

Proposed City of San Diego Watershed Activities

for

San Diego River Watershed

The San Diego River Watershed Urban Runoff Management Plan is currently being prepared in collaboration with other jurisdictions, and drafts are not yet available. The following proposed City of San Diego watershed activities will be integrated into the final version of the San Diego River Watershed Urban Runoff Management Plan and represent the City of San Diego's commitment to and anticipated efforts in the San Diego River Watershed over the next five years. The final version of the plan will be submitted to the San Diego Regional Water Quality Control Board pursuant to requirements in the 2007 Municipal Permit (Order No. R9-2007-0001).

**San Diego River Watershed Management Area
Five-Year Plan of Action Matrix**

| Jurisdiction | Watershed HAs | | | | Activity | Pollutant Categories | | | | | | | | Activity Type | | | | Implementation Schedule | | | | | | |
|--------------|---------------|-------|-------|-------|--|----------------------|--------------------|-------------------|--------------|-----------|--------------|----------|------------|---------------|-------|------------|----------------------|-------------------------|-----------|---------------------|---------------------|---------------------|---------------------|---------------------|
| | 907.1 | 907.2 | 907.3 | 907.4 | | Bacteria* | Dissolved Minerals | Gross Pollutants* | Heavy Metals | Nutrients | Oil & Grease | Organics | Pesticides | Sediment* | Trash | Monitoring | Source Investigation | Load Reduction | Education | Year 1 2007-2008 | Year 2 2008-2009 | Year 3 2009-2010 | Year 4 2010-2011 | Year 5 2011-2012 |
| SD | X | X | X | X | Alpha Project Trash Cleanups | X | | | | | | | | X | | | X | | I A | | | | | |
| SD | X | X | X | X | ILACSD Trash Cleanup Sponsorship | X | | | | | | | | X | | | X | | I A | I A | I A | I A | I A | |
| SD | X | X | X | X | SDCK Trash Cleanup Sponsorship | X | | | | | | | | X | | | X | | I A | I A | I A | I A | I A | |
| SD | X | X | X | X | Targeted Animal-Related Facility Inspections | X | | | | | | | | | | X | X | X | P I A | A | | | | |
| SD | X | X | X | X | Targeted Landscaping-Related Facility Inspections | X | | | | X | | | | | | X | X | X | P | P I A | P I A | A | | |
| SD | X | X | X | X | Targeted Municipal Facility Inspections | X | | | X | X | | | | | | X | X | X | P | P I A | P | P I A | A | |
| SD | X | X | X | X | Targeted Restaurant Facility Inspections | X | | | | | | | | | | X | X | | P I A | | | | | |
| SD | X | X | X | X | Municipal Rain Barrel Installation | X | | X | | X | X | | X | X | | | X | | P I A | | | | | |
| SD | X | X | X | X | Hydrodynamic Separator Installation | X | | | | | | | X | X | | | X | | P | P | I A | A | | |
| SD | X | X | X | X | Irrigation Controller & Xeriscaping Incentive Program | X | | | X | X | | X | X | | | | X | X | | | P | P | P I A | |
| SD | X | X | X | X | Infiltration LID BMP #1 | X | | | X | X | | | | | | | X | | | P | P M | I A | A | |
| SD | X | X | X | X | Infiltration LID BMP #2 | X | | | X | X | | | | | | | X | | | P | P M | I A | A | |
| SD | X | X | X | X | Targeted Street Sweeping | X | | | X | | | | X | X | | | X | | | | | P | I A | |
| SD | X | X | X | X | Karma/Karma Second Chance Public Service Announcements | X | | X | | | | | | X | | | | X | I | I A | I A | I A | I A | |
| SD | X | X | X | X | Billboards/Transit Shelters (General; Bacteria) | X | | | | | | | | | | | | X | I A | I A | I A | I A | I A | |
| SD | X | X | X | X | Mobile Advertising (General; Bacteria) | X | | X | X | | X | X | X | | | | | X | I A | I A | I A | I A | I A | |
| SD | X | X | X | X | San Diego River Foundation Sponsorship | X | | X | | X | | | X | X | | | X | X | I A | I A | I A | I A | I A | |

