalls 13-14	112	95	75%	17	35%
	DB1	30	13	15%	17	6%
	DB1	30	13	31%	17	24%
	DB7	30	13	39%	17	41%
	DB8	29	31	6%	16	6%

**Objectives**

The goal of this assessment is to determine the effectiveness of the storm drain modifications to improve water quality in the San Diego River WMA, Ocean Beach and Dog Beach areas.

**Analysis and Results**

All three tasks associated with the project were completed in the FY08. For Task 1, infrastructure improvements in the Ocean Beach vicinity were designed, permitted and constructed. For Task 2, water quality monitoring was conducted to verify that the construction had improved water quality. Implementation of this project was found to be effective in reducing AB411 exceedances at Dog Beach, amounting to a load reduction. For Task 3 the *Kelp and Dog Waste Management Plan* was developed and implemented.

**Conclusions**

Implementation of the *Kelp and Dog Waste Management Plan* is ongoing in FY09. The long term effectiveness of the BMPs in reducing beach closures will be assessed via continued monitoring under the AB411 program.



**ID NUMBER: SDR-A7**

**TITLE: Coastal Cleanup Day Alvarado Channel**

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### **ACTIVITY SUMMARY**

The City of La Mesa supported and participated in the California Coastal Cleanup Day conducted on September 15, 2007 in coordination with I Love a Clean San Diego and San Diego Coastkeeper. A poster specifying date and time for the clean up was placed on the City's bulletin board. California Coastal Cleanup Day is one of the most successful large-scale cleanup projects in the Country. This event enlists thousands of volunteers throughout the state to clean up over 700 polluted coastal and inner-coastal areas. Volunteers met a designated site in Alvarado Channel to collect debris during this reporting period.

### **PARTICIPATING JURISDICTIONS**

- City of La Mesa
- Volunteers from other jurisdictions

### **WATERSHED PRIORITY POLLUTANTS ADDRESSED**

- Bacteria (high priority)
- Dissolved Oxygen (high priority)

### **HOW THIS ACTIVITY RELATES TO THE WATERSHED**

The California Coastal Cleanup Day at Alvarado Channel is considered an important activity in the San Diego River Watershed because removal of trash and debris ultimately improves water quality within the watershed. Trash and debris may result in a number of negative impacts that contribute to increased contamination such as elevated numbers of bacteria in the water and depletion of dissolved oxygen during the decay/breakdown of organic material. The cleanup is an effective means of addressing priority pollutants in the watershed such as bacteria and dissolved oxygen. It is conducted on an annual basis and encourages the public to be active and aware of the importance of pollution prevention. This activity also constitutes a load reduction in pollutants within the watershed. Over 200 pounds of trash and debris were collected by 65 volunteers during this event. A San Diego River Watershed fact sheet was also provided to volunteers at the Alvarado Channel site and the City's Environmental Specialist discussed watershed concepts and concerns prior to commencement of the cleanup. This activity is conducted on an annual basis and considered as a long-term activity to reduce trash and debris in receiving water bodies.

### **TASKS IMPLEMENTED DURING 2007-2008**

The following tasks were implemented as part of the Coastal Cleanup Day at Alvarado Channel during 2007-2008:

- Advertising and placing posters for the event on the bulletin board.
- Sponsored the event with \$1,000
- Encouraged the public and City employees to participate in the event.
- Participated in the event collecting trash and debris in Alvarado Channel; an estimated 200 pounds of trash was collected.
- Provided watershed specific fact sheets and educated volunteers on watershed concepts and concerns at Alvarado Channel site.

**TITLE:** Forrester Creek Homeless Encampment Removal Project  
**ID NUMBER:** SDR-A8

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### **ACTIVITY SUMMARY**

The City's Public Works Department and the El Cajon Police Department conducted sixteen (16) homeless encampment sweeps during the reporting period along Forrester Creek within City jurisdiction to remove trash and encampment items.

### **PARTICIPATING JURISDICTION**

- City of El Cajon

### **WATERSHED PRIORITY POLLUTANTS ADDRESSED**

- Trash (high priority)
- Bacteria (high priority)

### **HOW THIS ACTIVITY RELATES TO THE SAN DIEGO RIVER WATERSHED**

The sweeps were conducted during the 2007-08 reporting period and targeted homeless camps along Forrester Creek and tributaries. During the sweeps the Police encountered transients and their camps and took appropriate law enforcement action; Public Works maintenance crews then removed the trash and encampment items used for the illegal lodging. The encampment removal contributed to the betterment of the San Diego River Watershed by removing trash and sources of bacteria pollution.

### **TASKS IMPLEMENTED DURING FY 2007-2008**

The following tasks were conducted as part of the Encampment Removal activities during fiscal year 2007- 2008:

- Removal of trash and debris = 125 Cubic Yards (Cumulative)

**ID NUMBER: SDR-A9**

**TITLE: Creek to Bay Cleanup**

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**ACTIVITY SUMMARY**

The City of La Mesa supported and participated in the Creek to Bay Cleanup conducted on April 26, 2008 in coordination with I Love a Clean San Diego. A poster specifying date and time for the clean up was placed on the City's bulletin board. Volunteers from the City, including the mayor of La Mesa, met along Alvarado Channel in La Mesa from 9am to 12pm to collect trash and debris along the channel.

**PARTICIPATING JURISDICTIONS**

- City of La Mesa
- Volunteers from other jurisdictions

**WATERSHED PRIORITY POLLUTANTS ADDRESSED**

- Bacteria (high priority)
- DO (high priority)

**HOW THIS ACTIVITY RELATES TO THE WATERSHED**

The Creek to Bay Cleanup is considered an important activity in the San Diego River Watershed because removal of trash and debris ultimately improves water quality within the watershed. Trash and debris may result in a number of negative impacts that contribute to increased contamination such as elevated numbers of bacteria in the water and depletion of dissolved oxygen during the decay/breakdown of organic material. The cleanup is an effective means of addressing priority pollutants in the watershed such as bacteria and dissolved oxygen. It is conducted on an annual basis and encourages the public to be active and aware of the importance of pollution prevention. This activity also constitutes a load reduction in pollutants within the watershed. A total of 135 pounds of trash and debris were collected during this event. A San Diego River Watershed fact sheet was provided to volunteers at the cleanup. This activity is considered a long-term activity to reduce pollutants from entering receiving water bodies.

**TASKS IMPLEMENTED DURING 2007-2008**

The following tasks were implemented as part of the Creek to Bay Cleanup during 2007-2008:

- Advertised and placed posters for the event on the bulletin board.
- Sponsored event for \$1,000.
- Encouraged the public and City employees to participate in the event, which included 15 participants.
- Provided watershed specific fact sheets to volunteers.
- Participated in the event collecting trash and debris along Alvarado Channel. An estimated 135 pounds were collected.

**TITLE: I Love a Clean San Diego Trash Cleanup Sponsorship**  
**ID NUMBER: SDR-A9**

**ACTIVITY IMPLEMENTATION**

Each spring, I Love A Clean San Diego (ILACSD) conducts its Creek to Bay Cleanup event to target various inland and coastal sites in San Diego County in need of trash and debris removal. ILACSD recruits and organizes site captains and groups of volunteers for each site. A media center is also designated, which promotes environmental stewardship, including the importance of keeping litter and debris from spoiling the region's watersheds. The whole event is marketed throughout San Diego County through a variety of media, including television, radio public service announcements, newspapers, newsletters, electronic mail, bulletin boards, community outreach activities, calendar listings, and word of mouth.

The City of San Diego sponsored the Mission Valley Preserve in the San Diego River Watershed Management Area (WMA) on April 26, 2008. At the Mission Valley Preserve, 2,000 pounds of trash and debris was removed and 100 pounds of trash and debris was recycled from 2 miles by approximately 81 volunteers.

Based on the information above, the effectiveness assessment section, and the total amount of trash removed leading to a load reduction of bacteria, a high priority water quality problem, the City requests credit for a trash cleanup activity as a watershed water quality activity.

In the Regional Board Comment letter<sup>1</sup>, Regional Board staff indicated for other WURMPs that the City is involved in (e.g., Mission Bay and La Jolla's) that the City would receive credit only for the first trash cleanup event in the fiscal year. The City, while reporting on multiple trash cleanup events that occurred within the watershed, acknowledges that it will only receive credit for the first one completed in the fiscal year. However, the City also acknowledges that trash cleanups provide more benefits than simply removal of trash – these are events that also involve education, outreach, and public participation. Therefore, the City may choose to continue to implement and report on more than one trash cleanup each year.

**TMDL APPLICABILITY**

- San Diego Region Beaches and Creeks Bacteria TMDL

**TIME SCHEDULE FOR IMPLEMENTATION**

Creek to Bay Cleanup has historically been held in April of each year. Prior to that month, the City will coordinate with ILACSD staff to ensure that sites within the San

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<sup>1</sup> Robertus, John H. "COMMENTS ON THE MARCH 2008 WATERSHED URBAN RUNOFF MANAGEMENT PLAN (WURMP) AND USEPA/REGIONAL BOARD APRIL 2008 WURMP ASSESSMENTS." September 23, 2008. (Place Number 710562: L Walsh)

Diego River Watershed are included in the list for cleanups and that proper sponsorship arrangements are made.

**PARTICIPATING WATERSHED COPERMITTEES**

- City of San Diego
- Other Copermittees that participate in the San Diego River WURMP workgroup

**OTHER PARTICIPATING ENTITIES**

- ILACSD
- Volunteers from general public

**HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED**

- Bacteria

**CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**

Both the City’s *Strategic Plan for Watershed Activity Implementation* and the Collective Watershed Strategy for the San Diego River WMA identify bacteria as a high priority water quality problem throughout the WMA, and recommend implementing load reduction/source abatement activities to address it. Sponsorship of Creek to Bay will result in load reduction of trash and debris directly and of bacteria indirectly.

**EFFECTIVENESS ASSESSMENT**

<b>Watershed: San Diego River</b>															
<b>ILACSD CREEK TO BAY CLEANUP SPONSORSHIP</b>															
<b>Assess the Efficiency and Effectiveness of Sponsoring Local Organization’s Cleanup Efforts to Remove Litter from Public Areas and Waterways</b>															
<b>Management Questions</b>	<ul style="list-style-type: none"> <li>• What is the load reduction associated with sponsorship?</li> <li>• What is the efficiency of trash cleanup? (\$/person or \$/ton collected)</li> </ul>														
<b>Targeted Measurable Outcome(s)</b>	Load reduction due to reduction of trash (any amount) due to trash cleanup sponsorship														
<b>Assessment Method(s)</b>	<ul style="list-style-type: none"> <li>• Tabulation (e.g., number of participants)</li> <li>• Quantification (e.g., pounds of trash collected)</li> </ul>														
	<table border="1" style="width: 100%;"> <tr> <td>Pounds of trash removed (Outcome Level 4)</td> <td style="text-align: right;">2,000 lbs</td> </tr> <tr> <td>Pounds of trash recycled (Outcome Level 4)</td> <td style="text-align: right;">100 lbs</td> </tr> <tr> <td>Total pounds of trash removed and recycled (Outcome Level 4)</td> <td style="text-align: right;">2,100 lbs</td> </tr> <tr> <td>Number of participants (Outcome Level 1)</td> <td style="text-align: right;">81</td> </tr> <tr> <td>Total money spent on cleanups for all six watersheds (Outcome Level 1)</td> <td style="text-align: right;">\$5,000</td> </tr> <tr> <td>Estimated amount of money spent on cleanups for San Diego River watershed (Outcome Level 1)</td> <td style="text-align: right;">\$833.33*</td> </tr> <tr> <td>Activity Efficiency (Total Cost/Total Pounds Removed)</td> <td style="text-align: right;">\$0.40/lb</td> </tr> </table>	Pounds of trash removed (Outcome Level 4)	2,000 lbs	Pounds of trash recycled (Outcome Level 4)	100 lbs	Total pounds of trash removed and recycled (Outcome Level 4)	2,100 lbs	Number of participants (Outcome Level 1)	81	Total money spent on cleanups for all six watersheds (Outcome Level 1)	\$5,000	Estimated amount of money spent on cleanups for San Diego River watershed (Outcome Level 1)	\$833.33*	Activity Efficiency (Total Cost/Total Pounds Removed)	\$0.40/lb
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Activity Efficiency (Total Cost/Total Pounds Removed)	\$0.40/lb														

\* Calculated by dividing total sponsorship cost by six watersheds.

**Objectives**

The goal of this assessment is to determine the load reduction effectiveness and efficiency of the sponsored cleanup.

**Analysis and Results**

On April 26, 2008, 81 participants removed approximately 2,000 pounds of trash and debris and recycled approximately 100 pounds of trash and debris from numerous sites in the San Diego River WMA. The average estimated sponsorship cost of \$833.33 per watershed, calculated by dividing the total cost of cleanups (\$5,000) by six watersheds. Thus, there was a 2,100 pound load reduction associated with sponsorship per yearly event, with an efficiency of \$0.40 per pound collected. The efficiency was calculated by dividing the estimated sponsorship cost for the San Diego River watershed by the pounds of trash removed.

**Conclusions**

Implementation and assessment of load reduction and efficiency for the ILACSD Creek to Bay Cleanup will occur again in FY 2009. Future results may be used to compare various types of trash cleanups completed and their associated costs as well as comparing the same types of trash cleanups that are sponsored each year over time.

**ID NUMBER: SDR-A10**

**TITLE: Increase Dry Weather Monitoring for Bacterial Indicators in Suspected Problem Areas**

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**ACTIVITY SUMMARY**

The San Diego Municipal Storm Water Permit (Orders No. 2001-01 and 2007-0001) required copermitees to conduct annual dry weather monitoring. In an effect to better track and eradicate bacteria as well as other pollutants of concern, the City of Santee conducts two rounds of dry weather monitoring each year.

**PARTICIPATING JURISDICTION**

- City of Santee

**WATERSHED PRIORITY POLLUTANTS ADDRESSED**

- Bacteria

**HOW THIS ACTIVITY RELATES TO THE SAN DIEGO RIVER WATERSHED**

Fecal coliforms are designated as a 303 (d) impairment in the San Diego River. The City of Santee is required to conduct dry weather monitoring of bacterial indicators once a year under its municipal permit. Bacterial indicators monitored included total coliforms, fecal coliforms and enterococci. Additional monitoring will be conducted on behalf of the City of Santee to facilitate the detection of illegal connections and discharges of fecal matter to the MS4.

**TASKS IMPLEMENTED DURING FY 2006-2007**

Two rounds of dry weather monitoring for bacterial indicators (only one is required under the municipal permit).

**ID NUMBER: SDR-A11**

**TITLE: Park Appreciation Day**

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**PROJECT SUMMARY**

The City of La Mesa (City) has been focused on eliminating pollutants from entering our receiving water bodies. Consequently, the City has organized a Park Appreciation Day for volunteers to remove trash and debris from local parks. Park Appreciation Day takes place once a year and is independent of the Adopt-A-Park Program. This event typically takes place in the fall, but due to the fires that were in the region during that time, Park Appreciation Day was held in the spring on March 29, 2008. The event was held at seven parks located within the San Diego River Watershed in La Mesa. The amount of debris removed during Park Appreciation Day was not directly recorded in 2007-2008, but from observations at the event it is believed the amount is about the same as that removed in 2006-2007, when five tons of trash and debris were removed.

**PARTICIPATING JURISDICTIONS**

- City of La Mesa

**WATERSHED PRIORITY POLLUTANTS ADDRESSED**

- Bacteria (high priority)
- DO (high priority)
- Turbidity/TSS
- Trash (high priority)

**HOW THIS ACTIVITY RELATES TO THE WATERSHED**

There are seven parks in the City of La Mesa that fall within the San Diego River Watershed. Organization of the Park Appreciation Day enabled residents to participate in cleaning up the environment within the San Diego River Watershed. Site Captains at each park were given education outreach material to distribute and information on watershed concepts and pollutants of concern within the watershed. Trash and debris as well as green waste was collected and disposed of appropriately. This event is considered a long-term annual activity.

**ACTIVITIES CONDUCTED DURING 2007-2008**

The following activities were conducted during this reporting period 2007-2008:

- Presented watershed concepts by site captains.
- Cleaned seven parks within the San Diego River Watershed.
- Collected approximately 5 tons of trash and debris.



**TITLE: Porous Pavement and Model Municipal Operations Center  
Demonstration Project**  
**ID NUMBER: SD-A12**

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### **ACTIVITY IMPLEMENTATION**

The County of San Diego Department of General Services (DGS) received Proposition 13 Non-Point Source grant funds to demonstrate the use of porous pavements as a demonstration project for municipal facilities to follow. The Porous Pavement and Model Municipal Operations Center Demonstration Project, located at the County Operations Center (COC) at 5555 Overland Avenue within the City of San Diego, is a phased project, with Phase I completed during FY 2005-06 (see previous WURMP Annual Reports for details). On September 6, 2006, the State Water Resources Control Board (SWRCB) awarded the County of San Diego an additional \$1.5 million in Proposition 40 funding to facilitate Phase II, which aims to demonstrate the benefits and feasibility of installing porous pavement and enhanced structural treatment controls at the COC. Phase II, was completed during the FY 2007-08 reporting period. This activity report focuses on Phase II implementation and associated monitoring activities that were accomplished this fiscal year.

The purpose and intended outcomes for Phase II included:

- Demonstrating how local governments can improve water quality by making changes in existing facilities and improving the design and construction of future facilities;
- Assessing porous pavement products that will guide future installation of such paving at County facilities;
- Assessing the effectiveness of two types of treatment control devices to guide future use of control devices at County facilities;
- Establishing the COC as a regional demonstration site for implementation of water quality BMPs;
- Educating County Project Managers, as well as contract architects and engineers, about porous pavement and Treatment Control BMPs;
- Increasing general knowledge about porous pavement and Treatment Control BMPs among all municipal officials in San Diego County;
- Encouraging all municipalities to install porous pavement; and
- Establishing long-term relationships with watershed groups throughout San Diego County.

Phase II consisted of upgrades to the Phase I portion of the project, including additional porous pavements and upgrades to the treatment train. The upgrades to the parking lot included 54,000 square feet of additional porous asphalt and concrete test plots, the addition of geogrid stabilization under half of each new porous asphalt test plot, and the diversion and capture of 26,000 square feet of roof runoff to porous test beds.

The porous pavement mixes and configurations reviewed included: 1) asphalt with either a polymer or fiber reinforcement, 2) an area with a deep reservoir to contain runoff from adjacent building roof tops as well as parking lot and sidewalk drainage, and 3) a test area with

stabilization re-enforcement beneath the pavement. Porous asphalt design mixes included PG7610, AR1600 and Caltrans Standard Open Grade Mix. Also, during Phase II an additional geogrid stabilization fabric was placed under half of the newly installed area to determine what benefit could be derived from the added material.

The media filtration system was also enhanced by expanding the existing stormwater (media filtration) treatment capability by three additional media filtration units, evaluating different filtration media as they relate to water quality improvement and monitoring to evaluate the current and expanded BMP effectiveness.

In addition, upgrades to the existing treatment train included an enhanced treatment control system to filter a greater volume of runoff from the COC and to facilitate evaluation of alternative media for removal of different stormwater pollutants. While the primary treatment unit captured sediment, trash, debris, and undissolvable oil and grease from the COC's 35 acres, the upgraded media filtration unit is intended to target more difficult pollutants, such as dissolved hydrocarbons, heavy metals (copper, zinc, cadmium, chromium), organics, and phosphorous. The existing stormwater media filtration treatment capability was intended to be increased from one unit treating 1.25 cfs to four units treating 6.4 cfs to facilitate the evaluation of filtration media in removing different pollutants of concern. The project also proposes to enhance the design and performance of the existing monitoring systems for porous pavement and the media filtration systems, the results of which should be reported during the next fiscal year's reporting cycle.

The County continued to contract Coastkeeper during this time to assist in providing additional outreach regarding the benefits and results of this project. Outreach efforts included presentations outlining the construction process through cost of materials, as well as guided tours and demonstrations of the porous materials.

### **TMDL APPLICABILITY**

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

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Completion of Phase II during FY 2007-08
- Consistent with the requirements of the SWRCB, this proposal will continue existing BMP assessment and monitoring for the duration of the grant term.

### **PARTICIPATING WATERSHED COPERMITTEES**

- County of San Diego

### **OTHER PARTICIPATING ENTITIES**

- Coastkeeper (SAG member and outreach consultant)
- San Diego River Coalition (SAG member)

- Building Industry Association of San Diego (SAG member)
- Industrial Environmental Association (SAG member)

### **HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED**

- Bacteria Indicators
- Phosphorous
- Turbidity

### **OTHER CONSTITUENTS ADDRESSED**

- Trash and debris
- Undissolvable oil and grease
- Dissolved hydrocarbons
- Heavy metals (copper, zinc, cadmium, chromium)
- Organic
- Nitrogen

### **CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**

Bacteria indicators, phosphorous and turbidity have been identified as priority water quality problems in the San Diego River Watershed. This activity demonstrates reduced pollutant loads and source abatement which benefits the receiving water quality. Since this activity addresses priority water quality problems it is consistent with the collective watershed strategy.

### **EFFECTIVENESS MEASUREMENTS**

As indicated in the March 2008 WURMP document, activity effectiveness is to be measured by confirming completion of all project elements (Level 1 Outcome). All project elements were successfully implemented as documented above.

The training and outreach component is assumed to have resulted in increased knowledge and awareness about this project (Level 2 Outcome).

Monitoring has been conducted and is ongoing to assess the pollutant and runoff reductions resulting from both the porous pavement and the media filtration systems. Results from Phase I showed a significant reduction in associated pollutants from runoff diverted through the media filtration system (treatment train), the assumption can be made that added porous materials, increased diverted roof runoff through the porous materials and treatment train and the enhanced filtration system will continue and likely improve water runoff quality during future storm events. The same assumption can be made for Phase II. Ongoing monitoring will be useful for reporting estimated pollutant load reductions in future annual reports (Level 4 Outcome).

With respect to material types, all three types of porous asphalt were determined to have worked well to eliminate runoff and mitigate associated pollutants. The AR1600 was determined to be a “softer” material and more prone to manipulation with the use of heavy duty vehicles. Also, the

field observations for the geogrid stabilization fabric deemed no difference in function or quality through the end of 2008.

**TITLE: Pet Waste Dispenser Program in Parks**  
**ID NUMBER: SDR-A13**

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### **ACTIVITY IMPLEMENTATION**

The County of San Diego provides pet waste bag dispensers at County Parks. The County installs, maintains, and inventories pet waste bag dispensers in its parks throughout the year. 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.

The County maintains 26 dispenser stations at a total of 11 parks within the San Diego River Watershed, including one new dispenser installed during the FY 07/08 reporting period. Dispenser locations include:

- Flinn Springs Park (1 new dispenser, 3 total dispensers)
- Cactus Park (1 total dispenser)
- Dos Picos Park (4 total dispensers)
- El Monte Park (2 total dispensers)
- Heritage Park (1 total dispenser)
- Lank Jennings Park (3 total dispensers)
- Lindo Lake Park (3 total dispensers)
- Louis A. Stelzer Park (1 total dispenser)
- Oakoasis Park (1 total dispenser)
- Rios Canyon Sports Park (1 total dispenser)
- William Heise Park (6 total dispensers)

#### **City of Santee**

The City of Santee maintained “Doggie Bag” dispensers at all public parks and along Cuyamaca Street, which is a popular dog walking location. During this fiscal year, three additional pet waste bag dispensing stands were installed along Forester Creek between Prospect Avenue and Mission Gorge Road.

