

Appendix A
JURMP Source and Activity
Methodology

This page intentionally left blank
for reproduction purposes

Methodology for Developing JURMP Source and Activity Quantities

Source Quantities

The Copermittees' FY 2011 (July 1st, 2010 through June 30th, 2011) JURMP Annual Reports were used to determine quantities of inventories. The Copermittees' inventories included Hydrologic Area (HA) information for the associated facilities. In the event that HA information was not easily locatable, a GIS geocoding process was used to identify the associate HA information. This process was used for the following source inventories:

- 1) Commercial
- 2) Industrial
- 3) Municipal Facilities
- 4) Construction
- 5) TCBMP

Activity Quantities

The Copermittees' JURMP activities fall into one of two categories: (1) easily associated with HA information, e.g., commercial/industrial inspections; (2) not easily associated with HA information, e.g., MS4 cleanings. For the commercial/industrial inspections, the HA information was used to develop the quantities of inspections in each HA. For the activities that are not easily associated with HA information, the following process was used to estimate the quantities of each activity in each of the HAs.

- 1) Used SanGIS data: Municipal boundaries, Land Use, Hydrologic Areas, etc.
- 2) Identified the Copermittees' total activity quantities for the following activities from the FY 2011 JURMP Annual Reports:
 - a) Amount of Street Sweeping Collections (total of parking lot, streets, etc.)
 - b) Amount of MS4 Cleanings (total of basins, inlets, ditches, MS4 pipes)
- 3) Determined the amount of urban land use in each Copermittees' jurisdiction.
- 4) Distributed the total quantities of activities across each Copermittees jurisdiction based on the urban land use in the City.
- 5) Determined the contributing activity quantities for each Copermittee in an HA based on the amount of urban land use the Copermittee contributes to the HA. The equation determining the Copermittee's contribution to the HA is as follows:

$$(Copermittee Activity Quantity) \times \left(\frac{Copermittee urban land use in HA}{Copermittee total urban land use} \right)$$

- 6) Each contributing Copermittees' activity quantities were then totaled on an HA basis. See below for an example.

JURMP Source and Activity Quantities Estimation Example

HA1 has 3 jurisdictions.

Jurisdiction A is a total of 1,000 urban land use acres, 250 of which are in HA1.
Jurisdiction A collected 800 tons of material from street sweeping in FY 2011.

Jurisdiction B is a total of 2,000 urban land use acres, 1,250 of which are in HA1.
Jurisdiction B collected 1,000 tons of material from street sweeping in FY 2011.

Jurisdiction C is a total of 500 urban land use acres, all 500 are in HA1.
Jurisdiction C collected 250 tons of material from street sweeping in FY 2011.

Jurisdiction A contributes the following tonnage of street sweeping materials to HA1:

$$(800 \text{ tons of material}) \times \left(\frac{250 \text{ urban land use acres in HA1}}{1,000 \text{ urban land use acres in Jurisdiction A}} \right) = \mathbf{200 \text{ tons}}$$

Jurisdiction B contributes the following tonnage of street sweeping materials to HA1:

$$(1,000 \text{ tons of material}) \times \left(\frac{1,250 \text{ urban land use acres in HA1}}{2,000 \text{ urban land use acres in Jurisdiction B}} \right) = \mathbf{625 \text{ tons}}$$

Jurisdiction C contributes the following tonnage of street sweeping materials to HA1:

$$(250 \text{ tons of material}) \times \left(\frac{500 \text{ urban land use acres in HA1}}{500 \text{ urban land use acres in Jurisdiction C}} \right) = \mathbf{250 \text{ tons}}$$

The total amount of estimated street sweepings collected in HA1 is therefore:

$$200 \text{ tons} + 625 \text{ tons} + 250 \text{ tons} = \mathbf{1,075 \text{ tons}}$$

Appendix B
FY 2011 Los Peñasquitos
Watershed Activity Sheets

This page intentionally left blank
for reproduction purposes

TITLE: COASTAL CLEANUP DAY SPONSORSHIP
ID #: LP-WQA1

ACTIVITY DESCRIPTION

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

Coastal Cleanup Day occurred on September 25, 2010. The City of San Diego (City) sponsored the Los Peñasquitos Canyon Preserve site in the Los Peñasquitos Watershed Management Area (WMA). Approximately 65 volunteers removed 300 pounds of trash and debris.

TMDL APPLICABILITY

TMDLs for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region

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 SDCK and ILACSD staff to ensure that sites within the Los Peñasquitos WMA are included in the list of cleanups.

LEAD WATERSHED COPERMITTEE

- City of San Diego

OTHER PARTICIPATING ENTITIES

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

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria/Pathogens
- Trash

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

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

EFFECTIVENESS MEASUREMENTS

Management Questions:

1. What is the load reduction associated with sponsorship?
2. What is the efficiency of the trash cleanup? (\$/pound collected)

Targeted Measurable Outcome(s):

- 1) Achieve load reduction due to reduction of trash (any amount) due to trash cleanup sponsorship

Assessment Method(s):

- 1) Tabulation (e.g., number of participants)
- 2) Quantification (e.g., pounds of trash collected)

Data Recorded:

Pounds of trash removed (Outcome Level 4): 300 lbs

Total pounds of trash removed (Outcome Level 4): 300 lbs

Number of participants (Outcome Level 1): 65

Amount of money spent on cleanups for all six watersheds (Outcome Level 1): \$30,000

Estimated amount of money spent on cleanups for the Los Peñasquitos watershed (Outcome Level 1): \$5,000

Efficiency (Total Cost/Total Pounds Removed): \$16.67/lb

Expected Benefits:

Sponsorship of Coastal Cleanup Day will result in load reduction of trash and debris directly and of bacteria indirectly.

Analysis Results:

A load reduction of 300 pounds of trash and debris was recorded at the site by 65 volunteers, which was tracked using data cards provided by the Ocean Conservancy. There was a total sponsorship cost of \$30,000 by the City for all six WMAs in the City's jurisdiction. The event's efficiency, calculated by dividing the sponsorship cost for the Los Peñasquitos WMA by the pounds of trash removed, was \$16.67 per pound.

Conclusions:

This activity fulfills the requirement of one of the two required watershed water quality activities for this watershed management area because this activity resulted in a measurable pollutant load reduction (Outcome Level 4) of 300 pounds during the reporting period. Implementation and assessment of load reduction and efficiency for the cleanup sponsorship will occur again in FY 2012.

TITLE: REHCO RD HYDRODYNAMIC SEPARATOR INSTALLATION
ID #: LP-WQA7

ACTIVITY DESCRIPTION

A hydrodynamic separator was originally going to be installed in Marindustry Drive, located on the north side of Miramar road in the Los Peñasquitos Watershed Management Area (WMA), as a retrofit within the existing storm drain system. This location proved to be infeasible. A replacement location was found in the same watershed and neighborhood at the end of the cul-de-sac on Rehco Rd.

The hydrodynamic separator will be used to reduce the amount of trash, sediment, oils and grease that makes its way into the storm drain system. The separator will be located in a parallel line with a 27-inch storm drain before it discharges into the nearby canyon. The 27-inch line is the main collector in a small storm drain network that collects storm flows from the industrial and business park, associated parking lots and Rehco Rd. Due to the industrial activity and high vehicular traffic, storm events typically result in the accumulation of a variety of trash, sediments, leaves, dirt oil, petroleum, and other chemical pollutants in the storm drain system.

This project was originally identified as Hydrodynamic Separator Installation in the 2008 Los Peñasquitos WURMP.

TMDL APPLICABILITY

TMDLs for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region

TIME SCHEDULE FOR IMPLEMENTATION

The project was transferred to the Preliminary Engineering section of the Engineering and Capital Projects Department in September 2008 for the purpose of managing the project through final design, construction and project closeout. Water quality monitoring will be conducted before and after construction to assess the effectiveness in reducing runoff volume and pollutant loading.

Design began February 2010 and is anticipated to continue through FY 2012. Construction is expected to be completed in FY 2013.

LEAD WATERSHED COPERMITTEE

- City of San Diego

OTHER PARTICIPATING ENTITIES

- None

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria/Pathogens
- Sediment

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

Both the City Strategic Plan for Watershed Activity Implementation and the Collective Watershed Strategy for the Los Peñasquitos WMA identify bacteria and sediment as high priority water quality problems throughout the WMA, and recommend implementing load reduction/source abatement activities to address them. Implementation of this activity will address both high priority water quality problems by capturing dry weather flows and slowly releasing them to allow for the settlement of pollutants for later removal.

EFFECTIVENESS MEASUREMENTS

Management Questions

- 1) What is the load reduction efficiency of the hydrodynamic separator?
- 2) How effective is the hydrodynamic separator at reducing priority pollutant loads?

Targeted Measurable Outcome(s):

- 1) Reduction in priority pollutant loads

Assessment Method(s):

- 1) Inspections (e.g., ensure the hydrodynamic separator is working as designed)
- 2) Quantification (e.g., calculate estimated load reduction)
- 3) Monitoring (e.g., collect special study information to estimate load reduction)
- 4) Tabulation (e.g., amount of money spent on implementation and maintenance)
- 5) Reporting (e.g., estimates of load reduction from 3rd party data)

Expected Benefits:

Reduction of sediment and bacteria.

Analysis Results:

An effectiveness assessment of this activity is not possible at this time because the hydrodynamic separator has not been installed and therefore no priority pollutant load data have been collected.

Conclusions:

It is anticipated that the hydrodynamic separator will be installed in FY 2013. Water quality monitoring will be conducted before and after installation to assess the effectiveness of the hydrodynamic separator in reducing bacteria and sediment loading. Effectiveness and efficiency will be determined by comparing future load reductions to the cost of installation, maintenance and monitoring efforts.