* High Priority Pollutants

Planning (P)
Monitoring (M)
Implementation (I)
Assessment (A)

TITLE: Alpha Project for the Homeless, Inc. Trash Cleanups
ID NUMBER: XXX

ACTIVITY DESCRIPTION

The City's Storm Water Pollution Prevention Division has partnered with Alpha Project for the Homeless, Inc., through a Memorandum of Understanding to conduct trash and debris cleanups and potentially homeless encampment removals throughout the City's jurisdiction in various watersheds in FY 2007 and FY 2008.

TMDL APPLICABILITY

- San Diego Region Beaches and Creeks Bacteria TMDL

TIME SCHEDULE FOR IMPLEMENTATION

The City will coordinate with Alpha Project to ensure that sites within the San Diego River WMA are included in the list of sites to target for cleanups in FY 2008.

PARTICIPATING WATERSHED COPERMITTEE(S)

- City of San Diego

OTHER PARTICIPATING ENTITIES

- Alpha Project for the Homeless, Inc.

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

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

EXPECTED BENEFITS

Although the cleanups conducted by Alpha Project focus 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 website¹ states that debris may be contaminated by pathogens that have adverse effects on humans. By reducing the amount of trash and debris in the San Diego River WMA through cleanup events, bacteria loading is reduced.

EFFECTIVENESS MEASUREMENTS

| | |
|---------------------------------------|---|
| Management Questions: | <ul style="list-style-type: none"> • What is the load reduction associated with sponsorship? • What is the efficiency of trash cleanup? (\$/person or \$/ton collected) |
| Targeted Measurable Outcome(s) | <ul style="list-style-type: none"> • Achieve load reduction of trash (any amount) due to trash cleanup sponsorship |

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

| | |
|---|--|
| Assessment Method(s) | <ul style="list-style-type: none">• Tabulation (e.g., number of participants)• Quantification (e.g., pounds of trash collected) |
| Assessment Measures, Assessment Outcome Levels & Data: | <ul style="list-style-type: none">• Money spent (USD) (Outcome Level 1 and 2)• Tons of trash (Outcome Level 4)• Number of participants (Outcome Level 1)• Compliance (yes/no) (Outcome Level 1) |

TITLE: I Love A Clean San Diego Trash Cleanup Sponsorship
ID NUMBER: XXX

ACTIVITY DESCRIPTION

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

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

PARTICIPATING WATERSHED COPERMITTEE(S)

- City of San Diego

OTHER PARTICIPATING ENTITIES

- 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 River WMA identifies bacteria as a high priority water quality problem in the WMA and recommends implementing load reduction/source abatement activities to address it. Sponsorship of 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 website¹ states that debris may be contaminated by pathogens that have adverse effects on humans. By reducing the amount of trash and debris in the San Diego River WMA through cleanup events, bacteria loading is reduced.

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

EFFECTIVENESS MEASUREMENTS

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

TITLE: San Diego Coastkeeper Trash Cleanup Sponsorship
ID NUMBER: XXX

ACTIVITY DESCRIPTION

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

TMDL APPLICABILITY

- San Diego Region Beaches and Creeks Bacteria TMDL

TIME SCHEDULE FOR IMPLEMENTATION

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

PARTICIPATING WATERSHED COPERMITTEE(S)

- City of San Diego

OTHER PARTICIPATING ENTITIES

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

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

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

EXPECTED BENEFITS

Although Coastal Cleanup Day is focused on debris removal, it also addresses bacteria indirectly by removing a bacterial source: trash. Literature published by the United States Environmental Protection Agency on its website¹ states that debris may be contaminated by pathogens that have adverse effects on humans. By reducing the amount of trash and debris in the San Diego River WMA through cleanup events, bacteria loading is reduced.

