

## **MUNICIPAL BEST MANAGEMENT PRACTICES – 1**

### **ACTIVITY DESCRIPTION**

The San Diego Bay Copermittees will address high priority water quality problems by coordinating and standardizing activities at the watershed level. One of the identified collaborative efforts is the Municipal BMP activity to address urban runoff from jurisdictional parks and recreational areas. It is believed that parks may be a potential source of high priority water quality problems such as bacteria, pesticides, sediment, and trash. The San Diego Bay Copermittees will take measures to address these high priority water quality problems from the MS4, streams, and water bodies.

This activity consists of multiple projects that address load reductions from parks and recreational areas and are associated with the high priority water quality problems. The list below includes specific projects which can be implemented as part of the Municipal BMP strategy. It is important to note that not every Copermittee participating in this program will institute every activity listed below. Each Copermittee will be implementing the activity jurisdictionally and will decide on the scale, location, and timing of the activities in HAs under their authority. It is the goal of the Municipal BMP activity to address multiple pollutants using a variety of mechanisms throughout the watershed.

**Pet Waste Bags:** Two important goals are to reduce the amount of pet waste found in parks and to provide an opportunity to educate the public on the need to clean up after their pets. Each Copermittees will designate how they plan to implement this activity. Providing pet waste bags to citizens may result in load reductions as the activity enables proper disposal of pet waste and associated pollutant categories such as bacteria. The activity could possibly undergo additional assessment by monitoring the number of bags used at each location. Copermittees may elect to post signage to educate the public of the benefits of proper waste management.

**Porous Pavement:** Porous pavement will facilitate biodegradation of oils and grease from cars and trucks, help rain water infiltrate soil, and reduce pollutant loads of high priority water quality problems. Copermittees may replace traditional impervious pavement in locations such as parking lots with porous pavement. This activity can be implemented to aid in the load reduction of metals, oil and grease, sediment and bacteria associated with impervious surface runoff. The Copermittees may estimate the effectiveness of the BMP by calculating the overall area converted from impervious surfaces to porous pavement. Wet weather monitoring data may also be used to assess the BMP effectiveness.

**Irrigation:** Copermittees may elect to address methods to reduce nutrient, sediment, pesticide, and bacteria loading associated with irrigation runoff through the implementation of irrigation BMP mechanisms (i.e., drip-irrigation or low-precipitation rate sprinklers) on municipal properties such as parks and recreational areas.

**Xeriscaping:** With the goal of conserving water, reducing erosion and irrigation runoff, Copermitees may choose to implement this water-wise landscaping technique to convert from lower permeable surfaces, such as grass or concrete, to more permeable landscaping options incorporating California-friendly plant species. Xeriscaping will aid in reducing nutrient, sediment, and bacteria associated with runoff of less pervious surfaces. The Copermitees may estimate the effectiveness of the BMP by calculating the overall area converted from less permeable surfaces to landscaping. Educational signs may be posted where appropriate to educate the public on the basis of the activity.

#### **TMDL APPLICABILITY**

The 2006 CWA Section 303 (d) Lists of impaired water bodies identified multiple locations throughout San Diego Bay with water quality impairments for bacteria, sediment toxicity and benthic community degradation. TMDLs are being developed by the RWQCB to protect beneficial uses in these impaired water body segments. Currently, Bacteria TMDL sites include Shelter Island and certain segments of Chollas Creek. All collaborative municipal BMP activities are applicable to these TMDLs to the extent they address the identification and control of sources of bacteria as a pollutant potentially impacting water quality, sediment toxicity, and the degradation of benthic communities in San Diego Bay.

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

- Permit Year 1: Varies
- Permit Year 2: Varies
- Permit Year 3: Varies
- Permit Year 4: Varies
- Permit Year 5: Varies

#### **PARTICIPATING WATERSHED COPERMITTEES**

- Port of San Diego
- City of Lemon Grove
- City of Coronado
- City of National City
- City of Chula Vista
- City of San Diego
- City of Imperial Beach
- County of San Diego
- City of La Mesa

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

- Bacteria
- Metals
- Sediment
- Oil and grease
- Pesticides

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

The Watershed Strategy identifies bacteria as a high priority water quality problem for all HAs. The Watershed Strategy identifies additional monitoring for bacteria within 908.1 HA, while proposing load reduction as the appropriate management action for 908.2, 908.3, 909.1, 909.2, and 910.1 HAs. Source identification was identified as the appropriate management action for bacteria within 910.2 HA. Metals were identified as a high priority water quality problem for 908.1 and 908.2 HA, requiring additional monitoring and source abatement, respectively. Sediment is also identified as a high priority water quality problem at both 908.2 and 908.3 HA. The Watershed Strategy acknowledged identification of the source of the sediment is needed. Oil and grease is considered a high priority water quality problem in 908.1 HA, requiring additional monitoring. Pesticides are recognized by the Watershed Strategy as a high priority water quality problem for 908.1 and 908.2 HA. The Watershed Strategy identifies the necessity for additional monitoring and source identification.

## **EXPECTED BENEFITS**

**Pet Waste Bags:** The expected outcome of providing means to the proper disposal of pet feces within parks establishes a level 3 outcome, as the education of the public on pollutant load reducing practices promotes behavioral change among the citizens. The dispensers add a reminder and encouragement for dog owners to properly dispose of dog waste. Bacteria load reductions associated with the use of pet waste bags will present a level 4 outcome. Removal of pet waste from the environment reduces nutrient and bacterial loading and improves water quality within the watershed.

**Porous Pavement:** The expected benefit of installing porous pavement in parking lots is a level 4 outcome by aiding to identify sources and reduce pollutant loads. This activity will contribute to improvements in water quality and source abatement.

**Irrigation:** The expected outcome will be level 4 and 5 outcomes with the installation of improved irrigation systems and practices. This activity will exhibit load reduction, which will influence discharge water quality.

**Xeriscaping:** The expected benefits of xeriscaping are level 3 and 4 outcomes, or BMP installation and load reductions.

## **EFFECTIVENESS MEASUREMENTS**

**Pet Waste Bags:** Providing pet waste bags is an important water quality activity to reduce the nutrients and bacteria loads because it estimates the amount of feces being removed in the watershed (level 4). Bacteria is a high priority water quality problem throughout the San Diego Bay watershed. Changes in knowledge, awareness and behavior of pet owners result in outcome levels 2 and 3 as well. The success of the implementation of pet waste bags may be estimated by quantifying the number of bag dispensers added in each HA as part of this activity or the number of bags removed and used from each of the dispensers.

**Porous Pavement:** Effectiveness will be assessed through level 4. The amount of area transferred from less permeable material, such as concrete, to porous pavement can be calculated to show efforts undertaken to reduce the amount of area covered by impervious surfaces and reduce the high priority water quality problems in each HA. The Copermittees may elect to do additional monitoring of watershed waters and surface runoff, in order to compare current loads to pre-BMP conditions. Wet weather monitoring data may also be used to assess the BMP effectiveness.

**Irrigation:** Effectiveness will be assessed through level 4. Copermittees may elect to monitor the high priority water quality problems in surface runoff and compare loads to pre-BMP conditions.

**Xeriscaping:** Load reductions will be assessed through level 4. The estimation of the area transformed through specialized landscaping may be utilized by Copermittees to show jurisdictional efforts to decrease the amount of impervious ground cover and reduce the high priority water quality problems within each HA.

## **MUNICIPAL BEST MANAGEMENT PRACTICES/PET WASTE BAGS AT PET RELIEF AREAS – 1A**

### **ACTIVITY SUMMARY**

The Airport Authority maintains a Pet Relief Area at the San Diego International Airport and is planning to install a second facility. Pet waste bags are available at the Pet Relief Area. The goals of this program are to reduce the amount of pet waste that might inadvertently enter the stormwater conveyance system and to provide public education about potential stormwater pollution related to pet waste and the need to clean up after their pets. These goals will reduce the amount bacteria and nutrients which could be released in the watershed.

The Pet Waste Bag Program is an important water quality activity in the San Diego Bay Watershed because it can be used to estimate the amount of feces and associated bacteria and nutrients being removed from the watershed. Pet waste bags are a reminder to and an encouragement for dog owners to properly dispose of dog waste. Removal of dog waste from the environment reduces associated bacteria and nutrient loading and improves water quality within the watershed. Reduction in the amount of bacteria and nutrients in the watershed contributes to improving the quality of the stormwater ultimately discharging into San Diego Bay.

### **TMDL APPLICABILITY**

The 2002 and 2006 CWA Section 303d lists of impaired water bodies identified multiple locations throughout San Diego Bay with water quality impairments for bacteria and locations near the airport have been identified as having sediment toxicity, benthic community effects, and copper impairments. TMDLS are being developed by the RWQCB to protect beneficial uses in these impaired water body segments. The development of one particular TMDL is referred to as TMDLs for Indicator Bacteria Project II - San Diego Bay and Dana Point Harbor Shorelines. The development of the TMDL for sediment toxicity and benthic community effects is referred to as the Downtown Anchorage TMDL. A TMDL has not yet been initiated for copper along the Harbor Island segment of San Diego Bay. The Pet Waste Bag Program is applicable to these TMDLs to the extent it addresses the identification and control of sources of bacteria and nutrients as pollutants potentially impacting water quality, sediment toxicity, and the degradation of benthic communities in San Diego Bay.

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Permit Year 1: Implementation
- Permit Year 2: Implementation
- Permit Year 3: Implementation
- Permit Year 4: Implementation
- Permit Year 5: Implementation

### **PARTICIPATING WATERSHED COPERMITTEES**

- Airport Authority

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

- Bacteria
- Nutrients

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

The Watershed Strategy identifies bacteria as a high water quality problem and nutrients as a low water quality problem for the 908.2 HA portion of the San Diego Bay Watershed in which the airport lies. This activity contributes to improving water quality problems by focusing on bacteria and nutrient load reduction through the removal of dog feces in the 908.2 HA. This activity is consistent with the Watershed Strategy because it focuses principally on pollutant load reductions, but also increases awareness and education of the public regarding pet waste as a source of stormwater pollution.

### **EXPECTED BENEFITS**

Pet waste bags at the Pet Relief Area target pollutant removal from the public areas of the airport. The public's use of pet waste bags actively decreases the amount of dog feces that might inadvertently enter the stormwater conveyance system. Making pet waste bags available to the public encourages stakeholder buy-in and participation in the Watershed Strategy. The program cultivates a public sense of ownership and responsibility for the health of local water bodies which in turn leads to the proper disposal of pet waste. By changing the way in which individuals dispose of pet waste, this program results in a level 3 outcome. The program also calculates the reduction in the amount of bacteria and nutrients impacting stormwater discharge quality, which is a level 4 outcome.

### **EFFECTIVENESS MEASUREMENTS**

The Airport Authority intends to calculate annual bacteria and nutrient load reductions by 1) estimating per-bag pollutant loads based on review of the literature and/or other sources and 2) monitoring the number of pet waste bags used annually. The Airport Authority will also be able to track the cost of implementing the program based on the number of bags used.

## **PROVIDE HOMEOWNER’S ASSOCIATION EDUCATION ABOUT PET WASTE DISPOSAL – 1B**

### **ACTIVITY DESCRIPTION**

The City of Chula Vista plans to encourage homeowner’s associations to provide pet waste signs and plastic bag dispensers within their community, as well as educate residents and home owners via the homeowner’s association newsletters about the importance of cleaning up after pets and the potential for mismanaged pet waste to enter the storm drain system. The City will provide educational materials and survey homeowners associations to assess if there is signage and plastic bag dispensers in the neighborhoods regarding proper pet waste disposal.

### **TMDL APPLICABILITY**

The City of Chula Vista does not discharge to water segments designated as impaired for bacteria.

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Permit Year 1: Planning
- Permit Year 2: Implementation
- Permit Year 3: Implementation
- Permit Year 4: Implementation
- Permit Year 5: Assessment

### **PARTICIPATING WATERSHED COPERMITTEES**

- City of Chula Vista

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

- Bacteria

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

This activity aims to reduce the amount of bacteria from entering the storm drain system. Bacteria has been categorized as a high priority pollutant in the watershed. This activity is consistent with the collective Watershed Strategy because it will contribute to improvements in water quality and encourage stakeholder buy-in and participation.

### **EXPECTED BENEFITS**

The HOA and resident education activity aims to locate areas within the City of Chula Vista where neighborhoods need education about pet waste and its potential impact on water quality by incorporating source control measures. By providing signage and educational materials to HOAs and residents, this effort intends to reduce the amount of bacteria that could enter the storm drain system.

## **EFFECTIVENESS MEASUREMENTS**

The effectiveness of this activity will be assessed through levels 1, 2, and 3. The activity will be assessed by the number of surveyed homeowners associations and the number of homeowners reached through education.

## **PET WASTE BAG DISPENSER PROGRAM IN COUNTY PARKS – 1C**

### **ACTIVITY DESCRIPTION**

The County of San Diego maintains an inventory of pet waste dispensers in its parks. Two important goals of this program are to reduce the amount of pet waste found in parks and to educate the public on the need to clean up after their pets. Realization of these goals will result in the reduction of pollutant loads, particularly bacteria and nutrients. In the San Diego Bay Watershed, there are currently 8 dispensers located in 7 County parks:

- Otay Lake Park, Otay Valley Open Space Preserve – 910.20 (1 dispenser)
- Eucalyptus Park – 909.12 (1 dispenser)
- Goodland Acres Park - 909.12 (1 dispenser)
- Hilton Head – 909.21 (Cottonwood 3) (1 dispenser)
- Lamar Street Park – 909.12 (1 dispenser)
- Spring Valley Park, Community Center and Teen Center – 909.12(1 dispenser)
- Sweetwater Regional Park/Summit – 909.12 (2 dispensers)

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

### **TMDL APPLICABILITY**

- N/A

### **TIME SCHEDULE FOR IMPLEMENTATION**

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

### **PARTICIPATING WATERSHED COPERMITTEES**

- County of San Diego

### **OTHER PARTICIPATING ENTITIES**

- None

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

- Bacteria

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

Bacteria has been identified as a priority water quality problem in the San Diego Bay Watershed. Parks have been identified as potential sources of bacteria. Since this activity

addresses a priority water quality problem and a priority source, it is consistent with the collective Watershed Strategy.

### **EXPECTED BENEFITS**

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

### **EFFECTIVENESS MEASUREMENTS**

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

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

## **MUNICIPAL DOGGIE BAG DISPENSER PROGRAM – 1D**

### **ACTIVITY DESCRIPTION**

The Port of San Diego maintains an inventory of pet waste dispensers in the Port's municipal parks. This is an important activity to address urban runoff from jurisdictional parks and recreational areas. It is believed that parks may be a likely source of high priority pollutants such as bacteria and nutrients. Two important goals are to reduce the amount of pet waste found in parks and to provide an opportunity to educate the public on the need to clean up after their pets. The activity could possibly undergo additional assessment by monitoring the number of bags used at each location. Signage educating the public of the benefits of proper waste management will be posted where appropriate.

### **TMDL APPLICABILITY**

The 2006 CWA Section 303 (d) Lists of impaired water bodies identified multiple locations throughout San Diego Bay with water quality impairments for bacteria. Total Maximum Daily Loads (TMDLs) are being developed by the RWQCB to protect beneficial uses in these impaired water body segments. Currently, bacteria TMDL sites include Shelter Island and certain segments of Chollas Creek. The Pet Waste Bag Program is applicable to these TMDLs to the extent it addresses the identification and control of sources of bacteria and nutrients as pollutants potentially impacting water quality in San Diego Bay.

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Permit Year 1: Implementation
- Permit Year 2: Implementation

### **PARTICIPATING WATERSHED COPERMITTEES**

- Port of San Diego

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

- Bacteria
- Nutrients

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

The Watershed Strategy identifies bacteria as a high priority water quality problem for all HAs. The Watershed Strategy identifies additional monitoring for bacteria within 908.1 HA, while proposing load reduction as the appropriate action for 908.2, 908.3, 909.1, 909.2, and 910.1 HAs. Source identification was identified as the appropriate management action for bacteria within 910.2 HA. For those HAs in which load reductions are proposed, this activity will lead to the reduction in the amount of pet feces in the stormwater runoff from the HA.

### **EXPECTED BENEFITS**

This activity focuses on the load reduction of bacteria through the removal of pet feces from Port of San Diego's municipal areas. The public's use of pet waste bags actively decreases the amount of pet feces that might inadvertently enter the stormwater conveyance system. Making pet waste bags available to the public encourages stakeholder buy-in and participation in the Watershed Strategy. The program cultivates a public sense of ownership and responsibility for the health of local water bodies which in turn leads to the proper disposal of pet waste. By changing the way in which individuals dispose of pet waste, this program results in a level 3 outcome. The program abates sources impacting stormwater discharge quality, which is a level 4 outcome.

### **EFFECTIVENESS MEASUREMENTS**

Providing pet waste bags is an important water quality activity to reduce the nutrients and bacteria loads because it abates sources (level 4). Bacteria is a high priority water quality problem throughout the San Diego Bay watershed. Changes in knowledge, awareness and behavior of pet owners result in outcome levels 2 and 3 as well. The success of the implementation of pet waste bags may be estimated by quantifying the number of bag dispensers added in each HA as part of this activity and/or the number of bags removed and used from each of the dispensers.

## **ASSESS USE OF PET WASTE BAGS – 1E**

### **ACTIVITY DESCRIPTION**

Evaluate usage levels and possible benefits and barriers to proper usage.

### **TMDL APPLICABILITY**

Impending Chollas Creek bacteria TMDL

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Annual assessment efforts

### **PARTICIPATING WATERSHED COPERMITTEES**

- Lemon Grove

### **OTHER PARTICIPATING ENTITIES**

- N/A

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

- Bacteria

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

Local Watershed Activity

### **EXPECTED BENEFITS**

Increased staff knowledge of effectiveness, improved use by community, and quantifiable load reduction numbers.

### **EFFECTIVENESS MEASUREMENTS**

Level 4 Load Reduction

## **PET WASTE BAGS – 1F**

### **ACTIVITY DESCRIPTION**

Installation of dispensers in all public park areas and other public areas such as near City Hall.

### **TMDL APPLICABILITY**

Chollas Creek impending bacteria TMDL

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Current Implementation

### **PARTICIPATING WATERSHED COPERMITTEES**

- Lemon Grove

### **OTHER PARTICIPATING ENTITIES**

- N/A

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

- Bacteria

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

High priority pollutant based activity

### **EXPECTED BENEFITS**

Less pet waste entering urban run-off decreasing bacteria.

### **EFFECTIVENESS MEASUREMENTS**

Level 4 Load Reduction

## **MUNICIPAL BEST MANAGEMENT PRACTICES / IRRIGATION / XERISCAPE – 1G**

### **ACTIVITY SUMMARY**

The Airport Authority intends to coordinate with the San Diego Bay Copermittees and implement source control BMPs to address urban runoff from landscaped areas. The goal of the Irrigation/Xeriscape program is to reduce the amount nutrients, pesticides, and sediment which could be released in the watershed from landscaped areas at the airport. The Airport Authority intends to implementation irrigation BMPs (e.g., drip-irrigation systems or automatic moisture/precipitation sensing controls) to reduce over-irrigation and the resultant nutrient, pesticide, and sediment contaminated runoff from landscape areas. The Airport Authority also plans to use native plants and xeriscape to the extent possible with the goal of conserving water, reducing erosion and irrigation runoff pollutant loads. This water-wise landscaping technique will limit the need for fertilizers, herbicides, and pesticides, and thereby, reduce nutrient, pesticide, and sediment pollutant loads associated with runoff from these landscaped surfaces.

The Irrigation/Xeriscape Program is an important water quality activity in the San Diego Bay Watershed because it can be used to estimate the amount of nutrients, pesticides, and sediment being removed from the watershed. A reduction in the amount of fertilizers, herbicides, pesticides, and sediment within the watershed contributes to improving the quality of the stormwater ultimately discharging into San Diego Bay.

### **TMDL APPLICABILITY**

The 2002 and 2006 CWA Section 303d lists of impaired water bodies identified multiple locations throughout San Diego Bay with water quality impairments for bacteria and locations near the airport have been identified as having sediment toxicity, benthic community effects, and copper impairments. Total Maximum Daily Loads (TMDLS) are being developed by the RWQCB to protect beneficial uses in these impaired water body segments. The development of one particular TMDL is referred to as TMDLs for Indicator Bacteria Project II - San Diego Bay and Dana Point Harbor Shorelines. The development of the TMDL for sediment toxicity and benthic community effects is referred to as the Downtown Anchorage TMDL. A TMDL has not yet been initiated for copper along the Harbor Island segment of San Diego Bay. The Irrigation/Xeriscape Program is applicable to these TMDLs to the extent it addresses the identification and control of sources of nutrients, pesticides, and sediment as pollutants potentially impacting water quality, sediment toxicity, and the degradation of benthic communities in San Diego Bay.

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Permit Year 1: Planning
- Permit Year 2: Implementation
- Permit Year 3: Implementation

- Permit Year 4: Implementation
- Permit Year 5: Implementation

#### **PARTICIPATING WATERSHED COPERMITTEES**

- Airport Authority

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

- Nutrients
- Pesticides
- Sediment

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

This activity contributes to improving water quality problems by focusing on nutrient, pesticide, and sediment load reductions resulting from proper irrigation and the installation of xeriscape using native species that generally limit the need for fertilizers, herbicides, and pesticides. The Watershed Strategy identifies pesticides and sediments as high priority water quality problems and nutrients as a low priority water quality problem for the 908.2 HA portion of the San Diego Bay Watershed in which the airport lies. This activity is consistent with the Watershed Strategy because it focuses principally on pollutant load reductions, but also increases awareness and education of the Airport Authority staff regarding over-irrigation and over-application of fertilizers, herbicides, and pesticides as sources of stormwater pollution.

#### **EXPECTED BENEFITS**

The Irrigation/Xeriscape Program targets pollutant removal from the landscaped areas of the airport. The proper use of irrigation and limited application of fertilizers, herbicides, and pesticides actively decreases the amount of nutrients, pesticides, and sediment that might inadvertently enter the stormwater conveyance system. Outreach and education to staff regarding proper irrigation and xeriscape encourages stakeholder buy-in and participation in the Watershed Strategy. The program cultivates a sense of ownership and responsibility on the part of staff for the health of local water bodies which in turn leads to proper use of irrigation and limited application of fertilizers, herbicides, and pesticides. By changing the way in which staff operates, this program results in a level 3 outcome. The program also calculates the reduction in the amount of nutrients, pesticides, and sediment impacting stormwater discharge quality, which is a level 4 outcome.

#### **EFFECTIVENESS MEASUREMENTS**

The Airport Authority intends to calculate annual pollutant load reductions by 1) monitoring the amount of water, fertilizer, herbicide, and pesticide used for landscape maintenance, and 2) estimating, based on review of the literature and/or other sources, the sediment load per unit volume of irrigation water and landscape area for improperly irrigated landscape areas. The Airport Authority will also be able to track the cost of implementing the program and thereby determine its cost-effectiveness.

## **IMPLEMENTATION OF STORM DRAIN LITTER CONTROL TECHNIQUES – 2**

### **ACTIVITY DESCRIPTION**

One of the identified collaborative efforts is the implementation of storm drain litter control techniques. The Copermittees will utilize storm drain inserts, filters, etc. to reduce litter, trash and sediment pollutant loads from entering the San Diego Bay watershed. Each Copermittee will be able to identify and promote feasible site locations and the most effective storm drain litter control methodology within their own jurisdiction if this activity is feasible for implementation. The drain BMPs will prevent trash and sediment from entering into the storm water conveyance system. The Copermittees may be able to evaluate the amount of trash and sediment collected at various inlet locations to ascertain the quantity and type of trash and sediment deposited.