#### **City of La Mesa**

The City of La Mesa maintains pet waste bag dispensers throughout all City parks. Half the parks in the City are in the San Diego River Watershed. Approximately 9,000 bags were used, an increase from the estimated 6,750 used during 2006-07, and 4 new dispensing stations were added during this reporting period. The City encourages residents to cleanup after their pets. This constitutes a load reduction in pet waste and bacteria from entering the storm water conveyance system.

#### **City of El Cajon**

“Doggie Bag” dispensers were set up at Wells Park – Dog Park to provide pet owners with bags with which they can collect their pet’s fecal matter for proper disposal (i.e., in a trash bin). During the 2007-2008 reporting period the City conducted provision and maintenance of doggie bag dispensers at the Dog Park.

**TMDL APPLICABILITY**

N/A

**TIME SCHEDULE FOR IMPLEMENTATION**

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

**PARTICIPATING WATERSHED COPERMITTEES**

- County of San Diego
- City of Santee

**OTHER PARTICIPATING ENTITIES**

- None

**HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED**

- Bacteria

**CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**

Bacteria have been identified as priority water quality problems in the San Diego Watershed. Parks, and pet waste in particular, are potential sources of bacteria. Since this activity addresses a priority water quality problem and a priority source, it is consistent with the collective watershed strategy.

**EFFECTIVENESS ASSESSMENT**

Facility Name	FY 07-08		
	# of Stations	# of Bags Used	Dog Waste Removed (lbs)
Cactus Park	1	4,199	840
Dos Picos Park	4	12,597	2,519
El Monte Park	2	8,398	1,680
Flinn Springs Park	3	12,597	2,519
Heritage Park	1	4,199	840
Lake Jennings Park	3	12,597	2,519
Lindo Lake Park	3	12,597	2,519
Louis A. Stelzer Park	1	8,398	1,680
Oakoasis Park	1	4,199	840

Rios Canyon Sports Park	1	4,199	840
William Heise Park	6	16,796	3,359
<b>Total</b>	<b>26</b>	<b>100,776</b>	<b>20,155</b>

Cumulatively, the County maintains 26 stations among 11 County Parks within the San Diego River Watershed. These stations distributed approximately 100,776 bags during the FY 07/08 reporting period, preventing an estimated 20,155 lbs. of pet waste from entering the watershed. Bacteria load reduction estimates are 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:

During FY 2004-05, approximately 125 bags per month were reported to have been used in the City of Santee. During FY 2005-06, approximately 2,000 bags per month were reported to have been used. During FY 2006-07, approximately 24,000 bags per month were reported to have been used. During FY 2007-08, approximately 4,200 bags per month were reported to have been used, which corresponds to approximately 840 pounds of dog waste based on previous studies. While this is a drop from the previous year, it still represents a continuing upward trend over previous years which may indicate that the 2006-07 numbers were anomalously high. Assuming the bags are being used for their intended purpose, this represents a significant shift in behavior by Santee citizens in addition to a measurable pollutant load reduction.

Using a similar calculation, the number of bags dispensed in the City of La Mesa would indicate approximately 1,800 pounds of dog waste were removed.

The City of El Cajon estimated that City Parks Crews removed approximately 41,600 lbs of pet waste from pet waste dispensers.

- 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.

**TITLE: San Diego River Park Foundation Partnership**  
**ID NUMBER: SDR-A14**

**ACTIVITY DESCRIPTION**

The City of San Diego (City) will partner with the San Diego River Park Foundation (SDRPF) in an effort to help raise awareness of the pollution, bacteria, and sediment issues affecting the San Diego River. The City will provide funding for a number of SDRPF initiatives, including the annual River Days event designed to promote awareness of the pollution issues surrounding the San Diego River through 36 different watershed education and service projects. Additionally, funding will support the SDRPF's Clean and Green Team, a volunteer program designed to remove trash and plant native plants within the San Diego River Watershed Management Area (WMA). Funding will also be used to support public cleanups and other educational endeavors.

FY 2008 activities included funding of the SDRPF's Clean and Green Sponsorship. One year of support was provided for the Clean and Green Team. Funding went to:

- support annual river clean-ups and other activities;
- the purchase of supplies;
- trash removal and disposal;
- volunteer support; and
- direct staff support of program.

Four major quarterly events and eight minor events occurred. The two events sponsored by the City included the Mission Valley Preserve cleanup on June 14, 2008 and the Mission Valley Cleanup on June 8, 2008. 24,000 pounds of trash was removed and 2000 plus hours of volunteer service occurred.

According to Regional Board staff comments<sup>1</sup>, the City will need to provide more information about the activities that will take place and how they will protect and enhance water quality. The funding of the SDRPF's Clean and Green Sponsorship was explained in detail in this section.

**TMDL APPLICABILITY**

- San Diego Region Beaches and Creeks Bacteria TMDL

**TIME SCHEDULE FOR IMPLEMENTATION**

The City will coordinate with SDRPF to provide funding for various projects throughout FY 2009 and beyond. Cleanups will be scheduled as appropriate. Clean and Green Team efforts take place throughout the year, and River Days is scheduled to occur in May of each year.

**PARTICIPATING WATERSHED COPERMITTEE(S)**

- City of San Diego

**OTHER PARTICIPATING ENTITIES**

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<sup>1</sup> Robertus, John H. "COMMENTS ON THE MARCH 2008 WATERSHED URBAN RUNOFF MANAGEMENT PLAN (WURMP) AND USEPA/REGIONAL BOARD APRIL 2008 WURMP ASSESSMENTS." September 23, 2008. (Place Number 710562: L Walsh)



- San Diego River Park Foundation
- REI
- Union Bank of California

**HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED**

- Bacteria
- Gross Pollutants (Trash)

**CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**

The Collective Watershed Strategy identifies bacteria as a high priority water quality problem in the San Diego River WMA. Providing funding to SDRPF will increase awareness of the bacteria and pollution issues surrounding the San Diego River, and the various cleanup initiatives will assist in reducing pollution throughout the San Diego River WMA.

Partnership with SDRPF will provide funding to address bacteria indirectly by removing a bacterial source: trash. Literature published by the United States Environmental Protection Agency on its website<sup>2</sup> states that debris may be contaminated by pathogens that have adverse effects on humans. By decreasing the amount of trash, bacteria loads are reduced. Funding SDRPF’s public education and outreach programs will help increase awareness of the pollution issues affecting the San Diego River and foster appropriate behavior change

**EFFECTIVENESS MEASUREMENTS**

<b>Watershed: San Diego River</b>		
<b>SDRPF CLEANUP SPONSORSHIPS</b>		
<b>Assess the Efficiency and Effectiveness of Sponsoring Local Organization’s Cleanup Efforts to Remove Litter from Public Areas and Waterways</b>		
<b>Management Questions</b>	<ul style="list-style-type: none"> <li>• What is the load reduction associated with sponsorship?</li> <li>• What is the efficiency of trash cleanup? (\$/person or \$/ton collected)</li> </ul>	
<b>Targeted Measurable Outcome(s)</b>	Load reduction due to reduction of trash (any amount) due to trash cleanup sponsorship	
<b>Assessment Method(s)</b>	<ul style="list-style-type: none"> <li>• Tabulation (e.g., number of participants)</li> <li>• Quantification (e.g., pounds of trash collected)</li> </ul>	
<b>Data Recorded</b>	Was the program in compliance? (Outcome Level 1)	Yes
	Pounds of trash removed (Outcome Level 4)	24,000 lbs
	Number of volunteer hours (Outcome Level 1)	>2,000 hours
	Amount of money spent on cleanups (Outcome Level 1)	\$5,000
	Activity Efficiency (Total Cost/Total Pounds Removed)	<\$0.01/lb
<b>Recommended Data</b>	<ul style="list-style-type: none"> <li>• Number of participants (Outcome Level 1)</li> </ul>	

**Objectives**

The goal of this assessment is to determine the load reduction effectiveness and efficiency of the sponsored cleanup.

<sup>2</sup> <http://www.epa.gov/owow/oceans/debris/>

### **Analysis and Results**

FY08 activities included funding of the SDRPF's Clean and Green Sponsorship. One year of support was provided for annual river clean-ups and other activities, the purchase of supplies, trash removal and disposal, volunteer support, and direct staff support of program. Four major quarterly events and eight minor events occurred. The two events sponsored by the City included the Mission Valley Preserve cleanup on June 14, 2008 and the Mission Valley Cleanup on June 8, 2008. Over the course of these events, 24,000 pounds of trash were removed and over 2,000 hours of volunteer service occurred. This yields an efficiency of less than \$0.01 per pound of load reduction.

### **Conclusions**

The City will coordinate with SDRPF to provide funding for various projects throughout FY 2009 and beyond. Cleanups will be scheduled as appropriate. Clean and Green Team efforts take place throughout the year, and River Days is scheduled for May of each year. Implementation and assessment of load reduction and efficiency of these cleanups will occur again in FY 2009. Future results may be used to compare various types of trash cleanups completed and their associated costs as well as comparing the same types of trash cleanups that are sponsored each year over time. Effectiveness of public outreach and educational will be measured via citywide surveys comprised of residents in the San Diego River WMA to determine awareness and knowledge retention of water quality issues, as well as changes in behavior. Additionally, water quality monitoring will be conducted throughout the San Diego River WMA to determine whether improvements have occurred.

**TITLE:** San Diego River Targeted Inspections  
**ID NUMBER:** SDR-A15

**ACTIVITY IMPLEMENTATION**

The City of San Diego is developing a focused inspection program to target facilities that are potential sources of high priority pollutants. In the San Diego River Watershed Management Area (WMA), the City is focusing on landscaping and animal-related facilities. The long-term goals of the program are:

- Determine the most efficient frequency of inspections to ensure proper Best Management Practice (BMP) implementation and reduce pollutant loading (e.g., once vs. twice per fiscal year)
- Determine the most efficient type of inspection to ensure proper BMP implementation and reduce pollutant loading (e.g., random inspections vs. scheduled inspections)
- Determine the most efficient combination of enforcement action to ensure proper BMP implementation and reduce pollutant loading (e.g., education/flyers vs. monetary fines vs. onsite direct interactions)
- Characterize activities at facilities to determine which activities cause the greatest pollutant discharges to better direct focused education/outreach and enforcement efforts
- Track and analyze inspection and enforcement actions to estimate load reductions resulting from inspections

The City delineated a specific area within the San Diego River WMA to conduct the targeted inspections based on factors such as facility clustering and proximity to other watershed activities being conducted. The overall approach of the site selection process focused first on the specific business categories within the prioritized sectors in each WMA. If multiple category types were targeted for inspection in a particular WMA, a fairly equal distribution of sites from each category was selected for inspection where possible. In addition, knowledge gained by the City from past inspections was used to consider the likelihood of certain business types and areas of the City to be more problematic than others regarding constituents of concern in each WMA

Originally, the FY 2008 watershed-focused inspection program involved multiple inspections at each facility selected for inspection. Due to time constraints and complications with outreach to the affected community, only one inspection was conducted at each facility. The inspections that were conducted provide baseline data for comparison to future years' watershed-focused inspection programs. Information gathered during the FY 2008 watershed-focused inspection program provides information about different WMAs and facility types in the City, which will be helpful in answering the specific goals of the program in future years.

Fifty-two full inspection equivalents occurred across the San Diego River watershed at restaurants and landscaping-related facilities. Full inspection equivalents are equal to the number of full inspections plus one half the number of "other site visits" (site visits that did not result in a full inspection), excluding other site visits where the facility has moved and is gone and a replacement business was found. This metric allows for a more equal comparison of inspection effort among WMAs. There were 25 total inspections conducted for animal-related facilities with one follow up inspection and 16 "other site visits"; 5 total inspections at landscaping-related facilities with one follow up inspection and 15 "other site visits"; 1 inspection at a metal industry with no follow up and no "other site visits"; and 5 total inspections conducted for restaurant facilities with no follow-ups and no "other site visits."

This activity is in active implementation, and source abatement information is included in the effectiveness assessment section of this activity summary sheet. The City requests credit for one of the two required watershed water quality activities for this reporting year with this activity.

The City acknowledges Regional Board staff's comment that recorded data and assessment is needed regarding the inspections and that the inspections must be above and beyond JURMP requirements. Inspections under this activity occurred to facilities that were not inspected under the JURMP program. Recorded data and assessment is included in this report.

Regional Board staff also commented on the activity being given credit for one year and that the activity is expected to become "business and usual." However, the City is implementing this non-capital activity over multiple years in order to optimize the program prior to incorporating the results and recommendations into the JURMP. Specific changes to the JURMP are not yet planned as the study is ongoing at this time. Incorporating this activity into the JURMP at this time would be premature in putting valuable resources toward wide-scale implementation before the program is optimized. With optimization, the City anticipates gaining the strongest improvement to storm water discharge quality that is achievable at this point in time. Therefore, the activity is continuing under the WURMP and not being incorporated into the JURMP as "business as usual."

It should be noted that all of the inspections (landscaping-related and restaurant facilities) are being reported on one activity summary sheet for FY 2008 due to the structuring of this year's program. The inspections were previously detailed as separate activities in the 2008 San Diego River WURMP. For consistency, the activity numbers are included in the heading of this summary sheet. The City is not expecting to receive two watershed water activity credits (one for each type of facility) for this program year; the City is requesting credit for one of the two required activities in this program year. However, the program may be restructured in the future and depending on the scale of implementation, the City may request credit for different facilities in the future.

Additionally, Regional Board staff commented that animal-related facility inspections will not be given credit in FY08 since they were completed in FY06/07. This statement is not accurate, as restaurant inspections, not animal facility inspections were implemented in FY06/07. Additionally, the Municipal Permit does not preclude credit over multiple years for non-capital projects. Section E.2.f.(4) states that “capital projects are in active implementation for the first year of implementation only.” There is no reference to non-capital projects.

**TMDL APPLICABILITY**

- San Diego Region Beaches and Creeks Bacteria TMDL

**TIME SCHEDULE FOR IMPLEMENTATION**

Activity planning began in July 2007. The City selected and hired a consultant who implemented the watershed-focused project from the end of March through June 2008. The City will continue to evaluate ways to optimize the inspection of various facilities in the future. The City is currently developing its 2009 program and anticipates continuing piloting the targeted inspections through FY2012.

**PARTICIPATING WATERSHED COPERMITTEES**

- City of San Diego

**OTHER PARTICIPATING ENTITIES**

- N/A

**HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED**

The San Diego River inspections target the following high priority water quality problems:

FACILITY TYPE	HIGH PRIORITY WATER QUALITY PROBLEMS ADDRESSED	
	Bacteria	Nutrients
Restaurants	X	
Landscaping-related		X

**CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**

Both the City’s *Strategic Plan for Watershed Activity Implementation* and the Collective Watershed Strategy for the San Diego River WMA identify bacteria and nutrients as high priority water quality problems, and recommend implementing load reduction/source abatement activities to address them.

**EFFECTIVENESS ASSESSMENT**

<b>Watershed: San Diego River</b>		
<b>TARGETED FACILITY INSPECTIONS</b>		
<b>Assess the Efficiency and Effectiveness of Restaurant Facility Inspections</b>		
<b>Management Questions</b>	<ul style="list-style-type: none"> <li>• Do inspections increase rate of BMP implementation?</li> <li>• Does increased rate of BMP implementation effect load reduction?</li> <li>• What is the optimal frequency of inspection (point of diminishing returns)?</li> <li>• Are spot inspections more effective than scheduled inspections?</li> <li>• Does enforcement alter future behavior (implementing BMPs)?</li> <li>• Does education increase rate of BMP implementation?</li> <li>• How can an estimate of load reduction be made from inspection data?</li> </ul>	
<b>Targeted Measurable Outcome(s)</b>	<ul style="list-style-type: none"> <li>• Load reduction/Source Abatement due to inspections</li> <li>• Increased BMP implementation due to inspections</li> </ul>	
<b>Assessment Method(s)</b>	<ul style="list-style-type: none"> <li>• Inspections (e.g., track number of BMPs implemented, increased number of BMPs, number of follow-up inspections)</li> <li>• Quantification (e.g., use frequency of BMP implementation to calculate estimated load reduction)</li> <li>• Monitoring (e.g., collect special study information to collect concentrations and flows to estimate load reduction)</li> <li>• Tabulation (e.g., amount of money spent on inspections, amount of money spent on educational materials)</li> <li>• Reporting (e.g., estimates of load reduction for BMPs from 3<sup>rd</sup> party data)</li> </ul>	
	Number of animal facility full inspections, spot and scheduled (Outcome Level 1)	25
	Number of animal follow-up inspections (Outcome Level 1)	1
	Number of landscaping facility full inspections, spot and scheduled (Outcome Level 1)	5
	Number of landscaping follow-up inspections (Outcome Level 1)	1
	Number of industrial facility full inspections, spot and scheduled (Outcome Level 1)	1
	Number of industrial follow-up inspections (Outcome Level 1)	0
	Number of restaurant facility full inspections, spot and scheduled (Outcome Level 1)	5
	Number of restaurant follow-up inspections (Outcome Level 1)	0
	Number of Sites Needing Corrective Action (Outcome Level 1)	35
	Number of Sites that Implemented Some Corrective Action During Inspection (Outcome Level 3)	1
	Number of Sites with Source Abatement (based on corrective actions taken) (Outcome Level 4)	1
	Total IC/IDs Observed (Outcome Level 1)	0
	Total IC/IDs Eliminated During Inspection (Outcome Level 4)	0
	Total IC/IDs Receiving Notice of Violation, and therefore abatement (Outcome Level 4)	0
	Total number of full equivalent inspections, spot and scheduled (Outcome Level 1)	52

<b>Watershed: San Diego River</b>	
<b>TARGETED FACILITY INSPECTIONS</b>	
<b>Assess the Efficiency and Effectiveness of Restaurant Facility Inspections</b>	
<b>Recommended Data</b>	<ul style="list-style-type: none"> <li>• Number of BMPs implemented (Outcome Level 1)</li> <li>• Change (%) in BMP implementation pre and post-education (Outcome Level 3)</li> <li>• Number of missing BMPs (Outcome Level 1)</li> <li>• Number of enforcement follow-ups (Outcome Level 1)</li> <li>• Number of educational information items passed out (Outcome Level 3)</li> <li>• Pollutant Discharge Potential Assessment (Outcome Level 4)</li> <li>• Amount of money spent on inspections</li> </ul>

**Objectives**

Goals of this activity assessment include determination of the most efficient frequency (e.g., once vs. twice per fiscal year) and type (e.g., random inspections vs. scheduled inspections) of inspections, to ensure proper BMP implementation and reduce pollutant loading.

**Analysis and Results**

A breakdown of the number of sites needing corrective action and number of sites that implemented at least some corrective action during the inspection were included in the Watershed-Focused Storm Water Compliance Inspection Program Report<sup>1</sup> and is included in Table 1. The table also includes the number of Illegal Connections/Illicit Discharges (IC/ID) observed during inspections, and the total number of IC/IDs abated during inspections. One of the 35 sites implemented corrective action during the inspection, resulting in source abatement at this facility.

**Table 1**  
**Corrective Actions Implemented at Time of Inspection**

Area	Number of Sites Needing Corrective Action	Number of Sites That Implemented Some Corrective Action During Inspection	Total IC/IDs Observed	Total IC/IDs Eliminated During Inspection
SDR	35	<u>1</u>	0	N/A

Although a load reduction was not calculated for each location, abatement of potential sources (Outcome Level 4) may be assumed with corrective actions being implemented due to the inspections. Future years’ analysis will include a detailed pollutant discharge potential assessment to better show this source abatement. Inspected facilities were assigned a rating to reflect the level of BMP implementation noted at the site, and a separate rating to reflect the facility manager/responsible party’s level of storm water knowledge. Inspectors evaluated BMP assessment ratings based on the cleanliness of the

<sup>1</sup> D-MAX Engineering, *Watershed-Focused Storm Water Compliance Inspection Program* (September 2008).

site and the number of recommended corrective actions given to each facility. Table 2 presents a breakdown of the average knowledge and average BMP implementation scores for inspected facilities in each WMA. In the San Diego River\_WMA, the Average BMP Implementation Score and the Average Knowledge score increased. While some conclusions can be drawn based on the results of the FY 2007 and FY 2008 inspection programs, the number of inspections completed, the individual sites visited, and the business types targeted in each WMA were not the same in FY 2008 as in FY 2007. Because of these differences, drawing definitive conclusions is difficult. The City is modifying its strategy for future years, and the use of the new inspection form should provide the ability to derive more solid conclusions in future years to help optimize the City’s jurisdictional industrial and commercial facility inspection program to meet Municipal Permit and TMDL requirements.

**Table 2  
Breakdown of Average Knowledge and BMP Implementation Scores by Area**

<b>Area</b>	<b>Average Knowledge Score FY 2007</b>	<b>Average BMP Implementation Score FY 2007</b>	<b>Average Knowledge Score FY 2008</b>	<b>Average BMP Implementation Score FY 2008</b>
SDR	2.0	2.4	2.5	3.7

**Conclusions**

Originally, the FY 2008 watershed-focused inspection program involved multiple inspections at each facility selected for inspection. Due to time constraints and complications with outreach to the affected community, only one inspection was conducted at each facility. More inspection data is anticipated in the FY 2009 to build on what was gathered in FY2008. Further analysis of inspection efficiency, BMP implementation and education and their source abatement effectiveness is required before conclusions can be made and will include the cost of inspections, BMP implementations, education data, and enforcement follow-ups.



**ID NUMBER: SDR-A16**

**TITLE: San Diego Riverbed Homeless Encampment Removal Project**

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**ACTIVITY SUMMARY**

On behalf of the City of Santee, the San Diego County Sheriff conducts sweeps during the reporting period along the San Diego River within City jurisdiction to remove trash and encampment items.

**PARTICIPATING JURISDICTION**

- City of Santee

**WATERSHED PRIORITY POLLUTANTS ADDRESSED**

- Trash
- Bacteria

**HOW THIS ACTIVITY RELATES TO THE SAN DIEGO RIVER WATERSHED**

The sweeps target homeless camps along the San Diego River. During the sweeps the Sheriff encounters transients and their camps and takes appropriate law enforcement action to remove trash and encampment items used for the illegal lodging. The raids contribute to the betterment of the San Diego River Watershed by removing trash and sources of bacteria pollution.

**TASKS IMPLEMENTED DURING FY 2007-2008**

The following tasks were conducted as part of the Riverbed Project during Fiscal Year 2007:

- Trash removal
- Bacteria source reduction

**ID NUMBER: SDR-A17**

**TITLE: TRASH REMOVAL ACTIVITIES IN SANTEE**

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**ACTIVITY SUMMARY**

The City hosted or facilitated six clean-up events within the City during FY 07-08. A total of over 47 tons of trash and debris were collected. A summary of these events is presented below:

Date	Volume of Trash Removed	Description
12/29/07	1.35 tons	San Diego River Park Foundation event in Mast Park, primary goal was to aid in the removal of invasive species (Tamarisk). Some trash removal was done as well.
03/01/08	3 tons	Material removed in preparation for the Santreefest event at Cajon Park School. Outreach material was provided during the Santreefest event.
04/15/08	6 tons	Church group conducting trash removal event in Mast Park.
0/26/08	2 tons	Clean up and application of mulch at West Hills Park by Rotary Group.
04/27/08	35 tons	Pathways Community Church hosted a clean up event in conjunction with the City at Forester Creek. A total of 300 volunteers removed trash from a concrete portion of Forester Creek, and conducted maintenance of properties adjacent to Forester Creek. Outreach materials were provided.
05/10/08	0.25 tons of trash and 10 shopping carts.	San Diego River Park Foundation event attended by 50 people. City provided dumpsters and outreach materials. Outreach materials provided for another River Days event at Mission Trails during 5/11/08.