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

EFFECTIVENESS MEASUREMENTS

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

TITLE: Targeted Animal-Related Facility Inspections
ID NUMBER: XXX

ACTIVITY DESCRIPTION

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

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

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

TMDL APPLICABILITY

- San Diego Region Beaches and Creeks Bacteria TMDL

TIME SCHEDULE FOR IMPLEMENTATION

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

PARTICIPATING WATERSHED COPERMITTEE(S)

- City of San Diego

OTHER PARTICIPATING ENTITIES

- N/A

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria
- Nutrients

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

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

EXPECTED BENEFITS

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

EFFECTIVENESS MEASUREMENTS

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

TITLE: Targeted Landscaping-Related Facility Inspections
ID NUMBER: XXX

ACTIVITY DESCRIPTION

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

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

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

TMDL APPLICABILITY

- San Diego Region Beaches and Creeks Bacteria TMDL

TIME SCHEDULE FOR IMPLEMENTATION

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

PARTICIPATING WATERSHED COPERMITTEE(S)

- City of San Diego

OTHER PARTICIPATING ENTITIES

- N/A

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria
- Nutrients

- Dissolved Oxygen
- Dissolved Minerals

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

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

EXPECTED BENEFITS

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

EFFECTIVENESS MEASUREMENTS

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

TITLE: Targeted Municipal Facility Inspections
ID NUMBER: XXX

ACTIVITY DESCRIPTION

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

- Determine the most efficient frequency of inspections to ensure proper BMP implementation and reduce pollutant loading (e.g., once vs. twice per fiscal year)
- Determine the most efficient type of inspection to ensure proper BMP implementation and reduce pollutant loading (e.g., random inspections vs. scheduled inspections)
- Determine the most efficient combination of enforcement action to ensure proper BMP implementation and reduce pollutant loading (e.g., education/flyers vs. monetary fines vs. onsite direct interactions)
- Characterize activities at 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 River WMA to conduct the targeted inspections based on factors, such as monitoring data, facility clustering, and proximity to other watershed activities being conducted. Discharges cleaned up, behaviors corrected, and sources abated will also be reported. The Storm Water Division anticipates using the knowledge and 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

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 2011.

PARTICIPATING WATERSHED COPERMITTEE(S)

- City of San Diego

OTHER PARTICIPATING ENTITIES

- N/A

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria
- Nutrients

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

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

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

TITLE: Targeted Restaurant Facility Inspections
ID NUMBER: XXX

ACTIVITY DESCRIPTION

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

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

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

TMDL APPLICABILITY

- San Diego Region Beaches and Creeks Bacteria TMDL

TIME SCHEDULE FOR IMPLEMENTATION

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

PARTICIPATING WATERSHED COPERMITTEE(S)

- City of San Diego

OTHER PARTICIPATING ENTITIES

- N/A

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

The Collective Watershed Strategy for the San Diego River WMA identifies bacteria as a high priority water quality problem in the WMA and recommends implementing load reduction/source abatement activities to address it. 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

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

TITLE: Municipal Rain Barrel Installation and Downspout Disconnects
ID NUMBER: XXX

ACTIVITY DESCRIPTION

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

TMDL APPLICABILITY

- San Diego Region Beaches and Creeks Bacteria TMDL

TIME SCHEDULE FOR IMPLEMENTATION

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

PARTICIPATING WATERSHED COPERMITTEE(S)

- City of San Diego

OTHER PARTICIPATING ENTITIES

- San Diego Coastkeeper – project supporter

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria
- Nutrients
- Dissolved Oxygen
- Dissolved Minerals

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

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

EXPECTED BENEFITS

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

In addition, implementation of this activity is in accordance with the City's *Strategic Plan for Watershed Activity Implementation* (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