### **TMDL APPLICABILITY**

- N/A

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Permit Year 1: Varies
- Permit Year 2: Varies
- Permit Year 3: Varies
- Permit Year 4: Varies
- Permit Year 5: Varies

### **PARTICIPATING WATERSHED COPERMITTEES**

- City of Chula Vista
- City of National City
- City of Coronado
- City of San Diego
- City of Imperial Beach
- County of San Diego
- City of La Mesa
- Port of San Diego
- City of Lemon Grove
- San Diego Regional Airport Authority

### **OTHER PARTICIPATING ENTITIES**

- None

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

- Sediment
- Trash

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

This activity contributes to improving water quality problems and is consistent with the Watershed Strategy by focusing on sediment and trash load reduction. Litter control techniques will capture trash, leaves, yard clippings, sediment, and other miscellaneous debris. The Watershed Strategy identifies sediment and trash as high priority water quality problems for the watershed HAs. Sediment is identified as a high priority water quality problem at both 908.2 and 908.3 HAs. The Watershed Strategy acknowledged identification of the source of the sediment is needed in the majority of the San Diego Bay WMA.

### **EXPECTED BENEFITS**

The installation and maintenance of storm drain litter control is beneficial to the San Diego Bay Watershed because sediment, debris, and other harmful materials are prevented from entering receiving waters. The expected benefit of these techniques is a level 4 outcome in exhibiting load reductions and source abatement. This activity allows easy measurement of pollutant load reductions, addresses high priority water quality problems, and results in improvements to the discharge water quality and BLTEA ratings.

### **EFFECTIVENESS MEASUREMENTS**

Pollutant load reductions and discharge quality may be estimated and assessed through water quality monitoring and observation efforts that are integral to level 4. Pollutant load reductions may be assessed by recording the amount and type of debris collected. This will allow a characterization of pollutant loads at each site and enable comparisons between sites within an individual HA and between sites in other HAs.

## **IMPLEMENTATION OF STORM DRAIN LITTER CONTROL TECHNIQUES – 2A**

### **ACTIVITY DESCRIPTION**

The Port of San Diego will utilize storm drain inserts, filters, etc. to reduce litter, trash and sediment pollutant loads from entering the San Diego Bay watershed. The Port will identify and promote feasible site locations and the most effective storm drain litter control methodology within its jurisdictional area. The Port intends to install filters within three parks—Tuna Harbor Park, Embarcadero Marina Park North, and Embarcadero Marina Park South—which are adjacent to the San Diego Bay. These parks receive a significant amount of public use and are locations of special events throughout the year. The storm drain BMPs will prevent trash and sediment from entering into the storm water conveyance system.

### **TMDL APPLICABILITY**

- N/A

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Permit Year 1: Implementation
- Permit Year 2: Assessment
- Permit Year 3: Assessment

### **PARTICIPATING WATERSHED COPERMITTEES**

- Port of San Diego

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

- Sediment
- Trash

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

The storm drain litter control activity contributes to improving water quality problems and is consistent with the Watershed Strategy by focusing on trash and sediment. The Watershed Strategy identifies both pollutants as high priority water quality problems within HA 908.2. The Watershed Strategy identifies a load reduction action for trash within HA 908.2 and acknowledges that identification of the source of the sediment is needed. Storm drain litter control techniques intend to capture trash, sediment, leaves, yard clippings, and oil and grease and will prevent these pollutants from entering receiving waters.

### **EXPECTED BENEFITS**

The installation and maintenance of storm drain litter control is beneficial to the San Diego Bay Watershed because sediment, trash, debris, and other harmful materials are prevented from

entering receiving waters. The expected benefit of these techniques is a level 4 outcome in exhibiting load reductions and source abatement. This activity allows easy measurement of pollutant load reductions, addresses high priority water quality problems, and results in improvements to the discharge water quality.

#### **EFFECTIVENESS MEASUREMENTS**

Pollutant load reductions and discharge quality may be estimated and assessed through water quality monitoring and observation efforts that are integral to levels 4. Pollutant load reductions may be assessed by recording the amount and type of debris collected. Furthermore, discharge water quality may also be assessed through dry or wet weather monitoring. This will allow a characterization of pollutant loads and discharge water quality at each site and enable comparisons between sites within an individual HA and between sites in other HAs.

## **IMPLEMENTATION OF STORM DRAIN LITTER CONTROL TECHNIQUES/STRATEGIC USE OF STORM DRAIN INLET FILTERS – 2B**

### **ACTIVITY SUMMARY**

The Airport Authority intends to install storm drain inlet filters to reduce litter, trash, sediment and associated metals, oil and grease, and bacteria from inadvertently entering the stormwater conveyance system and then into San Diego Bay. The goal of the Strategic Use of Storm Drain Inlet Filters Program is to reduce the amount bacteria, oil and grease, sediment, and trash which could be released in the watershed. The Airport Authority will identify those locations likely to be most effective at controlling litter, trash, and sediment. The Airport Authority will monitor the sites regularly and cleaned at least annually. The amount of trash and sediment collected will be recorded. Knowing the drainage area of each inlet, the amount of trash and sediment collected, and the cost of implementing the program, the cost-effectiveness of each installation can be calculated and used to make overall program improvements.

The program is an important water quality activity in the San Diego Bay Watershed because it can be used to estimate the amount of bacteria, metals, oil and grease, sediment, and trash being removed from the watershed. A reduction in the amount of litter, trash, and sediment potentially entering the stormwater conveyance system contributes to improving the quality of the stormwater in the watershed and ultimately discharging into San Diego Bay.

### **TMDL APPLICABILITY**

The 2002 and 2006 CWA Section 303d lists of impaired water bodies identified multiple locations throughout San Diego Bay with water quality impairments for bacteria and locations near the airport have been identified as having sediment toxicity, benthic community effects, and copper impairments. Total Maximum Daily Loads (TMDLS) are being developed by the RWQCB to protect beneficial uses in these impaired water body segments. The development of one particular TMDL is referred to as TMDLs for Indicator Bacteria Project II - San Diego Bay and Dana Point Harbor Shorelines. The development of the TMDL for sediment toxicity and benthic community effects is referred to as the Downtown Anchorage TMDL. A TMDL has not yet been initiated for copper along the Harbor Island segment of San Diego Bay. The Strategic Use of Storm Drain Inlet Filters Program is applicable to these TMDLs to the extent it addresses the identification and control of sources of bacteria, metals, oil and grease, sediment, and trash as pollutants potentially impacting water quality, sediment toxicity, and the degradation of benthic communities in San Diego Bay.

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Permit Year 1: Planning
- Permit Year 2: Implementation
- Permit Year 3: Implementation

- Permit Year 4: Implementation
- Permit Year 5: Implementation

#### **PARTICIPATING WATERSHED COPERMITTEES**

- Airport Authority

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

The Strategic Use of Storm Drain Inlet Filters Program will aid in the physical removal of a quantifiable amount of trash and sediment and associated bacteria, metals, oil and grease from the watershed.

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

The Watershed Strategy identifies bacteria, sediment, and trash as high priority water quality problems and oil and grease as a low priority water quality problem for the 908.2 HA portion of the San Diego Bay Watershed in which the airport lies. This activity contributes to improving water quality problems by focusing on the removal of litter, trash, sediment and associated bacteria, metals, oil and grease. This activity is consistent with the Watershed Strategy because it focuses principally on pollutant load reductions.

#### **EXPECTED BENEFITS**

The Strategic Use of Storm Drain Inlet Filters Program targets pollutant removal from the streets, roadways, and parking lots of the airport. The use of storm drain inlet filters actively decreases the amount of litter, trash, sediment and associated bacteria, metals, oil and grease that might inadvertently enter the stormwater conveyance system. The program calculates the reduction in the amount of bacteria, metals, oil and grease, sediment, and trash impacting stormwater discharge quality, which is a level 4 outcome.

#### **EFFECTIVENESS MEASUREMENTS**

The Airport Authority intends to calculate annual pollutant load reductions by 1) measuring the weight of trash and sediment collected in the storm drain inlet filters and 2) estimating bacteria, metal, and oil and grease loads per unit weight of trash and sediment collected based on review of the literature and/or other sources. The Airport Authority will also be able to track the cost of implementing the program to determine the cost-effectiveness of the filters and the overall effectiveness of each installation.

## **STORM DRAIN INSERTS IN COMMERCIAL BUSINESS AREAS – 2C**

### **ACTIVITY SUMMARY**

Coronado will utilize storm drain inserts, filters, etc. to reduce litter and trash, sediment, oil and grease, and bacteria pollutant loads from entering the storm water conveyance system, and ultimately preventing pollutants from entering the San Diego Bay watershed. These identified inlets, along Coronado's Orange Avenue pedestrian commercial business route, and side-streets with eating establishments, will be cleaned once monthly to evaluate the amount of trash and sediment collected. Additional sites for consideration include Ocean Boulevard.

### **TMDL APPLICABILITY**

A TMDL for bacteria has been established for the San Diego Bay. The 2006 CWA Section 303d list of impaired water bodies identified multiple locations through San Diego Bay with water quality impairments for bacteria.

### **TIME SCHEDULE FOR IMPLEMENTATION**

- 2007-2008 monitoring/planning
- 2008-2009 implement
- 2009-2010 implement
- 2010-2011 implement/assess
- 2011-2012 assess

### **PARTICIPATING WATERSHED COPERMITTEES**

- City of Coronado

### **OTHER PARTICIPATING ENTITIES**

- N/A

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

- Bacteria
- Sediment
- Trash

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

This activity contributes to improving water quality problems and is consistent with the Watershed Strategy by focusing on bacteria and sediment load reduction. Little control techniques will capture trash, leaves, yard clippings, sediment, and other miscellaneous pollutants. The Watershed Strategy identifies bacteria, sediment, and nutrients as either high, medium, or low water quality problems for the watershed Has. Bacteria are categorized as a high priority water quality problem in all HAs with the BLTEA rating of A.

## **EXPECTED BENEFITS**

The installation and maintenance of storm drain litter control is beneficial to the San Diego Bay Watershed because sediment, debris, and other harmful materials are prevented from entering receiving waters. The expected benefit of these techniques is a level 4 and 5 outcome in exhibiting load reductions and source abatement. This activity allows easy measurement of pollutant load reductions, addresses high priority water quality problems, and results in improvements to the discharge water quality and BLTEA ratings.

## **EFFECTIVENESS MEASUREMENTS**

Pollutant load reductions and discharge quality may be estimated and assessed through water quality monitoring and observations efforts that are integral to levels 4-5. Pollutant load reductions may be assessed by recording the amount and type of debris collected. This will allow a characterization of pollutant loads at each site and enable comparisons between sites within an individual HA and between sites in other HAs.

## **IMPLEMENTATION OF STORM DRAIN LITTER CONTROL TECHNIQUES – 2D**

### **ACTIVITY DESCRIPTION**

The City of La Mesa will utilize storm drain inserts to reduce litter and trash, sediment, oil and grease, and bacteria pollutant loads from entering the San Diego Bay watershed. The drain BMPs will prevent trash and sediment; absorb oil and grease, and bacteria from entering into the storm water conveyance system. The City of La Mesa will evaluate the amount of trash and sediment collected at various inlet locations and compares the results to determine the quantity and type of trash and sediment deposited. The City of La Mesa has installed and continues to maintain 22 filter inserts along University Avenue. The filter inserts are inspected and cleaned at a minimum twice a year. The volume of trash recovered from the filter inserts will be recorded as well as the type of debris retrieved.

### **TMDL APPLICABILITY**

A TMDL for bacteria has been established for the San Diego Bay. The 2006 CWA Section 303d list of impaired water bodies identified multiple locations throughout San Diego Bay with water quality impairments for bacteria.

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Permit Year 1: Monitoring/Planning
- Permit Year 2: Planning
- Permit Year 3: Implementation
- Permit Year 4: Assessment
- Permit Year 5: Assessment

### **PARTICIPATING WATERSHED COPERMITTEES**

- City of La Mesa

### **OTHER PARTICIPATING ENTITIES**

- None

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

- Bacteria
- Sediment
- Trash

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

This activity contributes to improving water quality problems and is consistent with the Watershed Strategy by focusing on bacteria and sediment load reduction. Litter control

techniques will capture trash, leaves, yard clippings, sediment, and other miscellaneous pollutants. The Watershed Strategy identifies bacteria, sediment, and nutrients as either high, medium, or low water quality problems for the watershed HAs. Bacteria are categorized as a high priority water quality problem in all HAs with the BLTEA rating of A. The Watershed Strategy identifies additional monitoring for 908.1, while proposing load reduction and source abatement as the appropriate action to be taken for bacteria for all other HAs. Sediment is also identified as a high priority water quality problem at both 908.2 and 908.3 HAs. The Watershed Strategy acknowledged identification of the source of the sediment is needed in the majority of the San Diego Bay watershed.

### **EXPECTED BENEFITS**

The installation and maintenance of storm drain litter control is beneficial to the San Diego Bay Watershed because sediment, debris, and other harmful materials are prevented from entering receiving waters. The expected benefit of these techniques is a level 4 and 5 outcome in exhibiting load reductions and source abatement. This activity allows easy measurement of pollutant load reductions, addresses high priority water quality problems, and results in improvements to the discharge water quality and BLTEA ratings.

### **EFFECTIVENESS MEASUREMENTS**

Pollutant load reductions and discharge quality may be estimated and assessed through water quality monitoring and observation efforts that are integral to levels 4-5. Pollutant load reductions may be assessed by recording the amount and type of debris collected. This will allow a characterization of pollutant loads at each site and enable comparisons between sites within an individual HA and between sites in other HAs.

## **STREET SWEEPING ENHANCEMENT – 3**

### **ACTIVITY DESCRIPTION**

One of the collaborative efforts is street sweeping enhancements. The San Diego Bay Copermittees intend to reduce the accumulation of metals, sediments, and trash by optimizing the efficiency and/or frequency of street sweeping programs. The Street Sweeping activity is focused on enhancing Copermittees' street sweeping program within municipal areas by increasing sweeping frequency and/or area coverage or increasing sweeping efficiencies. According to the jurisdictional requirements presented in the Permit, municipal areas must prioritize locales for street sweeping based upon the amount of trash and debris accumulated. Each Copermittee participating in this activity will work to identify feasible cleaning schedules and locations within their own jurisdiction to implement an expanded street sweeping program to reduce the accumulation of debris on roads, streets, and parking lots. One way this could be accomplished is by increasing the cleaning frequency of roads and streets in HAs in which sediment and/or metals are high priority water quality problems. Another mechanism could be to increase the efficiencies of the sweepers utilized. A reevaluation of the current street sweeper vehicle routes will enable Copermittees to determine if their vehicles are maximizing their pollutant removal capability in high priority areas. Pollutant load reductions can be assessed by recording the volume of debris collected during sweeping and/or the amount of area (mileage) covered by the street sweeping vehicles.

### **TMDL APPLICABILITY**

- N/A

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Permit Year 1: Varies
- Permit Year 2: Varies
- Permit Year 3: Varies
- Permit Year 4: Varies
- Permit Year 5: Varies

### **PARTICIPATING WATERSHED COPERMITTEES**

- City of Chula Vista
- City of National City
- City of Coronado
- City of San Diego
- City of Imperial Beach
- County of San Diego
- City of La Mesa
- City of Lemon Grove

- Port of San Diego
- San Diego Regional Airport Authority

#### **OTHER PARTICIPATING ENTITIES**

- None

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

- Metals
- Sediments
- Trash

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

The Street Sweeping activity intends to reduce high priority water quality problems such as metals, sediments, and trash and aid in the improvement of the discharge water quality. Metals were identified as high priority water quality problem for HA 908.1 and HA 908.2, requiring additional monitoring and source abatement respectively. Sediment is also identified as a high priority water quality problem at both 908.2 and 908.3 HAs. The Watershed Strategy acknowledged identification of the source of sediment is needed. The increased frequency of street sweeping would augment the Copermittees' sweeping efforts outlined in the Permit. This effort is consistent with the Collective Watershed Strategy in that it seeks to reduce the loads of these high priority water quality problems and abate pollutant sources from roadways and parking facilities which have yet to be thoroughly addressed by the Copermittees.

#### **EXPECTED BENEFITS**

The Street Sweeping activity will contribute to improvements in water quality by reducing the loads of high priority water quality problems such as metals, sediments, and trash that might inadvertently enter the storm water conveyance system of the watershed and receiving waters of the San Diego Bay. This effort will provide baseline data on the accumulation of trash and debris from high and medium, or moderate, priority municipal areas.

#### **EFFECTIVENESS MEASUREMENTS**

Primarily, the effectiveness of this activity will be assessed through level 4, which regard load reductions. Pollutant load reductions can be assessed by recording the volume of debris collected during sweeping and/or the amount of area (mileage) covered by the street sweeping vehicles.

## **STREET SWEEPING ENHANCEMENT/ENHANCED STREET SWEEPING PROGRAM – 3A**

### **ACTIVITY SUMMARY**

The Airport Authority intends to reduce the accumulation of metals, oil and grease, organics sediments, and trash on streets, roadways, and parking lots by increasing the frequency of street sweeping. The goal of the Enhanced Street Sweeping Program is to reduce the amount metals, oil and grease, organics, sediment, and trash which could be released in the watershed. According to the Municipal Permit, municipal areas must be prioritized for street sweeping based upon the amount of trash and debris accumulated. Using methodologies developed in conjunction with the San Diego Bay Copermittees to identify feasible cleaning schedules and prioritization schemes, the Enhanced Street Sweeping Program is focused on high and medium priority streets, roadways, and parking lots. Street sweeping activities in high priority municipal areas will be conducted at least once a week, which is more frequent than the two times per month mandated by the Permit for areas generating the highest volumes of trash. The enhanced street sweeping should effectively remove a larger amount of pollutants. The frequency of sweeping roads, streets, highways, and parking facilities generating moderate volumes of trash will also be increased to exceed the monthly minimum mandated by the Permit. The Airport Authority will also evaluate the current types of street sweeping vehicles in use and the routes of sweeping to determine if the vehicles are maximizing their pollutant removal capabilities. Pollutant load reductions will be assessed by recording the volume of street sweeping debris collected and the area (or mileage) covered by the street sweeping vehicles.

The Enhanced Street Sweeping Program is an important water quality activity in the San Diego Bay Watershed because it can be used to estimate the amount of metals, oil and grease, organics, sediment, and trash being removed from the watershed. A reduction in the amount of trash and debris on the street, roadways, and parking lots within the watershed contributes to improving the quality of the stormwater ultimately discharging into San Diego Bay.

### **TMDL APPLICABILITY**

The 2002 and 2006 CWA Section 303d lists of impaired water bodies identified multiple locations throughout San Diego Bay with water quality impairments for bacteria and locations near the airport have been identified as having sediment toxicity, benthic community effects, and copper impairments. Total Maximum Daily Loads (TMDLS) are being developed by the RWQCB to protect beneficial uses in these impaired water body segments. The development of one particular TMDL is referred to as TMDLs for Indicator Bacteria Project II - San Diego Bay and Dana Point Harbor Shorelines. The development of the TMDL for sediment toxicity and benthic community effects is referred to as the Downtown Anchorage TMDL. A TMDL has not yet been initiated for copper along the Harbor Island segment of San Diego Bay. The Enhanced Street Sweeping Program is applicable to these TMDLs to the extent it addresses the identification and control of sources of copper, metals, oil and grease, organics, sediment, and

trash as pollutants potentially impacting water quality, sediment toxicity, and the degradation of benthic communities in San Diego Bay.

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

- Permit Year 1: Planning
- Permit Year 2: Implementation
- Permit Year 3: Implementation
- Permit Year 4: Implementation
- Permit Year 5: Implementation

#### **PARTICIPATING WATERSHED COPERMITTEES**

- Airport Authority

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

The Enhanced Street Sweeping Program will aid in the physical removal of a quantifiable amount of debris and associated metals, oil and grease, organics, sediment, and trash from the watershed.

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

The enhanced street sweeping activity intends to reduce high priority pollutants such as metals, organics, oil and grease, sediments, and trash and improve the quality of urban runoff discharging into the San Diego Bay. The Watershed Strategy identifies metals, sediment, and trash as high priority water quality problems and oil and grease and organics as water quality problems for the 908.2 HA portion of the San Diego Bay Watershed in which the airport lies. This activity is consistent with the Watershed Strategy because it focuses principally on pollutant load reductions.

#### **EXPECTED BENEFITS**

The Enhanced Street Sweeping Program targets pollutant removal from the high and medium priority streets, roadways, and parking lot areas of the airport. The increased frequency of street sweeping actively decreases the amount of trash, debris, and associated pollutants that might inadvertently enter the stormwater conveyance system. The program calculates the reduction in the amount of metals, oil and grease, organics, sediment, and trash impacting stormwater discharge quality, which is a level 4 outcome.

#### **EFFECTIVENESS MEASUREMENTS**

The Airport Authority intends to calculate annual pollutant load reductions by 1) estimating metals, oil and grease, organics, sediment, and trash loads per unit weight of street sweeping debris based on review of the literature and/or other sources and 2) monitoring the weight of street sweeping debris collected and properly disposed annually. The Airport Authority will also be able to track the cost of implementing the program and thereby determine the cost-

effectiveness of the increased street sweeping using the weight of debris collected and the number of hours and/or miles of sweeping.

## **STREET SWEEPING ENHANCEMENT – 3B**

### **ACTIVITY SUMMARY**

Coronado intends to reduce the accumulation of metals, oil and grease, sediments, and trash by optimizing the efficiency and/or frequency of our street sweeping program. According to Permit R9-2007-001, jurisdictions must prioritize street sweeping areas according to the amount of trash and debris accumulated. Coronado will prioritize all streets with either a high, medium, or low rating. All areas rating high will be swept once weekly.

### **TMDL APPLICABILITY**

A TMDL for bacteria has been established for the San Diego Bay. The 2006 CWA Section 303d list of impaired water bodies identified multiple locations throughout San Diego Bay with water quality impairments for bacteria.

### **TIME SCHEDULE FOR IMPLEMENTATION**

- 2007-2008 monitor/planning/implement
- 2008-2009 implement
- 2009-2010 implement
- 2010-2011 implement/assess
- 2011-2012 assess

### **PARTICIPATING WATERSHED COPERMITTEES**

- City of Coronado

### **OTHER PARTICIPATING ENTITIES**

- N/A

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

- Metals
- Organics
- Oil and grease
- Sediments
- Trash

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

The Street Sweeping activity intends to reduce high priority pollutants such as metals, organics, oil and grease, sediments, and trash and improving the discharge water quality into the San Diego Bay. Bacteria are categorized as a high priority water quality problem in all HAs. This effort is consistent with the collective Watershed Strategy in that it seeks to reduce the loads of these priority pollutants and abate sources from roadways and parking facilities.

### **EXPECTED BENEFITS**

The Street Sweeping activity will contribute to improvements in water quality by reducing the loads of high priority pollutants such as metals, organics, oil and grease, sediments, and trash entering the watershed and receiving waters of the San Diego Bay. Information obtained from the street sweeping activity will lead to a better understanding of the sources of many of the priority pollutants and fill gaps in existing data. This effort will provide baseline data on the accumulations of trash and debris from high and medium, or moderate, priority municipal areas.

### **EFFECTIVENESS MEASUREMENTS**

The effectiveness of this activity will be a 4-5, which consider load reductions and discharge water quality. Pollutant load reductions will be measured by pounds of debris collected.

## ***STREET SWEEPING ENHANCEMENT – 3C***

### **ACTIVITY SUMMARY**

The City of National City (City) intends to reduce the accumulation of metals, oil and grease, sediments, and trash by conducting more frequent street sweeping. As required by the Municipal Permit, Copermittees must prioritize locales for street sweeping based upon the relative amount of trash and debris accumulated. The Municipal Permit requires that roads, streets, highways, and parking facilities generating the highest volumes of trash be swept at least two times per month. Roads, streets, highways, and parking facilities generating relatively moderate volumes of trash must be swept at least monthly and those generating relatively low volumes of trash and debris must be swept as necessary, but not less than once per year.