**PARTICIPATING JURISDICTION**

- City of Santee

**WATERSHED PRIORITY POLLUTANTS ADDRESSED**

- Trash

**HOW THIS ACTIVITY RELATES TO THE SAN DIEGO RIVER WATERSHED**

This activity restores trash within the watershed. It also enabled residents to participate enhancing the watershed environment by removing trash. Trash and debris was collected and disposed of appropriately. Reduction of the pollutant load can be assessed based on the weight of material collected. In addition, neighborhood enhancement activities can instill a sense of pride in the appearance of the neighborhood, providing a disincentive to allow trash to accumulate again. Removal of invasive species can benefit the rivurine environment.

**TASKS IMPLEMENTED DURING FY 2007-2008**

The following tasks were conducted as part of these public participation and education activities during Fiscal Year 2005:

- Six trash removal events were conducted within the watershed, three adjacent to the San Diego River or Forester Creek.
- Removal of over 47 tons of trash.

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- Removal of an invasive species of tree in Mast Park.
- Enhancement of the neighborhood adjacent to Forester Creek.
- Public participation and education.

**ID NUMBER: SDR-A18**

**TITLE: Wet Weather Monitoring**

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### **PROJECT SUMMARY**

The City of La Mesa (City) has been focused on eliminating pollutants from entering our receiving water bodies and identifying pollutant sources. During the 2006-2007 fiscal year, the City developed a wet weather water quality monitoring program within the San Diego River Watershed. The purpose of this study is to evaluate the water quality of the discharged flow in the Watershed. The City continued this program during the 2007-2008 fiscal year. Sampling was conducted during the 07-08 reporting period at the same two discharge locations sampled during the 06-07 reporting period. One site is located at the jurisdictional boundary, and one site is located farther upstream in the watershed. Water samples taken in November 2007 were evaluated for constituents associated with receiving water body 303(d) listings and watershed constituent of concern listings in the WURMP. This included measuring temperature, pH, conductivity, turbidity, and dissolved oxygen in the field and total hardness, dissolved copper, chlorpyrifos, diazinon, malathion, total nitrogen, total phosphorus, TDS, TSS, total coliform, fecal coliform, and *Enterococcus* bacteria in the lab. An additional sample was taken in December 2007 at the jurisdictional boundary location only. The data from these samples is currently being analyzed.

### **PARTICIPATING JURISDICTIONS**

- City of La Mesa

### **WATERSHED PRIORITY POLLUTANTS ADDRESSED**

- Bacteria (high priority)
- TDS (high priority)
- Turbidity/TSS
- Diazinon
- Metals
- Total Phosphorous, Dissolved Oxygen, and pH (high priority)

### **HOW THIS ACTIVITY RELATES TO THE WATERSHED**

This activity is above and beyond the Municipal Permit sampling and monitoring requirements. Analyzing samples from wet weather discharges from locations within the San Diego River Watershed provides insight into water quality leaving the City of La Mesa. It also enables the City to conduct potential follow-up investigation of possible pollutant sources.

As a result of the sampling conducted during the 2006-2007 fiscal year, the City performed additional storm water inspections in a light industrial area upstream of one of the sampling locations to further investigate BMP implementation and characterize pollutant sources in the area. A supplemental questionnaire was also completed during all of the City's industrial/commercial inspections in the San Diego River Watershed to identify potential pollutant sources and gauge the level of stormwater knowledge within the watershed.

Data from 2007-2008 is currently being analyzed and will be compared with the monitoring data from 2006-2007. This program is intended as a long-term activity.

**ACTIVITIES CONDUCTED DURING 2007-2008**

The following activities were conducted during this reporting period 2007-2008:

- Conducted sampling in November and December 2007 which included field monitoring and laboratory analysis.
- Prepared draft letter report summarizing previous year's data.
- Conducted additional inspections upstream of one of the monitoring locations as a result of the monitoring conducted during the previous fiscal year.
- Completed a supplemental questionnaire during all industrial/commercial inspections within the watershed.

**ID NUMBER: SDR-A18**

**TITLE: Monitoring for Priority Pollutants in the San Diego River Watershed**

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**ACTIVITY SUMMARY**

The City of Santee has conducted an additional study each year since 2002 to assess constituents of concern at five locations within the watershed. These locations include Forester Creek as it enters the City of Santee and prior to its confluence with the San Diego River (two locations); the San Diego River as it enters the City of Santee; Sycamore Creek as it discharges into the San Diego River; and the San Diego River just as it leaves the City of Santee (three locations). These locations are typically sampled twice during the dry season, at the beginning and towards the end of the season. This investigation was reviewed during Fiscal Year 2007 and revised to incorporate the constituents listed on the 303(d) list for the Forester Creek and San Diego River.

**PARTICIPATING JURISDICTION**

- City of Santee

**WATERSHED PRIORITY POLLUTANTS ADDRESSED**

- Bacteria
- Total Dissolved Solids
- Dissolved Oxygen
- Phosphorous

**HOW THIS ACTIVITY RELATES TO THE SAN DIEGO RIVER WATERSHED**

The dry weather monitoring program focuses on potential pollutants within the MS4. Monitoring receiving waters within the City helps to evaluate water quality within City limits. The data can be incorporated with data collected within other jurisdictions to develop a profile of water quality within the watershed. This helps to identify areas where loadings of priority pollutants may be increasing and to assist in developing watershed activities in appropriate locations that may result in water quality improvements.

**TASKS IMPLEMENTED DURING FY 2007-2008**

Review and update program to incorporate priority pollutants. Collect two rounds of data.

**TITLE: Cabrillo Heights Park Rain Garden Infiltration Project**  
**ID NUMBER: SDR-A19**

**ACTIVITY IMPLEMENTATION**

This activity involves the implementation of a large scale low impact development (LID) project in the San Diego River Watershed Management Area (WMA) to reduce runoff volume. The large scale LID site selection focused on city owned parks and parcels that would be suitable for infiltrating off site flow. Site visits were performed to evaluate the field conditions at approximately ten sites in FY 2007 through FY 2008. Cabrillo Heights Park was eventually selected as the site of choice for the Rain Garden Infiltration Project.

The concept for this park includes the installation of rain gardens at a couple of sites within the park. The rain gardens, or bioretention basins, will be used to trap particulate pollution, encourage evapotranspiration, and reduce the amount of trash, oils and grease that make its way to the storm drain system. Flows are mainly filtered through the rain garden, collected, and returned to the storm drain system. A portion of the stormwater will remain within the planted bed and be used by plants for evapotranspiration and growth.

The first site, located on the western edge of the park, will be used to treat storm flows from the western parking lot on Kearny Villa Road. All parking lot flows will enter into the storm distribution piping through a couple of storm water catch basins located in the parking lot. These catch basins shall include grating to prevent large solids from entering into the piping, and inserts to prevent trash and other debris from entering the rain garden. PVC storm drain piping will convey the parking lot flows to the rain garden located at the southern end of the parking lot.

The second site is located on the eastern portion of the park and will treat flows from Angier Elementary School and a sporting event parking lot on the east side of the park. All flows from these two locations are directed to two existing separate catch basins; one dedicated for school flows, and one for parking lot flows. Distribution piping will capture flow from these two locations and convey it to the rain garden.

Project conceptual design occurred in FY 2008.

**TMDL APPLICABILITY**

- San Diego Region Beaches and Creeks Bacteria TMDL

**TIME SCHEDULE FOR IMPLEMENTATION**

The project will be transferred to Engineering and Capital Projects in September 2008 for purposes of managing the project through final design, construction and project closeout. Project design is anticipated to continue through FY 2010. Construction is anticipated to occur in FY 2013. Water quality monitoring will be conducted before and after construction to assess the effectiveness in reducing runoff volume and pollutant loading.

Project conceptual design occurred in FY08. The project will be transferred to Engineering and Capital Projects in September 2008 for purposes of managing the project through final design, construction and project closeout. Project design is anticipated to continue through FY 2010. Construction is anticipated to occur in FY 2013. Water quality monitoring will be conducted before and after construction to assess the effectiveness in reducing runoff volume and pollutant loading.

**PARTICIPATING WATERSHED COPERMITTEES**

- City of San Diego

**OTHER PARTICIPATING ENTITIES**

- None

**HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED**

- Bacteria
- Nutrients
- Dissolved Minerals

**CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**

Both the City’s *Strategic Plan for Watershed Activity Implementation* and the Collective Watershed Strategy for the San Diego River WMA identify bacteria, nutrients, and dissolved minerals as high priority water quality problems in the WMA, and recommend implementing load reduction/source abatement activities to address them. Implementation of this activity will address the high priority water quality problems by reducing and treating runoff volume via infiltration/retention.

**EFFECTIVENESS ASSESSMENT**

<b>Watershed: San Diego River</b>	
<b>CABRILLO HEIGHTS PARK RAIN GARDEN INFILTRATION PROJECT</b>	
<b>Assess the Efficiency and Effectiveness of Retrofitting Existing Infrastructure with Rain Garden Infiltration</b>	
<b>Management Questions</b>	<ul style="list-style-type: none"> <li>• What is the load reduction efficiency due to infiltration?</li> <li>• How effective is the infiltration at reducing loads of priority pollutants?</li> <li>• Does the implementation of the infiltration result in a detectible receiving water quality improvement?</li> </ul>
<b>Targeted Measurable Outcome(s)</b>	<ul style="list-style-type: none"> <li>• Reduction in priority pollutant loads</li> <li>• Receiving water quality improvement</li> </ul>
<b>Assessment Method(s)</b>	<ul style="list-style-type: none"> <li>• Inspections (e.g., ensure the infiltration is working as designed)</li> <li>• Quantification (e.g., use drainage area and rainfall information to calculate estimated load reduction)</li> <li>• Monitoring (e.g., collect special study information to collect concentrations and flows to estimate load reduction)</li> <li>• Tabulation (e.g., amount of money spent on implementation and maintenance, amount of money spent on educational materials)</li> <li>• Reporting (e.g., estimates of load reduction from 3<sup>rd</sup> party data)</li> </ul>



<p><b>Data Recorded</b></p>	<ul style="list-style-type: none"><li>• Number of inspections (Outcome Level 1)</li><li>• Change (%) in load reduction pre and post-implementation (Outcome Level 4)</li><li>• Number of educational information items passed out (Outcome Level 1)</li><li>• How much money spent on inspections and maintenance (Outcome Level 1)</li><li>• Literature review or other information to provide data to estimate load reductions (Outcome Level 3)</li><li>• Dataset of load contributions for specific activities (Outcome Level 4)</li></ul>
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**Objectives**

The goal of the analysis is to determine the load reduction efficiency of LID Best Management Practice (BMP) retrofits. The load reduction efficiencies will also be estimated and used to determine the efficacy of future LID BMP implementations.

**Analysis and Results**

Site visits were performed to evaluate the field conditions at approximately ten sites in FY 2007 through FY08, and Cabrillo Heights Park was eventually selected as the site of choice for the Rain Garden Infiltration Project.

**Conclusions**

Anticipated future monitoring will be conducted to assess pollutant removal efficiencies.

**TITLE:** Coastal Cleanup Day Sponsorship  
**ID NUMBER:** SDR-A20

**ACTIVITY IMPLEMENTATION**

Each fall, San Diego Coastkeeper (SDCK) conducts the Coastal Cleanup Day event to target various inland and coastal sites in San Diego County in need of trash and debris removal. Coastkeeper recruits and organizes site captains and groups of volunteers for each site. A media center is also designated, which promotes environmental stewardship, including the importance of keeping litter and debris from spoiling the region's watersheds. The whole event is marketed throughout San Diego County through a variety of media, including television, radio public service announcements, newspapers, newsletters, electronic mail, bulletin boards, community outreach activities, calendar listings, and word of mouth.

Coastal Cleanup Day occurred on September 15, 2007. The City of San Diego (City) sponsored the Mission Valley Preserve site in the San Diego River Watershed Management Area (WMA). Four thousand pounds of trash and debris were removed by 37 volunteers. Volunteers were asked to track the debris collected by implementing data cards provided by the Ocean Conservancy.

According to Regional Board staff comments<sup>1</sup>, the City would receive credit only for the first trash cleanup event in the fiscal year. The City, while reporting on multiple trash cleanup events that occurred within the watershed, acknowledges that it will only receive credit for the first one completed in the fiscal year. However, the City also acknowledges that trash cleanups provide more benefits than simply removal of trash – these are events that also involve education, outreach, and public participation. Therefore, the City may choose to continue to implement and report on more than one trash cleanup each year.

Based on the information above, the effectiveness assessment below, and the total amount of trash removed leading to a load reduction of bacteria, a high priority water quality problem, the City requests credit for a trash cleanup activity as a watershed water quality activity for FY2008.

**TMDL APPLICABILITY**

- San Diego Region Beaches and Creeks Bacteria TMDL

**TIME SCHEDULE FOR IMPLEMENTATION**

Coastal Cleanup Day has historically been held in September of each year. Prior to that month, the City will coordinate with Coastkeeper staff to ensure that sites within the San Diego River WMA are included in the list for cleanups and that proper sponsorship arrangements are made.

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<sup>1</sup> Robertus, John H. "COMMENTS ON THE MARCH 2008 WATERSHED URBAN RUNOFF MANAGEMENT PLAN (WURMP) AND USEPA/REGIONAL BOARD APRIL 2008 WURMP ASSESSMENTS." September 23, 2008. (Place Number 710562: L Walsh)

**PARTICIPATING WATERSHED COPERMITTEES**

- City of San Diego

**OTHER PARTICIPATING ENTITIES**

- SDCK
- I Love a Clean San Diego (ILACSD)
- Volunteers from general public

**HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED**

- Bacteria

**CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**

Both the City’s *Strategic Plan for Watershed Activity Implementation* and the Collective Watershed Strategy for the San Diego River WMA identify bacteria as a high priority water quality problem throughout the WMA, and recommend implementing load reduction/source abatement activities to address it. Sponsorship of Coastal Cleanup Day will result in load reduction of trash and debris directly and of bacteria indirectly.

**EFFECTIVENESS ASSESSMENT**

<b>Watershed: San Diego River</b>		
<b>SDCK COASTAL CLEANUP DAY SPONSORSHIP</b>		
<b>Assess the Efficiency and Effectiveness of Sponsoring Local Organization’s Cleanup Efforts to Remove Litter from Public Areas and Waterways</b>		
<b>Management Questions</b>	<ul style="list-style-type: none"> <li>• What is the load reduction associated with sponsorship?</li> <li>• What is the efficiency of trash cleanup? (\$/person or \$/pound collected)</li> </ul>	
<b>Targeted Measurable Outcome(s)</b>	Achieve load reduction due to reduction of trash (any amount) due to trash cleanup sponsorship	
<b>Assessment Method(s)</b>	<ul style="list-style-type: none"> <li>• Tabulation (e.g., number of participants)</li> <li>• Quantification (e.g., pounds of trash collected)</li> </ul>	
	Pounds of trash removed (Outcome Level 4)	4,000 lbs
	Number of participants (Outcome Level 1)	37
	Amount of money spent on cleanups for all six watersheds (Outcome Level 1)	\$6,000
	Amount of money spent on cleanups for the San Diego River watershed (Outcome Level 1)	\$1,000
	Activity Efficiency (Total Cost/Total Pounds Removed)	\$0.25/lb

**Objectives**

The goal of this assessment is to determine the effectiveness and efficiency of trash cleanup days for actively reducing pollutant load.

**Analysis and Results**

The Coastal Cleanup Day took place on September 15, 2007, and was sponsored by both the City of San Diego and the San Diego Coastkeepers (SDCK). Using data cards provided by Ocean Conservancy, 37 participants removed 4,000 pounds of debris, resulting in a 4,000 pound load reduction. A total of \$6,000 was estimated for the

sponsorship cost for all six watersheds. For the cost estimates, it was assumed that each site sponsored at the “Garibaldi Sponsor” level, or \$1,000. It was anticipated that the sponsorship fee at that level would remain the same for subsequent years. The event’s efficiency, calculated by dividing the sponsorship cost for the San Diego River WMA by the pounds of trash removed, was \$0.25 per pound.

### **Conclusions**

Implementation and assessment of load reduction and efficiency for the Coastal Cleanup Day sponsorship will occur again in FY 2009. Future results may be used to compare various types of trash cleanups completed and their associated costs as well as comparing the same types of trash cleanups that are sponsored each year over time.

**ID NUMBER: SDR-A21**

**TITLE: FORESTER CREEK IMPROVEMENT PROJECT**

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### **ACTIVITY SUMMARY**

During the reporting period, the City of Santee completed the Forester Creek Improvement Project. The improvements incorporate the widening of the Forester Creek channel and to restore ecosystem function to the last viable stretch of Forester Creek before it enters the San Diego River. In its previous condition the creek in Santee has a channel width of 75 to 100 feet and can carry only a 10-year flow between its banks. The newly widened channel is designed to achieve 100-year flood capacity and will have a top width varying from 181 feet to 358 feet. Exotic plant species will be removed from the project area. Approximately 17 acres of native riparian vegetation will be created through a planting and plant establishment program.

The upstream reach of Forester Creek in El Cajon is concrete-lined, and high velocity flows cause severe downstream erosion beyond the Prospect Avenue Bridge (within the project area). To address this problem, an energy dissipation/debris collection facility approximately 200 feet long will be installed at the upstream end of the project, just north of the Prospect Avenue Bridge.

This feature will prevent watershed erosion and sedimentation of surface waters in a natural and sustainable way, through the reduction of flow velocities at the upstream end. Additionally, this feature will effectively capture trash and debris prior to discharge into the revegetated channel. Forester Creek accumulates trash as it flows through urbanized areas of El Cajon. This can have a negative impact on water quality and the aesthetic enjoyment of the creek. Therefore this material needs to be removed as it enters the project area to allow the objectives of this project to be fully realized.

### **PARTICIPATING JURISDICTION**

- City of Santee

### **WATERSHED PRIORITY POLLUTANTS ADDRESSED**

- Trash
- Bacteria
- Total Dissolved Solids
- Low Dissolved Oxygen

### **HOW THIS ACTIVITY RELATES TO THE SAN DIEGO RIVER WATERSHED**

This activity restores habitat within the watershed; provides additional bicycle trails in the San Diego River Park system; naturalizes and expands floodplain areas; removes invasive plant species and encourages the growth of appropriate riparian vegetation; it reduces/removes non-point source loads of pollutants; and provides interpretative information regarding the value of the river through the various monitoring programs being implemented before, during and after the project. In summary it improves the water quality of the last viable stretch of Forester Creek before it discharges into the San Diego River. Initial post-construction data has shown significant improvement in fecal coliform counts and bioassessment data.

### **TASKS IMPLEMENTED DURING FY 2007-2008**

The following tasks were conducted as part of the Forester Creek Improvement Project during Fiscal Year 2007:

- Maintenance of BMPs to protect water quality.
- Diversion of creek around construction area.

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- Continuation of creek re-contouring.
- Water quality monitoring during and after construction activities.
- Planting of native vegetation.

**TITLE:** Lakeside Baseball Park  
**ID NUMBER:** SDR-A22

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### **ACTIVITY IMPLEMENTATION**

This project consists of replacing a former wastewater treatment plant that was demolished approximately four years ago with new baseball fields, a tot-lot, a restroom/concession building, a maintenance building, and minimal landscape with detention basins on a ten-acre parcel. Detention basins will be designed to capture all onsite water, filtering it before seeping back into the ground and eventually into the San Diego River. No water runoff is designed to flow directly into the adjacent San Diego River.

This project is located east of Riverford Road and south of Mast Boulevard and is located adjacent to wetland and upland habitat. The San Diego River flows through a five-acre parcel that was purchased as part of this project. This land is designated as preserve land.

### **TMDL APPLICABILITY**

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

### **TIME SCHEDULE FOR IMPLEMENTATION**

Estimated to be complete during FY 2008-2009, construction of this project has progressed according to schedule and will be complete by December 31, 2008 with potential final punch list items and/or change order items complete in early January 2009. The public grand opening is scheduled for January 24, 2009.

### **PARTICIPATING WATERSHED COPERMITTEES**

- County of San Diego

### **OTHER PARTICIPATING ENTITIES**

- San Diego River Conservancy guidelines were used for developing the multi-use trail adjacent to the San Diego River.

### **HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED**

- All

### **CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**

The activity is consistent with the collective watershed strategy because it addresses pollutant load reductions, source abatement, and may have other quantifiable benefits to discharge or receiving water quality in relation to the watershed's high priority water quality problem(s).

**EFFECTIVENESS MEASUREMENTS**

Activity effectiveness will be measured by confirming completion of all project elements (Level 1 Outcome) and be confirming reduced or no runoff water from the site (Level 4 Outcome). There is no post-construction water quality monitoring planned for this site at this time.



**TITLE: LAND ACQUISITIONS**  
**ID NUMBER: SDR-A23**

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**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 ability to infiltrate stormwater/runoff.

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. The County of San Diego has adopted an MSCP for the southwestern portion of the County. MSCP plans for the Northern and Eastern portion of the County are in the planning stages. It is expected that the Northern Subarea Plan may be approved during the lifetime of the current stormwater permit. While the northern and eastern plan have yet to be approved by the County of San Diego, lands have been and will continue to be acquired from willing sellers.

During the FY2007-08 reporting period there were 197.07 acres of land acquired in the San Diego River Watershed.

Property Purchased in FY 07-08	Acres	Transaction	Watershed	Watershed ID	Date Closed	APN(s)
<b>Eagle Peak</b>	180.00	County purchased conservation easement; owned, mgd by SD River Park Foundation	SD River	907.41	1/29/2008	290-090-25,27,28
<b>Heise additions</b>	15.12	Acquired in fee to add to William Heise Co Park	SD River	907.41	3/21/2008	292-140-02,04,05
<b>Total</b>	<b>195.12</b>					

**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**

- All

**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.

**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.

**ID NUMBER: SDR-A24**

**TITLE: Forester Creek Debris Barrier**

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**ACTIVITY SUMMARY**

The City of El Cajon Public Works Department (City) installed a debris barrier in 2005. The debris barrier was custom manufactured for Forester Creek and placed to intercept plastic bottles, Styrofoam cups, paper, shopping carts, and other debris. The barrier was strategically placed in an area adjacent to the City's Public Works Maintenance Yard best suited for prompt cleanup following significant storm events and before it can reach the San Diego River.

**PARTICIPATING JURISDICTIONS/ORGANIZATIONS**

- City of El Cajon

**WATERSHED PRIORITY POLLUTANTS ADDRESSED**

- Trash (high priority)
- Sediment

**HOW THIS ACTIVITY RELATES TO THE SAN DIEGO RIVER WATERSHED**

The removal of trash and debris in the San Diego River is important in order to improve water quality in the river. Trash and debris enters the storm water system, Forester Creek and eventually the San Diego River and the Pacific Ocean, posing a threat to wildlife and human health. The debris barrier controls and contains trash and other debris reducing pollutants from ultimately discharging into the San Diego River. This activity is an ongoing long-term activity and trash and debris will continue to be collected and monitored.