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

TITLE: Hydrodynamic Separator Installation
ID NUMBER: XXX

ACTIVITY DESCRIPTION

This activity will involve the installation of a hydrodynamic separator in the San Diego River WMA to treat dry weather flows. Hydrodynamic separators, or baffle boxes, are composed of a series of chambers that clean contaminated water in two ways. The first chamber collects water and allows contaminants, such as trash and sediment, to settle at the bottom before the water overflows into the following chamber to repeat the process. As water flows from chamber to chamber, it also passes through screens to filter out additional pollutants. Eventually, clean water leaves the device and discharges into designated receiving waters. Exact location of installation will be based on monitoring considerations, proximity to other BMPs being implemented, site availability, land use, etc. The pollutant load reduction resulting from this activity will contribute to meeting requirements under the Municipal Permit and current and anticipated TMDLs in the receiving waters of the WMA.

TMDL APPLICABILITY

- San Diego Region Beaches and Creeks Bacteria TMDL

TIME SCHEDULE FOR IMPLEMENTATION

Project planning began in July 2007, and project design is anticipated to continue through FY 2009. Construction is anticipated to occur in FY 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

- Bacteria
- Dissolved Oxygen

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

The Collective Watershed Strategy for the San Diego River WMA identifies bacteria and dissolved oxygen (linked to sediment/turbidity) as high priority water quality problems in the WMA and recommends implementing load reduction/source abatement activities to address them. Implementation of this activity will address both high priority water quality problems by capturing dry weather flows and slowly releasing them to allow for the settlement of pollutants for later removal.

EXPECTED BENEFITS

Implementation of this activity will reduce pollutant loading by capturing dry weather flows and slowly releasing them to allow for the settlement of sediment and trash for later removal.

This activity will address bacteria indirectly by removing a bacterial source: trash. Literature published by the United States Environmental Protection Agency on its website¹ states that debris may be contaminated by pathogens that have adverse effects on humans. By reducing the amount of trash and debris in the San Diego River WMA via collection by the hydrodynamic separator, bacteria loading is reduced.

This activity will address dissolved oxygen indirectly by removing sediment and lessening turbidity, which are linked to dissolved oxygen issues.

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 hydrodynamic separators to reduce urban runoff pollution. Knowledge and experience gained through this activity will help the City document the benefits, limitations, and challenges of hydrodynamic separators as an urban runoff pollution control before implementation on a broader scale throughout its jurisdiction in meeting Municipal Permit and TMDL requirements.

EFFECTIVENESS MEASUREMENTS

| | |
|---|--|
| Management Questions: | <ul style="list-style-type: none"> • Which type of separator provides the most efficient removal of trash, debris, and sediment? • What is the load reduction efficiency of hydrodynamic separators in reducing trash, debris, and sediment? • How effective are hydrodynamic retrofits at reducing loads of trash, debris, and sediment? |
| Targeted Measurable Outcome(s) | <ul style="list-style-type: none"> • Determination of most efficient and effective hydrodynamic separator • Reduction in trash, debris, and sediment based on amount removed from hydrodynamic separator • Receiving water quality improvement (less observed trash and turbidity in receiving water downstream) |
| Assessment Method(s) | <ul style="list-style-type: none"> • Inspections (e.g., ensure the retrofit is working as designed) • Quantification (e.g., use drainage area and rainfall information to calculate estimated load reduction) • Monitoring (e.g., collect special study information to collect concentrations and flows to estimate load reduction) • Tabulation (e.g., amount of money spent on implementation and maintenance, amount of money spent on educational materials) |
| Assessment Measures, Assessment Outcome Levels & Data: | <ul style="list-style-type: none"> • Number of inspections (Outcome Level 1) • Change (%) in load reduction pre and post-implementation (Outcome Level 4) • How much money spent on inspections and maintenance (Outcome Level 1) • Dataset of load contributions for specific activities (Outcome Level 4) |

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

TITLE: Irrigation Controller and Xeriscaping Incentive Program
ID NUMBER: XXX

ACTIVITY DESCRIPTION

This activity will involve launching a pilot incentive program to encourage the use of weather-based irrigation devices and xeriscaping to reduce over-irrigation and the overall need for landscaping irrigation. Specific residential and commercial areas will be targeted and monitored to assess the efficiency of the incentive program in reducing runoff volume and pollutant loads. It is also anticipated that the program will include a component to investigate the challenges to getting residents and businesses to participate in this incentive program to better focus subsequent education and outreach efforts and determine whether broad-scale implementation should be pursued.