The City will sweep its streets more frequently than the minimum jurisdictional requirements of the Municipal Permit to help address watershed water quality problems. The City will sweep Highland Avenue, 8<sup>th</sup> Street, and National City Boulevard, three of the main roads in the City, daily. All other streets in the City will be swept weekly. Pollutant load reductions will be assessed by recording the volume of debris collected during sweeping and/or the amount of area (mileage) covered by the street sweeping vehicles.

### **TMDL APPLICABILITY**

A TMDL is being developed to address sediment toxicity and benthic community effects at the mouth of Paleta Creek, also known as Seventh Street Channel. Initial research has indicated that organic compounds are the most likely causes of the observed effects in the sediment, although metals may also play a role to some degree. This activity is applicable to the TMDL in that additional street sweeping should result in additional removal of metals that would otherwise be discharged through the City's MS4.

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Permit Year 1: Implementation
- Permit Year 2: Implementation

### **PARTICIPATING WATERSHED COPERMITTEES**

- City of National City

### **OTHER PARTICIPATING ENTITIES**

- N/A

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

- Trash

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

This effort is consistent with the collective Watershed Strategy in that it seeks to reduce the pollutant loads related to a high priority water quality problem (908.3) and abate pollutant sources from roadways and parking facilities.

### **EXPECTED BENEFITS**

Increased street sweeping should contribute to improvements in water quality by reducing the loads of pollutants such as trash, metals, oil and grease, and sediments entering the City's MS4 and downstream receiving waters.

### **EFFECTIVENESS MEASUREMENTS**

Primarily, the effectiveness of this activity will be assessed through level 4, load reduction. Pollutant load reductions will be assessed by recording the volume or weight of material collected that is attributable to additional sweeping.

## **CHOLLAS CREEK WATERSHED STREET SWEEPING, PHASE I – 3D**

### **ACTIVITY SUMMARY**

The City's Storm Water Pollution Prevention Division (Storm Water Division) is coordinating with the City's Street Division to conduct a 24-month street sweeping effectiveness study in the Chollas Creek Watershed. The study will investigate the effectiveness of vacuum-assisted street sweepers compared to mechanical sweepers in reducing the accumulation of metals on City streets and whether changes to the current street sweeping schedule (baseline) will assist the City in attaining its water quality goals. The City's objective in conducting this study is to reduce the street accumulation of debris containing metals that may then migrate via storm water and other urban runoff to the storm water conveyance system and eventually into impaired receiving waters. The study includes the purchase of two types of vacuum-assisted sweepers, the dedication of operators; assignment of the sweepers to designated routes within identified priority areas; and a monitoring program to assess the effectiveness of the sweepers and frequency.

The City is using the prioritization process that is outlined in its *Strategic Plan for Watershed Activity Implementation* (July 2007) to target areas within the Chollas Creek Watershed. Based on this prioritization plan and meetings held with the Street Division, the routes that have been selected are in the two highest priority sectors of the Chollas Creek Watershed that have a higher potential for metals loading.

This aggressive street sweeping project has also been developed based on the findings of the Dry Weather Air Deposition Study that included sites in the Chollas Creek Watershed. The findings of this study indicate a greater than 60% contribution to metals loading from air deposition in Chollas Creek. The sources of the metals depositions are predominately from cars (brakes and tires) and also include potential industrial and commercial sources that are concentrated in the lower portion of the watershed. The City, therefore, is developing this street sweeping program to reduce metals loading and assess the most effective approach to reducing metals loading. This effectiveness assessment monitoring for the street sweeping project would be coordinated with additional air deposition sampling and effectiveness monitoring of combined Tier I and Tier II BMPs in Chollas Creek to develop recommendations regarding modification and possible expansion of these BMPs to meet the TMDL requirements.

### **TMDL APPLICABILITY**

- Chollas Creek Dissolved Metals TMDL

### **TIME SCHEDULE FOR IMPLEMENTATION**

Project planning began in September 2006. The City anticipates sweeping to start within winter 2008 through summer 2010. Debris testing and water quality monitoring will be conducted throughout the project to assess effectiveness in removing metals from City streets.

**PARTICIPATING WATERSHED COPERMITTEE(S)**

- City of San Diego

**OTHER PARTICIPATING ENTITIES**

- N/A

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

- Metals

**CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**

The Collective Watershed Strategy for the San Diego Bay WMA identifies metals as a high priority water quality problem in the Pueblo Watershed (more specifically Hydrologic Area 908.2) and recommends implementing load reduction/source abatement activities to address it. Targeted increased sweeping will target metals on City streets.

**EXPECTED BENEFITS**

The street sweeping effectiveness study will consist of acquiring two types of top-tier vacuum-assisted street sweeper to operate within the Chollas Creek Watershed and assessing their effectiveness in reducing the accumulation of metals on area streets through an effectiveness assessment monitoring program. This study will augment the City's current sweeping efforts in order to also determine the optimum frequency of sweeping, starting at the present baseline schedule, towards reducing the loading of metals. The monitoring program will include simulated wet weather events for both type of vacuum-assisted sweepers and the mechanical sweepers currently used throughout the City. The amount of debris (in pounds) that is removed by sweeper type and frequency will be assessed during dry and wet periods of the year. The composition of the debris removed will be evaluated through analytical analysis and grain size distribution to determine the specific pollutant load reduction achieved by each method and frequency identified in the work plan. As discussed above, this study will be performed in coordination with additional air deposition studies and BMP effectiveness monitoring of the MS4 to develop recommendations on the modification and/or expansion of these activities to reduce metals loading to meet the TMDL requirements.

This activity will simultaneously address requirements under the Municipal Permit and Chollas Creek Dissolved Metals TMDL.

**EFFECTIVENESS MEASUREMENTS**

<p><b>Management Questions:</b></p>	<ul style="list-style-type: none"> <li>• Which street sweeping machine is most effective in removing contaminants of concern (mechanical or vacuum-assisted)?</li> <li>• Is sweeping more frequently more effective than less frequent street sweeping in debris removal?</li> <li>• What is the optimal street sweeping frequency/method?</li> <li>• What is the impact of street sweeping on COCs in stormwater runoff?</li> </ul>
<p><b>Targeted Measurable Outcome(s)</b></p>	<ul style="list-style-type: none"> <li>• Achieve load reduction for sediments and metals based on monitoring information</li> <li>• Observer receiving water quality improvement</li> </ul>
<p><b>Assessment Method(s)</b></p>	<ul style="list-style-type: none"> <li>• Monitoring (e.g., collect data to estimate loads, concentrations of COCs in runoff)</li> <li>• Tabulation (e.g., amount of money to buy vacuum assisted street sweepers)</li> <li>• Quantification (e.g., load estimate comparison between sweeping methods)</li> </ul>
<p><b>Assessment Measures, Assessment Outcome Levels &amp; Data:</b></p>	<ul style="list-style-type: none"> <li>• Tons of debris removed by land use for mechanical and vacuum-assisted sweepers (Outcome Level 4)</li> <li>• Frequency of removal correlated to tons of debris removed (Outcome Level 1 and 4)</li> <li>• Post-sweeping COC concentrations in runoff (Outcome Level 4)</li> <li>• Cost of vacuum-assisted sweepers (Outcome Level 1)</li> <li>• Cost of increased/decreased frequency of sweeping (man-hours, equipment costs, etc) (Outcome Level 1)</li> </ul>

## ***STREET SWEEPING ENHANCEMENT – 3E***

### **ACTIVITY DESCRIPTION**

The Port of San Diego intends to reduce the accumulation of metals, sediments, and trash by optimizing the efficiency and/or frequency of the street sweeping program. The Street Sweeping Enhancement activity is being conducted as part of the collaborative watershed effort. The Port will enhance its street sweeping program within high and medium priority municipal areas by increasing sweeping frequency and/or area coverage. According to the jurisdictional requirements presented in the Permit, municipal areas must prioritize locales for street sweeping based upon the amount of trash and debris accumulated. The Port of San Diego will sweep high priority areas at a frequency higher than the Permit requirement, from two times per month, as mandated by in the Permit, to once a week. The increased frequency of street sweeping would augment the Port's sweeping efforts as outlined in the Permit. Pollutant load reductions can be assessed by recording the volume of debris collected during sweeping events and/or the amount of area (mileage) covered by the street sweeping vehicles.

### **TMDL APPLICABILITY**

- N/A

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Permit Year 1: Planning
- Permit Year 2: Implementation

### **PARTICIPATING WATERSHED COPERMITTEES**

- Port of San Diego

### **OTHER PARTICIPATING ENTITIES**

- N/A

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

- Metals
- Sediments
- Trash

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

The Street Sweeping activity intends to reduce high priority water quality problems such as metals, sediments, and trash in the San Diego Bay. Metals were identified as high priority water quality problem for 908.1 and 908.2 HAs, requiring additional monitoring and source abatement respectively. Sediment is also identified as a high priority water quality problem at both 908.2 and 908.3 HAs. The Watershed Strategy acknowledged identification of the source of sediment is needed. This effort is consistent with the collective Watershed Strategy in that it seeks to

reduce the loads of these high priority water quality problems and abate pollutant sources from roadways and parking facilities which have yet to be thoroughly addressed.

### **EXPECTED BENEFITS**

The Street Sweeping activity will contribute to improvements in water quality by reducing the loads of high priority water quality problems such as metals, sediments, and trash that might inadvertently enter the storm water conveyance system of the watershed and receiving waters of the San Diego Bay. This effort will provide baseline data on the accumulation of trash and debris from high and medium priority municipal areas.

### **EFFECTIVENESS MEASUREMENTS**

Primarily, the effectiveness of this activity will be assessed through level 4, which regard load reductions. Pollutant load reductions can be assessed by recording the volume of debris collected during sweeping and/or the amount of area (mileage) covered by the street sweeping vehicles.

## ***STREET SWEEPING PRIORITIZATION – 3F***

### **ACTIVITY DESCRIPTION**

Prioritization of streets based on usage level for street sweeping frequency based on standards put forth in the Permit.

### **TMDL APPLICABILITY**

- N/A

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Current Implementation

### **PARTICIPATING WATERSHED COPERMITTEES**

- Lemon Grove

### **OTHER PARTICIPATING ENTITIES**

- N/A

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

- Metals
- Sediment
- Trash

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

Local watershed activity

### **EXPECTED BENEFITS**

Less trash, debris, and pollutants in the MS4 system.

### **EFFECTIVENESS MEASUREMENTS**

Level 4 Load Reduction

## **SAN DIEGO BAY WATERSHED CLEANUP EVENTS – 4**

### **ACTIVITY DESCRIPTION**

The San Diego Bay Copermittees intend to participate in a number of cleanup events throughout the San Diego Bay WMA. The cleanup events will physically remove large amounts trash, debris, and other associated pollutants from the watershed creeks, rivers, streams and shorelines. The events will include jurisdictional events as well as watershed-wide efforts that are coordinated by I Love a Clean San Diego (ILACSD) and San Diego Coast Keeper (SDCK). These events will actively promote a clean watershed and may be marketed in all areas of the watershed via a variety of media, including television, radio public service announcements, newspapers, electronic mail, bulletin boards, community outreach activities, and word-of-mouth. The San Diego Bay Copermittees may also provide funding to sponsor various cleanup events and/or participate by soliciting volunteers, working as site captains, and participating in the cleanup events themselves. Cooperative efforts of the Copermittees will enable an assessment of relative trash loads for each event in the watershed and determine whether there is a long-term reduction.

### **TMDL APPLICABILITY**

The RWQCB issued a 13267 order to the cities along Chollas and Paletta Creeks requiring trash cleanup measures and programs to be implemented.

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Permit Year 1: Varies
- Permit Year 2: Varies
- Permit Year 3: Varies
- Permit Year 4: Varies
- Permit Year 5: Varies

### **PARTICIPATING WATERSHED COPERMITTEES**

- City of Chula Vista
- City of National City
- City of Coronado
- City of San Diego
- City of Imperial Beach
- County of San Diego
- City of La Mesa
- City of Lemon Grove
- Port of San Diego
- San Diego Regional Airport Authority

## **OTHER PARTICIPATING ENTITIES**

- I Love a Clean San Diego
- San Diego Coastkeeper

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

Cleanup events will aid in the physical removal of a quantifiable amount of trash from the watershed. In addition, trash often consists of common litter items such as cigarette butts, plastic bags, food wrappers, containers of spent product such as fertilizer, and corroding or flaking items like metal appliances, which may also be reduced as a result of the removal of trash.

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

The Watershed Strategy identifies trash as a high priority water quality problem. This activity is consistent with the Watershed Strategy in that it focuses principally on pollutant load reductions. Increased awareness and education of the public in all HAs is also an important component.

## **EXPECTED BENEFITS**

Cleanup events target large pollutant removal from creeks, rivers, streams, and coastal shorelines. The cleanup activities also represent actions undertaken by citizens that actively decrease the amount of trash and litter, resulting in the cultivation of a sense of ownership and responsibility of the citizens to the health of local water bodies which will lead to the proper disposal of trash.

## **EFFECTIVENESS MEASUREMENTS**

Trash will be reduced through various cleanup events within the San Diego Bay WMA. The cleanup events encourage stakeholder buy-in and participation in implementing the Watershed Strategy, resulting in a level 3 outcome by causing a change in behavior, knowledge, attitude and awareness within the community of how to properly dispose of trash by the individuals involved. Relative pollutant loads within the watershed can be assessed based on the weight of debris collected. The number of people participating and the amount of overall trash collected will enable a calculation of pounds collected per person for each cleanup event. A level 4 outcome may also be possible in all HAs due to the reduction of trash. Comparison of pollutant loads between years and locations within the watershed may aid in determining reductions in pollutant loads associated with trash and the relative success of cleanup efforts.

## **CREEK TO BAY CLEANUP EVENT AT D STREET FILL – 4A**

### **ACTIVITY SUMMARY**

The Port of San Diego will collaborate as a watershed sponsor of the Creek to Bay Cleanup Event on April 26, 2008. The cleanup event will physically remove large amounts of trash, debris and other associated pollutants from the watershed creeks, rivers, streams, and shorelines. The event is a county-wide effort, coordinated by I Love A Clean San Diego (ILACSD), to actively promote clean shorelines and waterways. The Port of San Diego is participating as site captains and soliciting volunteers in the cleanup to remove trash at the D Street Fill location. An assessment of the relative trash loads at the site and a comparison between cleanup sites can be undertaken based on the weight of debris collected. The Port may calculate the weight of the trash collected per person for each cleanup event by evaluating the number of people participating and the amount of overall trash collected each year at the site.

### **TMDL APPLICABILITY**

N/A

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Permit Year 1: Implementation
- Permit Year 2: Implementation

### **PARTICIPATING JURISDICTIONS**

- Port of San Diego

### **OTHER PARTICIPATING ENTITIES**

- I Love A Clean San Diego (ILACSD)

### **HIGH PRIORITY WATER QUALITY PROBLEMS ADDRESSED**

- Trash

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

This activity addresses the physical removal of trash from 909.1 HA. At the site, common litter items removed include cigarette butts, plastic bags, food wrappers, auto parts, appliances, furniture, and tires.

### **EXPECTED BENEFITS**

The cleanup event will target trash removal from the D Street Fill location. The cleanup activity also represents actions undertaken by citizens that actively decrease the amount of trash and litter, resulting in the cultivation of a sense of ownership and responsibility of the citizens to the health of local water bodies which will lead to the proper disposal of trash.

## **EFFECTIVENESS MEASUREMENTS**

The cleanup event encourages stakeholder buy-in and participation in implementing the Watershed Strategy. This will result in a level 3 outcome by causing a change in behavior, knowledge, attitude and awareness within the community through the proper disposal of trash by the individuals involved. The result is the cultivation of a sense of ownership and responsibility in the citizens to the health of the local water bodies. A level 4 outcome may also be possible due to the reduction of trash. The Port will assess the relative trash loads at the D Street Fill location and may calculate the weight of the trash collected per person for the cleanup event by evaluating the number of people participating and the amount of overall trash collected each year at the site. A watershed-level assessment can also be completed to compare this site with other cleanup sites.

## **CLEAN COMMUNITY PROGRAM – 4B**

### **ACTIVITY SUMMARY**

The City of National City intends to implement a program to encourage individuals to dispose of waste properly. Events will include disposal events for large items and green waste; neighborhood specific events may also be held when necessary. These events will provide individuals with an avenue for properly disposing of items that might otherwise be illegally dumped. The City will alert residents to these events beforehand. An educational program involving school children in preparing artwork for a calendar with messages about keeping the City and local water bodies clean will also be part of this program. Cleanup and waste disposal events will help reduce pollutant loads in the watershed and promote watershed awareness.

### **TMDL APPLICABILITY**

- N/A

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Permit Year 1: Planning
- Permit Year 2: Implementation

### **PARTICIPATING WATERSHED COPERMITTEES**

- City of National City

### **OTHER PARTICIPATING ENTITIES**

- N/A

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

Cleanup and disposal events will aid in the physical removal of a quantifiable amount of trash from the watershed; trash is a high priority water quality problem in HA 908.3. Results from previous dry weather monitoring programs in the City indicate that trash may also be a source of bacteria and gross pollutants such as ammonia, so removal of trash may also result in reduced levels of these pollutants.

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

This activity is consistent with the Watershed Strategy in that it focuses principally on pollutant load reductions, but increased awareness and education of the public in all HAs is also an important component. Bacteria, which may also be addressed through this activity, are categorized as a high priority water quality for all HAs in the City of National City.

### **EXPECTED BENEFITS**

Cleanup and disposal events represent actions undertaken by citizens that actively reduce the amount of litter and trash that could be discharged to receiving water bodies. Such events also

encourage a behavioral change for the community by potentially changing the manner trash in which trash is disposed of by the individuals involved.

### **EFFECTIVENESS MEASUREMENTS**

Effectiveness will primarily be assessed through level 4, load reduction. Load reductions can be assessed through recorded the amount (weight or volume) of trash collected. Additional water quality monitoring, potentially in concert with cleanup events in creek or with dry weather monitoring, may be conducted to assess whether a relationship exists between trash removal and levels of bacteria and gross pollutants.

## ***I LOVE A CLEAN SAN DIEGO TRASH CLEANUP SPONSORSHIP – 4C***

### **ACTIVITY SUMMARY**

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.

### **TMDL APPLICABILITY**

- San Diego Region Beaches and Creeks Bacteria TMDL

### **TIME SCHEDULE FOR IMPLEMENTATION**

Creek to Bay Cleanup has historically been held in April of each year. Prior to that month, the City will coordinate with ILACSD staff to ensure that sites within the San Diego Bay Watershed are included in the list for cleanups and that proper sponsorship arrangements are made.

### **PARTICIPATING WATERSHED COPERMITTEE(S)**

- City of San Diego

### **OTHER PARTICIPATING ENTITIES**

- ILACSD
- Volunteers from general public

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

- Bacteria

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

The Collective Watershed Strategy for the San Diego Bay WMA identifies bacteria as a high priority water quality problem throughout the WMA and recommends implementing load reduction/source abatement activities to address it. Sponsorship of Creek to Bay will result in load reduction of trash and debris directly and of bacteria indirectly.

### **EXPECTED BENEFITS**

Although Creek to Bay Cleanup is focused on debris removal, it also addresses bacteria indirectly by removing a bacterial source: trash. Literature published by the United States

Environmental Protection Agency on its website<sup>1</sup> states that debris may be contaminated by pathogens that have adverse effects on humans. By reducing the amount of trash and debris in the San Diego Bay WMA through cleanup events, bacteria loading is reduced.

**EFFECTIVENESS MEASUREMENTS**

<b>Management Questions:</b>	<ul style="list-style-type: none"> <li>• What is the load reduction associated with sponsorship?</li> <li>• What is the efficiency of trash cleanup? (\$/person or \$/ton collected)</li> </ul>
<b>Targeted Measurable Outcome(s)</b>	<ul style="list-style-type: none"> <li>• Achieve load reduction of trash (any amount) due to trash cleanup sponsorship</li> </ul>
<b>Assessment Method(s)</b>	<ul style="list-style-type: none"> <li>• Tabulation (e.g., number of participants)</li> <li>• Quantification (e.g., pounds of trash collected)</li> </ul>
<b>Assessment Measures, Assessment Outcome Levels &amp; Data:</b>	<ul style="list-style-type: none"> <li>• Money spent (USD) (Outcome Level 1 and 2)</li> <li>• Tons of trash (Outcome Level 4)</li> <li>• Number of participants (Outcome Level 1)</li> <li>• Compliance (yes/no) (Outcome Level 1)</li> </ul>

---

<sup>1</sup> <http://www.epa.gov/owow/oceans/debris/>

## **SAN DIEGO COASTKEEPER TRASH CLEANUP SPONSORSHIP – 4D**

### **ACTIVITY SUMMARY**

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

### **TMDL APPLICABILITY**

- San Diego Region Beaches and Creeks Bacteria TMDL

### **TIME SCHEDULE FOR IMPLEMENTATION**

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

### **PARTICIPATING WATERSHED COPERMITTEE(S)**

- City of San Diego

### **OTHER PARTICIPATING ENTITIES**

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

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

- Bacteria

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

The Collective Watershed Strategy for the San Diego Bay WMA identifies bacteria as a high priority water quality problem throughout the WMA and recommends implementing load reduction/source abatement activities to address it. Sponsorship of Coastal Cleanup Day will result in load reduction of trash and debris directly and of bacteria indirectly.

### **EXPECTED BENEFITS**

Although Coastal Cleanup Day is focused on debris removal, it also addresses bacteria indirectly by removing a bacterial source: trash. Literature published by the United States

Environmental Protection Agency on its website<sup>2</sup> states that debris may be contaminated by pathogens that have adverse effects on humans. By reducing the amount of trash and debris in the San Diego Bay WMA through cleanup events, bacteria loading is reduced.

**EFFECTIVENESS MEASUREMENTS**

<b>Management Questions:</b>	<ul style="list-style-type: none"> <li>• What is the load reduction associated with sponsorship?</li> <li>• What is the efficiency of trash cleanup? (\$/person or \$/ton collected)</li> </ul>
<b>Targeted Measurable Outcome(s)</b>	<ul style="list-style-type: none"> <li>• Achieve load reduction of trash (any amount) due to trash cleanup sponsorship</li> </ul>
<b>Assessment Method(s)</b>	<ul style="list-style-type: none"> <li>• Tabulation (e.g., number of participants)</li> <li>• Quantification (e.g., pounds of trash collected)</li> </ul>
<b>Assessment Measures, Assessment Outcome Levels &amp; Data:</b>	<ul style="list-style-type: none"> <li>• Money spent (USD) (Outcome Level 1 and 2)</li> <li>• Tons of trash (Outcome Level 4)</li> <li>• Number of participants (Outcome Level 1)</li> <li>• Compliance (yes/no) (Outcome Level 1)</li> </ul>

---

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

## **CITY-WIDE CLEANUP EVENTS – 4E**

### **ACTIVITY SUMMARY**

Anthropogenic activities associated with urbanization contribute to the many common stormwater pollutants that can degrade water quality. BMPs such as City-wide Cleanup Events will reduce the discharge of these pollutants into the stormwater conveyance system.

### **TMDL APPLICABILITY**

A TMDL for bacteria has been established for the San Diego Bay. The 2006 CWA Section 303d list of impaired water bodies identified multiple locations throughout San Diego Bay with water quality impairments for bacteria and metals.

### **TIME SCHEDULE FOR IMPLEMENTATION**

Implementation has begun under the prior stormwater municipal permit 2001-01. City-wide Cleanup Events will continue to be held throughout the City during Years One and Two of Municipal Permit R9-2007-0001. This program will be assessed and refined as necessary during Years Three - Five.

### **PARTICIPATING WATERSHED COPERMITTEES**

- City of Imperial Beach

### **OTHER PARTICIPATING ENTITIES**

- N/A

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

Bacteria and associated pathogens have been rated as high priority water quality problems within the 910.1 and 910.2 watershed hydrologic subareas (watershed HA) of the San Diego Bay WMA. Gross pollutants including trash are a high priority water quality problem and require source identification in the 910.1 watershed HA.

