APPENDIX A

COLLECTIVE WATERSHED STRATEGY AND HYDROLOGIC AREA WATER QUALITY PROBLEM ANALYSIS TABLES

Hydrologic Area Water Quality Problem Analysis

Water Quality Target: Bacteria (Total and Fecal Coliform, Enterococcus, E Coli)

San Diego River Watershed (Hydrologic Unit)							
Hydrologic Area (HA)	BLTEA Rating	2005/06 Rating	Jurisdictions in HA	Sufficient Monitoring Data?	Sources Sufficiently Characterized?	Most Prevalent Land Uses (Percent)	Action (based on matrix)
907.10 Lower San Diego	A	A	Cities of San Diego, Santee, La Mesa, and El Cajon; County of San Diego	Yes	Yes	Residential, Park/Municipal, Commercial/ Industrial	1. Select appropriate Watershed Activities.
907.20 San Vicente HA	A	C	County of San Diego	Yes	Yes	Undeveloped, Park/Municipal, Residential	7. Watershed Activities not needed for this pollutant in this HA.
907.30 El Capitan HA	A	B	County of San Diego	Yes	Yes	Undeveloped, Park/Municipal, Residential	1. Select appropriate Watershed Activities.
907.40 Boulder Creek HA	B	B	County of San Diego	No (no monitoring data in this HA)	No (no monitoring data in this HA)	Undeveloped, Park/Municipal, Residential	6. Monitoring to confirm rating and source identification studies.

Notes: Exceedance rating primarily based on Fecal Coliform. MLS data indicate enterococci may be a concern.
Padre Dam data indicates *E. Coli* may be a concern.

Hydrologic Area Water Quality Problem Analysis

Water Quality Target: Nutrients (Nitrogen and Phosphorus)

San Diego River Watershed (Hydrologic Unit)							
Hydrologic Area	BLTEA Rating	2005/06 LTEA Rating	Jurisdictions in HA	Sufficient Monitoring Data?	Sources Sufficiently Characterized?	Most Prevalent Land Uses (Percent)	Action (based on matrix)
907.10 Lower San Diego	A	A	Cities of San Diego, Santee, La Mesa, and El Cajon; County of San Diego	Yes	Yes	Residential, Park/Municipal, Commercial/ Industrial	1. Select appropriate Watershed Activities.
907.20 San Vicente HA	C	D	County of San Diego	Yes - LTEA rating should be adjusted to A or B	Yes	Undeveloped, Park/Municipal, Residential	1. Select appropriate Watershed Activities.
907.30 El Capitan HA	D	D	County of San Diego	Yes - LTEA rating should be adjusted to A or B	Yes	Undeveloped, Park/Municipal, Residential	1. Select appropriate Watershed Activities.
907.40 Boulder Creek HA	C	D	County of San Diego	No (only one data point - SWAMP)	No (only one data point - SWAMP)	Undeveloped, Park/Municipal, Residential	9. Monitoring to confirm rating.

Notes: Phosphorus data from City of San Diego Water Department in 907.21 and 907.31 indicate need to raise LTEA rating.
907.40 SWAMP Phosphorus data exceeds WQO of 0.1 mg/L in stream/flowing water

Hydrologic Area Water Quality Problem Analysis

Water Quality Target: Metals

San Diego River Watershed (Hydrologic Unit)							
Hydrologic Area	BLTEA Rating	2005/06 Rating	Jurisdictions in HA	Sufficient Monitoring Data?	Sources Sufficiently Characterized?	Most Prevalent Land Uses (Percent)	Action (based on matrix)
907.10 Lower San Diego	B	D	Cities of San Diego, Santee, La Mesa, and El Cajon; County of San Diego	Yes	Yes	Residential, Park/Municipal, Commercial/ Industrial	7. Focus efforts on other HAs.
907.20 San Vicente HA	C	D	County of San Diego	Yes	Yes	Undeveloped, Park/Municipal, Residential	7. Focus efforts on other HAs.
907.30 El Capitan HA	C	D	County of San Diego	Yes	Yes	Undeveloped, Park/Municipal, Residential	7. Focus efforts on other HAs.
907.40 Boulder Creek HA	C	D	County of San Diego	No (only one data point - SWAMP)	No (only one data point - SWAMP)	Undeveloped, Park/Municipal, Residential	9. Monitoring to confirm rating.

Hydrologic Area Water Quality Problem Analysis

Water Quality Target: Gross Pollutants (pH, trash, BOD, COD, and MBAS)

San Diego River Watershed (Hydrologic Unit)							
Hydrologic Area	BLTEA Rating	2005/06 Rating	Jurisdictions in HA	Sufficient Monitoring Data?	Sources Sufficiently Characterized?	Most Prevalent Land Uses (Percent)	Action (based on matrix)
907.10 Lower San Diego	A	A	Cities of San Diego, Santee, La Mesa, and El Cajon; County of San Diego	No	No	Residential, Park/Municipal, Commercial/ Industrial	4. Priority Rating should be lowered.
907.20 San Vicente HA	B	D	County of San Diego	Yes	Yes	Undeveloped, Park/Municipal, Residential	7. Focus efforts on other HAs.
907.30 El Capitan HA	B	D	County of San Diego	Yes	Yes	Undeveloped, Park/Municipal, Residential	7. Focus efforts on other HAs.
907.40 Boulder Creek HA	B	D	County of San Diego	No (only one data point - SWAMP)	No (only one data point - SWAMP)	Undeveloped, Park/Municipal, Residential	9. Monitoring to confirm rating.

Notes:

pH is 303d listed, but recent data may not support the listing except in City of El Cajon channels (Forester Creek 907.13) and City of SD Water Dept reservoirs (Lake Murray - 907.11; San Vicente 907.21; and El Capitan 907.31)

Trash monitoring will be done per Municipal Permit requirements and rating will be reevaluated in future.

Biological Oxygen Demand (BOD) and Chemical Oxygen Demand (COD) do not appear to be a significant problem based on limited MLS data, but additional data collection upstream is planned.

Methylene Blue Activated Substances (MBAS) do not appear to be a significant problem based on MLS and dry weather data.

Hydrologic Area Water Quality Problem Analysis

Water Quality Target: Gross Pollutants (DO)

San Diego River Watershed (Hydrologic Unit)							
Hydrologic Area	BLTEA Rating	2005/06 Rating	Jurisdictions in HA	Sufficient Monitoring Data?	Sources Sufficiently Characterized?	Most Prevalent Land Uses (Percent)	Action (based on matrix)
907.10 Lower San Diego	A	A	Cities of San Diego, Santee, La Mesa, and El Cajon; County of San Diego	Yes	Yes	Residential, Park/Municipal, Commercial/ Industrial	1. Select appropriate Watershed Activities.
907.20 San Vicente HA	B	D	County of San Diego	Yes - LTEA rating should be A or B	No	Undeveloped, Park/Municipal, Residential	2. Source Identification and characterization studies should be conducted.
907.30 El Capitan HA	B	D	County of San Diego	Yes - LTEA rating should be A or B	No	Undeveloped, Park/Municipal, Residential	2. Source Identification and characterization studies should be conducted.
907.40 Boulder Creek HA	B	D	County of San Diego	No (only one data point - SWAMP)	No (only one data point - SWAMP)	Undeveloped, Park/Municipal, Residential	9. Monitoring to confirm rating.

Notes: Dissolved oxygen 303d listing for Forester Creek appears to be erroneous. Padre Dam data indicates need to address. City of San Diego Water Department data indicates this stressor is a problem in reservoirs.