TMDL APPLICABILITY

- San Diego Region Beaches and Creeks Bacteria TMDL

TIME SCHEDULE FOR IMPLEMENTATION

Project planning and coordination is anticipated to begin in July 2010. Program launch is anticipated to occur in FY 2012.

PARTICIPATING WATERSHED COPERMITTEE(S)

- City of San Diego

OTHER PARTICIPATING ENTITIES

- San Diego Coastkeeper – project supporter
- City of San Diego Water Department (to be invited to participate)
- San Diego County Water Authority (to be invited to participate)

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria
- Nutrients
- Dissolved Oxygen
- Dissolved Minerals

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

The Collective Watershed Strategy for the San Diego River WMA identifies bacteria, nutrients, dissolved oxygen, and dissolved minerals as high priority water quality problems in the WMA and recommends implementing load reduction/source abatement activities to address them. Implementation of this activity will address the high priority water quality problems by reducing dry weather flows resulting from over-irrigation.

EXPECTED BENEFITS

Implementation of this activity will reduce pollutant loading by reducing dry weather flows resulting from over-irrigation. Reduction of runoff means less pollutants conveyed into the storm drain system and out into receiving waters. Water conservation will also be an added benefit as program participants waste less water on irrigation.

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 and monitoring of an irrigation runoff reduction program to combat urban pollution. Knowledge and experience gained through this activity will help the City document the benefits, limitations, and challenges of irrigation runoff reduction programs as an urban runoff pollution control before implementation on a broader scale throughout its jurisdiction in meeting Municipal Permit and TMDL requirements.

EFFECTIVENESS MEASUREMENTS

| | |
|---|---|
| Management Questions: | <ul style="list-style-type: none"> • Does increased education help reduce dry weather runoff? • Do incentives and/or rebates increase the rate of low-runoff irrigation device installation? • Do neighborhoods targeted for outreach or incentives exhibit fewer incidence of dry weather runoff? • How does the incidence of dry weather runoff relate to load reduction? |
| Targeted Measurable Outcome(s): | <ul style="list-style-type: none"> • Achieve zero dry weather runoff in target neighborhoods |
| Assessment Method(s): | <ul style="list-style-type: none"> • Inspections (e.g., track number of target behaviors observed, decrease in observed behavior, number of follow-up inspections) • Quantification (e.g., use frequency of observed behavior to calculate estimated load reduction) • Monitoring (e.g., collect special study information to collect concentrations and flows to estimate load reduction) • Tabulation (e.g., amount of money spent on inspections, amount of money spent on educational materials) • Reporting (e.g., estimates of load reduction for BMPs from 3rd party data) |
| Assessment Measures, Assessment Outcome Levels & Data: | <ul style="list-style-type: none"> • Number of incentives or rebates distributed (Outcome Level 1) • Change (%) in target behavior pre and post-outreach (Outcome Level 3) • Number of follow-up inspections (Outcome Level 1) • How much money spent on inspections (follow ups, initial inspections)? (Outcome Level 1) • Literature review or other information to provide data to estimate load reductions (Outcome Level 3) • Dataset of load contributions for specific activities (Outcome Level 4) |

TITLE: Infiltration BMP Retrofit #1
ID NUMBER: XXX

ACTIVITY DESCRIPTION

This activity will involve the implementation of an infiltration project in the San Diego River WMA to reduce runoff volume. The activity may be implemented in a municipal parking lot (“Green Mall”), an industrial/commercial right-of-way (“Green Mall”), or a residential right-of-way (“Green Street”). Exact location and type will be based on monitoring and geotechnical considerations, proximity to other BMPs being implemented, site availability, land use, etc. The pollutant load reduction resulting from this activity will contribute to meeting requirements under the Municipal Permit and current and anticipated TMDLs in the receiving waters of the WMA.