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

This activity is consistent with the process for evaluating jurisdictional and watershed programs as presented in the Baseline Long-Term Effectiveness Assessment (BLTEA) document. The BLTEA indicated bacteria was one of two pollutants given a BLTEA A rating in the San Diego Bay WMA, and that additional data collection would be necessary to properly evaluate this watershed. Data for gross pollutants is limited in this watershed (p.2-43, BLTEA, August 2005).

### **EXPECTED BENEFITS**

Expected benefits of implementing the activity include compliance with permit requirements; changes in attitudes, knowledge, and awareness of the community; behavioral change and BMP implementation; changes in urban runoff and discharge quality; pollutant load reductions;

urban runoff and discharge quality; and an improvement in receiving water quality due to lowered levels of bacteria and gross pollutants including trash in stormwater and ultimately in recreational water.

### **EFFECTIVENESS MEASUREMENTS**

Based on the BLTEA, the effectiveness of this program involves the evaluation and measurement of various types of programmatic and environmental outcomes, or results. Six levels of outcomes from those that are activity-based to include those that are water quality-based may be used to evaluate the effectiveness of this BMP.

Targeted outcomes include implementation of programs and activities to prevent or reduce the discharge of pollutants to the stormwater conveyance system which will result in improved receiving water quality. Assessment measures will include the development of a standardized data set that can compare trends in both urban runoff and receiving water quality with the implementation of BMPs. Assessment methods will include making assumptions as to the amount of waste collected in the City at each event. Another method would be to perform a study which would include collecting waste from a representative event and determining volume collected to get the potential loading estimate per event.

Effectiveness of the activity will be addressed through six levels of outcomes to include: compliance with permit requirements; changes in attitudes, knowledge, and awareness of the community; behavioral change; changes in urban runoff and discharge quality; pollutant load reductions; urban runoff and discharge quality; and an improvement in receiving water quality due to lowered levels of bacteria and gross pollutants in stormwater and ultimately in recreational water.

Activity effectiveness will also be assessed through the Receiving Waters Monitoring Program, which defines the requirements for monitoring including the sampling plan, compliance criteria, laboratory analyses, statistical analyses, and reporting guidelines. Links between source activities/conditions and observed receiving water impacts and recommended future monitoring to address sources of water quality problems will be identified.

## **SAN DIEGO BAY WATERSHED CLEANUP EVENTS/ON-SITE/OFFSITE CLEANUP EVENTS – 4F**

### **ACTIVITY SUMMARY**

The Airport Authority intends to collaborate with the other San Diego Bay Copermittees as watershed sponsors for a series of cleanup events throughout the San Diego Bay Watershed. The cleanup events will physically remove large amounts trash, debris, and other pollutants from the watershed creeks, rivers, streams and shorelines. The events will be a watershed-wide effort, coordinated by I Love a Clean San Diego (ILACSD) and the San Diego Coastkeeper to actively promote a clean watershed. The events will be promoted throughout the watershed via a variety of media, including television and radio announcements, newspapers ads, electronic mail, bulletin boards, and community outreach activities. The Airport Authority and San Diego Bay Copermittees may provide funding to sponsor the cleanup event, may solicit volunteers to participate, and may work as site captains and participate in the cleanup event themselves. The Copermittees will work together to identify and promote feasible site locations within each participating jurisdiction. Similar events may also be planned on the airport property. Continued coordination between Copermittees on these annual cleanup events will help reduce pollutant loads in the watershed and promote public awareness of watershed protection and stormwater pollution prevention.

The On-site/Off-site Cleanup Events are an important water quality activity in the San Diego Bay Watershed because it can be used to measure the amount of trash and debris and associated bacteria and metals actively removed from the watershed. A reduction in the amount of trash and debris within the watershed contributes to improving the quality of the stormwater ultimately discharging into San Diego Bay.

### **TMDL APPLICABILITY**

The 2002 and 2006 CWA Section 303d lists of impaired water bodies identified multiple locations throughout San Diego Bay with water quality impairments for bacteria and locations near the airport have been identified as having sediment toxicity, benthic community effects, and copper impairments. Total Maximum Daily Loads (TMDLS) are being developed by the RWQCB to protect beneficial uses in these impaired water body segments. The development of one particular TMDL is referred to as TMDLs for Indicator Bacteria Project II - San Diego Bay and Dana Point Harbor Shorelines. The development of the TMDL for sediment toxicity and benthic community effects is referred to as the Downtown Anchorage TMDL. A TMDL has not yet been initiated for copper along the Harbor Island segment of San Diego Bay. The On-site/Off-site Cleanup Events are applicable to these TMDLs to the extent they address the identification and control of sources of bacteria, metals, and trash as pollutants potentially impacting water quality, sediment toxicity, and the degradation of benthic communities in San Diego Bay.

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Permit Year 1: Planning
- Permit Year 2: Implementation
- Permit Year 3: Implementation
- Permit Year 4: Implementation
- Permit Year 5: Implementation

### **PARTICIPATING WATERSHED COPERMITTEES**

- Airport Authority

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

The On-site/Offsite Cleanup Events will aid in the physical removal of a quantifiable amount of trash and debris and associated bacteria and metals from the watershed.

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

The On-site/Off-site Cleanup Events activity intends to reduce high priority water quality problems such as bacteria, metals, and trash and improve the quality of urban runoff discharging into the San Diego Bay. The Watershed Strategy identifies bacteria, metals, and trash as high priority water quality problems for the 908.2 HA portion of the San Diego Bay Watershed in which the airport lies. This activity is consistent with the Watershed Strategy because it focuses principally on pollutant load reductions.

### **EXPECTED BENEFITS**

The On-site/Off-site Cleanup Events target pollutant removal from the various areas of the airport. The cleanup events actively decrease the amount of trash, debris, and associated pollutants that might inadvertently enter the stormwater conveyance system. The program calculates the reduction in the amount of trash and associated bacteria and metals impacting stormwater discharge quality, which is a level 4 outcome.

### **EFFECTIVENESS MEASUREMENTS**

The Airport Authority intends to calculate annual pollutant load reductions by 1) measuring the weight of trash and debris collected during cleanup events and 2) estimating bacteria and metal loads per unit weight of trash and debris collected based on review of the literature and/or other sources. The Airport Authority will also be able to track the cost of implementing the program and thereby determine the cost-effectiveness of each event.

## **SAN DIEGO BAY WATERSHED CLEANUP EVENTS – 4G**

### **ACTIVITY DESCRIPTION**

The San Diego Bay Copermittees intend to collaborate as watershed sponsors in a series of cleanup events throughout the San Diego Bay Watershed. The cleanup events will physically remove large amounts trash, debris, and other pollutants from the watershed creeks, rivers, streams and shorelines. The events will be a watershed-wide effort, coordinated by I Love a Clean San Diego (ILACSD) and San Diego Coast Keeper (SDCK) to actively promote a clean watershed and will be marketed in all areas of the watershed via a variety of media, including television, radio public service announcements, newspapers, electronic mail, bulletin boards, community outreach activities, and word-of-mouth. Continued coordination between Copermittees on this annual cleanup event will help reduce pollutant loads in the watershed while promoting the watershed awareness message. Cooperative efforts of the Copermittees will enable an assessment of relative trash loads for each annual event in the watershed and between cleanup site locations and determine whether there is a reduction in trash loads over the years.

The City of La Mesa will continue to sponsor cleanup events/activities. Sponsorship of these activities may include monetary sponsorship, participation of city staff, advertisement of the event, encouragement of volunteers to participate, and distribution of watershed-based education material. The City intends to document the amount of debris collected, type of debris, number of volunteers, number of volunteer participation hours, and number of educational material distributed at these events. The following is a list of cleanup events that present a load reduction for some of the watershed-based high priority water quality problems held in the City of La Mesa.

- (1) Creek to Bay Cleanup Day annual onetime event at University Channel (HA 908.2)
- (2) California Coastal Cleanup Day annual onetime event at University Channel (HA 908.2)
- (3) Park Appreciation Cleanup Day annual onetime event at seven municipal parks (HA 908.2 & 909.1)
- (4) Adopt A Park & Adopt A Block programs continuous throughout the year at seven parks, residential and commercial areas (HA 908.2 & 909.1)

### **TMDL APPLICABILITY**

A TMDL for bacteria has been established for the San Diego Bay. The 2006 CWA Section 303d list of impaired water bodies identified multiple locations throughout San Diego Bay with water quality impairments for bacteria and metals.

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Permit Year 1: Planning
- Permit Year 2: Implementation

- Permit Year 3: Monitoring
- Permit Year 4: Monitoring
- Permit Year 5: Assessment

#### **PARTICIPATING WATERSHED COPERMITTEES**

- City of La Mesa

#### **OTHER PARTICIPATING ENTITIES**

- I Love a Clean San Diego
- San Diego Coastkeeper

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

Cleanup events will aid in the physical removal of a quantifiable amount of trash from the watershed. In addition, high priority water quality problems such as trash, bacteria, nutrients, and metals often linked to common litter items such as cigarette butts, plastic bags, food wrappers, containers of spent product such as fertilizer, and corroding or flaking items like metal appliances, are also reduced as a result of the removal of trash.

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

The Watershed Strategy identifies bacteria, metals, and nutrients as either high, medium, or low water quality problems for the watershed HAs. This activity is consistent with the Watershed Strategy in that it focuses principally on pollutant load reductions, but increased awareness and education of the public in all HAs is also an important component. Bacteria are categorized as a high priority water quality problem in all HAs with the BLTEA rating of A. Metals received an A rating as well and are considered a high priority water quality problem for HA 908.1 and 908.2. This activity contributes to improving water quality problems by focusing on bacteria, metals, and nutrient load reduction through the removal of the trash in all HAs. The BLTEA ratings and water quality priority categorization for metals and nutrients vary between HAs, which will affect the degree cleanup efforts undertaken by each Copermittee, will influence these pollutant categories.

#### **EXPECTED BENEFITS**

Cleanup events target large pollutant removal from creeks, rivers, streams, and coastal shorelines. The cleanup activities represent actions undertaken by citizens that actively decrease the amount litter. The cleanup events encourage stakeholder buy-in and participation in implementing the Watershed Strategy, resulting in a level 3 outcome by causing a behavioral change for the community in the manner trash is disposed of by the individuals involved. The result is the cultivation of a sense of ownership and responsibility of the citizens to the health of local water bodies which will lead to the proper disposal of trash. A level 4 outcome may also be a long term benefit in all HAs due to the load reduction of bacteria, metals, and nutrients associated with trash.

## **EFFECTIVENESS MEASUREMENTS**

Trash, bacteria, and metals loads will be reduced through cleanup events within the HAs. Relative pollutant loads within the watershed can be assessed based on the weight of debris collected. The number of people participating and the amount of overall trash collected will enable a calculation of pounds collected per person for each cleanup event. Comparison of pollutant loads between years and locations within the watershed may aid in determining reductions in pollutant loads associated with trash and the relative success of cleanup efforts.

## **CLEANUP EVENTS IN CREEKS AND CHANNELS – 4H**

### **ACTIVITY DESCRIPTION**

Cleanup events in active drainage areas with Lemon Grove, i.e., Creek to Bay sponsored by I Love A Clean San Diego.

### **TMDL APPLICABILITY**

- N/A

### **TIME SCHEDULE FOR IMPLEMENTATION**

- N/A

### **CURRENT IMPLEMENTATION**

- N/A

### **PARTICIPATING WATERSHED COPERMITTEES**

- Lemon Grove

### **OTHER PARTICIPATING ENTITIES**

- N/A

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

- Trash

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

Regional watershed activity

### **EXPECTED BENEFITS**

Decreased trash in a receiving water body (Chollas Creek).

### **EFFECTIVENESS MEASUREMENTS**

Level 4 Load Reduction

## **ENHANCED DRY WEATHER MONITORING PROGRAM – 5**

### **ACTIVITY SUMMARY**

The Airport Authority will continue to conduct dry weather monitoring at a frequency that exceeds the requirements of the Municipal Permit. The goal of the Enhanced Dry Weather Monitoring Program is to identify sources of stormwater pollution in the watershed. The Airport Authority first began to implement this enhanced program in fiscal year 2005-2006 by increasing the frequency of dry weather monitoring from the Permit requirement of once per dry weather season to at least three times during the dry weather season. The increased frequency increases the chances that illegal discharges and their sources might be identified. During meetings and inspections, staff will discuss the need for sediment controls such as soil stabilization and tracking controls throughout the life of the project.

The Enhanced Dry Weather Monitoring Program is an important water quality activity in the San Diego Bay Watershed because it helps to identify and eliminate sources of illegal discharges in the watershed. Identification and elimination of illegal discharges within the watershed contributes to improving the quality of the stormwater ultimately discharging into San Diego Bay.

### **TMDL APPLICABILITY**

The 2002 and 2006 CWA Section 303d lists of impaired water bodies identified multiple locations throughout San Diego Bay with water quality impairments for bacteria and locations near the airport have been identified as having sediment toxicity, benthic community effects, and copper impairments. Total Maximum Daily Loads (TMDLS) are being developed by the RWQCB to protect beneficial uses in these impaired water body segments. The development of one particular TMDL is referred to as TMDLs for Indicator Bacteria Project II - San Diego Bay and Dana Point Harbor Shorelines. The development of the TMDL for sediment toxicity and benthic community effects is referred to as the Downtown Anchorage TMDL. A TMDL has not yet been initiated for copper along the Harbor Island segment of San Diego Bay. The Enhanced Dry Weather Monitoring Program is applicable to these TMDLs to the extent it addresses the identification and control of sources of bacteria, copper, and other pollutants potentially impacting water quality, sediment toxicity, and the degradation of benthic communities in San Diego Bay.

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Permit Year 1: Implementation
- Permit Year 2: Implementation
- Permit Year 3: Implementation
- Permit Year 4: Implementation
- Permit Year 5: Implementation

## **PARTICIPATING WATERSHED COPERMITTEES**

- Airport Authority

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

The Enhanced Dry Weather Monitoring Program will help to identify and eliminate sources of stormwater pollution in the watershed.

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

The Enhanced Dry Weather Monitoring Program intends to identify and eliminate sources of illegal discharges and thereby improve the quality of urban runoff discharging into the San Diego Bay. The Watershed Strategy identifies bacteria, metals, pesticides, sediment, and trash as high priority water quality problems for the 908.2 HA portion of the San Diego Bay Watershed in which the airport lies. This activity is consistent with the Watershed Strategy because it focuses principally on identification of pollutant sources, including these high priority pollutants.

## **EXPECTED BENEFITS**

The Enhanced Dry Weather Monitoring Program targets the identification and elimination of illegal discharges to the stormwater conveyance system and the watershed. The increased frequency of monitoring increases the likelihood of identifying and eliminating sources of illegal discharge, which in turn helps to reduce pollutant loading to the watershed and San Diego Bay. Information collected by the Enhanced Dry Weather Monitoring Program is also used to characterize dry weather discharge water quality in general and to influence and assess ongoing watershed management and planning activities. The elimination of illegal discharges generally requires that dischargers gain some awareness of stormwater pollution prevention and understanding of proper BMP implementation. By changing the way in which dischargers implement BMPs, this program results in a level 3 outcome. The program may also be able to estimate the pollutant loads eliminated and thus no longer impacting stormwater discharge quality, which is a level 4 outcome.

## **EFFECTIVENESS MEASUREMENTS**

The Airport Authority intends to track the number of dry weather monitoring events conducted in excess of the minimum number required by the Municipal Permit, and the number of illegal discharges identified. Overtime, these data will provide an assessment of program effectiveness. In addition, the Airport Authority intends to estimate the pollutant load abated using the known pollutant discharge concentrations and estimating the discharge duration. The Airport Authority will also be able to track the cost of implementing the program and thereby determine its cost-effectiveness.

## **ENHANCED CONSTRUCTION OVERSIGHT – 6**

### **ACTIVITY SUMMARY**

The Airport Authority will continue to oversee construction projects in a manner that exceeds the requirements of the Municipal Permit. The goal of the Enhanced Construction Oversight Program is to abate the amount of sediment potentially released to the watershed from construction sites. The Airport Authority first began to implement this enhanced program in fiscal year 2004-2005. Staff from the Airport Authority Environmental Affairs Department will attend pre-construction meetings and regularly scheduled progress meetings, in addition to inspecting construction sites more frequently than required by the Permit during both the wet and dry seasons. The regular meetings will be used as an opportunity to focus on BMPs directed at preventing the discharge of sediment to the storm drain system. During meetings and inspections, staff will discuss the need for sediment controls such as soil stabilization and tracking controls throughout the life of the project.

The Enhanced Construction Oversight Program is an important water quality activity in the San Diego Bay Watershed because it abates construction sites as a source of sediment in the watershed. Abatement of sediment within the watershed contributes to improving the quality of the stormwater ultimately discharging into San Diego Bay.

### **TMDL APPLICABILITY**

The 2002 and 2006 CWA Section 303d lists of impaired water bodies identified multiple locations throughout San Diego Bay with water quality impairments for bacteria and locations near the airport have been identified as having sediment toxicity, benthic community effects, and copper impairments. Total Maximum Daily Loads (TMDLS) are being developed by the RWQCB to protect beneficial uses in these impaired water body segments. The development of one particular TMDL is referred to as TMDLs for Indicator Bacteria Project II - San Diego Bay and Dana Point Harbor Shorelines. The development of the TMDL for sediment toxicity and benthic community effects is referred to as the Downtown Anchorage TMDL. A TMDL has not yet been initiated for copper along the Harbor Island segment of San Diego Bay. The Enhanced Construction Oversight Program is applicable to these TMDLs to the extent it addresses the identification and control of sources of sediment as one pollutant potentially impacting sediment toxicity and the degradation of benthic communities in San Diego Bay.

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Permit Year 1: Implementation
- Permit Year 2: Implementation
- Permit Year 3: Implementation
- Permit Year 4: Implementation
- Permit Year 5: Implementation

### **PARTICIPATING WATERSHED COPERMITTEES**

- Airport Authority

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

- Sediment

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

The Enhanced Construction Oversight Program intends to abate sediment associated with construction sites and thereby improve the quality of urban runoff discharging into the San Diego Bay. The Watershed Strategy identifies sediment as a high priority water quality problem for the 908.2 HA portion of the San Diego Bay Watershed in which the airport lies. This activity is consistent with the Watershed Strategy because it focuses principally on source abatement.

### **EXPECTED BENEFITS**

The Enhanced Construction Oversight Program targets the abatement of construction sites as a source of sediment to the watershed. In addition to increasing construction site inspection frequencies, the program also increases interaction with construction personnel on-site and at weekly progress meetings. Heightened awareness of proper sediment control BMP implementation increases the likelihood of sediment control BMP effectiveness, which in turn helps to abate the amount of sediment loading to San Diego Bay. The program cultivates awareness of stormwater pollution prevention and responsibility for the health of local water bodies, which in turn leads to proper implementation of sediment control BMPs. By changing the way in which individuals implement BMPs, this program results in a level 3 outcome. The program also estimates the amount of sediment abated from impacting stormwater discharge quality, which is a level 4 outcome.

### **EFFECTIVENESS MEASUREMENTS**

The Airport Authority intends to track the number of construction project regular progress meetings attended, the number of site inspections conducted in excess of the minimum number required by the Municipal Permit, and the number of sediment source control BMP issues identified during inspections. Overtime, these data will provide an assessment of program effectiveness. In addition, the Airport Authority intends to estimate the annual sediment pollutant load abated by 1) estimating, based on review of the literature and/or other sources, sediment loads per construction site per day when sediment controls are not implemented, and 2) tracking the number of sediment control BMP implementation issues identified during inspections. The Airport Authority will also be able to track the cost of implementing the program and thereby determine its cost-effectiveness.

## **BMP EFFECTIVENESS MONITORING PROGRAM – 7**

### **ACTIVITY SUMMARY**

The Airport Authority will continue to collect rain event runoff samples to monitor the performance of both structural and non-structural, discrete and combination BMPs. The long-range goal of the BMP Effectiveness Monitoring Program is improve the water quality of stormwater runoff from the airport into San Diego Bay. The BMP Effectiveness Monitoring Program will assess whether the BMPs being implemented are able to reduce concentrations of, primarily, copper and zinc in stormwater runoff from the airport. Based on a power analysis of 10 years of existing airport runoff water quality data, a minimum number of samples required to allow an effectiveness comparison has been identified. The program allows 3 years to calibrate paired watershed sampling, followed by 3 years of sampling to make an initial assessment of BMP effectiveness. To confidently establish a downward trend, at trend analysis monitoring station has been established to allow for a minimum of 10 years sampling. The first year of the monitoring program began during the rainy season of 2006-2007, during which the runoff from 6 storm events was sampled.

The BMP Effectiveness Monitoring Program is an important water quality activity in the San Diego Bay Watershed because it assesses the effectiveness of BMPs at reducing concentrations of metals in stormwater runoff. Establishing the effectiveness of BMPs in reducing pollutant concentrations in runoff contributes to improving the quality of the stormwater ultimately discharging into San Diego Bay.

### **TMDL APPLICABILITY**

The 2002 and 2006 CWA Section 303d lists of impaired water bodies identified multiple locations throughout San Diego Bay with water quality impairments for bacteria and locations near the airport have been identified as having sediment toxicity, benthic community effects, and copper impairments. Total Maximum Daily Loads (TMDLS) are being developed by the RWQCB to protect beneficial uses in these impaired water body segments. The development of one particular TMDL is referred to as TMDLs for Indicator Bacteria Project II - San Diego Bay and Dana Point Harbor Shorelines. The development of the TMDL for sediment toxicity and benthic community effects is referred to as the Downtown Anchorage TMDL. A TMDL has not yet been initiated for copper along the Harbor Island segment of San Diego Bay. The BMP Effectiveness Monitoring Program is applicable to these TMDLs to the extent it addresses the identification and control of sources of copper and other metals as pollutants potentially impacting water quality, sediment toxicity, and the degradation of benthic communities in San Diego Bay.

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Permit Year 1: Implementation
- Permit Year 2: Implementation
- Permit Year 3: Implementation

- Permit Year 4: Implementation
- Permit Year 5: Implementation

#### **PARTICIPATING WATERSHED COPERMITTEES**

- Airport Authority

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

- Metals

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

The BMP Effectiveness Monitoring Program intends to assess the effectiveness of BMPs at reducing concentrations of metals, primarily, in stormwater runoff thereby improve the quality of runoff discharging into the San Diego Bay. The Watershed Strategy identifies metals as high priority water quality problem for the 908.2 HA portion of the San Diego Bay Watershed in which the airport lies. This activity is consistent with the Watershed Strategy because it focuses principally on identification of BMPs effective at reducing metal pollutant loads.

#### **EXPECTED BENEFITS**

The BMP Effectiveness Monitoring Program assesses the effectiveness of BMPs at reducing concentrations of metals in runoff discharges in the watershed. The identification of BMPs effective at reducing metals loads in stormwater runoff will help to reduce pollutant loading to the watershed and San Diego Bay. Information gained through the BMP Effectiveness Monitoring Program can aid ongoing watershed management and planning activities. The identification of effective BMPs will generally increase understanding of proper BMP selection. By changing discharger knowledge of BMPs, this program results in a level 2 outcome. The program may also be able to estimate the pollutant loads eliminated by effective BMPs, which is a level 4 outcome.

#### **EFFECTIVENESS MEASUREMENTS**

The Airport Authority intends to assess the performance of both structural and non-structural, discrete and combination BMPs, by tracking number and types of discrete and combination BMPs will be evaluated, along with the pollutant concentrations in stormwater runoff. Overtime, these data will provide an assessment of the effectiveness of the BMPs. In addition, the Airport Authority intends to estimate the pollutant load reductions resulting from the use of these BMPs. By tracking the cost of BMP implementation, the Airport Authority may be able to determine the cost-effectiveness of the BMPs.