Hydrologic Area Water Quality Problem Analysis

Water Quality Target: Sediments (TSS, Turbidity)

San Diego River Watershed (Hydrologic Unit)							
Hydrologic Area	BLTEA Rating	2005/06 Rating	Jurisdictions in HA	Sufficient Monitoring Data?	Sources Sufficiently Characterized?	Most Prevalent Land Uses (Percent)	Action (based on matrix)
907.10 Lower San Diego	A	B	Cities of San Diego, Santee, La Mesa, and El Cajon; County of San Diego	Yes	Yes	Residential, Park/Municipal, Commercial/ Industrial	1. Select appropriate Watershed Activities.
907.20 San Vicente HA	B	C	County of San Diego	Yes	Yes	Undeveloped, Park/Municipal, Residential	7. Focus efforts on other HAs.
907.30 El Capitan HA	B	C	County of San Diego	Yes	Yes	Undeveloped, Park/Municipal, Residential	7. Focus efforts on other HAs.
907.40 Boulder Creek HA	B	A	County of San Diego	No (only one data point - SWAMP)	No (only one data point - SWAMP)	Undeveloped, Park/Municipal, Residential	6. Monitoring to confirm rating and source identification studies.

Notes:

Turbidity appears to be a potentially significant wet weather problem, but not dry weather.

TSS does not appear to be a significant problem based on limited MLS and Swamp data (Boulder Creek [907.40] appears to have exceedance but below RL), but may contribute to turbidity problems. Additional data collection upstream of MLS is planned.

303d listing for "color" at San Vicente Reservoir (907.21) and El Capitan Lake (907.31)

907.40 had exceedance for turbidity in the only sample collected - SWAMP May 2004

Hydrologic Area Water Quality Problem Analysis

Water Quality Target: Dissolved Minerals (TDS, Manganese, Sulfate)

San Diego River Watershed (Hydrologic Unit)							
Hydrologic Area	BLTEA Rating	2005/06 Rating	Jurisdictions in HA	Sufficient Monitoring Data?	Sources Sufficiently Characterized?	Most Prevalent Land Uses (Percent)	Action (based on matrix)
907.10 Lower San Diego	A	A	Cities of San Diego, Santee, La Mesa, and El Cajon; County of San Diego	Yes	Yes	Residential, Park/Municipal, Commercial/ Industrial	1. Select appropriate Watershed Activities.
907.20 San Vicente HA	B	B	County of San Diego	Yes	Yes	Undeveloped, Park/Municipal, Residential	1. Select appropriate Watershed Activities.
907.30 El Capitan HA	B	B	County of San Diego	Yes	Yes	Undeveloped, Park/Municipal, Residential	1. Select appropriate Watershed Activities.
907.40 Boulder Creek HA	B	C	County of San Diego	No (only one data point - SWAMP)	No (only one data point - SWAMP)	Undeveloped, Park/Municipal, Residential	9. Monitoring to confirm rating.

Notes:

TDS is the dominant COC and appears to be primarily a dry weather issue, although it also appears to be an occasional problem in early season rain events (some correlation with Bacteria problems).

Manganese and sulfate not analyzed in MLS and dry weather. SWAMP data indicate lower river (907.11) had exceedance for both manganese and sulfate. 303d listed for San Vicente Reservoir (907.21) and El Capitan Lake (907.31); data collected by City of SD Water 1996 to 2000.

APPENDIX B

WATERSHED ACTIVITY SUMMARIES

2008 WATERSHED ACTVITY ATTACHMENTS

- Proposed Watershed Implementation Activities: Fiscal Years 2008 and 2009
- Anticipated Activity Matrix
- Activity Descriptions
- Proposed Watershed Implementation Activities: Fiscal Years 2010

A. ACTIVITY DESCRIPTION

A.1 INITIAL DESCRIPTION FOR PLANNING PURPOSES

Since the current Municipal Permit takes effect in the middle of fiscal year 2008 and proposed activities will only be in effect for part of the fiscal year, the San Diego River Copermittees will implement activities supporting the same Strategic Goals in both fiscal year 2008 and fiscal year 2009. In each fiscal year, at least two Watershed Water Quality Activities will be implemented at the jurisdictional level, potentially including:

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 used by pets.
- 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.

In each fiscal year, at least two Watershed Education Activities will be implemented at the jurisdictional level, potentially including:

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.

A.2 PLANNING AND BASELINE ACTIVITIES (FISCAL YEAR 2008)

Since this is the first year of implementation under the new watershed program, the timeframe for planning implementation of these activities is somewhat compressed. This issue of timing, and more particularly the issue of municipal budgets being established far in advance, will likely affect the results. For example, the cataloguing of municipal facility characteristics may be conducted

concurrently with actual implementation of the selected activities, which means that selection in fiscal year 2008 of the municipal facilities to represent conditions at similar facilities will be based on the existing, incomplete knowledge of municipal staff rather than a comprehensive data set. To the extent possible, data from the representative municipal facilities will be collected through existing programs such as the dry weather monitoring program.

Each Copermittee will work with the relevant municipal departments, primarily the Parks & Recreation, Facility Maintenance and Public Works Departments, to develop specific plans for implementing the selected activities across a number of municipal facilities and for tracking implementation. The pre-implementation surveys of the attitudes and behavior of public and municipal staff may be performed in fiscal year 2008 if time and resources permit. Otherwise, these activities will be performed early in fiscal year 2009.

A.3 IMPLEMENTATION ACTIVITIES (FISCAL YEARS 2008 and 2009)

In the transition to the new WURMP activity development process, the Copermittees will continue to implement the watershed activities from the previous year as described in the attached table. Activity sheets for continuing activities were submitted in the San Diego River WURMP 2006-2007 Annual Report and are not repeated here. Activity sheets are provided for new activities.

For fiscal year 2009, the San Diego River Copermittees are in the process of developing a final list of watershed activities based on the process developed in the current WURMP. A preliminary list is provided in Section A.1

B. TMDL APPLICABILITY

At this time, there are no adopted TMDLs currently in effect within the San Diego River WMA. Necessary changes to meet future TMDL specific requirements will be incorporated at that time.

C. TIME SCHEDULE FOR IMPLEMENTATION

Since this is the first year of implementation under the new watershed program, initial planning and baseline activities will be conducted in fiscal years 2008 and 2009. Implementation of the proposed activities will also be conducted in both fiscal years. Follow up activities to support effectiveness evaluations, if any, will be conducted in fiscal year 2010-2011 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, 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 Strategic Goals established by the WURMP serve as the narrative objectives that the proposed watershed activities intend to achieve. Consistent with the watershed strategy developed in the WURMP, the Copermittees will implement activities in each fiscal year that support the following Strategic Goals:

- **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, 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.

Outcome Level	Anticipated Outcome of Activity	Effectiveness Metrics
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. As necessary to obtain a reasonable understanding of effectiveness, the Copermittees may supplement this readily-available quantitative data with either special studies or qualitative evaluations. 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.

- 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.

- Representative municipal parks and facilities may be monitored for dry and wet weather discharges the years before (if possible), during and after the activity implementation.