TMDL APPLICABILITY

- San Diego Region Beaches and Creeks Bacteria TMDL

TIME SCHEDULE FOR IMPLEMENTATION

Project planning began in July 2007, and project design is anticipated to continue through FY 2010. Construction is anticipated to occur in FY 2011. 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

- Bacteria
- Nutrients
- Dissolved Minerals

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

The Collective Watershed Strategy for the San Diego River WMA identifies bacteria, nutrients, and dissolved minerals as high priority water quality problems in the WMA and recommends implementing load reduction/source abatement activities to address them. Implementation of this activity will address the 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* (July 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

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

TITLE: Infiltration BMP Retrofit #2
ID NUMBER: XXX

ACTIVITY DESCRIPTION

This activity will involve the implementation of an infiltration project in the San Diego River WMA to reduce runoff volume. The activity may be implemented in a municipal parking lot (“Green Mall”), an industrial/commercial right-of-way (“Green Mall”), or a residential right-of-way (“Green Street”). Exact location and type will be based on monitoring and geotechnical considerations, proximity to other BMPs being implemented, site availability, land use, etc. The pollutant load reduction resulting from this activity will contribute to meeting requirements under the Municipal Permit and current and anticipated TMDLs in the receiving waters of the WMA.

TMDL APPLICABILITY

- San Diego Region Beaches and Creeks Bacteria TMDL

TIME SCHEDULE FOR IMPLEMENTATION

Project planning began in July 2007, and project design is anticipated to continue through FY 2010. Construction is anticipated to occur in FY 2011. 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

- Bacteria
- Nutrients
- Dissolved Minerals

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

The Collective Watershed Strategy for the San Diego River WMA identifies bacteria, nutrients, and dissolved minerals as high priority water quality problems in the WMA and recommends implementing load reduction/source abatement activities to address them. Implementation of this activity will address the 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* (July 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

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

TITLE: San Diego River Watershed Street Sweeping
ID NUMBER: XXX

ACTIVITY DESCRIPTION

The City's Storm Water Pollution Prevention Division (Storm Water Division) will coordinate with the City's Street Division to conduct a street sweeping effectiveness study in the San Diego River WMA. The study will investigate the effectiveness of top-tier street sweepers compared to that of the City's current sweepers in reducing the accumulation of sediment and other pollutants, such as trash, bacteria, and 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 will be to reduce the street accumulation of debris and sediment 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 will include the purchase of new types of 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 will use the prioritization process that is outlined in its *Strategic Plan for Watershed Activity Implementation* (July 2007) to target areas within the San Diego River WMA.

TMDL APPLICABILITY

- N/A

TIME SCHEDULE FOR IMPLEMENTATION

Project planning is anticipated to begin in July 2010. The City anticipates sweeping to start within FY 2012. Debris testing and water quality monitoring will be conducted throughout the project to assess effectiveness in removing sediment and other pollutants, such as trash, bacteria, and metals, from City streets.

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 River WMA identifies bacteria as a high priority water quality problem in the WMA and recommends implementing load reduction/source abatement activities to address them. Targeted increased sweeping will target bacteria indirectly through the reduction of trash. Literature published by the United States Environmental Protection Agency on its website¹ states that trash and debris may be

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

contaminated by pathogens that have adverse effects on humans. By reducing the amount of trash and debris in the San Diego River WMA through more efficient and increased sweeping, bacteria loading is reduced.

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 a targeted street sweeping program to reduce pollutant loading. Knowledge and experience gained through this activity will help the City document the benefits, limitations, and challenges of street sweeping as an urban runoff pollution control to address sediment (which the *Strategic Plan for Watershed Activity Implementation* identifies as a pollutant to be of concern in the future) before implementation on a broader scale throughout its jurisdiction in meeting Municipal Permit and future TMDL requirements.