TITLE: I LOVE A CLEAN SAN DIEGO TRASH SPONSORSHIP
ID #: LP-WQA8

ACTIVITY DESCRIPTION

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

The ILACSD Creek to Bay Cleanup occurred on April 30, 2011. The City of San Diego (City) sponsored the Los Peñasquitos Canyon Preserve site in the Peñasquitos Watershed Management Area (WMA). Approximately 40 volunteers removed 150 pounds of trash and debris and recycled 2,005 pounds of trash and debris over a two mile area.

TMDL APPLICABILITY

TMDLs for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region

TIME SCHEDULE FOR IMPLEMENTATION

The Creek to Bay Cleanup has historically been held in April of each year. Prior to the event, the City will coordinate with ILACSD staff to ensure that a Los Peñasquitos WMA site is included in the list for cleanups.

LEAD WATERSHED COPERMITTEE

- City of San Diego

OTHER PARTICIPATING ENTITIES

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

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria/Pathogens
- Trash

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

Both the City's Strategic Plan for Watershed Activity Implementation and the Collective Watershed Strategy for the Los Peñasquitos WMA identify bacteria as a high priority water quality problem throughout the WMA, and recommend implementing load reduction/source abatement activities to address the high priority water quality problem.

EFFECTIVENESS MEASUREMENTS

Management Questions:

- 1) What is the load reduction associated with sponsorship?
- 2) What is the efficiency of the trash cleanup? (\$/pound collected)

Targeted Measurable Outcome(s):

- 1) Achieve load reduction due to reduction of trash (any amount) due to trash cleanup sponsorship

Assessment Method(s):

- 1) Tabulation (e.g., number of participants)
- 2) Quantification (e.g., pounds of trash collected)

Data Recorded:

Pounds of trash removed (Outcome Level 4): 150 lbs

Pounds of trash recycled (Outcome Level 4): 2,005 lbs

Total pounds of trash removed and recycled (Outcome Level 4): 2,155 lbs

Number of participants (Outcome Level 1): 40

Amount of money spent on cleanups for all six watersheds (Outcome Level 1): \$30,000

Estimated amount of money spent on cleanups for the Los Peñasquitos watershed (Outcome Level 1): \$5,000

Efficiency (Total Cost/Total Pounds Removed): \$2.32/lb

Expected Benefits:

Sponsorship of the Creek to Bay Cleanup will result in load reduction of trash and debris directly and of bacteria indirectly.

Analysis and Results:

At the event, 40 participants removed 15 pounds of trash and debris and recycled 2,005 pounds of trash and debris. The average estimated sponsorship cost was \$5,000 per watershed; thus, there was a 2,155 pound load reduction and an efficiency of \$2.32 per pound collected. The efficiency was calculated by dividing the sponsorship cost for the Los Peñasquitos WMA by the total pounds of trash removed and recycled.

Conclusions:

This trash cleanup activity fulfills a watershed water quality activity for FY 2011 because this activity resulted in a measurable pollutant load reduction (Outcome Level 4) of 2,155 pounds of trash removed and recycled during the reporting period. Implementation and assessment of load reduction and efficiency for the cleanup sponsorship will occur again in FY 2012.

TITLE: MIRA MESA LIBRARY BIORETENTION AND INFILTRATION RETROFIT
ID #: LP-WQA9

ACTIVITY DESCRIPTION

New catch basins will be constructed within the parking area at the Mira Mesa Library in the Los Peñasquitos Watershed Management Area (WMA) to capture parking lot and building runoff. These catch basins will drain via a new storm drain system to an existing unpaved area on the site. Under existing conditions, this unpaved area is higher in elevation than the parking lot and is covered with grass. The original concept for this area was to excavate approximately five feet below the parking lot elevation, lined with an impermeable liner, and backfilled around the perimeter of the excavation with a gravel reservoir to which the new storm drain system will drain. Soils and plants capable of surviving with only the seasonal rainfall typical of Southern California would have been placed in the center of the excavation. The gravel reservoir would have been separated from the planter area by a concrete wall. Storm runoff was expected to pass from the gravel reservoir to the planter area via small diameter pipes through the concrete wall. Unfortunately, the area selected to provide infiltration was rejected by the Library Department, as the destruction of an architectural detail was deemed unacceptable. Instead, the area around the grassy area has been selected as the new site.

The project goal is to capture site runoff from the five-year, six hour storm event and convey it to the gravel reservoir/planter area where the water will exit the site via evapotranspiration.

This project was originally identified as Infiltration BMP Retrofit in the 2008 Los Peñasquitos WURMP. In FY 2008, the Mira Mesa Library was selected as the site and the conceptual design was released for this project.

TMDL APPLICABILITY

TMDLs for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region

TIME SCHEDULE FOR IMPLEMENTATION

The project was transferred to the Preliminary Engineering section of the Engineering and Capital Projects Department in September 2008 for the purpose of managing the project through final design, construction and project closeout. Water quality monitoring will be conducted before and after construction to assess the effectiveness in reducing runoff volume and pollutant loading.

Preliminary engineering resumed in May 2010 and was completed in October 2010. Design is in progress and will continue through FY 2013. Construction is expected to be completed in FY 2013 or FY 2014.

LEAD WATERSHED COPERMITTEE

- City of San Diego

OTHER PARTICIPATING ENTITIES

- None

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria/Pathogens
- Sediment

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

Both the City Strategic Plan for Watershed Activity Implementation and the Collective Watershed Strategy for the Los Peñasquitos WMA identify bacteria and sediment as high priority water quality problems throughout the WMA, and recommend implementing load reduction/source abatement activities to address them. Implementation of this activity will address the high priority water quality problems by reducing and treating runoff volume of pollutants via infiltration/retention.

EFFECTIVENESS MEASUREMENTS

Management Questions:

- 1) What is the load reduction of the bioretention area?
- 2) How effective are bioretention areas at reducing priority pollutant loads?

Targeted Measurable Outcome(s):

- 1) Reduction in priority pollutant loads

Assessment Method(s):

- 1) Inspections (e.g., ensure the bioretention areas are working as designed)
- 2) Quantification (e.g., use drainage area and rainfall information to calculate estimated load reduction)
- 3) Monitoring (e.g., collect special study information to collect concentrations and flows to estimate load reduction)
- 4) Tabulation (e.g., amount of money spent on implementation and maintenance, amount of money spent on educational materials)
- 5) Reporting (e.g., estimates of load reduction from 3rd party data)

Data Recorded:

- 1) Number of inspections
- 2) Change (%) in load reduction pre and post-implementation (Outcome Level 4)
- 3) Number of educational information items passed out (Outcome Level 1)
- 4) How much money spent on inspections and maintenance (Outcome Level 1)
- 5) Dataset of load contributions for specific activities (Outcome Level 4)

Expected Benefits:

Reduction of sediment and bacteria.

Analysis Results:

An effectiveness assessment of this activity is not possible at this time because the hydrodynamic separator has not been installed and therefore no priority pollutant load data have been collected.

Conclusions:

It is anticipated that the bioretention areas will be installed in FY 2014. Water quality monitoring will be conducted before and after installation to assess the effectiveness of the bioretention areas in reducing bacteria and sediment loading. Effectiveness and efficiency will be determined by comparing future load reductions to the cost of installation, maintenance and monitoring efforts.

Page left intentionally blank
for reproduction purposes

TITLE: AUBREY STREET CONTINUOUS DEFLECTIVE SEPARATION (CDS) DEVICE
ID #: LP-WQA11

ACTIVITY DESCRIPTION

In 2008 the City of Poway installed a continuous deflective separation (CDS) device system in the intersection of Aubrey Street and York Avenue as a retrofit within the existing storm drain system. This CDS system screens, separates, and traps debris, sediment, oil and grease, floatables, and neutral buoyant material from stormwater runoff, enhancing the treatment of runoff from existing land uses in the 41.9-acre Old Poway Park project area.

To maintain the effectiveness of the CDS device, the City of Poway's drainage/storm water maintenance staff inspects, cleans, and maintains the device as needed.

TMDL APPLICABILITY

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

TIME SCHEDULE FOR IMPLEMENTATION

Construction and maintenance of this CDS device occurred in FY 2008. Inspection, cleaning, and maintenance began in FY 2009 and continue on an on-going basis.

LEAD WATERSHED COPERMITTEE

- City of Poway

OTHER PARTICIPATING ENTITIES

- None

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Gross Pollutants
- Oil & Grease
- Sediment
- Trash

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

The Collective Watershed Strategy for the Los Peñasquitos WMA identifies sediment as a High Priority Water Quality Problem in the Miramar HA (906.2) and recommends implementing load reduction/source abatement activities to reduce sediment loads. Implementation of this activity will address this High Priority Water Quality Problem by reducing the amount of sediment entering the receiving waters. Therefore, this activity is consistent with the collective strategy for the Los Peñasquitos WMA.

EFFECTIVENESS MEASUREMENTS

See Effectiveness Assessment Table below.

Objectives:

The goal of this assessment is to determine the effectiveness and efficiency of the hydrodynamic separator installation in reducing the amount of trash, sediment, oils and grease that makes its way into the storm drain system.

Analysis and Results:

During fiscal year 2011, inspections of the unit occurred on December 17, 2010, and January 4, 2011. A total of 7.9 cubic yards of debris was removed from the unit. As noted in the previous WURMP Annual Reports, 2 cubic yards of debris were removed during FY 2008, 1 cubic yard during FY 2009, and 4.75 cubic yards during FY 2010. Because all of the material removed would otherwise have eventually entered the receiving waters, this amount is the verified load reduction achieved by this unit.

The cost of installation of the CDS device was \$134,000.00. The cost of inspections and maintenance was \$429.95 in FY 2008, \$515.01 in FY 2009, \$190.00 in FY 2010, and \$964.11 in FY 2011. The cost per unit of load reduction over four years is therefore \$8,696 per cubic yard of pollutants removed. This unit cost will decrease over time as the only additional expenses are staff time for inspections and cleaning.