Anticipated Watershed Activities Matrix for 2007-08 Activities

	ACTIVITY NAME	Collective Watershed Activity	Individual Watershed Activity	Regional Watershed Activity	POLLUTANTS TO BE ADDRESSED											COMPONENTS IN PROGRESS IN FISCAL YEAR 2007-08							Activity Status for Fiscal Year 2007-08*	Activity Description Location**
					High Priority						COC													
					Bacteria	TDS	Total Phosphorous	DO	Gross Pollutants	pH	Turbidity	Diazinon	Eutrophication	Benthic Community Degradation	Copper	Planning / Development	Monitoring	Inspections	BMP Implementation	Source Identification	Outreach	Pollutant / Load Reduction		
Special Studies / Source ID / Pollution Reduction	**Activities to Address High Priority TTWQ Sources:**																							
	Porous Pavement and Model Municipal Operations Center Demonstration Project - Phase II (County of San Diego)		X		X		X		X		X				X	X	X						O	Attached: SDR-2008-1
	ALPHA Project for the Homeless Cleanup (City of San Diego)		X		X				X										X			X	O	2006-07 Annual Report Appendix A-2
	CBI Grant SDR Ocean Beach WQ Improvement Project, Phase II (City of San Diego)		X		X											X	X	X	X				O	2006-07 Annual Report Appendix A-3
	San Diego Riverbed Homeless Encampment Removal Project (City of Santee)		X		X				X								X					X	O	2006-07 Annual Report Appendix A-4
	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	Attached: SDR-2008-2
	Increase in Dry Weather Monitoring for Bacterial Indicators in Suspected Problem Areas (City of Santee)		X		X												X			X		X	O	2006-07 Annual Report Appendix A-6
	Forrester Creek Homeless Encampment Removal Project (City of El Cajon)		X		X															X		X	O	2006-07 Annual Report Appendix A-7
	Coastal Cleanup Day - Lake Murray & Alvarado Channel (City of La Mesa)		X		X			X	X							X					X	X	O	2006-07 Annual Report Appendix A-8
	San Diego River Park Foundation Cleanup Event Sponsorship (City of San Diego)		X		X				X							X					X	X	O	2006-07 Annual Report Appendix A-9
	Wet Weather Monitoring (La Mesa)		X		X	X	X	X	X	X	X	X			X	X	X			X			O	2006-07 Annual Report Appendix A-10
	Additional Dry Weather Monitoring (City of La Mesa)		X		X	X	X	X	X	X	X	X			X	X	X			X			N	2006-07 Annual Report Appendix A-11
	Park Appreciation Days (City of La Mesa)		X		X	X		X	X		X					X					X	X	O	2006-07 Annual Report Appendix A-12
	Canine Corners Harry Griffith Park (La Mesa)		X		X	X		X														X	O	2006-07 Annual Report Appendix A-13
	Adopt a Park/Adopt A Block (La Mesa)		X		X	X		X			X					X						X	O	2006-07 Annual Report Appendix A-14
	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	O	2006-07 Annual Report Appendix A-15
	Trash Removal Activities in Santee (City of Santee)		X		X			X													X	X	O	2006-07 Annual Report Appendix A-16
	Fecal Coliform Source Investigations at Forester Creek (City of El Cajon and City of Santee)	X			X															X		X	O	2006-07 Annual Report Appendix A-17
	San Diego River Watershed Targeted Restaurant Inspection (City of San Diego)		X		X													X		X	X	X	O	2006-07 Annual Report Appendix A-18
	Activities to Address Watershed High Priority Pollutants:																							
	Maintenance/Inspection of Forrester Creek Trash Barrier (City of El Cajon)		X		X				X									X	X				O	2006-07 Annual Report Appendix A-19
	Forrester Creek Improvements (City of Santee)		X		X	X		X	X		X			X		X	X	X	X		X		O	2006-07 Annual Report Appendix A-21
	Woodside Avenue Detention Basin (County of San Diego)		X		X	X	X	X		X	X	X	X	X	X		X	X	X	X	X		X	O	Attached: SDR-2008-3
	San Diego River Flinn Springs Porous Pavement (County of San Diego)		X		X	X	X		X		X				X	X							O	Attached: SDR-2008-4
	Woodglen Vista Creek Improvement Project (City of Santee)		X		X	X		X	X										X				O	2006-07 Annual Report Appendix A-24
	Multiple Species Conservation Program (MSCP) South County Subarea (County of San Diego)		X			X										X					X		O	2006-07 Annual Report Appendix A-25
	San Diego River Indicator Bacteria Study (County of San Diego)		X		X												X			X			O	Attached: SDR-2008-5
	IRWMP Grant Preparation		X		X				X		X			X	X	X							O	2006-07 Annual Report Appendix A-28
	Stormwater Quality Master Plans for Special Drainage Fee Areas (County of San Diego)		X		X	X	X	X	X	X	X	X	X	X	X	X							N	Attached: SDR-2008-6
	Land Acquisitions MSCP (County of San Diego)		X		X											X							N	Attached: SDR-2008-7
	Lakeside Ballfield Park		X		X	X	X	X	X	X	X	X	X	X	X	X							N	Attached: SDR-2008-8
	Coastal Cleanup Day Sponsorship (City of San Diego)		X		X				X												X	X	N	Attached: SDR-2008-9
	Municipal Rain Barrel Installation (City of San Diego)		X		X		X		X			X							X			X	N	Attached: SDR-2008-10
	Animal Related Facilities Inspection (City of San Diego)		X		X		X											X		X	X	X	N	Attached: SDR-2008-11
Land Use Activities	Impervious Cover Coefficients (San Diego County)		X																				O	Attached: SDR-2008-12
	Low Impact Design (LID) Handbook (County of San Diego)		X		X	X	X					X			X	X			X		X	X	O	2006-07 Annual Report Appendix A-33

Anticipated Watershed Activities Matrix for 2007-08 Activities

	ACTIVITY NAME	Collective Watershed Activity	Individual Watershed Activity	Regional Watershed Activity	POLLUTANTS TO BE ADDRESSED											COMPONENTS IN PROGRESS IN FISCAL YEAR 2007-08							Activity Status for Fiscal Year 2007-08*	Activity Description Location**
					High Priority						COC														
					Bacteria	TDS	Total Phosphorous	DO	Gross Pollutants	pH	Turbidity	Diazinon	Eutrophication	Benthic Community Degradation	Copper	Planning / Development	Monitoring	Inspections	BMP Implementation	Source Identification	Outreach	Pollutant / Load Reduction		
Education Activities	San Diego River Watershed Boundary Signs (City of San Diego, County of San Diego)		X													X					X		O	2006-07 Annual Report Appendix A-34
	San Diego River Watershed Erosion and Sedimentation Poster (City of San Diego)		X		X						X							X		X	X	X	O	2006-07 Annual Report Appendix A-35
	San Diego River Restaurant BMP Booklet (City of San Diego)		X		X				X												X		O	2006-07 Annual Report Appendix A-36
	Outreach on Pet Waste Management (City of Santee)		X		X			X					X	X							X		O	2006-07 Annual Report Appendix A-37
	Integrated Pest Management PRISM Grant			X								X									X		O	2006-07 Annual Report Appendix A-38
	San Diego River Watershed Pesticide and Herbicide Guide Brochure (City of San Diego)		X									X									X		O	2006-07 Annual Report Appendix A-39
	School Outreach (all)	X		X																	X		O	2006-07 Annual Report Appendix A-40
	Partners for Clean Water and Community Events (all)	X		X																	X		O	2006-07 Annual Report Appendix A-41
	Public Presentations, Outreach and Media	X		X																	X		O	2006-07 Annual Report Appendix A-42
	Oktoberfest (City of La Mesa)		X		X	X	X	X		X	X	X	X	X	X	X				X	X		O	2006-07 Annual Report Appendix A-45
	Intergenerational Games La Mesa Middle School (City of La Mesa)		X		X	X	X	X		X	X	X	X	X	X	X				X	X		O	2006-07 Annual Report Appendix A-46
	LID Watershed Planning Education (County of San Diego)															X							N	Attached: SDR-2008-13
	Karma/Karma Second Chance Public Service Announcements (City of San Diego)		X		X				X												X		N	Attached: SDR-2008-14
	Billboards/Transit Shelters (City of San Diego)		X		X																X		N	Attached: SDR-2008-15
	Mobile Advertising (City of San Diego)		X		X				X			X			X						X		N	Attached: SDR-2008-16
	San Diego River Park Foundation Sponsorship (City of San Diego)		X		X		X		X			X									X	X	N	Attached: SDR-2008-17
Public Participation	San Diego River Coalition Meetings (all)	X			X	X	X	X		X	X	X	X	X	X	X					X		O	2006-07 Annual Report Appendix A-47
	Project Clean Water - San Diego River Watershed Website (all)	X			X	X	X	X		X	X	X	X	X	X	X					X		O	2006-07 Annual Report Appendix A-48
Administrative Activities																								