## **OUTDOOR SPECIAL EVENT OVERSIGHT – 8**

### **ACTIVITY DESCRIPTION**

The Airport Authority intends to oversee the manner in which outdoor special events are set up, conducted, and cleaned. The goal of the Outdoor Special Event Oversight Program is to abate the amount of trash and debris potentially released to the watershed from these events. Staff from the Airport Authority Environmental Affairs Department will attend pre-event meetings and/or conduct a pre-event site inspection to ensure that there are an adequate number of recycling containers and trash cans properly located at the venue. The site will also be inspected immediately after the event is over to ensure that trash and debris is properly disposed. The meetings and inspections will be used as an opportunity to focus on stormwater pollution prevention in general and properly controlling sources of trash to the storm drain system.

The Outdoor Special Event Oversight Program is an important water quality activity in the San Diego Bay Watershed because it abates the trash from these events from entering in the watershed. Abatement of trash within the watershed contributes to improving the quality of the stormwater ultimately discharging into San Diego Bay.

### **TMDL APPLICABILITY**

The 2002 and 2006 CWA Section 303d lists of impaired water bodies identified multiple locations throughout San Diego Bay with water quality impairments for bacteria and locations near the airport have been identified as having sediment toxicity, benthic community effects, and copper impairments. Total Maximum Daily Loads (TMDLS) are being developed by the RWQCB to protect beneficial uses in these impaired water body segments. The development of one particular TMDL is referred to as TMDLs for Indicator Bacteria Project II - San Diego Bay and Dana Point Harbor Shorelines. The development of the TMDL for sediment toxicity and benthic community effects is referred to as the Downtown Anchorage TMDL. A TMDL has not yet been initiated for copper along the Harbor Island segment of San Diego Bay. The Outdoor Special Events Oversight Program is applicable to these TMDLs to the extent it addresses the identification and control of sources of trash as one pollutant potentially impacting sediment toxicity and the degradation of benthic communities in San Diego Bay.

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Permit Year 1: Planning
- Permit Year 2: Implementation
- Permit Year 3: Implementation
- Permit Year 4: Implementation
- Permit Year 5: Implementation

### **PARTICIPATING WATERSHED COPERMITTEES**

- Airport Authority

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

- Trash

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

The Outdoor Special Event Oversight Program intends to abate trash associated with special events and thereby improve the quality of urban runoff discharging into the San Diego Bay. The Watershed Strategy identifies trash as a high priority water quality problem for the 908.2 HA portion of the San Diego Bay Watershed in which the airport lies. This activity is consistent with the Watershed Strategy because it focuses principally on source abatement.

## **EXPECTED BENEFITS**

The Outdoor Special Event Oversight Program targets the abatement of outdoor special events as a source of trash to the watershed. In addition to establishing pre- and post-event inspection activities, the program also increases interaction with event planning and execution staff while on-site. Heightened awareness of proper trash management and source control BMP implementation increases the likelihood of trash control BMP effectiveness, which in turn helps to abate the amount of trash loading to the San Diego Bay watershed. The program cultivates awareness of stormwater pollution prevention and responsibility for the health of local water bodies, which in turn leads to proper implementation of trash control BMPs. By changing the way in which individuals implement BMPs, this program results in a level 3 outcome. The program may also estimate the amount of trash abated from impacting stormwater discharge quality, which would be a level 4 outcome.

## **EFFECTIVENESS MEASUREMENTS**

The Airport Authority intends to track the number of outdoor special events that occur, the number of pre-event meetings attended, the number of pre- and post-event site inspections conducted, and the number of trash source control BMP issues identified during the inspections. Overtime, these data will provide an assessment of program effectiveness. In addition, the Airport Authority intends to estimate the annual trash pollutant load abated by 1) estimating, based on review of the literature and/or other sources, trash loads per event when trash management controls are not implemented, and 2) tracking the number of trash control BMP implementation issues identified during inspections. The Airport Authority will also be able to track the cost of implementing the program and thereby determine its cost-effectiveness.

## **TRASH DISPOSAL AREA CAPITAL IMPROVEMENTS – 9**

### **ACTIVITY SUMMARY**

The Airport Authority intends to make capital improvements to the current trash/recycling facility east of Terminal 1 East to reduce the amount of and eliminate the potential for trash and associated bacteria that might be inadvertently released to the stormwater conveyance system and then into San Diego Bay. The goal of the Trash Disposal Area Capital Improvements is to reduce the amount bacteria and trash which could be released in the watershed. The project objectives include improved site drainage, a three-sided structure with overhead cover, and sanitary sewer connection, while also providing for safe use of the facility and ease of access.

The program is an important water quality activity in the San Diego Bay Watershed because it will reduce or eliminate the amount of bacteria and trash being inadvertently released to the watershed. A reduction in the amount of trash and associated bacteria potentially entering the stormwater conveyance system contributes to improving the quality of the stormwater in the watershed and ultimately discharging into San Diego Bay.

### **TMDL APPLICABILITY**

The 2002 and 2006 CWA Section 303d lists of impaired water bodies identified multiple locations throughout San Diego Bay with water quality impairments for bacteria and locations near the airport have been identified as having sediment toxicity, benthic community effects, and copper impairments. Total Maximum Daily Loads (TMDLS) are being developed by the RWQCB to protect beneficial uses in these impaired water body segments. The development of one particular TMDL is referred to as TMDLs for Indicator Bacteria Project II - San Diego Bay and Dana Point Harbor Shorelines. The development of the TMDL for sediment toxicity and benthic community effects is referred to as the Downtown Anchorage TMDL. A TMDL has not yet been initiated for copper along the Harbor Island segment of San Diego Bay. The Trash Disposal Area Capital Improvements are applicable to these TMDLs to the extent they address the identification and control of sources of trash and associated bacteria as pollutants potentially impacting water quality, sediment toxicity, and the degradation of benthic communities in San Diego Bay.

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Permit Year 1: Planning
- Permit Year 2: Implementation
- Permit Year 3: Assessment
- Permit Year 4: N/A (Capital projects in active implementation for the first year only)
- Permit Year 5: N/A (Capital projects in active implementation for the first year only)

### **PARTICIPATING WATERSHED COPERMITTEES**

- Airport Authority

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

The Trash Disposal Area Capital Improvements will aid in the physical removal of a quantifiable amount of trash and associated bacteria from the watershed.

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

The Watershed Strategy identifies bacteria and trash as high priority water quality problems for the 908.2 HA portion of the San Diego Bay Watershed in which the airport lies. This activity contributes to improving water quality problems by focusing on the removal of trash and associated bacteria. This activity is consistent with the Watershed Strategy because it focuses principally on pollutant load reductions.

### **EXPECTED BENEFITS**

The Trash Disposal Area Capital Improvements target pollutant removal from the recycling and trash disposal facilities east of Terminal 1 East at the airport. The capital improvements actively decrease the amount of trash and associated bacteria that might inadvertently enter the stormwater conveyance system. The program will allow for a one-time calculation of the reduction in the amount of trash and bacteria impacting stormwater discharge quality, which is a level 4 outcome.

### **EFFECTIVENESS MEASUREMENTS**

The Airport Authority intends to calculate the one-time pollutant load reductions created by the Trash Disposal Area Capital Improvements. The pollutant load reductions will be calculated by 1) comparing before and after photos of the trash disposal area and estimating the weight of trash no longer being inadvertently released to the stormwater conveyance system and 2) estimating, based on review of the literature and/or other sources, bacteria loads per unit weight of trash prevented from being released. The Airport Authority will know the cost of improvements and will be able to estimate their cost-effectiveness.

## **TREATMENT CONTROL BMP PILOT PROJECTS – 10**

### **ACTIVITY SUMMARY**

The Airport Authority intends to implement treatment control BMPs on a pilot-scale to reduce zinc concentrations in the runoff from the roof of Terminal 1 East and to reduce copper and zinc concentrations in runoff from the runway. The goal of the Treatment Control BMP Pilot Projects is to reduce the metal load that is being inadvertently released by galvanized roofing materials and by aircraft tire and brake wear. These metals may be released to the stormwater conveyance system and then into San Diego Bay. The projects include installation of roof runoff downspout filters and modification to a portion of the pavement surfaces adjacent to the runway.

The program is an important water quality activity in the San Diego Bay Watershed because it will reduce or eliminate the amount of metals being inadvertently released to the watershed. A reduction in the amount of metals potentially entering the stormwater conveyance system contributes to improving the quality of the stormwater in the watershed and ultimately discharging into San Diego Bay.

### **TMDL APPLICABILITY**

The 2002 and 2006 CWA Section 303d lists of impaired water bodies identified multiple locations throughout San Diego Bay with water quality impairments for bacteria and locations near the airport have been identified as having sediment toxicity, benthic community effects, and copper impairments. Total Maximum Daily Loads (TMDLS) are being developed by the RWQCB to protect beneficial uses in these impaired water body segments. The development of one particular TMDL is referred to as TMDLs for Indicator Bacteria Project II - San Diego Bay and Dana Point Harbor Shorelines. The development of the TMDL for sediment toxicity and benthic community effects is referred to as the Downtown Anchorage TMDL. A TMDL has not yet been initiated for copper along the Harbor Island segment of San Diego Bay. The Treatment Control BMP Pilot Projects are applicable to these TMDLs to the extent they address the identification and control of sources of copper and other metals as pollutants potentially impacting water quality, sediment toxicity, and the degradation of benthic communities in San Diego Bay.

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Permit Year 1: Planning
- Permit Year 2: Implementation
- Permit Year 3: Assessment
- Permit Year 4: N/A (Capital projects in active implementation for the first year only)
- Permit Year 5: N/A (Capital projects in active implementation for the first year only)

### **PARTICIPATING WATERSHED COPERMITTEES**

- Airport Authority

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

- Metals

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

The Watershed Strategy identifies metals as a high priority water quality problem for the 908.2 HA portion of the San Diego Bay Watershed in which the airport lies. This activity contributes to improving water quality problems by focusing on the removal of metals. This activity is consistent with the Watershed Strategy because it focuses principally on pollutant load reductions.

## **EXPECTED BENEFITS**

The Treatment Control BMP Pilot Projects target pollutant removal from the roof of Terminal 1 East and from a portion of the runway at the airport. The pilot projects actively decrease the amount of metals that might inadvertently enter the stormwater conveyance system. If the pilot projects prove effective, then Airport Authority's understanding of cost-effective treatment controls BMPs will generally be increased. By changing discharger knowledge of BMPs and thereby influencing the BMPs being selected for implementation, this program will result in both a level 2 and level 3 outcome. The program will also allow for a one-time calculation of the reduction in the amount of metals impacting stormwater discharge quality, which is a level 4 outcome.

## **EFFECTIVENESS MEASUREMENTS**

The Airport Authority intends to calculate the one-time pollutant load reductions created by the Treatment Control BMP Pilot Projects. The pollutant load reductions will be calculated by comparing before and after metal concentrations in roof runoff and runway runoff. The Airport Authority will know the cost of improvements and will be able to estimate the cost-effectiveness of the pilot-scale treatment control BMPs.

## **PROVIDE HOMEOWNER’S ASSOCIATION EDUCATION ABOUT PET WASTE DISPOSAL – 11**

### **ACTIVITY DESCRIPTION**

The City of Chula Vista plans to encourage homeowner’s associations to provide pet waste signs and plastic bag dispensers within their community, as well as educate residents and home owners via the homeowner’s association newsletters about the importance of cleaning up after pets and the potential for mismanaged pet waste to enter the storm drain system. The City will provide educational materials and survey homeowners associations to assess if there is signage and plastic bag dispensers in the neighborhoods regarding proper pet waste disposal.

### **TMDL APPLICABILITY**

The City of Chula Vista does not discharge to water segments designated as impaired for bacteria.

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Permit Year 1: Planning
- Permit Year 2: Implementation
- Permit Year 3: Implementation
- Permit Year 4: Implementation
- Permit Year 5: Assessment

### **PARTICIPATING WATERSHED COPERMITTEES**

- City of Chula Vista

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

- Bacteria

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

This activity aims to reduce the amount of bacteria from entering the storm drain system. Bacteria has been categorized as a high priority pollutant in the watershed. This activity is consistent with the collective Watershed Strategy because it will contribute to improvements in water quality and encourage stakeholder buy-in and participation.

### **EXPECTED BENEFITS**

The HOA and resident education activity aims to locate areas within the City of Chula Vista where neighborhoods need education about pet waste and its potential impact on water quality by incorporating source control measures. By providing signage and educational materials to HOAs and residents, this effort intends to reduce the amount of bacteria that could enter the storm drain system.

## **EFFECTIVENESS MEASUREMENTS**

The effectiveness of this activity will be assessed through levels 1, 2, and 3. The activity will be assessed by the number of surveyed homeowners associations and the number of homeowners reached through education.

## **STORM WATER EDUCATION BOOTH AT PET FESTIVAL AND DOGGIE DASH – 12**

### **ACTIVITY DESCRIPTION**

The City of Chula Vista plans to educate its residents about proper pet waste disposal and its possible effects on water quality at its annual Pet Festival and Doggy Dash. This outdoor community event involves both pet owners and pets. The City plans to have an educational booth and provide educational materials related to the Chula Vista Clean Program for residents, in particular, those involving the cleanup of pet waste.

### **TMDL APPLICABILITY**

The City of Chula Vista does not discharge to water segments designated as impaired for bacteria.

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Permit Year 1: Planning
- Permit Year 2: Implementation
- Permit Year 3: Implementation
- Permit Year 4: Implementation
- Permit Year 5: Assessment

### **PARTICIPATING WATERSHED COPERMITTEES**

- City of Chula Vista

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

- Bacteria

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

This activity is consistent with the collective Watershed Strategy in that it aims to contribute to improvements in water quality by eliminating sources of pollutants.

### **EXPECTED BENEFITS**

This activity aims to provide education about proper pet waste disposal to pet owners.

### **EFFECTIVENESS MEASUREMENTS**

This effectiveness of this activity will be assessed through levels 1 and 2. Compliance with activity based permit requirements and changes in knowledge, attitudes, and awareness will be assessed by the number of educational materials distributed to participants.

## **FATS, OILS, AND GREASE (FOG) PROGRAM – 13**

### **ACTIVITY DESCRIPTION**

The City of Chula Vista is in the process of developing a Fats, Oils, and Grease (FOG) program, which will focus on educating restaurant owners and operators about the importance of proper grease waste management. Increased education and awareness about proper grease waste disposal aims to reduce possible sanitary sewer overflows in the City. Restaurant owners and operators will receive educational materials about grease waste management.

### **TMDL APPLICABILITY**

The City of Chula Vista does not discharge to water segments designated as impaired for bacteria.

### **TIME SCHEDULE FOR IMPLEMENTATION**

The City is in the planning stages for this program and plans to implement the program in November 2008.

- Permit Year 1: Planning
- Permit Year 2: Implementation
- Permit Year 3: Implementation
- Permit Year 4: Implementation
- Permit Year 5: Assessment

### **PARTICIPATING WATERSHED COPERMITTEES**

- City of Chula Vista

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

- Bacteria

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

This activity is consistent with the collective Watershed Strategy in that it aims to contribute to improvements in water quality by reducing the possible sanitary sewer overflows that result from mismanaged grease waste.

### **EXPECTED BENEFITS**

By implementing this activity, the City aims to reduce the amount of sanitary sewer overflows that could be caused by the mismanagement of grease waste in restaurants. The City also aims to provide education to restaurants about Best Management Practices for grease waste management.

## **EFFECTIVENESS MEASUREMENTS**

The effectiveness of this activity will be address through levels 2, 3, and 4. The number of restaurants that receive education will be tracked as well as the number of sanitary sewer overflows.

## **STORM DRAIN STENCILING – 14**

### **ACTIVITY DESCRIPTION**

The City of Chula Vista plans to install 500 thermoplastic storm drain stencils in high pedestrian traffic locations in the City. Stenciling addresses several pollutant categories including bacteria, dissolved minerals, gross pollutants, metals, nutrients, oil and grease, organics, pesticides, sediment, and trash.

### **TMDL APPLICABILITY**

The City of Chula Vista does not discharge to water segments designated as impaired for bacteria.

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Permit Year 1: Planning/ Implementation
- Permit Year 2: Implementation
- Permit Year 3: Implementation
- Permit Year 4: Implementation
- Permit Year 5: Assessment

### **PARTICIPATING WATERSHED COPERMITTEES**

- City of Chula Vista

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

- Bacteria
- Various pollutant categories

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

This is a part of the collective Watershed Strategy in that it seeks to contribute to improvements in water quality by reducing the loads of bacteria, dissolved minerals, gross pollutants, metals, nutrients, oil and grease, organics, pesticides, sediment, and trash into the storm drain system.

### **EXPECTED BENEFITS**

This activity aims to reduce the amount of pollutants, particularly bacteria, that are introduced into the storm drain system. This activity serves as both a load reduction and education activity because it will deter residents from polluting storm drains and increase awareness of the locations storm drains in their neighborhoods.

## **EFFECTIVENESS MEASUREMENTS**

The effectiveness of this activity will be assessed through level 2, 3, and 4. The areas where the stencils will be installed will be tracked, as well as the estimated number of pedestrians who walk by these drains.

## **UPDATE RECYCLING AND SOLID WASTE ORDINANCE – 15**

### **ACTIVITY SUMMARY**

In order to address contributions of pollutants, particularly bacteria, from trash and recycling areas from new multi-family residential and commercial land uses, the City of Chula Vista plans to update the design requirements in its recycling and solid waste ordinance. The City is proposing that all new multi-family residential and commercial trash enclosures be built with a solid roof top enclosure in order to minimize the contact of storm water with trash areas. The roof enclosure will prevent rain water from entering the trash areas, as well as eliminate pollutant runoff from these areas.

### **TMDL APPLICABILITY**

The City of Chula Vista does not discharge to water segments designated as impaired for bacteria.

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Permit Year 1: Planning
- Permit Year 2: Implementation
- Permit Year 3: Implementation
- Permit Year 4: Implementation
- Permit Year 5: Assessment
- The City will propose this amendment to the City Council in the beginning of 2008.

### **PARTICIPATING WATERSHED COPERMITTEES**

- City of Chula Vista

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

Trash and recycling areas have the potential to contribute a number of pollutants to storm water runoff, namely bacteria, nutrients, and trash. By building trash enclosures to prevent the contact of storm water with trash, the City aims to reduce the amount of pollutants that could be washed into the storm drain system from trash areas during a rain event.

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

Updating the Trash and Recycling Ordinance in the City of Chula Vista aims to improve the quality of runoff that enters the storm drain system and eventually San Diego Bay. It intends to reduce high priority pollutants such as bacteria, trash, and nutrients from entering the storm drain system. Bacteria is a high priority pollutant throughout San Diego County and the San Diego Bay watershed. This effort seeks to reduce pollutant sources from trash areas as a source abatement measure.

**EXPECTED BENEFITS**

The Trash and Recycling Ordinance Update activity will contribute to improvements in water quality by reducing the loads of bacteria, trash, and nutrients entering the storm drain system.

**EFFECTIVENESS MEASUREMENTS**

The effectiveness of this activity will be assessed through levels 4 and 5. Pollutant load reductions will be assessed by tracking the number of trash enclosures constructed with the new design criteria within the City.

## **LARGE SPECIAL EVENT INSPECTION AND CLEANUP – 16**

### **ACTIVITY SUMMARY**

Anthropogenic activities associated with urbanization contribute to the many common stormwater pollutants that can degrade water quality. BMPs such as Large Special Event Inspections and Cleanup will reduce the discharge of these pollutants into the stormwater conveyance system.

### **TMDL APPLICABILITY**

A TMDL for bacteria has been established for the San Diego Bay. The 2006 CWA Section 303d list of impaired water bodies identified multiple locations throughout San Diego Bay with water quality impairments for bacteria.

### **TIME SCHEDULE FOR IMPLEMENTATION**

Implementation has begun under the prior stormwater municipal permit 2001-01. Inspections and Cleanup following large special events will continue to be held throughout the City during Years 1 and 2 of Municipal Permit R9-2007-0001. This program will be assessed and refined as necessary during Years 3 – 5.

### **PARTICIPATING WATERSHED COPERMITTEES**

- City of Imperial Beach

### **OTHER PARTICIPATING ENTITIES**

- N/A

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

Bacteria and associated pathogens have been rated as high priority pollutants within the 910.1 and 910.2 watershed hydrologic subareas (watershed HA) of the San Diego Bay WMA. Gross pollutants including trash are a high priority for source identification in the 910.1 watershed HA.

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

This activity is consistent with the process for evaluating jurisdictional and watershed programs as presented in the Baseline Long-Term Effectiveness Assessment (BLTEA) document. The BLTEA indicated bacteria was one of two pollutants given a Priority A rating in the San Diego Bay WMA, and that additional data collection would be necessary to properly evaluate this watershed. Data for gross pollutants is limited in this watershed (p.2-43, BLTEA, August 2005).

### **EXPECTED BENEFITS**

Expected benefits of implementing the activity include compliance with permit requirements; changes in attitudes, knowledge, and awareness of the community; behavioral change and BMP implementation; changes in urban runoff and discharge quality; pollutant load reductions;

urban runoff and discharge quality; and an improvement in receiving water quality due to lowered levels of bacteria and gross pollutants including trash in stormwater and ultimately in recreational water.

### **EFFECTIVENESS MEASUREMENTS**

Targeted outcomes include implementation of programs and activities to prevent or reduce the discharge of pollutants to the stormwater conveyance system which will result in improved receiving water quality. Assessment measures will include the development of a standardized data set that can compare trends in both urban runoff and receiving water quality with the implementation of BMPs. Assessment methods will include making assumptions as to the amount of waste collected in the City at each event. Another method would be to perform a study which would include collecting waste from a representative event and determining volume collected to get the potential loading estimate per event. Inspections following the event will address compliance with the Municipal Permit and City ordinances.

Effectiveness of the activity will be addressed through six levels of outcomes to include: compliance with permit requirements; changes in attitudes, knowledge, and awareness of the community; behavioral change; changes in urban runoff and discharge quality; pollutant load reductions; urban runoff and discharge quality; and an improvement in receiving water quality due to lowered levels of bacteria and gross pollutants in stormwater and ultimately in recreational water.

Activity effectiveness will also be assessed through the Receiving Waters Monitoring Program, which defines the requirements for monitoring including the sampling plan, compliance criteria, laboratory analyses, statistical analyses, and reporting guidelines. Links between source activities/conditions and observed receiving water impacts and recommended future monitoring to address sources of water quality problems will be identified.

## **EDUCATION STICKERS FOR PUBLIC WORKS VEHICLES – 17**

### **ACTIVITY DESCRIPTION**

Stormwater hotline stickers for Public Works/City vehicles.

### **TMDL APPLICABILITY**

- N/A

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Implementation FY 08-09

### **PARTICIPATING WATERSHED COPERMITTEES**

- Lemon Grove

### **OTHER PARTICIPATING ENTITIES**

- N/A

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

- N/A

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

Local Watershed Activity

### **EXPECTED BENEFIT**

Community education tool, better use of the City's stormwater hotline, improved community knowledge of hotline.

### **EFFECTIVENESS MEASUREMENTS**

Level 3 Change in Knowledge and Behavior

## **INSPECTION AUDIT – 18**

### **ACTIVITY DESCRIPTION**

A review and evaluation of facility inspection lists and questionnaires. Possible revisions to the questionnaire, an evaluation of responses for compliance and the benefits/barriers to proper compliance.

### **TMDL APPLICABILITY**

Improved compliance with Permit requirements therefore improved compliance with Chollas Creek TMDLs.

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Implementation in FY 08-09

### **PARTICIPATING WATERSHED COPERMITTEES**

- Lemon Grove

### **OTHER PARTICIPATING ENTITIES**

- N/A

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

Variable depending on business and applicable BMPs.

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

Local watershed activity, Source ID

### **EXPECTED BENEFITS**

Improved BMP implementation, upkeep, and continued compliance. Fewer potential pollutants entering the MS4 system.