Dry weather monitoring is conducted annually at a location on Community Road downstream of the CDS device. Although this monitoring location receives some commingled flows from additional locations, data were reviewed to determine any trends in receiving water quality. Post-installation data show that the standardized Trash Assessment results have moved from Suboptimal to Optimal, indicating a reduction in trash in the receiving water. Other field analytic results showed essentially no change, as noted in the table below.

Reporting Period	Turbidity (NTU)	Conductivity (mS/cm)	Surfactants (mg/L MBAS)	Ammonia-Nitrogen (mg/L NH ₃ -N)	Nitrate (mg/L NO ₃ -N)	Ortho-phosphate-P (mg/L PO ₄ -P)
BEFORE INSTALLATION						
2007	0.66	1.96	0.25	0.20	2.42	0.33
AFTER INSTALLATION						
2008	0.30	1.88	0.38	0.15	2.02	0.23
2009	0.19	1.96	0.13	0.19	2.92	0.22
2010	1.04	2.06	0.25	0.13	3.10	0.18
2011	0.01	2.23	0.13	0.12	4.42	0.16

TITLE: GATE DRIVE DETENTION BASIN MODIFICATION
ID #: LP-WQA12

ACTIVITY DESCRIPTION

The City of Poway retrofitted the Gate Drive flood control detention basin to remove pollutants from storm water. The Gate Drive basin is located in the South Poway Business Park and was originally constructed as a flood control device. Conversion of the basin to a storm water treatment device provides treatment of storm water runoff from more than 38 businesses, including many existing businesses not subject to SUSMP requirements.

TMDL APPLICABILITY

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

TIME SCHEDULE FOR IMPLEMENTATION

Conversion of the basin was completed on June 18, 2008. Operation and maintenance of the basin began in FY 2009 and are ongoing.

LEAD WATERSHED COPERMITTEE

- City of Poway

OTHER PARTICIPATING ENTITIES

- None

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Metals
- Nutrients
- Sediment

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

The Collective Watershed Strategy for the Los Peñasquitos WMA identifies sediment as a High Priority Water Quality Problem in the Miramar HA (906.2) and recommends implementing load reduction/source abatement activities to reduce sediment loads. Implementation of this activity will address this High Priority Water Quality Problem by reducing the amount of sediment entering the receiving waters. Therefore, this activity is consistent with the collective strategy for the Los Peñasquitos WMA.

EFFECTIVENESS MEASUREMENTS

See Effectiveness Assessment Table below.

Objectives:

The goal of this assessment is to determine the effectiveness and efficiency of the Gate Drive detention basin modification in reducing pollutant levels in storm water runoff from the South Poway Business Park.

Analysis and Results:

Inflow sampling is conducted annually during a rain event, with outflow sampling conducted after a settling period of one to three days. During the most recent round of sampling, turbidity was reduced by 99.6% (from 11.6 to 0.05 NTU), and total suspended solids were reduced by 93.3% (from 15.0 to 1.0 mg/L). The basin is therefore clearly effective at reducing sediment loads.

Although total coliforms and *Enterococci* increased from inflow to outflow during this year's sampling, fecal coliform concentrations decreased, as shown in the table below.

Parameter	Inflow	Outflow	% Reduction
Total Coliforms (MPN/100 mL)	5,000	8,000	-60.0%
Fecal Coliforms (MPN/100 mL)	800	500	37.5%
<i>Enterococci</i> (MPN/100 mL)	170	1,300	-664.7%

The cost of basin conversion was \$131,000, of which \$63,900 was paid by a developer of a site that uses the basin for storm water treatment. Maintenance has cost less than \$200/year to date.

Conclusions:

Inflow and outflow sampling will continue to be conducted annually. These data will be used to determine the effectiveness of the basin at reducing pollutants, and to estimate load reductions.

TITLE: OUTDOOR WATER CONSERVATION REBATE PROGRAM
ID #: LP-WQA16

ACTIVITY DESCRIPTION

This activity involved launching a city wide rebate program to assist residents and businesses conserve water by reducing the volume of irrigation and landscape runoff by incentivizing three irrigation modifications: the installation of irrigation smart controllers, micro-irrigation and turf conversion to low water use plants. Rebates are offered through a State of California grant and are available on a first come first served basis until funds are exhausted. Specific residential and commercial locations will be monitored to assess the efficiency of the program in reducing runoff volume and pollutant loads. Water quantity monitoring will be conducted both at the pre and post irrigation modification stage. It is also anticipated the program will include a component to investigate the challenges to getting residents and businesses to participate in this incentive program to better focus subsequent education and outreach efforts and determine whether broad scale implementation should be pursued.

TMDL APPLICABILITY

- 1) TMDLs for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region
- 2) Los Peñasquitos Sediment TMDL

TIME SCHEDULE FOR IMPLEMENTATION

Project planning and coordination occurred in FY 2010. Program launch occurred in FY 2011. There was no assessment due to a lack of qualified applicants meeting the assessment criteria, this project assessment was withdrawn and no longer included in future reporting updates.

LEAD WATERSHED COPERMITTEE

- City of San Diego

OTHER PARTICIPATING ENTITIES

- None

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria/Pathogens
- Conditions
- Dissolved Minerals
- Gross Pollutants
- Metals
- Nutrients
- Oil & Grease
- Organics
- Pesticides
- Sediment

- Trash

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

Both the City's *Strategic Plan for Watershed Activity Implementation* and the *Collective Watershed Strategy for the Los Peñasquitos Watershed Management Area (WMA)* identify bacteria and sediment as high priority water quality problems in the WMA, and recommend implementing load reduction/source abatement activities to address them. Implementation of this activity will address the high priority water quality problems by reducing dry weather flows resulting from over irrigation.

EFFECTIVENESS MEASUREMENTS

Management Questions:

- 1) How effective are smart irrigation and other types of low flow distribution hardware in reducing dry weather runoff? Does replacing high water use landscape with low water use landscape reduce dry weather runoff?
- 2) What is the potential load reduction for both residential and commercial properties when utilizing smart irrigation in conjunction with low water use landscaping?
- 3) What is the average cost savings from utilizing smart irrigation and or low water use landscaping?

Targeted Measurable Outcome(s):

- 1) Load reduction due to system installation
- 2) Runoff reduction due to system installation

Assessment Method(s):

- 1) Quantification (e.g., use drainage area and rainfall information to calculate estimated load reduction)
- 2) Monitoring (e.g., collect special study information to collect concentrations and flows to estimate load reduction)
- 3) Tabulation (e.g., amount of money spent on implementation and maintenance, amount of money spent on educational materials)

Recommended Data:

- 1) Estimated cost of site preparation, installation and start-up for site (Outcome Level 1)
- 2) Estimated cost of operation and maintenance evaluation for all sites (Outcome Level 1)
- 3) Estimated cost of effectiveness monitoring for all sites (Outcome Level 1)
- 4) Number of systems installed (Outcome Level 1)
- 5) Volume of storm water captured/diverted (Outcome Level 4)
- 6) Concentrations of COCs in rainwater or runoff (measured in rain barrel systems) (Outcome Level 4)
- 7) Percent capture of the xeriscaping systems (acres drained) (Outcome Level 4)

Expected Benefits:

The initial goal was to conduct the assessment in order to determine the effectiveness and efficiency of using weather-based irrigation devices in conjunction with low water use landscaping to reduce over irrigation. However due to a lack of applicants meeting the assessment criteria, e.g. residence proximity to storm drain, the project assessment was withdrawn.

Analysis Results:

No assessment occurred due to a lack of applicants.

Conclusions:

Monitoring was not conducted to assess the effectiveness and efficiency of the incentive program in reducing runoff volume and pollutant loads.

Page left intentionally blank
for reproduction purposes

TITLE: CITY OF SAN DIEGO STRATEGIC PLAN IMPLEMENTATION
ID #: LP-WQA19

ACTIVITY DESCRIPTION

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

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

The City of San Diego assisted with writing the proposed Senate Bill, provided financial resources for technical experts to assist with its development, participated in negotiations with the automobile and brake pad manufacturers, and provided lobbyist assistance to Senator Kehoe to obtain political support for the passage of the bill. Due to the automobile manufacturers renewed interest in this bill, negotiations were re-initiated to obtain support from all stakeholders, as required by the governor. The bill was rewritten multiple times and discussed by all parties before it was presented to Assembly subcommittees for review and approval. After the reporting period, SB346 was passed by both houses, signed into legislation by the governor on September 25, 2010, and incorporated into the California Health and Safety Code, Article 13.5, commencing with Section 25250.50.

The Outdoor Water Conservation Rebate Program conducted by the Public Utilities Department involved launching a city-wide rebate program to assist residents and businesses conserve water by reducing the volume of irrigation and landscape runoff by incentivizing three irrigation modifications: the installation of irrigation smart controllers, micro-irrigation and turf conversion to low water use plants. Rebates are offered through a State of California grant and are available on a first come first served basis until funds are exhausted. The rebate program was implemented in FY 2011.