* N = New; O = Ongoing; C = Completed

TITLE: **Porous Pavement and Model Municipal Operations Center Demonstration Project**

ID NUMBER: **SDR-2008-1**

ACTIVITY DESCRIPTION

The Porous Pavement and Model Municipal Operations Center Demonstration Project is a phased project with Phase I completed during FY 2005-06 and Phase II scheduled for completion in October 2007.

Phase I

Phase I involved implementation of the Porous Pavement and Model Municipal Operations Center Demonstration Project. Along with matching funds, grant money was used to install approximately 63,000 square feet of three different porous pavement product types and a centralized underground water quality treatment control system at the County Operations Center (COC) in Kearny Mesa. The grant also funded monitoring to evaluate the performance of these state-of-the-art best management practices (BMPs) and extensive outreach and training efforts. One of the project's main goals was to demonstrate to municipal managers and the construction industry the benefits and feasibility of installing porous paving and enhanced treatment facilities at municipal parking lots and maintenance yards. The project was also intended to educate municipal employees and contractors (especially architects and engineers) about the installation of porous paving and the use of structural BMPs at municipal facilities.

Phase II

On September 6, 2006, the SWRCB awarded the County of San Diego an additional $1.5 million in Proposition 40 funding for a project demonstrating the benefits and feasibility of installing porous pavement and enhanced structural treatment controls at the COC. Phase II consists of upgrades to the Phase I project described above. Among the porous pavement mixes and configurations to be reviewed are: 1) asphalt with either 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.

In addition, the proposal recommends 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 current, primary treatment unit captures sediment, trash, debris, and undissolvable oil and grease from the COC's 35 acres, the upgraded media filtration units will target more difficult pollutants, such as dissolved hydrocarbons, heavy metals (copper, zinc, cadmium, chromium), organics, and phosphorous. The existing stormwater media filtration treatment capability will increase from one unit treating 1.25 cfs to four units treating 6.4 cfs. This will 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. Consistent with the requirements of the SWRCB, this proposal will continue existing BMP assessment and monitoring for the duration of the new grant term.

The Phase II program addresses several questions:

- How do normalized stormwater discharges from each pavement type (porous asphalt, porous concrete and pavers) compare to normalized runoff from the reference area for individual storm events as well as the entire storm season?
- How does stormwater discharge water quality for each pavement type, measured in terms of flow-rated event mean concentrations, compare to runoff quality from the reference area?
- How do infiltration basins associated with each of the porous surface treatments impact stormwater discharge hydrographs?
- How do normalized pollutant loading rates associated with each porous surface treatment compare to those of the adjacent impervious reference area?
- At what rates do water levels in the infiltration basins of each treatment type change during and between storm events?

Phase II will consist of:

- Installing approximately 54,000 square feet of additional porous asphalt and concrete
- Expanding the existing centralized stormwater media filtration treatment capability
- Facilitating the evaluation of different filtration media as they relate to water quality improvement
- Existing monitoring systems for porous pavement and the media filtration systems will have enhanced design and performance.

The County has enlisted Coastkeeper to assist in providing additional outreach regarding the benefits and results of this project.

TMDL APPLICABILITY

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

TIME SCHEDULE FOR IMPLEMENTATION

Completion of Phase II is scheduled for October 2007.

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

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.

EXPECTED BENEFITS

This activity directly addresses high priority water quality issues by reducing the amount of pollutants leaving the COC and reducing the pollutants' potential for entering receiving waters. The porous pavement project reduces runoff and, consequently, the discharge of pollutants to receiving waters. It also reduces erosion and the down cutting of streams. The promotion of porous paving to reduce imperviousness, and the installation of treatment trains to remove pollutants from runoff that does occur, will protect water quality and enhance the ecological processes and environmental resources of the watershed.

Anticipated outcomes of the Phase II project are:

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

EFFECTIVENESS MEASUREMENTS

Activity effectiveness will be measured by confirming completion of all project elements (Level 1 Outcome). Monitoring will conducted to assess the pollutant and runoff reductions resulting from both the porous pavement and the media filtration systems (Level 4 Outcome).

TITLE: **Pet Waste Bag Dispenser Program in County Parks**
ID NUMBER: **SDR-2008-2**

ACTIVITY DESCRIPTION

The County of San Diego maintains an inventory of pet waste bag dispensers in its parks. Two important goals of this program are to reduce the amount of pet waste found in parks and to educate the public on the need to cleanup after their pets. Realization of these goals will result in the reduction of pollutant loads, particularly bacteria and nutrients. In the San Diego River Watershed, there are currently 25 dispensers located in 11 County parks:

- Cactus Park (1 dispenser)
- Dos Picos Park (5 dispensers)
- El Monte Park (3 dispensers)
- Flinn Springs Park (2 dispensers)
- Heritage Park (1 dispenser)
- Lake Jennings Park (4 dispensers)
- Lindo Lake Park (4 dispensers)
- Louis A. Stelzer Park (1 dispenser)
- Oakoasis Park (1 dispenser)
- Rios Canyon Sports Park (1 dispenser)
- William Heise (6 dispensers)

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

TMDL APPLICABILITY

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

TIME SCHEDULE FOR IMPLEMENTATION

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

PARTICIPATING WATERSHED COPERMITTEES

- County of San Diego

OTHER PARTICIPATING ENTITIES

- None

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria
- Dissolved Oxygen

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

Bacteria and dissolved oxygen have been identified as priority water quality problems in the San Diego River Watershed. Parks have been identified as potential sources of these pollutants. Since this activity addresses a priority water quality problem and a priority source, it is consistent with the collective watershed strategy.

EXPECTED BENEFITS

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

EFFECTIVENESS MEASUREMENTS

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

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

TITLE: **Woodside Avenue Detention Basin**
ID NUMBER: **SDR-2008-3**

ACTIVITY DESCRIPTION

The County of San Diego received Proposition 13 funding from the State Water Resources Control Board (SWRCB) to perform conveyance restoration and to construct a best management practice (BMP) to treat urban runoff from the Winter Gardens sub-watershed before discharging into Los Coches Creek and the San Diego River in the unincorporated community of Lakeside. The constructed BMP and concrete removal BMP are designed to act as a demonstration for the effectiveness of similar BMPs at removing pollutants from water systems. A water quality monitoring component was also initiated to provide hard evidence of the pollutant removal capabilities of the BMP.

TMDL APPLICABILITY

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

TIME SCHEDULE FOR IMPLEMENTATION

Although the grant has been completed (close out in May 2007), the County will continue to take samples at the site to gauge its effectiveness at removing pollutants.

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.

