CITY OF STOCKTON
MUNICIPAL UTILITIES • 2500 Navy Drive • Stockton, CA 95206 • 209-937-8700
www.stocktongov.com

August 31, 2015

Ms. Pamela Creedon, Executive Officer
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive, Suite 200
Rancho Cordova, CA 95670-6114

CITY OF STOCKTON STORMWATER MANAGEMENT PROGRAM 2014-2015
ANNUAL REPORT, ORDER NO. R5-2015-0024, NPDES PERMIT NO. CAS083470

Please find attached a copy of the 2014-2015 Annual Report for the City of Stockton Stormwater Management Program. The attached report reflects all stormwater activities conducted during the Fiscal Year 2014-2015, as required by the City's Stormwater National Pollutant Discharge Elimination System (NPDES) Permit.

If you have any questions regarding the report, please contact Christina Walter at (209)937-8155.

C. Mel Lytle, Ph.D.
Director of Municipal Utilities
City of Stockton

Attachments: 2014-2015 Annual Report with Appendices

Cc: Ba Than, Deputy Municipal Utilities Director
Karen Ashby, Larry Walker Associates
Rachel Warren, Larry Walker Associates

Emc: Christina Walter, Stormwater Program Manager

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CERTIFICATION

I certify under penalty of the law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel property gather and evaluate the information submitted.

Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment for knowing violations.

Executed on the 18th day of August, 2015, at the City of Stockton.

C. Mel Lytle, Ph.D.
City of Stockton
Director of Municipal Utilities

SEPTEMBER 2015

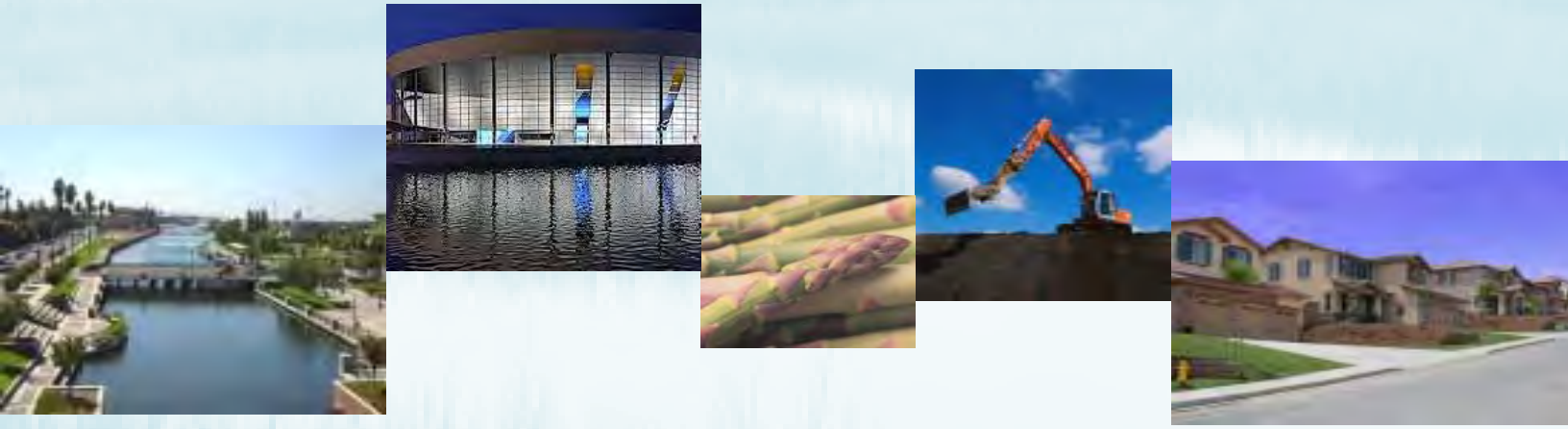
CITY OF STOCKTON

National Pollutant Discharge Elimination System Municipal Stormwater Program

2014-2015 Annual Report

prepared by

LARRY WALKER ASSOCIATES



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2014-2015 ANNUAL REPORT
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APPENDICES

List of Acronyms

BMP	Best management practice
BPA	Basin Plan Amendment
CASQA	California Stormwater Quality Association
CDFG	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CIP	Capital Improvement Project
COC	Constituents of Concern
CTR	California Toxics Rule
CWA	Clean Water Act
DNA	Deoxyribonucleic acid
DO	Dissolved oxygen
DRC	Development Review Committee
EC	Electrical conductivity
ECG	Enforcement Consistency Guide
EPA	Environmental Protection Agency
FPPP	Facility Pollution Prevention Plan
GIS	Geographic Information System
HAZMAT	Hazardous Materials
HHW	Household Hazardous Waste
IGP	Industrial General Permit
IPM	Integrated Pest Management
LA	Load Allocation
LID	Low impact development
MBAS	Methylene blue activated substances
MCL	Maximum Contaminant Level
MDL	Method detection limit
MEP	Maximum Extent Practicable
MERP	Mercury Exposure Reduction Program
MFST	Media Filter Stormwater Treatment
MOU	Memorandum of Understanding
MRP	Monitoring and Reporting Program

MS/MSD	Matrix Spike/Matrix Spike Duplicates
MS4	Municipal separate storm sewer system
MUD	Municipal Utilities Department
NOI	Notice of Intent
NOT	Notice of Termination
NOV	Notice of Violation
NPDES	National Pollutant Discharge Elimination System
OC	Organochlorine
ODS	Owner/developer/successor-in-interest
OP	Organophosphate
OWOW	Our Water – Our World
PCR	Polymerase chain reaction
PCOs	Pest control operators
PEA	Program effectiveness assessment
POC	Pollutant of Concern
PRM	Pathogen related mortality
PSA	Public service announcement
QA/QC	Quality assurance/quality control
RL	Reporting limit
RMP	Regional Monitoring Program
ROWD	Report of Waste Discharge
RPD	Relative Percent Difference
RW	Receiving Water
RWFC	Regional Wastewater Control Facility
RWQCB	Regional Water Quality Control Board (also "Regional Water Board")
RWQE	Report of Water Quality Exceedance
SAP	Sampling and Analysis Plan
SAWS	Stockton Area Water Suppliers
SJR	San Joaquin River
SJVSWQP	San Joaquin Valley Stormwater Quality Partnership
SOP	Standard Operating Procedure
SSC	Suspended sediment concentrations
SSMP	Sewer System Management Plan

SSO	Sanitary sewer overflow
SSOERP	Sanitary Sewer Overflow Emergency Response Plan
SSORP	Sanitary Sewer Overflow Response Plan
SUA	Stockton Urbanized Area
SWAMP	Surface Water Ambient Monitoring Program
SWMP	Stormwater Management Plan
SWPPP	Stormwater Pollution Prevention Plan
SWQCCP	Stormwater Quality Control Criteria Plan
SWQCP	(Project) Stormwater Quality Control Plan
SWRCB	State Water Resources Control Board
TDS	Total dissolved solids
TIE	Toxicity Identification Evaluation
TKN	Total Kjeldahl nitrogen
TMDL	Total maximum daily load
TOC	Total organic carbon
TSS	Total suspended solids
TU	Toxicity unit
UC	University of California
UD	Urban Discharge
U.S.	United States
VRR	Volume Reduction Requirement
WDID	Waste Discharge Identification number
WEF	Water Education Federation
WQBP	Water Quality Based Plan
WQO	Water quality objective

Section 1

Program Management

1.1 OVERVIEW

The Stormwater Management Plan (SWMP) has been developed for and is being implemented within the jurisdictional limits of the City of Stockton (City) and the urbanized areas of San Joaquin County (County) within the Phase I National Pollutant Discharge Elimination System (NPDES) permit area.[1] The SWMP, which includes existing and enhanced program control measures, represents the five-year strategy for controlling the discharge of pollutants from the municipal storm drain system to the maximum extent practicable (MEP).

As a result of the third term municipal stormwater permit requirements[2], the SWMP was revised in June 2008 and submitted to the Central Valley Regional Water Quality Control Board (RWQCB or Regional Water Board). The June 2008 SWMP was subsequently revised, re-submitted to the RWQCB on April 15, 2009, and approved by the RWQCB on October 8, 2009.[3] The revised 2009 SWMP includes a wide range of continuing, enhanced, and new Best Management Practices (BMPs) and control measures that have been implemented during the third term Permit period (2007-2013).

The Permit expired on December 6, 2012 and has been administratively extended. The Permittees submitted a Report of Waste Discharge (ROWD) and Proposed SWMP to the RWQCB 180 days prior to the Permit's expiration (June 6, 2012). The *2014-2015 Annual Report* is being submitted in accordance with the Permit.

Implementation of the Stormwater Management Program continues as described in the 2009 SWMP. It is the intent of the 2009 SWMP to meet all Permit requirements through an iterative process. These BMPs and control measures will assist the City in improving the overall effectiveness of the stormwater program and focusing on the specific activities. Where possible, the BMPs and control measures were developed to address specific pollutants of concern or sources to enhance pollution reduction and provide increased environmental benefit.

The City has developed a comprehensive approach for managing the development and implementation of the stormwater program within the Stockton Urbanized Area (SUA). As a part of this effort, the City coordinates the program management activities internally as well as with the County (Section 1 of the 2009 SWMP). Additional information is included within each of the Program Control Measures.

[1] The City and the County are collectively referred to as "Permittees"

[2] Order No. R5-2007-0173

[3] Resolution No. R5-2009-0105

1.2 CONTROL MEASURES

The City has developed several Control Measures to ensure that the program management requirements are effectively implemented. The Program Management Control Measures consist of the following:

Control Measure
Program Coordination
Fiscal Analysis
Legal Authority

The next section of the Annual Report provides information on the specific tasks that have been initiated and/or completed during the 2014-2015 reporting period pursuant to the Program Management Performance Standards and implementation schedules.

1.3 PROGRAM COORDINATION

The implementation of the 2009 SWMP requires a coordinated management effort by the City and County. While named as co-permittees in one permit, in accordance with 40 C.F.R. §122.26(b)(4)(iii), the City and County need only to comply with permit conditions relating to discharges from the municipal separate storm sewer system for which each operates, pursuant to 40 C.F.R. §122.26(a)(3)(vi). For this reason, the City and County have separate programs and submit documents and reports separately to the Regional Water Board. However, the programs are very similar, and the Permittees actively collaborate to address common issues, plan and coordinate common activities, and ensure consistency in program development, implementation, and evaluation.

The performance standards for this control measure and the activities that have been initiated and/or completed during the 2014-2015 reporting period are summarized below.

1.3.1 Review and Revise the SWMP

The City reviewed and revised the proposed, draft SWMP (submitted to the Regional Water Board April 1, 2007 as a part of the Report of Waste Discharge) to ensure it was consistent with the third term Permit that was adopted December 7, 2007. The SWMP was submitted to the Regional Water Board for approval on June 6, 2008. Based on the comments received on the 2008 SWMP in November 2008, the SWMP was revised and was re-submitted for Regional Water Board approval on April 15, 2009. The 2009 SWMP was approved by the RWQCB on October 8, 2009.

1.3.2 Permittees Meet Quarterly

To facilitate the ongoing communication and coordination between the two agencies, Permittee meetings were held at least once per quarter to address common issues and to ensure consistency in program development and implementation. The coordination meetings focused on policy-related issues (with the Director and/or Deputy Director present) or program implementation such as monitoring, planning and land development, and public education. All meetings included representatives from the City's Municipal Utilities Department (MUD) and the County's Department of Public Works.

A summary of the meetings held during the 2014-2015 reporting period is provided below.

Type/Focus of Meeting	Meeting Date
2014 Quarter 3	
Monthly Monitoring and Policy Meeting	7/14/2014
Monthly Monitoring and Policy Meeting	8/7/2014
Monthly Monitoring and Policy Meeting	9/2/2014
2014 Quarter 4	
Monthly Monitoring and Policy Meeting	10/7/2014
Monthly Monitoring and Policy Meeting	11/21/2014
Monthly Monitoring and Policy Meeting	12/15/2014
2015 Quarter 1	
Monthly Monitoring and Policy Meeting	1/6/2015
Monthly Monitoring and Policy Meeting	2/12/2015
Monthly Monitoring and Policy Meeting	3/3/2015
2015 Quarter 2	
Monthly Monitoring and Policy Meeting	4/10/2015
Monthly Monitoring and Policy Meeting	5/5/2015
Monthly Monitoring and Policy Meeting	6/1/2015

1.3.3 Internal Stormwater Program Meetings (City Divisions and Departments)

The City's MUD Stormwater Management Division has primary responsibility for the development, implementation, and evaluation of the SWMP. The City's designated stormwater program manager oversees the implementation of the SWMP and the day-to-day operations.

The stormwater program manager contact information is provided below.

Primary Stormwater Program Contact	
Name	Christina Walter
Title	City of Stockton Stormwater Program Manager
Department/Division	Municipal Utilities Department
Address	2500 Navy Drive, Stockton, CA 95206
Phone Number	(209) 937-8155 / (209) 937-8705
E-mail Address	Christina.Walter@stocktongov.com

Although administered and principally staffed by MUD, the implementation of the SWMP requires the assistance of and close coordination with several other City departments. MUD coordinates with the other City departments as needed in order to ensure that the program requirements are understood and effectively implemented. Although the structure and focus of the subcommittees may be modified over time, this internal coordination provides a solid foundation for the program and will be continued throughout the permit term. During the 2014-2015 reporting period, staff from MUD (Engineering, Stormwater, Water Conservation, and Environmental Control) continued to meet as necessary to discuss the program. Meetings with staff of other City Departments were also held on an as-needed basis to address specific issues.

A summary of the internal Stormwater Program Meetings is provided below.

Type/Focus of Meeting	Meeting Date	City Department(s) Participating
Advertising and Outreach Coordination	3/16/2015	MUD - Stormwater, Wastewater, Water
Application of Stormwater Requirements In Plan Review	11/12/2014	MUD - Stormwater; City Attorney's Office; City Manager's Office
Capital Improvement Projects for Collection Systems and Pump Stations	7/18/2014	MUD - Stormwater, Collection Systems, Engineering
Collections Systems and Pump Stations Capital Improvement Projects for FY 2015-2016	1/16/2015	MUD - Stormwater, Collections Systems, Pump Stations, Engineering
Construction Site Plan Checking	9/12/2014	MUD - Stormwater , Engineering; Permit Center
Development Plan Review	7/10/2014	MUD - Stormwater , Engineering
Discharge of Delta Water Supply Project Water	7/7/2014	MUD - Stormwater, Water, Collections Systems, Environmental Control, Regulatory

Type/Focus of Meeting	Meeting Date	City Department(s) Participating
Emergency/Storm Preparedness	12/10/2014	MUD - Stormwater, Collection Systems, Pump Stations, Water; Fire; Public Works
Fish Kill Plan/Preparedness	9/30/2014	MUD - Stormwater, Environmental Control
FY 2014-2015 Capital Improvement Project Updates	1/13/2015	MUD - Stormwater, Collection Systems, Pump Stations, Engineering
	5/22/2015	MUD - Stormwater, Collection Systems, Pump Stations, Engineering, Administration
	6/19/2015	MUD - Stormwater, Collections Systems, Pump Stations, Engineering, Administration
FY 2015-2016 Budget - Program Narrative Development for Budget Book	4/1/2015	MUD - Stormwater, Collection Systems, Pump Stations
FY 2015-2016 Budget Proposals	3/10/2015	MUD - Stormwater, Collections Systems, Pump Stations, Environmental Control, Administration
FY 2015-2016 Capital Projects List Development	1/15/2015	MUD - Stormwater, Collection Systems, Pump Stations
FY 2015-2016 Operations Budget Preparation	1/26/2015	MUD - Stormwater, Collections Systems, Environmental Control
Hazard Identification & Communication	7/10/2014	MUD - Stormwater, Wastewater, Water
Industrial Inspections Planning	4/9/2015	MUD - Stormwater, Environmental Control
Industrial Permit Training Planning	3/4/2015	MUD - Stormwater, Environmental Control
Inventory of Stormwater Collection System and Pump Stations	6/3/2015	MUD - Stormwater, Collections Systems, Pump Stations
Media Outreach Planning	1/15/2015	MUD - Stormwater, Water
New Outside Legal Counsel for Storm Drainage Maintenance Assessment Districts	5/12/2015	MUD - Stormwater; City Attorney's Office
Open Window Project	1/21/2015	MUD - Stormwater, Environmental Control, Administration
Outreach Message Planning	7/18/2014	MUD - Stormwater, Water, Wastewater
Planning Meeting for Permit Center Staff Training	9/2/2014	MUD - Stormwater, Engineering
	9/10/2014	MUD - Stormwater, Engineering
Pump Station Vandalism	7/2/2014	MUD - Stormwater, Pump Station Maintenance, City Manager's Office/Public Information
Riverbend Detention Basin	10/27/2014	MUD - Stormwater, Engineering
Stormwater & Water Radio Outreach Interview	2/12/2015	MUD - Stormwater, Water

Type/Focus of Meeting	Meeting Date	City Department(s) Participating
Utilities Brand Image Development	10/9/2014	MUD - Stormwater, Wastewater, Water, Administration
	1/15/2015	MUD - Stormwater, Wastewater, Water
Utilities Brand Image Development Proposals (Outreach)	7/30/2014	MUD - Stormwater, Wastewater, Water
Utility Billing Insert/Outreach	6/29/2015	MUD - Stormwater, Water, Administration
Websoft - Possible Software Development for Inspection Tracking	12/3/2014	MUD - Stormwater, Wastewater Collections, Environmental Control
Websoft - Software Development - Field Demonstration	6/23/2015	MUD - Stormwater, Environmental Control
Websoft -Software Development	6/18/2015	MUD - Stormwater, Environmental Control

Each of the key Departments has a responsibility for the day-to-day implementation of the SWMP. A general overview of the Program Elements and responsible City Departments is presented in **Table 1-1**. For specific information regarding each Control Measure and Performance Standard, the appropriate SWMP section should be consulted.

Table 1-1. City Departments Responsible for Implementing the Stormwater Program[1]

Department	Program Management & Reporting	Illicit Discharges	Public Education	Municipal Operations[1]	Industrial/ Commercial	Construction	Planning & Land Development	Monitoring	Water Quality Based Programs
MUD – Stormwater Management	P	S	P	P	P	P	S	P	P
MUD – Engineering	S			P		S	P		
MUD – Environmental Control	S	P	S		S			P	
MUD – O & M		S		P					
Community Development	S	S	S		S	S	P		
Fire				S			S		
Library							S		
Police							S		
PW – Engineering	S			P		S	S		
PW – Operations & Maintenance				P		S			
PW – Solid Waste & Recycling	S			P					
Parks and Recreation	S		S	P					
City Attorney	S	S			S	S	S		

Notes:
1. Multiple departments are listed as having primary responsibility due to differing responsibilities for various control measures.
P – Primary responsibility
S – Provides support to primary department
MUD – Municipal Utilities Department
PW – Public Works

1.3.4 Statewide Stormwater-Related Meetings, Conferences, and Stakeholder Groups

Participation in statewide stormwater-related meetings, conferences, and stakeholder groups serves as training and information-sharing sessions for the participants. As of 2013-2014, due to additional staffing and availability, staff has re-engaged with the San Joaquin Valley Stormwater Quality Partnership on a routine basis. During the 2014-2015 reporting period, the City continued to participate in the Partnership and re-engaged with the County's Toxic Strike Force.

A summary of the statewide stormwater-related meetings, conferences, and stakeholder groups in which the City participated during the 2014-2015 reporting period is provided below.