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

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

TMDL APPLICABILITY

TMDLs for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region

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

TIME SCHEDULE FOR IMPLEMENTATION

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

LEAD WATERSHED COPERMITTEE

- City of San Diego

OTHER PARTICIPATING ENTITIES

- None

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria/Pathogens
- Gross Pollutants
- Metals
- Nutrients
- Oil & Grease
- Organics

- Pesticides
- Sediment
- Trash

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

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

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

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

EFFECTIVENESS MEASUREMENTS

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

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

Table 1. Conceptual Projects

Activity Description	Activity Type Classification	Type	Class	Primary Target Pollutant	Status
Outdoor Water Conservation Rebate Program	Smart Irrigation Control Incentive Program	Water Quality	Non-structural	Pesticides, bacteria, nutrients, heavy metals	Planning, implementation and assessment completion anticipated in FY2013. WMA: TBD.
County Operations Center Green Roof Project Collaboration	Roof Rain Harvesting	Water Quality	Structural	Targeted Multiple Pollutants	Pre-planning
Erosion & Sediment Control Detention Basin	Erosion/ Sediment Control BMP	Water Quality	Structural	Sediment, TSS, Metals, Pesticides & Trash	Pre-planning
Green Roof Project	Roof Rain Harvesting	Water Quality	Structural	Targeted Multiple Pollutants	Pre-planning
Basin Plan Triennial Review	N/A	Monitoring	Non-structural	N/A	As needed
Targeted Mobile Hazardous Household Waste Collection Centers	Hazardous Waste Collection	Water Quality	Non-structural	Metals, Trash, Oil & Grease	Pre-planning
Residential Rain Barrel, Downspout Disconnect, and Xeriscaping Incentive Program (1)	Downspout Disconnect; Rain Barrel Incentives	Water Quality	Non-structural	Targeted Multiple Pollutants	Pre-planning
Residential Rain Barrel, Downspout Disconnect, and Xeriscaping Incentive Program (2)	Downspout Disconnect; Rain Barrel Incentives	Water Quality	Non-structural	Targeted Multiple Pollutants	Pre-planning
Rain Garden, Xeriscaping, and Landscape Filtration (1)	Rain Garden, Xeriscaping, and Landscape Filtration	Water Quality	Structural or Non-Structural	Targeted Multiple Pollutants	Pre-planning
Rain Garden, Xeriscaping, and Landscape Filtration (2)	Rain Garden, Xeriscaping, and Landscape Filtration	Water Quality	Structural or Non-Structural	Targeted Multiple Pollutants	Pre-planning
Sediment Basin Endowment Fund (1)	Sediment Basin Endowment	Water Quality	Non-structural	Sediment	Pre-planning
Sediment Basin Endowment Fund (2)	Sediment Basin Endowment	Water Quality	Non-structural	Sediment	Pre-planning
Commercial Pest Control	Product Sub	Education	Non-Structural	Pesticides	Planning
Residential Pesticide Management	Product Sub	Education	Non-Structural	Pesticides	In progress through JURMP education program.
LID Regulatory Barriers and Solutions	Municipal Code Modification	Water Quality	Non-structural	Targeted Multiple Pollutants	Pre-planning
Roof Rain Harvesting/Incentives	Roof Rain Harvesting	Water Quality	Structural or Non-structural	Targeted Multiple Pollutants	Pre-planning
Targeted Behavioral Training (staff)	Targeted Behavioral Training (staff)	Education	Non-structural	Specific to Activity	Pre-planning

FY 2011 Los Peñasquitos WURMP Annual Report – January 2012

Activity Description	Activity Type Classification	Type	Class	Primary Target Pollutant	Status
Rose Creek Homeless Reduction Program Sponsorship	Homeless Encampment Removal	Water Quality	Non-structural	Bacteria & Trash	Pre-planning
Enforcement Referrals	Enforcement Referrals	Water Quality	Non-structural	Specific to Activity	Pre-planning
Infiltration Vault/Pit Installation (1)	Infiltration Vault/Pit	Water Quality	Structural	Targeted Multiple Pollutants	Pre-planning
Infiltration Vault/Pit Installation (2)	Infiltration Vault/Pit	Water Quality	Structural	Targeted Multiple Pollutants	Pre-planning
Small-Scale Storm Flow Storage and Multi-Pollutant Treatment System (1)	Small Scale Treatment Train	Water Quality	Structural	Targeted Multiple Pollutants	Pre-planning
Small-Scale Storm Flow Storage and Multi-Pollutant Treatment System (2)	Small Scale Treatment Train	Water Quality	Structural	Targeted Multiple Pollutants	Pre-planning
Small-Scale Storm Flow Storage and Multi-Pollutant Treatment System (3)	Small Scale Treatment Train	Water Quality	Structural	Targeted Multiple Pollutants	Pre-planning
Large Scale Storm Flow Storage and Multi-Pollutant Treatment System (1)	Large Scale Treatment Train	Water Quality	Structural	Targeted Multiple Pollutants	Pre-planning
Large Scale Storm Flow Storage and Multi-Pollutant Treatment System (2)	Large Scale Treatment Train	Water Quality	Structural	Targeted Multiple Pollutants	Pre-planning
Large Scale Storm Flow Storage and Multi-Pollutant Treatment System (3)	Large Scale Treatment Train	Water Quality	Structural	Targeted Multiple Pollutants	Pre-planning
Hydromodification BMP (1)	Hydro mod BMP	Water Quality	Structural	Sediment & TSS	Pre-planning
Hydromodification BMP (2)	Hydro mod BMP	Water Quality	Structural	Sediment & TSS	Pre-planning
Hydromodification BMP (3)	Hydro mod BMP	Water Quality	Structural	Sediment & TSS	Pre-planning
Erosion/Sediment Control BMP (2)	Erosion/Sediment Control BMP	Water Quality	Structural	Sediment & TSS	Pre-planning
Home Auto Activities (Metals) Outreach	Outreach	Education	Non-structural	Metals, Oil & Grease & PAHs	In progress through JURMP education program.
Commercial Landscaping Targeted Enforcement	Targeted Enforcement	Water Quality	Non-structural	Nutrients & Pesticides	Pre-planning
Targeting Marinas and Boat Repair as a Pollutant Source	Targeted Source	Water Quality	Structural or Non-Structural	Metals & Bacteria	Pre-planning
Construction Contractors - Home and Commercial Improvements Inspection Generated Enforcement	Inspection Generated Enforcement	Water Quality	Non-structural	Metals, Sediment, Gross Solids & Oil & Grease	Pre-planning

Page left intentionally blank
for reproduction purposes

TITLE: ESD PHASED GREEN MALL AND UNDERGROUND VAULT PROJECT
ID #: LP-WQA21

ACTIVITY DESCRIPTION

This first phase of this project will construct a bio-retention basin BMP along the south side of the visitor's parking lot. Along the basin, the existing curb and gutter will be removed and replaced with a zero height, or flush, curb. The bio-retention basin will allow urban runoff and the associated pollutants to infiltrate into the ground, thereby reducing pollutant loading into receiving waters.

TMDL APPLICABILITY

TMDLs for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region

TIME SCHEDULE FOR IMPLEMENTATION

Project planning began in June 2009 and finished in March 2010. There is no timeline for the beginning of design at this time.

LEAD WATERSHED COPERMITTEE

- City of San Diego

OTHER PARTICIPATING ENTITIES

- None

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria/Pathogens

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

The Collective Watershed Strategy for the Los Peñasquitos Watershed Management Area (WMA) identifies bacteria as high priority water quality problems and recommends implementing load reduction/source abatement activities to address them. Implementation of this activity will address both high priority water quality problems by reducing and treating runoff volume via infiltration.

EFFECTIVENESS MEASUREMENTS

Management Questions:

- 1) How much load reduction can be achieved by retrofitting commercial and industrial streets with LID features such as porous asphalt and infiltration planters?
- 2) How much reduction in runoff volume can be achieved through LID retrofits?
- 3) How efficient are LID retrofits in reducing pollutant loads?

Targeted Measurable Outcome(s):

- 1) Reduction in pollutant loads
- 2) Reduction in runoff volume

3) Improvements in discharge quality

Assessment Method(s):

- 1) Inspections (e.g., ensure LID retrofits working as designed)
- 2) Quantification (e.g., use drainage area and rainfall information to calculate estimated pollutant load and runoff volume reduction)
- 3) Monitoring (e.g., collect data on pollutant concentrations and flows to estimate pollutant load and runoff volume reduction)
- 4) Tabulation (e.g., amount of money spent on implementation and maintenance)
- 5) Reporting (e.g., estimates of pollutant load and runoff volume reduction from third-party data)

Data Recorded:

- 1) Number of inspections (Outcome Level 1)
- 2) Design, installation, and maintenance costs (Outcome Level 1)
- 3) Operations and maintenance challenges (Outcome Level 1)
- 4) Percent change in load reduction pre- and post-implementation (Outcome Level 4)
- 5) Percent change in discharge quality and runoff volume (Outcome Level 5)

Expected Benefits:

Reduction of bacteria.

Analysis Results:

This activity was not in active implementation in FY 2011. Therefore, assessment is not possible at this time.

Conclusions:

No conclusions regarding the effectiveness and efficiency of this activity in reducing pollutant loads and runoff volume can be made at this time.

TITLE: LOS PENASQUITOS LAGOON THIRD PARTY TMDL DEVELOPMENT
ID #: LP-WQA22

ACTIVITY DESCRIPTION

Met monthly with stakeholders, including the Regional Board staff, to discuss the development of the Los Peñasquitos Lagoon Sedimentation\Siltation TMDL.

Dischargers met on a regular basis to prepare documentation for discussion with the stakeholders.

Developed and prepared final technical draft of Los Peñasquitos Lagoon Sedimentation\Siltation TMDL for review and comment by the stakeholders.

The purpose of this technical report is to present the Total Maximum Daily Load (TMDL) developed for sediment\siltation for Los Peñasquitos Lagoon (Lagoon). The Lagoon is listed as impaired for sediment\siltation on the Clean Water Act (CWA) Section 303(d) List of Water Quality Limited Segments. A TMDL helps restore the beneficial uses of the Lagoon and achieve water quality standards.

TMDL APPLICABILITY

Los Peñasquitos Sediment TMDL

TIME SCHEDULE FOR IMPLEMENTATION

The development of the third party TMDL was initiated in the spring of 2009. Peer review comments have been received, and the Final Technical report should be approved in 2012.