**TASKS IMPLEMENTED DURING FY 2007-2008**

Collection and removal of a total of 186.5 cubic yards of trash and debris was conducted as part of maintenance activities by the City of El Cajon. The collection of trash and debris was as follows:

- Assorted Trash/Debris = 34.5 Cubic Yards
- Organic Materials = 39 Cubic Yards
- Sediment = 113 Cubic Yards

**TITLE: San Diego River Watershed Municipal Rain Barrel Installation and Downspout Disconnect Project**

**ID NUMBER: SDR-A25**

**ACTIVITY IMPLEMENTATION**

The City of San Diego is undertaking a rain barrel and rain harvesting study and implementation program to reduce pollutant loading at municipal facilities. The rain barrel/rain harvesting study will consist of implementing rain barrel systems, including downspout disconnects and infiltration systems, within the San Diego River Watershed Management Area (WMA) to reduce pollutant loading from urban runoff during storm events. Rain barrels, downspout disconnects and rainwater harvesting/reuse systems help to capture, store and divert storm water to reduce the volume of rainwater runoff, thus contributing to reduced flooding, erosion and the contamination of surface water with sediments, fertilizers, metals, and pesticides in rainfall runoff. Rain barrels and underground storage systems (cisterns) collect storm water runoff from buildings and residential rooftops and store until discharged. The barrels can be connected to a slow-release, gravity-powered landscaping irrigation system in which the stored runoff is released to landscaped areas for irrigation purposes. These landscaped areas can be designed to promote pollutant load reduction using bioretention, bioswales and other Low Impact Development (LID) techniques. These areas can also be designed as lined planter boxes, swales and filtration systems that keep runoff waters away from existing structures and utilities. Downspout disconnects are an additional option for redirecting runoff from roof areas to landscaped areas or constructed planter boxes, swales or filtration systems. The study will investigate the effectiveness of rain barrels/rain harvesting systems in reducing loading and will assist the City in attaining its water quality goals. The Study includes site evaluations and selections, the purchase of rain barrel/rain harvesting systems and infiltration systems, rain barrel installation, and effectiveness evaluations.

The City is using the prioritization process that is outlined in the *Strategic Plan for Watershed Activity Implementation* to target high priority areas within the San Diego River WMA and other watersheds for this study. Based on this prioritization plan, the selected site for rain barrel implementation will be in the highest priority sectors of the San Diego River WMA for potential for pollutant loading.

The primary goal of this project is to reduce runoff volumes and pollutant loading from storm water urban runoff. The first phase of this project will focus on implementing rain barrel/rain harvesting systems at selected municipal facilities as part of a pilot program. Ultimately, the City would like to incorporate the use of these LID techniques through a residential program that may include incentives for implementing these systems. Therefore, it is anticipated that the information gathered during the pilot program will be applied to implementation in residential areas.

Based on these findings, the City may modify its rain barrel/rain harvesting program to increase effectiveness and/or seek City Council approval for additional funding to implement additional rain barrel/rain harvesting systems.

A one page information sheet regarding the rain barrels was developed in the summer of 2007 for the City . Project planning, including site selection, began in July 2007. The Mission Trails Regional Park Visitor Center was chosen as a site. Some vendor product screening, including rain barrels and concrete planters, was completed in the first quarter of 2008. Procurement of rain barrels, planter boxes, and rain chains began in the second quarter of 2008. No installation occurred in FY 2008.

According to Regional Board comments<sup>1</sup>, the City must provide data on the locations selected, number of barrels installed, and the volume of rain water collected. The location is discussed in this section. The number of rain barrels has yet to be decided, but will be discussed in future reporting. As the rain barrels are not yet installed, the volume of water captured is not known and will also be discussed in future reporting.

#### **TMDL APPLICABILITY**

- N/A

#### **TIME SCHEDULE FOR IMPLEMENTATION**

Project planning, including site selection, began in July 2007 and is anticipated to continue until the end of calendar year 2008. Initially the project was anticipated to be completed in Spring 2008. Planning, site selection, and procurement of the rain barrels took longer than expected. Some vendor product screening, including rain barrels and concrete planters, was completed in the first quarter of 2008. Procurement of rain barrels and other items and installation started in the second quarter of 2008. Subcontractors will be procured in late 2008. The specifications and installation guidelines will be developed by the end of 2008. A site pre-bid meeting will be held by the end of 2008. Parts and equipment will be installed at the site in March and April 2009.

#### **PARTICIPATING WATERSHED COPERMITTEES**

- City of San Diego

#### **OTHER PARTICIPATING ENTITIES**

- San Diego Coastkeeper – project supporter

#### **HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED**

- Bacteria

#### **CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**

Both the City's *Strategic Plan for Watershed Activity Implementation* and the Collective Watershed Strategy for the San Diego River WMA identifies bacteria as a high priority water quality problem and recommends implementing load reduction/source abatement activities to address it. Implementation of this activity will addresses the high priority water quality problem by reducing runoff volume via capture, retention, and infiltration.

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<sup>1</sup> Robertus, John H. "COMMENTS ON THE MARCH 2008 WATERSHED URBAN RUNOFF MANAGEMENT PLAN (WURMP) AND USEPA/REGIONAL BOARD APRIL 2008 WURMP ASSESSMENTS." September 23, 2008. (Place Number 710562: L Walsh)

**EFFECTIVENESS ASSESSMENT**

<b>Watershed: San Diego River</b>		
<b>MUNICIPAL RAIN BARREL INSTALLATION PROGRAM</b>		
<b>Assess the Efficiency and Effectiveness of Rain Barrel Water Collection Containers at Reducing Runoff</b>		
<b>Management Questions</b>	<ul style="list-style-type: none"> <li>• What is the effectiveness/efficiency of rain barrel/rain-harvesting systems in reducing storm water runoff volume?</li> <li>• What is the loading reduction of different systems?</li> <li>• Which system is most efficient in collecting and/or diverting rainwater?</li> <li>• Which system results in the largest load reductions?</li> </ul>	
<b>Targeted Measurable Outcome(s)</b>	<ul style="list-style-type: none"> <li>• Load reduction due to rain barrel installation</li> <li>• Runoff reduction due to rain barrel installation</li> </ul>	
<b>Data Recorded</b>	Estimated cost of site preparation, installation and start-up for all sites (Outcome Level 1)	\$3,506
	Estimated cost of operation and maintenance evaluation for all sites (Outcome Level 1)	\$13,086
	Estimated cost of effectiveness monitoring for all sites (Outcome Level 1)	\$21,526
<b>Recommended Data</b>	<ul style="list-style-type: none"> <li>• Number/type of barrels installed (Outcome Level 1)</li> <li>• Volume of storm water captured/diverted (Outcome Level 4)</li> <li>• Concentrations of COCs in rainwater or runoff (measured in rain barrel systems) (Outcome Level 4)</li> <li>• Percent capture of the different systems (acres drained) (Outcome Level 4)</li> </ul>	

**Objectives**

The goal of the rain barrel and rain harvesting assessment is to determine whether rain barrel/rain-harvesting systems reduce storm water runoff, thereby reducing metals and bacteria loads, and if so which system is most effective and efficient.

**Analysis and Results**

Procurement of rain barrels and other items and installation started in the second quarter of 2008, and installation has yet to begin. Estimated costs for rain barrel preparation; installation and start-up in San Diego River WMA total \$3,506. Estimated costs for operation and maintenance evaluation total \$13,086 or an average of \$1,869 per site for each of the seven sites. Estimated costs for effectiveness monitoring total \$21,526, or an average of \$3,075 per site for each of the seven sites.

**Conclusions**

Effectiveness and efficiency will be determined by comparing load reduction values (determined via monitoring efforts) to the cost of installing and maintaining the rain barrel system. Conclusions will be made after the assessment is complete.

**TITLE: Park Ridge Boulevard Bacteria Treatment Project**  
**ID NUMBER: SDR-A26**

**ACTIVITY IMPLEMENTATION**

At the southern terminus of Park Ridge Boulevard, a new catchbasin, storm drain, trash segregation unit, and AbTech (Bacterial Treatment System) unit will be constructed. A new catchbasin will be placed along the western right-of-way south of the intersection with Murray Park Drive. The catchbasin will be sized for the full design flow reaching that location.

Flows up to an 85<sup>th</sup> percentile storm event will exit the catchbasin and flow through a trash segregation unit, followed in series by an AbTech (Bacterial Treatment System) unit. Flows in excess of an 85<sup>th</sup> percentile storm will exit the catchbasin via an overflow pipe and bypass the treatment system.

A common manhole will receive flows from both the treatment system and the overflow pipe. From that manhole, a new storm drain will convey flows to the outlet location for the existing storm drain system within the eastern Park Ridge Boulevard right-of-way. A new headwall sized to accommodate both outlets will be required at this location.

Project conceptual design occurred in FY 2008.

**TMDL APPLICABILITY**

- San Diego Region Beaches and Creeks Bacteria TMDL

**TIME SCHEDULE FOR IMPLEMENTATION**

The project will be transferred to Engineering and Capital Projects in September 2008 for purposes of managing the project through final design, construction, and project closeout. Project design is anticipated to continue through FY 2010. Construction is anticipated to occur in FY 2013. Water quality monitoring will be conducted before and after construction to assess the effectiveness in reducing runoff volume and pollutant loading.

**PARTICIPATING WATERSHED COPERMITTEES**

- City of San Diego

**OTHER PARTICIPATING ENTITIES**

- None

**HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED**

- Bacteria

**CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**

Both the City's *Strategic Plan for Watershed Activity Implementation* and the Collective Watershed Strategy for the San Diego River Watershed Management Area (WMA) identify bacteria as a high priority water quality problem in the WMA, and recommend implementing load reduction/source abatement activities to address it. Implementation of

this activity will reduce bacterial pollutant loads in the watershed by installing a new catchbasin which diverts runoff to a trash segregation unit / AbTech (Bacterial Treatment System) unit.

**EFFECTIVENESS ASSESSMENT**

<b>Watershed: San Diego River</b>	
<b>PARK RIDGE BOULEVARD BACTERIA TREATMENT PROJECT</b>	
<b>Assess the Efficiency and Effectiveness of the Design and Construction of the Enhancement and Bacteria Treatment Project</b>	
<b>Management Questions:</b>	<ul style="list-style-type: none"> <li>• What is the bacteria load reduction efficiency?</li> <li>• How effective are the catch basin, storm drain and trash segregation unit installations at reducing loads of priority pollutants?</li> <li>•</li> </ul>
<b>Targeted Measurable Outcome(s)</b>	<ul style="list-style-type: none"> <li>• Reduction in priority pollutant loads</li> <li>•</li> </ul>
<b>Assessment Method(s)</b>	<ul style="list-style-type: none"> <li>• Inspections (e.g., ensure the treatment is working as designed)</li> <li>• Quantification (e.g., use drainage area and rainfall information to calculate estimated load reduction)</li> <li>• Monitoring (e.g., collect special study information to collect concentrations and flows to estimate load reduction)</li> <li>• Tabulation (e.g., amount of money spent on implementation and maintenance, amount of money spent on educational materials)</li> <li>• Reporting (e.g., estimates of load reduction from 3<sup>rd</sup> party data)</li> </ul>
<b>Recommended Data:</b>	<ul style="list-style-type: none"> <li>• Change (%) in load reduction pre and post-implementation (Outcome Level 4)</li> <li>• How much money spent on implementation and maintenance (Outcome Level 1)</li> <li>• Dataset of load contributions for specific activities (Outcome Level 4)</li> </ul>

**Objectives**

The goal of this assessment is to determine the project’s effectiveness and efficiency for reducing bacteria load with the installation of catch basins, storm drains, and trash segregation units on Park Ridge Boulevard.

**Analysis and Results**

The project is still in the planning phase; therefore effectiveness analysis has not been completed at this time. Assessment will be completed after project completion.

**Conclusions**

Conclusions will be made after the project is complete and effectiveness is determined.



**TITLE:** Flinn Springs County Park Porous Paving Project  
**ID NUMBER:** SDR-A27

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### **ACTIVITY IMPLEMENTATION**

Building upon the success of the porous paving demonstration project at the County Operations Center in Kearny Mesa, the County Department of Parks and Recreation (DPR) began implementing this technology at its facility parking lots. The first park chosen for implementation was Flinn Springs County Park, located in the community of Lakeside. Prior to the porous pavement installation, Flinn Springs contained more than 60,000 square feet of impervious pavement draining into Los Coches Creek, a tributary to the San Diego River. Approximately 41,000 square feet of traditional impervious pavement was replaced with 27,878 square feet of porous asphalt and 13,100 square feet of porous concrete. A 37,026 square foot traditional impervious asphalt lot was left in place as the reference site, for comparison purposes. Other infrastructure included an interceptor trash drain, associated piping, wet wells and a sampling box were installed to collect runoff from the reference site.

The project area was intended to be monitored throughout the entire wet season. However, due to construction delays, monitoring was performed during the second half of the wet season, from January through April 2008. The purpose of the monitoring was to quantify the effectiveness of the porous materials in reducing runoff and constituents of concern directly into Los Coches Creek. Monitoring sites were located at positions where the equipment was able to measure all potential discharges from both the porous pavement and impervious reference sites. The quantity and quality of stormwater runoff from the reference area was then measured against the porous pavement sites.

Because of the success of this study, at the conclusion of this project the runoff from the reference area was directed into the porous asphalt infiltration basin. Tests conducted indicate that it is unlikely that discharges would occur from the porous lot, except during the most extreme rainfall events.

Funding for this project was obtained through a Proposition 40 grant, which was awarded by the State Water Resources Control Board and matched with funding from the County of San Diego General Fund. With the matched County funds of \$399,500, the total project budget was \$1,198,000, all of which was expended as per the line item budget in the grant agreement. DPR's ultimate goal is to utilize porous paving where appropriate in the eighty facilities it manages.

Actual costs were higher than estimated, primarily due to increased contingency and labor costs. To remain within budget, some portions of the project that were not essential were removed from the construction contract (e.g.: a concrete block trash bin enclosure). Actual costs of materials, including demolition costs and installation of the subbase totaled \$13.30 per square foot for porous asphalt and \$13.82 for porous concrete.

### **TMDL APPLICABILITY**

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

### **TIME SCHEDULE FOR IMPLEMENTATION**

Construction was completed January 18, 2008. Stormwater monitoring began immediately after construction completion and continued through the rainy season, with data compiled in August 2008.

The following activities were completed as outlined in the table of items for review:

<b><u>Date</u></b>	<b><u>Activity</u></b>
02/2007-05/2007	Design plans and specifications for reconstructed parking lot with porous pavement technology
10/2007-12/2007	Remove existing asphalt pavement and install porous pavement with monitoring system, including reference site
09/2007	Economic evaluation
01/2008-04/2008	Site monitoring and assessment

### **PARTICIPATING WATERSHED COPERMITTEES**

- County of San Diego

### **OTHER PARTICIPATING ENTITIES**

- San Diego River Conservancy guidelines were used for developing the multi-use trail adjacent to the San Diego River.

### **HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED**

- All

### **CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**

The activity is consistent with the collective watershed strategy because it addressed pollutant load reductions, source abatement, and may have other quantifiable benefits to discharge or receiving water quality in relation to the watershed's high priority water quality problem(s).

### **EFFECTIVENESS MEASUREMENTS**

Each of the two porous pavement types effectively eliminated all runoff and associated contaminant from directly entering Los Coches Creek. Both the porous concrete and porous asphalt rapidly infiltrated all stormwater, demonstrating the capacity to provide additional infiltration capacity for runoff from other adjacent impervious areas. Infiltration allowed by the porous pavement prevented nearly 64,000 cubic feet of water (the result of 9.81 inches of rain

during the time period measured) from directly entering Los Coches Creek, and ultimately discharging into the San Diego River during the FY 2007 / 2008 storm season. Furthermore, based upon an annual average rainfall of 14.1 inches, the final parking lot configuration is expected to eliminate an average of nearly 150,000 cubic feet of direct stormwater discharges into Los Coches Creek.

The majority of the lessons learned were related to engineering, construction, and construction oversight. With respect to engineering of the porous pavement, coordination and oversight would have been improved if the engineer had had a local office and could have provided continuous oversight of the grading, installation of basins and piping, installation of the stone reservoir, and installation of the pavements. It was apparent from the process that currently contractors lack understanding of the critical nature of constructing the monitoring elements exactly to specifications, and that until contractors are more familiar with installing porous materials, contingency components should be included in all contracts. Because of this an experienced full time engineer / project manager should be on site at all times to ensure proper and timely installation of these BMP's.

Some of the high costs of porous paving can be attributed to the lack of experience contractors currently have with installing porous materials. As knowledge of working with these materials increases, the labor and associated contingency costs should come down. Also, costs can be mitigated in areas with good infiltration, like those that exist at Flinn Springs Park. Porous paving areas may be able to handle four to six times the amount of runoff from adjacent impervious areas, depending upon infiltration rates and capacity of the stone reservoirs.

**TITLE:** San Diego River Indicator Bacteria Study  
**ID NUMBER:** SDR-A28

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### **ACTIVITY IMPLEMENTATION**

The purpose of this water quality monitoring activity was to compare the frequency of water quality threshold exceedances for indicator bacteria during wet weather to the frequencies during summer (Apr. 1 – Oct. 31) and winter dry weather (Nov. 1 – Mar. 31) in the San Diego River Watershed. Water quality thresholds for enterococci, fecal coliform and total coliform are based on the State of California's public health standards for marine bathing beaches. The water quality threshold for E. coli is based on the San Diego Water Quality Plan objective for freshwater. Wet weather sampling was conducted during and/or up to three days following rain, while dry weather sampling was carried out three or more days following rainfall.

Water quality monitoring for this study was completed from August 21, 2006 to August 13, 2007. Data analysis is ongoing.

### **TMDL APPLICABILITY**

The results of this study will be used to aid in the implementation of the bacteria Total Maximum Daily Loads in the San Diego River Watershed.

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Data collection for this project was completed by August 2007.
- Data analysis will be completed by January 2009.

### **PARTICIPATING WATERSHED COPERMITTEES**

- County of San Diego

### **OTHER PARTICIPATING ENTITIES**

- None

### **HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED**

- Indicator Bacteria

### **CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**

Since this activity addresses a priority water quality problem, Indicator Bacteria, it is consistent with the collective watershed strategy.

### **EFFECTIVENESS MEASUREMENTS**

Activity effectiveness will be measured by confirming the completion of all project elements (Level 1 Outcome).

**TITLE: SDPD Western Division Green Lot Infiltration Project**  
**ID NUMBER: SDR-A29**

**ACTIVITY IMPLEMENTATION**

This activity involves the implementation of an infiltration project (SDPD Western Division Green Lot) in the San Diego River Watershed Management Area (WMA) to reduce runoff volume. Several of the SDPD Western Division parking lots will be reconstructed in order to remove existing asphalt concrete paving and replaced with pervious concrete pavement. Existing curb and gutters will be protected in place where possible, and existing lines and finished grades will be maintained, as will existing parking striping to the extent that it complies with current code. The new pavement section will include the pervious concrete paving, a gravel base, an amended soil layer, and a gravel subdrain system. The subdrain system is necessary due to low permeability soils found at the site. The subdrain system will tie in to the existing storm drain system within the site at several locations.

Project conceptual design occurred in FY 2008.

**TMDL APPLICABILITY**

- San Diego Region Beaches and Creeks Bacteria TMDL

**TIME SCHEDULE FOR IMPLEMENTATION**

The project will be transferred to Engineering and Capital Projects in September 2008 for purposes of managing the project through final design, construction, and project closeout. Project design is anticipated to continue through FY 2010. Construction is anticipated to occur in FY 2013. Water quality monitoring will be conducted before and after construction to assess the effectiveness in reducing runoff volume and pollutant loading.

**PARTICIPATING WATERSHED COPERMITTEES**

- City of San Diego

**OTHER PARTICIPATING ENTITIES**

- None

**HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED**

- Bacteria
- Nutrients
- Dissolved Minerals

**CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**

Both the City's *Strategic Plan for Watershed Activity Implementation* and the Collective Watershed Strategy for the San Diego River WMA identify bacteria, nutrients, and dissolved minerals as high priority water quality problems in the WMA, and recommend implementing load reduction/source abatement activities to address them. Implementation of this activity will address the high priority water quality problems by reducing and treating runoff volume via infiltration/retention.

**EFFECTIVENESS ASSESSMENT**

<b>Watershed: San Diego River</b>	
<b>SDPD WESTERN DIVISION “GREEN LOT” INFILTRATION RETROFIT</b> <b>Assess the Efficiency and Effectiveness of Retrofitting Existing Infrastructure with Green Lot-type BMPs</b>	
<b>Management Questions</b>	<ul style="list-style-type: none"> <li>• What is the load reduction efficiency of LID BMP retrofits?</li> <li>• How effective are LID BMP retrofits at reducing loads of priority pollutants (metals and bacteria)?</li> <li>•</li> </ul>
<b>Targeted Measurable Outcome(s)</b>	<ul style="list-style-type: none"> <li>• Reduction in priority pollutant loads</li> <li>•</li> </ul>
<b>Assessment Method(s)</b>	<ul style="list-style-type: none"> <li>• Inspections (e.g., ensure the retrofit is working as designed)</li> <li>• Quantification (e.g., use drainage area and rainfall information to calculate estimated load reduction)</li> <li>• Monitoring (e.g., collect special study information to collect concentrations and flows to estimate load reduction)</li> <li>• Tabulation (e.g., amount of money spent on implementation and maintenance, amount of money spent on educational materials)</li> <li>• Reporting (e.g., estimates of load reduction from 3<sup>rd</sup> party data)</li> </ul>
<b>Recommended Data</b>	<ul style="list-style-type: none"> <li>•</li> <li>• Change (%) in load reduction pre and post-implementation (Outcome Level 4)</li> <li>•</li> <li>• How much money spent on implementation and maintenance (Outcome Level 1)</li> <li>• Dataset of load contributions for specific activities (Outcome Level 4)</li> </ul>

**Objectives**

The goal of the project is to reduce runoff volume through infiltration. The goal of this analysis is to determine the load reduction efficiency of LID BMP retrofits. The load reduction efficiencies will also be estimated and used to determine the efficacy of future LID BMP implementations of similar type. High priority pollutants targeted include bacteria, nutrients and dissolved minerals.

**Analysis and Results**

The concept design for this project began in the FY 2008, and baseline monitoring was completed. This design, which is in progress, will take into account the replacement of the existing parking lot. Once design and construction is complete, additional assessment will be completed to determine the effectiveness of this activity.

**Conclusions**

Anticipated future monitoring will be conducted to assess pollutant removal efficiencies.

**TITLE:** Sweeping Route Posting and Enforcement Project  
**ID NUMBER:** SDR-A30

**ACTIVITY IMPLEMENTATION**

The City of San Diego (City) is developing an activity to determine the water quality benefits associated with posting previously non-posted routes for street sweeping. The City would post specific routes with no parking signage to allow for street sweeping to occur along the gutters of streets where currently vehicles are allowed to park on days that street sweeping occurs. The vehicles block the street sweepers' access to the gutters along these non-posted routes. This activity will be used to determine whether posting routes improves the effectiveness of street sweeping activities. Water quality monitoring and/or debris volume monitoring will occur to allow for assessment. This activity will occur in three watersheds. One control site will be chosen in one watershed.

The City has adopted an integrated, tiered, and phased strategy to ensure the implementation of activities most efficient in protecting and improving water quality. This activity conforms to this strategic approach providing a phased approach. The Street Sweeping Route Posting and Enforcement Project will be piloted first to determine whether posting the routes improves the effectiveness of street sweeping activities before broad scale implementation.