### **EFFECTIVENESS MEASUREMENTS**

Source ID, Level 3 Change in Knowledge and Behavior, and Potential Level 4 Load Reductions with improved BMP implementation.

## **RESTAURANT OUTREACH – 19**

### **ACTIVITY DESCRIPTION**

Improve and increase current outreach and education to local restaurants.

### **TMDL APPLICABILITY**

- N/A

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Implementation FY 08-09

### **PARTICIPATING WATERSHED COPERMITTEES**

- Lemon Grove

### **OTHER PARTICIPATING ENTITIES**

- N/A

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

- Organics
- Trash
- Oil & Grease

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

Local watershed education activity

### **EXPECTED BENEFITS**

Better knowledge of water quality issues specific to business type. Improved BMP implementation due to increased knowledge.

### **EFFECTIVENESS MEASUREMENTS**

Level 2 BMP Implementation, Level 3 Change in Behavior and Knowledge, and Potential Level 4 Load Reduction as a consequence of improved implementation over time.

## ***POLICY AND PROCEDURE AUDIT FOR ILLEGAL DUMPING – 20***

### **ACTIVITY DESCRIPTION**

Internal audit of policies and procedures related to illegal dumping and code enforcement. Possible revisions to improve effectiveness and a method for receiving community feedback in a continuing manner.

### **TMDL APPLICABILITY**

Chollas Creek impending bacteria TMDL and Chollas Creek metals TMDL.

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Internal discussions begun, but full implementation not expected until FY 08-09

### **PARTICIPATING WATERSHED COPERMITTEES**

- Lemon Grove

### **OTHER PARTICIPATING ENTITIES**

- N/A

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

- Bacteria
- Metals
- Oil & Grease
- Organics
- Trash

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

Local watershed activity

### **EXPECTED BENEFITS**

Fewer illegal dumps; better, more efficient policies; on-going dialog with the community to increase long term effectiveness of policy and code enforcement efforts.

### **EFFECTIVENESS MEASUREMENTS**

Level 3 Change in Knowledge and Behavior, and Level 4 Load Reduction.

## ***EVALUATE CODE ENFORCEMENT POLICY FOR PARKING LOT HOSING – 21***

### **ACTIVITY DESCRIPTION**

Similar to the evaluation of illegal dumping policies. Designed to evaluate effectiveness, make necessary changes or revisions to the current policy, improve code enforcement efforts, and increase the BMP knowledge of local business owners.

### **TMDL APPLICABILITY**

- N/A

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Implementation FY 09-10

### **PARTICIPATING WATERSHED COPERMITTEES**

- Lemon Grove

### **OTHER PARTICIPATING ENTITIES**

- N/A

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

- Dissolved Minerals
- Oil & Grease
- Metals
- Trash

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

Local Watershed Activity

### **EXPECTED BENEFITS**

Better more effective City policies and code enforcement options. Less hosing of large parking areas and increased BMP knowledge by local businesses.

### **EFFECTIVENESS MEASUREMENTS**

Level 2 BMP Implementation, Level 3 Change in Knowledge and Behavior, and Potential Level 4 Load Reduction based on improved implementation over time.

## **COLLABORATE WITH STAKEHOLDERS FOR CHOLLAS CREEK TMDLS – 22**

### **ACTIVITY DESCRIPTION**

Joint efforts by named TMDL stakeholders for compliance with various Chollas Creek TMDL implementation efforts.

### **TMDL APPLICABILITY**

- Direct Compliance

### **TIME SCHEDULE FOR IMPLEMENTATION**

Possible implementation 08-09. Dependent on funding, other participating entities, and the approval of the implementation schedules by the RWQCB.

### **PARTICIPATING WATERSHED COPERMITTEES**

- Lemon Grove
- La Mesa
- City of San Diego

### **OTHER PARTICIPATING ENTITIES**

- Cal Trans
- Navy

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

- Bacteria
- Metals
- Pesticides (Diazinon)

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

TMDL compliance and local watershed activities

### **EXPECTED BENEFITS**

Most effective and complete compliance with existing and impending Chollas Creek TMDLs. Improvements in receiving water quality due to effective implementation strategies.

### **EFFECTIVENESS MEASUREMENTS**

Programs will encompass all levels of effectiveness, but the end goal is Level 6 Changes in Receiving Water Quality.

## **LA MESA WET WEATHER AND ADDITIONAL DRY WEATHER MONITORING PROGRAM – 23**

### **ACTIVITY SUMMARY**

The City of La Mesa has been focused on eliminating pollutants from entering our receiving water bodies by identifying pollutant sources. Consequently, the City is conducting Wet Weather Water Quality Monitoring and additional Dry Weather Monitoring within the San Diego Bay Watershed. The purpose of the monitoring is to evaluate the water quality of the discharged flow. Four Wet Weather discharge locations were identified as sampling points for time-weighted composite samples in La Mesa within the San Diego Bay Watershed. Similarly, five Dry Weather Monitoring locations were selected for grab samples. All water samples are tested for the same suite of constituents measured in the City's Annual Dry Weather Field Screening and Analytical Monitoring Program, receiving water body 303(d) listings and watershed constituents of concern listings in the WURMP. The analytical data will be reviewed in order to identify exceedances, identify pollutant sources, and eliminate pollutant source contributing to exceedances.

### **TMDL APPLICABILITY**

Monitoring is conducted in support of California Regional Water Quality Control Board (RWQCB) Investigation Order No. R9-2004-0277 (Chollas Creek Dissolved Metals and Diazinon TMDLs). Wet Weather Monitoring Data and additional Dry Weather sampling results support identifying exceedances in pollutant loading for dissolved copper, lead, zinc, and diazinon. Furthermore, data enables the City to identify potential sources and conduct targeted educational outreach.

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Permit Year 1: Implementation
- Permit Year 2: Implementation

### **PARTICIPATING WATERSHED COPERMITTEES**

- City of La Mesa

### **OTHER PARTICIPATING ENTITIES**

- N/A

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

Monitoring program enables the City collect data on the high priority pollutants in the watershed. Water samples are tested for the same constituents in the City's Annual Dry Weather Field Screening and Analytical Monitoring Program, receiving water body 303(d) listings and watershed constituents of concern listings in the WURMP. The analytical data will be reviewed

in order to identify exceedances, identify pollutants sources, and eliminate pollutant source contributing to exceedances.

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

The Watershed Strategy identifies high water quality problems in the watershed. The City is monitoring for these constituents in order to identify sources of potential pollutants/exceedances. Once identified, the City can take the appropriate action. This monitoring activity supports the Watershed Strategy by identifying priority pollutant sources and removing or treating the source.

### **EXPECTED BENEFITS**

The expected benefit is that pollutant sources will be identified through water quality monitoring. Once identified, the pollutant sources can be eliminated and resulting in a load reduction. Additionally, education outreach may also be implemented to target high threat communities (i.e., industrial, commercial, construction, and residential areas).

### **EFFECTIVENESS MEASUREMENTS**

Monitoring data collected over time in conjunction with identifying and eliminating sources of pollutants will help assess the effectiveness of the program to improve water quality/pollutant load reduction within the City. Monitoring is not considered a watershed water quality activity based on the Municipal Permit Order 2007-001 definition; however, data will provide the City with pertinent information that may lead to implementation of various best management practices that may be assessed.

## **LA MESA PARK KIOSK – 24**

### **ACTIVITY DESCRIPTION**

The City of La Mesa encourages public participation as part of its storm water program. In doing so, the City is working with local eagle scouts to construct and install education outreach kiosks at one of the seven parks within the City in the San Diego Bay Watershed (Vista La Mesa Park). The kiosk is intended for storm water pollution prevention education outreach, including the San Diego Bay Watershed Fact Sheet. The fact sheet provides information on the watershed, pollutants of concern, and tips to prevent storm water pollution.

### **TMDL APPLICABILITY**

Education outreach is a component of the California Regional Water Quality Control Board (RWQCB) Investigation Order No. R9-2004-0277 (Chollas Creek Dissolved Metals and Diazinon TMDLs). The kiosk will include a San Diego Bay Watershed Fact Sheet that lists diazinon and metals as pollutants of concern as well as tips to prevent storm water pollution.

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Permit Year 1: Implementation

### **PARTICIPATING WATERSHED COPERMITTEES**

- City of La Mesa

### **OTHER PARTICIPATING ENTITIES**

- Eagle Scouts

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

The watershed fact sheet to be placed in the education outreach kiosk will provide information on the watershed's pollutants of concern including the 303(d) listed pollutants. Pollution prevention tips to address watershed priority pollutants are presented in the fact sheet.

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

The Watershed Strategy identifies high water quality problems in the watershed. The education outreach kiosk provides pollution prevention tips to address watershed priority pollutants. The kiosk supports the Watershed Strategy by educating residents in the vicinity of the park on good housekeeping measures and best management practices to implement in order to prevent priority pollutants from being discharged into the storm drain system within the watershed.

### **EXPECTED BENEFITS**

The expected benefit is that park-goers and nearby residents will be educated on storm water pollution prevention. Their awareness of priority pollutants within the watershed will empower

them to implement good housekeeping measures and applicable best management practices to prevent pollutants from entering the storm drain system within the watershed.

### **EFFECTIVENESS MEASUREMENTS**

Education outreach is an integral part of the storm water program. One of the primary means to improving water quality is for the public to become aware of water quality problems within the watershed and region. The kiosk will provide the educational outreach material specific to the watershed to address pollution prevention measures. Improvements in water quality in the vicinity of the park based on dry weather monitoring data may be an indication of education outreach/changes in public behavior.

## **CLEAN COMMUNITY PROGRAM – 25**

### **ACTIVITY SUMMARY**

The City of National City intends to implement a program to encourage individuals to dispose of waste properly. Events will include disposal events for large items and green waste; neighborhood specific events may also be held when necessary. These events will provide individuals with an avenue for properly disposing of items that might otherwise be illegally dumped. The City will alert residents to these events beforehand. An educational program involving school children in preparing artwork for a calendar with messages about keeping the City and local water bodies clean will also be part of this program. Cleanup and waste disposal events will help reduce pollutant loads in the watershed and promote watershed awareness.

### **TMDL APPLICABILITY**

- N/A

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Permit Year 1: Planning
- Permit Year 2: Implementation

### **PARTICIPATING WATERSHED COPERMITTEES**

- City of National City

### **OTHER PARTICIPATING ENTITIES**

- N/A

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

Cleanup and disposal events will aid in the physical removal of a quantifiable amount of trash from the watershed; trash is a high priority water quality problem in HA 908.3. Results from previous dry weather monitoring programs in the City indicate that trash may also be a source of bacteria and gross pollutants such as ammonia, so removal of trash may also result in reduced levels of these pollutants.

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

This activity is consistent with the Watershed Strategy in that it focuses principally on pollutant load reductions, but increased awareness and education of the public in all HAs is also an important component. Bacteria, which may also be addressed through this activity, are categorized as a high priority water quality for all HAs in the City of National City.

### **EXPECTED BENEFITS**

Cleanup and disposal events represent actions undertaken by citizens that actively reduce the amount of litter and trash that could be discharged to receiving water bodies. Such events also

encourage a behavioral change for the community by potentially changing the manner trash in which trash is disposed of by the individuals involved.

### **EFFECTIVENESS MEASUREMENTS**

Effectiveness will primarily be assessed through level 4, load reduction. Load reductions can be assessed through recorded the amount (weight or volume) of trash collected. Additional water quality monitoring, potentially in concert with cleanup events in creek or with dry weather monitoring, may be conducted to assess whether a relationship exists between trash removal and levels of bacteria and gross pollutants.

## **ADDITIONAL DRY SEASON CONSTRUCTION INSPECTIONS – 26**

### **ACTIVITY SUMMARY**

The City of National City intends to reduce the potential for the discharge of sediment by conducting additional inspections of construction sites during the dry season. According to the jurisdictional requirements presented in the Permit R9-2007-0001, construction sites (any priority) should be inspected as needed during the dry season. Increased frequency of construction inspections during the dry season will be conducted to identify any areas where BMP implementation is not being maintained properly, particularly with respect to control of trash and debris. This program aims to decrease discharges of trash and sediment to the MS4. The chosen dry weather inspection frequency will be evaluated to determine if inspections should be conducted more or less frequently.

### **TMDL APPLICABILITY**

- N/A

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Permit Year 1: Implementation
- Permit Year 2: Implementation

### **PARTICIPATING WATERSHED COPERMITTEES**

- City of National City

### **OTHER PARTICIPATING ENTITIES**

- N/A

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

This activity targets trash, which is a high priority pollutant in HA 908.3. The increased frequency of dry season construction inspections would augment the City's wet weather construction inspection program. Increased City presence during the dry season may prevent construction site personnel from becoming inattentive regarding BMP maintenance.

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

Increased construction inspection frequencies during the dry season are intended to reduce the discharge of trash, a high priority water quality problem. This activity is also likely to reduce sediment discharges from construction sites. This effort is consistent with the collective Watershed Strategy in that it seeks to reduce the loads of these pollutants and abate pollutant sources.

### **EXPECTED BENEFITS**

Increased construction inspection frequencies during the dry season will contribute to improvements in water quality by reducing the loads of pollutants such as sediment and trash entering the City's MS4 and downstream receiving waters. This effort will promote BMP implementation at construction sites during the dry season and will help prepare construction sites for the upcoming wet season.

### **EFFECTIVENESS MEASUREMENTS**

Primarily, the effectiveness of this activity will be assessed through level 3, which regards behavioral changes. Behavioral changes will be based mainly on BMP implementation rates.

## **CHOLLAS CREEK WATER QUALITY PROTECTION & HABITAT ENHANCEMENT PROJECT – 27**

### **ACTIVITY SUMMARY**

The City's Storm Water Pollution Prevention Division is managing the design and construction of a creek restoration project in Chollas Creek funded by a \$2.244 million Proposition 13 grant from the State Water Resources Control Board. The project, titled *Chollas Creek Water Quality Protection & Habitat Enhancement Project*, will remove approximately 4,600 square feet of concrete and other hardscape in and adjacent to Chollas Creek and restore approximately 1.7 acres of native upland and riparian habitat along a 750 foot-long segment of the Encanto Branch of Chollas Creek. The project includes an approximately \$500,000 education and outreach component to eliminate polluting practices of residents and businesses in the community.

### **TMDL APPLICABILITY**

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

### **TIME SCHEDULE FOR IMPLEMENTATION**

The City anticipates construction to start in September 2007 and terminate in November 2007. Water quality monitoring will be conducted afterwards to assess effectiveness in removing pollutants from Chollas Creek.

### **PARTICIPATING WATERSHED COPERMITTEE(S)**

- City of San Diego
- City of La Mesa

### **OTHER PARTICIPATING ENTITIES**

- State of California
- San Diego Coastkeeper
- Community members

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

- Bacteria
- Metals

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

The Collective Watershed Strategy for the San Diego Bay WMA identifies bacteria and metals as high priority water quality problems in the Pueblo Watershed (more specifically Hydrologic Area 908.2) and recommends implementing load reduction/source abatement activities to

address them. This creek restoration project will help treat runoff of bacteria, metals, and other pollutants.

**EXPECTED BENEFITS**

The project contributes to the implementation of the City’s Chollas Creek Enhancement Program, a watershed-based planning effort to restore the natural functions and beneficial uses of Chollas Creek and create a linear park for the community. By removing concretized portions, widening the bed to reduce scour and flow velocities, and re-vegetating with native plants, the restoration effort would improve the bio-filtration processes (i.e., filtering and removing pollutants from flows by plant uptake and natural filtration through soils) in the creek. The project will also create a linear park for the community so that the creek becomes a natural asset for the community to protect and not pollute.

In addition, knowledge and experience gained through this project will help the City document the benefits, limitations, and challenges of creek restoration as an urban runoff pollution control to meet Municipal Permit and TMDL requirements.

**EFFECTIVENESS MEASUREMENTS**

<p><b>Management Questions:</b></p>	<ul style="list-style-type: none"> <li>• Does education help reduce pollutant loads from urban runoff?</li> <li>• What is the efficiency of pollutant load reductions with targeted educational programs in the Chollas Creek watershed?</li> <li>• Does habitat enhancement help reduce pollutant loads to San Diego Bay?</li> </ul>
<p><b>Targeted Measurable Outcome(s)</b></p>	<ul style="list-style-type: none"> <li>• Achieve load reduction from optimized habitat enhancement</li> <li>• Reach a set percentage of target resident population</li> </ul>
<p><b>Assessment Method(s)</b></p>	<ul style="list-style-type: none"> <li>• Tabulation (e.g., dollars spent on education, dollars spent to implement habitat enhancement)</li> <li>• Monitoring (e.g., concentration of COCs, flow in creek, used to compare upstream/downstream loads)</li> <li>• Quantification (e.g, calculation of load upstream/downstream of enhancement)</li> <li>• Survey (e.g., knowledge of residents pre/post education outreach)</li> </ul>
<p><b>Assessment Measures, Assessment Outcome Levels &amp; Data:</b></p>	<ul style="list-style-type: none"> <li>• Flow data from within Chollas Creek, upstream and downstream of enhancement (Outcome Level 4)</li> <li>• Chemistry data from Chollas Creek, upstream and downstream of enhancement and study area (Outcome Level 4)</li> <li>• Number of educational materials handed out (Outcome Level 1)</li> <li>• Survey of residents (Outcome Level 2)</li> <li>• Cost to implement education program (Outcome Level 1)</li> <li>• Cost to implement habitat enhancement (Outcome Level 1)</li> <li>• Number of volunteers associated with monitoring and education outreach (Outcome Level 1)</li> <li>• Number of citizens approached (Outcome Level 1)</li> <li>• Ecological health improvements due to habitat enhancement (macro invertebrate analysis)</li> </ul>

## **TARGETED AUTO-RELATED FACILITY INSPECTIONS – 28**

### **ACTIVITY SUMMARY**

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

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

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

### **TMDL APPLICABILITY**

- Chollas Creek Dissolved Metals TMDL

### **TIME SCHEDULE FOR IMPLEMENTATION**

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

### **PARTICIPATING WATERSHED COPERMITTEE(S)**

- City of San Diego

### **OTHER PARTICIPATING ENTITIES**

- N/A

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

- Metals

**CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**

The Collective Watershed Strategy for the San Diego Bay WMA identifies metals as a high priority water quality problem in the Pueblo Watershed (more specifically Hydrologic Area 908.2) and recommends implementing load reduction/source abatement activities to address it. Implementation of this focused inspection activity will contribute to addressing discharges, correct behaviors, and abate sources associated with metals.

**EXPECTED BENEFITS**

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

**EFFECTIVENESS MEASUREMENTS**

<p><b>Management Questions:</b></p>	<ul style="list-style-type: none"> <li>• Do inspections increase rate of BMP implementation?</li> <li>• Does increased rate of BMP implementation affect load reduction?</li> <li>• What is the optimal frequency of inspection (point of diminishing returns)?</li> <li>• Are spot inspections more effective than scheduled inspections?</li> <li>• Does enforcement alter future behavior (implementing BMPs)?</li> <li>• Does education increase rate of BMP implementation?</li> <li>• How can an estimate of load reduction be made from inspection data?</li> </ul>
<p><b>Targeted Measurable Outcome(s)</b></p>	<ul style="list-style-type: none"> <li>• Achieve load reduction from optimized inspection rate</li> <li>• Achieve greater BMP implementation from optimized inspection rate</li> </ul>
<p><b>Assessment Method(s)</b></p>	<ul style="list-style-type: none"> <li>• Inspections (e.g., track number of BMPs implemented, increased number of BMPs, number of follow-up inspections)</li> <li>• Quantification (e.g., use frequency of BMP implementation to calculate estimated load reduction)</li> <li>• Monitoring (e.g., collect special study information to collect concentrations and flows to estimate load reduction)</li> <li>• Tabulation (e.g., amount of money spent on inspections, amount of money spent on educational materials)</li> <li>• Reporting (e.g., estimates of load reduction for BMPs from 3<sup>rd</sup> party data)</li> </ul>
<p><b>Assessment Measures, Assessment Outcome Levels &amp; Data:</b></p>	<ul style="list-style-type: none"> <li>• Number of inspections (spot and scheduled) (Outcome Level 1)</li> <li>• Number of BMPs implemented (Outcome Level 1)</li> <li>• Change (%) in BMP implementation pre and post-education (Outcome Level 3)</li> <li>• Number of missing BMPs (Outcome Level 1)</li> <li>• Number of follow-up inspections (Outcome Level 1)</li> <li>• Number of enforcement follow-ups (Outcome Level 1)</li> <li>• Number of educational information items passed out (Outcome Level 1)</li> <li>• How much money spent on inspections (follow ups, initial inspections, enforcement actions)? (Outcome Level 1)</li> <li>• Literature review or other information to provide data to estimate load reductions (Outcome Level 3)</li> <li>• Dataset of load contributions for specific activities (Outcome Level 4)</li> </ul>

## **TARGETED METALS-RELATED INDUSTRIAL FACILITY INSPECTIONS – 29**

### **ACTIVITY SUMMARY**

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

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

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

### **TMDL APPLICABILITY**

- Chollas Creek Dissolved Metals TMDL

### **TIME SCHEDULE FOR IMPLEMENTATION**

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

### **PARTICIPATING WATERSHED COPERMITTEE(S)**

- City of San Diego

**OTHER PARTICIPATING ENTITIES**

- N/A

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

- Metals

**CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**

The Collective Watershed Strategy for the San Diego Bay WMA identifies metals as a high priority water quality problem in the Pueblo Watershed (more specifically Hydrologic Area 908.2) and recommends implementing load reduction/source abatement activities to address it. Implementation of this focused inspection activity will contribute to addressing discharges, correct behaviors, and abate sources associated with metals.