EXPECTED BENEFITS

This project is designed to address non-point source (NPS) pollution from the community. In addition, it is designed to enhance and restore beneficial uses within the San Diego River Watershed. The San Diego River is listed on the Clean Water Act (CWA) Section 303(d) list for high bacterial indicators, phosphorous, low dissolved oxygen, and total dissolved solids. These pollutants are characteristic of urban runoff from residential areas. In addition to the water quality benefits expected, this project provides improved landscaping for the community and flooding relief for Woodside Avenue.

EFFECTIVENESS MEASUREMENTS

The County will continue to take samples at the site to gauge its effectiveness at removing pollutants (Level 4 Outcome).

TITLE: **Flinn Springs County Park Porous Paving Project**
ID NUMBER: **SDR-2008-4**

ACTIVITY DESCRIPTION

Given the success of the porous paving demonstration project funded by Proposition 13 at the County Operations Center, the County Department of Parks and Recreation (DPR) proposes to build upon lessons learned and implement the preferred technology at its facility parking lots, beginning with Flinn Springs County Park. Runoff from the parking lots at Flinn Springs Park discharges into the adjacent Los Coches Creek in the San Diego River Watershed. DPR's ultimate goal is to utilize porous paving where appropriate in the 80 facilities it manages.

Porous paving allows infiltration of dissolved nutrients, such as phosphorous, bacterial contaminants from human and /or other animal waste, and oil and grease through the porous surface down in to the crushed rock bed below. This 12"-18" depth bed allows percolation into the soil substrate breaking down the pollutants before recharging the groundwater table below. Surface runoff carrying pollutants into adjacent streams is eliminated or greatly reduced with the use of porous paving technologies. Installation of porous pavement will increase infiltration and reduce excess runoff associated with surface parking lots.

Monitoring will continue for six major storm events following construction completion. Monitoring results will be used to determine the effectiveness of the porous paving in comparison to standard impervious paving in reducing pollutant runoff into Los Coches Creek

TMDL APPLICABILITY

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

TIME SCHEDULE FOR IMPLEMENTATION

Construction is scheduled for completion in January 2008. Stormwater monitoring will begin immediately after construction completion and will continue through the rainy season with data to be compiled in August 2008.

PARTICIPATING WATERSHED COPERMITTEES

- County of San Diego

OTHER PARTICIPATING ENTITIES

- None

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- All

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

Since this activity addresses priority water quality problems it is consistent with the collective watershed strategy.

EXPECTED BENEFITS

This project will demonstrate the effectiveness of porous paving in reducing surface runoff and associated pollutants flowing into Los Coches Creek and will serve as a prototype for future installations at County parks.

EFFECTIVENESS MEASUREMENTS

Activity effectiveness will be assessed by confirming completion of all project elements (Level 1 Outcome). Post-project monitoring will also be conducted to determine the reduction in pollutant loading resulting from the porous paving in comparison to standard impervious paving (Level 4 Outcome).

TITLE: **San Diego River Indicator Bacteria Study**
ID NUMBER: **SDR-2008-5**

ACTIVITY DESCRIPTION

The purpose of this activity is 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 is conducted during and/or up to three days following rain while dry weather sampling is carried out three or more days following rainfall.

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 will be completed in August 2007.
- Data will be summarized, analyzed, and interpreted in FY 2007-08.

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.

EXPECTED BENEFITS

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.

EFFECTIVENESS MEASUREMENTS

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

TITLE: **Stormwater Quality Master Plans for Special Drainage Fee Areas**
ID: **SDR-2008-6**

ACTIVITY DESCRIPTION

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

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

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

- SDA 5 (Bostonia)
- SDA 6 (Lakeside)
- SDA 7 (Alpine)

TMDL APPLICABILITY

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

TIME SCHEDULE FOR IMPLEMENTATION

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

PARTICIPATING WATERSHED COPERMITTEES

- County of San Diego

OTHER PARTICIPATING ENTITIES

- None

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

To be determined

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

To be determined

EXPECTED BENEFITS

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

EFFECTIVENESS MEASUREMENTS

To be determined

TITLE: **LAND ACQUISITIONS**
ID NUMBER: **SDR-2008-7**

ACTIVITY TYPE

Watershed Water Quality Activity

ACTIVITY DESCRIPTION

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

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

TMDL APPLICABILITY

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

TIME SCHEDULE FOR IMPLEMENTATION

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

PARTICIPATING WATERSHED COPERMITTEES

- County of San Diego

OTHER PARTICIPATING ENTITIES

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

- Developers

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- 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.

EXPECTED BENEFITS

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

EFFECTIVENESS MEASUREMENTS

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

TITLE: **Lakeside Baseball Park**
ID NUMBER: **SDR-2008-8**

ACTIVITY DESCRIPTION

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

The project is estimated to be completed during FY 08-09.

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).

EXPECTED BENEFITS

The expected benefits include controlled and reduced run-off of silt, sediment, and other high priority water quality problems (bacteria indicators, nutrients, etc.), as well as water conservation.

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). Water will drain into the detention basins for filtering before seeping into the ground.

TITLE: **San Diego Coastkeeper Trash Cleanup Sponsorship**
ID NUMBER: **SDR-2008-9**

ACTIVITY DESCRIPTION

Each fall, San Diego Coastkeeper 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.

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.

PARTICIPATING WATERSHED COPERMITTEE(S)

- City of San Diego

OTHER PARTICIPATING ENTITIES

- San Diego Coastkeeper
- I Love A Clean San Diego
- Volunteers from general public

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

The Collective Watershed Strategy for the San Diego River WMA identifies bacteria as a high priority water quality problem in the WMA and recommends 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.

EXPECTED BENEFITS

Although Coastal Cleanup Day is focused on debris removal, it also addresses bacteria indirectly by removing a bacterial source: trash. Literature published by the United States Environmental Protection Agency on its website[1] states that debris may be contaminated by pathogens that have adverse effects on humans. By reducing the amount of trash and debris in the San Diego River WMA through cleanup events, bacteria loading is reduced.

[1] http://www.epa.gov/owow/oceans/debris/

EFFECTIVENESS MEASUREMENTS

Management Questions:	• What is the load reduction associated with sponsorship? • What is the efficiency of trash cleanup? ($/person or $/ton collected)
Targeted Measurable Outcome(s)	• Achieve load reduction of trash (any amount) due to trash cleanup sponsorship
Assessment Method(s)	• Tabulation (e.g., number of participants) • Quantification (e.g., pounds of trash collected)
Assessment Measures, Assessment Outcome Levels & Data:	• Money spent (USD) (Outcome Level 1 and 2) • Tons of trash (Outcome Level 4) • Number of participants (Outcome Level 1) • Compliance (yes/no) (Outcome Level 1)

TITLE: **Municipal Rain Barrel Installation and Downspout Disconnects**
ID NUMBER: **SDR-2008-10**

ACTIVITY DESCRIPTION

This activity will involve the installation of rain barrels and/or the disconnection of downspouts to direct runoff from municipal facility roofs into pervious areas (such as landscaping) for infiltration. Rain barrels, downspout disconnects, and rainwater harvesting/reuse systems help to capture, store, and divert urban runoff to reduce the volume thereof, thus contributing to reduced flooding, erosion, and the contamination of surface water with sediment, fertilizer, metals, and pesticides. In addition, this activity has the added benefit of water conservation; runoff collected and diverted to landscaping would help reduce the amount of potable water needed for irrigation. Roof runoff solutions can be used both in large-scale landscapes, such as municipal buildings, community centers, schools, and commercial sites, as well as in small residential landscapes.