Type/Focus of Meeting	Sponsoring Agency/Group	Meeting Date	City Department(s) Participating
Stormwater Strategic Initiative Meeting	California Water Board	8/14/2014	MUD - Stormwater
2014 CASQA 10th Annual Conference	California Stormwater Quality Association	9/15-18/2014	MUD - Stormwater
Stormwater Awareness Week workshops - Claiming "No Discharge" through the Notice of Non-Applicability (NONA) and Implementing an Effective IDDE Program	Condor Earth Technologies	9/22/2014	MUD - Stormwater
San Joaquin County Toxic Strike Force Meeting	San Joaquin County District Attorney's Office	10/6/2014	MUD - Stormwater, Environmental Control; Code Enforcement; Fire
San Joaquin Valley Stormwater Partnership Meeting	San Joaquin Valley Stormwater Partnership	10/22/2014	MUD - Stormwater
San Joaquin County Toxic Strike Force Meeting	San Joaquin County District Attorney's Office	11/3/2014	MUD - Stormwater, Environmental Control; Code Enforcement; Fire
Addressing Concerns of Ebola in Wastewater (webcast)	Water Environment Federation	11/4/2014	MUD - Stormwater, Collection Systems, Environmental Control
San Joaquin County Toxic Strike Force Meeting	San Joaquin County District Attorney's Office	1/12/2015	MUD - Stormwater, Environmental Control; Code Enforcement; Fire
Limited Term MS4 Permit - Delta RMP (conference call)	Central Valley Regional Water Quality Control Board	1/21/2015	MUD - Stormwater
CWEA P3S (Pretreatment, Pollution, Prevention, and Stormwater) Annual Conference	California Water Environment Association	2/2-3/2015	MUD - Stormwater, Collection Systems, Environmental Control

Type/Focus of Meeting	Sponsoring Agency/Group	Meeting Date	City Department(s) Participating
Trash Policy Adoption - Public Hearing	California Water Board	4/7/2015	MUD - Stormwater
Stockton-San Joaquin County Stormwater MS4 Interim Permit Adoption - Public Hearing	Central Valley Regional Walter Quality Control Board	4/17/2015	MUD - Stormwater
Trash Amendment Implementation Planning Meeting	Central Valley Regional Walter Quality Control Board	5/18/2015	MUD - Stormwater
San Joaquin County Toxic Strike Force Meeting	San Joaquin County District Attorney's Office	6/8/2015	MUD - Stormwater, Environmental Control; Fire

1.3.5 Review and Revise MOUs as Necessary

In 1995, the City and County entered into a Memorandum of Understanding (MOU) for filing as co-permittees under one NPDES permit as well as the development of a receiving waters monitoring program. The MOU provided a mechanism for the City and County to continue to work cooperatively on the development and implementation of additional stormwater programs.

The Permittees have reviewed and revised their existing MOU to ensure that it provides for designation of joint responsibilities, decision making, information management of data and reports, cost sharing objectives, and any other collaborative arrangements that are necessary for compliance with the Permit. The MOU was approved by the County Board of Supervisors and the City Council on September 16, 2008. The updated, final MOU was included as Appendix A-1 to the 2009 SWMP and as Appendix A-1 of the *2008-2009 Annual Report*.

1.3.6 Establish, Review, and Revise Cooperative Agreements

To help control the contribution of pollutants from one portion of the stormwater system to another, the City may participate in cooperative agreements with other agencies as the need or opportunity arises.

The Stormwater Program participates with numerous community groups, various state agencies, and local Phase II cities on outreach events, regional advertising, and training. Details regarding meetings, dates, and types of events sponsored are provided in Section 3, Public Outreach.

1.4 FISCAL ANALYSIS

The Fiscal Analysis includes the following:

- The expenditures for the previous fiscal year(s);
- The budget for the current fiscal year; and
- A description of the source of funds.

The performance standards for this control measure and the activities that have been initiated and/or completed during the 2014-2015 reporting period are summarized below.

1.4.1 Complete a Stormwater Rate Study

In June 2010, the City completed a Stormwater Rate Study to review the current rate structure and make recommendations to increase the monthly stormwater user fees in order to assist in funding the Program. The final Stormwater Rate Study was included as Appendix A-1 of the *2009-2010 Annual Report*. A community vote on the proposed new Clean Water Fee occurred in the fall of 2010; however, the Clean Water Fee increase failed.

1.4.2 Review and Revise the Fiscal Analysis Reporting Format

Pursuant to the Permit, the Permittees reviewed the fiscal analysis reporting format so that expenditures are consistently assessed by SWMP Program Element from year to year. The Fiscal Analysis reporting format was revised during the 2011-2012 and 2012-2013 reporting periods to more accurately reflect expenditures for staff salaries.

The Fiscal Analysis is provided below.

1.4.3 Report the Fiscal Analysis within the Annual Report

The City assessed the current NPDES expenditures as well as the projected expenditures for the next fiscal year. The budget summary includes the expenditures incurred to implement the SWMP and written explanations where necessary. The summary below also includes a description of the source(s) of the funds, including any legal restrictions on the use of the funds.

Program Element	Expenditures During Fiscal Year 2014-2015	Estimated Budget for Fiscal Year 2015-2016[a]
Program Management: Staff salaries, utility billing, phone charges, computer software/rentals, memberships, permit fees, indirect cost allocations, training, consultant contracts	$2,259,205	$2,181,135
Public Outreach: Includes industrial, commercial, residential programs including media and community events	$107,822	$98,000
Municipal Operations: Includes CIPs and Storm Drain System Cleaning and Maintenance (includes **Illicit Discharges**, illegal connections mitigation, and clean-up)[b]	$2,297,585	$2,349,431
Industrial and Commercial: Includes inspections and follow-up inspections.	--[c,d]	--[c,d]
Construction: Staff salaries, outreach	--[d,e]	--[d,e]
Planning and Land Development: Staff salaries	--[d]	--[d]
Water Quality Monitoring Programs: Includes Baseline Monitoring Program, Bioassessment Analysis, Dry Weather Field Screening, Smith Canal Bathymetry Study, Detention Basin Monitoring, BMP Effectiveness Study, Sediment Toxicity, Smith Canal/Mosher Slough Low DO13267 Letter Monitoring	$205,711	$197,668
Water Quality Based Programs: Includes Pesticide, Pathogen, Mercury, and DO Work Plans and Implementation	$67,968	$69,428
TOTAL	**$4,938,291**	**$4,895,662**

Notes:

a. Annually, the City breaks the overall budget down into individual Program Element expenditures. However, the methodology used to create a per-Program Element budgetary breakdown from year to year has varied. Thus, year-to-year budget comparisons may not result in "an apples-to-apples" comparison. The City is working on implementing a consistent methodology.

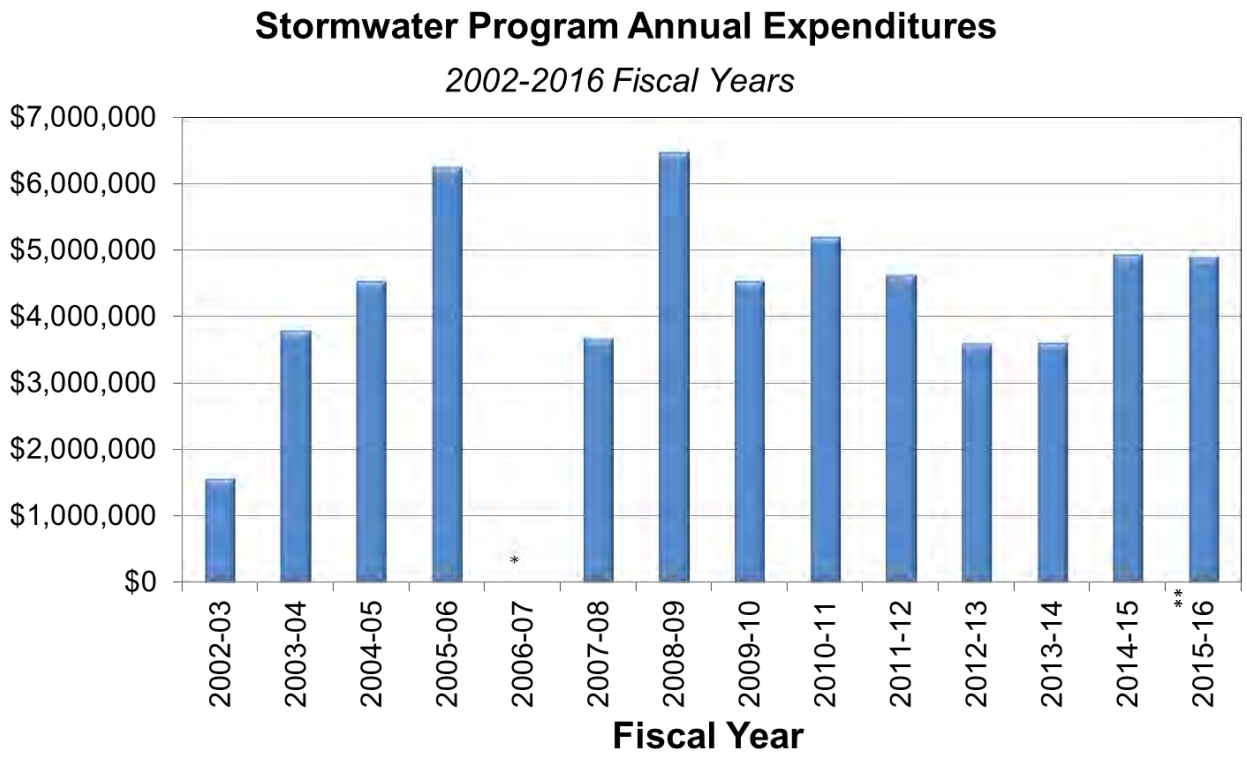
b. Facility Pollution Prevention Plans (FPPPs) are paid for out of Public Works budget and are not a Stormwater Expense.

c. The Industrial and Commercial Inspection Program is conducted in-house by Stormwater and Environmental Control Staff.

d. Staff salaries are included in Program Management budget.

e. Business and Construction outreach are included under Public Outreach budget.

The figure below depicts the City's Stormwater Program annual expenditures for each fiscal year from 2002 through 2015, as well as the projected expenditures for the 2015-2016 Fiscal Year.



Note: Annual fluctuations in expenditures may be due to a number of factors, including, but not limited to: one-time development of program materials, permit requirements that differ from year to year, and phased program implementation.

* Data not available. This information was not reported in the City's 2006-2007 Annual Progress Report letter.

** Estimated Program Expenditures for next fiscal year.

Stormwater Program Annual Expenditures; 2002-2016 Fiscal Years Plot

The City's stormwater program is funded primarily by a storm drain maintenance or user fee. As of June 30, 2015, the fee/equivalent residential unit is $2.10/month per Equivalent Residential Unit.

On July 26, 2005, the City Council adopted Resolution Number 05-0392 to establish an assessment district, designated as the "Stockton Consolidated Storm Drainage Maintenance Assessment District No. 2005-1," and the creation and annexation of Zone 1, to be known as "Riverbend Zone 1." The formation of this District was based on the provisions of the Municipal Improvement Act of 1913 (Act) and the Stockton Improvement Procedure Code, Part V. Since then, 12 additional Zones have been formed and annexed to the District. The Act and Stockton Municipal Code contain provisions for the City to form an assessment district and annex zone to the district's boundary for the maintenance and operation of improvements that impart a special benefit to an area. The purpose of the Stockton Consolidated Storm Drainage Maintenance District No. 2005-1 is to provide funding for the operation, maintenance, and replacement of stormwater quality improvement devices that are required by the Permit and have been turned over to the City to maintain. The District sets the annual assessments for each Zone that are then placed on the San Joaquin County tax roll for collection with the County real property taxes. These assessments provide funding for the operation, maintenance, inspection, repair, and replacement of the improvements in each Zone as well as other associated administrative costs, including preparing the Annual Engineer's Report and Assessment Roll. Property owners are responsible for funding only those

improvements in their Zone. Each assessed parcel is assigned a dwelling unit equivalent factor or a per assessable acre factor. A single-family residential lot is equivalent to one dwelling unit equivalent factor.

The City makes no financial contributions to the maintenance and operation of the stormwater quality improvement devices maintained by the District. All fees, costs and expenses incurred by the District are paid from the proceeds of the annual assessments to be levied and collected on the San Joaquin County tax roll. The use of the funds collected within the various Zones of the District are restricted by Proposition 218 and pay only the expenses related to the maintenance and operation of the specific stormwater quality improvement device(s) detailed in the Engineer's Report for each Zone. The funds collected from the property owners of a Zone can only be used for work on the device(s) in that specific Zone as it imparts special benefit restricted to the properties of that area. Expenditures and revenue reported above include the costs to maintain and operate the stormwater water quality devices operated by the District.

1.5 LEGAL AUTHORITY

The Permit requires that the Permittees implement a stormwater management program to reduce the pollutants in stormwater discharges to the MEP. Central to this program is the establishment and/or verification that the Permittees have adequate legal authority to regulate the discharge of pollutants to the storm drain system.

The City enacted a Stormwater Management and Discharge Control Ordinance (Chapter 13.16 of the recodified Stockton Municipal Code[4]) in 1995 to specifically control stormwater runoff quality. This ordinance both complements and supplements the existing ordinances and establishes uniform requirements for protecting and enhancing the water quality of the City's watercourses, water bodies, and wetlands in a manner consistent with the Clean Water Act.

The performance standards for this control measure and the activities that have been initiated and/or completed during the 2014-2015 reporting period are summarized below.

1.5.1 Review the Legal Authority

The City Attorney has reviewed the existing legal authority to ensure that the City has adequate legal authority to implement and enforce each of the requirements within Order No. R5-2007-0173. The legal authority will continue to be reviewed as needed.

[4] Available online at: http://qcode.us/codes/stockton/

1.6 PROGRAM EFFECTIVENESS ASSESSMENT

The City has adopted a method for assessing program effectiveness based on an approach developed by the California Stormwater Quality Association™ (CASQA). The effectiveness assessment is comprehensive and addresses the major stormwater program areas and activities.

Outcome levels help to categorize and describe the desired results of the Program Elements and related Control Measures. Pursuant to the 2007 CASQA guidance, outcomes for stormwater programs have been categorized into six levels, as shown in **Figure 1-1**. The outcome levels represent ways in which the effectiveness of the program can be determined, even if it is intermediate.[5]

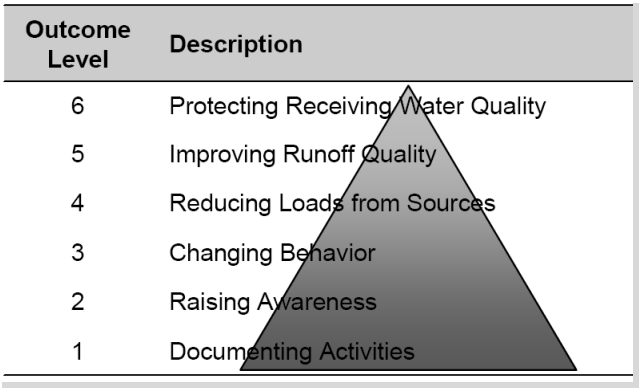


Figure 1-1. Effectiveness Assessment Outcome Levels

Within each individual section (starting with Section 2), the effectiveness assessment identifies the outcome level(s) achieved, as well as any program modifications that have been identified because of the assessment.

Some important points to remember about these effectiveness assessments include:

- The ability of a stormwater program to assess an outcome level tends to become progressively more difficult as you assess higher outcome levels (levels 4-6). This is because the higher outcome levels assess the impact that the SWMP has on water quality, which requires a much more robust dataset over an extended period of time.
- Outcome levels 1-3 (and sometimes 4) are typically assessed using program management data, whereas outcome levels 4-6 are assessed using physical and/or water quality monitoring data.
- Each program element can be assessed at one or more outcome levels based on the data and information available.

In future annual reports, the effectiveness assessment will be expanded and modified as necessary in order to report out on key items.

[5] California Stormwater Quality Association, *Municipal Program Effectiveness Assessment Guidance*, May 2007.

1.7 PROGRAM MANAGEMENT MODIFICATIONS

Each year, the City submits a work plan to the Regional Water Board for the activities that will be completed during the upcoming fiscal year. The 2015-2016 work plan identified several key tasks for this Program Element. In addition, as part of the ROWD process, the City has evaluated the effectiveness of program implementation during the Permit term, as well as the experience that staff has had in implementing the program, to identify the performance standards for the Control Measures under this Program Element for the next permit term. Through the development of the annual report, the annual work plan, and the ROWD, the City has determined if any additional program modifications are necessary in order to ensure that the stormwater management program is effective.

No modifications were identified for the upcoming permit term for this Program Element.

Section 2

Illicit Discharges (ID)

2.1 OVERVIEW

An illicit discharge is defined as any discharge to the storm drain system that is prohibited under local, state, or federal statutes, ordinances, codes, or regulations. Illicit discharges include the disposal of materials such as paint, spa water, or waste oil into the storm drain or the discharge of waste streams containing pollutants to the storm drain. Illegal connections are a subset of illicit discharges. Illegal connections are defined as undocumented and/or unpermitted physical connections from a facility to the storm drain system or receiving water (e.g., a sanitary sewer connection to the storm drain).

Because illicit discharges and illegal connections can be a significant source of pollutants to the storm drain system and receiving waters, the purpose of this Program Element is to ensure implementation of a comprehensive program for detecting, responding to, investigating, and eliminating these types of discharges and connections in an efficient and effective manner.

2.2 CONTROL MEASURES

The City has developed several Control Measures and accompanying performance standards to ensure that the illicit discharge-related Permit requirements are effectively developed and implemented. For each Control Measure there are accompanying performance standards which, once accomplished, constitute compliance with the SWMP/Permit.

The Illicit Discharges Program Control Measures consist of the following:

ID	Control Measure
ID1	Detection of Illicit Discharges and Illegal Connections • Spill Response Procedures • Public Reporting (Hotline) • Dry Weather Field Screening • Field Crew Inspections
ID2	Illegal Connection Identification and Elimination • Investigation and Elimination
ID3	Investigation/Inspection and Follow Up • Response and Investigation • Cleanup • Recordkeeping and Tracking
ID4	Enforcement
ID5	Training
ID6	Effectiveness Assessment

The next section of the Annual Report provides information on the specific tasks that have been initiated and/or completed during the 2014-2015 reporting period pursuant to the Illicit Discharges Performance Standards and implementation schedules.

2.3 ID1 – DETECTION OF ILLICIT DISCHARGES AND ILLEGAL CONNECTIONS

Detection of illicit discharges through the availability of a public hotline, conducting dry weather field screening, and utilizing field crews ensures that the Illicit Discharges program is proactive in identifying and eliminating problematic discharges. This Control Measure reflects the City's efforts to detect and eliminate illicit discharges and illegal connections and provides several mechanisms for receiving information.

2.3.1 Spill Response Procedures

The City addresses three types of spills: sewage, non-hazardous, and hazardous spills. Procedurally, the sewage and non-hazardous spills are addressed in the same manner, whereas the hazardous spills are responded to and addressed by a licensed contractor.

During 2009-2010, the City developed a document, *Spill Response Procedures for Non-Hazardous Materials and Wastes*, which includes a responsibility flow chart and outlines a timeline and response steps to address emergency and non-emergency spills of non-hazardous materials and wastes. The *Spill Response Procedures for Non-Hazardous Materials and Wastes* was included as Appendix B-1 to the *2009-2010 Annual Report.*

2.3.2 Public Reporting

Maintain and Advertise Hotline/Ask Stockton

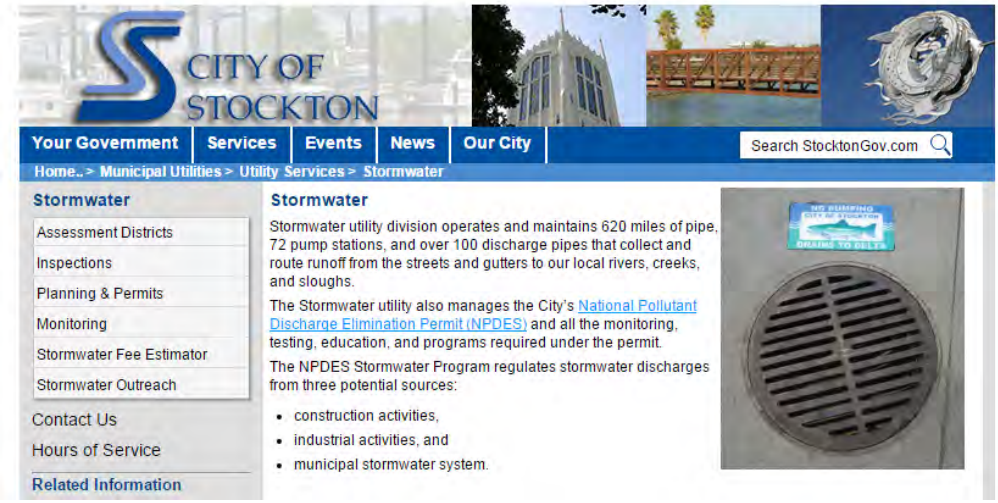
The City has established and maintains a 24-hour Hotline (**209-937-8341**) to encourage the public to report water pollution problems. The reporting program is based on a published directory that lists the telephone numbers of all City staff and departments. The directory is designed to facilitate the public's access to the City government by giving every City employee the ability to direct initial inquiries to the appropriate department or person.

- Business Hours – During normal business hours, City personnel are available to answer and direct calls to the appropriate department.
- Evenings and Weekends – After hours, calls are automatically deferred to 911 and the Fire Department dispatcher.