LEAD WATERSHED COPERMITTEE

- City of San Diego

OTHER PARTICIPATING COPERMITTEES

- City of Del Mar
- City of Poway
- County of San Diego

OTHER PARTICIPATING ENTITIES

- California Department of Transportation (Caltrans)
- San Diego Coastkeeper
- California State Parks
- Los Peñasquitos Lagoon Foundation
- Representatives from the Regional Board

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Sediment

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

Both the City Strategic Plan for Watershed Activity Implementation and the Collective Watershed Strategy for the Los Peñasquitos Lagoon WMA identify sediment as a high priority water quality problem.

EFFECTIVENESS MEASUREMENTS

Effectiveness is not being assessed as this study is not an implementation or education activity.

Expected Benefits:

Developing a sediment/siltation TMDL for the Lagoon is for the restoration of the beneficial uses of the Lagoon.

TITLE: RESIDENTIAL RAIN BARREL SUBSIDIES & DISTRIBUTION
ID #: LP-WQA23

ACTIVITY DESCRIPTION

The County of San Diego will implement a rain barrel subsidy and distribution program targeting residents throughout the County. Rain barrel use will be encouraged through a subsidy eligible to residents of unincorporated areas, but residents of incorporated cities will also be able to purchase rain barrels at an affordable price. In addition to distribution of rain barrels, the program will promote outdoor water conservation and runoff reduction through public outreach before and during rain barrel distribution events.

Use of rain barrels can provide many benefits including reduced reliance on potable water through the storage and use of rain water for irrigation. For example, one inch of rain falling on a 1,000 square foot roof can harvest 600 gallons of rainwater. Retention and use of rain water onsite reduces the overall loading of pollutants leaving properties and entering the stormwater system. By implementing a rain barrel system, residents can:

- Reduce water pollution as a result of rainwater runoff, which carries pesticides, fertilizers, sediment, oil, and trash into local rivers and lakes.
- Reduce soil erosion and improve the ability of water to infiltrate the soil at a reduced intensity.
- Reduce dependency on imported water supplies and realize cost savings as a result of reduced water use.
- Help save energy by reducing demand on our drinking water supply.

In addition to the provision of rain barrels, County staff or contractors will be present at distribution events to provide educational materials and responses to any questions raised by participants. Residents from multiple watersheds are expected to participate in this activity and will be asked to sign a maintenance agreement as a condition of receiving a rain barrel at the subsidized rate. Follow up surveys will be conducted with participating residents to ensure that rain barrels have been installed and to encourage proper maintenance.

ACTIVITY IMPLEMENTATION FY 2009-10

Activity during FY 2009-10 included conducting research to identify desired rain barrel features, including: size, ease of installation, cost, and features to discourage mosquito breeding. The County solicited bids through a formal procurement process in order to obtain the best quotes for provision of rain barrels and for one-year of customer service assistance following distribution. A vendor was selected, a contract awarded, and planning was initiated for two distribution events to be held during FY 2010-11. In addition, the County used an existing website to provide more information to the public (www.rethinkwateruse.org).

ACTIVITY IMPLEMENTATION FY 2010-11

The Rancho San Diego Sales event took place at Cuyamaca College on August 28, 2010, from 8 a.m. until noon. Seventy-eight (78) residents took advantage of the opportunity and purchased a total of 102 rain barrels. Unincorporated area residents purchased 69 rain barrels at the subsidized rate of \$30 plus tax, and 33 rain barrels were sold at the full price of \$60 plus tax.

On September 26, 2010, there was a buzz in Fallbrook as eager residents stood in line before the 9 a.m. start time for the distribution event at Fallbrook Village Square. By the 1 p.m. closing time, 105 residents had purchased a total of 138 rain barrels. Of those, 103 barrels were sold to unincorporated area residents at the subsidized rate and 35 barrels were sold at full price.

A total of 185 residents participated in these events and a total of 240 rain barrels were sold. Participating residents came from a variety of watersheds throughout the County (Table 1).

Table 1. Residents by Watershed

Watershed	Anza Borrego	Santa Margarita	San Luis Rey	Carlsbad	San Dieguito	Peñasquitos	San Diego River	San Diego Bay	Tijuana	Unknown
Total Residents	2	24	61	6	8	4	27	50	2	1

TMDL APPLICABILITY

This activity was not specifically implemented in compliance with a TMDL. Although would be compliant with the Bacteria TMDL for Los Peñasquitos.

TIME SCHEDULE FOR IMPLEMENTATION

Planning for this activity occurred during FY 2009-10. The events took place on August 28, 2011 (Cuyamaca College) and September 26, 2011 (Fallbrook Village). Additional events are being considered for implementation in FY 2012-13.

LEAD WATERSHED COPERMITTEE

- County of San Diego

OTHER PARTICIPATING ENTITIES

- None

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria/Pathogens
- Conditions
- Dissolved Minerals
- Gross Pollutants
- Metals

- Nutrients
- Oil & Grease
- Organics
- Pesticides
- Sediment
- Trash

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

Rainwater harvesting reduces the overall amount of runoff from individual properties resulting in a decrease in pollutant mobilization and erosion.

EFFECTIVENESS MEASUREMENTS

Level 1 Outcomes were achieved through the number of rain barrels sold to individuals living in the County and through the signing of rain barrel maintenance agreements.

Page left intentionally blank
for reproduction purposes

TITLE: STORMWATER QUALITY MASTER PLANS FOR SPECIAL DRAINAGE FEE AREAS
ID #: LP-WQA24

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 a list of potential regional BMPs for implementation. 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 Los Peñasquitos Watershed include:

- 1) SDA 6 (Lakeside)
- 2) SDA 8 (Ramona)

FY 2007-08 ACTIVITY IMPLEMENTATION:

Work began on drafting the SWQMPs for individual SDAs.

FY 2008-09 ACTIVITY IMPLEMENTATION:

Work continues on the drafting of the SWQMPs for individual SDAs.

FY 2009-10 ACTIVITY IMPLEMENTATION:

The SWQMP for SDA 6 and SDA 8 are in draft form and undergoing review by County personnel.

FY 2010-11 ACTIVITY IMPLEMENTATION:

The SWQMP for SDA 6 and SDA 8 are in draft form and undergoing review by County personnel.

TMDL APPLICABILITY

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

TIME SCHEDULE FOR IMPLEMENTATION

Review and adoption of the Storm Water Quality Master Plan is expected to take place in FY 2011-12. Construction of BMPs is contingent upon approval of SDA fee increases by the County Board of Supervisors. If adopted, the Board is likely to consider fee increases in 2014.

LEAD WATERSHED COPERMITTEE

- County of San Diego

OTHER PARTICIPATING ENTITIES

- None

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria/Pathogens
- Conditions
- Dissolved Minerals
- Gross Pollutants
- Metals
- Nutrients
- Oil & Grease
- Organics
- Pesticides
- Sediment
- Trash

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

To be determined.

EFFECTIVENESS MEASUREMENTS

To be determined.

TITLE: LOS PENASQUITOS PROPERTY-BASED INSPECTIONS
ID #: LP-WQA25

ACTIVITY DESCRIPTION

This activity is part of a larger study in the San Dieguito River, Los Peñasquitos, Mission Bay and La Jolla, San Diego River and Tijuana River watershed management areas (WMAs). The City of San Diego (City) performed an inspection program activity specifically focused on properties with multi-businesses. The activity involved inspecting properties and the businesses located on the properties, regardless whether they are part of the City's commercial and industrial inventory. Traditionally, the City performs individual business inspections in the City's commercial and industrial inventory.

The City developed and implemented a focused inspection activity designed to evaluate the effectiveness of performing multi-business property-based inspections and answer the following management questions related to the commercial and industrial inspections program:

- 1) Does focusing inspections and follow-up on property owners/managers increase BMP compliance?
- 2) Are Property-Based inspections feasible?

The areas selected for inspection were shopping centers, industrial parks, and office parks within five watershed management areas.

The inspections occurred over two phases. Property inspections and business investigations were conducted during both phases. During the first phase, inspectors performed a full inspection of each property. Properties were inspected for BMP compliance, general site observations, pollutant discharge potential, and illicit connections/illegal discharges (IC/IDs) similar to an individual business inspection. Site observations and BMP deficiencies were noted on the inspection form. When an issue was noted during the property inspection and could be associated to a particular business, the inspector initiated an investigation of the business, or businesses. These individual business inspections were limited to investigating the significant deficiencies observed. If an issue could not be associated to one or more businesses on the property, the issue was considered to be the responsibility of the property owner or management company, and no business inspections were performed.

The property inspection reports were sent to the property management company, or to the property owner on file. Where applicable, business inspections reports were sent to corporate offices. If a business was not part of a corporation, the report was sent directly to the business at its physical location, or mailing address.

In phase two of the activity, selected properties from phase one that were determined to be high priority follow-ups were inspected. Each property was inspected using the same procedures utilized in the initial inspections. As a part of phase two, business investigations were also performed to those businesses likely responsible for potential storm water issue(s) in the area.

During both phases, if violations were identified, they were recorded for appropriate follow-up. Follow-up inspections occurred based on the severity of the identified violations. If discharges were identified, they were immediately reported to the City's Storm Water hotline number. Lastly, education material was distributed, as applicable, during phase one and two of the inspection activity.

TMDL APPLICABILITY

- 1) TMDLs for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region
- 2) Los Peñasquitos Sediment TMDL

TIME SCHEDULE FOR IMPLEMENTATION

Implementation and assessment took place during FY 2011. This project is complete, and will no longer be included in future reporting updates.