**TMDL APPLICABILITY**

- San Diego Region Beaches and Creeks Bacteria TMDL

**TIME SCHEDULE FOR IMPLEMENTATION**

Planning is anticipated to be developed in FY 2009 and into FY 2010. Implementation is anticipated to occur in FY 2010 and FY 2011, with final assessment and conclusions being prepared in the first half of FY 2012.

**PARTICIPATING WATERSHED COPERMITTEES**

- City of San Diego

**OTHER PARTICIPATING ENTITIES**

- N/A

**HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED**

- Bacteria
- Nutrients
- Dissolved minerals

**CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**

Both the City's *Strategic Plan for Watershed Activity Implementation* and the Collective Watershed Strategy for the San Diego River WMA identify bacteria, nutrients, and dissolved minerals as high priority water quality problems throughout the WMA, and recommend implementing load reduction/source abatement activities to address them.



Implementation of this activity will address the high priority water quality problems by targeting increased sweeping and removal of sediment and trash from the City streets.

**EFFECTIVENESS ASSESSMENT**

<b>Watershed: San Diego River</b>	
<b>SWEEPING ROUTE POSTING AND ENFORCEMENT PROJECT</b>	
<b>Assess the Effectiveness of Posting Routes on Improving Street Sweeping Activities</b>	
<b>Management Questions</b>	<ul style="list-style-type: none"> <li>• Is posting previously un-posted sweeping routes effective in removing bacteria and sediment contaminants?</li> <li>• Is sweeping more frequently more effective than less frequent street sweeping in debris removal?</li> <li>• What is the optimal street sweeping frequency/method?</li> <li>• What is the impact of street sweeping on COCs in storm water runoff?</li> </ul>
<b>Targeted Measurable Outcome(s)</b>	<ul style="list-style-type: none"> <li>• Achieve load reduction for bacteria and sediment based on monitoring information</li> </ul>
<b>Assessment Method(s)</b>	<ul style="list-style-type: none"> <li>• Monitoring (e.g., collect data to estimate loads, concentrations of COCs in runoff)</li> <li>• Tabulation (e.g., amount of money to post additional signage)</li> <li>• Quantification (e.g., load estimate comparison pre and post-signage)</li> </ul>
<b>Recommended Data</b>	<ul style="list-style-type: none"> <li>• Total pounds of debris removed (Outcome Level 4)</li> <li>• Total broom miles swept (Outcome Level 4)</li> <li>• Cost of sweeper repairs/maintenance (Outcome Level 1)</li> <li>• Total pounds of debris removed by land use (Outcome Level 4)</li> <li>• Frequency of removal correlated to pounds of debris removed (Outcome Level 1 and 4)</li> <li>• Post-sweeping COC concentrations in runoff (Outcome Level 4)</li> </ul>

**Objectives**

The goal of the assessment is to investigate whether posting previously non-posted routes for street sweeping improves the effectiveness of street sweeping activities.

**Analysis and Results**

An effectiveness assessment of this activity is not possible at this time as project planning and coordination is scheduled to begin in FY 2009 and into FY 2010. Implementation is anticipated to occur in FY 2010 and FY 2011, with final assessment and conclusions being prepared in the first half of FY 2012.

**Conclusions**

Effectiveness and efficiency will be determined by comparing load reduction values (determined via water quality and/or debris monitoring efforts) to the cost of project

installation, operation and maintenance. Conclusions will be made after the assessment is complete.

**ID NUMBER: SDR-A31**

**TITLE: WOODGLEN VISTA CREEK IMPROVEMENT PROJECT**

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**ACTIVITY SUMMARY**

There was revegetation, removal of invasive species and widening of the Woodglen Vista Creek channel. This work was conducted as part of the Town Center Community Park project and should result in the enhancement of the creek as a recreational resource. Other benefits will include the reduction of water flow velocity, reducing the potential for pollutants to be transported downstream to the San Diego River, and enhance the groundwater recharge capability of the creek.

**PARTICIPATING JURISDICTION**

- City of Santee

**WATERSHED PRIORITY POLLUTANTS ADDRESSED**

- Trash
- Bacteria
- Total Dissolved Solids
- Low Dissolved Oxygen

**HOW THIS ACTIVITY RELATES TO THE SAN DIEGO RIVER WATERSHED**

This activity restores habitat within the watershed; naturalizes and expands floodplain areas; removes invasive plant species and encourages the growth of appropriate riparian vegetation; it reduces/removes non-point source loads of pollutants. In summary it improves the water quality of the Woodglen Vista Creek before it discharges into the San Diego River.

**TASKS IMPLEMENTED DURING FY 2007-2008**

The following tasks were conducted as part of the Woodglen Vista Creek Improvement Project during Fiscal Year 2007:

- Maintenance of BMPs to protect water quality.
- Revegetation of creek using native species and maintenance of revegetation.

**TITLE:** Woodside Avenue Detention Basin  
**ID NUMBER:** SDR-A32

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### **ACTIVITY IMPLEMENTATION**

In 2003, the County of San Diego received Proposition 13 funding from the State Water Resources Control Board (SWRCB) to perform conveyance restoration and construction of an extended detention basin to treat urban runoff and low storm flows from a 1.4 square mile area within Hydrologic Area (HA) 907.12 before discharging into Los Coches Creek and the San Diego River. The site is located in the unincorporated community of Lakeside on a vacant property adjacent to Woodside Avenue near Winter Gardens as shown in the attached figure. The constructed basin and concrete removal were designed to act as a demonstration for the effectiveness of similar BMPs at removing pollutants. A water quality monitoring component was also initiated to provide hard evidence of the BMP's pollutant removal capabilities. Although the grant was completed in May 2007, the County continues to monitor the site to gauge its effectiveness at removing pollutants.

During FY 2007-2008, the County performed routine maintenance of the basin, including removal of trash and debris and vegetation control. Influent and effluent flow measurements and water quality samples were also taken on the following four dates:

- August 29, 2007
- February 22, 2008
- March 13, 2008
- May 5, 2008

Monitoring results for FY 2007-08 are included as an attachment to this activity sheet.

### **TMDL APPLICABILITY**

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

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Grant activities were completed in May 2007
- Basin maintenance, including trash removal and vegetation control, is ongoing.
- Monitoring of flow and water quality will continue in accordance with the guidelines outlined in the Long-Term Monitoring Plan (Weston 2007).

### **PARTICIPATING WATERSHED COPERMITTEES**

- County of San Diego

### **OTHER PARTICIPATING ENTITIES**

- State Water Resources Control Board
- Regional Water Quality Control Board (San Diego)
- San Diego River Park Foundation
- Lakeside's River Park Conservancy

### **HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED**

- Bacterial Indicators

### **OTHER CONSTITUENTS ADDRESSED**

- BOD
- COD
- MBAS
- Chlorpyrifos
- Diazinon
- Copper

### **CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**

This activity targets high priority water quality problems within the watershed by treating urban runoff before it discharges into Los Coches Creek. As such, this activity is consistent with the collective watershed strategy.

### **EFFECTIVENESS MEASUREMENTS**

An initial effectiveness assessment of this project was conducted in 2006. The results are summarized below and are presented in detail in: *Woodside Avenue Extended Detention Basin Effectiveness Assessment Monitoring Final Report*, March, 2007, prepared by Weston Solutions. As described above, additional monitoring is ongoing.

There were six storm events successfully monitored during the initial assessment. Storms were monitored on February 19, 2006, February 28, 2006, March 21, 2006, March 29, 2006, April 4, 2006, and October 14, 2006. During each of the storm sampling events the flow overtopped the spillway. Therefore, the calculation of load and removal efficiency for storm events is focused to the initial portion of the storm. Sampling and measurement of effluent concentrations were obtained up to the point that the spillway was overtopped. Therefore, event mean concentrations were obtained and removal efficiency based on event mean concentration determined to the point of overtopping of the spillway. Based on these measurements the load reduction efficiency of the EDB for the initial flows of the storm event was a median reduction of 94% for all pollutants measured. The primary mechanism for this reduction was infiltration based on the measured reduced effluent flows compared to the influent flows. The mean concentration of the event was utilized to assess reduction of constituents during storm flows. Wilcoxon Signed Rank results indicate that during storm flows the EDB is effective at removing total metals, total hardness as

CaCO<sub>3</sub>, and total suspended solids. A statistical increase was observed for nitrate. All other pollutants measured showed no statistical difference between the influent sources and low flow effluent orifice using event mean concentration.

There were five dry weather events that were successfully sampled during this assessment. Dry weather events were monitored on June 5, 2006, September 12, 2006, September 14, 2006, October 31, 2006, and November 1, 2006. Flows captured from all dry weather events remained within the EDB. Thus, it was possible to accurately estimate flows and calculate load reduction. A mean load reduction of 90.9% for all constituents monitored was observed within the EDB. The main mechanism of the large load reduction is evaporation, infiltration and transpiration based on the measured reduced effluent flows compared to the influent flows. The measured mean flow reduction was 90.4%.

Bioassessment was conducted both prior to construction of the EDB on June 23, 2005, and again after full vegetative establishment within the EDB on November 2, 2006. Bioassessment conducted after completion of the EDB and full vegetative establishment indicated significantly improved water quality at the effluent sampling site in comparison to the influent sampling site, thereby suggesting that the EDB is improving water quality of dry weather flows.

A vegetation survey was conducted after completion and full vegetative establishment within the EDB to assess the success of the re-vegetation effort. This survey was conducted on November 2, 2006. The results of the survey indicated that desired native species planted at the time of the EDB construction were dominant within the EDB. Year round dry weather flow allowed for the recruitment of desired native emergent species of plants within the low flow plot channel including cattails and bull rush. These continuous nuisance flows also has allowed for the recruitment of non-native exotic invasive species. There were two non-native exotic invasive species of special concern noted within the EDB, Giant Reed, and Mexican Fan Palm. The prolific nature of these plants poses a detrimental threat to the EDB. Arundo establishes dense thickets that choke out and exclude colonization of native plants. During periods of high flow (storm events) aquatic plants such as cattail and bull rush are flexible and shallow rooted. Thus, during high flow they matt down, or are ripped out entirely. Stout Arundo with its rhizomes that penetrate up to ten feet into the soil produces a damning effect. As such they can clog water flow, creating upstream flooding issues. The Mexican Fan Palm can also choke waterways, creating upstream flooding. Overall the revegetation effort was a success, however periodic maintenance of the EDB is needed to remove and control the proliferation of invasive species.

**TITLE:** Impervious Cover Coefficients  
**ID NUMBER:** SDR-A33

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### **ACTIVITY IMPLEMENTATION**

Building on the efforts of a 2002 pilot study that investigated residential impervious surface fractions in the Upper San Diego River Improvement Area, the County of San Diego developed impervious surface coefficients to estimate the amount of hardscape associated with the general land use categories found in the County of San Diego (County of San Diego DPLU, 2002). The coefficients developed are based on both modeling and *in situ* efforts in the San Diego River Watershed. The attached paper provides a detailed description of methodology and study results.

In summary, the San Diego River Watershed is 277,540 acres. Of that, 49,457 acres are under an impervious land cover, resulting in an impervious surface fraction of 17.82%. The downstream portions of the watershed have the majority of the impervious surfaces. The upper basin has many continuously pervious areas with some sub-basins almost completely pervious (see map in attached).

The impervious surface coefficients developed will facilitate the calculation of impervious surface fractions in other watersheds in the County. Because the coefficients were derived from a study area that incorporates a representative sample of land use categories, the coefficients are appropriate for application in other watersheds. There is high confidence in the coefficients because they were developed by applying well-tested feature extraction modeling techniques to high resolution multi-spectral satellite imagery.

### **TMDL APPLICABILITY**

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

### **TIME SCHEDULE FOR IMPLEMENTATION**

Completion of this activity occurred during FYs 2005-08.

### **PARTICIPATING WATERSHED COPERMITTEES**

- County of San Diego

### **OTHER PARTICIPATING ENTITIES**

- FEMA

### **HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED**

- All

**CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**

Previously, coefficients for the San Diego Region were not developed for various types of land use categories. This activity, and subsequent mapping activities, potentially addresses a number of high priority water quality problems and a likely source of the problems; therefore, the activity is consistent with the collective watershed strategy.

**EFFECTIVENESS MEASUREMENTS**

The Impervious Surface Coefficient study was completed in November of 2008 (Level 1 Outcome).



**TITLE:** Transit Shelter and Billboard Advertisements  
**ID NUMBER:** SDR-A34

### **ACTIVITY IMPLEMENTATION**

The City of San Diego (City) has retained a contract with an outdoor advertising company advertise *Think Blue* messages on billboards and bus shelters located in the San Diego River Watershed Management Area (WMA). The City created advertisements that target behaviors associated with bacteria profiled as a vector. The goal of the billboards is to educate the public about causes of pollution and to encourage positive behavioral change. These advertisements were developed in FY 2008, and were displayed throughout the San Diego River WMA in both English and Spanish.

Transit shelter Think Blue advertisements were located at one location in FY 2008:

- Ruffin Rd. W/O Clairemont Mesa Blvd. N/S

Billboards were advertised at six locations in FY2008:

- Navajo Rd. W/O Lake Murray Blvd. S/S
- Fairmount Ave. N/O University Ave. E/S
- Mission Gorge Rd. N/O Zion Ave. E/S
- Sunset Cliffs and Niagara S/F
- Mission Gorge Rd. N/O Old Cliffs Rd. W/S
- Camino Del Rio St. W/O Moore St. S/S

The audience number varied by location.

According to Regional Board staff comments<sup>1</sup>, the City will need to answer effectiveness measurement questions and provide locations of the billboards and transit centers in the annual report. The locations are provided in the Activity Implementation section. Effectiveness measurement is discussed in the Effectiveness Assessment section.

### **TMDL APPLICABILITY**

- N/A

### **TIME SCHEDULE FOR IMPLEMENTATION**

The City plans to continue to implement transit shelter and billboard advertisements in FY 2009.

### **PARTICIPATING WATERSHED COPERMITTEES**

- City of San Diego

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<sup>1</sup> Robertus, John H. "COMMENTS ON THE MARCH 2008 WATERSHED URBAN RUNOFF MANAGEMENT PLAN (WURMP) AND USEPA/REGIONAL BOARD APRIL 2008 WURMP ASSESSMENTS." September 23, 2008. (Place Number 710562; L Walsh)

**OTHER PARTICIPATING ENTITIES**

- N/A

**HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED**

- Bacteria

**CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**

Both the City’s *Strategic Plan for Watershed Activity Implementation* and the Collective Watershed Strategy for the San Diego River WMA identify bacteria as a high priority water quality problem in the WMA. The outdoor advertisements will result in increased knowledge and awareness regarding bacteria and result in future load reduction of trash and debris directly and of bacteria indirectly.

**EFFECTIVENESS ASSESSMENT**

<b>Watershed: San Diego River</b>		
<b>TRANSIT SHELTER AND BILLBOARD ADVERTISEMENTS</b>		
<b>Assess the Efficiency and Effectiveness of Using Transit Shelter and Billboard Advertisements to Raise Awareness</b>		
<b>Management Questions</b>	<ul style="list-style-type: none"> <li>• What changes in awareness /attitude regarding bacteria and sediment was achieved after implementation?</li> <li>• How efficient is this education activity based on total cost versus number of people (targeted audience) reached?</li> </ul>	
<b>Targeted Measurable Outcome(s)</b>	<ul style="list-style-type: none"> <li>• Reach pre-set percentage of residents within target watershed</li> <li>• Increased level of knowledge/attitude based on post-activity surveys</li> </ul>	
<b>Assessment Method(s)</b>	<ul style="list-style-type: none"> <li>• Survey (e.g., administer survey to assess knowledge and attitude of participants)</li> <li>• Quantification (e.g., number of public reached by ads)</li> </ul>	
<b>Data Recorded</b>	Number of billboard advertisements impressions in the San Diego River WMA (Outcome Level 1)	131,040 DEC*
	Number of transit shelter advertisements impressions in the San Diego River WMA (Outcome Level 1)	16,230 DEC*
	Number of public participants reached by billboard advertisements in all watersheds (Outcome Level 1)	7%
	Change in knowledge or attitude (Outcome Level 2)	45% increase
	Change in pollutant-related behavior (Outcome Level 3)	Yes**
<b>Recommended Data</b>	Advertisement costs (Outcome Level 1)	

\*The Daily Effective Calculation (DEC) was calculated using a weighted average of traffic flow, including adjustments for daily traffic, intersection and pedestrian viewship, and vehicle load (1.3 occupants over age 18 per car). The estimated total for impressions per 4 week period in the FY 2008 was 454,440 for transit shelter ads and 3,669,120 for billboards.

\*\*There was a 5% decrease in the percentage of residents who reported hosing down their driveways, but the few other decreases in pollutant-related behavior were percentages too small to fall within the acceptable range for statistical outcomes at a 95% confidence level. For those behaviors, the percentages of change were so small that they cannot be assumed to be a result of the activity based on this year’s survey and method of assessment.

### **Objectives**

The goal of this assessment is to determine the effectiveness of the billboards to educate the public about causes of pollution and to encourage positive behavioral change. These advertisements were developed in FY 2008, and were to be displayed throughout the San Diego River WMA in both English and Spanish.

### **Analysis and Results**

Transit shelter Think Blue advertisements were located at one location in FY 2008: Ruffin Rd. W/O, Clairemont Mesa Blvd. N/S. Billboards were advertised at six locations in FY2008: Navajo Rd. W/O, Lake Murray Blvd. S/S; Fairmount Ave. N/O, University Ave. E/S; Mission Gorge Rd. N/O, Zion Ave. E/S; Sunset Cliffs and Niagara S/F; Mission Gorge Rd. N/O, Old Cliffs Rd. W/S; and Camino Del Rio St. W/O, Moore St. S/S. The number of public reached varied by location. Over the four-week viewing period, there were 454,440 impressions for transit shelter advertisements and 3,669,120 impressions for billboards.

In FY 2008, out of 800 total residents from all watersheds who participated in a random digit-dial *Think Blue* survey, 7% became aware of the *Think Blue* message by seeing the billboards. According to the survey, groups most likely to have seen the billboard were: residents under 50 years of age, (38%) compared to seniors (24%); Latino women (49%) compared to white men (31%) and white women (32%); and Latino renters (50%) compared to white homeowners (29%).

### **Conclusions**

Implementation of the advertisements will continue in the FY 2009. Effectiveness is measured via telephone surveys and focus groups comprised of residents in the San Diego River WMA to determine awareness, knowledge retention and behavior change.

The *2008 San Diego Storm Water Survey* statistics were reported with a 95% confidence level for citywide results. Of the percentage of residents in all watersheds who participated in the survey, 45% reported exposure in 2008. The survey results correlate well to the daily effective calculation (DEC), estimated to be 131,040 impressions per day for transit shelter advertisements and 16,230 billboard impressions in San Diego River WMA.

The 2008 results show a 5% reported decrease in the percentage of residents hosing down their driveways, and a 2% reported decrease in residents using pesticide or weed killers. While some of the percentage changes are not statistically significant, they still represent a positive behavioral change as fewer people are engaging in negative storm water practices. The large number of transit shelter advertisement impressions made in FY 2008 also supports the assertion that the transit shelter advertisement program is effective, due to increasing public exposure to bacteria and sediment pollutant issues. Surveys will be continued in future fiscal years, and longer-term assessment should provide more complete results on which to base the conclusion of increased awareness.

**ID NUMBER: SDR-A35**

**TITLE: Intergenerational Games**

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**PROJECT SUMMARY**

The City of La Mesa is committed to education outreach at community events and local schools. Each year the City works with La Mesa Middle School to host Intergenerational Games. School children are paired up with adults and participate in a number of activities. During the event on October 12, 2007, the City's Storm Water Program staff requested a booth at the event. The City contracted I Love a Clean San Diego to setup and demonstrate the Enviroscape Watershed Model at the event and to distribute education outreach material. The City's San Diego River Watershed fact sheet was displayed at the event.

**PARTICIPATING JURISDICTIONS**

- City of La Mesa

**WATERSHED PRIORITY POLLUTANTS ADDRESSED**

- Bacteria (high priority)
- TDS (high priority)
- Turbidity/TSS
- Diazinon
- Metals
- Total Phosphorous, Dissolved Oxygen, and pH (high priority)

**HOW THIS ACTIVITY RELATES TO THE WATERSHED**

The City hosted a storm water booth that included demonstrations of the Enviroscape Watershed Model by I Love A Clean San Diego and provided storm water pollution prevention material. The San Diego River Watershed fact sheet was displayed at the booth.

**ACTIVITIES CONDUCTED DURING 2006-2007**

The following activities were conducted during this reporting period 2007-2008:

- Contracted I Love A Clean San Diego to demonstrate Enviroscape Watershed Model.
- Setup and staff booth.
- Distributed 19 Integrated Pest Management Cards

**TITLE:** Public Service Announcement: Karma, Karma Second  
Chance, Karma Tourist  
**ID NUMBER:** SDR-A36

**ACTIVITY IMPLEMENTATION**

The City of San Diego (City) retained a contract with a film production company to create three Think Blue Public Service Announcements (PSAs) specifically focused on bacteria, with gross pollutants (trash) profiled as a vector. The PSAs are entitled *Karma*, *Karma Second Chance*, and *Karma Tourist* and the goal of the PSAs is to educate the public about causes of pollution and to encourage positive behavioral change.

These PSAs were developed in FY 2007 and FY 2008 and were broadcast on several TV and radio stations throughout the San Diego River Watershed Management Area (WMA) from February 2008 to April 2008. The PSA used humor to convey the importance of the public's part in the proper disposal of trash and the impacts litter and pollution have on our waterways and beaches. The PSAs were broadcast in both English and Spanish.

According to Regional Board staff comments, the City will need to answer effectiveness measurement questions in the annual report. Effectiveness measurement questions can be found in the Effectiveness Assessment section of this activity summary sheet.

**TMDL APPLICABILITY**

- N/A

**TIME SCHEDULE FOR IMPLEMENTATION**

The PSAs were developed in FY 2007 and FY 2008 and were broadcast on several TV and radio stations throughout the San Diego River WMA from February 2008 to April 2008. The City will work with various broadcast media outlets to distribute and air the PSAs in FY 2009.

**PARTICIPATING WATERSHED COPERMITTEES**

- City of San Diego

**OTHER PARTICIPATING ENTITIES**

- Various Television and Radios Stations in San Diego

**HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED**

- Bacteria
- Gross Pollutants (Trash)

**CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**

Both the City's *Strategic Plan for Watershed Activity Implementation* and the Collective Watershed Strategy for the San Diego River WMA identify bacteria as high priority water quality problems in the WMA. The *Karma*, *Karma Second Chance*, and *Karma Tourist* Public Service Announcements will result in both increased knowledge and

awareness regarding bacteria and trash as a vector and future load reduction of trash and debris directly and of bacteria indirectly.