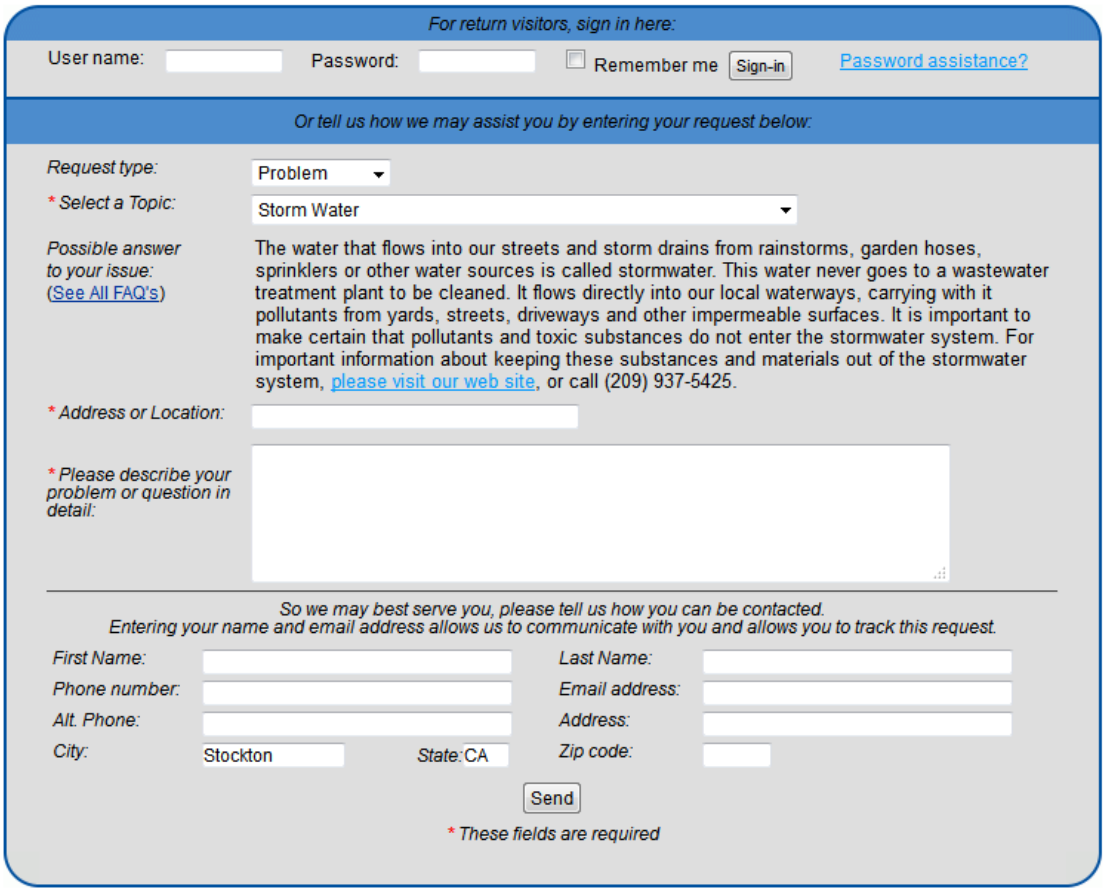
Each complaint or spill is investigated within two business days and tracked to ensure that information is not lost. Internal communication between departments has been established through a series of notification flowcharts for particular types of incidents to ensure response, adequate tracking, and corrective actions. Each incident is documented using the incident response form included in the City's Emergency Spill Response Plan.

In addition, the City has established and maintains a web-based public reporting system called Ask Stockton. The Stormwater Program uses Ask Stockton to address various stormwater related issues, questions, and concerns. Ask Stockton is advertised through the City of Stockton's Web site and television channel. [1]

[1] Channel 97 is a Stockton government access cable television channel devoted to the Stockton City Government



City of Stockton Stormwater Web Site



Ask Stockton Portal

The City facilitated the reporting of illicit discharges by maintaining the Hotline/Ask Stockton and advertising them:

- In MUD outreach materials
- On the City Web site
- On the City television channel

The number of water pollution complaints received and verified and the source of the complaints are listed below.

	Source	Total Number of Calls/ Forms Submitted	Total Number of Water Pollution Complaints Received	Total Number of Water Pollution Complaints Verified
Last Year 2013-2014	Hotline	48	14	13
	Ask Stockton	0	0	0
This Year 2014-2015	Hotline	3	3	3
	Ask Stockton	3	3	3

Coordinate with Other Departments and Agencies

The City coordinated with other departments and agencies to ensure that all reports of water pollution problems are appropriately received, routed, tracked, and investigated.

The City continued to coordinate throughout the year by:

- Advertising the hotline number internally;
- Conducting internal meetings/training; and
- Printing the hotline number on MUD outreach materials.

Review Complaint Documentation Form

During 2009-2010, the City reviewed and revised the Stormwater Program Illicit Discharge Complaint Form that is used to document the complaints received. The revised Stormwater Program Illicit Discharge Complaint Form was included as Appendix B-2 to the *2009-2010 Annual Report*.

2.3.3 Dry Weather Field Screening

Conduct Dry Weather Field Screening

Provision II.F of the Permit requires the Permittees to screen 20% of their outfalls annually to identify potential illicit connections and illegal discharges. Pursuant to the program modifications noted in the *2010-2011 Annual Report*, dry weather field screening for the City outfalls was suspended during the 2011-2012 and 2012-2013 reporting periods. The City resumed the annual dry weather field screening program in 2013-2014 (see also Section 8 of this Annual Report).

The field screening program identifies new dry weather flows, provides a check on the effectiveness of the ID Program, and supports this Program by identifying "hot spots" and conducting the appropriate follow-up action. All outfalls are sampled and tested for temperature, pH, chlorine, copper, phenols, dissolved oxygen, electrical conductivity, and detergents/surfactants. The results of the dry weather field screening and information regarding the source identification studies is provided in **Section 8** of the Annual Report. A brief summary of the program is provided below.

The number of outfalls monitored and the number of problem areas identified are listed below.

	Total Number of Outfalls Monitored	Total Number of Dry Weather Discharges Exceeding Action Levels
Last Year 2013-2014	24	1
This Year 2014-2015	22	2

Of the 22 outfall locations investigated during the 2014-2015 monitoring program, eight contained sufficient flow for field screening analysis. Two sites exceeded action levels for electrical conductivity. These action levels were still exceeded in the follow-up analysis within 24 hours. The main storm drain lines were investigated to isolate the source. Insufficient flow ended the investigation at one site, while no clear trend in concentration was observed at the other. Previous source tracking upstream of this location during 2008-2009 and the age of the infrastructure indicate that EC exceedances were likely the result of groundwater infiltration into the storm drain system. Field analytical results indicated that all other constituent concentrations were below action levels. More detail is provided in **Section 8.**

Evaluate Effectiveness of Dry Weather Field Screening Program

The Permittees have evaluated the effectiveness of the dry weather field screening program in identifying Illicit Discharges/Illegal Connections (ID/IC) issues, and recommended elimination of the Dry Weather Field Screening. Since the Permittees began this effort in 2005, a total of eight (8) outfalls (six [6] detected by the City and two [2] detected by the County) have exceeded the established action levels for electrical conductivity (EC) for triggering source identification studies. In sum, only 1.8% of all screened outfalls (8 of 435) have exceeded action levels, and all of these exceedances were for EC. Other, more cost-effective mechanisms exist for detection and elimination of IDs and ICs (e.g., field crew inspections during regular maintenance activities).

2.3.4 Field Crew Inspections

Field staff are trained to recognize illicit discharges so that, during their normal maintenance activities, they can identify signs of previous, current, or potential non-stormwater discharges/connections or illegal dumping into the storm drain system. Once they are discovered, the field staff notifies the MUD – Stormwater Management Program for follow-up investigation. The City's primary spill response investigator conducts follow-up inspections and accompanies field crews during cleanup to ensure that reported spills are properly cleaned up and identified illicit connections are corrected.

The number of water pollution issues identified by field staff is listed below.

	Source	Total Number of Illicit Discharges Observed	Total Number of Discharges Verified
Last Year 2013-2014	Field Staff	52	46
This Year 2014-2015	Field Staff	39	37[a]

Notes:

a. In 2014-2015, two illicit discharges investigated by field staff had "No Evidence of Discharge," and cleanup was not required; however, enforcement actions were taken in one case because a cap was missing from the sewer lateral clean-out. In the other case, water was noticed on the property due to a water leak, the repair of which was required within 24 hours.

For illicit discharges identified by field staff, information from the Illicit Discharges Database (i.e., the types of pollutants involved; whether the discharge was verified; whether the source was identified; enforcement actions taken; contractor cleanup status; source of complaint; and whether the complaint was investigated within two business days) is provided in **Appendix B-1**. In 2014-2015, the City began transitioning to an electronic inspection format. A consultant, Websoft Developer, was contracted to convert all inspection forms to electronic documents with drop-down codes that can be accessed via an electronic tablet in the field. It is anticipated that all inspection results and photographs will be instantly uploaded to the database. This is expected to improve data consistency and completeness and reduce the likelihood of data loss.

2.4 ID2 – ILLEGAL CONNECTION IDENTIFICATION AND ELIMINATION

In parallel with the efforts to detect and eliminate illicit discharges (see ID1), the City proactively detects illegal connections to the storm drain system. Upon identification of an illegal connection, the City investigates and eliminates the connections through a variety of mechanisms including, but not limited to, permitting or plugging the connection.

The performance standards for this control measure and the activities that have been initiated and/or completed during the 2014-2015 reporting period are summarized below.

2.4.1 Investigate/Eliminate Illegal Connections

As a part of their normal maintenance activities, City field staff identifies signs of illegal connections to the storm drain system. Once they are discovered, the illegal connections are addressed and corrected/eliminated.

- Did the City field staff continue to identify illegal connections?

  Yes, illegal connections identified ☐
  Yes, but no illegal connections identified ☒
  No ☐

- Did the responsible MUD staff investigate the potential illegal connections within 21 calendar days to determine the source of the connection, the nature and volume of discharge through the connection, and the responsible party for the connection?

  Yes ☐
  No, no illegal connections identified ☒

- Did the responsible MUD staff eliminate identified illegal connections?

  Yes ☐
  No, no illegal connections identified ☒

The table below summarizes the illegal connections investigation/elimination efforts.

	Source	Total Number of Illegal Connections Reported	Total Number of Illegal Connections Verified	Total Number of Illegal Connections Eliminated
Last Year 2013-2014	Hotline	0	0	0
	Ask Stockton	0	0	0
	Field Staff	1[a]	1	1
This Year 2014-2015	Hotline	0	0	0
	Ask Stockton	0	0	0
	Field Staff	0	0	0

Notes:

a. In 2013-2014, one illicit connection was identified at Stagg High School. It was eliminated and permanently plugged (see Appendix B-1 of the *2013-2014 Annual Report*).

2.4.2 Coordinate with Planning and Land Development Program

The City requires that tentative parcel maps be reviewed to ensure that they are consistent with the City standards, including the storm drain standards. Plan reviews ensure that no illegal connections are proposed. All plan reviews are tracked in a database and construction inspections are conducted upon project completion to ensure that the project was built correctly.

The number of illegal connections identified through Planning and Land Development Plan reviews is listed below.

	Source	Total Number of Plans Reviewed	Total Number of Illegal Connections Identified
Last Year 2013-2014	Planning/Land Development Plan Review	16	0
This Year 2014-2015	Planning/Land Development Plan Review	12	0

2.4.3 Coordinate with Construction Program

Municipal Utilities Department Engineering (Permit Center) staff coordinated with the Planning Division throughout the year to identify illegal connections during the Plan Review Stage. Information on all approved projects is communicated to Municipal Utilities Department's Stormwater Construction Inspector to begin the required monthly inspections of active construction sites to ensure that any issues identified during the plan review process will be resolved while the project is active.

The number of illegal connections identified through Construction project inspections is listed below.

	Source	Total Number of Illegal Connections Identified
Last Year 2013-2014	Project Construction Inspections	0
This Year 2014-2015	Project Construction Inspections	0

2.5 ID3 – INVESTIGATION/INSPECTION AND FOLLOW UP

The investigation and inspection of potential illicit discharges and illegal connections to the storm drain system, as well as appropriate follow-up actions, are essential in order to eliminate illicit discharges and illegal connections. The response and follow-up actions may include cleanup and/or other necessary actions to mitigate the impacts of the discharge.

The performance standards for this control measure and the activities that have been initiated and/or completed during the 2014-2015 reporting period are summarized below.

2.5.1 Response and Investigation

When a notification or complaint is received, the Municipal Utilities Department (MUD) provides an on-site assessment to determine the conditions of the discharge within two (2) business days (during or immediately following containment and cleanup). The investigation process includes determining whether the discharge is occurring on private or public property, whether the discharge is an authorized non-stormwater discharge, and whether the discharge is hazardous.

The City developed *Spill Response Procedures for Non-Hazardous Materials and Wastes* that include a responsibility flow chart and outline timeline and response steps to address emergency and non-emergency spills of non-hazardous materials and waste. The *Spill Response Procedures for Non-Hazardous Materials and Wastes* was attached as Appendix B-1 of the *2009-2010 Annual Report*.

The City completes a detailed description of each report, action taken, and final resolution. A *Stormwater Program Illicit Discharge Complaint Form* was developed to ensure all pertinent information is gathered, and this form was revised during the 2009-2010 reporting period (Appendix B-2 of the *2009-2010 Annual Report*).

Respond to Illicit Discharges

A table summarizing the responses is provided below. For illicit discharges identified via the Hotline, Ask Stockton, and MUD Environmental Control Staff, information from the Illicit Discharges Database (i.e., facility type; activity type; types of pollutants involved; whether the discharge was verified; whether the source was identified; enforcement actions taken; contractor cleanup status; source of complaint; and whether the complaint was investigated within two business days) is provided in **Appendix B-1**.

	Total Number of Complaints/Notifications Reported (All Sources)[1]	Total Number of Illicit Discharges Verified (All Sources)[1]	Total Number of Complaints/Notifications Investigated within Two (2) Business Days
Last Year 2013-2014	81	70	79
This Year 2014-2015	87	79	85

Notes:

1. Sources include the Hotline, Ask Stockton, Field Staff, and Other. These data include incident referrals via direct calls to staff, observations made in the field by field personnel, and internal staff referrals.

A table summarizing the types of materials involved in the verified incidents, categorized by Waste Category and Waste Subcategory, is provided below. These data reflect the types of constituents involved in incidents, not the total number of incidents (i.e., a given incident may include multiple constituents (Waste Categories)). Thus, the total types of Waste Categories and Subcategories identified will not necessarily be the same as the total number of incidents reported within **Section 2**.

Type of Materials, by Waste Category and Subcategory[a]	Total Number of Illicit Discharges Verified	
	2013-2014	2014-2015
Nutrients	**1**	**0**
Pesticides	**1**	**0**
Sediment	**3**	**10**
Hydrocarbons	**12**	**21**
Gasoline / Diesel	3	4
Fats, Oils, and Grease	--[b]	3[b]
Hydraulic Oil	1	2
Motor Oil	2	6
Paint (Oil Based)	2	4
Solvent	0	1
Other	1	1
Wastewater	**38**	**38**
Concrete Slurry	6	1
Pool/Spa Discharge	6	3
Sewage	3	2
Wash Water	16	20
Other	5	12
Trash and Debris	**8**	**9**
Food Waste	2	2
Green Waste	0	2
Trash	0	3
Other	6	2
Paint	**3**	**4**
Miscellaneous	**2**	**1**
Antifreeze	0	1
Other	2	0
Unidentified	**2**	**0**
Liquid	1	0
Odor	0	0
Residue	1	0
Solid	0	0

Notes:

a. These data reflect the types of constituents involved in incidents, not the total number of incidents (i.e., a given incident may include multiple constituents (Waste Categories)). Thus, the total types of Waste Categories and Subcategories identified will not necessarily be the same as the total number of incidents reported within Section 2.

b. The Hydrocarbons Subcategory of Fats, Oils, and Grease was not provided as an option by the database; however, it was tracked in the detailed notes of the "Other" Subcategory during 2014-2015.

Develop an Investigative Guidance Manual

During 2009-2010, the City developed an Investigative Guidance Manual to ensure that inspections of ID/IC are conducted in a uniform manner (Appendix B-4 in the *2009-2010 Annual Report*). The Investigative Guidance Manual establishes general guidelines that may be utilized to ensure that the procedures followed and information obtained during an investigation are defensible. The Investigative Guidance Manual covers protocols for obtaining permission to inspect, proper collection of evidence, and appropriate enforcement actions. This document has been distributed to, and will continue to be used by, MUD Environmental Control and MUD Stormwater staff.

2.5.2 Cleanup

The main objective of the cleanup effort is to restore the impacted area back to its original state and prevent further environmental degradation in the area surrounding the incident. Depending on the incident, the City may serve the owner or occupant of the property with an invoice for the cleanup cost.

The City maintained contractual services for the cleanup and removal of hazardous materials. The number of illicit discharges requiring contractor clean-up is listed below.

	Total Number of Illicit Discharges Requiring Clean-Up
Last Year 2013-2014	43
This Year 2014-2015	45

2.5.3 Recordkeeping and Tracking

The City developed an Illicit Discharge Database and utilizes the information to identify and respond to areas that require focused attention. The City also maps the locations of the illicit discharges and illegal connections on a GIS-based map and uses the information to evaluate patterns and trends with the objective of identifying priority areas and tracking repeat offenders.

Maintain Illicit Discharges Database

During the 2014-2015 reporting period, the City maintained the Illicit Discharges database. Information related to the illicit discharges, including the types of pollutants involved, whether the discharge was verified, whether the source was identified, enforcement actions taken, contractor cleanup status, source of complaint, and whether the complaint was investigated within two business days is provided as **Appendix B-1**.

Evaluate, Optimize, and Incorporate Waste Categories

During 2009-2010, the City evaluated and optimized the waste categories it uses to categorize illicit discharges in order to minimize the number of illicit discharges described as miscellaneous or unidentified and more accurately characterize the pollutants and activities involved (see the Waste Categories Memorandum, Appendix B-5 of the *2009-2010 Annual Report*). This will allow the City to effectively focus resources on the more prevalent types of incidents. By targeting pollutants and associated activities for additional outreach efforts, the City may be able to eliminate a large portion of the incidents that occur, thereby resulting in a more effective Illicit Discharge program.

Under the new system, each illicit discharge is tracked by facility type, activity causing the illicit discharge, and updated waste categories that are a hybrid of categories previously used by the City and categories recommended by CASQA. These waste categories have been incorporated into the Illicit Discharge Database and are used to track illicit discharges. The primary waste categories were used starting in the 2010-2011 reporting period, and use of the waste subcategories was implemented in 2013-2014 and 2014-2015.

Identify Reported Illicit Discharges on a Map

The City mapped the identified illicit discharges. The Illicit Discharges Location Map is provided as **Appendix B-2**. In addition, the City evaluated the information for patterns and trends of illicit discharges, with the objectives of identifying priority areas and tracking repeat offenders for elimination of illicit discharges.

As in the past, the City observed that clusters of sanitary sewer overflow (SSO) incidents tend to occur in areas of the City where the sewage infrastructure is older. The City will continue to monitor for clusters of illicit discharges, concentrate cleaning crews in these areas, and provide appropriate outreach that targets these areas.

2.6 ID4 – ENFORCEMENT

The Enforcement Control Measure establishes policies and procedures and outlines the progressive levels of enforcement applied to responsible parties not complying with City ordinances. By adopting and implementing a progressive enforcement policy, the City will ensure that the program is effective at reducing illicit discharges and illegal connections.

The performance standards for this control measure and the activities that have been initiated and/or completed during the 2014-2015 reporting period are summarized below.

2.6.1 Implement Progressive Enforcement Policy

The City has a progressive enforcement and referral policy so that the enforcement actions match the severity of the violation and include distinct, progressive steps. Enforcement actions are taken in accordance with the *Municipal Utilities Department Directive Prohibiting Non-Stormwater Discharges to the Storm Drainage System* (MUD Directive, Appendix B-8 of the *2009-2010 Annual Report*). Options are available for progressive, corrective actions for repeat offenders. In general, the progressively severe corrective actions involve verbal warnings followed by written warnings and legal action, if necessary. Illicit discharges by businesses are addressed in a more formal manner through the issuance of administrative citations, notices of non-compliance, cease and desist orders, and criminal enforcement, depending upon the compliance history of the facility. Corrective actions are taken in every instance where a responsible party is identified.