LEAD WATERSHED COPERMITTEE

- City of San Diego

OTHER PARTICIPATING ENTITIES

- None

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria/Pathogens
- Oil & Grease
- Sediment
- Trash

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

The Collective Watershed Strategy for the Los Peñasquitos WMA identifies bacteria and sediment as high priority water quality problems in the Los Peñasquitos WMA, and recommends implementing load reduction/source abatement activities to address them. Implementation of the property inspections contributes to addressing discharges, correcting behaviors, and abating sources associated with bacteria and sediment.

EFFECTIVENESS MEASUREMENTS

Management Questions:

- 1) Does focusing inspections and follow-up on property owners/managers increase BMP compliance?
- 2) Are Property-Based inspections feasible?

Targeted Measurable Outcome(s):

- 1) Identification of sources of constituents of concern in the Los Peñasquitos Watershed

Assessment Method(s):

- 1) Inspections
- 2) Quantification
- 3) Monitoring
- 4) Tabulation
- 5) Reporting

Data Recorded:

Phase One Property Inspections

Number of property inspections = 187

Number of properties recommended for follow-up inspection= 59

Total IC/IDs Observed = 10

Total IC/IDs Eliminated During Inspection = 0

Phase One Business Investigations

Number of business investigations = 129

Number of sites recommended for follow-up inspection = 112

Number of Sites That Implemented Some Corrective Action During Inspection (BMP implemented) (Outcome 3) = 5

Number of Sites with Assumed Source Abatement (based on corrective actions taken) (Outcome 4) = 5

Total IC/IDs Observed = 18

Total IC/IDs Eliminated During Inspection = 1

Phase Two Property Inspections

Number of property inspections = 44

Number of properties recommended for follow-up inspection = 34

Total IC/IDs Observed = 2

Total IC/IDs Eliminated During Inspection = 0

Phase Two Business Investigations

Number of business investigations = 60

Number of sites recommended for follow-up inspection = 50

Number of Sites That Implemented Some Corrective Action During Inspection (BMP implemented) (Outcome 3) = 8

Number of Sites with Assumed Source Abatement (based on corrective actions taken) (Outcome 4) = 8

Total IC/IDs Observed = 3

Total IC/IDs Eliminated During Inspection = 2

Overall

Number of Sites That Implemented Some Corrective Action Between the Two Phases (Outcome Level 3) = 11

Number of Sites with Assumed Source Abatement (based on corrective actions taken) (Outcome 4) = 11

Expected Benefits:

The goal of this assessment is to determine the effectiveness of property-based inspections as a method to conduct inspections, which includes identifying and eliminating potential sources of storm water pollution.

Analysis Results:

During phase one, 187 properties received property inspections. A total of 31% of these properties needed follow-up to verify that corrective actions/BMPs were implemented. From the phase one property inspections, 129 businesses were investigated with five sites implementing some corrective action during inspection.

For phase two, 44 properties from phase one received a follow-up property inspection. A total of 34 of the 44 properties were recommended for follow-up to verify that corrective actions/BMPs were implemented. From the 44 properties, there were 60 business investigations in phase two. Also in phase two, eight out of the 60 businesses implemented some corrective action during the inspection.

Overall between the two phases of inspections, there were 11 sites that implemented some corrective action. The City can verify a total of 13 locations had taken corrective actions immediately. The number of IC/IDs decreased from ten to two between the two phases of the 44 properties inspections. Between the two phases of business investigations, the number of IC/IDs decreased from 18 to three. Lastly, three IC/IDs were eliminated during inspection.

Property inspections are an efficient and effective method to assess shared areas and evaluate visible, outdoor areas for BMP implementation at shopping centers, industrial parks, and office parks. Overall, BMP implementation improved at the properties inspected between the two phases of inspection and a reduction of IC/IDs. There are some BMPs normally addressed during business inspections that did not apply to property inspections, as they require input from a business representative, or are requirements specific to business operations, such as employee training. In addition, the follow-up inspection priorities improved between the inspection phases. Lastly, common areas that have the highest threat to water quality, such as trash, landscaping, and storm drain areas, can be effectively evaluated during a property inspection.

Conclusions:

Overall, property-based commercial and industrial inspections provide efficiency in both cost and coverage, with the ability to inspect a large area with multiple businesses in a short amount of time. Also common areas of high pollutant generating activities are addressed during these inspections, including IC/IDs, trash areas, landscaping and storm drain issues. Ten IC/IDs were observed during the first property inspections phase, and called into the City's hotline for response and follow-up for abatement. Two IC/IDs were found during the second property

inspections phase in the Los Peñasquitos WMA. In addition, 11 sites implement some corrective action between the two phases of inspections. A total of 13 businesses implemented corrective actions immediately during inspection in the two phases. Three IC/IDs were eliminated during inspection. Although a load reduction was not calculated, abatement of potential sources may be assumed with corrective actions being implemented and IC/ID eliminated during inspection; therefore, demonstrating both Level Three (change in behavior/BMP implementation) and Level Four (source abatement/load reduction) outcomes being achieved as a result of conducting the property inspection activity. This activity fulfills the requirement of one of the two required watershed water quality activities.

Page left intentionally blank
for reproduction purposes

TITLE: TARGETED CATCH BASIN CLEANING PILOT STUDY
ID #: LP-WQA26

ACTIVITY DESCRIPTION

The City of San Diego Storm Water Division began the planning of a catch basin cleaning pilot study in FY 2011. The purpose of the project is to understand the potential water quality improvements and load reduction associated with catch basin cleaning by evaluating the quantity and quality of materials removed from the storm drains from four pilot areas. The areas were selected to be representative of different land uses within the City limits. Additionally two cleaning methods will be evaluated – manual and using vector equipment. One of the pilot areas is within the Los Peñasquitos WMA near the intersection of Scripps Poway Parkway and Interstate 15.

Composite samples collected from the material removed from the targeted catch basins will be analyzed for metals, nutrients, organics, and bacteria.

TMDL APPLICABILITY

- 1) TMDLs for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region
- 2) Los Peñasquitos Sediment TMDL

TIME SCHEDULE FOR IMPLEMENTATION

Implementation and assessment is scheduled for FY 2012.

LEAD WATERSHED COPERMITTEE

- City of San Diego

OTHER PARTICIPATING ENTITIES

- None

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria/Pathogens
- Metals
- Nutrients
- Sediment

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

Both the City's Strategic Plan for Watershed Activity Implementation and the Collective Watershed Strategy for the Los Peñasquitos WMA identify bacteria and sediment as high priority water quality problems in the WMA, and recommend implementing load reduction/source abatement activities to address these constituents. This project will result in a quantifiable load reduction of sediment and will evaluate the amount of bacteria reduced as part of catch basin cleaning.

EFFECTIVENESS MEASUREMENTS

Management Questions:

- 1) To what extent do changes in catch basin cleaning frequency affect the amount of pollutants collected?
- 2) What is the annual calculated load reduction based on pilot scale data collection with catch basin cleaning?
- 3) Which cleaning method, manual versus mechanical is the most cost effective method for removing sediment from catch basins?

Targeted Measurable Outcome(s):

- 1) Reduction in bacteria exported from the catch basin.
- 2) Reduction in sediment exported from the catch basin.
- 3) Reduction in nutrients associated with the catch basin.

Assessment Method(s):

- 1) Evaluate the volume of material currently removed from each catch basin.
- 2) Evaluate the correction in cleaning results with land use category, impervious area, watershed size, and surface water impairments.

Data Recorded:

- 1) Volume Removed
- 2) Location
- 3) Sediment sample analysis

Expected Benefits:

N/A

Analysis Results:

N/A

Conclusions:

N/A

TITLE: RAINWATER HARVESTING REBATE PILOT PROGRAM
ID #: LP-WQA27

ACTIVITY DESCRIPTION

The City of San Diego Transportation & Storm Water Department, Storm Water Division collaborated with the Public Utilities Department in the planning of a Rainwater Harvesting Rebate Pilot Program (Rebate Pilot Program). During this reporting period staff from both departments met to discuss the application process, funding, administration, promotion, and other items related to the Rebate Pilot Program.

This Rebate Pilot Program will be open to the residents of the City of San Diego on a first come first serve basis and will provide a rebate of .50 cents per gallon, up to \$200 per address, for water capture devices up to 400 gallons that are purchased and installed. The Public Utilities Department will administer the Rebate Pilot Program in conjunction with its ongoing Prop 50 Outdoor Water Conservation Rebate Program.

TMDL APPLICABILITY

TMDLs for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region

TIME SCHEDULE FOR IMPLEMENTATION

Planning started in the last quarter of FY 2011 with a tentative implementation start date in FY 2012.

LEAD WATERSHED COPERMITTEE

- City of San Diego

OTHER PARTICIPATING ENTITIES

- City of San Diego Public Utilities Department

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- All

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

Both the City's *Strategic Plan for Watershed Activity Implementation* and the Collective Watershed Strategy for the Los Peñasquitos Watershed Management Area (WMA) identify several water quality problems throughout the watershed. Rainwater harvesting reduces the overall amount of wet weather runoff and the demand for portable water for irrigation.

EFFECTIVENESS MEASUREMENTS

Data to be recorded:

- 1) Most common water catchment device installed
- 2) Average size of water catchment device installed

EXPECTED BENEFITS

The use of water capture devices (e.g., rain barrels) reduces wet weather runoff to the MS4, and collected water also reduces the demand for portable water to irrigate landscaping.

ANALYSIS RESULTS

This activity was not in active implementation in FY 2011. Therefore, assessment is not possible at this time.

CONCLUSIONS

The project is currently being planned so there are no conclusions to report.

TITLE: RESIDENTIAL PATROLLING
ID #: LP-WQA28

ACTIVITY DESCRIPTION

The City of Del Mar is a small jurisdiction with a relatively small residential community. The majority of the City consists of single family dwellings set in a hilly terrain that drains towards the Pacific Ocean and the San Dieguito and Los Peñasquitos lagoons. One of the primary sources of urban runoff within the City is residential irrigation runoff. Through this activity, the City intends to identify sources of urban runoff and abate them through a cycle of patrolling activities.