EXPECTED BENEFITS

The street sweeping effectiveness study will consist of acquiring top-tier street sweepers to operate within the San Diego River WMA and assessing their effectiveness in reducing the accumulation of sediment and other pollutants, such as metals and trash, 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 is anticipated to include water quality and debris monitoring.

EFFECTIVENESS MEASUREMENTS

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

TITLE: Public Service Announcements: *Karma* and *Karma Second Chance*
ID NUMBER: XXX

ACTIVITY DESCRIPTION

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

TMDL APPLICABILITY

- San Diego Region Beaches and Creeks Bacteria TMDL

TIME SCHEDULE FOR IMPLEMENTATION

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

PARTICIPATING WATERSHED COPERMITTEE(S)

- City of San Diego

OTHER PARTICIPATING ENTITIES

- Various Television and Radio Stations in San Diego

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria
- Gross Pollutants (Trash)

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

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

EXPECTED BENEFITS

The PSAs address bacteria directly by focusing on pet waste, food waste and organic matter, and indirectly by removing a bacterial source: trash. Literature published by the United States Environmental Protection Agency on its website¹ states that *pathogens* are microscopic organisms like bacteria and viruses. They come from untreated or poorly treated sewage, pet and farm animal waste, and improperly handled medical waste. Pathogens in the water in unsafe amounts result in beach closures; shellfish bed closures, fish kills, and human health problems.

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

EFFECTIVENESS MEASUREMENTS

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

TITLE: Outdoor Billboards and Transit Shelters
ID NUMBER: XXX

ACTIVITY DESCRIPTION

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

TMDL APPLICABILITY

- San Diego Region Beaches and Creeks Bacteria TMDL

TIME SCHEDULE FOR IMPLEMENTATION

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

PARTICIPATING WATERSHED COPERMITTEE(S)

- City of San Diego

OTHER PARTICIPATING ENTITIES

- None

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria and Gross Pollutants (Trash)

CONSISTENCY WITH THE WATERSHED STRATEGY

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

EXPECTED BENEFITS

The advertisements will address bacteria indirectly by removing a bacterial source: trash. Literature published by the United States Environmental Protection Agency on its website¹ states that debris may be contaminated by pathogens that have adverse effects on humans. By reducing the amount of trash, bacteria loading is reduced.

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

EFFECTIVENESS MEASUREMENTS

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

TITLE: Mobile Advertising
ID NUMBER: XXX

ACTIVITY DESCRIPTION

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

TMDL APPLICABILITY

- None

TIME SCHEDULE FOR IMPLEMENTATION

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

PARTICIPATING WATERSHED COPERMITTEE(S)

- City of San Diego

OTHER PARTICIPATING ENTITIES

- None

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

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

EXPECTED BENEFITS

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

EFFECTIVENESS MEASUREMENTS

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

TITLE: San Diego River Park Foundation Partnership
ID NUMBER: XXX

ACTIVITY DESCRIPTION

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

TMDL APPLICABILITY

- None

TIME SCHEDULE FOR IMPLEMENTATION

The City will coordinate with San Diego River Park Foundation to provide funding for various projects throughout FY 2008 and beyond. Cleanups will be scheduled as appropriate. Clean and Green Team efforts take place throughout the year, and River Days is scheduled to occur in May of each year.

PARTICIPATING WATERSHED COPERMITTEE(S)

- City of San Diego

OTHER PARTICIPATING ENTITIES

- San Diego River Park Foundation

HIGH PRIORITY WATER QUALITY PROBLEM(S) ADDRESSED

- Bacteria
- Gross Pollutants (Trash)

CONSISTENCY WITH THE COLLECTIVE WATERSHED STRATEGY

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

EXPECTED BENEFITS

Partnership with the San Diego River Foundation will provide funding to address bacteria indirectly by removing a bacterial source: trash. Literature published by the United States Environmental Protection Agency on its website¹ states that debris may be contaminated by

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

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

EFFECTIVENESS MEASUREMENTS

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