2.6.2 Review/Revise Illicit Discharges Database to Incorporate Enforcement-Related Information

The Illicit Discharges Database has been updated to incorporate enforcement-related information (**Appendix B-1**). All enforcement actions associated with an incident are tracked. The database is supported by records kept by MUD Environmental Control and MUD Stormwater for all citations written and enforcement actions taken.

2.6.3 Track Enforcement Actions in the Illicit Discharges Database

The City used the Illicit Discharges Database to track enforcement actions. The number and types of enforcement actions taken for illicit discharges and illegal connections by the Stormwater Division are summarized below.

Stormwater Division Enforcement Actions	2013-2014[1]	2014-2015
None – No Action Taken[2]	24	8
Not Available[3]	4	0
Administrative		
Verbal Warning	16	53
Cease and Desist Order[4]	10	4
Violation Warning Notice[4]	17	15
Notice to Clean[4]	12	16
Stop Work Order[4]	5	0
Administrative Citation (Fine)[4]	12	11
Correction Order[4]	14	25
Criminal Enforcement[5]		
Misdemeanor	0	0
Infraction	0	0

Notes:

1. The total number of enforcement actions taken may be greater than the number of verified incidents due to multiple enforcement actions. These enforcement actions may have occurred on the same day for a single incident.
2. **None – No Action Taken:** This enforcement action type denotes that no action was taken. The responsible party may have taken corrective measures before agency personnel arrived and/or a responsible party was not identifiable.
3. **Not Available:** Data for a given reported incident was not available.
4. The "Notice of Violation - Administrative Citation form used by MUD - Stormwater includes the following enforcement options: Cease and Desist Order; Violation Warning Notice; Notice to Clean; Stop Work Order; Fine; and Correction Order.
5. **Criminal Enforcement:** This category presumes that an action turned over to the District Attorney resulted in a criminal prosecution within the year of the incident. However, data for this category can only be updated in subsequent years (i.e., after criminal prosecution has been successful).

The number and types of enforcement actions taken for illicit discharges and illegal connections by the Environmental Control Division are summarized below.

Environmental Control Division Enforcement Actions	2013-2014[1]	2014-2015[1]
None – No Action Taken[2]	4	5
Not Available[3]	0	0
Administrative		
Verbal Warning	4	2
Notice of Violation	0	5
Notice to Clean	3	5
Correction Order	6	4
Criminal Enforcement[4]		
Misdemeanor	0	0
Infraction	0	0

Notes:

1. The total number of enforcement actions taken may be greater than the number of verified incidents due to multiple enforcement actions. These enforcement actions may have occurred on the same day for a single incident.
2. **None – No Action Taken:** This enforcement action type denotes that no action was taken. The responsible party may have taken corrective measures before agency personnel arrived and/or a responsible party was not identifiable.
3. **Not Available:** Data for a given reported incident was not available.
4. **Criminal Enforcement:** This category presumes that an action turned over to the District Attorney resulted in a criminal prosecution within the year of the incident. However, data for this category can only be updated in subsequent years (i.e., after criminal prosecution has been successful).

Total number of incidents with Administrative enforcement (Stormwater Division): 67

Total number of incidents with Administrative enforcement (Environmental Control Division): 7

Total number of enforcement actions taken during the reporting period (Stormwater and Environmental Control Divisions): 140

Number of repeat offenders[2] identified during the reporting period: 1

Total number of complaints/problems referred to the Regional Board: 0

[2] Repeat offenders were identified by tracking responsible parties for multiple incidents at the same address on different dates.

2.7 ID5 – TRAINING

Training is important for the implementation of the Illicit Discharges Program Element. An effective training program is one of the best pollution prevention BMPs that can be implemented because it prompts behavioral changes that are fundamentally necessary to protect water quality.

Areas of Focus for the Illicit Discharge Detection and Elimination Program Training

Target Audience	Format	Subject Material	Comments
• Hotline staff • Public Works maintenance crews • Industrial/Commercial inspectors • Building and construction inspectors • Police Dept. • Fire Dept. • Environmental Control Officers	• Classroom • Field Demos	• Overview of stormwater management program • Stormwater ordinance and enforcement policy • Identification and elimination • Conducting field inspections • Response and notification • Database tracking	• Training seminars or workshops related to ID/ICs may be made available by other organizations

2.7.1 Conduct Training

Although the City did not develop and provide internal Illicit Discharges training workshops, staff attended training sessions related to illicit discharges during the 2014-2015 reporting period. A summary of the training sessions held during the 2014-2015 reporting period is provided below.

Date of Training	Title of Training Module	Number of Attendees	Staff Positions Trained	Trainee City Departments or Divisions
9/12/2014	Site Plan Reviews (for Permit Center staff reviewing site plans)	15	City Engineer, Public Works Inspector, Permit Technician Planner, Revenue Assistant, Plan Checker, Building Official, Office Specialist, Program Manager	MUD Commercial Development
10/23/2014	HazCom Training	190	All positions	MUD
2/2/2015-2/3/2015	CWEA P3S (Pretreatment, Pollution, Prevention and Stormwater) Annual Conference	7	Program Manager (2), Public Works Inspector, Environmental Control Officer (4)	Stormwater Wastewater Collection Environmental Control
2/27/2015	HazCom Training	190	All positions	MUD

Date of Training	Title of Training Module	Number of Attendees	Staff Positions Trained	Trainee City Departments or Divisions
3/10/2015	US DOT Haz Mat Employee & Manifest 49 CFR 172.704	1	Public Works Inspector	Stormwater
3/11/2015	Operating an Underground Storage tank-Owner Operator	1	Public Works Inspector	Stormwater
3/24/2015	Basic Haz.Waste	1	Public Works Inspector	Stormwater
4/1/2015	Storm Water Virtual Expo	1	Public Works Inspector	Stormwater
5/5/2015	Universal Waste Management Training	1	Public Works Inspector	Stormwater
6/11/2015	Industrial Permit Webinar	1	Public Works Inspector	Stormwater

2.8 ID6 – EFFECTIVENESS ASSESSMENT

In order to determine the effectiveness of the Illicit Discharges Program, a comprehensive assessment of the program data is conducted as a part of the annual report. The results of this assessment are used to identify modifications that need to be made to the program. Each year the effectiveness assessment is reviewed and revised as needed.

By conducting these assessments and modifying the program as needed, the City ensures that the iterative process is used as an effective management tool. Due to the types of data collected for the Illicit Discharge Program, the assessment primarily focused on Outcome Levels 1-2.

- Outcome Level 1 (L1) answers the question: Did the City implement the components of the Permit and the 2009 SWMP?
- Outcome Level 2 (L2) answers the question: Can the City demonstrate that the control measure/performance standard significantly increased the awareness of a target audience?
- Outcome Level 3 (L3) answers the question: Can the City demonstrate that the control measure/performance standard significantly modified the behavior of a target audience?

The table below summarizes the effectiveness assessment that was conducted for the Illicit Discharges Program Element. Additional detail for each component of the assessment is provided on the following pages. It should be noted that Outcome Levels 5 and 6 will only be assessed as a part of the Water Quality Based Programs and the Monitoring Program on a longer term basis since those analyses rely on environmental data.

Program Effectiveness Assessment Summary for Illicit Discharges

Illicit Discharges	Level 1	Level 2	Level 3	Level 4
	Implement Program	Increase Awareness	Behavior Change	Load Reduction
ID1 - Detection of Illicit Discharges and Illegal Connections	C – Maintained and Advertised Hotline C – Coordination with Other Departments and Agencies C – Coordination with Field Crews C – Reports of Verified Illicit Discharges	C – Identification of Illicit Discharges by Field Crews	C – Identification of Illicit Discharges by Field Crews	N/A
ID2 - Illegal Connections Identification and Elimination	C – Identification and Elimination	N/A	N/A	N/A
ID3 - Investigation/Inspection and Follow Up	C – Response Activities C – Characterize Illicit Discharges	C – Characterization of Illicit Discharges by Field Crews	C – Characterization of Illicit Discharges by Field Crews	N/A
ID4 - Enforcement	C – Enforcement Action	N/A	N/A	N/A
ID5 - Training	C – Staff Attended Training	A	N/A	N/A

C – An effectiveness assessment was conducted during the reporting periods

A – It is anticipated that an effectiveness assessment may be conducted in future annual reports

N/A – This outcome level is not applicable for this control measure

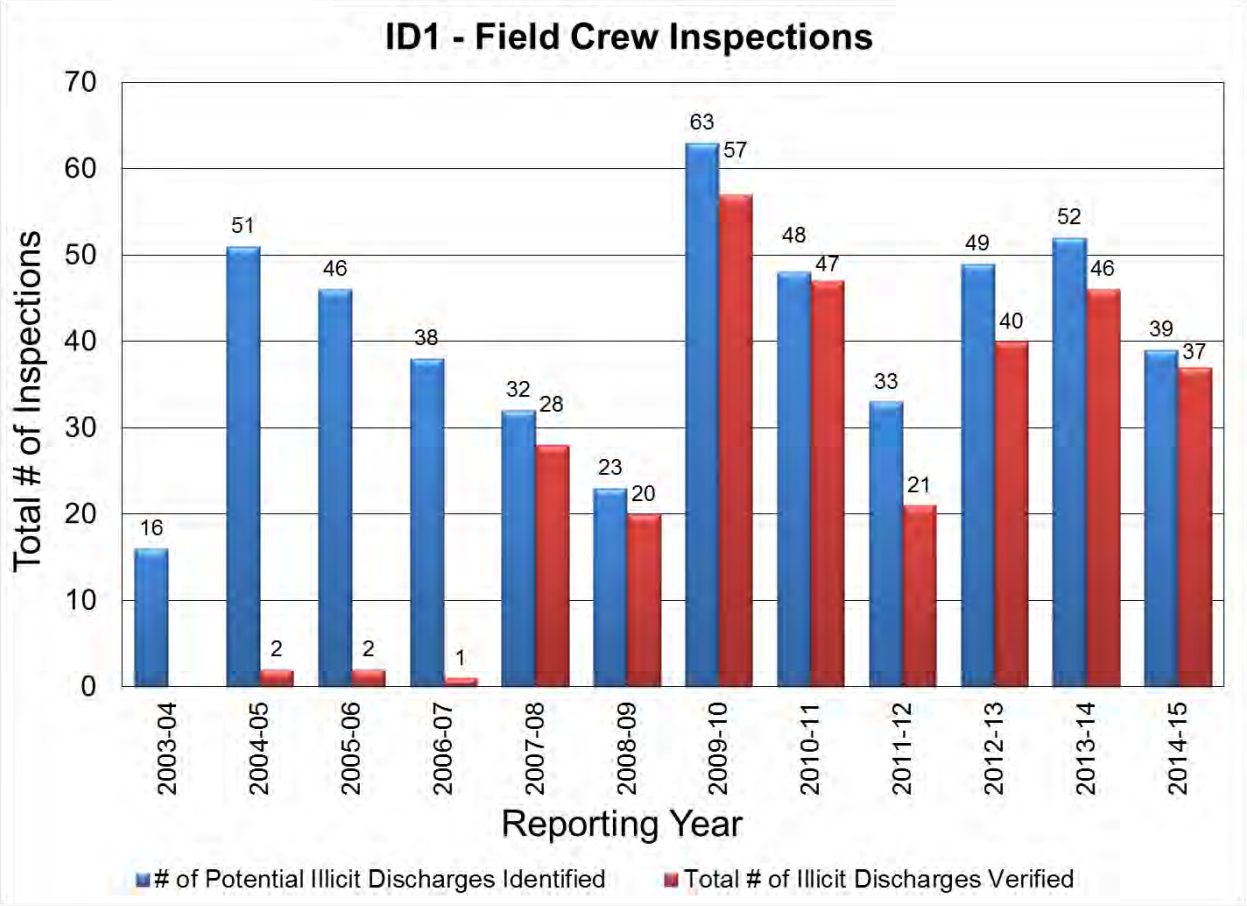
Following is an assessment regarding the effectiveness of the Illicit Discharges Program.

ID1 - Detection of Illicit Discharges and Illegal Connections

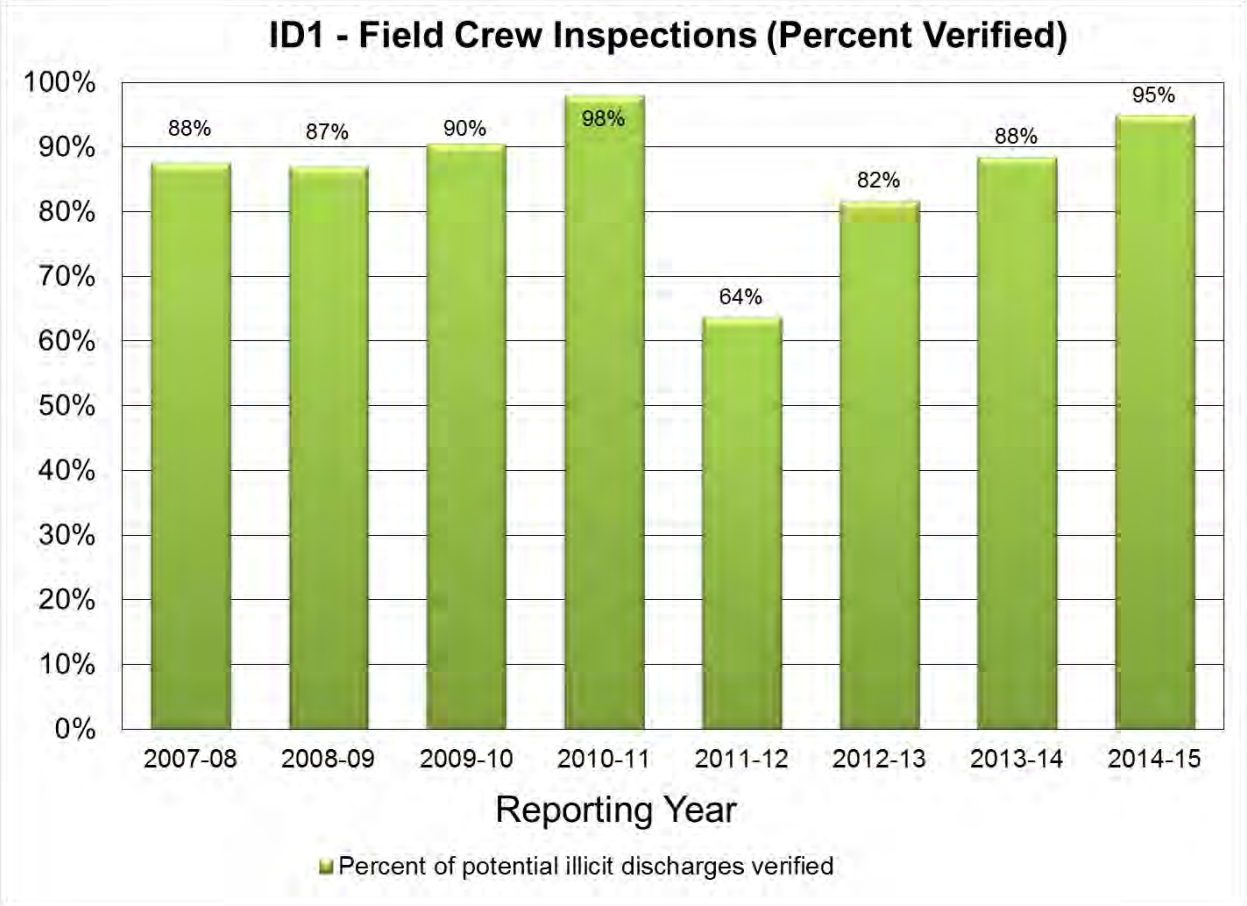
The City has facilitated the reporting of illicit discharges by establishing and maintaining a hotline number, a general stormwater information number, and a web-based public reporting system (Ask Stockton), and widely advertising them as part of the public outreach program. This has been accomplished by including the hotline number and/or Web site in public education materials, on the City's Web site, and in the local telephone book. **(L1)**

The City has further facilitated the reporting of illicit discharges by coordinating with other departments and agencies. This has been accomplished by advertising the hotline number internally and conducting internal meetings. **(L1)**

City field crews are critical to the IDs program since they are the eyes and the ears of the City and are in the field every day. As such, they have been trained to identify potential IDs while conducting routine maintenance activities. Since 2003-2004, 490 potential IDs have been identified by field crews. Of the 39 potential illicit discharges identified by field staff in 2014-2015, 37 were verified as illicit discharges and appropriately addressed. **(L1)**



With the exception of 2011-2012, the success rate of the field inspectors in reporting illicit discharges that have been verified in the field and followed up on in an appropriate manner has remained high since 2007-2008. Since 2011-2012, the success rate has steadily improved; indicating increased awareness of field inspectors regarding what constitutes a problematic water pollution incident. **(L2, L3)**



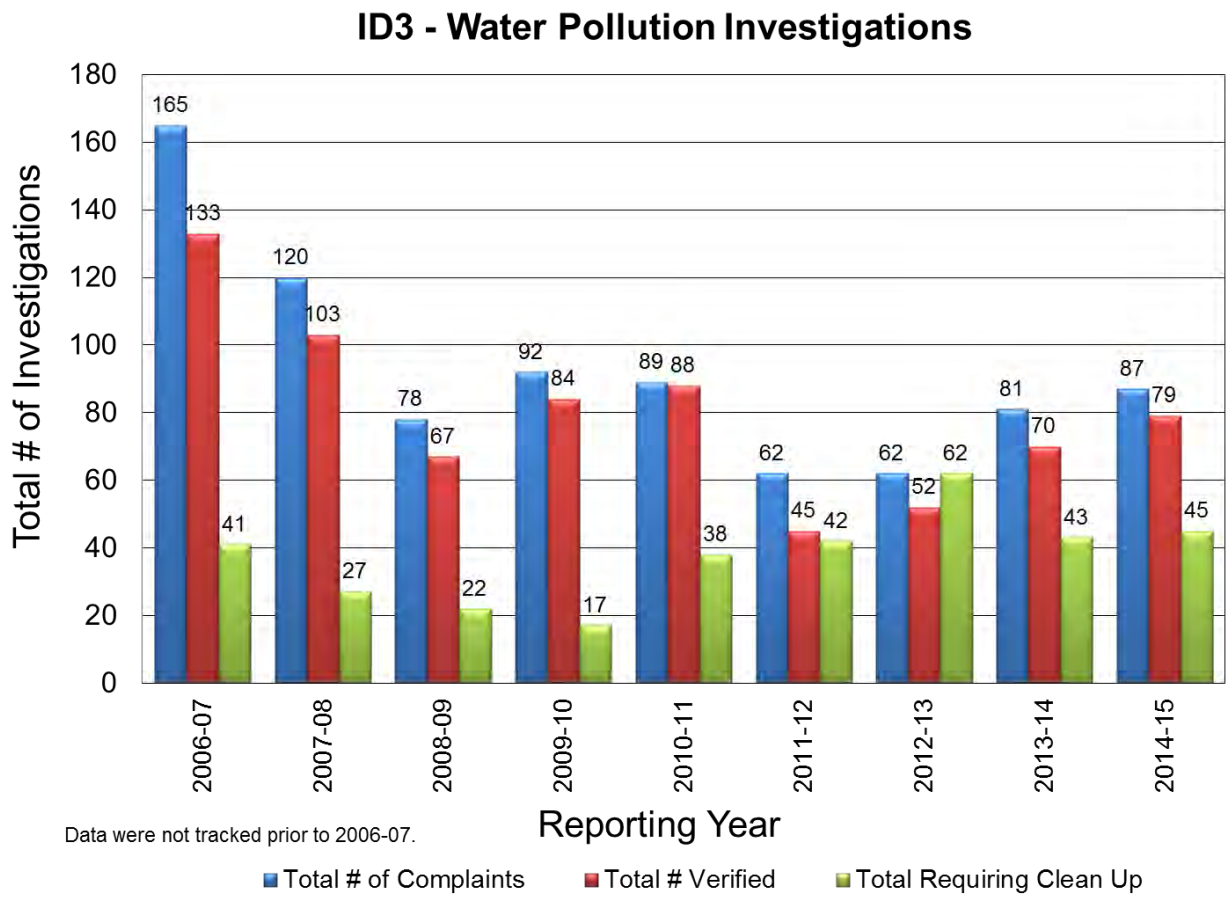
ID2 - Illegal Connection Identification and Elimination

The City has a number of provisions that effectively prevent illicit discharges and illegal connections. First, all new development plans are reviewed for possible illegal connections, and it is also verified that no such connections exist during the construction phase (see Section 6). Second, City staff has been trained to identify illegal connections and illicit discharges in the field. To date, the City has identified and eliminated a total of eight (8) illegal connections. **(L1)**