This activity includes periodically patrolling the entire City to identify residential and municipal sources of urban runoff and pollutant generating activities at various times of the week and day (non-working hours). The patrols will be conducted both before and after work hours to capture the likely times when residents are irrigating their properties. In addition to identification of urban runoff and their sources, patrollers will also look to identify other pollutant generating activities that need to be abated.

Identified issues will be followed up on in a timely manner (within 72 hours) using educational outreach materials the City has recently developed.

TMDL APPLICABILITY

TMDLs for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region

This activity is related to the Bacteria TMDL as it addresses sources of indicator bacteria as well as dry weather urban runoff that have been shown to contribute to regrowth of indicator bacteria within MS4 systems.

TIME SCHEDULE FOR IMPLEMENTATION

This activity is planned for implementation during Fiscal Years 2012 and 2013 with continual assessment to determine if modifications are necessary.

LEAD WATERSHED COPERMITTEE

- City of Del Mar

OTHER PARTICIPATING ENTITIES

- None

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria
- Nutrients
- Oil and Grease
- Sediment

- Pesticides
- Trash

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

This activity addresses high priority water quality problems and sources of the associated pollutants and is therefore consistent with the 2008 WURMP watershed strategy.

EFFECTIVENESS MEASUREMENTS

The City will maintain records on each of the parcels for the following information that will be used for effectiveness assessment:

- Parcel information for those that are identified to be contributing urban runoff and conducting potential pollutant generating activities
- Follow-up activities conducted by the City including outreach and enforcement
- Dates of identified issues and indication of repeat issues

It is anticipated that the follow-up contact with the identified sources will lead to some abatement of their contributions to urban runoff and pollutant generating activities.

TITLE: PUBLIC SERVICE ANNOUNCEMENT: KARMA, KARMA SECOND CHANCE, KARMA TOURIST
ID #: LP-WQEA2

ACTIVITY DESCRIPTION

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

These PSAs were developed in FY 2007 and FY 2008 and were broadcast on several TV and radio stations throughout the Los Peñasquitos Watershed Management Area (WMA) from April 2011 to June 2011. The PSA used humor to convey the importance of the public's part in the proper disposal of trash and the impacts litter and pollution have on our waterways and beaches. The PSAs were broadcast in both English and Spanish.

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

TMDL APPLICABILITY

TMDLs for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region

TIME SCHEDULE FOR IMPLEMENTATION

The PSAs were developed in FY 2007 and FY 2008 and were broadcast on several TV and radio stations throughout the Los Peñasquitos WMA from April 2011 to June 2011.

LEAD WATERSHED COPERMITTEE

- City of San Diego

OTHER PARTICIPATING ENTITIES

- None

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria/Pathogens
- Trash

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

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

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

EFFECTIVENESS MEASUREMENTS

Management Questions:

- 1) What changes in awareness/attitude regarding bacteria and gross pollutants was achieved after implementation?
- 2) How efficient is this education activity based on total cost versus number of people (targeted audience) reached?

Targeted Measurable Outcome(s):

- 1) Reach goal of number of listeners (radio) and homes (television) reached, based on survey results
- 2) Increased level of knowledge/attitude based on post-activity surveys

Assessment Method(s):

- 1) Survey (e.g., administer survey to assess knowledge and attitude of participants)
- 2) Quantification (e.g., number of residents reached by PSA)

Data Recorded:

- 1) Number of impressions made in homes through television in Los Peñasquitos WMA (Outcome Level 1): 1,548,526
- 2) Number of impressions made to the public through radio announcements in Los Peñasquitos WMA (Outcome Level 1): 2,163,903
- 3) Change in knowledge or attitude from survey results (Outcome Level 2): 32%
- 4) Change in pollutant-related behavior from survey results (Outcome Level 3): Yes**

**32% of residents reported making a change in their behavior as a result of seeing information about what polluted water in storm drains does to local rivers, beaches and the ocean. Higher levels of response to this question are found among those who have greater familiarity with the Think Blue program, suggesting the effectiveness of outreach efforts in changing behavior. There was also an increase in the numbers of respondents who cited proper disposal of pet waste and motor oil as behaviors they had changed recently. Other decreases in pollutant-related behavior were percentages too small to fall within the acceptable range for statistical outcomes at a 95% confidence level. For those behaviors, the percentages of change were so small that they cannot be assumed to be a result of the activity based on this year's survey and method of assessment.

Expected Benefits:

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

Analysis Results:

The PSAs were developed in the FY 2007-2008, and broadcast on several TV and radio stations throughout the Los Peñasquitos WMA from April 2011 to June 2011. The PSAs were broadcast in both English and Spanish.

The City also obtained assessment information from its annual random-digit dial 2011 San Diego Storm Water Survey of 800 total residents from all WMAs. 58% of residents said they saw a Think Blue PSA last year on television while 14% of residents heard the radio announcements in FY 2010. 51% said they prefer to get information about storm water via television. This year's survey also noted that 57% of residents know that storm water was not treated, a continued rise in the public's awareness, up from 39% in 2008. Significant increases in awareness were continuing to grow among white residents, women and residents under the age of 65. Additionally, 32% of residents reported making a change in their behavior as a result of seeing information about what polluted water in storm drains does to local rivers, beaches and the ocean. Of those residents that had heard of "Think Blue" an increasing number reported that they were taking steps to change behaviors as well.

Respondents to the survey were selected randomly in order to fairly and accurately represent the city as a whole. To estimate the number of impressions in the Los Peñasquitos WMA, the total number of estimated city-wide impressions was multiplied by the proportion of residents living in the Los Peñasquitos WMA (16%) of the City's total population.

Conclusions:

Based on assessment from both the survey and the field experiment as well as feedback from the public, Think Blue PSAs appear to have an impact on the public as it pertains to knowledge and awareness of storm water issues. While some residents have stated they have made changes to their behaviors due in part to the PSAs, the City will continue to monitor public perception and feedback to determine if this is actually occurring. The City will continue to work with appropriate broadcast media outlets to air Think Blue television and radio PSAs in FY 2012.

Additionally, the city continued to measure public awareness of the Think Blue program via surveys comprised of a random digit dial sample of the residents living in the Los Peñasquitos WMA to determine whether this activity results in a change in knowledge and awareness associated with storm water issues, or results in a change in pollution-related behavior. Efficiency will be calculated by comparing measurable changes in knowledge, awareness and/or change in behavior with the cost of this activity.

Furthermore, the 2011 San Diego Storm Water Survey indicated that 53% had heard the phrase "Think Blue" in 2011, and awareness that storm water is not treated had increased. These results, coupled with a continued increase in the percentage of residents in taking steps to reduce pollution demonstrate the public's knowledge of storm water issues is moving in a positive direction.

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

TITLE: INFILTRATION BMP RETROFIT OUTREACH
ID #: LP-WQEAS

ACTIVITY DESCRIPTION

This Infiltration BMP Education and Outreach Activity was planned to support the implementation of an infiltration project in the Los Peñasquitos WMA to reduce runoff volume. The activity will complement the Mira Mesa Library Bioretention and Infiltration Retrofit Project (see Activity Sheet LP-WQA09). Educational materials, such as infiltration specific brochures and facts sheets will be developed, which will explain the importance of the project as well as the water quality benefits that will be realized. Outreach strategies and methods may include direct public interaction, stakeholder meetings, information sessions, print media and website postings. Ongoing educational materials will be developed and implemented once the project is finalized. The pollutant load reduction resulting from this activity will contribute to meeting requirements under the Municipal Permit and current and anticipated TMDLs in the receiving waters of the WMA.

TMDL APPLICABILITY

- None

TIME SCHEDULE FOR IMPLEMENTATION

The outreach for the implementation of the Mira Mesa Library Bioretention and Infiltration Retrofit Project (see Activity Sheet LP-WQA09) is on hold until the project is approved to begin.

LEAD WATERSHED COPERMITTEE

- City of San Diego

OTHER PARTICIPATING ENTITIES

- None

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria/Pathogens
- Sediment

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

Both the City Strategic Plan for Watershed Activity Implementation and the Collective Watershed Strategy for the Los Peñasquitos WMA identify bacteria and sediment as high priority water quality problems throughout the WMA, and recommend implementing load reduction/source abatement activities to address them. Implementation of this activity will educate the public and address high priority water quality problems by reducing and treating runoff volume of pollutants via infiltration/retention.

EFFECTIVENESS MEASUREMENTS

Management Questions:

- 1) How much change in awareness was achieved?
- 2) What changes in levels of behavior was achieved after implementation?
- 3) How do the survey results change pre and post activity implementation?

Targeted Measurable Outcome(s):

- 1) Achieve increased awareness of bacteria and sediment issues
- 2) Achieve increasing rates of knowledge and attitude or change in behavior with increased outreach (based on repeated survey results)

Assessment Method(s):

- 1) Survey (e.g., administer survey to assess knowledge and attitude of participants)
- 2) Quantification (e.g., count observable pollution and behavior of participants in program)
- 3) Monitoring (e.g., water quality monitoring at base of targeted watershed)
- 4) Tabulation (e.g., amount of money spent on education and outreach, number of residents and households reached)
- 5) Reporting (e.g., estimates of load reduction based on 3rd party data, number of individuals or households reached)

Data Recorded:

N/A

Expected Benefits:

An increase ineffectiveness of the bioretention areas in reducing pollutant loads from runoff from the Mira Mesa Library. In addition to actual load reduction efforts, the project's outreach element will inform and educate the public about the projects in an effort to increase awareness about bacteria and sediment issues within the Los Peñasquitos watershed.