**EFFECTIVENESS ASSESSMENT**

<b>Watershed: San Diego River</b>		
<b>PUBLIC SERVICE ANNOUNCEMENT: KARMA, KARMA SECOND CHANCE, KARMA TOURIST</b>		
<b>Assess the Efficiency and Effectiveness of Public Service Announcements</b>		
<b>Management Questions</b>	<ul style="list-style-type: none"> <li>• What changes in awareness/attitude regarding bacteria and gross pollutants was achieved after implementation?</li> <li>• How efficient is this education activity based on total cost versus number of people (targeted audience) reached?</li> </ul>	
<b>Targeted Measurable Outcome(s)</b>	<ul style="list-style-type: none"> <li>• Reach goal of number of listeners (radio) and homes (television) reached, based on survey results</li> <li>• Increased level of knowledge/attitude based on post-activity surveys</li> </ul>	
<b>Assessment Method(s)</b>	<ul style="list-style-type: none"> <li>• Survey (e.g., administer survey to assess knowledge and attitude of participants)</li> <li>• Quantification (e.g., number of residents reached by PSA)</li> </ul>	
<b>Data Recorded</b>	Number of impressions made in homes through television in San Diego River WMA (Outcome Level 1)	2,747,706
	Number of impressions made to the public through radio announcements in San Diego River WMA (Outcome Level 1)	881,014
	Change in knowledge or attitude from survey results (Outcome Level 2)	45% increase
	Change in pollutant-related behavior from survey results (Outcome Level 3)	Yes*

\*There was a 5% decrease in the percentage of residents who reported hosing down their driveways, but the few other decreases in pollutant-related behavior were percentages too small to fall within the acceptable range for statistical outcomes at a 95% confidence level. For those behaviors, the percentages of change were so small that they cannot be assumed to be a result of the activity based on this year's survey and method of assessment.

**Objectives**

The goal of this assessment is to determine the effectiveness of the *Karma*, *Karma Second Chance*, and *Karma Tourist* PSAs in educating the public about the causes of bacteria and trash loading, and to encourage positive behavioral change.

**Analysis and Results**

The PSAs were developed in the FY 2007-2008, and broadcast on several TV and radio stations throughout the San Diego River WMA from February 2008 to April 2008. The PSAs were broadcast in both English and Spanish.

Out of 800 total residents from all WMAs who participated in a random digit-dial *Think Blue* survey, 52% of residents became aware of the *Think Blue* message by seeing the television ads, and 13% of residents heard the radio announcements in FY 2008. The respondents were selected randomly in order to fairly and accurately represent the City as a whole. To estimate the number of impressions in the San Diego River WMA, the total number of estimated City-wide impressions, (15,680,381 for television and 5,027,700 for radio ads) was multiplied by the proportion of residents living in the San Diego River WMA (18%) of the City's total population. According to the random survey, groups most

likely to have seen the television ad were: residents who knew that storm water was untreated (25%); people without college degrees (25%); and residents of the San Diego Bay (26%) and San Diego River (25%) WMAs. Groups most likely to have heard the radio ad were: residents who are white (9%); residents in the 35-49 age group (9%); and people between the ages of 18 and 35 (9%).

### **Conclusions**

The City will work with various broadcast media outlets to continue distribution of the PSAs in FY 2008-2009. Effectiveness will continue to be measured via surveys comprised of a random sample of the residents living in the San Diego River WMA to determine whether this activity results in a change in knowledge and awareness associated with storm water issue, or results in a change in pollution-related behavior. Efficiency will be calculated by comparing measurable changes in knowledge, awareness and/or change in behavior with the cost of this activity.

Furthermore, the *2008 San Diego Storm Water Survey* statistics were reported with a 95% confidence level for citywide results. Of the percentage of residents in all watersheds who participated in the random survey, 45% reported exposure in 2008. These results show a 5% reported decrease in the percentage of residents hosing down their driveways, and a 2% reported decrease in residents using pesticide or weed killers. While some of the percentage changes are not statistically significant, they still represent a positive behavioral change as fewer people are reportedly engaging in negative storm water practices.

It is worth noting that the City's PSAs continue to reach new individuals in the San Diego River WMA, as evident by the estimated number of individual impressions from television and radio announcements watershed-wide. Although a direct, statistical correlation is not clear, the number of impressions and the results of the random survey indicate that this activity is effective in reaching residents and disseminating information to raise knowledge, awareness and/or create a change in behavior regarding storm water issues. This activity will continue in future fiscal years with the hopes that a long-term assessment will provide more complete results.

**TITLE:** LID and Watershed Planning Education for Community Planning and Sponsor Groups  
**ID NUMBER:** SDR-A37

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### **ACTIVITY IMPLEMENTATION**

The LID and Watershed Planning Education activity involves educating local planning and sponsor groups throughout the unincorporated County on Low Impact Development (LID) and watershed planning principles, practices, and requirements. Since the recommendations of local planning and sponsor groups have some influence over whether, and under what conditions, development projects are approved within the unincorporated County, this education is intended to aid these groups in making informed recommendations on aspects of development projects that would affect watershed water quality.

During training, members of the planning or sponsor groups are provided with copies of the LID handbook, including the Management Strategies, the Appendices and the Literary Guide. Advisory groups and audience members who wish to participate are given a pre- and post-survey to assess their general knowledge of watershed planning and LID both before and after the presentation. The training sessions average fifty minutes depending upon the amount and type of questions that are asked during the presentation.

This education program was successfully developed during the spring of FY2007-2008, on schedule. The program consists of a PowerPoint presentation with a specific focus on the watershed(s) within which the community lies. Although County staff began conducting presentations to planning and sponsor groups in other watersheds during FY 2007-08, none were conducted in the San Diego River Watershed.

### **TMDL APPLICABILITY**

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

### **TIME SCHEDULE FOR IMPLEMENTATION**

Local planning and sponsor groups to be trained within the San Diego River Watershed during the FY 2008-2009 timeframe include:

- Valle de Oro (9/16/08)
- Descanso (9/18/08)
- Cuyamaca (12/9/08)
- Lakeside (TBD)
- Ramona (TBD)
- Alpine (TBD)
- Julian (TBD)
- Crest-Dehesa (TBD)



**PARTICIPATING WATERSHED COPERMITTEES**

- County of San Diego

**OTHER PARTICIPATING ENTITIES**

- None

**HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED**

This activity focuses on impacts to the watershed as a result of new and re-development. Specifically, impacts from increased impervious cover and any types of pollutants associated with runoff (both urban runoff and stormwater runoff) as it traverses a variety of types of land uses.

**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.

**EFFECTIVENESS ASSESSMENT**

Activity effectiveness is assessed by tracking the number of presentations conducted, the number of participants in attendance, and the number and type of materials distributed during the presentation (Level 1 Outcome). Since no presentations to groups in the San Diego River Watershed were conducted during FY 2007-08, there are no Level 1 outcomes to assess. The County is targeting presentations to 8 community planning and sponsor groups during FY 2008-09.

As described above pre- and post-presentation survey evaluation forms are administered before and after each presentation. The pre- and post- survey form consists of five multiple choice questions and one open answer section which asks the participant to provide information on drainage within the community planning area (CPA). The survey results are calculated to obtain a mean average (in percentage) of the overall results of the survey. The pre- and post- survey results are then compared, with the anticipated result being a higher percentage obtained on the post-survey to show an increase in knowledge of watershed planning and LID principles (Level 2 Outcome). Since no presentations to groups in the San Diego River Watershed were conducted during FY 2007-08, there are no Level 2 outcomes to assess.

**TITLE:** Mobile Advertising  
**ID NUMBER:** SDR-A38

**ACTIVITY IMPLEMENTATION**

The City of San Diego (City) has retained a contract with a mobile advertising firm to advertise *Think Blue* messages on its static billboard trucks in the San Diego River Watershed Management Area (WMA). The City created advertisements that target behaviors associated with bacteria. The goal of mobile advertising is to educate the public about causes of these kinds of pollution and to encourage positive behavioral change. These advertisements were developed in FY 2008 and were displayed in both English and Spanish. The estimated audience was 969,100 impressions per 4 week period. The following image shows the San Diego River route that was driven using a Banner Billboard Truck.



According to Regional Board staff comments<sup>1</sup>, the City will need to answer effectiveness measurement questions and provide routes in the annual report. The routes are provided above. Effectiveness will be measured via surveys comprised of residents in the San Diego River WMA in FY 2009. Efficiency will be determined by analyzing advertisement costs.

**TMDL APPLICABILITY**

- None

**TIME SCHEDULE FOR IMPLEMENTATION**

The City will coordinate with its Print Services department in the design of the advertisements and have the advertisements created and placed on the company's static

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<sup>1</sup> Robertus, John H. "COMMENTS ON THE MARCH 2008 WATERSHED URBAN RUNOFF MANAGEMENT PLAN (WURMP) AND USEPA/REGIONAL BOARD APRIL 2008 WURMP ASSESSMENTS." September 23, 2008. (Place Number 710562: L Walsh)

billboard trucks. The Mobile truck will drive pre-determined routes in the San Diego River WMA in an effort to reach targeted, high priority areas within the watershed to increase awareness and promote behavior change. The City plans to continue to implement mobile advertising in FY 2009.

**PARTICIPATING WATERSHED COPERMITTEES**

- City of San Diego

**OTHER PARTICIPATING ENTITIES**

- None

**HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED**

- Bacteria

**CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**

Both the City’s *Strategic Plan for Watershed Activity Implementation* and the Collective Watershed Strategy identify bacteria as a high priority water quality problem in the San Diego River WMA, and recommend implementing load reduction/source abatement activities to address it. Utilizing the mobile billboard truck will result in increased knowledge and awareness regarding bacteria and sediment and will promote behavior change.

**EFFECTIVENESS ASSESSMENT**

<b>Watershed: San Diego River</b>		
<b>MOBILE ADVERTISING</b>		
<b>Assess the Efficiency and Effectiveness of Advertisement on Static Billboard Trucks</b>		
<b>Management Questions</b>	<ul style="list-style-type: none"> <li>• What changes in awareness /attitude regarding bacteria was achieved after implementation?</li> <li>• How efficient is this education activity based on total cost versus number of people (targeted audience) reached?</li> </ul>	
<b>Targeted Measurable Outcome(s)</b>	<ul style="list-style-type: none"> <li>• Reach pre-set percentage of residents within target watershed</li> <li>• Increased level of knowledge/attitude based on post-activity surveys</li> </ul>	
<b>Assessment Method(s)</b>	<ul style="list-style-type: none"> <li>• Survey (e.g., administer survey to assess knowledge and attitude of participants)</li> <li>• Quantification (e.g., number of residents reached by advertisements)</li> </ul>	
<b>Data Recorded</b>	Number of impressions in the San Diego River WMA (Outcome Level 1)	48,455 DEC*
	Change in knowledge or attitude based on survey results (Outcome Level 2)	45% increase
	Change in pollutant-related behavior based on survey results (Outcome Level 3)	Decrease**
<b>Recommended Data</b>	Advertisement costs (Outcome Level 1)	

\*The Daily Effective Calculation (DEC) was calculated using a weighted average of traffic flow, including adjustments for daily traffic, intersection and pedestrian viewship, and vehicle load (1.3 occupants over age

18 per car). The estimated audience in the FY 2008 was 969,100 impressions per 4 week period for San Diego River.

\*\*There was a 5% decrease in the percentage of residents hosing down their driveways, but the few other decreases in pollutant-related behavior were percents too small to fall within the acceptable range for statistical outcomes, a 95% confidence level. For those behaviors, the percentages of change were so small that they cannot be assumed to be a result of the activity.

### **Objectives**

The goal of this assessment is to determine the effectiveness of mobile advertising to educate the public about the causes of storm water pollution and to encourage positive behavioral change.

### **Analysis and Results**

The mobile advertisements were developed in FY 2008 and displayed throughout the San Diego River WMA in both English and Spanish. The initial estimated audience was 969,100 total impressions per 4-week period. Out of 800 randomly selected residents from all watersheds who participated in the *Think Blue* survey, approximately 33% of residents became aware of the *Think Blue* message via mobile advertising in FY 2008.

### **Conclusions**

The City plans to continue to implement mobile advertisements in FY 2009. Effectiveness will continue to be measured via surveys comprised of a random sample of the residents living in the San Diego River WMA to determine whether this activity results in a change in knowledge and awareness associated with storm water issue, or results in a change in pollution-related behavior. Efficiency will be calculated by comparing measurable changes in knowledge, awareness and/or change in behavior with the cost of this activity.

The *2008 San Diego Storm Water Survey* statistics were reported with a 95% confidence level for citywide results. Of the percentage of residents in all watersheds who participated in the random survey, 45% reported exposure to mobile advertising in 2008. These results show a 5% reported decrease in the percentage of residents hosing down their driveways, and a 2% reported decrease in residents using pesticide or weed killers. While some of the percentage changes are not statistically significant, they still represent a positive behavioral change as fewer people are reportedly engaging in negative storm water practices.

Furthermore, the increase in impressions made in FY 2008 also indicates that this activity is effective in reaching residents and disseminating information to raise knowledge, awareness and/or create a change in behavior regarding storm water issues. This activity will continue in future fiscal years with the hopes that a long-term assessment will provide more complete results.

**ID NUMBER: SDR-A39**

**TITLE: Oktoberfest**

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**PROJECT SUMMARY**

The City of La Mesa is committed to education outreach at community events. Each year the City hosts an Oktoberfest Event. During the event on October 5-7, 2007 the City's Storm Water Program staff requested an area at the City's booth to distribute education outreach material. The San Diego River Watershed fact sheet was displayed at the booth. Integrated Pest Management cards were available for visitors of the booth to take.

**PARTICIPATING JURISDICTIONS**

- City of La Mesa

**WATERSHED PRIORITY POLLUTANTS ADDRESSED**

- Bacteria (high priority)
- TDS (high priority)
- Turbidity/TSS
- Diazinon
- Metals
- Total Phosphorous, Dissolved Oxygen, and pH (high priority)

**HOW THIS ACTIVITY RELATES TO THE WATERSHED**

The City hosted a storm water booth that included a storm water education outreach section. The San Diego River Watershed fact sheet was displayed at the booth. Integrated Pest Management cards were available for visitors of the booth to take.

**ACTIVITIES CONDUCTED DURING 2007-2008**

The following activities were conducted during this reporting period 2007-2008:

- Setup and staff booth.
- Distributed 100 Integrated Pest Management cards

**TITLE: Our Water, Our Responsibility Pamphlet Distribution**  
**ID NUMBER: SDR-A40**

**ACTIVITY IMPLEMENTATION**

The City of San Diego (City) printed an internally produced pamphlet to be made available at all San Diego City Lakes as an insert inside a map of the area. The pamphlet includes information about the fact that the City owns and operates nine reservoirs and explains what the public can do in order to protect the drinking water supply and natural habitat. Additionally, the pamphlet explains that the habitat surrounding three of the nine reservoirs is protected by the Multiple Species Conservation Program (MSCP) and that by protecting land around the reservoirs, the community's water supply is kept safe and an important refuge for wildlife is provided. Approximately 2,444 pamphlets were distributed at El Capitan Reservoir, Lake Murray, San Vicente Reservoir, and the Sutherland Reservoir in the San Diego River Watershed Management Area (WMA).

The Regional Board provided comments<sup>1</sup> on the March 2008 Watershed Urban Runoff Management Programs (WURMPs) based on an audit conducted by PG Engineering. One comment stated, "It appears that pollution reduction is a secondary goal to achieving compliance with the WURMP requirements, as written in the permit...pollutant reduction is, or should be, the true objective of the WURMP..."

The City agrees that the true objective of its Storm Water Program, which includes the WURMPs, JURMP, and regional programs, is pollutant reduction. The City acknowledges, however, that the WURMPs were written to comply with the Municipal Permit, and therefore only those watershed activities that were anticipated to be implemented for "credit" under the Municipal Permit were included. It is worth noting that the City is implementing a *Strategic Plan for Watershed Activity Implementation* (refer to Activity Sheet SDR-A48 for more detail) as well as numerous watershed activities, including monitoring studies and additional education activities, which do not meet the Board's threshold for receiving "credit" under the Municipal Permit and are in addition to those that were disclosed in the March 2008 WURMPs.

This activity is one of those not previously included in the March 2008 WURMPs because it does not meet the strict requirements for effectiveness assessment for watershed education activities; however, it is an important component of the City's Storm Water Program and is therefore being included in this annual report. Furthermore, these pamphlets have been distributed over a number of years and the City plan to continue their distribution

**TMDL APPLICABILITY**

- N/A

**TIME SCHEDULE FOR IMPLEMENTATION**

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<sup>1</sup> Robertus, John H. "COMMENTS ON THE MARCH 2008 WATERSHED URBAN RUNOFF MANAGEMENT PLAN (WURMP) AND USEPA/REGIONAL BOARD APRIL 2008 WURMP ASSESSMENTS." September 23, 2008. (Place Number 710562: L Walsh)

- City staff will continue to the pamphlets in FY 2009.

**PARTICIPATING WATERSHED COPERMITTEES**

- City of San Diego

**OTHER PARTICIPATING ENTITIES**

- N/A

**HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED**

- Bacteria

**CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**

Both the City's *Strategic Plan for Watershed Activity Implementation* and the Collective Watershed Strategy for the Collective Watershed Strategy for the San Diego River WMA identify bacteria as a high priority water quality problem throughout the WMA, and recommend implementing load reduction/source abatement activities to address it. Implementation of this focused education activity will contribute to addressing discharges, correct behaviors, and abate sources associated with bacteria.

**EFFECTIVENESS ASSESSMENT**

The City distributed 2,444 pamphlets in FY 2008. Due to the nature of this activity, effectiveness assessment is not being conducted for this activity. The City may continue to report on the distribution of the pamphlet to permit applications, but is not requesting credit as a watershed education activity due to the strict assessment requirements in the Municipal Permit for education activities.

**ID NUMBER: SDR-A41**

**TITLE: Outreach to Residents Regarding Pet Waste Management**

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### **ACTIVITY SUMMARY**

Concentrations of fecal bacteria were reported at certain sampling locations during dry weather monitoring in Santee. Based on the observations made during dry weather monitoring, it has been recommended that educational outreach be made to residents in specific areas of the City of Santee where fecal bacteria and/or animal waste has been observed. The objective of this outreach would be to educate residents on the importance of properly disposing of pet fecal waste to prevent it from eventually entering the storm drain system. By reducing the amount of pet fecal matter in the storm drain system, this educational effort would eventually assist in the reduction of fecal coliforms in the San Diego River.

Outreach to specific areas in Santee was conducted during fiscal year 2005-06. However additional follow up has been made to reinforce this message.

### **PARTICIPATING JURISDICTION**

- City of Santee
- County of San Diego

### **WATERSHED PRIORITY POLLUTANTS ADDRESSED**

- Bacteria

### **HOW THIS ACTIVITY RELATES TO THE SAN DIEGO RIVER WATERSHED**

Fecal coliforms are designated as a 303 (d) impairment in the San Diego River. Potential sources of this pollutant include illicit sewer connections, sewage overflows, and animal waste. A major source of animal waste in residential areas will be pet fecal matter which has not been properly disposed of. Residents may consider that this fecal matter is "natural" and "bio-degradable," that it is not likely to negatively impact the environment. Therefore they will not necessarily make the effort to clean up after their pet, even though they may be more careful about removing other kinds of litter.

If the public is educated about the potential linkage between the discharge of pet fecal matter and surface water quality, then they may have a greater inclination to clean up after their pets, therefore reducing the load on the watershed.

### **TASKS IMPLEMENTED DURING FY 2007-2008**

Information relating to pet waste management was mailed to residents located in an area identified to have elevated levels of bacteria (total coliform, fecal coliform, and *Enterococci*) during dry weather monitoring. In addition, an article on pet waste management was presented in the Fall 2007 issue of the Santee review which is mailed to all residences and businesses in Santee.

The City of Santee partnered with the County of San Diego's Department of Animal Services to provide information on pet waste management which would be mailed in an envelope along with a dog license. Approximately 300 copies of the outreach were provided to Animal Control officers for use at the licensing clinic in Santee and to be carried in Animal Control vehicles that work in Santee.

In addition, the City contacted the County Watershed Protection Unit and arranged to conduct County-developed pet waste surveys. Thirty-five surveys were conducted, each in exchange for a pet waste dispenser. The completed forms were forwarded to the County Watershed Protection



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Unit for analysis in conjunction with other surveys that may be collected in the Region. The surveys were used as an opportunity to discuss stormwater issues with the respondents and the City representative was able to answer questions.

To facilitate appropriate pet waste management, three additional pet waste bag dispensing stands have been installed. These stands are located along Forester Creek between Prospect Avenue and Mission Gorge Road.

**ID NUMBER: SDR-A42**

**TITLE: PUBLIC OUTREACH AND MEDIA**

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### **ACTIVITY SUMMARY**

During the reporting period, the City of Santee distributed articles specific to storm water in the quarterly newsletter entitled "Santee Review". The newsletter reaches potentially 21,500 residential, commercial, and industrial addresses. The newsletter is intended to educate residents and visitors about watershed issues and to solicit their cooperation and participation.

### **PARTICIPATING JURISDICTIONS**

- City of Santee
- City of El Cajon

### **WATERSHED PRIORITY POLLUTANTS ADDRESSED**

- Trash
- Bacteria
- Total Dissolved Solids
- Low Dissolved Oxygen

### **HOW THIS ACTIVITY RELATES TO THE SAN DIEGO RIVER WATERSHED**

In order to change knowledge and awareness and effect behavioral changes, it is necessary to conduct education to the general public. Public presentations/outreach and the media are an effective method in distributing our watershed message and informing others on how they can make a difference in our water quality and environment.

### **TASKS IMPLEMENTED DURING FY 2007-2008**

Santee: The following articles were published as part of the Public Outreach Program during Fiscal Year 2007-2008: The articles included:

- "Don't Let Pests Bug You!", which highlighted the impact of pesticide use on the storm drain system as well as safer alternatives to pesticides. This article was based on the IPM cards that have been distributed by the Copermittees over recent years.
- "Care for Your Pets and the Environment Too!" informed residents of the impact pet waste inflicts on the local storm drain system as well as proper waste disposal techniques.
- "Notice: Stormwater Management Plan Public Input Open House" informed residents of a City Hall meeting for community input on storm water quality.
- "Stormwater Website Provides Resources" provided a link to the BMP portal on the Project Clean Water website, which provides BMPs for residents, mobile businesses and industrial and commercial facilities and a brief summary of the website contents.

El Cajon: The City of El Cajon printed 38,000 copies of two semiannual newsletters containing 5 articles relevant to the watershed and reaching potentially 190,000 different readers. The articles were distributed and entitled as follows:

- Residential Repair, Restoration & Remodeling (Fall 2007),
- Pet Pollution Can Be a Serious Problem? (Fall 2007), What is Storm Water Runoff? (Spring 2008),
- Residential Solutions to Storm Water Pollution (Spring 2008), and
- Auto Care, Pet Waste, Parking Lot & Trash Storage Areas (Spring 2008).

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The City of El Cajon also partnered with Waste Management to send 18,000 separate mailed brochures, titled "Water Pollution Prevention", to all customers in El Cajon in January 2008.

**TITLE:** San Diego River Watershed Restaurant Best Management Practices Booklet  
**ID NUMBER:** SDR-A43

**ACTIVITY IMPLEMENTATION**

The City of San Diego (City) obtained permission from the County of San Diego to modify its *What's Cookin'?* booklet, a guide for food and drinking establishments to implement Best Management Practices (BMPs), for distribution to City-permitted facilities within the San Diego River Watershed during inspections. In the FY 2005 Annual Report, this activity was originally reported as producing a flyer; however, after further evaluation, City staff determined that a booklet to supplement existing fact sheets passed out during inspections would be more effective in educating food and drinking establishment owners and workers about storm water issues and BMPs. After review, the booklet could be kept by owners/managers for reference, and the fact sheets could be posted to serve as steady reminders to owners/managers and workers about storm water issues and BMPs.