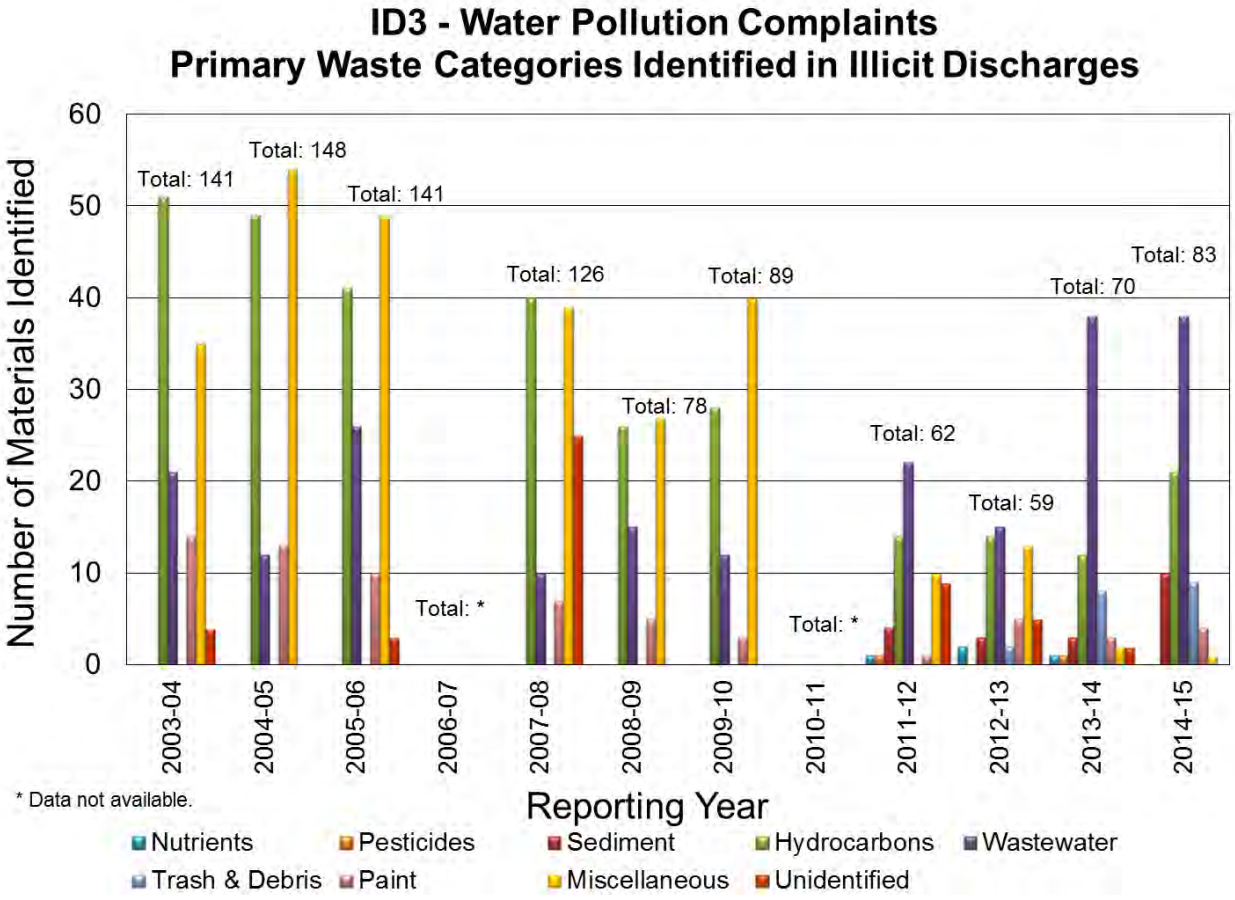
ID3 - Investigation/Inspection and Follow Up

The City developed and maintains an Illicit Discharge Database. The City also maps the locations of the illicit discharges and illegal connections on an annual basis. **(L1)**

The City has established *Spill Response Procedures for Non-Hazardous Materials and Waste* and responds to such incidents within two business days, ensuring that the incidents are cleaned up appropriately. Since 2006-2007, the City has responded to 836 complaints/notifications from all sources. Of those, 721 were verified and addressed, and 337 required cleanup. **(L1)**

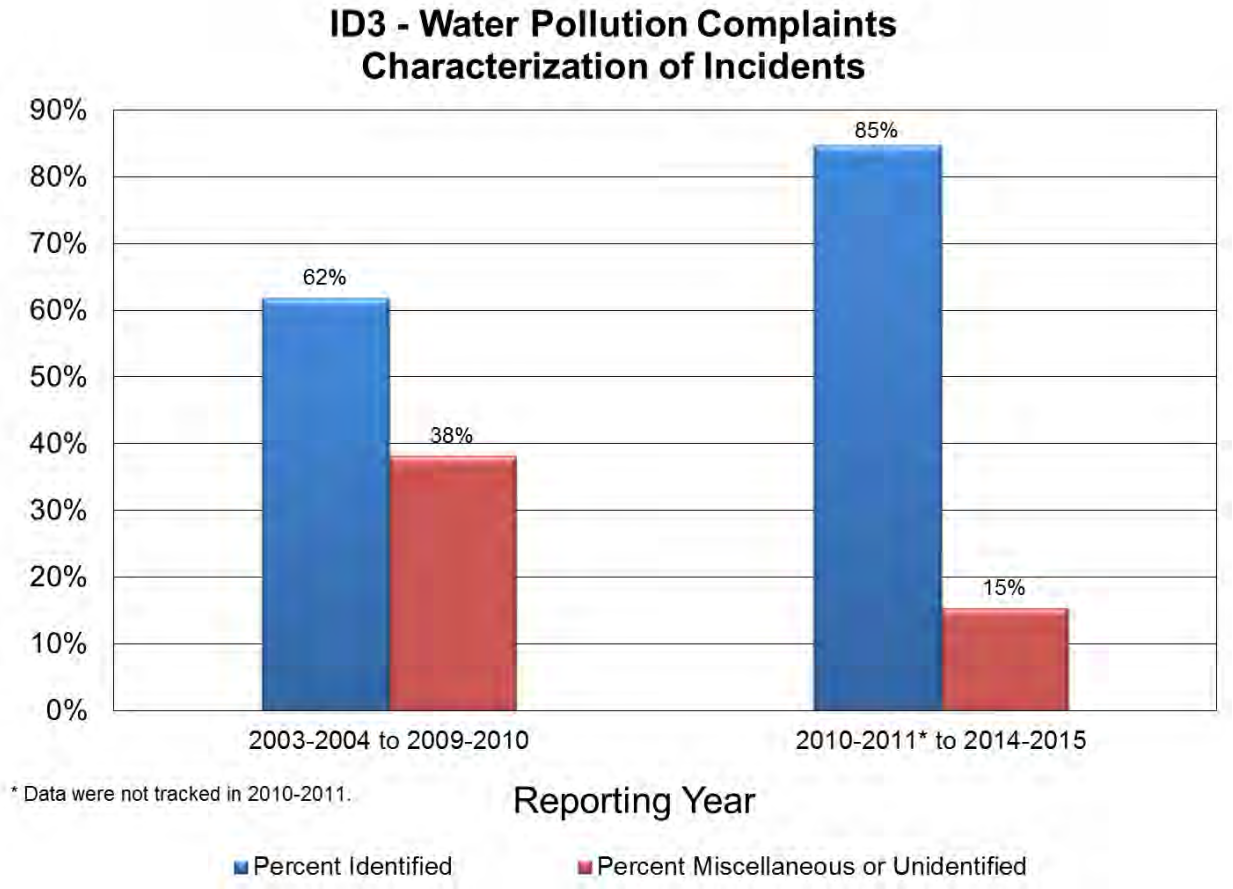


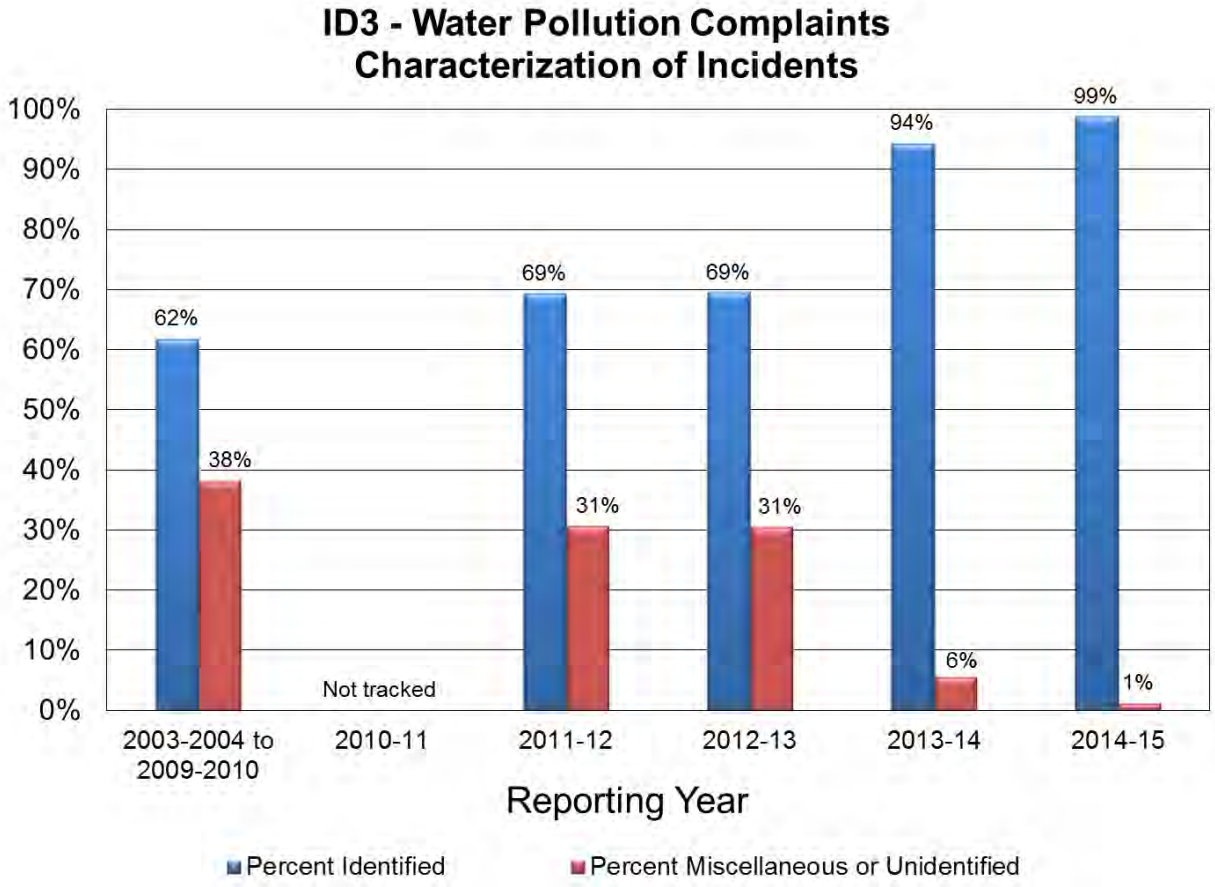
Since 2003-2004, City staff have worked to identify the types of materials involved in the illicit discharges or illegal connections. During the 2009-2010 reporting period, the City evaluated and optimized the waste categories it uses to categorize illicit discharges in order to minimize the number of illicit discharges described as "miscellaneous" or "unidentified" and more accurately characterize the pollutants and activities involved. The primary waste categories were used starting in the 2010-2011 reporting period, and use of the waste subcategories continued to be implemented in 2014-2015. **(L1)**



The use of the new waste categories in 2011-2012 through 2014-2015 resulted in 15% of illicit discharges being categorized as "miscellaneous" or "unidentified," an improvement of 23% compared to 38% of illicit discharges categorized as "miscellaneous" or "unidentified" in 2003-2004 through 2009-2010.

In 2011-2012 through 2014-2015, 85% of illicit discharges were identified using a specific waste category, an improvement of 23% compared to 62% of illicit discharges identified using a specific waste category in 2003-2004 through 2009-2010 (62%). This indicates that field staff has become more aware of the different types of materials involved in illicit discharges and, by utilizing the revised waste categories, have progressed to providing more valuable details as they verify, characterize, and document illicit discharges. **(L2, L3)**



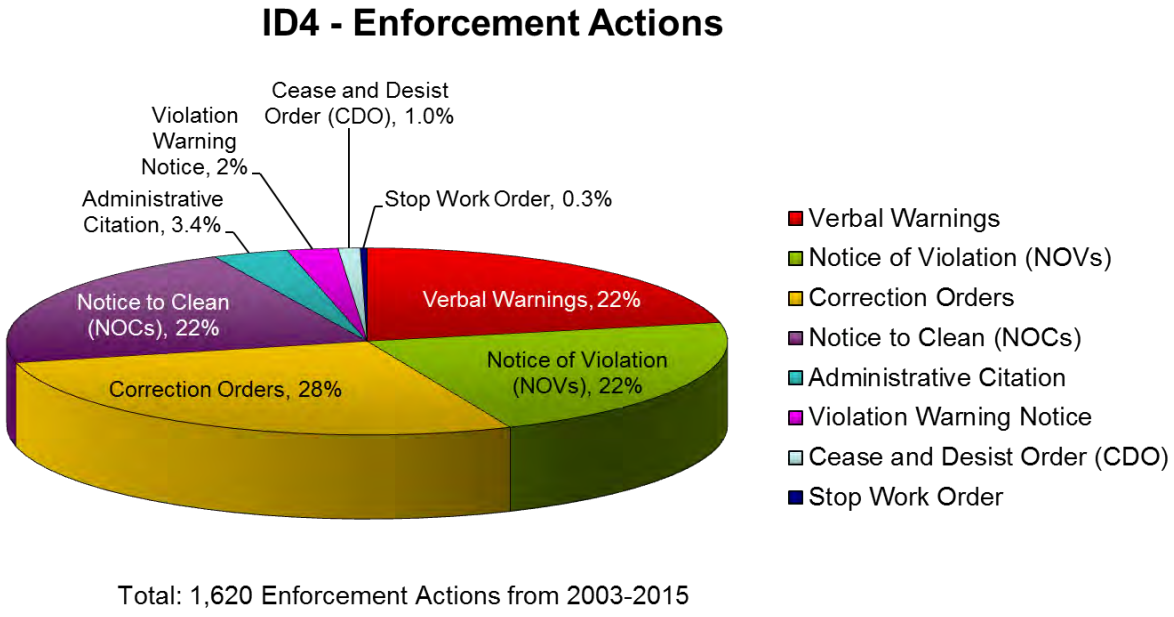


The City has developed an *Investigative Guidance Manual* to ensure that inspections of ID/IC are conducted in a uniform manner. The *Investigative Guidance Manual* covers protocols for obtaining permission to inspect, proper collection of evidence, and appropriate enforcement actions. This document has been distributed to, and will continue to be used by, MUD Environmental Control and MUD Stormwater staff. **(L1)**

ID4 - Enforcement

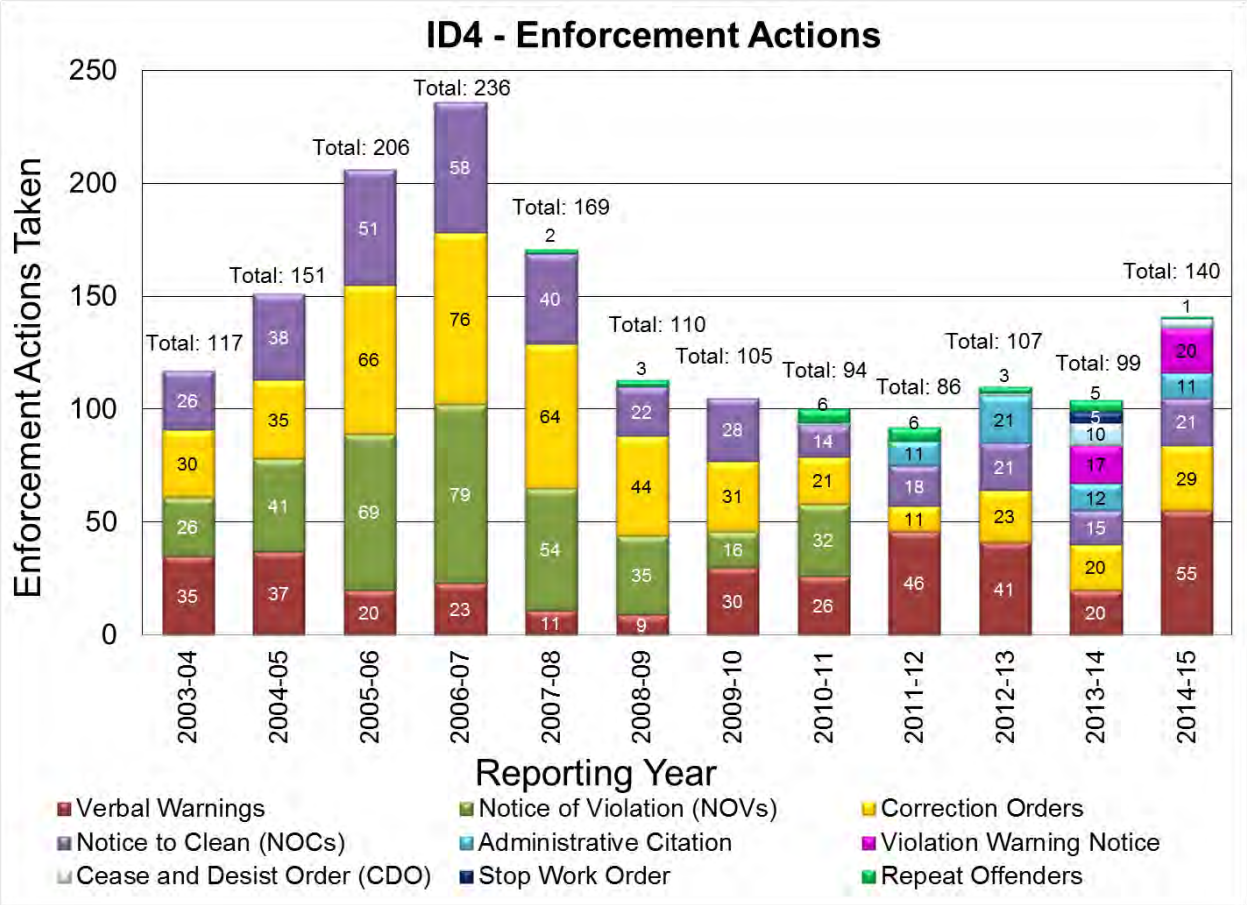
The City has developed and is currently implementing its *Municipal Utilities Department Directive Prohibiting Non-Stormwater Discharges to the Storm Drainage System* to ensure consistency in the enforcement of local ordinances and provides guidelines and protocols for enforcing violations. **(L1)**

The City enforced against illicit discharges/illegal connections and utilized progressive enforcement when necessary. In 2011-2012, the City began using a form called "Notice of Violation – Administrative Citation," which contains check boxes for multiple types of administrative violations, thus allowing multiple violations to be indicated for a single illicit discharge event. The citation form itself is not counted as an additional type of violation. Since 2003-2004, the City has pursued 1,620 enforcement actions with various degrees of severity. **(L1)**



Total: 1,620 Enforcement Actions from 2003-2015

- Since 2006-2007, there have been 1,146 enforcement actions in response to 836 notifications/complaints of illicit discharges and illegal connections that have been received from all sources, indicating that progressive enforcement, in the form of multiple enforcement actions per incident, is occurring when appropriate. To date, no criminal enforcement has occurred. The number of enforcement actions taken each year since 2006-2007 has been approximately proportional to the number of water pollution incidents for that year.



ID5 – Training

A total of 408 City staff attended 10 training sessions pertaining to illicit discharges during 2014-2015. **(L1)**

2.9 ILLICIT DISCHARGES PROGRAM MODIFICATIONS

Each year, the City submits a work plan to the Regional Water Board for the activities that will be completed during the upcoming fiscal year. The 2015-2016 work plan identified several key tasks for this Program Element. In addition, as part of the ROWD process, the City has evaluated the effectiveness of program implementation during the Permit term, as well as the experience that staff has had in implementing the program, to identify the performance standards for the Control Measures under this Program Element for the next permit term. Through the development of the annual report, the annual work plan, and the ROWD, the City has determined if any additional program modifications are necessary in order to ensure that the stormwater management program is effective.

The program modifications that have been identified for this Program Element for the upcoming permit term are discussed below (see also Section 3 of the June 2012 ROWD).