TMDL APPLICABILITY

- San Diego Region Beaches and Creeks Bacteria TMDL

TIME SCHEDULE FOR IMPLEMENTATION

Project planning began in July 2007 and is anticipated to continue until the end of calendar year 2007. Procurement of rain barrels and other items and installation are anticipated to occur from November 2007 through February 2008.

PARTICIPATING WATERSHED COPERMITTEE(S)

- City of San Diego

OTHER PARTICIPATING ENTITIES

- San Diego Coastkeeper – project supporter

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria
- Nutrients
- Dissolved Oxygen
- Dissolved Minerals

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

The Collective Watershed Strategy for the San Diego River WMA identifies bacteria, nutrients, dissolved oxygen, and dissolved minerals as high priority water quality problems in the WMA and recommends implementing load reduction/source abatement activities to address them. Implementation of this activity will address these high priority water quality problems by reducing runoff volume via capture, retention, and infiltration.

EXPECTED BENEFITS

Implementation of this activity will reduce pollutant loading by reducing runoff volume via capture, retention, and eventual infiltration.

In addition, implementation of this activity is in accordance with the City's *Strategic Plan for Watershed Activity Implementation* (November 2007), which calls for the piloting of rain barrels, downspout disconnects, and rainwater harvesting/reuse systems to reduce urban runoff volume and pollution. Knowledge and experience gained through this activity will help the City document the benefits, limitations, and challenges of rain barrels and downspout disconnects as urban runoff pollution controls before implementation on a broader scale throughout its jurisdiction in meeting Municipal Permit and TMDL requirements.

EFFECTIVENESS MEASUREMENTS

Management Questions:	• What is the effectiveness/efficiency of rain barrel/rain-harvesting systems in reducing stormwater runoff volume? • What is the loading reduction of different systems? • Which system is most efficient in collecting and/or diverting rainwater? • Which system results in the largest load reductions?
Targeted Measurable Outcome(s)	• Reduction in pollutant loads due to rain barrel installation
Assessment Method(s)	• Monitoring (e.g., load reduction estimation) • Quantification (e.g., calculation of load reductions, or estimates of change) • Tabulation (e.g., number of rain barrel systems installed, amount of money spent) • Reporting (e.g., 3rd party data to estimate load reductions)
Assessment Measures, Assessment Outcome Levels & Data:	• Cost of rain barrel systems (Outcome Level 1 and 2) • Cost of maintenance/upkeep (Outcome Level 1 and 2) • Cost of implementation (Outcome Level 1 and 2) • Volume of stormwater captured/diverted (Outcome Level 4) • Concentrations of COCs in rainwater or runoff (measured in rain barrel systems) (Outcome Level 4) • Compare 3rd party data to measured data for load reduction comparisons (Outcome Level 3) • What is the percent capture of the different systems (acres drained) (Outcome Level 4)

TITLE: **Targeted Animal-Related Facility Inspections**
ID NUMBER: **SDR-2008-11**

ACTIVITY DESCRIPTION

The Storm Water Pollution Prevention Division (Storm Water Division) is developing a focused inspection activity to target animal-related facilities within the San Diego River WMA. The purpose of the activity is to:

- Determine the most efficient frequency of inspections to ensure proper 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 animal-related 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 Storm Water Division will delineate a specific area within the San Diego River WMA to conduct the targeted inspections based on factors, such as monitoring data, facility clustering, and proximity to other watershed activities being conducted. Discharges cleaned up, behaviors corrected, and sources abated will also be reported. The Storm Water Division anticipates using the knowledge and experienced gained through this activity to optimize the City's jurisdictional industrial and commercial facility inspection program to meet Municipal Permit and TMDL requirements.

TMDL APPLICABILITY

- San Diego Region Beaches and Creeks Bacteria TMDL

TIME SCHEDULE FOR IMPLEMENTATION

Activity planning began in July 2007. The Storm Water Division anticipates selecting and hiring a consultant on board by the end of calendar year 2007 to help develop and implement the activity within FY 2008 through FY 2009.

PARTICIPATING WATERSHED COPERMITTEE(S)

- City of San Diego

OTHER PARTICIPATING ENTITIES

- N/A

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria
- Nutrients

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

The Collective Watershed Strategy for the San Diego River WMA identifies bacteria and nutrients as high priority water quality problems in the WMA and recommends implementing load reduction/source abatement activities to address them. Implementation of this focused inspection activity will contribute to addressing discharges, correct behaviors, and abate sources associated with bacteria and nutrients.

EXPECTED BENEFITS

This focused inspection activity will contribute to reducing discharges, characterizing activities, correcting behaviors, and abating sources associated with bacteria at animal-related facilities. Knowledge and experience gained through this activity would help the City optimize its jurisdictional industrial and commercial facility inspection program.

EFFECTIVENESS MEASUREMENTS

Management Questions:	• Do inspections increase rate of BMP implementation? • Does increased rate of BMP implementation affect load reduction? • What is the optimal frequency of inspection (point of diminishing returns)? • Are spot inspections more effective than scheduled inspections? • Does enforcement alter future behavior (implementing BMPs)? • Does education increase rate of BMP implementation? • How can an estimate of load reduction be made from inspection data?
Targeted Measurable Outcome(s)	• Achieve load reduction from optimized inspection rate • Achieve greater BMP implementation from optimized inspection rate
Assessment Method(s)	• Inspections (e.g., track number of BMPs implemented, increased number of BMPs, number of follow-up inspections) • Quantification (e.g., use frequency of BMP implementation to calculate estimated load reduction) • Monitoring (e.g., collect special study information to collect concentrations and flows to estimate load reduction) • Tabulation (e.g., amount of money spent on inspections, amount of money spent on educational materials) • Reporting (e.g., estimates of load reduction for BMPs from 3rd party data)
Assessment Measures, Assessment Outcome Levels & Data:	• Number of inspections (spot and scheduled) (Outcome Level 1) • Number of BMPs implemented (Outcome Level 1) • Change (%) in BMP implementation pre and post-education (Outcome Level 3) • Number of missing BMPs (Outcome Level 1) • Number of follow-up inspections (Outcome Level 1) • Number of enforcement follow-ups (Outcome Level 1) • Number of educational information items passed out (Outcome Level 1) • How much money spent on inspections (follow ups, initial inspections, enforcement actions)? (Outcome Level 1) • Literature review or other information to provide data to estimate load reductions (Outcome Level 3) • Dataset of load contributions for specific activities (Outcome Level 4)

TITLE: **Impervious Cover Coefficients**
ID NUMBER: **SDR-2008-12**

ACTIVITY DESCRIPTION

Relatively recent literature maintains that specific ratios of impervious surface cover, commonly referred to as impervious surface coefficients, exist for various types of land use categories. However, coefficients specific to San Diego County have not been developed. In an effort to derive coefficients for a specific land use category in the unincorporated areas of the County of San Diego, this research project examines a segment of the San Diego River Watershed using geographical information systems (GIS) and remote sensing (RS) technologies.

As reported previously in the Common Activities section of the Copermittees' Unified Annual Report, a County GIS team produced a research project entitled "Upper San Diego River Improvement Plan (USDRIP) Impervious Surface Mapping Remote Sensing Research 2002-2003", which provided a starting point for estimating the average proportion of hardscape in the San Diego River Watershed. However, the study was only conducted for single-family residential land use categories located within a small segment of the San Diego River Watershed. Staff determined that for those coefficients to be representative of entire watersheds, the study area needed to be expanded to include sample areas within the incorporated cities and the rural unincorporated County. County staff began to investigate the expansion of these data sets and their appropriate use in a conceptual white paper that was drafted in September 2003. The white paper identified the need to expand the GIS project with the goal of developing results that can be applied regionally. The costs for completion of the mapping model and the development of area-specific impervious surface coefficients for one watershed (in this case the San Diego River Watershed) were estimated at approximately $40,000.