Storm Water Division staff coordinated with Food Establishment Wastewater Discharge (FEWD) Program staff for distribution of the booklet in FY 2008 to City-permitted facilities. The City distributed 537 booklets in the San Diego River Watershed Management Area (WMA),.

This activity was not included in the 2008 San Diego River WURMP because it does not meet the strict requirements for effectiveness assessment for watershed education activities; however, these posters have been distributed over a number of years, and the City plans to continue distribution of them.

**TMDL APPLICABILITY**

- San Diego Region Beaches and Creeks Bacteria TMDL

**TIME SCHEDULE FOR IMPLEMENTATION**

The City will continue to coordinate with Food Establishment Wastewater Discharge (FEWD) Program staff for distribution of the booklet in FY 2009 to City-permitted facilities.

**PARTICIPATING WATERSHED COPERMITTEES**

- City of San Diego

**OTHER PARTICIPATING ENTITIES**

- N/A

**HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED**

- Bacteria

**CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**

Both the City's *Strategic Plan for Watershed Activity Implementation* and the Collective Watershed Strategy for the San Diego River WMA identify bacteria as a high priority water quality problem throughout the WMA, and recommend implementing load reduction/source abatement activities to address it. Implementation of this focused education activity will contribute to addressing discharges, correct behaviors, and abate sources associated with bacteria.

**EFFECTIVENESS ASSESSMENT**

For FY 2008, the City distributed 537 booklets as referenced above in the Activity Implementation section. Due to the nature of this activity, effectiveness assessment is not being conducted for this activity. The City may continue to report on the distribution of the booklet, but is not requesting credit as a watershed education activity due to the strict assessment requirements in the Municipal Permit for education activities.

**TITLE:** San Diego River Watershed Erosion and Sediment Control  
Poster  
**ID NUMBER:** SDR-A44

**ACTIVITY IMPLEMENTATION**

The City of San Diego (City) printed an internally produced bilingual (English/Spanish) erosion and sediment control poster to be handed out to development applicants receiving a grading or public improvement permit from the City. The poster is large and durable enough to be posted outdoors or indoors to serve as a steady reminder to construction managers and workers of storm water issues and Best Management Practices (BMPs). Photos on the poster illustrate erosion and sediment control measures as well as good housekeeping practices. In the FY 2005 Annual Report, this activity was originally reported as producing a flyer for distribution during pre-construction meetings; however, after further evaluation, City staff determined that it was best to reproduce an existing erosion and sediment control poster to supplement existing construction-related fact sheets already passed out by City staff as part of its Jurisdictional Urban Runoff Management Program.

City staff coordinated with Development Services Department staff to distribute the poster in FY 2008 to development applicants receiving a grading or public improvement permit from the City. Based on the number of permits granted, the total number of posters distributed in the San Diego River Watershed was 54.

This activity was not included in the 2008 San Diego River Watershed Urban Runoff Management Program (WURMP) because it does not meet the strict requirements for effectiveness assessment for watershed education activities; however, these posters have been distributed over a number of years, and the City plans to continue distribution of them.

**TMDL APPLICABILITY**

- San Diego Region Beaches and Creeks Bacteria TMDL

**TIME SCHEDULE FOR IMPLEMENTATION**

- City staff will continue to distribute the poster to permit applicants in FY 2009.

**PARTICIPATING WATERSHED COPERMITTEES**

- City of San Diego

**OTHER PARTICIPATING ENTITIES**

- N/A

**HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED**

- Sediment/siltation/turbidity/total suspended solids
- Bacteria

**CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**

Both the City's *Strategic Plan for Watershed Activity Implementation* and the Collective Watershed Strategy for the San Diego River Watershed Management Area (WMA) identify bacteria, nutrients, and total dissolved solids as a high priority water quality problem throughout the WMA, and recommend implementing load reduction/source abatement activities to address it. Implementation of this focused education activity will contribute to addressing discharges, correct behaviors, and abate sources associated with bacteria.

**EFFECTIVENESS ASSESSMENT**

For FY 2008, the City distributed 95 posters as referenced above in the Activity Implementation section. Due to the nature of this activity, effectiveness assessment is not being conducted for this activity. The City may continue to report on the distribution of the poster to permit applications, but is not requesting credit as a watershed education activity due to the strict assessment requirements in the Municipal Permit for education activities.

**TITLE: PROJECT CLEAN WATER - SAN DIEGO RIVER WATERSHED WEBSITE**  
**ID NUMBER: SDR-A46**

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**ACTIVITY DESCRIPTION**

The Project Clean Water website ([http://www.projectcleanwater.org/html/ws\\_map.html](http://www.projectcleanwater.org/html/ws_map.html)) provides a venue for public participation and involvement in local watershed activities. The Watershed Map page is the starting point of the watershed website. Visitors wishing to learn more about a particular watershed can simply “click” on a desired watershed in the Watershed Map. Once selected, the visitor is linked to the watershed’s summary page and provided with additional link options. The visitor can view multiple informational pages on the San Diego River Watershed which include:

- San Diego River Watershed Summary Page (main page)
- San Diego River Watershed Plan Page
- San Diego River Watershed Project Page
- San Diego River Watershed Activities Page

**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**

This is an ongoing activity.

**PARTICIPATING WATERSHED COPERMITTEES**

- County of San Diego
- City of La Mesa
- City of El Cajon
- City of Santee
- City of San Diego

**OTHER PARTICIPATING ENTITIES**

**HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED**

- All

**CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**



This method of public participation is consistent with the collective watershed strategy in that it encourages any member of the public to take an interest in their watershed and to participate in Copermittee activities. .

### **EFFECTIVENESS MEASUREMENTS**

Activity effectiveness is not being measured directly, but can be inferred from tracking the number of “hits” the web pages received on an annual basis.

- Watershed Copermittees continued to post the WURMP and annual reports on the Project Clean Water website.
- There were 3,901 hits on the San Diego River Watershed webpage.
- There were 889 hits on the San Diego River WURMP webpage.

**ID NUMBER: SDR-A47**

**TITLE: DEVELOPMENT OF ADDITIONAL PUBLIC PARTICIPATION PROGRAMS**

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**ACTIVITY SUMMARY**

During the reporting period, the City of Santee expanded the opportunities for public participation in our stormwater program by developing a storm drain stenciling program and by promoting the Roadside Pride program. The storm drain stenciling program has multiple benefits including:

- Providing stencils on storm drains reminds people in the vicinity that the drain provides a direct connection to the river and that their activities can have a direct impact on the health of the river. This reminder may result in the modification of their behavior to prevent the discharge of pollutants into the storm drain.
- This program provides groups within the community an opportunity to participate in an activity that is related to an issue that they are interested in. This activity may also provide them with the necessary experience to achieve a goal related within the organization (such as fulfilling a community service requisite).
- The activity may provide education for people who volunteer to help with the activity who may have limited knowledge of stormwater issues. This knowledge may result in changes to their behavior.

The Roadside Pride Program provides Santee-based community groups with an opportunity to earn a small amount of money in exchange for removing litter from roadsides within the community. This on-going program will be promoted alongside other public participation opportunities.

**PARTICIPATING JURISDICTION**

- City of Santee

**WATERSHED PRIORITY POLLUTANTS ADDRESSED**

- Trash
- Bacteria
- Total Dissolved Solids
- Low Dissolved Oxygen

**HOW THIS ACTIVITY RELATES TO THE SAN DIEGO RIVER WATERSHED**

**TASKS IMPLEMENTED DURING FY 2007-2008**

The following tasks were conducted as part of the development of the Public Participation Program during Fiscal Year 2007-2008:

- Development of procedures and waiver forms to be used in these types of these projects.
- Promotion of these public participation opportunities (such as in an article in the Santee Review).
- Implementation of a stenciling project by a scout group within Santee. This included the presentation of information on stormwater at a scout meeting. Development of strategy for stenciling project; identification of stenciling locations; provision of safety equipment and stenciling equipment to implement program.

**TITLE:** City of San Diego Strategic Plan for Watershed Implementation  
**ID NUMBER:** SDR-A48

**ACTIVITY IMPLEMENTATION**

In spring 2006, the City of San Diego (City) initiated efforts to proactively address present and anticipated Total Maximum Daily Load (TMDL), Area of Special Biological Significance (ASBS) protection, and Municipal Storm Water Permit requirements using an integrated approach to maximize resources and achieve efficiencies. The result of these efforts was the *Strategic Plan for Watershed Activity Implementation* (Strategic Plan). Its preparation involved reviewing and assessing available monitoring and source data, land use data, and current and anticipated regulatory drivers. The review and assessment were used to prioritize the water quality problems and their sources for the Watershed Management Areas (WMAs) that the City has jurisdiction in and to geospatially prioritize the City’s portion of each of those WMAs, using best professional judgment, for activity implementation.

The Strategic Plan uses an integrated, tiered, and phased approach with regards to activity implementation. Activities that address multiple regulations simultaneously and offer multiple environmental sustainability benefits are favored over those that do not (integration). Activities that target pollutant sources and prevent pollutant generation and release in the first place are emphasized and maximized before the implementation of more expensive structural and treatment solutions (tiering). Furthermore, the City pilots activities on a limited scale to measure their effectiveness and efficiency before it implements them on a broad scale (phasing).

In addition, the City is of the opinion that the integration of storm water and urban runoff pollution management with other environmental efforts and infrastructure improvements is crucial for achieving efficiencies and cost savings in a period of seemingly perpetual municipal budget deficits. This integration is also crucial for obtaining the public’s support of storm water and urban runoff pollution management efforts.

Development of the Strategic Plan included the formulation of a list of activities to implement over a five-year period. These activities have been integrated into the various Watershed Urban Runoff Management Programs (WURMPs) that the City implements in conjunction with other local jurisdictions. Each fiscal year, the City updates its list of activities to reflect new data, schedule changes, and staffing and budgetary considerations. Many of these activities are reported as watershed water quality and education activities in the various WURMPs. However, the City has a list of project types and sources it plans to implement/target with no specific information. Because these are so conceptual in nature, the City does not report on them as specific activities. Those that are concepts not yet into development but planned for initiation within the next few years are listed in the table below.

**Table**

Activity Description	Activity Type Classification	Type	Class	Primary Target Pollutant
Tecolote Watershed "Green Street" Infiltration Retrofit	Green Street	Water Quality	Structural	Bacteria, Metals & Sediment

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Mission Bay Drive Trash BMP	Inlet Trash/Debris Separation	Water Quality	Structural	Trash
County Operations Center Green Roof Project Collaboration	Roof Rain Harvesting	Water Quality	Structural	Targeted Multiple Pollutants
Erosion & Sediment Control Detention Basin	Erosion/Sediment Control BMP	Water Quality	Structural	Sediment, TSS, Metals, Pesticides & Trash
Maple Canyon Water Quality Improvement Project	Sustainable Canyons	Water Quality	Structural	Metals, TSS, Bacteria, Pesticides & Trash
"Green Mall" Infiltration Retrofit	Green Mall	Water Quality	Structural	Targeted Multiple Pollutants
Green Roof Project	Roof Rain Harvesting	Water Quality	Structural	Targeted Multiple Pollutants
Copper Brake Pad Alternative Legislative Mandate	Product Substitution	Water Quality	Non-structural	Metals
Tijuana River Solid Waste Removal and Transfer Facility	Trash/Debris Separation	Water Quality	Structural	Trash, bacteria
Wild Animal Park Demonstration Wetlands Treatment Project	Large-Scale Storm Flow Storm and Multi-Pollutant Treatment System	Water Quality	Structural	Bacteria, Dissolved Minerals, Gross Pollutants, Metals, Nutrients, Oil & Grease, Organics, Pesticides, & Sediment
Residential Landscaping Retrofit Pilot Project	Residential Landscaping Retrofit	Water Quality	Non-structural	Targeted Multiple Pollutants
Smart Irrigation and Controller Incentive/Giveaway Program	Smart Irrigation Control Incentive Program	Water Quality	Non-structural	Targeted Multiple Pollutants
Basin Plan Triennial Review	N/A	Monitoring	Non-structural	N/A
Pet Waste Dispenser Program	Doggie Bag Dispenser	Water Quality	Non-structural	Bacteria
Posted Street Sweeping Routes	Street Sweeping	Water Quality	Non-structural	Metals, Trash & TSS
Municipal Park Artificial Turf Pilot Project (1)	Artificial Turf	Water Quality	Non-structural	Targeted Multiple Pollutants
Municipal Park Artificial Turf Pilot Project (2)	Artificial Turf	Water Quality	Non-structural	Targeted Multiple Pollutants
Municipal Park Artificial Turf Pilot Project (3)	Artificial Turf	Water Quality	Non-structural	Targeted Multiple Pollutants
Targeted Mobile Hazardous Household Waste Collection Centers	Hazardous Waste Collection	Water Quality	Non-structural	Metals, Trash, Oil & Grease
Residential Rain Barrel, Downspout Disconnect, and Xeriscaping Incentive Program (1)	Downspout Disconnect; Rain Barrel Incentives	Water Quality	Non-structural	Targeted Multiple Pollutants
Residential Rain Barrel, Downspout Disconnect, and	Downspout Disconnect; Rain Barrel Incentives	Water Quality	Non-structural	Targeted Multiple Pollutants

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Xeriscaping Incentive Program (2)				
Rain Garden, Xeriscaping, and Landscape Filtration (1)	Rain Garden, Xeriscaping, and Landscape Filtration	Water Quality	Structural or Non-Structural	Targeted Multiple Pollutants
Rain Garden, Xeriscaping, and Landscape Filtration (2)	Rain Garden, Xeriscaping, and Landscape Filtration	Water Quality	Structural or Non-Structural	Targeted Multiple Pollutants
Sediment Basin Endowment Fund (1)	Sediment Basin Endowment	Water Quality	Non-structural	Sediment
Sediment Basin Endowment Fund (2)	Sediment Basin Endowment	Water Quality	Non-structural	Sediment
Commercial Pest Control Art Turf or Product Sub	Product Sub	Water Quality	Non-Structural	Pesticides
Residential Pesticide Management Art Turf or Prod Sub	Product Sub	Water Quality	Non-Structural	Pesticides
LID Regulatory Barriers and Solutions	Municipal Code Modification	Water Quality	Non-structural	Targeted Multiple Pollutants
Roof Rain Harvesting/Incentives	Roof Rain Harvesting	Water Quality	Structural or Non-structural	Targeted Multiple Pollutants
Targeted Storm Drain Cleaning Pilot Project	Storm Drain Maintenance	Water Quality	Non-structural	Targeted Multiple Pollutants
Targeted Behavioral Training (staff)	Targeted Behavioral Training (staff)	Education	Non-structural	Specific to Activity
Rose Creek Homeless Reduction Program Sponsorship	Homeless Encampment Removal	Water Quality	Non-structural	Bacteria & Trash
Enforcement Referrals	Enforcement Referrals	Water Quality	Non-structural	Specific to Activity
Infiltration Vault/Pit Installation (1)	Infiltration Vault/Pit	Water Quality	Structural	Targeted Multiple Pollutants
Infiltration Vault/Pit Installation (2)	Infiltration Vault/Pit	Water Quality	Structural	Targeted Multiple Pollutants
Green Street Filtration	Green Street	Water Quality	Structural	TSS, Metals, Bacteria, Pesticides & PAHs
Green Lot Filtration	Green Lot	Water Quality	Structural	TSS, Metals, Bacteria, Pesticides & PAHs
Green Mall Filtration	Green Mall	Water Quality	Structural	TSS, Metals, Bacteria, Pesticides & PAHs
Limited Low-Flow Storm Drain Inlet Multi-Pollutant Treatment System (1)	Low-Flow Storm Drain Inlet Multi-Pollutant Train	Water Quality	Structural	Targeted Multiple Pollutants
Limited Low-Flow Storm Drain Inlet Multi-Pollutant Treatment System (2)	Low-Flow Storm Drain Inlet Multi-Pollutant Train	Water Quality	Structural	Targeted Multiple Pollutants
Limited Low-Flow Storm Drain Inlet Multi-Pollutant Treatment System (3)	Low-Flow Storm Drain Inlet Multi-Pollutant Train	Water Quality	Structural	Targeted Multiple Pollutants

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Small-Scale Storm Flow Storage and Multi-Pollutant Treatment System (1)	Small Scale Treatment Train	Water Quality	Structural	Targeted Multiple Pollutants
Small-Scale Storm Flow Storage and Multi-Pollutant Treatment System (2)	Small Scale Treatment Train	Water Quality	Structural	Targeted Multiple Pollutants
Small-Scale Storm Flow Storage and Multi-Pollutant Treatment System (3)	Small Scale Treatment Train	Water Quality	Structural	Targeted Multiple Pollutants
Large Scale Storm Flow Storage and Multi-Pollutant Treatment System (1)	Large Scale Treatment Train	Water Quality	Structural	Targeted Multiple Pollutants
Large Scale Storm Flow Storage and Multi-Pollutant Treatment System (2)	Large Scale Treatment Train	Water Quality	Structural	Targeted Multiple Pollutants
Large Scale Storm Flow Storage and Multi-Pollutant Treatment System (3)	Large Scale Treatment Train	Water Quality	Structural	Targeted Multiple Pollutants
Hydromodification BMP (1)	Hydro mod BMP	Water Quality	Structural	Sediment & TSS
Hydromodification BMP (2)	Hydro mod BMP	Water Quality	Structural	Sediment & TSS
Hydromodification BMP (3)	Hydro mod BMP	Water Quality	Structural	Sediment & TSS
Erosion/Sediment Control BMP (1)	Erosion/Sediment Control BMP	Water Quality	Structural	Sediment & TSS
Erosion/Sediment Control BMP (2)	Erosion/Sediment Control BMP	Water Quality	Structural	Sediment & TSS
Home Auto Activities (Metals) Code Mod and Outreach	Outreach	Education	Non-structural	Metals, Oil & Grease & PAHs
Commercial Landscaping Targeted Enforcement	Targeted Enforcement	Water Quality	Non-structural	Nutrients & Pesticides
Targeting Marinas and Boat Repair as a Pollutant Source	Targeted Source	Water Quality	Structural or Non-Structural	Metals & Bacteria
Construction Contractors - Home and Commercial Improvements Inspection Generated Enforcement	Inspection Generated Enforcement	Water Quality	Non-structural	Metals, Sediment, Gross Solids & Oil & Grease
Alley Cleanup and Sweeping Pilot Project	Street Sweeping	Water Quality	Non-structural	Bacteria, Trash & Metals

**TMDL APPLICABILITY**

- Chollas Creek Diazinon TMDL
- Chollas Creek Dissolved Metals TMDL
- San Diego Region Beaches and Creeks Bacteria TMDL

Note: In addition to current and pending TMDLs, the Strategic Plan reviewed the Clean Water Act 303(d) list of impaired water bodies for the San Diego region and used the information to help prioritize the water quality problems, pollutant sources, and areas of the City to target for activity implementation.

### **TIME SCHEDULE FOR IMPLEMENTATION**

Each activity has its own specific implementation schedule. However, implementation of Phase I of the Strategic Plan (the piloting stage before implementation on a broader scale) is anticipated to occur from FY 2008 through FY 2013.

### **PARTICIPATING WATERSHED COPERMITTEES**

- City of San Diego

### **OTHER PARTICIPATING ENTITIES**

- None

### **HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED**

- All Water Quality Problems are addressed as the goal of the Strategic Plan is to address multiple problems simultaneously as feasible to achieve efficiencies

### **CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**

Subsequent to the adoption of the Municipal Storm Water Permit (Order No. R9-2007-0001) in January 2007, the Copermittees developed a Model Watershed Strategy to help guide their planning, implementation, and assessment efforts in the various WMAs. The Model Watershed Strategy assists the Copermittees in developing a Collective Watershed Strategy for each WMA. Application of the Model Watershed Strategy results in prioritizing areas within each WMA for activity implementation; selecting and prioritizing appropriate watershed activities, including monitoring and pollutant source identification studies, for each of the prioritized areas; and identifying data gaps with regards to monitoring and pollutant sources, which need to be filled to enable more refined future management decisions.

Although developed independently of each other, the City's Strategic Plan and the Copermittees' Model Watershed Strategy share the approach of reviewing the best available data (e.g., water quality and pollutant source data) and analyzing them geospatially to make management decisions regarding: (1) water quality problems to target and activities to implement; and (2) geospatial prioritization of the WMAs for focused activity implementation.

Note that the Strategic Plan is primarily an activity implementation approach. However, the conclusions that it makes regarding priority water quality problems are in harmony with the conclusions made in Section 3, Water Quality Assessment, of this WURMP.

### **EFFECTIVENESS ASSESSMENT**

Each activity will be assessed independently, and programmatic assessment will occur annually in Section 4 of the WURMP annual report.

Assessment of the Strategic Plan is a long-term effort and will involve tracking the City's progress on piloting activities over the next five years to be able to make conclusions on how to optimize the efficiency of its storm water program to meet water quality goals and regulations.

**APPENDIX B**

**SUMMARY OF PLANNED PROGRAM IMPLEMENTATION  
FOR FISCAL YEAR 2008-09**



**A. ACTIVITY DESCRIPTION**

**A.1 INITIAL PLANNING**

The types of activities that are most likely to be effective at the watershed level require advanced planning and coordination among the San Diego River Copermittees. However, the new watershed activity development process described in the WURMP was still being developed in FY 2007-2008 and there was not sufficient time for advanced planning of implementation activities for FY 2008-2009. Nevertheless, the San Diego River Copermittees are attempting to coordinate their implementation of watershed activities towards achieving the Strategic Goals of the WURMP.

**A.2 BASELINE ACTIVITIES**

Since this is the first year of implementation under the new watershed program, the timeframe for implementation of baseline activities is compressed. This issue of timing, and more particularly the issue of municipal budgets being established far in advance, will likely affect the results. Most planning and baseline activities this year have been conducted at the same time as or immediately before implementation.

**A.3 IMPLEMENTATION ACTIVITIES**

For fiscal year 2008-09, the San Diego River Copermittees are implementing several coordinated activities that serve the purposes of the Strategic Goals in the WURMP. These combinations of activities are intended to not only satisfy the Municipal Permit criteria, but also to test out integrated and coordinated sets of activities so that the Copermittees can continue to adjust their programs in a process of continuous improvement.

- **Source Identification Study:** This is a critical activity that supports Copermittee decision-making regarding load reduction activity selection and implementation. The Copermittees, in particular the City of San Diego, are collectively spending over \$200,000 to identify sources of pollutants, specifically bacteria, in the lower San Diego River watershed. The City of San Diego has modeled this study after its Tecolote Creek Microbial Source Tracking Study with a similar design and intent, but will also include watershed-specific priority pollutants. The study will assess more than 15 San Diego River sites during two dry weather monitoring events. Specific likely sources, including industrial, residential, commercial and transport areas will also be investigated during dry weather. During wet weather, eight river monitoring locations will be investigated with the collection of pollutograph samples. In addition, wet weather loads from specific likely sources will be investigated. During both dry and wet weather assessments, the presence of fecal indicator bacterial, as well as human-specific indicators, will be assessed together with TDS, phosphorus and DO. In total, over 160 bacterial samples will be collected for analysis of fecal indicator bacteria. Approximately 50 samples will be analyzed for human-specific indicators. Up to 90 samples will also be analyzed for dissolved oxygen, total dissolved solids, total suspended solids, total phosphorus and orthophosphate throughout the San Diego River Watershed. Sampling will occur during FY 2008-2009 and reporting of results to Copermittees is currently scheduled to be completed in October 2009.
- **Park Inspection and Source Reduction Program:** These are load reduction activities for the watershed and will satisfy the Municipal Permit criteria for water quality activities. The inspection program is designed to yield information regarding potential sources of dry weather runoff from municipal parks and potential sources of pollutant loads, which Copermittees can use to adjust their park

## **PROPOSED WATERSHED IMPLEMENTATION ACTIVITIES: FISCAL YEAR 2008-09**

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management programs. Potential management responses may be administrative such as changing the frequency of irrigation setting adjustments or trash removal; physical such as replacing irrigation equipment with more efficient types; or involve some form of runoff treatment. Administrative changes will generally be the easiest and quickest management changes to implement. Changes that require capital commitments will take longer to implement and will reflect each jurisdiction's budget constraints and priorities.