Analysis Results:

There are no analysis results as of this reporting period.

Conclusions:

There are no conclusions as of this reporting period.

TITLE: FIESTA DE LOS PENASQUITOS
ID #: LP-WQEA13

ACTIVITY DESCRIPTION

In order to prevent bacteria pollution in the Los Peñasquitos Watershed Management Area (WMA), the Los Peñasquitos Watershed Copermittees jointly participated in the Fiesta De Los Peñasquitos Celebration, a family oriented annual street faire for residents of the Rancho Peñasquitos community. This festival has been slated as the largest event of the year for the Rancho Peñasquitos Town Council. The festival was held on Sunday, May 1, 2011, from 11 am - 5 pm and was free to the public.

The Fiesta targeted key sources of bacteria in the Los Peñasquitos WMA. Participation provided direct outreach to watershed residents dedicated to preserving water quality in San Diego, but primarily focused on water bodies in the Los Peñasquitos WMA. Goals were to increase knowledge and awareness and encourage everyone to take positive steps in preventing pollution from entering the storm drain.

With more than 15,000 people in attendance, our presence at the event provided a great opportunity to increase direct public education and interact with citizens and visitors about the benefits of pollution prevention.

Public education materials available in the booth included brochures, fact sheets, and pollution prevention tip cards, along with best management practice items that helped promote behavior change such as dust pans, pet trash bag containers, and pet trash bag refills.

TMDL APPLICABILITY

- None

LEAD WATERSHED COPERMITTEE

- City of Poway

OTHER PARTICIPATING COPERMITTEES

- City of Del Mar
- City of San Diego
- County of San Diego

OTHER PARTICIPATING ENTITIES

- None

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria/Pathogens
- Sediment

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

The Collective Watershed Strategy for the Los Peñasquitos WMA identifies bacteria and sediment as high priority water quality problems throughout the WMA, and recommends implementing load reduction/source abatement activities to address them. Implementation of this outreach effort will result in both increased knowledge and awareness regarding bacteria and trash as a vector and future load reduction of trash and debris directly and of bacteria indirectly.

EFFECTIVENESS MEASUREMENTS

Objectives:

The goal of this assessment was to determine community knowledge and awareness about storm water issues and whether or not residents would adopt non-polluting behaviors. Another goal was to create positive behavioral change that will reduce bacteria and gross sediment in water bodies in the Los Peñasquitos WMA.

Analysis and Results:

The campaign targeted key areas of concern for pollutants in the Los Peñasquitos WMA. The event provided direct outreach to residents living within the Rancho Peñasquitos area. A total of 203 surveys were completed. Based on the assessment, many citizens knew about pollution issues in neighboring waterways (91%). Sixty-eight percent of residents were aware the sewer system and storm drain system are not connected, and that water in the storm drain system is not treated. Sixty-three percent of residents stated that litter contributes a lot to pollution of local waterways, 29% said a moderate amount, and 8% said a little or not at all. Although 80% of respondents felt a strong or very strong obligation not to litter, more than 20% admitted to littering within the past year. Efforts were made to educate attendees on awareness of pollutant sources and pollution prevention methods.

Conclusions:

The Fiesta De Los Peñasquitos attracted mainly residents living in the local WMA. The event provided Copermittees and Storm Water staff an open venue to interact with the community. The goal was to encourage everyone to take positive steps in preventing pollution from entering the storm drain system. With approximately 15,000 people in attendance, the event provided a great opportunity to spread the message about storm drain pollution prevention.

TITLE: LOS PENASQUITOS WATERSHED BROCHURE
ID #: LP-WQEA14

ACTIVITY DESCRIPTION

The City of San Diego (City) and Think Blue will implement a new brochure program for the six (6) watershed management areas (WMAs) assigned to the City. These brochures will be used to inform San Diego residents on the benefits of taking steps to reclaim an environmentally and economically healthy watershed. The education pieces will help address high priority water quality problems in each WMA. It will also be used to make citizens aware of specific pollutants and ways individual action can be used to protect each water source as a way to promote a watershed stewardship (all individual actions within each watershed adds up in a cumulative way to influence the health of the water resource).

The main goals of the brochures are to capture the attention of the audience, enhance the understanding of basic watershed principles of the public, address the high priority water quality problems in each WMA, educate best management practices (BMPs) for future use, and encourage citizens to take positive steps in preventing pollution from entering the storm drain system.

The following WMAs will have a watershed specific brochure created:

- 1) Tijuana River
- 2) San Diego River
- 3) San Diego Bay
- 4) Mission Bay/La Jolla
- 5) San Dieguito River
- 6) Los Peñasquitos

TMDL APPLICABILITY

Brochures will target pollutants associated with TMDLs as applicable.

TIME SCHEDULE FOR IMPLEMENTATION

Project planning began in FY 2009 and will continue through FY 2012. Implementation and distribution is expected to occur in early FY 2012.

LEAD WATERSHED COPERMITTEE

- City of San Diego

OTHER PARTICIPATING ENTITIES

- None

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria
- Sediment

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

This activity will address the high priority water quality problems identified in both the city's Strategic Plan for Watershed Activity Implementation and the Collective Watershed Strategy for each of the Watershed Management Areas.

EFFECTIVENESS MEASUREMENTS

Management Questions:

- 1) Can we create watershed brochures that increase the public's understanding of basic watershed principals and storm water best management practices (BMPs) and create awareness of the high priority water quality problems in each WMA?
- 2) Can we create watershed brochures that encourage citizens to take positive steps in preventing pollution from entering the storm drain system?

Targeted Measurable Outcome(s):

- 1) Increased knowledge of basic watershed principles and storm water BMPs after reading the watershed brochure.
- 2) Increased awareness of the high priority water quality problems in each WMA after reading the watershed brochure.
- 3) Increased intent to act to prevent storm water pollution after reading the watershed brochure.

Assessment Method(s):

Assessment is still being developed for this activity. Potential assessment methods could include a focused evaluation with two target audiences in combination with various event booths (or workshops). Event attendees would be randomly selected to either receive or not receive the brochure, then asked to complete a response card. At a later point, those who provided contact information will be contacted and asked a series of follow-up questions about awareness, knowledge, and behavior to determine if the brochure had an impact.

Data Recorded:

N/A

Expected Benefits:

The goal of this assessment is to determine the effectiveness of the watershed brochure in increasing knowledge and awareness in each watershed to create positive behavioral changes. This activity will address the high priority water quality problems identified for each of the Watershed Management Areas.

Analysis and Results:

An effectiveness assessment of this activity is not possible at this time because the watershed brochure has not yet been distributed.

Conclusions:

The City completed two watershed brochures (Tijuana and San Diego River) in FY 2010 and will continue to create brochures for the remaining watersheds in FY 2012. In FY 2011 it was determined that the watershed brochures for all six (6) watersheds within the City of San Diego would need to be revised, including the already completed Tijuana and San Diego River watershed brochures. Watershed brochure revision will be completed in FY 2012. Effectiveness assessments are scheduled to begin in late FY 2012. This activity will be used as a watershed education activity as required by the Municipal Permit for education activities.

Page left intentionally blank
for reproduction purposes

TITLE: COASTAL CLEANUP DAY
ID #: LP-WQEA15

ACTIVITY DESCRIPTION

In association with the Coastal Cleanup Day conducted by San Diego Coastkeeper (SDCK) and I Love A Clean San Diego (ILACSD), an educational presentation was provided to the cleanup volunteers. At two of the three cleanup sites located within the Los Peñasquitos watershed, City of Poway staff and a consultant presented information on the watershed, the difference between the storm drain and the sanitary sewer, and pollutants affecting the watershed. One site was in each of the two hydrologic areas in the watershed. A pre-test and post-test were given to measure the effectiveness of the educational activity.

TMDL APPLICABILITY

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

TIME SCHEDULE FOR IMPLEMENTATION

This activity was planned and implemented in Fiscal Year 2011.

LEAD WATERSHED COPERMITTEE

- City of Poway

OTHER PARTICIPATING COPERMITTEES

- City of San Diego

OTHER PARTICIPATING ENTITIES

- None

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria/Pathogens
- Nutrients
- Sediment
- Trash

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

The Collective Watershed Strategy for the Los Peñasquitos WMA identifies bacteria and sediment as high-priority water quality problems throughout the WMA and recommends load reduction/source abatement activities to address them. Implementation of this outreach effort will result in both increased knowledge and awareness regarding bacteria, trash, and sediment as pollutants in the watershed and future load reduction of trash and sediment directly and of bacteria indirectly.

EFFECTIVENESS MEASUREMENTS

There were 65 volunteers at the Los Peñasquitos Canyon Preserve site and 170 volunteers at the Poway Community Park site. Due to site conditions and some confusion between the various volunteer coordinators, not all volunteers received the educational presentation or completed pre-tests and post-tests.

A total of 19 volunteers at the Los Peñasquitos Canyon Preserve site were given the presentation and completed pre-tests, but only 3 of these individuals completed post-test. At the Poway Community Park site, 41 pre-tests and 39 post-tests were completed, but these included only 8 matched sets (pre-tests and post-tests completed by the same individuals). The results are therefore shown in the table below in two ways: by matched sets and total respondents.

Question	Percentage of Correct Answers			
	Matched Sets		Total Respondents	
	Pre-Test	Post-Test	Pre-Test	Post-Test
A watershed is all the land that drains to a waterbody (T/F)	100%	100%	69%	98%
You are in which watershed? (multiple choice)	45%	100%	43%	95%
Which of the following pollutants is a major concern in this watershed? (multiple choice)	82%	100%	66%	90%

Attachment A
2008 Los Peñasquitos WURMP
Watershed Map

This page intentionally left blank
for reproduction purposes

This page intentionally left blank
for reproduction purposes