- **ID1 – Detection of Illicit Discharges and Illegal Connections:** The primary modification to Control Measure ID1 is to eliminate the Dry Weather Field Screening. Since the City began this effort in 2005, a total of eight (8) outfalls (six [6] detected by the City and two [2] detected by the County) have exceeded the established action levels for EC for triggering source identification studies. In sum, only 1.8% of all screened outfalls (8 of 435) have exceeded action levels, and all of these exceedances were for EC. Other, more cost-effective mechanisms exist for detection and elimination of IDs and ICs (e.g., field crew inspections during regular maintenance activities).

Section 3
Public Outreach (PO)

3.1 OVERVIEW

The purpose of the Public Outreach Program Element is to inform the public (increase knowledge) regarding the impacts of urban stormwater runoff and introduce steps the public can take (change behavior) to reduce pollutants from everyday activities. In addition, helping the public understand the problems associated with urban stormwater runoff can help build support for the stormwater program.

The Public Outreach Program Element is designed to implement and evaluate a comprehensive short- and long-term public education campaign that will inform the community about how our actions may adversely impact urban stormwater discharges and, subsequently, our local water bodies.

This Program Element is also designed to maximize the use of limited resources and to develop partnerships among all stakeholders in the SUA. Local stewardship and partnerships among governmental agencies, schools, universities, and private interests are vital parts of the types of involvement envisioned in this Program Element.

3.2 CONTROL MEASURES

The City has developed several Control Measures to ensure that the Public Outreach-related Permit requirements are effectively developed and implemented. For each Control Measure there are accompanying performance standards which, once accomplished, constitute compliance with the SWMP/Permit.

The Public Outreach Program Control Measures consist of the following:

PO	Control Measure
PO1	Public Participation
PO2	Hotline
PO3	Public Outreach Implementation
PO4	Public School Education
PO5	Business Outreach
PO6	Effectiveness Assessment

The next section of the Annual Report provides information on the specific tasks that have been initiated and/or completed during the 2014-2015 reporting period pursuant to the Public Outreach Program Performance Standards and implementation schedules.

3.3 PO1 – PUBLIC PARTICIPATION

The participation of the public in the implementation of the City's Stormwater Management Program is critical to a successful effort to protect the water resources. Therefore, active public participation is encouraged and supported by the City through a variety of mechanisms which are described in additional detail below.

3.3.1 Implement Storm Drain Marker Program

For the Storm Drain Marker Program, the City loans the supplies to volunteers and coordinates the stenciling activities. By working with the citizen volunteers the City has been able to mark storm drain inlets throughout the community.

The City continued implementation of the Storm Drain Marker Program by soliciting volunteers to mark the storm drain inlets throughout the year. The City solicited the volunteers through the following mechanisms:

- Local college contacts
- City Web site
- Newsletters
- Community events
- Community contacts

All of the storm drain inlets installed since 2003-2004 have been required to be permanently imprinted in the sidewalk with the message "No Dumping – Flows to River" or "No Dumping – Flows to Delta". The City has a total of 16,401[1] catch basins, most of which are stenciled or imprinted with the storm drain message.

- During the 2014-2015 reporting period, City Collections crew inspected 2,869 catch basins and re-stenciled 1,200 catch basins, while volunteers re-stenciled four catch basins.
- Local school districts within the region were informed in June 2014 of the need to stencil all storm drain inlets on facility grounds. Those school districts that were inspected as commercial Food Establishment Services were in the process of stenciling inlets in 2014-2015.

[1] In past years, a few State, county, private, or "other" catch basins were added to the total. As the GIS is continually refined, the number of catch basins was reduced this year by 29, resulting in a new total of 16,401.

City of Stockton Storm Drain Inlet Stencil

The total number of storm drain catch basins stenciled by volunteers is summarized in the table below (see also MO5).

Date	Volunteer Organization	Number of Volunteers	Number of Catch Basins	
			Re-Stenciled	Newly Stenciled
09/03/2014	City of Stockton	1	2	0
09/24/2014	City of Stockton	1	2	0
Total		2	4	0

3.3.2 Organize, Support, and/or Participate in Stream Cleanup Events

The City's stormwater program routinely partners with several groups for community stream cleanup events throughout the year. During the 2013 California Coastal Cleanup Day, City staff recruited the assistance of the local homeless population to clean up Mormon Slough. The City may be the first and only city in California to enlist the efforts of the transient population in a clean-up effort. Additional details can be found in a local news article dated September 28, 2013 in Appendix C-1 of the *2013-2014 Annual Report*.

During the 2014-2015 reporting period, the program participated in the 2014 California Coastal Cleanup Day. The City and County stormwater staff acted as resources and provided supplies to the various volunteer groups (e.g., dumpsters, boots, gloves, trash bags), and raised community awareness to encourage the participation of local residents.

A summary of the stream cleanup events, the types of volunteer organizations and number of volunteers involved in these efforts is provided below.

Date	Cleanup Location/Event	City's Role in Event	Volunteer Organization/ Community Partner	Number of Volunteers Involved
9/20/14	California Coastal Clean Up – Four sites in Stockton (San Joaquin River at March Lane-Levee Rd @ Pot #39; San Joaquin River/Ladd's Marina/Buckely Cove; Calaveras River - UOP Walking Bridge to Pershing; Mormon Slough - So. Pilgrim Street near E. Anderson Street)	Provided dumpster bins, trash bags, gloves	Coordinated by San Joaquin County Public Works Also included: California Coastal Commission City of Stockton Fishery Foundation of California AT&T Sims Metal Management McDonalds A.G. Spanos Companies Jackson Rancheria Corn Products SEIU Local 1021 Various Community Groups Various Educational Institutions Various Faith-based Organizations	1059
			Total	**1059**

Notes:

1. Since 1999, the County has been the California Coastal Commission's Inland Region Representative and has assisted in coordinating the annual California Coastal Cleanup Day.

Total Volume of Trash/Debris Removed during the 2014-2015 reporting period: 2.72 tons (2.41 tons of trash and 0.31 tons of recyclables)

Total Sites Visited: 4

The number of large items removed during California Coastal Cleanup Day in San Joaquin County was not tracked by the waste hauler in 2014-2015.

Volunteers at Buckley Cove

Volunteers at Calaveras River (Stagg High School)

Mormon Slough Volunteers

3.3.3 Promote Used Oil and Household Hazardous Waste Programs

The City promotes the Used Oil and Household Hazardous Waste (HHW) Programs on the City Web site, the media, and through distribution of Waste Reduction and Recycling Guides, and the utility billing newsletter. The City directs its residents to the permanent HHW collection facility operated by the County and advertises the center using a variety of mechanisms including the following:

- Web site
- Flyers
- Newsletter
- Television Ads
- Radio Ads
- Print Ads
- Billboard Ads
- Bus Ads
- Utility Billing Inserts

The City promotes the County's used oil program on its Web site and through the distribution of HHW Facility brochures and in the City's utility billing newsletter. Additionally, ads that promote the recycling of used oil are displayed on billboards, buses, and on television.

The following ad has been run on billboards and bus tails since 2012.

City of Stockton Billboard and Bus Ad

A similar animated version of the above ad was run on television at the Stockton Department of Motor Vehicles (DMV) at a frequency of two times per hour during operating hours for all of 2012. As of July 2014, the ad continues to be run at the DMV. The following image shows a series of screenshots from the ad.

City of Stockton Department of Motor Vehicles Television Ad

A summary of the wastes that have been collected is provided below.

Type of Waste	Waste Collected[1]	
	2013-2014	2014-2015
Used Oil[2] (gallons)		
HHW Facility	6,485	7,840
Certified Used Oil Collection Center	584,893	590,026
Total (gallons)	**591,378**	**597,866**
Used Filters (count)[3]		
HHW Facility	252,039	281,930
Certified Used Oil Collection Center	1,500	6,000
Total (count)	**253,539**	**287,930**

Notes:

1. Includes City and County data. Separate City data is available only for City curbside collection: during calendar year 2011, the City curbside collection included 8,370 gallons of used oil and 5,150 pounds of used filters; during CY 2012, 6,412 gallons of used oil and 3.280 pounds of used filters; during CY 2013, 2,500 gallons of used oil and 4,240 pounds of used filters, and during CY 2014, 6,460 gallons of used oil and 3,250 pounds of used filters.
2. With the City's three-bin waste collection system, used oil is also collected curbside.
3. Quantified as number of filter units

A summary of types of wastes that were collected through local events (City and County) or through the permanent collection site (City) is provided below. The data presented are for waste collected from both the City and the County during the 2014-2015 reporting period**.**

Category	Type of Waste	Total Amount Collected (lbs)	
		2013-2014	2014-2015
Reuse	Reusable items	39,395	103,110
	Reuse Subtotal	**39,395**	**103,110**
Recyclables	Latex paint	128,966	175,387
	Motor oil	78,315	34,392
	Oil filters	2,686	954
	Antifreeze	9,315	9,666
	NiCd batteries	3,266	3,309
	Household batteries	27,651	26,256
	Lead acid batteries (automotive)	4,445	4,550
	Cylinders (Oxygen)	0	70
	Propane (BBQ size)	3,773	3,429
	Fire Extinguishers	0	1,278
	Fluorescent light tubes	28,309	39,388
	HID lamps	4,341	0
	Non-PCP ballasts	0	4,484
	Empty drums	1,808	3,401
	Mercury	136	67
	Electronic Waste	0	42,428
	Oil based paint	120,608	81,004
	Flammable liquids (bulked)	37,352	42,575
	Recyclables Subtotal	**450,971**	**472,914**
Incineration	Flammable liquids	0	0
	Flammable solids	1,351	6,010
	Pesticide liquids	23,069	13,562
	Pesticide solids	14,139	15,567
	Inorganic acids	3,827	5,462
	Organic acids	4,585	3
	Inorganic bases	9,714	6,371
	Organic bases	452	1,071
	Neutral oxidizers	590	424
	Oxidizing bases	1,294	1,071
	Oxidizing acids	355	243
	Organic peroxides	107	20
	Aerosols	9,967	6,709
	PCB containing paints	0	0
	PCBs	2,348	1,650
	Reactives	270	1,408
	Compressed gasses	296	1,119
	Ammonium nitrate fertilizers	0	0
	Medical sharps	2,068	4,360
	Sulfur	0	4,955
	Fuses	0	712
	Other	28,312	23,849
	Incineration Subtotal	**102,744**	**93,770**
Landfill	Asbestos	9,720	28,020
	Treated Wood	25,800	5,940
	Landfill Subtotal	**35,520**	**33,960**
	Grand Total	**628,630**	**703,754**

3.3.4 Coordinate with Household Hazardous Waste Program for Pesticide Disposal

As part of the Water Quality Based Programs, the Pesticide Plan aims to reduce pesticides entering urban runoff by implementing BMPs and Integrated Pest Management (IPM) to minimize pesticide use. In support of its Pesticide Plan, the City coordinates with the HHW Program to ensure that pesticides are safely and properly disposed. In 2014-2015, Public Works distributed information on the HHW Program at City-sponsored events. In addition to providing printed materials, staff members advise the public of proper disposal options and services offered by the HHW Facility.

3.3.5 Update City Web Site

One of the mechanisms through which the City supports active public participation is the City's Web site, which includes general stormwater information, pesticide disposal information, and stormwater information specific to summer activities and the rainy season. During the 2014-2015 reporting period, new rotating news banners were posted to the City Website, as well as links to articles on green gardening. Previous educational materials remained on the Web site, including the following:

- **General stormwater information and media pieces.**[2]
- **Pesticide disposal, IPM, stormwater runoff, and pet waste information (Water Quality Based Programs Performance Standard).** As a component of the Water Quality Based Program, the City maintains and updates pesticide disposal information on the City Web site to inform the general public of proper pesticide handling and disposal procedures. [3][4] The Web site also links to the San Joaquin County HHW Facility. Links for pollution prevention regarding specific activities are listed, including: In Your Garage, In Your Garden, In Your Home, Outside Your Home, On Your Boat, Landscaping and Pool, and Paints and Solvents.
- **The City updated the Web site with outreach and messaging on summer activities.** The Green Car Wash Program was implemented starting in late summer and early fall 2010 as an effort to minimize the number and impact of traditional car washes by school fundraising and booster clubs, which often concentrate their efforts during the fall. Green Car Wash Program information continued to be displayed on the City's Web site throughout the 2014-2015 reporting period.
- **Rainy season and storm preparedness information.** Messages on rainy season preparedness, including topics on street flooding and preventing pollution from entering the storm drainage system during seasonal rains, remain posted on the City's Web site.

[2] http://www.stocktongov.com/government/departments/municipalUtilities/utilStormOut.html

[3] http://www.stocktongov.com/government/departments/municipalUtilities/utilStormOut.html

[4] http://www.sjgov.org/solidwaste/howdoi.htm

3.4 PO2 – HOTLINE

The purpose of this Control Measure is to operate a public hotline number to facilitate public reporting of illicit discharges, illegal dumping, and other observed pollution problems. This Control Measure also ensures that through the hotline, complaint information is forwarded to the appropriate contacts for follow-up and/or investigation.

3.4.1 Maintain Hotline

The City maintains a hotline number (**209-937-8341**) that allows the public to report illegal dumping or illicit discharges into the storm drain system. Once a complaint is received, staff responds using the processes described within Section 2 of the 2009 SWMP. Additional summary information regarding the hotline is provided in Section 2 of this Annual Report.

The Stormwater Program also maintains a general program informational number (**209-937-5143**). The public is encouraged to use this number to report missing/faded storm drain inlet stencils, to inquire about such activities as volunteering opportunities, stream cleanup efforts, and the City's Green Car Wash Program, and to request school and/or community presentations.

During the 2011-2012 reporting period, the Stormwater Program Informational number received a total of nine calls from residents and community organizations seeking information on the topic of Green Car Washing. These callers requested information on the City's Green Car Wash Program, how to partner with local participating professional car wash businesses, and how to conduct "traditional" fundraising car washes so as not to discharge soapy wastewater into the stormwater drainage system. For the groups that opted to host a "traditional" car wash, staff offered to assist by walking around the site of the proposed carwash, and by providing tips and techniques for protecting the site drains and diverting wash water to areas where grass or dirt could absorb runoff.

During the 2012-2013 reporting period, the Stormwater Program general information number received another nine calls. Of these calls, eight calls were from organizations calling about appropriate means of car washing within the City of Stockton; one call was received on the topic of crime scene cleanups within the City and how the City was ensuring that hazardous materials from such street scenes were not contaminating the storm drainage system.

During the 2013-2014 reporting period, the Stormwater Program general information number received 34 calls, all for general stormwater information.

During the 2014-2015 reporting period, the Stormwater Program received 130 calls. Of these calls, 122 were regarding clogged catch basins, three were reports of illegal dumping or illicit discharges, and five were for general stormwater information.

A summary of the hotline calls received and verified is provided below.

Type of Problem/Request	Total Number of Calls Received	
	Hotline[a]	General Number
Clogged Catch Basins	122	0
Illegal Dumping or Illicit Discharges	3	0
Faded or Missing Catch Basin Stencils	0	0
General Stormwater Information	5[b]	0
Total	130	0

Note:

a. Hotline calls include the number of calls directed to the City's Environmental Control and Stormwater Divisions (see **Appendix B-1** for illicit discharge data from these Divisions).

b. Three out of five calls pertaining to General Stormwater Information were reports of missing catch basin grates.

3.4.2 Promote/Publicize Hotline

The City promotes the 24-hour hotline by including it within public/business education materials, listing it on the Web site, and including it within the government pages of the telephone book. Additional summary information regarding the promotion of the hotline number is provided in **Section 2** of the Annual Report. Additionally, during 2014-2015, the hotline was publicized in each edition of the *Stockton Water News*, the monthly water utility billing newsletter insert, and on all new public education and outreach materials (see **Appendix C-1**).

3.5 PO3 – PUBLIC OUTREACH IMPLEMENTATION

The Public Outreach Implementation Control Measure provides that outreach be conducted with the residential community and general public to inform these audiences of the impacts of urban stormwater runoff and introduce steps they can take to reduce pollutants in stormwater runoff. Such outreach communicates to the City's residents and visitors the importance of stormwater quality protection and pollution prevention as it relates to the protection of the local water bodies.

An estimate of the total number of impressions made with the general public is provided in the table below.

Type of Outreach	Estimated Number of Impressions[1]
Distribution of Educational Materials	5,180
Conduct Mixed Media Campaigns	5,879,339
Participate in Community-Wide Events	2,280
Provide Community Relations	Unknown
Provide Outreach to School-Age Children	3,315
Provide Business Outreach	313
Total	**5,890,427**

Notes:

1. This table summarizes the totals from each performance standard and represents an estimated number of impressions. A final calculation for the total number of impressions is based on actual hand-outs distributed, circulation totals, listenership numbers, items mailed, estimated number of attendees contacted.

3.5.1 Update/Conduct Public Opinion Survey

To better understand the level of awareness in the community, the City, in collaboration with the County, conducted a baseline public opinion survey in March and April 2003. The survey results established a baseline for assessing public perceptions and behaviors related to stormwater quality management. The survey also assisted the Permittees in assessing the overall effectiveness of the Public Outreach Program.

The survey results provided information for the development of the overarching campaign approach, which was formalized in a document entitled "Public Outreach Strategic Implementation Plan, July 2003". This document was transmitted to the Regional Water Board in October 2003 as Appendix C-1 of the SWMP. The Plan is comprehensive and includes development, implementation, and assessment tasks so that public education objectives may be achieved over the life of the permit.

A follow-up public opinion survey was conducted in April and May 2005 to assess the changes in attitudes, perceptions, and behaviors. The results of this survey were included as Appendix C-1 of the *2004-2005 Annual Report* ("Public Opinion Survey Report Follow-Up 2005"). This study was implemented through a telephone survey of 401 heads of household in the Stockton Urbanized Area. The information obtained from the survey was used to guide the implementation of the City and County's public awareness campaign for 2005-2006.

The City and County conducted a follow-up public opinion survey in December 2009 (Appendix C-2 of the *2009-2010 Annual Report*) to assess changes in public perceptions and behaviors related to stormwater quality management as compared to the survey data from the spring of 2007, 2005, and 2003. This study was implemented through a telephone survey of 400 heads of household in the SUA to quantitatively evaluate how residents perceive and relate to environmental issues associated with stormwater.

The survey provided information about the following issues:

- Perceptions of the seriousness and impacts of pollution;
- Understanding of major contributors to water pollution;
- Use patterns and disposal practices of pollution related products;
- Awareness of storm drains and the storm drain system;
- Willingness to participate in pollution prevention practices;
- Awareness of City and County stormwater programs; and
- Exposure to stormwater information.

In addition, new questions were added to the survey to gain insight into residential application and purchasing preferences and practices related to pest control products. A full summary of this survey was provided in the *2009-2010 Annual Report*. The next survey will be conducted during the next permit term.

3.5.2 Identify and/or Create, Revise, and Distribute Educational Materials

A multi-media campaign has been developed to provide stormwater education and outreach. The campaign consists of web, print, radio, and television advertising in English, and Spanish.

Municipal Utilities Staff of the Stormwater, Water Conservation, and Fats/Oils/Greases Programs combined efforts and resources to create a joint media outreach campaign. All print, radio, and community signage advertisements were jointly prepared for consistent, reinforced messaging and to strengthen public recognition that all water services, pollution prevention efforts, and programs are provided by the City's Municipal Utilities Department—and that the goals of these programs are integrated.

The City identified and/or created, revised, and distributed educational materials as needed. The educational materials are distributed through a number of mechanisms including:

- City Web site
- At civic locations
- At community events
- Mass mailings
- Utility billing inserts
- Posted at community centers

In 2008-2009, the Stormwater Program worked with a marketing firm to create new stormwater brochures and a stakeholder's information packet. The brochure is a simple tri-fold targeted toward residents, while the packet contains four tiered information sheets for both residents and businesses. During the 2013-2014 reporting periods, the City continued to utilize these brochures. Additionally, staff refreshed and updated the look of the following best management practices informational brochures during the 2012-2013 reporting period: In Your Garage, In Your Home, In Your Garden, Landscaping and Pools, On Your Boat, Outside Your Home, and Paints and Solvents (see Appendix C-1 of the *2011-2012 & 2012-2013 Annual Report*). The City also distributed County HHW brochures with information regarding the proper disposal of mercury-containing products at public outreach events (see Appendix C-1 of the *2011-2012 & 2012-2013 Annual Report*).