- Public and Parks Staff Education Program: These will satisfy the Municipal Permit criteria for watershed education activities. Based on the results of the inspection and chosen load reduction activities, the San Diego River Watershed Copermittees will engage in education activities that complement and support the load reduction activities selected. The primary target audiences are anticipated to be the public visitors to the parks and the municipal parks staff.

More specific descriptions of potential activities include:

### Water Quality

- Installation of weather-based controllers at municipal parks and facilities with landscaping. Facility selection will be prioritized based on irrigation area/water consumption and proximity to receiving waters.
- Pet Waste Bags will be made available at municipal parks and facilities open to the public. Facility selection will be prioritized based on proximity to receiving waters and anticipated use by pets owners.
- Institute campaign to reduce overall fertilizer use at municipal facilities and parks.
- Incorporate the need to identify potential erosion issues into existing facility inspection and maintenance checklists. Ensure follow up corrective measures are implemented through normal maintenance processes.
- Reduce the pollutants generated from public activities requiring special use permits. Develop requirements for special event/private use of parks, including reducing water use, animal waste pickup, trash pick up and food management – incorporate rules into special event permitting and fees; incorporate rules into public education campaign.
- Increase street sweeping in certain areas beyond jurisdictional requirements.
- Install storm drain inserts, hydrodynamic separators or other structural BMPs in targeted areas.
- Implement trash removal activities at selected locations.

### Education

- Educate Parks & Recreation or Public Works staff regarding irrigation system repairs, reducing over-irrigation, reducing other excess water use, reduction of litter, food waste management, landscaping waste management, and landscape issues such as minimization of fertilizer applications. Develop self-inspection checklists for park and recreation staff to use during site visits. Targeted inspections and follow-up training to ensure adequate comprehension and implementation. Create incentive program for reporting issues and making suggested improvements.
- Educate public attending parks regarding littering and food waste management.
- Educate public at time of special use permit issue regarding trash, pet waste management, water use, and food management.

**B. TMDL APPLICABILITY**

At this time, there are no adopted TMDLs currently in effect within the San Diego River WMA. The Bacteria TMDL has been adopted by the RWQCB, but has not yet been approved at the state level. Necessary changes to meet future TMDL-specific requirements will be incorporated at that time. Current activities are being planned and implemented with the Bacteria TMDL requirements in mind.

**C. TIME SCHEDULE FOR IMPLEMENTATION**

Since this is the first year of implementation under the new watershed program, initial planning, baseline activities and implementation activities will be conducted in fiscal year 2008-09. Follow up activities to support effectiveness evaluations, if any, will be conducted in fiscal year 2009-10 as necessary.

**D. PARTICIPATING WATERSHED COPERMITTEES**

At this time, all five San Diego River Copermittees are intending to participate in this process.

**E. OTHER PARTICIPATING ENTITIES**

At this time, it is not clear what other entities, if any, will participate.

**F. HIGH PRIORITY WATER QUALITY PROBLEMS ADDRESSED**

As described further in Section 7.0 of the WURMP, the proposed activities may address the following watershed priority pollutants or stressors:

- Bacteria Indicators
- Phosphorus
- TDS
- Low Dissolved Oxygen
- Turbidity

**G. CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**

As detailed in the WURMP, the proposed activities are consistent with the collective Watershed Strategy developed by the copermittees to the extent that they support at least one of the Watershed's Strategic Goals established in the WURMP. Generally, the San Diego River Copermittees will attempt to coordinate their activities to address the same subset of strategic goals in a given fiscal year in order to conserve resources and improve the likelihood of success. However, in some cases, individual jurisdictions may find it more appropriate to perform different activities that still support one of the Watershed Strategic Goals.

G.1 DESCRIPTION OF TARGETED STRATEGIC GOALS

The following Strategic Goals were established in the WURMP and are the targeted outcomes for activity implementation in fiscal year 2008-09.

- **Strategic Goal 1 - Dry Weather Flow Reduction:** By reducing dry weather flows, the San Diego River Copermittees expect to reduce dry weather loadings of priority pollutants to receiving waters both by reducing the mass of pollutants discharged from the original water source and by reducing the ability of the water to act as a transport mechanism for other pollutant sources encountered on the water's path to the storm drain system and ultimate receiving water.
- **Strategic Goal 2 - Source Reduction at Park/Municipal Land Uses:** By reducing the mass of priority pollutants discharged to Copermittee storm drain systems and receiving waters from park and municipal land uses, the San Diego River Copermittees expect to reduce both dry and wet weather loadings of priority pollutants to receiving waters.
- **Strategic Goal 5 – Bacteria Source Reduction:** By reducing the mass of bacteria discharged to Copermittee storm drain systems and receiving waters, the San Diego River Copermittees expect to reduce both dry and wet weather loadings of bacteria to receiving waters. The specific land uses and sources targeted by this Strategic Goal will be selected based on the available data from ongoing monitoring programs and the results of implementing previous Strategic Goals. This goal will also support Copermittee implementation of the recent Bacteria TMDL.

G.2 POTENTIAL TARGET SOURCES

Selected activities generally will target the following land use categories:

- Park/Municipal

Based on the BLTEA TTWQ rankings, the following types of sources represent the top three potential targets for load reduction watershed activities within these land use categories. Not all may be addressed in a given year. If needed or appropriate, additional or substitute source types from Table 11 in the WURMP may be used.

- Roads/Parking
- Park & Recreational Facilities
- Flood Control Devices/MS4s

Based on the BLTEA TTWQ rankings, the following types of sources represent the top three potential targets for source characterization watershed activities within these land use categories. Not all may be addressed in a given year. If needed or appropriate, additional or substitute source types from Table 12 in the WURMP may be used.

- Park & Recreational Facilities
- Corporate Yards
- Flood Control Devices/MS4s

**G.3 WATERSHED PRIORITY POLLUTANTS AT TARGET SOURCES**

Assuming that selected activities will address some mixture of the top three target sources for load reduction, the following combination of watershed priority pollutants/stressors and target sources will generally be the focal point of watershed activities:

- Bacteria from applicable facilities, including: human litter; food and waste management; soil management/erosion control; animal/pet waste; and bathroom facilities (fixed or portable).
- Nutrients from general landscaping sources at applicable facilities as well as from specific operations: fertilizer storage and distribution; fertilizer application at recreational facilities; decorative roadside landscapes; and soil and mulch management/erosion control.
- Total Dissolved Solids from excessive potable water use.
- Low Dissolved Oxygen from sources of nutrients, sediment and organic matter (see above). Additional sources may include the intentional application to soil of organic compounds or the decomposition of vegetative litter.
- Turbidity from sources of sediment, organic matter and nutrients (see above). Additional sources may result from general housekeeping and human litter.

**H. EXPECTED BENEFITS**

As described further in Section 7.0 of the WURMP, the expected benefits of the proposed activities include reduction of pollutant mass discharged at the target sources and reduction of dry weather flows that serve as a potential transport mechanism for discharged pollutants.

**I. EFFECTIVENESS MEASUREMENTS**

The effectiveness of Copermittee activities will be measured and evaluated in terms of the intended outcomes established during the planning phase for that year's activities, which in turn are based on the Strategic Goal the activity is intended to serve. A more complete discussion of Copermittee effectiveness assessment methods and constraints is provided in Section V of the WURMP Annual Report. In general, the San Diego River Copermittees will consider the following types of anticipated outcomes and effectiveness metrics as time and financial constraints permit.

**PROPOSED WATERSHED IMPLEMENTATION ACTIVITIES: FISCAL YEAR 2008-09**

<b>Outcome Level</b>	<b>Anticipated Outcome of Activity</b>	<b>Effectiveness Metrics</b>
1 Permit Compliance	Compliance with Permit requirement to implement a Watershed Water Quality Activity (Section E.2.f.)	Number of applicable watershed activities implemented per jurisdiction.
2 Changes in Attitudes	Increased awareness among the public and municipal staff regarding sources of pollutants and the need to reduce pollutant discharges/exposures.	Pre- and post-training surveys of municipal staff attitudes. Pre and post implementation surveys of public attitudes at time attending parks.
3 Behavioral Change	Reduction in public behaviors that generate pollutants. Changes in municipal staff behavior, including increased use of inspection checklists, increased reporting of issues or improvement suggestions, reduction in landscape waste exposure to runoff.	Pre- and post-training observations of municipal staff behavior. Pre and post implementation observation of public behavior, e.g. trash surveys. Behavior may be directly observed or inferred from observed or documented conditions.
4 Load Reductions	Reduced volume of dry weather runoff. Reduced concentration of priority pollutants in dry and wet weather runoff.	Use permit-required source identification monitoring data. If necessary, supplement with a special study.
5 Discharge Quality	Reduced volume of dry weather discharges. Reduced concentration of priority pollutants in dry and wet weather discharges.	Use permit-required outfall and dry weather monitoring data. If necessary, supplement with a special study.
6 Receiving Water Quality	Reduced frequency of receiving water violations of WQOs for targeted priority pollutants.	Use available receiving water monitoring data. If necessary, supplement with a special study.

In general, currently available monitoring data and other kinds of readily available quantitative statistics will be used to evaluate effectiveness. The Copermittees may supplement this readily-available quantitative data with either special studies or qualitative evaluations as necessary to obtain a reasonable understanding of activity effectiveness. The special studies may take the form of targeted monitoring data collection, attitude surveys or inspections. These special studies may be conducted before activity implementation to establish baseline conditions, during implementation to measure interim progress and/or after implementation to measure changes in conditions. For the currently-proposed watershed activities, the following special studies are being considered:

- The Copermittees may catalogue the characteristics of parks and municipal facilities within the watershed that are known or assumed to be relevant to this evaluation. For example, the Copermittees may catalogue what types of specific sources are potentially present.
- Pre- and post-implementation surveys may be conducted to measure the attitudes of the public visiting the parks or municipal facilities.
- Pre- and post-implementation observations of facilities for evidence of changes in public behavior may be conducted.
- Pre-, during and post-training surveys may be conducted of municipal staff to assess changes in awareness and attitudes toward specific watershed issues and to help identify follow up issues and opportunities.

**PROPOSED WATERSHED IMPLEMENTATION ACTIVITIES: FISCAL YEAR 2008-09**

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- Pre- and post-training observations of municipal staff behavior through self reporting and/or targeted inspections for evidence of changes in behavior may be conducted.

**APPENDIX C**

**SUMMARY OF PLANNED PROGRAM IMPLEMENTATION  
FOR FISCAL YEAR 2009-10**



**A. ACTIVITY DESCRIPTION**

**A.1 INITIAL DESCRIPTION FOR PLANNING PURPOSES**

For FY2009-2010, the following Watershed Water Quality Activities are currently being considered for implementation. Final selection of the proposed activities will be made in FY 2008-2009 based on the results of initial planning and baseline activities and in accordance with the selection process described in the WURMP and in Section G below.

Water Quality:

- Promote the installation of weather-based controllers at commercial and industrial facilities with irrigation systems, which may include providing or facilitating subsidies/rebates or other means to increase their use. To the extent practicable, facility selection will be prioritized based on irrigation area/water runoff volumes and proximity to receiving waters.
- Target inspections based on property management company responsibility and cooperatively develop more specific BMPs to be implemented, and/or educate personnel associated with property management companies to ensure that BMPs are more effectively implemented.
- Perform inspections beyond jurisdictional compliance requirements targeting specific types of commercial and industrial facilities judged to be higher potential risks for discharging priority pollutants. The increased level of inspection will reduce loadings by ensuring higher levels of compliance with source control BMPs. The inspections will also serve as education opportunities, an opportunity to identify potential sources at these facilities not sufficiently addressed by current BMPs and an opportunity to request advice from knowledgeable facility personnel regarding other ways to reduce pollutant discharges. If appropriate, the current schedule of recommended BMPs will be updated in collaboration with the Region-wide Industrial and Commercial Facilities workgroup.
- Experiment with the implementation of new LID design or structural BMPs at new commercial or industrial developments of target sources and compare with more typical SUSMP-compliant developments to identify appropriate future requirements. If successful in establishing new standards for controlling pollutant discharges, the cumulative impact of lower loadings from future development is anticipated to be significant.

For fiscal year 2010, the following Watershed Education Activities are currently being considered for implementation. Final selection of the proposed activities will be made in fiscal year 2009 based on the results of initial planning and baseline activities and in accordance with the selection process described in the WURMP and in Section G below.

Education:

- Work with appropriate local associations to educate landscape maintenance contractors and property management companies regarding irrigation system repairs, reducing over-irrigation, reducing other excess water use, waste management, landscaping waste management, and landscape issues such as minimization of fertilizer applications. Develop self-inspection checklists for contractors and property managers to use during their work.
- Educate facilities targeted for additional inspections regarding BMPs during compliance inspections. This will also serve as an opportunity to identify potential sources at these facilities not sufficiently addressed by current BMPs and to request advice from knowledgeable facility personnel regarding other ways to reduce pollutant discharges.
- Develop and implement industry training seminars targeting specific industry groups and activities.

**A.2 PLANNING AND BASELINE ACTIVITIES**

The most significant activity during fiscal year 2008-09 that will serve as baseline data for activities in subsequent fiscal years is the source identification study currently being conducted in a coordinated manner by all five jurisdictions in the watershed.

- **Source Identification Study:** This is a critical activity that supports Copermittee decision-making regarding load reduction activity selection and implementation. The Copermittees, in particular the City of San Diego, are collectively spending over \$200,000 to identify sources of pollutants, specifically bacteria, in the lower San Diego River watershed. The City of San Diego has modeled this study after its Tecolote Creek Microbial Source Tracking Study with a similar design and intent, but will also include watershed-specific priority pollutants. The study will assess more than 15 San Diego River sites during two dry weather monitoring events. Specific likely sources, including industrial, residential, commercial and transport areas will also be investigated during dry weather. During wet weather, eight river monitoring locations will be investigated with the collection of pollutograph samples. In addition, wet weather loads from specific likely sources will be investigated. During both dry and wet weather assessments, the presence of fecal indicator bacterial, as well as human-specific indicators, will be assessed together with TDS, phosphorus and DO. In total, over 160 bacterial samples will be collected for analysis of fecal indicator bacteria. Approximately 50 samples will be analyzed for human-specific indicators. Up to 90 samples will also be analyzed for dissolved oxygen, total dissolved solids, total suspended solids, total phosphorus and orthophosphate throughout the San Diego River Watershed. Sampling will occur in fiscal year 2008-09 and reporting of results to Copermittees is currently scheduled to be completed in October 2009.

The following planning activities are currently being explored during fiscal year 2008-09 in order to facilitate implementation of Watershed Water Quality and Education Activities in 2009-10:

- The Copermittees may work with the water districts to identify the largest (by volume) commercial or industrial water users within the watershed and then work with other readily available data sources to develop methods for prioritizing users most likely to generate large volumes of runoff as targets for weather-based controller rebates/installation. The Copermittees will also develop methods for estimating pollutant loading reductions from the estimated or measured reduction in runoff volumes.
- Baseline surveys of attitudes and behavior may be conducted for initial target audiences, including golf course managers, animal/pet facility managers, nursery/garden center managers and property managers. Surveys of additional potential target audiences may be conducted as needed in order to develop a final list of sources targeted for watershed water quality and education activities.

**A.3 IMPLEMENTATION ACTIVITIES**

To be determined based on results of Planning and Baseline Activities.

**B. TMDL APPLICABILITY**

At this time, there are no adopted TMDLs currently in effect within the San Diego River WMA. The Bacteria TMDL has been adopted by the RWQCB, but has not yet been approved at the state level. Necessary changes to meet future TMDL specific requirements will be incorporated at that time. Current activities are being planned and will be implemented with the Bacteria TMDL requirements in mind.

**C. TIME SCHEDULE FOR IMPLEMENTATION**

Initial planning and baseline activities will be conducted in FY 2008-2009. Implementation of the proposed activities will be conducted in FY 2009-2010. Follow up activities to support effectiveness evaluations, if any, will be conducted in FY2010-2011 as necessary.

**D. PARTICIPATING WATERSHED COPERMITTEES**

At this time, all five San Diego River Copermittees are intending to participate in this process, but individual watershed activities have not yet been selected.

**E. OTHER PARTICIPATING ENTITIES**

At this time, it is not clear what other entities, if any, will participate. This work may result in some collaboration or information-sharing with the Regional Industrial and Commercial Sources workgroup.

**F. HIGH PRIORITY WATER QUALITY PROBLEMS ADDRESSED**

As described further in Section 7.0 of the WURMP, the proposed activities may address the following watershed priority pollutants or stressors:

- Bacteria Indicators
- Phosphorus
- TDS
- Low Dissolved Oxygen
- Turbidity

**G. CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**

As detailed in the WURMP, the proposed activities are consistent with the collective Watershed Strategy developed by the copermittees to the extent that they support at least one of the Watershed's Strategic Goals established in the WURMP. Generally, the San Diego River Copermittees will attempt to coordinate their activities to address the same subset of strategic goals in a given fiscal year in order to conserve resources and improve the likelihood of success. However, in some cases, individual jurisdictions may find it more appropriate to perform different activities that still support one of the Watershed Strategic Goals.

**G.1 DESCRIPTION OF TARGETED STRATEGIC GOALS**

The following Strategic Goals were established in the WURMP and are the targeted outcomes for activity implementation in FY 2009-2010.

- **Strategic Goal 1 - Dry Weather Flow Reduction:** By reducing dry weather flows, the San Diego River Copermittees expect to reduce dry weather loadings of priority pollutants to receiving waters

both by reducing the mass of pollutants discharged from the original water source and by reducing the ability of the water to act as a transport mechanism for other pollutant sources encountered on the water's path to the storm drain system and ultimate receiving water.

- **Strategic Goal 3 - Source Reduction at Commercial/Industrial Land Uses:** By reducing the mass of priority pollutants discharged to Copermittee storm drain systems and receiving waters from commercial and industrial land uses, the San Diego River Copermittees expect to reduce both dry and wet weather loadings of priority pollutants to receiving waters.
- **Strategic Goal 5 – Bacteria Source Reduction:** By reducing the mass of bacteria discharged to Copermittee storm drain systems and receiving waters, the San Diego River Copermittees expect to reduce both dry and wet weather loadings of bacteria to receiving waters. The specific land uses and sources targeted by this Strategic Goal will be selected based on the available data from ongoing monitoring programs and the results of implementing previous Strategic Goals. This goal will also support Copermittee implementation of the recently approved Bacteria TMDL.

## G.2 POTENTIAL TARGET SOURCES

Selected activities generally will target the following land use categories:

- Commercial
- Industrial

Based on the BLTEA TTWQ rankings, the following types of sources represent the top three potential targets for load reduction watershed activities within these land use categories. Not all may be addressed in a given year. If needed or appropriate, additional or substitute source types from Table 11 in the WURMP may be used.

- Landscaping
- Animal Facilities
- Gardens/Nurseries

Based on the BLTEA TTWQ rankings, the following types of sources represent the top three potential targets for source characterization watershed activities within these land use categories. Not all may be addressed in a given year. If needed or appropriate, additional or substitute source types from Table 12 in the WURMP may be used.

- Motor freight
- Municipal landfills
- Auto parking/Storage lots

## G.3 WATERSHED PRIORITY POLLUTANTS AT TARGET SOURCES

Assuming that selected activities will address some mixture of the top three target sources for load reduction, the following combination of watershed priority pollutants/stressors and target sources will generally be the focal point of watershed activities:

**PROPOSED WATERSHED IMPLEMENTATION ACTIVITIES: FISCAL YEAR 2009-10**

- Bacteria from applicable facilities (general landscaping and waste management) as well as from facility-specific types of sources: animal/pet food and waste management, soil management/erosion control, and portable bathroom facilities (if present).
- Nutrients from general landscaping at applicable facilities as well as from specific commercial operations: fertilizer storage at retailers, fertilizer storage and application at nurseries/commercial gardens and golf courses; soil and mulch management/erosion control at nurseries/commercial gardens, golf courses and animal facilities; animal waste management at animal facilities; portable bathroom facilities (if present), and vegetative litter.
- Total Dissolved Solids from excessive potable water use.
- Low Dissolved Oxygen from sources of nutrients, sediment and organic matter (see above). Additional sources may include the intentional application to soil of organic compounds or the decomposition of vegetative litter.
- Turbidity from sources of sediment, organic matter and nutrients (see above). Additional sources may result from general housekeeping and human litter.

**H. EXPECTED BENEFITS**

As described further in Section 7.0 of the WURMP, the expected benefits of the proposed activities include reduction of pollutant mass discharged at the target sources and reduction of dry weather flows that serve as a potential transport mechanism for discharged pollutants.

**I. EFFECTIVENESS MEASUREMENTS**

When evaluating the effectiveness of the proposed watershed activities, the Copermittees will consider the following anticipated outcomes and effectiveness metrics.

<b>Outcome Level</b>	<b>Anticipated Outcome of Activity</b>	<b>Effectiveness Metrics</b>
1 Permit Compliance	Compliance with Permit requirement to implement a Watershed Water Quality Activity (Section E.2.f.)	Number of applicable watershed activities implemented per jurisdiction.
2 Changes in Attitudes	Increased awareness among the targeted commercial/industrial personnel regarding sources of pollutants and the need to reduce pollutant discharges/exposures.	Pre- and post-training surveys of target audience attitudes.
3 Behavioral Change	Reduction in targeted behaviors at commercial/industrial facilities that generate pollutants. Increase in targeted audience behaviors that support watershed health and water quality.	Pre- and post-training observations of facility staff behavior. Behavior may be directly observed or inferred from observed or documented conditions.
4 Load Reductions	Reduced volume of dry weather runoff. Reduced concentration of priority pollutants in dry and wet weather runoff.	Use permit-required source identification monitoring data. If necessary, supplement with a special study.
5 Discharge Quality	Reduced volume of dry weather discharges. Reduced concentration of priority pollutants in dry and wet weather discharges.	Use permit-required outfall and dry weather monitoring data. If necessary, supplement with a special study.

**PROPOSED WATERSHED IMPLEMENTATION ACTIVITIES: FISCAL YEAR 2009-10**

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6 Receiving Water Quality	Reduced frequency of receiving water violations of WQOs for targeted priority pollutants.	Use available receiving water monitoring data. If necessary, supplement with a special study.
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In general, currently available monitoring data and other kinds of readily available quantitative statistics will be used to evaluate effectiveness. The Copermittees may supplement this readily available quantitative data with either special studies or qualitative evaluations as necessary to obtain a reasonable understanding of activity effectiveness. The special studies may take the form of targeted monitoring data collection, attitude surveys or inspections. These special studies may be conducted before activity implementation to establish baseline conditions, during implementation to measure interim progress and/or after implementation to measure changes in conditions. A list of anticipated special studies for these watershed activities will be developed during the planning activities during FY2008-2009.