**EXPECTED BENEFITS**

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

**EFFECTIVENESS MEASUREMENTS**

<p><b>Management Questions:</b></p>	<ul style="list-style-type: none"> <li>• Do inspections increase rate of BMP implementation?</li> <li>• Does increased rate of BMP implementation affect load reduction?</li> <li>• What is the optimal frequency of inspection (point of diminishing returns)?</li> <li>• Are spot inspections more effective than scheduled inspections?</li> <li>• Does enforcement alter future behavior (implementing BMPs)?</li> <li>• Does education increase rate of BMP implementation?</li> <li>• How can an estimate of load reduction be made from inspection data?</li> </ul>
<p><b>Targeted Measurable Outcome(s)</b></p>	<ul style="list-style-type: none"> <li>• Achieve load reduction from optimized inspection rate</li> <li>• Achieve greater BMP implementation from optimized inspection rate</li> </ul>
<p><b>Assessment Method(s)</b></p>	<ul style="list-style-type: none"> <li>• Inspections (e.g., track number of BMPs implemented, increased number of BMPs, number of follow-up inspections)</li> <li>• Quantification (e.g., use frequency of BMP implementation to calculate estimated load reduction)</li> <li>• Monitoring (e.g., collect special study information to collect concentrations and flows to estimate load reduction)</li> <li>• Tabulation (e.g., amount of money spent on inspections, amount of money spent on educational materials)</li> <li>• Reporting (e.g., estimates of load reduction for BMPs from 3<sup>rd</sup> party data)</li> </ul>
<p><b>Assessment Measures, Assessment Outcome Levels &amp; Data:</b></p>	<ul style="list-style-type: none"> <li>• Number of inspections (spot and scheduled) (Outcome Level 1)</li> <li>• Number of BMPs implemented (Outcome Level 1)</li> <li>• Change (%) in BMP implementation pre and post-education (Outcome Level 3)</li> <li>• Number of missing BMPs (Outcome Level 1)</li> <li>• Number of follow-up inspections (Outcome Level 1)</li> <li>• Number of enforcement follow-ups (Outcome Level 1)</li> <li>• Number of educational information items passed out (Outcome Level 1)</li> <li>• How much money spent on inspections (follow ups, initial inspections, enforcement actions)? (Outcome Level 1)</li> <li>• Literature review or other information to provide data to estimate load reductions (Outcome Level 3)</li> <li>• Dataset of load contributions for specific activities (Outcome Level 4)</li> </ul>

## **TARGETED RESTAURANT FACILITY INSPECTIONS – 30**

### **ACTIVITY SUMMARY**

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

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

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

### **TMDL APPLICABILITY**

- San Diego Region Beaches and Creeks Bacteria TMDL

### **TIME SCHEDULE FOR IMPLEMENTATION**

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

### **PARTICIPATING WATERSHED COPERMITTEE(S)**

- City of San Diego

### **OTHER PARTICIPATING ENTITIES**

- N/A

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

- Bacteria

**CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**

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

**EXPECTED BENEFITS**

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

**EFFECTIVENESS MEASUREMENTS**

<p><b>Management Questions:</b></p>	<ul style="list-style-type: none"> <li>• Do inspections increase rate of BMP implementation?</li> <li>• Does increased rate of BMP implementation affect load reduction?</li> <li>• What is the optimal frequency of inspection (point of diminishing returns)?</li> <li>• Are spot inspections more effective than scheduled inspections?</li> <li>• Does enforcement alter future behavior (implementing BMPs)?</li> <li>• Does education increase rate of BMP implementation?</li> <li>• How can an estimate of load reduction be made from inspection data?</li> </ul>
<p><b>Targeted Measurable Outcome(s)</b></p>	<ul style="list-style-type: none"> <li>• Achieve load reduction from optimized inspection rate</li> <li>• Achieve greater BMP implementation from optimized inspection rate</li> </ul>
<p><b>Assessment Method(s)</b></p>	<ul style="list-style-type: none"> <li>• Inspections (e.g., track number of BMPs implemented, increased number of BMPs, number of follow-up inspections)</li> <li>• Quantification (e.g., use frequency of BMP implementation to calculate estimated load reduction)</li> <li>• Monitoring (e.g., collect special study information to collect concentrations and flows to estimate load reduction)</li> <li>• Tabulation (e.g., amount of money spent on inspections, amount of money spent on educational materials)</li> <li>• Reporting (e.g., estimates of load reduction for BMPs from 3<sup>rd</sup> party data)</li> </ul>
<p><b>Assessment Measures, Assessment Outcome Levels &amp; Data:</b></p>	<ul style="list-style-type: none"> <li>• Number of inspections (spot and scheduled) (Outcome Level 1)</li> <li>• Number of BMPs implemented (Outcome Level 1)</li> <li>• Change (%) in BMP implementation pre and post-education (Outcome Level 3)</li> <li>• Number of missing BMPs (Outcome Level 1)</li> <li>• Number of follow-up inspections (Outcome Level 1)</li> <li>• Number of enforcement follow-ups (Outcome Level 1)</li> <li>• Number of educational information items passed out (Outcome Level 1)</li> <li>• How much money spent on inspections (follow ups, initial inspections, enforcement actions)? (Outcome Level 1)</li> <li>• Literature review or other information to provide data to estimate load reductions (Outcome Level 3)</li> <li>• Dataset of load contributions for specific activities (Outcome Level 4)</li> </ul>

## **DALBERGIA STREET “GREEN MALL” INFILTRATION BMP RETROFIT – 31**

### **ACTIVITY SUMMARY**

This project will remove conventional asphalt paving along Dalbergia Street and Thor Street (industrial/commercial area) and replace it with pervious concrete paving. In addition, the existing curb and gutter along portions of Dalbergia Street will be moved 12 feet into the right of way, and, in between the existing and new curb lines, bio-retention planter boxes will be placed and filled with crushed rock. Both the pervious concrete and bio-retention planter boxes will allow urban runoff and the associated pollutants to infiltrate into the ground, thereby reducing pollutant loading into receiving waters. The City has named this model approach for Low Impact Development (LID) in commercial and industrial areas as “Green Mall” and, if proven to be effective, anticipates eventually implementing similar LID projects on a broader scale throughout the San Diego Bay WMA to comply with both Municipal Permit and TMDL requirements.

### **TMDL APPLICABILITY**

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

### **TIME SCHEDULE FOR IMPLEMENTATION**

Project planning began in September 2006. Design and award of contract are anticipated to occur April 2008 through May 2010. Construction is anticipated to occur June through October 2010. Water quality monitoring will be conducted before and after construction to assess the effectiveness in reducing runoff volume and pollutant loading.

### **PARTICIPATING WATERSHED COPERMITTEE(S)**

- City of San Diego

### **OTHER PARTICIPATING ENTITIES**

- San Diego Coastkeeper – project supporter
- Groundwork San Diego-Chollas Creek – project supporter

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

- Metals
- Bacteria

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

The Collective Watershed Strategy for the San Diego Bay WMA identifies metals and bacteria as high priority water quality problems in the Pueblo Watershed (more specifically Hydrologic Area 908.2) 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.

**EXPECTED BENEFITS**

Implementation of this activity will reduce pollutant loading by reducing and treating runoff volume of pollutants via infiltration.

In addition, implementation of this activity is in accordance with the City’s *Strategic Plan for Watershed Activity Implementation* (November 2007), which calls for the piloting of infiltration BMPs to reduce urban runoff pollution. Knowledge and experience gained through this activity will help the City document the benefits, limitations, and challenges of infiltration as an urban runoff pollution control before implementation on a broader scale throughout its jurisdiction in meeting Municipal Permit and TMDL requirements.

**EFFECTIVENESS MEASUREMENTS**

<p><b>Management Questions:</b></p>	<ul style="list-style-type: none"> <li>• What is the load reduction efficiency of LID BMP retrofits?</li> <li>• How effective are LID BMP retrofits at reducing loads of priority pollutants?</li> <li>• Does the implementation of LID BMP retrofits result in a detectible receiving water quality improvement?</li> </ul>
<p><b>Targeted Measurable Outcome(s)</b></p>	<ul style="list-style-type: none"> <li>• Reduction in priority pollutant loads</li> <li>• Receiving water quality improvement</li> </ul>
<p><b>Assessment Method(s)</b></p>	<ul style="list-style-type: none"> <li>• Inspections (e.g., ensure the retrofit is working as designed)</li> <li>• Quantification (e.g., use drainage area and rainfall information to calculate estimated load reduction)</li> <li>• Monitoring (e.g., collect special study information to collect concentrations and flows to estimate load reduction)</li> <li>• Tabulation (e.g., amount of money spent on implementation and maintenance, amount of money spent on educational materials)</li> <li>• Reporting (e.g., estimates of load reduction from 3<sup>rd</sup> party data)</li> </ul>
<p><b>Assessment Measures, Assessment Outcome Levels &amp; Data:</b></p>	<ul style="list-style-type: none"> <li>• Number of inspections (Outcome Level 1)</li> <li>• Change (%) in load reduction pre and post-implementation (Outcome Level 4)</li> <li>• Number of educational information items passed out (Outcome Level 1)</li> <li>• How much money spent on inspections and maintenance (Outcome Level 1)</li> <li>• Literature review or other information to provide data to estimate load reductions (Outcome Level 3)</li> <li>• Dataset of load contributions for specific activities (Outcome Level 4)</li> </ul>

## **MEMORIAL PARK “GREEN LOT” INFILTRATION BMP RETROFIT – 32**

### **ACTIVITY SUMMARY**

This activity will involve the installation of a large underground chamber to collect and then slowly infiltrate urban runoff into the underlying subsoils. This underground system will be located within Memorial Park, thereby transforming the recreational facility into a dual-use site for both urban runoff pollution reduction and recreation. The project will be designed to address an integrated approach of meeting current and pending pollutant reduction goals for the dissolved metals, bacteria, and pesticides TMDLs. The pollutant load reduction from this facility will, therefore, meet requirements under current and anticipated TMDLs in the receiving waters of Chollas Creek, which flows into the San Diego Bay. This project will also provide a direct and measurable load reduction to the San Diego Bay Watershed. The City has named this model approach for Low Impact Development (LID) as “Green Lots” and, if proven to be effective, anticipates eventually implementing similar LID projects on a broader scale throughout the San Diego Bay WMA to comply with both Municipal Permit and TMDL requirements.

### **TMDL APPLICABILITY**

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

### **TIME SCHEDULE FOR IMPLEMENTATION**

Project planning began in September 2006. Design and award of contract are anticipated to occur April 2008 through May 2010. Construction is anticipated to occur June through October 2010. Water quality monitoring will be conducted before and after construction to assess the effectiveness in reducing runoff volume and pollutant loading.

### **PARTICIPATING WATERSHED COPERMITTEE(S)**

- City of San Diego

### **OTHER PARTICIPATING ENTITIES**

- San Diego Coastkeeper – project supporter

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

- Metals
- Bacteria

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

The Collective Watershed Strategy for the San Diego Bay WMA identifies metals and bacteria as high priority water quality problems in the Pueblo Watershed (more specifically Hydrologic Area 908.2) 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/retention.

**EXPECTED BENEFITS**

Implementation of this activity will reduce pollutant loading by reducing and treating runoff volume of pollutants via infiltration/retention.

In addition, implementation of this activity is in accordance with the City’s *Strategic Plan for Watershed Activity Implementation* (November 2007), which calls for the piloting of infiltration/retention BMPs to reduce urban runoff pollution. Knowledge and experience gained through this activity will help the City document the benefits, limitations, and challenges of infiltration/retention as an urban runoff pollution control before implementation on a broader scale throughout its jurisdiction in meeting Municipal Permit and TMDL requirements.

**EFFECTIVENESS MEASUREMENTS**

<b>Management Questions:</b>	<ul style="list-style-type: none"> <li>• What is the load reduction efficiency of LID BMP retrofits?</li> <li>• How effective are LID BMP retrofits at reducing loads of priority pollutants?</li> <li>• Does the implementation of LID BMP retrofits result in a detectible receiving water quality improvement?</li> </ul>
<b>Targeted Measurable Outcome(s)</b>	<ul style="list-style-type: none"> <li>• Reduction in priority pollutant loads</li> <li>• Receiving water quality improvement</li> </ul>
<b>Assessment Method(s)</b>	<ul style="list-style-type: none"> <li>• Inspections (e.g., ensure the retrofit is working as designed)</li> <li>• Quantification (e.g., use drainage area and rainfall information to calculate estimated load reduction)</li> <li>• Monitoring (e.g., collect special study information to collect concentrations and flows to estimate load reduction)</li> <li>• Tabulation (e.g., amount of money spent on implementation and maintenance, amount of money spent on educational materials)</li> <li>• Reporting (e.g., estimates of load reduction from 3<sup>rd</sup> party data)</li> </ul>
<b>Assessment Measures, Assessment Outcome Levels &amp; Data:</b>	<ul style="list-style-type: none"> <li>• Number of inspections (Outcome Level 1)</li> <li>• Change (%) in load reduction pre and post-implementation (Outcome Level 4)</li> <li>• Number of educational information items passed out (Outcome Level 1)</li> <li>• How much money spent on inspections and maintenance (Outcome Level 1)</li> <li>• Literature review or other information to provide data to estimate load reductions (Outcome Level 3)</li> <li>• Dataset of load contributions for specific activities (Outcome Level 4)</li> </ul>

## **TARGETED MUNICIPAL FACILITY INSPECTIONS – 33**

### **ACTIVITY SUMMARY**

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

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

The Storm Water Division will delineate a specific area within the San Diego Bay WMA to conduct the targeted inspections based on factors, such as monitoring data, facility clustering, and proximity to other watershed activities being conducted. Discharges cleaned up, behaviors corrected, and sources abated will also be reported. The Storm Water Division anticipates using the knowledge and experience gained through this activity to optimize the City's municipal facility inspection program to meet Municipal Permit and TMDL requirements.

### **TMDL APPLICABILITY**

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

### **TIME SCHEDULE FOR IMPLEMENTATION**

Activity planning began in July 2007. The Storm Water Division anticipates selecting and hiring a consultant on board by the end of calendar year 2007 to help develop and implement the activity within FY 2008 through FY 2010.

### **PARTICIPATING WATERSHED COPERMITTEE(S)**

- City of San Diego

### **OTHER PARTICIPATING ENTITIES**

- N/A

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

- Bacteria
- Metals

**CONSISTENCY WITH THE WATERSHED STRATEGY**

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

**EXPECTED BENEFITS**

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

**EFFECTIVENESS MEASUREMENTS**

<p><b>Management Questions:</b></p>	<ul style="list-style-type: none"> <li>• Do inspections increase rate of BMP implementation?</li> <li>• Does increased rate of BMP implementation affect load reduction?</li> <li>• What is the optimal frequency of inspection (point of diminishing returns)?</li> <li>• Are spot inspections more effective than scheduled inspections?</li> <li>• Does enforcement alter future behavior (implementing BMPs)?</li> <li>• Does education increase rate of BMP implementation?</li> <li>• How can an estimate of load reduction be made from inspection data?</li> </ul>
<p><b>Targeted Measurable Outcome(s)</b></p>	<ul style="list-style-type: none"> <li>• Achieve load reduction from optimized inspection rate</li> <li>• Achieve greater BMP implementation from optimized inspection rate</li> </ul>
<p><b>Assessment Method(s)</b></p>	<ul style="list-style-type: none"> <li>• Inspections (e.g., track number of BMPs implemented, increased number of BMPs, number of follow-up inspections)</li> <li>• Quantification (e.g., use frequency of BMP implementation to calculate estimated load reduction)</li> <li>• Monitoring (e.g., collect special study information to collect concentrations and flows to estimate load reduction)</li> <li>• Tabulation (e.g., amount of money spent on inspections, amount of money spent on educational materials)</li> <li>• Reporting (e.g., estimates of load reduction for BMPs from 3<sup>rd</sup> party data)</li> </ul>
<p><b>Assessment Measures, Assessment Outcome Levels &amp; Data:</b></p>	<ul style="list-style-type: none"> <li>• Number of inspections (spot and scheduled) (Outcome Level 1)</li> <li>• Number of BMPs implemented (Outcome Level 1)</li> <li>• Change (%) in BMP implementation pre and post-education (Outcome Level 3)</li> <li>• Number of missing BMPs (Outcome Level 1)</li> <li>• Number of follow-up inspections (Outcome Level 1)</li> <li>• Number of enforcement follow-ups (Outcome Level 1)</li> <li>• Number of educational information items passed out (Outcome Level 1)</li> <li>• How much money spent on inspections (follow ups, initial inspections, enforcement actions)? (Outcome Level 1)</li> <li>• Literature review or other information to provide data to estimate load reductions (Outcome Level 3)</li> <li>• Dataset of load contributions for specific activities (Outcome Level 4)</li> </ul>

## **PUBLIC SERVICE ANNOUNCEMENT: KARMA AND KARMA SECOND CHANCE – 34**

### **ACTIVITY SUMMARY**

The City's Storm Water Division has retained a contract with a film production company to create two Public Service Announcements (PSAs) specifically focused on bacteria, with gross pollutants (trash) profiled as a vector. The PSAs are entitled, *Karma* and *Karma Second Chance*, and the goal of the PSAs is to educate the public about causes of pollution and to encourage positive behavioral change. These PSAs were developed in FY 2007 and FY 2008, and will be broadcast on several TV and radio stations throughout the San Diego Bay WMA in FY 2008. The PSAs will be broadcast in both English and Spanish.

### **TMDL APPLICABILITY**

- San Diego Region Beaches and Creeks Bacteria TMDL

### **TIME SCHEDULE FOR IMPLEMENTATION**

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

### **PARTICIPATING WATERSHED COPERMITTEE(S)**

- City of San Diego

### **OTHER PARTICIPATING ENTITIES**

- Various TV and Radios Stations in San Diego

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

- Bacteria
- Gross Pollutants (Trash)

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

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

### **EXPECTED BENEFITS**

The PSAs address bacteria directly by focusing on pet waste, food waste and organic matter, and indirectly by removing a bacterial source: trash. Literature published by the United States

Environmental Protection Agency on its website<sup>3</sup> states that *pathogens* are microscopic organisms like bacteria and viruses. They come from untreated or poorly treated sewage, pet and farm animal waste, and improperly handled medical waste. Pathogens in the water in unsafe amounts result in beach closures; shellfish bed closures, fish kills, and human health problems.

**EFFECTIVENESS MEASUREMENTS**

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

<b>Management Questions:</b>	<ul style="list-style-type: none"> <li>• What changes in awareness/attitude regarding trash and bacteria was achieved after implementation?</li> <li>• How efficient is this education activity based on total cost versus number of people (targeted audience) reached?</li> </ul>
<b>Targeted Measurable Outcome(s)</b>	<ul style="list-style-type: none"> <li>• Reach goal of number of listeners (radio) and homes (television) reached, based on survey results</li> <li>• Increased level of knowledge/attitude based on post-activity surveys</li> </ul>
<b>Assessment Method(s)</b>	<ul style="list-style-type: none"> <li>• Survey (e.g., administer survey to assess knowledge and attitude of participants)</li> <li>• Quantification (e.g., number of residents reached by PSA)</li> </ul>
<b>Assessment Measures, Assessment Outcome Levels &amp; Data:</b>	<ul style="list-style-type: none"> <li>• Number of listeners (radio) or homes (television) reached (Outcome Level 1)</li> <li>• Change in knowledge or awareness (Outcome Level 2)</li> </ul>

---

<sup>3</sup> <http://www.epa.gov/owow/oceans/debris/>

## **COMMUNITY-BASED SOCIAL MARKETING OUTREACH PILOT PROJECT CHOLLAS CREEK COMMUNITY – 35**

### **ACTIVITY SUMMARY**

The City's Storm Water Pollution Prevention Division found that research indicated that an emerging public education field called "Community Based Social Marketing" (CBSM) has been used successfully to increase knowledge and change behaviors in environmental sustainability programs throughout the United States. CBSM is a relatively new area of environmental social science that relies heavily on the scientific method, which includes comprehensive research, pilot programs, data gathering, and assessment measures. The City plans to implement a pilot project using this approach in the Chollas Creek community of San Diego to attempt to achieve awareness and behavioral change. The City will retain professional research consultants to develop and initiate the Pilot Project. The project will include research, observations, surveys, interventions, and assessment methods. These efforts will result in recommendations for outreach strategies, which may include structural interventions, public participation, incentives, and specific messaging.

### **TMDL APPLICABILITY**

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

### **TIME SCHEDULE FOR IMPLEMENTATION**

Research and initial planning will occur in FY08, with outreach implementation occurring in FY09. Implementation, assessment and evaluation will also continue to occur in FY09.

### **PARTICIPATING WATERSHED COPERMITTEE(S)**

- City of San Diego

### **OTHER PARTICIPATING ENTITIES**

- San Diego Coastkeeper
- Sierra Club, San Diego Chapter

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

- Bacteria
- Metals

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

The Collective Watershed Strategy for the San Diego Bay WMA identifies metals and bacteria as high priority water quality problems in the Pueblo Watershed (more specifically Hydrologic Area 908.2). Implementation of this activity will address both high priority water quality problems

by identifying the behaviors in the WMA contributing to metals and bacteria loading and testing outreach strategies to determine their effectiveness in reducing loading before broad-scale implementation.

### **EXPECTED BENEFITS**

This CBSM pilot project will address bacteria and metals by researching the behaviors in the San Diego Bay WMA that contribute to their loading. By knowing more precisely the behaviors to target, efforts can be more focused and effective. Piloting outreach efforts will also enable the Copermitees to know which efforts will be most effective in reducing loads before broad-scale implementation.

**EFFECTIVENESS MEASUREMENTS**

The CBSM pilot project effectiveness in the Chollas Creek area will be measured on a variety of levels. First, the number of stakeholders, residents, and business being reached by the pilot will be tabulated. Second, awareness, attitude and behavioral data will be collected via surveys and observations. Third, once the outreach strategy has been implemented, another survey will be conducted to assess changes in knowledge and/or behavior. Recipients responding to and participating in the survey will also be assessed, such as volunteers, or those who agreed to commit to the project. Finally, tests such as water monitoring will be conducted to assess if any load reductions are achieved.

<p><b>Management Questions:</b></p>	<ul style="list-style-type: none"> <li>• To what extent is there an observable difference in the level of either pollutants or polluting behaviors between the pre and post intervention observations?</li> <li>• How much change in awareness was achieved?</li> <li>• What changes in levels of behavior was achieved after implementation?</li> <li>• How does the pilot target area compare to non-pilot areas (based on surveys, observations and self-report result comparisons)</li> <li>• How do the survey results change pre and post activity implementation?</li> </ul>
<p><b>Targeted Measurable Outcome(s)</b></p>	<ul style="list-style-type: none"> <li>• Achieve increased awareness of bacteria and TMDL issues (e.g., reach 50% of the businesses in the target watershed)</li> <li>• Achieve higher incidence of knowledge and attitude in pilot group when compared to general public</li> <li>• Achieve increasing rates of knowledge and attitude or change in behavior with increased outreach (based on repeated survey results)</li> </ul>
<p><b>Assessment Method(s)</b></p>	<ul style="list-style-type: none"> <li>• Survey (e.g., administer survey to assess knowledge and attitude of participants )</li> <li>• Quantification (e.g., count observable pollution and behavior of participants in program)</li> <li>• Monitoring (e.g., water quality monitoring at base of targeted watershed )</li> <li>• Tabulation (e.g., amount of money spent one education and outreach, number of residents and households reached)</li> <li>• Reporting (e.g., estimates of load reduction based on 3<sup>rd</sup> party data, number of individuals or households reached)</li> </ul>
<p><b>Assessment Measures, Assessment Outcome Levels &amp; Data:</b></p>	<ul style="list-style-type: none"> <li>• Number of number of stakeholders, residents, and business reached (Outcome Level 1)</li> <li>• Change in knowledge and attitude based on survey data (Outcome Level 2)</li> <li>• Change in behavior based on survey data (Outcome Level 3)</li> <li>• Dataset of load contributions for specific activities (Outcome Level 3)</li> <li>• Volume of trash or other pollutants removed from study area (Outcome Level 4)</li> </ul>

## **OUTDOOR BILLBOARDS AND TRANSIT SHELTERS – 36**

### **ACTIVITY SUMMARY**

The City's Storm Water Pollution Prevention Division has retained a contract with an outdoor advertising company advertise *Think Blue* messages on billboards and bus shelters located in the San Diego Bay WMA. The City intends to create advertisements that target behaviors associated with bacteria and gross pollutants (trash) profiled as a vector. The goal of the billboards is to educate the public about causes of pollution and to encourage positive behavioral change. These advertisements will be developed in FY 2008, and will be displayed throughout the San Diego Bay watershed in both English and Spanish.

### **TMDL APPLICABILITY**

- San Diego Region Beaches and Creeks Bacteria TMDL

### **TIME SCHEDULE FOR IMPLEMENTATION**

The City will coordinate with its Printing Services Division in the design of the advertisements and will work with an outdoor advertising company to have the advertisements created and placed on billboards and transit areas throughout the San Diego Bay WMA in FY 2008 and beyond.

### **PARTICIPATING WATERSHED COPERMITTEE(S)**

- City of San Diego

### **OTHER PARTICIPATING ENTITIES**

- None

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

- Bacteria
- Gross Pollutants (Trash)

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

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

### **EXPECTED BENEFITS**

The advertisements will address bacteria indirectly by removing a bacterial source: trash. Literature published by the United States Environmental Protection Agency on its website<sup>4</sup>

---

<sup>4</sup> <http://www.epa.gov/owow/oceans/debris/>

states that debris may be contaminated by pathogens that have adverse effects on humans. By reducing the amount of trash, bacteria loading is reduced.