In 2014-2015, the Stormwater, Water Conservation, and Fats/Oils/Greases Programs worked collaboratively with a marketing firm to create a new department brand recognition image. The new image will be used in conjunction with all future program brochures, community event giveaways, and media. In addition to increasing public recognition and awareness that these programs all have shared goals/objectives which reinforce one another, it will allow the programs to stretch funding by collaborating on media messaging and sharing these costs. Updates to commercial site/business sector brochures continued to be developed in Fiscal Year 2014-2015, but these were not completed by the end of the reporting period. They will be finalized in Fiscal Year 2015-2016, once the new brand image is fully adopted by senior management.

In 2014-2015, staff continued to utilize the BMP informational brochures updated in Fiscal Year 2012-2013: In Your Garage, In Your Home, In Your Garden, Landscaping and Pools, On Your Boat, Outside Your Home, and Paints and Solvents (see Appendix C-1 of the *2011-2012 & 2012-2013 Annual Report*). The City also distributed County HHW brochures with information regarding the proper disposal of mercury-containing products at public outreach events (see Appendix C-1 of the *2011-2012 & 2012-2013 Annual Report*).

The number of educational materials distributed was tracked during the 2014-2015 reporting period. The information that was tracked covered brochures, fact sheets, and additional literature targeting the general public, in addition to students, teachers, parents, homeowners, gardeners, and business owners/operators. The materials distributed are provided in **Appendix C-1**.

A summary of the educational materials distributed during the reporting periods is provided below.

Type of Material	Target Audience/ Activity	Multi-Lingual?	Language	Source	# Distributed
Brochures					
Green Car Wash Program	General Public Parents Principals Students Teachers	Yes ☐ No ☒	English	City	20
Other					
Only Rain Down the Drain (Children's Activity Book – updated/reprinted in 2013-2014)	Families General Public Parents Students Teachers	No – not multi lingual	English	City of Stockton	1,880
BMP Brochures – In Your Garage, In Your Home, In Your Garden, Landscaping and Pools, On Your Boat, Outside Your Home, and Paints and Solvents	Boat Owners Gardeners Home Owners Residents	No	English	City of Stockton	150
Stormwater Bookmarks – pet waste, ducks, rain boots, water cycle	Parents Residents Seniors Students	No	English	City of Stockton	1,880
Stormwater Magnets – Ducks and General Program Information/hotline number	General Public Parents Residents Seniors Students	No	English	City of Stockton	1,000
Stormwater Post-Its	General Public	No	English	City	250
				Total Distributed	**5,180**

TIPS FOR CAR WASHING

Ahhh...it's summer time. A time for relaxing, catching up on household chores, home improvements, and washing cars. Runoff from washing cars deposits numerous chemicals and pollutants into our storm drain system that affects our waterways and the Delta. Water runoff from professional and do-it-yourself car washes goes into the sewer system, keeping the pollutants out of the storm system. But if you want to care for your vehicles at home, try these tips for keeping pollution out of our waterways:

- Don't let the soapy water flow to the storm drains. Wash vehicles over surfaces that let the water soak into the ground, like lawns and gravel areas.
- Never wash vehicles in a public right-of-way, street, or sidewalk.
- Shake floor mats into a trash can or vacuum to clean. Wash floor mats on a lawn to catch runoff.
- Use non-toxic, biodegradable cleaners. Both can still impact the environment, so read the labels carefully. Look for:
  - ✓ Water-based cleaning solutions instead of solvents, or
  - ✓ Vegetable & citrus-based products, or
  - ✓ Only water without soap, detergents, or chemicals, or
  - ✓ Car care products that don't contain dyes & phenols, or
  - ✓ Mix equal amounts of water & vinegar in a spray bottle to clean glass surfaces and remove tar and bugs.

- Use a rinse bucket to conserve water and minimize water runoff.
- Stockton Municipal Code requires that you use a quick-acting automatic shut-off nozzle.
- Avoid hose-off degreasers. Instead, brush off loose debris & use damp rags to wipe down.
- If using chemical cleaners, use a rag to wipe them on and off, do not rinse off.
- Dispose of excess wash water onto the lawn.

When you're done cleaning your car:

- Sweep the entire site, dispose of all sediment and debris into a trash can.
- Sweep or wet vacuum any remaining, standing wash water into a landscaped area or into the sanitary sewer system.
- Collect and dispose of all trash and recyclables properly.

STOCKTON MUNICIPAL STORM WATER PROGRAM

CITY OF STOCKTON

WHO TO CALL

Stormwater – 209.937.8791
Water Wasting – 209.937.7031
Street Flooding – 209.937.8341
Illegal Hazardous Waste Dumping – 9.1.1.
Sanitary Sewer Overflow/Backups – 209.937.8341
Police Non-emergency – 209.937.8377
Discharging to the Sewer System – 209.937.8740

www.stocktongov.com/mud

CITY OF STOCKTON
MUNICIPAL UTILITIES

2500 Navy Drive
Stockton, CA 95206
209.937.8700

7:00 a.m.–5:30 p.m., Monday–Thursday
7:00 a.m.–5:00 p.m. on alternate Fridays

24-Hour Emergency Service
209.937.8341

Water/Sewer Billing & Service Requests
425 N. El Dorado Street ♦ 209.937.8295

Report Water Waste
866.786.5987

Wastewater Plant Tours
209.937.8700

Water Plant Tours
209.937.8762

Tips for Car Washing – Article Included in Utility Billing Insert

3.5.3 Ensure Educational Materials Address Proper Disposal of Pet Waste

As a component of the Pathogen Plan, the City seeks to minimize pet waste entering urban runoff by educating pet owners about proper disposal of pet waste.

3.5.4 Develop Outreach Materials Targeting Pet Owners

The City developed an informational public service announcement video discussing the problem of pet waste pollution and possible actions pet owners can take to properly dispose of pet waste and help reduce pollution to local waterways. The video started running on December 8, 2011 on the City's Web site and has been available for viewing through the 2014-2015 reporting period.

In 2013-2014, new bookmarks were developed with pet waste messaging; these were distributed at all community outreach events oriented towards children and families that Stormwater Program staff participated in throughout the 2014-2015 reporting period. A copy of the bookmark is available in Appendix C-1 of the *2013-2014 Annual Report*. An article titled *Pet Waste and the Environment* was included in the June 2014 edition of the *Stockton Water News* (the City's utility billing insert).

During the 2014-2015 reporting period, the City maintained the outreach portion of its Web site.

3.5.5 Provide Pet Waste Outreach/Literature to Pet Owners and Animal Adoption Agencies

The City provided outreach and literature on the proper disposal of pet waste via other mechanisms. Information regarding proper disposal of pet waste is included on the City's Web site.[5] Informational brochures (i.e., Outside Your Home[6] and BMPs for Kennels[7]) discuss proper disposal of pet waste.

In 2012-2013, an article addressing proper disposal of pet waste was included in the March 2013 edition of the *Stockton Water News*, the City's utility billing insert that is distributed to all residents and businesses. The article was titled *Protecting Water Quality* and highlighted the importance of properly bagging and disposing of pet waste. The *Stockton Water News* utility billing inserts are distributed to all residents and businesses. As such, the March 2013 issue was distributed to a total of 52,576 residents and businesses. The issue of pet waste pollution prevention was also the subject of ads which ran in the Spanos and Brookside area residential magazines that were delivered to a total of 11,000 homes during the month of June 2013.

In 2013-2014, banner ads on the subject of pet waste pollution were posted for four weeks between July 22-August 18, 2013 on the Web sites of two local radio stations (KWIN and KAT Country) broadcasting to area residents with a total of 252,080 hits to the page/impressions made. In addition, the City wrote an article on *Pet Waste and the Environment* that was included in the June 2014 edition of the *Stockton Water News* utility billing insert, which was distributed to a total of 52,812 residents and businesses.

During the 2014-2015 reporting period, the City maintained its Web site with the links to pet waste brochures, as described above.

[5] http://www.stocktongov.com/government/departments/municipalUtilities/utilStormOut.html

[6] http://www.stocktongov.com/files/OutsideYourHome.pdf

[7] http://www.stocktongov.com/files/sw%20bmp%20kennels.pdf

3.5.6 Implement Pet Waste Outreach Program

The City implemented the pet waste outreach program by providing outreach to/at the following businesses, events, or pet organizations (Water Quality Based Programs Performance Standard):

- Kennels – Outreach was provided to kennels during inspections conducted during the 2011-2012 reporting period.
- Strut Your Mutt/Dog Day Afternoon – As of the 2009-2010 reporting period, the City is no longer participating in this event. In 2013-2014, the City provided public outreach regarding pet waste via billing inserts and it's Web site.
- Barkleyville Dog Park – During the 2008-2009 Fiscal Year, signage was posted at the park.
- Other pet-related organizations/businesses – An article titled *Pet Waste and the Environment* was included in the June 2014 edition of the City's utility billing insert. The article highlighted the importance of properly bagging and disposing of pet waste. The *Stockton Water News* utility billing inserts are distributed to all residents and businesses.
- City of Stockton cable television station – During the 2011-2012 reporting period, stormwater staff developed a 60-second public service announcement on the topic of pet waste. The ad remains on the City Web site[8] (see **Section 3.5.12**).

3.5.7 Develop Language for and Produce Pet Waste Signs

In 2010, Stormwater Program staff worked with the City's sign shop (Public Works Department) and Community Development to develop language for and produce new pet waste signs that remind the public to clean up and properly dispose of pet waste.

Example of Pet Waste Sign Developed and Installed in 2009-2010

[8] http://www.stocktongov.com/government/departments/manager/chan97AV.html

3.5.8 Install Pet Waste Signs

In June 2010, as part of the Water Quality Based Programs, the City installed a total of 44 Pet Waste Signs within 10 existing City parks with stormwater inlets that discharge directly to local waterways. The locations of these signs are summarized in the table below.

Park Name	Sign Location	# of Signs
Victory Park	Argonne Drive & Yale Avenue Argonne Drive & Columbia Ave Argonne Drive & Pershing Ave Pershing Ave - Main Park Entrance Pershing Ave & Picardy - corner Picardy Dr - by Fire Station Picardy Dr - museum parking lot Parcardy Drive & Yale Ave Monte Diable Ave where splits to Picardy and Argonne	9
American Legion	Walnut St. entrance to park Stockton & Elm Sts SE corner of park - on Baker Street Baker Street and Baker Place Tuxedo Ave - near MUD pump station Tuxedo Ave and Yosemite Street	5
Louis Park	Boat Launch Boat Launch area - near doggie poop bag dispenser Shimizu Dr. - West side of park lot near picnic benches Shimizu Dr. - Parking lot entrance to park Shimizu Dr. - pathway entrance near horseshoe court Occidental Drive and Toyon Drive Occidental Drive pathway entrance Occidental Drive parking lot by handball/basketball court Monte Diablo Ave - parking lot in SE corner of park	10
Caldwell	Corner of Marisposa & Allston Way Along Allston Way - entrance to pathway leading Corner of Allston Way & Alpine Ave Pacific Avenue	4
Lafayette Square	Corner of Hunter Street & Worth Street Near Hunter St & fence by RR Tracks	2
Gleason	Corner of Church and California Sts. Corner of California & Sonora Sts Corner of Sonora & American Sts – walkway entrance	3
Columbus Square	Corner of Van Buren & Worth Street Corner of Lincoln and Worth Street	2
Liberty Square	Corner of Anderson and Stanislaus Sts Corner of Jefferson and Grant Sts	2
Union Square	Corner of Hazelton & Union Sts Corner of Scotts & Pilgrim Sts	2
Stribley	Corner of Della St & Hazelton Ave Along E. Hazelton Ave - pathway entrance Corner of E. Hazelton Ave & B St Visible from Marsh St - in park Corner of Della St & Marsh St - by community garden entrance	5
	Total	**44**

3.5.9 Implement Phased Installation and Maintenance of Pet Waste Bag Dispensing Stations

As a component of the Pathogen Plan, the City seeks to minimize pet waste entering urban runoff through installing and maintaining pet waste dispensing stations, which include pet waste bags, in City parks. During the 2013-2014 reporting period, no new City parks were developed. The City has used the Web site as the primary means of distributing public education materials (in lieu of the mixed media campaign and brochures). Information regarding proper disposal of pet waste is included on the City's Web site. Informational brochures (i.e. Outside Your Home and BMP for Kennels) discuss proper disposal of pet waste. An article titled *Pet Waste and the Environment* was included in the June 2014 edition of the City's utility billing insert. The article highlighted the importance of properly bagging and disposing of pet waste. The *Stockton Water News* utility billing inserts are distributed to all residents and businesses.

3.5.10 Track Installation of Pet Waste Bag Dispensing Stations

During the 2008-2009 reporting period, as part of the Water Quality Based Programs, the City tracked installation of pet waste bag dispensing stations. The City of Stockton entered into a Memorandum of Understanding with the Keep the Delta Clean Program to install pet waste bag dispensing stations. Through this partnership, the City installed ten (10) pet waste bag dispensing stations at various locations in parks and areas near waterways. Pet waste bag dispensing stations were installed in September 2008, as detailed in the *2008-2009 Annual Report*.

3.5.11 Update Audiovisual Tools and Web Site

On an as-needed basis, the City updates the Web site audiovisual tools so that they remain current (detailed in **Section 3.3.5**). During 2014-2015, the City updated its Web site[9], including the stormwater public outreach information.[10,11]

[9] http://www.stocktongov.com/government/departments/municipalUtilities/utilStorm.html

[10] http://www.stocktongov.com/government/departments/municipalUtilities/utilStormOut.html

[11] http://www.stocktongov.com/government/departments/manager/chan97AV.html

3.5.12 Conduct Mixed Media Campaigns

The City conducted a mixed media campaign that consists of radio and government access cable channel public service announcements (PSAs), movie theater slides, print ads, and direct mailers. The mixed media campaign is the primary mechanism that is implemented in order to achieve impressions on the public.

A summary of the mixed media campaigns that were conducted for the general public is provided below. All outreach materials used to conduct the mixed media campaign are provided in **Appendix C-1**.

Type of Outreach	Description	Number of Impressions Made
Public Signage	University of the Pacific - sports center entry way signage	19,500
Print Ad	University of the Pacific - basketball pocket schedule	10,000
Print Ad	University of the Pacific - full page program ad	35,000
Website Ad	University of the Pacific website rotating ad on pacifictigers.com	2,500,000
Stadium Video Board Ad	University of the Pacific - public address message with 3 video board graphics	15,330
Spanish Radio Ad	Vida Media: March 160 total spots on La Poderosa station + 160 total spots on Tu Vida station	48,000
Spanish Radio Website	Banner/Header ads - March	32,059
Spanish Radio Ad	Vida Media: April 160 spots on La Poderosa station + 160 spots on Tu Vida station	48,000
Spanish Radio Website	Banner/Header ads - April	32,059
Spanish Radio Ad	Vida Media: May 160 spots on La Poderosa station + 160 spots on Tu Vida station	48,000
Spanish Radio Facebook Page	La Poderosa - April	18,317
Spanish Radio Facebook Page	Tu Vida - April	1,841
Spanish Radio Website	Banner/Header ads - May	32,059
Spanish Radio Facebook Page	La Poderosa - May	25,258
Spanish Radio Facebook Page	Tu Vida - May	3,519
Spanish Radio Ad	Vida Media: June 160 spots on La Poderosa station + 160 spots on Tu Vida station	N/A
Spanish Radio Website	Banner/Header ads - June	32,059
Spanish Radio Facebook Page	La Poderosa - June	15,697

Type of Outreach	Description	Number of Impressions Made
Spanish Radio Facebook Page	Tu Vida - June	975
English Radio Ad	The Bull (Country Station - KSTN) August - 128 spots	156,000
English Radio Ad	The Bull (Country Station - KSTN) September - 128 spots	156,000
English Radio Ad	The Bull (Country Station - KSTN) October - 128 spots	156,000
English Radio Ad	The Bull (Country Station - KSTN) November - 138 spots	156,000
English Radio Ad	The Bull (Country Station - KSTN) December - 138 spots	156,000
English Radio Ad	The Bull (Country Station - KSTN) January - 138 spots	156,000
English Radio Ad	The Bull (Country Station - KSTN) February - 138 spots	156,000
English Radio Ad	The Bull (Country Station - KSTN) March - 138 spots	156,000
English Radio Ad	The Bull (Country Station -KSTN) April - 138 spots	156,000
English Radio Ad	The Bull (Country Station - KSTN) May - 138 spots	156,000
English Radio Ad	The Bull (Country Station - KSTN) June -206 spots	156,000
Public Signage	Stockton Ports Baseball Field - Concourse Sign	13,000
Public Signage	Stockton Thunder - Arena sign	N/A
Printed Article - direct mailer	City of Stockton Utility Billing Insert, July 2014. Topics: Vandalism at Local Pump Stations; Green Gardening; Tips for Car Washing	48,666
Printed Article - direct mailer	City of Stockton Utility Billing Insert, August 2014. Topic: Home Automotive Repair and Care	48,000
Printed Article - direct mailer	City of Stockton Utility Billing Insert, October 2014. Topic: Have You Seen This Truck? (Vactor truck/SSOs)	48,000
Printed Article - direct mailer	City of Stockton Utility Billing Insert, November 2014. Topic: Leaf Season Has Arrived	48,000
Printed Article - direct mailer	City of Stockton Utility Billing Insert, December 2014. Topic: Be Storm Prepared	48,000

Type of Outreach	Description	Number of Impressions Made
Printed Article - direct mailer	City of Stockton Utility Billing Insert, January 2015. Topics: Winter Preparation For Your Home; Be "Green" and Keep That New Year's Resolution; When Streets Flood; Hiring a Green Gardener; Automotive Tips	48,000
Printed Article - direct mailer	City of Stockton Utility Billing Insert, February 2015. Topics: 2015 Clean Sweep (keeping garbage out of the streets/gutters); When Rain Water Flows…	48,000
Printed Article - direct mailer	City of Stockton Utility Billing Insert, March 2015. Topics: Tips for a Healthy Lawn; How Does Litter Affect Us; Don't Let It Flow (SSOs)	48,000
Printed Article - direct mailer	City of Stockton Utility Billing Insert, April 2015. Topics: Spring Cleaning Tips to Reduce Stormwater Spring Garden Check-Up	48,000
Printed Ad - Spanish	Latino Times - September 2014	100,000
Printed Ad - Spanish	Latino Times - October 2014	100,000
Printed Ad - Spanish	Latino Times - November 2014	100,000
Printed Ad - Spanish	Latino Times - December 2014	100,000
Printed Ad - Spanish	Latino Times - January 2015	100,000
Printed Ad - Spanish	Latino Times - February 2015	100,000
Printed Ad - Spanish	Latino Times - March 2015	100,000
Printed Ad - Spanish	Latino Times - May 2015	100,000
	Total Number of Impressions	**5,879,339**

In 2012-2013, the City established new contracts with local media venues for seasonal messaging. Fall and winter seasonal messaging in 2013-2014 covered several topics, including storm preparedness, appropriate disposal of leaves, street flooding, boat maintenance, fall garage cleanups, and proper disposal of HHW. The messaging occurred in English, Spanish, Vietnamese and Hmong. Media venues included Comcast Cable's Web site, local radio station KJOY, the Latino Times (print), theatres, and the City's utility billing inserts. City staff were in the process of negotiating contracts with various vendors to continue media outreach.

In 2014-2015, the City established new contracts with local media venues for seasonal messaging. Fall and winter seasonal messaging covered storm preparedness, appropriate disposal of leaves, street flooding, and proper disposal of HHW in collaboration with the City's Water Conservation and Fats/Oils/Greases Programs. The messaging occurred in English and Spanish. Media venues included local radio stations "The Bull," "La Poderosa," and "Tu Vida;" the Latino Times (print); the City's utility billing inserts; and public signage at the Stockton Ports Baseball Stadium, the University of the Pacific Stadium, and Stockton Arena.

3.5.13 Participate in Community-Wide Events

The City co-sponsors neighborhood events and participates in community-wide events throughout the year that provide outreach to the general public. These efforts also include partnering with other organizations as appropriate, waste oil recycling, and HHW events. During the 2014-2015 reporting period, the City participated in a total of eight community-wide events:

- Children & Youth Family Day
- Earth Day
- National Night Out
- Stockton Ports Baseball Games (2)
- Family Day in the Park
- Senior Awareness Day
- State of the City

A summary of the community-wide events is provided below.