The County's initial study provided the following three important discoveries as a starting point:

1. The impervious surface cover for single-family residential land use in the USDRIP area is approximately 30%.
2. There is a definite relationship between parcel size and impervious cover.
3. The ESRI (Redlands, Ca.) Feature Analyst GIS tool works reasonably well for detecting impervious surface features, although the modeling methods and data inputs chosen in this study have limitations when quantifying the impervious surface coverage of the single-family residential land use category.

During FY 2005-2006, the County partnered with the U.S. Federal Emergency Management Agency (FEMA) to begin the contracting purchase of digital satellite imagery to move this project forward. However, due to litigation involving the vendor of the imagery, both the purchase and the project were put on hold until alternative sources of the imagery data could be made available. An alternative source of imagery and an alternative methodology became available during FY 2006-2007, enabling the project to proceed. An initial assessment of imperviousness was conducted, and a draft report was completed by June 30, 2007. Additional work, including recalibration of the model, will take place during FY 2007-2008.

TMDL APPLICABILITY

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

TIME SCHEDULE FOR IMPLEMENTATION

Completion of this activity is anticipated during FY 2008-09.

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.

EXPECTED BENEFITS

Mapping impervious surface coverage can help land use professionals better assess the quality of the entire watershed, as well as provide assistance in guiding growth patterns to minimize impacts on stream water quality. Ultimately, an estimated impervious surface percentage for the watershed will be calculated. A report will also be drafted describing in greater detail the processes employed, the results achieved, and the analysis conducted. Corresponding maps depicting the model output and impervious surface fraction for the watershed will be included.

EFFECTIVENESS MEASUREMENTS

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

TITLE: **LID and Watershed Planning Education for Community Planning and Sponsor Groups**

ID NUMBER: **SDR-2008-13**

ACTIVITY DESCRIPTION

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

Local planning and sponsor groups within the San Diego River Watershed include:

- Cuyamaca
- Descanso
- Lakeside
- Ramona
- Alpine
- Julian
- Valle de Oro
- Palomar Mountain

TMDL APPLICABILITY

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

TIME SCHEDULE FOR IMPLEMENTATION

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

PARTICIPATING WATERSHED COPERMITTEES

- County of San Diego

OTHER PARTICIPATING ENTITIES

- None

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- All

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

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

EXPECTED BENEFITS

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

EFFECTIVENESS MEASUREMENTS

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

TITLE: **Public Service Announcements: *Karma* and *Karma Second Chance***
ID NUMBER: **SDR-2008-14**

ACTIVITY DESCRIPTION

The City's Storm Water Pollution Prevention Division has retained a contract with a film production company to produce two Public Service Announcements (PSAs) specifically focused on bacteria, with gross pollutants (trash) profiled as a vector. The PSAs are entitled, *Karma* and *Karma Second Chance*, 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 will be broadcast on several television and radio stations throughout the San Diego River WMA in FY 2008. The PSAs will be broadcast in both English and Spanish.

TMDL APPLICABILITY

- San Diego Region Beaches and Creeks Bacteria TMDL

TIME SCHEDULE FOR IMPLEMENTATION

The City will coordinate with a film production company to complete production in FY 2008, then will work with various broadcast media outlets to distribute and air the PSAs in FY 2008 and FY 2009.

PARTICIPATING WATERSHED COPERMITTEE(S)

- City of San Diego

OTHER PARTICIPATING ENTITIES

- Various Television and Radio Stations in San Diego

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria
- Gross Pollutants (Trash)

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

The Collective Watershed Strategy for the San Diego River WMA identifies bacteria as a high priority water quality problem in the WMA. The *Karma* and *Karma Second Chance* PSAs will result in increased knowledge and awareness regarding bacteria, and trash as a vector, and result in future load reduction of trash and debris directly and of bacteria indirectly.

EXPECTED BENEFITS

The PSAs address bacteria directly by focusing on pet waste, food waste and organic matter, and indirectly by removing a bacterial source: trash. Literature published by the United States Environmental Protection Agency on its website[1] states that *pathogens* are microscopic organisms like bacteria and viruses. They come from untreated or poorly treated sewage, pet and farm animal waste, and improperly handled medical waste. Pathogens in the water in unsafe amounts result in beach closures; shellfish bed closures, fish kills, and human health problems.

[1] http://www.epa.gov/owow/oceans/debris/

EFFECTIVENESS MEASUREMENTS

PSA effectiveness will be measured on a variety of levels, to include the number of households (television) or listeners (radio) reached by the program will be tabulated. Second, awareness, attitude data will be collected via surveys. Thirdly, once the PSA have aired, another survey will be conducted to assess changes in knowledge and/or behavior. Recipients responding to and participating in the survey will also be assessed, such as volunteers, or those who agreed to commit to the project.

Management Questions:	• What changes in awareness/attitude regarding trash and bacteria was achieved after implementation? • How efficient is this education activity based on total cost versus number of people (targeted audience) reached?
Targeted Measurable Outcome(s)	• Reach goal of number of listeners (radio) and homes (television) reached, based on survey results • Increased level of knowledge/attitude based on post-activity surveys
Assessment Method(s)	• Survey (e.g., administer survey to assess knowledge and attitude of participants) • Quantification (e.g., number of residents reached by PSA)
Assessment Measures, Assessment Outcome Levels & Data:	• Number of listeners (radio) or homes (television) reached (Outcome Level 1) • Change in knowledge or awareness (Outcome Level 2)

TITLE: **Outdoor Billboards and Transit Shelters**
ID NUMBER: **SDR-2008-15**

ACTIVITY DESCRIPTION

The City's Storm Water Division has retained a contract with an outdoor advertising company to advertise "Think Blue" messages on billboards and bus shelters located in the San Diego River WMA. The City intends to create advertisements that target behaviors associated with bacteria and gross pollutants (trash) 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 will be developed in FY 2008, and will be displayed throughout the San Diego River WMA in both English and Spanish.

TMDL APPLICABILITY

- San Diego Region Beaches and Creeks Bacteria TMDL

TIME SCHEDULE FOR IMPLEMENTATION

The City will coordinate with its Print Services department in the design of the advertisements and will work with the company to have the advertisements created and placed on billboards and transit areas throughout the San Diego River WMA.

PARTICIPATING WATERSHED COPERMITTEE(S)

- City of San Diego

OTHER PARTICIPATING ENTITIES

- None

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria and Gross Pollutants (Trash)

CONSISTENCY WITH THE WATERSHED STRATEGY

The Collective Watershed Strategy identifies bacteria and gross pollutants as high priority water quality problems in the San Diego WMA and recommends implementing load reduction/source abatement activities to address it. The billboard advertisements will result in increased knowledge and awareness directly, and result in future load reduction of trash and debris directly and of bacteria indirectly.

EXPECTED BENEFITS

The advertisements will address bacteria indirectly by removing a bacterial source: trash. Literature published by the United States Environmental Protection Agency on its website[1] states that debris may be contaminated by pathogens that have adverse effects on humans. By reducing the amount of trash, bacteria loading is reduced.

[1] http://www.epa.gov/owow/oceans/debris/

EFFECTIVENESS MEASUREMENTS

PSA effectiveness will be measured via a Citywide telephone surveys and focus groups comprised of residents in the San Diego River WMA to determine awareness, knowledge retention and behavior change.