**EFFECTIVENESS MEASUREMENTS**

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

<b>Management Questions:</b>	<ul style="list-style-type: none"> <li>• What changes in awareness /attitude regarding trash and bacteria was achieved after implementation?</li> <li>• How efficient is this education activity based on total cost versus number of people (targeted audience) reached?</li> </ul>
<b>Targeted Measurable Outcome(s)</b>	<ul style="list-style-type: none"> <li>• Reach pre-set percentage of residents within target watershed</li> <li>• Increased level of knowledge/attitude based on post-activity surveys</li> </ul>
<b>Assessment Method(s)</b>	<ul style="list-style-type: none"> <li>• Survey (e.g., administer survey to assess knowledge and attitude of participants)</li> <li>• Quantification (e.g., number of residents reached by PSA)</li> </ul>
<b>Assessment Measures, Assessment Outcome Levels &amp; Data:</b>	<ul style="list-style-type: none"> <li>• Number of public reached (Outcome Level 1)</li> <li>• Change in knowledge or attitude (Outcome Level 2)</li> </ul>

## **MOBILE ADVERTISING – 37**

### **ACTIVITY SUMMARY**

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

### **TMDL APPLICABILITY**

- None

### **TIME SCHEDULE FOR IMPLEMENTATION**

The City will coordinate with its Print Services department in the design of the advertisements and have the advertisements created and placed on the company's static billboard trucks. The Mobile truck will drive pre-determined routes in the San Diego Bay WMA in an effort to reach targeted, high priority areas within the watershed to increase awareness and promote behavior change.

### **PARTICIPATING WATERSHED COPERMITTEE(S)**

- City of San Diego

### **OTHER PARTICIPATING ENTITIES**

- None

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

- Bacteria
- Gross Pollutants (Trash)

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

The Collective Watershed Strategy identifies bacteria and metals as high priority water quality problems in the San Diego Bay WMA and recommends implementing load reduction/source abatement activities to address it. Utilizing the Mobile static billboard truck will result in increased knowledge and awareness directly, and will promote behavior change.

### **EXPECTED BENEFITS**

The mobile advertisements will address bacteria and/or metals to increase knowledge awareness and promote behavior change.

**EFFECTIVENESS MEASUREMENTS**

Mobile advertisement effectiveness will be measured via a citywide telephone surveys and focus groups comprised of residents in the San Diego Bay WMA.

<p><b>Management Questions:</b></p>	<ul style="list-style-type: none"> <li>• What changes in awareness /attitude regarding trash and bacteria was achieved after implementation?</li> <li>• How efficient is this education activity based on total cost versus number of people (targeted audience) reached?</li> </ul>
<p><b>Targeted Measurable Outcome(s)</b></p>	<ul style="list-style-type: none"> <li>• Reach pre-set percentage of residents within target watershed</li> <li>• Increased level of knowledge/attitude based on post-activity surveys</li> </ul>
<p><b>Assessment Method(s)</b></p>	<ul style="list-style-type: none"> <li>• Survey (e.g., administer survey to assess knowledge and attitude of participants)</li> <li>• Quantification (e.g., number of residents reached by PSA)</li> </ul>
<p><b>Assessment Measures, Assessment Outcome Levels &amp; Data:</b></p>	<ul style="list-style-type: none"> <li>• Number of public reached (Outcome Level 1)</li> <li>• Change in knowledge or attitude (Outcome Level 2)</li> </ul>

## **REGIONAL HARBOR MONITORING PROGRAM – 38**

### **ACTIVITY SUMMARY**

In July 2003, the RWQCB, under §13225 of the California Water Code, requested the development of a coordinated and comprehensive harbor water quality monitoring program for harbors in the San Diego region. San Diego Bay is one of the four harbors included in the Regional Harbor Monitoring Program (RHMP). The objectives of the RHMP are:

1. Determine the contributions and spatial distributions of inputs of pollutants to harbors in the San Diego Region and how these inputs vary over time.
2. Determine whether the waters in harbors safe for body contact activities.
3. Determine whether fish in harbors safe to eat.
4. Determine whether the waters and sediments in the harbors sustain healthy biota.
5. Determine the long-term trends in water quality for each harbor.

The program will include monitoring for metals, bacteria, organic compounds, and toxicity that will improve assessments of the watershed high priority water quality problems and provide a program from which to assess overall water quality improvements.

### **TMDL APPLICABILITY**

The 2006 CWA Section 303 (d) Lists of impaired water bodies identified multiple locations throughout San Diego Bay with water quality impairments for bacteria, metals, and sediment toxicity. Total Maximum Daily Loads (TMDLS) are being developed by the RWQCB to protect beneficial uses in these impaired water body segments.

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Permit Year 1: Monitoring
- Permit Year 2: Monitoring

### **PARTICIPATING JURISDICTIONS**

- Port of San Diego
- City of San Diego

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

- Metals (Copper and Zinc)
- Bacteria
- Sediment (TSS)

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

The RHMP is considered a beneficial water quality activity in the San Diego Bay WMA because it will enable water quality improvements or degradations to be more readily identifiable. The monitoring will also provide trend information by being repeated at a specified frequency to obtain statistical trend data for the indicators. Furthermore, the RHMP is designed to integrate with existing monitoring that is regularly conducted in the region, including stormwater monitoring, other permit compliance monitoring, regional Bight monitoring, and special focused studies and is designed to integrate with the State's Surface Water Ambient Monitoring Program (SWAMP). The program directly addresses the watershed high priority pollutant, Copper, and is intended to evaluate the loads and the toxic effects of the Copper inputs. Continued monitoring within the marinas stratum (included in the RHMP) will enable Copermittees to assess load reductions (Level 4) after anticipated BMP implementation.

## **EXPECTED BENEFITS**

The development of this monitoring program will greatly assist the Copermittees in establishing a baseline for receiving water conditions in the San Diego Bay WMA and determine where potential upstream impacts may be present.

## **EFFECTIVENESS MEASUREMENTS**

While this program does not specifically reduce loads of high priority pollutants, it is an important step toward establishing future actions to promote load reductions (Level 4). The RHMP is an essential element in identifying trends and assessing ambient conditions in San Diego Bay.

## **INSPECT ALL FOOD ESTABLISHMENTS – 39**

### **ACTIVITY SUMMARY**

The City of Coronado will inspect all food establishments within its jurisdiction. Inspections will focus on the presence of adequate grease removal equipment, cleaning frequency, recordkeeping, housekeeping measures, dumpster area cleanliness, and employee training. The goal of inspecting all food establishments is to ensure grease is being removed from the waste system and thereby reducing the chance of overflows. Additionally, site inspections will document potential pollutant runoff and poor housekeeping habits requiring immediate mitigation.

### **TMDL APPLICABILITY**

A TMDL for bacteria has been established for the San Diego Bay. The 2006 CWA Section 303d list of impaired water bodies identified multiple locations throughout San Diego Bay with water quality impairments for bacteria.

### **TIME SCHEDULE FOR IMPLEMENTATION**

- 2007/2008 planning/implement
- 2008/2009 implement/monitor
- 2009/2010 implement/monitor/assess
- 2010/2011 implement/monitor/assess
- 2011/2012 implement/monitor/assess

### **PARTICIPATING WATERSHED COPERMITTEES**

- City of Coronado

### **OTHER PARTICIPATING ENTITIES**

- N/A

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

- Bacteria
- Oil and Grease
- Trash

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

This activity contributes to improving water quality problems and is consistent with the Watershed Strategy by focusing on bacteria, grease, and trash load reductions.

**EXPECTED BENEFITS**

100 percent participation, awareness, and compliance from food establishments will benefit the San Diego Bay Watershed because best management practices will be implemented by all in a uniform and consistent manner; reducing the potential of pollutant runoff.

**EFFECTIVENESS MEASUREMENTS**

Inspections, overflows, other types of site discharges, and complaints are tracked by site, monitored, and mitigated by means of enforcement action. Effectiveness assessment levels 2-3 behavioral changes and 4-5 load reductions will be used as a measurement.

## ***OUTREACH BOOTH FOR FIRE OPEN HOUSE – 40***

### **ACTIVITY SUMMARY**

Annually, the Fire Department has an Open House event and receives a fair amount of participation from the residents and local schools. Although the event is geared towards showcasing the Fire Department, it also provides an excellent opportunity to educate the public on pollution prevention. Currently, Coronado staffs an outreach booth for the annual Flower Show and intends to extend our outreach efforts to the Fire Open House. Staff will be on hand to distribute business BMP brochures, residential manuals, recycling and household hazardous information, and answer any questions relating to water quality management. Promotional items will be available.

### **TMDL APPLICABILITY**

A TMDL for bacteria has been established for the San Diego Bay. The 2006 CWA Section 303d list of impaired water bodies identified multiple locations throughout San Diego Bay with water quality impairments for bacteria.

### **TIME SCHEDULE FOR IMPLEMENTATION**

- 2007-2008 planning/implement
- 2008-2009 implement/monitor
- 2009-2010 implement/monitor
- 2010-2011 implement/monitor
- 2011-2012 assess

### **PARTICIPATING WATERSHED COPERMITTEES**

- City of Coronado

### **OTHER PARTICIPATING ENTITIES**

- N/A

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

- Bacteria

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

Bacteria are a water quality concern for all HAs. By educating the public, behavioral change will reduce the load of bacteria in the watershed. I

### **EXPECTED BENEFITS**

The expected benefit of staffing an educational booth at the Fire Open house is to provide awareness of pollution prevention and is consistent with a level 3 outcome. Ultimately, the

education booths are geared to promote behavioral change that will reduce bacteria loads in the San Diego Bay.

### **EFFECTIVENESS MEASUREMENTS**

Primarily, this activity will be assessed through levels 2-3, which regard awareness and change in behavior. Counts of distributed pamphlets and visits to the booth will be documented. Surveys and educational games may be used to measure increased knowledge.

## **SAFER ALTERNATIVES TO COPPER ANTIFOULANT PAINTS PROJECT – 41**

### **ACTIVITY SUMMARY**

Dissolved copper exceeds the Water Quality Objective in the Shelter Island Yacht Basin (SIYB) and in 1999 the RWQCB initiated the development of a TMDL for dissolved copper. To date, a technical TMDL has been issued which identifies 95% of the copper is from passive leaching of boat hull paints, while approximately 5% is due to hull cleaning. A TMDL implementation plan has been approved by the SWRCB, which requires a 76% reduction in copper loading over the next 20 years. The Port of San Diego is actively working with the RWQCB and other local stakeholders to address this issue.

The Port of San Diego and other stakeholders are taking a proactive stance on this issue. Over the next two years, the Port will be involved in a study to identify, test, and demonstrate safer alternative non-copper hull coatings. The goal of this project is to test and evaluate alternative hull paints on recreational boats within the SIYB. A transition to non-copper antifouling hull coatings will be crucial in decreasing copper loading in the SIYB. This activity will build on previous research through the identification, investigation, testing and evaluation of newly emerging or recently developed non-copper hull paints.

### **TMDL APPLICABILITY**

The SIYB portion of the San Diego Bay was included on the 2006 CWA Section 303(d) Lists of impaired water bodies due to the elevated levels of dissolved copper (Cu) in the water column. A TMDL requiring a final target loading of 1.6 kilograms/day (kg/day) or 567 kilograms/yr (kg/yr), or 76% reduction in 17 years, was adopted to address this impairment for copper discharge in SIYB. The expected outcome for Phase 2 of the TMDL implementation plan for copper within the SIYB requires a 10% load reduction to occur during a five-year period (2007-2012).

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Permit Year 1: Planning
- Permit Year 2: Implementing

### **PARTICIPATING JURISDICTIONS**

- Port of San Diego

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

- Metals (Copper)

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

Copper-based hull paints have been identified as a likely source of copper, a high priority pollutant in SIYB and 908.1 (HA). The Port is working towards a copper load reduction as a

result of minimizing copper-based paints use as the primary antifoulant mechanism on recreational boats.

### **EXPECTED BENEFITS**

The Safer Alternatives to Copper Antifoulant Paints Project will be investigating the use of alternative hull coatings to reduce copper loading in the SIYB. The goal is to ultimately reduce copper concentrations to meet WQOs as required by the SIYB TMDL for dissolved copper.

### **EFFECTIVENESS MEASUREMENTS**

A level 3 outcome will result from the educational and outreach efforts to provide valuable information and guidance to the boating industry on alternative non-copper-based antifoulant paints and the associated maintenance strategies. The goal of the activity is to provide a list of safer alternative antifoulant paints that may be voluntarily applied to boat hulls by the SIYB boating community. By the end of this Permit cycle, which corresponds with the end of the second stage of the SIYB TMDL for dissolved copper, a level 4 outcome may be possible. As required by the SIYB TMDL for dissolved copper, monitoring will be used to assess compliance in SIYB with the specified copper load.

## **COORDINATED DRY WEATHER MONITORING PROGRAMS – 42**

### **ACTIVITY SUMMARY**

Each Copermittee is required to implement a Jurisdictional Dry Weather Monitoring (DWM) Program as part of the Illicit Discharge Detection and Elimination Component of the Municipal Stormwater Permit (Order No. 2001-01). Each Copermittee has developed and implemented a DWM program as required by the Permit but due to logistical constraints, site monitoring and sample collection within each jurisdiction often are conducted independent of other jurisdictions. The San Diego Bay Copermittees recognize that coordinated DWM efforts could be more effective because illicit discharges may cross jurisdictional boundaries. Therefore, San Diego Bay Copermittees conducted a pilot study during 2004-2005 to determine the feasibility of coordinating DWM locations and sampling dates across jurisdictions, and expanded the program with additional sites and jurisdictions during 2006-2007.

As part of the pilot program, the City of San Diego and the Port of San Diego coordinated dry weather monitoring activities at three locations within each jurisdiction during 2004-2005. The City of San Diego, the San Diego County Regional Airport Authority, and the Port will continue to coordinate dry weather monitoring activities at five locations. In addition, field tests and analytical samples will be collected at all coordinated sites where water was present. By simultaneously monitoring at the outfall (Port jurisdiction) and at a site upstream (City and Airport jurisdiction), the goal is to identify potential illicit discharges and facilitate upstream source identification.

### **TMDL APPLICABILITY**

The 2006 CWA Section 303 (d) Lists of impaired water bodies identified multiple locations throughout San Diego Bay with water quality impairments for bacteria and metals. Total Maximum Daily Loads (TMDLS) are being developed by the RWQCB to protect beneficial uses in these impaired water body segments.

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Permit Year 1: Monitoring
- Permit Year 2: Monitoring

### **PARTICIPATING JURISDICTIONS**

- Port of San Diego
- City of San Diego
- San Diego County Regional Airport Authority

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

- Metals
- Trash
- Bacteria

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

The coordination of DWM programs is considered a beneficial water quality activity in the San Diego Bay WMA because it provides comprehensive detection, analysis, and investigation of pollutant discharges at a watershed level. Current jurisdictional DWM programs are effectively identifying and eliminating illicit discharges. When discharges cross jurisdictional boundaries, however, the follow-up investigation is passed from one jurisdiction to another, creating a potential lag time in the response. Coordinated efforts increase the efficiency and effectiveness of jurisdictional programs and allow analysis at a watershed level.

### **EXPECTED BENEFITS**

The Dry Weather Monitoring Program targets the identification and elimination of illegal discharges to the stormwater conveyance system and the watershed. Information collected by the Dry Weather Monitoring Program is also used to characterize dry weather discharge water quality in general and to influence and assess ongoing watershed management and planning activities.

### **EFFECTIVENESS MEASUREMENTS**

The Copermittees intend to coordinate dry weather field tests and collection of analytical samples. By simultaneously monitoring at the outfall (Port jurisdiction) and at a site upstream (City and Airport jurisdiction), they will be to identify potential illicit discharges and facilitate upstream source identification. The elimination of illegal discharges generally requires that dischargers gain some awareness of stormwater pollution prevention and understanding of proper BMP implementation. By changing the way in which dischargers implement BMPs, this program results in a level 3 outcome. The program may also be able to estimate the pollutant loads eliminated and thus no longer impacting stormwater discharge quality, which is a level 4 outcome.

## **LID AND WATERSHED PLANNING EDUCATION FOR COMMUNITY PLANNING AND SPONSOR GROUPS – 43**

### **ACTIVITY DESCRIPTION**

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

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

- Jamul-Dulzura (909.2, 910.3)
- Alpine (909.2, 909.3)
- Cuyamaca (909.3)
- Descanso (909.3)
- Pine Valley (909.3)
- Crest-Dehesa (909.2)
- Valle de Oro (909.2)
- Sweetwater (909.1)
- Spring Valley (909.1, 909.2)
- Lakeside (909.2)

### **TMDL APPLICABILITY**

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

### **TIME SCHEDULE FOR IMPLEMENTATION**

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

### **PARTICIPATING WATERSHED COPERMITTEES**

- County of San Diego

**OTHER PARTICIPATING ENTITIES**

- None

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

- All

**CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**

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

**EXPECTED BENEFITS**

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

**EFFECTIVENESS MEASUREMENTS**

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

## **MUNICIPAL RAIN BARREL INSTALLATION AND DOWNSPOUT DISCONNECTS – 44**

### **ACTIVITY SUMMARY**

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

### **TMDL APPLICABILITY**

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

### **TIME SCHEDULE FOR IMPLEMENTATION**

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

### **PARTICIPATING WATERSHED COPERMITTEE(S)**

- City of San Diego

### **OTHER PARTICIPATING ENTITIES**

- San Diego Coastkeeper – project supporter

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

- Metals
- Bacteria

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

The Collective Watershed Strategy for the San Diego Bay WMA identifies metals and bacteria as high priority water quality problems in the Pueblo Watershed (more specifically Hydrologic Area 908.2) 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 runoff volume via capture, retention, and infiltration.

**EXPECTED BENEFITS**

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

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

**EFFECTIVENESS MEASUREMENTS**

<p><b>Management Questions:</b></p>	<ul style="list-style-type: none"> <li>• What is the effectiveness/efficiency of rain barrel/rain-harvesting systems in reducing stormwater runoff volume?</li> <li>• What is the loading reduction of different systems?</li> <li>• Which system is most efficient in collecting and/or diverting rainwater?</li> <li>• Which system results in the largest load reductions?</li> </ul>
<p><b>Targeted Measurable Outcome(s)</b></p>	<ul style="list-style-type: none"> <li>• Achieve reduction in pollutant loads due to rain barrel installation</li> </ul>
<p><b>Assessment Method(s)</b></p>	<ul style="list-style-type: none"> <li>• Monitoring (e.g., load reduction estimation)</li> <li>• Quantification (e.g., calculation of load reductions, or estimates of change)</li> <li>• Tabulation (e.g., number of rain barrel systems installed, amount of money spent)</li> <li>• Reporting (e.g., 3rd party data to estimate load reductions)</li> </ul>
<p><b>Assessment Measures, Assessment Outcome Levels &amp; Data:</b></p>	<ul style="list-style-type: none"> <li>• Cost of rain barrel systems (Outcome Level 1 and 2)</li> <li>• Cost of maintenance/upkeep (Outcome Level 1 and 2)</li> <li>• Cost of implementation (Outcome Level 1 and 2)</li> <li>• Volume of stormwater captured/diverted (Outcome Level 4)</li> <li>• Concentrations of COCs in rainwater or runoff (measured in rain barrel systems) (Outcome Level 4)</li> <li>• Compare 3rd party data to measured data for load reduction comparisons (Outcome Level 3)</li> <li>• What is the percent capture of the different systems (acres drained) (Outcome Level 4)</li> </ul>

## **INSTALLATION OF TRIDENT CURBSCREENS – 45**

### **ACTIVITY DESCRIPTION**

The installation of curbscreens that prevent trash, debris, oil & grease, large particle sediment, organics from entering curb inlets.

### **TMDL APPLICABILITY**

- N/A

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Implementation FY 08-09, grant dependent

### **PARTICIPATING WATERSHED COPERMITTEES**

- Lemon Grove

### **OTHER PARTICIPATING ENTITIES**

- N/A

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

- Trash
- Debris
- Oil & Grease
- Sediment
- Organics

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

Local watershed activity

### **EXPECTED BENEFITS**

More effective street sweeping, fewer pollutants in the MS4 system.

### **EFFECTIVENESS MEASUREMENTS**

Level 4 Load Reduction

## ***CLEANUP EVENTS, CITY-WIDE VOLUNTEER SPONSORED – 46***

### **ACTIVITY DESCRIPTION**

Cleanup events in any city location, generally sponsored by local organizations.

### **TMDL APPLICABILITY**

- N/A

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Current Implementation

### **PARTICIPATING WATERSHED COPERMITTEES**

- Lemon Grove

### **OTHER PARTICIPATING ENTITIES**

- N/A

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

- Trash

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

Regional watershed activity

### **EXPECTED BENEFITS**

Decreased trash in the MS4 system including gutters.

### **EFFECTIVENESS MEASUREMENTS**

Level 4 Load Reduction

## **CHOLLAS CREEK RUNOFF REDUCTION AND GROUNDWATER RECHARGE PROJECT – 47**

### **ACTIVITY DESCRIPTION**

This project is designed to reduce runoff from three existing County of San Diego facilities within the Pueblo San Diego Watershed (HA 908.2). Currently, these three facilities are highly impervious. The purpose of this activity is to retrofit existing impervious areas (parking lots) with porous pavements over stone reservoirs and to implement other LID practices to capture runoff from these areas as well as landscape elements such as rain gardens and bio-swales. A goal of this demonstration project is employ techniques to capture and infiltrate/evaporate rainfall. The objective of the activity is to prevent transportation of potentially polluted runoff (Metals, specifically with cooper, lead, and zinc) from leaving these facilities and entering the storm water system and particularly Chollas Creek.

### **TMDL APPLICABILITY**

This project would be implemented in compliance with the Chollas Creek Metals TMDL.

### **TIME SCHEDULE FOR IMPLEMENTATION**

- Planning & Design: July 2008 - May 2009
- Construction: June 2009 - October 2009
- Environmental Review & Permitting: July 2008 - January 2009
- Monitoring: October 2009 - December 2010 (14 mos.)
- Demonstration Project: July 2008 - December 2010 (2 ½ yrs)

### **PARTICIPATING WATERSHED COPERMITTEES**

- County of San Diego

### **OTHER PARTICIPATING ENTITIES**

- None

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

- Metals

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

This Project is consistent with the collective Watershed Strategy because it addresses metals (copper, lead and zinc), which are considered as high priority water quality problem within the 908.2 Hydrologic Area.

### **EXPECTED BENEFITS**

This project provides benefits to surface water quality and groundwater quantity by capturing, reusing and/or infiltrating rainfall that otherwise would be urban runoff that would transport potential pollutants specifically metals to sensitive receiving waters.

### **EFFECTIVENESS MEASUREMENTS**

This project includes 14 months of monitoring of the water quality from the site. This monitoring will provide evidence of the overall amount of reduction of metals from entering the storm system.

## **LAND ACQUISITIONS SAN DIEGO BAY (909.1, 909.2, 909.3, 910.2, 910.3) – 48**

### **ACTIVITY DESCRIPTION**

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

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

### **TMDL APPLICABILITY**

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

### **TIME SCHEDULE FOR IMPLEMENTATION**

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

### **PARTICIPATING WATERSHED COPERMITTEES**

- County of San Diego

### **OTHER PARTICIPATING ENTITIES**

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

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

- All

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

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

### **EXPECTED BENEFITS**

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

### **EFFECTIVENESS MEASUREMENTS**

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

## **SPECIAL DRAINAGE AREA (SDA) 1 SPRING VALLEY AREA STORMWATER QUALITY MASTER PLAN – 49**

### **ACTIVITY DESCRIPTION**

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

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

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

- SDA 1 - Spring Valley (909.1)
- SDA 2 - Valle de Oro (909.2)
- SDA 3 - Sweetwater (909.1)
- SDA 4 - Jamul (909.2, 910.3)
- SDA 7 - Alpine (909.2, 909.3)

### **TMDL APPLICABILITY**

- N/A

### **TIME SCHEDULE FOR IMPLEMENTATION**

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

### **PARTICIPATING WATERSHED COPERMITTEES**

- County of San Diego

### **OTHER PARTICIPATING ENTITIES**

- None

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

To be determined.

**CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY**

To be determined.

**EXPECTED BENEFITS**

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

**EFFECTIVENESS MEASUREMENTS**

To be determined.

This page is intentionally left blank.