Management Questions:	• What changes in awareness /attitude regarding trash and bacteria was achieved after implementation? • How efficient is this education activity based on total cost versus number of people (targeted audience) reached?
Targeted Measurable Outcome(s)	• Reach pre-set percentage of residents within target watershed • Increased level of knowledge/attitude based on post-activity surveys
Assessment Method(s)	• Survey (e.g., administer survey to assess knowledge and attitude of participants) • Quantification (e.g., number of residents reached by PSA)
Assessment Measures, Assessment Outcome Levels & Data:	• Number of public reached (Outcome Level 1) • Change in knowledge or attitude (Outcome Level 2)

TITLE: **Mobile Advertising**
ID NUMBER: **SDR-2008-16**

ACTIVITY DESCRIPTION

The City's Storm Water Division has retained a mobile advertising company to advertise *Think Blue* messages on its static billboard trucks in the San Diego River WMA. The City intends to create advertisements that target behaviors associated with bacteria and/or sediment. The goal of the billboards is to educate the public about causes of these kinds of pollution and to encourage positive behavioral change. These advertisements will be developed in FY 2008, and will be displayed throughout the San Diego River WMA in both English and Spanish.

TMDL APPLICABILITY

- None

TIME SCHEDULE FOR IMPLEMENTATION

The City will coordinate with its Printing Services Division in the design of the advertisements and will have them created and placed on static billboard trucks. The trucks will drive pre-determined routes in the San Diego River WMA in an effort to reach targeted, high priority areas within the WMA to increase awareness and promote behavior change.

PARTICIPATING WATERSHED COPERMITTEE(S)

- City of San Diego

OTHER PARTICIPATING ENTITIES

- None

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

The Collective Watershed Strategy for the San Diego River WMA identifies bacteria as a high priority water quality problem in the WMA and recommends implementing load reduction/source abatement activities to address it. Utilizing the static billboard trucks will result in increased knowledge and awareness directly and will promote behavior change.

EXPECTED BENEFITS

The billboard advertisements will address bacteria to increase knowledge awareness and promote behavior change.

EFFECTIVENESS MEASUREMENTS

Advertisement effectiveness will be measured via Citywide telephone surveys and focus groups comprised of residents in the San Diego River WMA.

Management Questions:	• What changes in awareness /attitude regarding trash and bacteria was achieved after implementation? • How efficient is this education activity based on total cost versus number of people (targeted audience) reached?
Targeted Measurable Outcome(s)	• Reach pre-set percentage of residents within target watershed • Increased level of knowledge/attitude based on post-activity surveys
Assessment Method(s)	• Survey (e.g., administer survey to assess knowledge and attitude of participants) • Quantification (e.g., number of residents reached by PSA)
Assessment Measures, Assessment Outcome Levels & Data:	• Number of public reached (Outcome Level 1) • Change in knowledge or attitude (Outcome Level 2)

TITLE: **San Diego River Park Foundation Partnership**
ID NUMBER: **SDR-2008-17**

ACTIVITY DESCRIPTION

The City's Storm Water Pollution Prevention Division will partner with the San Diego River Park Foundation in an effort to help the organization raise awareness of the pollution, bacteria, and sediment issues surrounding the San Diego River. The City will provide funding for a number of San Diego River Park Foundation 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 Foundation's Clean and Green Team, a volunteer program designed to remove trash and plant native plants within the San Diego River WMA. Funding will also be used to support public cleanups and other educational endeavors.

TMDL APPLICABILITY

- None

TIME SCHEDULE FOR IMPLEMENTATION

The City will coordinate with San Diego River Park Foundation to provide funding for various projects throughout FY 2008 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

- San Diego River Park Foundation

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 the San Diego River Park Foundation 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.

EXPECTED BENEFITS

Partnership with the San Diego River Foundation 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[1] states that debris may be contaminated by

[1] http://www.epa.gov/owow/oceans/debris/

pathogens that have adverse effects on humans. By reducing the amount of trash, bacteria loads are reduced. In addition, funding of the outreach and education efforts of the Foundation will help increase awareness pollution issues regarding the San Diego River and foster appropriate behavior change.

EFFECTIVENESS MEASUREMENTS

Effectiveness will be measured via Citywide telephone surveys and focus groups comprised of residents in the San Diego River WMA to determine awareness and knowledge retention of water quality issues within the San Diego River WMA, as well as changes in behavior. Additionally, water quality monitoring will be conducted throughout the San Diego River WMA to determine improvements to the overall water quality of the WMA.

Management Questions:	• What is the load reduction associated with sponsorship? • What is the efficiency of trash cleanup? ($/person or $/ton collected)
Targeted Measurable Outcome(s)	• Achieve load reduction of trash (any amount) due to trash cleanup sponsorship
Assessment Method(s)	• Tabulation (e.g., number of participants) • Quantification (e.g., pounds of trash collected)
Assessment Measures, Assessment Outcome Levels & Data:	• Money spent (USD) (Outcome Level 1 and 2) • Tons of trash (Outcome Level 4) • Number of participants (Outcome Level 1) • Compliance (yes/no) (Outcome Level 1)

A. ACTIVITY DESCRIPTION

A.1 INITIAL DESCRIPTION FOR PLANNING PURPOSES

For fiscal year 2010, the following Watershed Water Quality 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.

Water Quality:

- Provide subsidies/rebates to promote the installation of weather-based controllers at commercial and industrial facilities with irrigation systems. To the extent practical, facility selection will be prioritized based on irrigation area/water runoff volumes and proximity to receiving waters.
- Target inspections based on property management company and cooperatively develop more specific BMPs to be 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.
- 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 (FISCAL YEAR 2009)

The following planning activities are currently being considered for fiscal year 2009 in order to facilitate implementation of Watershed Water Quality and Education Activities in 2010:

- The Copermittees will 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. 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 will 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.
- Dry and wet weather baseline monitoring data will be collected from a MS4 servicing at least two representative commercial/industrial areas that include targeted, high priority sources for activity implementation. The volume of flow will be measured or estimated and samples will be collected and analyzed for the watershed priority pollutants. Additional monitoring may be conducted at the downgradient storm drain outfall and receiving water or at potential target sources located upgradient. The results of this flow monitoring and sample collection will be used to guide the selection of target sources and may be extrapolated to estimate the baseline pollutant loading from similar commercial and industrial areas and facilities in the watershed, if appropriate.

A.3 IMPLEMENTATION ACTIVITIES (FISCAL YEAR 2010)

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. Necessary changes to meet future TMDL specific requirements will be incorporated at that time.

C. TIME SCHEDULE FOR IMPLEMENTATION

Initial planning and baseline activities will be conducted in fiscal year 2009. Implementation of the proposed activities will be conducted in fiscal year 2010. Follow up activities to support effectiveness evaluations, if any, will be conducted in fiscal year 2010-2011 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.

F. HIGH PRIORITY WATER QUALITY PROBLEMS ADDRESSED

As described further in Section 7.0, 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 Strategic Goals established by the WURMP serve as the narrative objectives that the proposed watershed activities intend to achieve. Consistent with the watershed strategy developed in the WURMP, the Copermittees will implement activities in fiscal year 2010 that support the following Strategic Goals:

- **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.

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:

- 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, 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.

Outcome Level	Anticipated Outcome of Activity	Effectiveness Metrics
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.
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. As necessary to obtain a reasonable understanding of effectiveness, the Copermittees may supplement this readily available quantitative data with either special studies or qualitative evaluations. 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 in 2009.