Name of Event	Date(s)	City Role in Event	Target Audience or Activity	Total Number of Attendees	Number of Impressions Made
National Night Out	8/5/2014	Staffed informational booths at 4 sites located across city: Carriage Place Neighborhood; North Lake Homeowners Association Pool; AG Spanos East Clubhouse; and Paul E. Weston Ranch Neighborhood	Residents-property owners, adults, children	200	80
Family Day in the Park	9/20/2014	Staffed information booth	Children and Parents	10,000	400
Stockton Earth Day Festival	4/26/2015	Staffed informational booth	General Public	2,000	300
Stockton Ports Baseball Game	4/30/2015	Staffed Informational booth	General Public	3,500	500
Stockton Ports Baseball Game	5/5/2015	Staffed information booth	General Public	3,500	500
Family Resource & Referral Center's Children and Youth Day at Pixie Woods	5/16/2015	Staffed informational booth	Children and Parents	300	300

Name of Event	Date(s)	City Role in Event	Target Audience or Activity	Total Number of Attendees	Number of Impressions Made
Stockton State of the City	5/21/2015	Staffed informational booth	Business community, Elected leaders, non-profit community service agency staff	500	200
				Total Number of Impressions	**2,280**

Banner at Stockton Ports Baseball Game

Stockton Arena Concourse Sign

During the 2014-2015 reporting period, the City also partnered with other Departments and agencies as a part of the stormwater outreach effort. The City partnered with the Stockton Area Water Suppliers (SAWS) to provide educational outreach to school-aged children (see **Section 3.6.1**).

3.5.14 Provide Community Relations

In addition to the community relations that are established through the various outreach efforts that are undertaken, such as multi-media campaigns, mass mailings, web site postings, volunteer solicitation, editorial and media relations, and participation in community-wide events, the City also builds these relationships by holding briefing sessions for community leaders, educators and public employees as well as coordinating with local organizations.

During 2010-2011, the City provided community relations by holding briefing sessions for community leaders, educators and public employees and/or coordinating with local organizations. Although no community relations events were held in 2011-2012 and 2012-2013, the City participated in 12 community-wide events during this time to provide education on stormwater issues by reaching out and directly interacting with the public. City outreach efforts at 2011-2012 and 2012-2013 community-wide events made over 10,000 impressions. Additionally, the City provided updated stormwater public outreach information via its Web site. In 2013-2014, the City provided community relations by providing a stormwater-related tour to local college students. The City also continued its stormwater outreach through various other mechanisms, resulting in over 2 million impressions during this reporting period alone.

In 2014-2015, City staff participated in a live radio interview with 105.9 The Bull, a local radio station, promoting Stockton's Clean Water Campaign. The interview occurred on February 12, 2015 and included

tips for residents to help prevent stormwater pollution, including car washing and fertilizer use tips, promotion of the Used Oil and HHW Programs, and use of the public hotline to report illicit discharges.[12]

A summary of the community relations events is provided below.

Date	Target Audience	Topic of Discussion	Number of Attendees
2/12/15	Radio Listeners/Residents	Tips for Residents to prevent stormwater pollution	Not tracked
		Total Number of Impressions	**Unknown**

During the 2014-2015 reporting period, the City participated in one community-wide event. The City continued to provide updated stormwater public outreach information via its Web site.

The City also conducts outreach to and/or coordinates with local community and environmental organizations. Due to staffing changes in the stormwater program during the 2011-2012, 2012-2013, and 2013-2014 reporting periods, the City was not able to implement such coordination activities. However, extensive public outreach to convey important stormwater messages was conducted via the City's mixed media campaign (see **Appendix C-1**) and Web site.

3.5.15 Implement Pesticide Outreach Efforts

The City implemented pesticide outreach efforts for city staff, residents, retail stores, and pest control operators (PCOs) (Water Quality Based Program Performance Standard). Education and outreach efforts focus on the promotion of less toxic pest control methods and use of IPM.

Efforts during the 2014-2015 reporting period included contracting all landscape maintenance and weed control services. Maintenance contracts that started on January 1, 2010 and all future contracts/contract specifications will require that the contractor use IPM techniques and practices and least toxic methods of pest control to achieve the expected/specified results (see **Section 4**). In 2014-2015, staff distributed brochures updated in 2013-2014 on BMPs around the home[13] and in the garden.[14] Staff also inserted a number of articles in the monthly utility bills on the subject of "green gardening" during the 2014-2015 reporting period.

In 2014-2015 the Stormwater, Water Conservation, and Fats/Oils/Greases Programs worked collaboratively with a marketing firm to create a new department brand recognition image. The new image will be used in conjunction with all future program brochures, community event giveaways, and media. In addition to increasing public recognition and awareness that these programs all have shared goals/objectives which reinforce one another, it will allow the programs to maximize use of resources by collaborating on media messaging and sharing these costs.

[12] https://soundcloud.com/1059thebull/stocktons-clean-water-campaign

[13] http://www.stocktongov.com/files/InYourHome.pdf

[14] http://www.stocktongov.com/files/InYourGarden.pdf

3.5.16 Conduct Periodic Pest Control Product Surveys

The City conducted a survey in conjunction with other regional programs regarding local or regional sales and use of residential and commercial pest control products (Water Quality Based Program Performance Standard).

The Permittees are required to conduct a survey of the regional sales of residential and commercial pesticides which are available for the public on a bi-annual basis (i.e. once every two years). This survey will allow the Permittees to identify potential pesticide use and impacts before they occur. The survey was developed during 2008-2009, and the first survey was completed during the 2009-2010 reporting year by December 2009 and the second survey was completed during the 2011-2012 reporting year.[15]

The Permittees designed a three-part survey approach to address this requirement. The three components of the pesticide survey are as follows:

- Residential pesticide sales, assessed through shelf surveys of local retailers (completed November 2009 and November 2011);
- Residential pesticide use, assessed by pesticide-specific questions in a telephone Public Opinion Survey (completed December 2009); and
- Commercial pesticide use, assessed through collaboration with the County Agriculture Commissioner's office and Department of Pesticide Regulation (DPR). These records were obtained for 2008 and for 2010.

The approach and results of each of the three survey components were summarized in the 2009 Pesticide Survey Assessment and included in Section 9 as Appendix I-1 of the *2009-2010 Annual Report*.

The next Public Opinion Survey is proposed to be completed during the next permit term.

A second survey was completed during the 2011-2012 reporting year, included as Appendix I-2 of the ROWD, which did not include the assessment of residential pesticide use, since the Public Opinion Survey was deferred to the next permit term, but did include an assessment of residential pesticide sales and commercial pesticide use.

In lieu of conducting a second Public Opinion Survey, the City continued to provide public outreach regarding key stormwater messages via the Web site during the 2011-2012, 2012-2013, 2013-2014, and 2014-2015 reporting periods. In 2014-2015, staff distributed brochures updated in Fiscal Year 2013-2014 regarding BMPs around the home[16] and in the garden.[17] Staff also inserted a number of articles in the monthly utility bills on the subject of "green gardening" during the 2014-2015 reporting period.

[15] The survey design and protocols were submitted with the 2009 Annual Work Plan, and were included as an appendix in the 2008-2009 Annual Report.

[16] http://www.stocktongov.com/files/InYourHome.pdf

[17] http://www.stocktongov.com/files/InYourGarden.pdf

3.6 PO4 – PUBLIC SCHOOL EDUCATION

Presentations made to school-age children may be an effective outreach method because the children are asked to pass the pollution prevention information on to their families. This Control Measure provides public school districts, after school programs, day camps, and the Children's Museum within the City with outreach materials to educate school-age children about stormwater pollution.

The City recently evaluated the ability to interface and coordinate with school education programs on a regional or local level. The school outreach efforts over the 2002-2007 Permit term were successful; however, due to increased curriculum and testing requirements, stormwater program staff has found it to be progressively more difficult to gain access to schools in order to provide outreach to students. The City is continuing with the assembly program to reach a large number of students.

The City has reviewed the existing program and assessed the feasibility of alternative programs. As a result, the City concluded that the most consistent mechanism for reaching out to school-aged children within the City is through an interactive stormwater exhibit at the Children's Museum and the continued participation with the assembly programs with SAWS to reach a large number of students.

3.6.1 Send Letters to Fifth Grade Teachers and Principals

During the 2013-2014 reporting period, the City did not send letters to 5th grade teachers and principals inviting them to take part in the City's stormwater education program. However, the City continued its partnership with SAWS to make stormwater presentations to students and to participate in other school events as invited or requested (detailed in **Section 3.6.2**).

3.6.2 Reach Out to School Age Children Outside of School

As of 2009, the opportunity no longer exists for the City to reach out to school age children outside of school by providing presentations through the Community Services Department's After School Program. The City will continue to identify opportunities to reach out to school age children outside of school and to support the interactive display at the Children's museum.

During the 2014-2015 reporting period, a total of 3,135 impressions were made via the "Zun Zun Water Awareness Assembly," which includes a stormwater pollution prevention message. A total of nine assembly presentations were made in Fiscal Year 2014-2015 at schools across the City.

The Zun Zun Water Awareness Assembly is a musical assembly program which celebrates water and introduces students to the topics of clean water and watershed protection; it also highlights the impacts of stormwater pollution. The presentations were provided to area schools via the City of Stockton's partnership with SAWS.

During the 2014-2015 reporting period, SAWS held nine events at seven Stockton area schools, which reached 3,315 students. A summary of events held at Stockton area schools is presented below:

Date(s)	School	Grade(s)	Event Type	Number of Events	Number of Students
3/5/2015	Kennedy Elementary	K-8	ZunZun water/watershed awareness school assembly	1	500
5/6/2015	Primary Years Academy	K-5	ZunZun water/watershed awareness school assembly	1	300
5/14/2015	Pittman Elementary	K-8	ZunZun water/watershed awareness school assembly	2	650
5/14/2015	Ansel Adams Elementary	K-6	ZunZun water/watershed awareness school assembly	1	800
5/28/2015	August Knodt Elementary	K-8	ZunZun water/watershed awareness school assembly	2	600
5/28/2015	Taylor Skills Elementary	K-8	ZunZun water/watershed awareness school assembly	1	325
5/29/2015	Spanos Elementary	K-8	ZunZun water/watershed awareness school assembly	1	140
Total				**9**	**3,315**

3.6.3 Present at Day Camps

As of 2009, the opportunity no longer exists for the City to present at Day Camps sponsored by the Community Services Department. The City will continue to identify opportunities to reach out to school age children outside of school and to support the interactive display at the Children's museum.

3.6.4 Develop Interactive Exhibit for Display at Children's Museum

During the 2009-2010 reporting period, the City completed design and development of an interactive stormwater exhibit that is displayed at the Children's Museum.

3.6.5 Implement Educational Signage and Displays Relevant to Stormwater Pollution

During the 2009-2010 reporting period, the City completed construction of an interactive stormwater exhibit containing education signage and displays relevant to stormwater pollution that is displayed at the Children's Museum. The display was completed at the end of June 2010, with an unveiling to the public in July 2010. The exhibit remained on display during the 2014-2015 reporting period.

Educational Signage and Display at Children's Museum

3.7 PO5 – BUSINESS OUTREACH

Since commercial and industrial businesses can be sources of stormwater pollutants, this Control Measure ensures that business owners and operators are informed about stormwater quality and impacts on water resources. Efforts are primarily targeted at specific business types.

3.7.1 Conduct Business Workshops

The City conducted business workshops and/or held business specific events as required during the Permit term. The Energy and Clean Air Expo was held in December 2008, and a "Got SWPPP?" workshop was held in April 2009. In addition, the City held a Pre- and Post-Construction 101 workshop in conjunction with the San Joaquin Stormwater Quality Partnership.

3.7.2 Distribute Educational Material to Selected Businesses

The City distributes educational materials regarding stormwater pollution and BMPs, stormwater regulations, and penalties for noncompliance to a number of different types of businesses. Outreach is focused on the priority businesses identified in **Section 5**.

The City continued its outreach to businesses as needed during the 2011-2012 reporting period, specifically during inspections as an inspector reviewed the inspection checklist with business owners and operators. Although industry-specific outreach materials were not distributed during the 2011-2012 reporting period, the industrial facility checklist contained a question regarding mercury disposal methods to prompt a discussion about mercury pollution as appropriate. Additionally, all food-related businesses were provided with informational brochures for "About Today's Inspection" and the "Green Car Wash Program" during their inspections.

In 2013-2014, MUD Stormwater staff began the process of updating all outreach materials to ensure compliance and accuracy with acceptable industry practices. A BMP brochure for the Food Services Establishments/Restaurants was updated and distributed at the time of the new, combined Fats, Oils, and Grease and Stormwater Commercial inspections, which began in March 2014. A total of 115 inspections were completed by June 30, 2014. A brochure was provided to each business manager at the time of the inspection.

In addition, in 2013-2014 to meet the needs of the business community, MUD Stormwater staff prepared an exterior surface cleaning brochure and a "Commercial and Industrial Inspection What to Expect" informational brochure. All of these materials have been received positively by the commercial and industrial sectors within the City of Stockton.

During the 2014-2015 reporting period, MUD Stormwater staff completed inspections of 313 food service establishments operating within the City. During each inspection, a BMP fact sheet was provided to each of the inspected sites.

A summary of the materials that have been distributed to businesses during the 2014-2015 reporting period is provided below.

Type of Business	Educational Materials Distributed	Distribution Method(s)	Number Distributed
Restaurants/Food Service Establishments	BMP fact sheet	Distributed along with a copy of the inspection report	313
		Total	**313**

3.7.3 Ensure Business Workshops Address Mercury

The City's stormwater Web site provides a link to the San Joaquin County Solid Waste Division, which provides disposal information for "Devices Containing Mercury."[18] The Stormwater Program provided information on mercury and mercury disposal to businesses during 2011-2012 as part of the Commercial and Industrial Business Program Inspections. The form for the industrial business inspections was modified to specifically inquire about and review the mercury management plan of each of the businesses inspected.

In 2013-2014, in preparation for the commercial/industrial inspections, all inspection forms were updated with questions regarding mercury handling and proper disposal. During the inspection, the inspector conducted a discussion with the business owners/managers on the subject and provided more detailed outreach based on the facility type.

Business-specific informational handouts have not yet been updated. When they are updated, they will include information on the proper handling and disposal of mercury.

3.7.4 Revise Business-Specific Fact Sheets to Address Mercury

Staff are incorporating information to address mercury disposal in the business-specific BMP fact sheets that are being updated for the next round of commercial inspections (2015-2016). Staff have been updating all fact sheets to ensure consistency and that all regulatory objectives are met, specifically with regard to mercury.

[18] http://www.sjgov.org/solidwaste/

3.8 PO6 – EFFECTIVENESS ASSESSMENT

In order to determine the effectiveness of the Public Outreach Program, a comprehensive assessment of the program data is conducted as a part of the annual report. The results of this assessment are used to identify modifications that need to be made to the program. Each year the effectiveness assessment is reviewed and revised as needed.

By conducting these assessments and modifying the program as needed, the City ensures that the iterative process is used as an effective management tool. Due to the types of data collected for the Public Outreach Program, the assessment primarily focused on Outcome Levels 1-4.

- Outcome Level 1 (L1) answers the question: Did the City implement the components of the Permit and the 2009 SWMP?
- Outcome Level 2 (L2) answers the question: Can the City demonstrate that the control measure/performance standard significantly increased the awareness of a target audience?
- Outcome Level 3 (L3) answers the question: Can the City demonstrate that the control measure/performance standard significantly modified the behavior of a target audience?
- Outcome Level 4 (L4) answers the question: Can the City demonstrate that the control measure/performance standard reduced the load from sources to the storm drain and/or receiving water?

The table below summarizes the effectiveness assessment that was conducted for the Public Outreach Program Element. Additional detail for each component of the assessment is provided on the following pages. It should be noted that Outcome Levels 5 and 6 will only be assessed as a part of the Water Quality Based Programs and the Monitoring Program on a longer term basis since those analyses rely on environmental data.

Program Effectiveness Assessment Summary for Public Outreach

Public Outreach	Level 1	Level 2	Level 3	Level 4
	Implement Program	Increase Awareness	Behavior Change	Load Reduction
PO1 - Public Participation	C – Catch Basins Marked C – Stream Cleanup Events C – Used Oil and HHW Programs C – Coordination with Pesticide and Mercury Plans C – Maintained Web Site	C – Volunteers Participating C – Participation in Used Oil and HHW Programs	C – Volunteers Participating C – Participation in Used Oil and HHW Programs	C – Materials Removed/ Diverted
PO2 - Hotline	C – Maintain and Promote/Publicize Hotline	A	N/A	N/A
PO3 - Public Outreach Implementation	C – Mixed Media Campaign C – Material Development and Distribution C – Coordination with Pesticide, Pathogen, and Mercury Plans C – Community-Wide Events C – Partnerships and Community Relations	A	A	N/A

Public Outreach	Level 1	Level 2	Level 3	Level 4
	Implement Program	Increase Awareness	Behavior Change	Load Reduction
PO4 - Public School Education	C – Outreach to School Children	A	N/A	N/A
PO5 - Business Outreach	C – Distributed Outreach Materials to Businesses	A	N/A	N/A

C – An effectiveness assessment was conducted during the reporting periods.
A – It is anticipated that an effectiveness assessment may be conducted in future annual reports
N/A – This outcome level is not applicable for this control measure

Following is an assessment regarding the effectiveness of the Public Outreach Program.

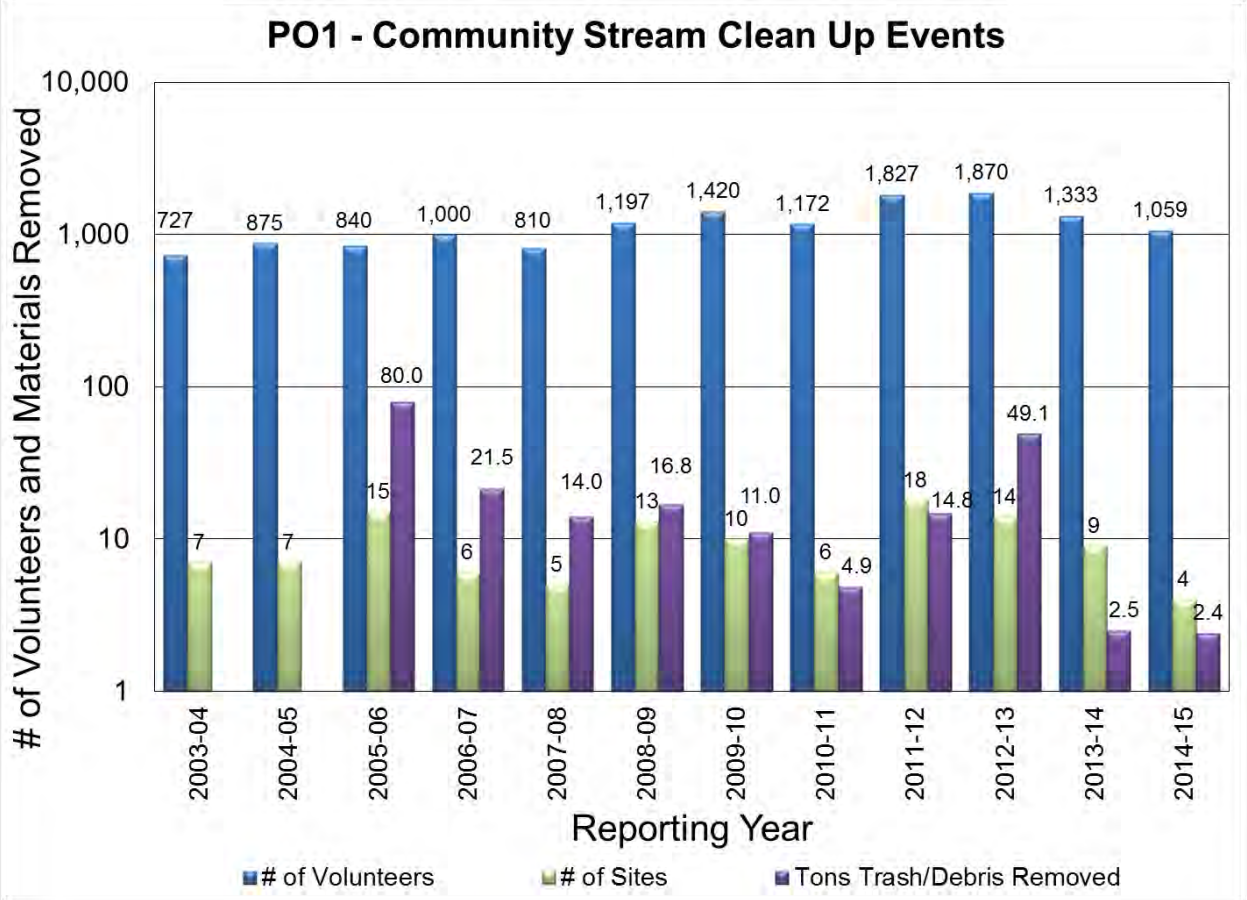
PO1 - Public Participation

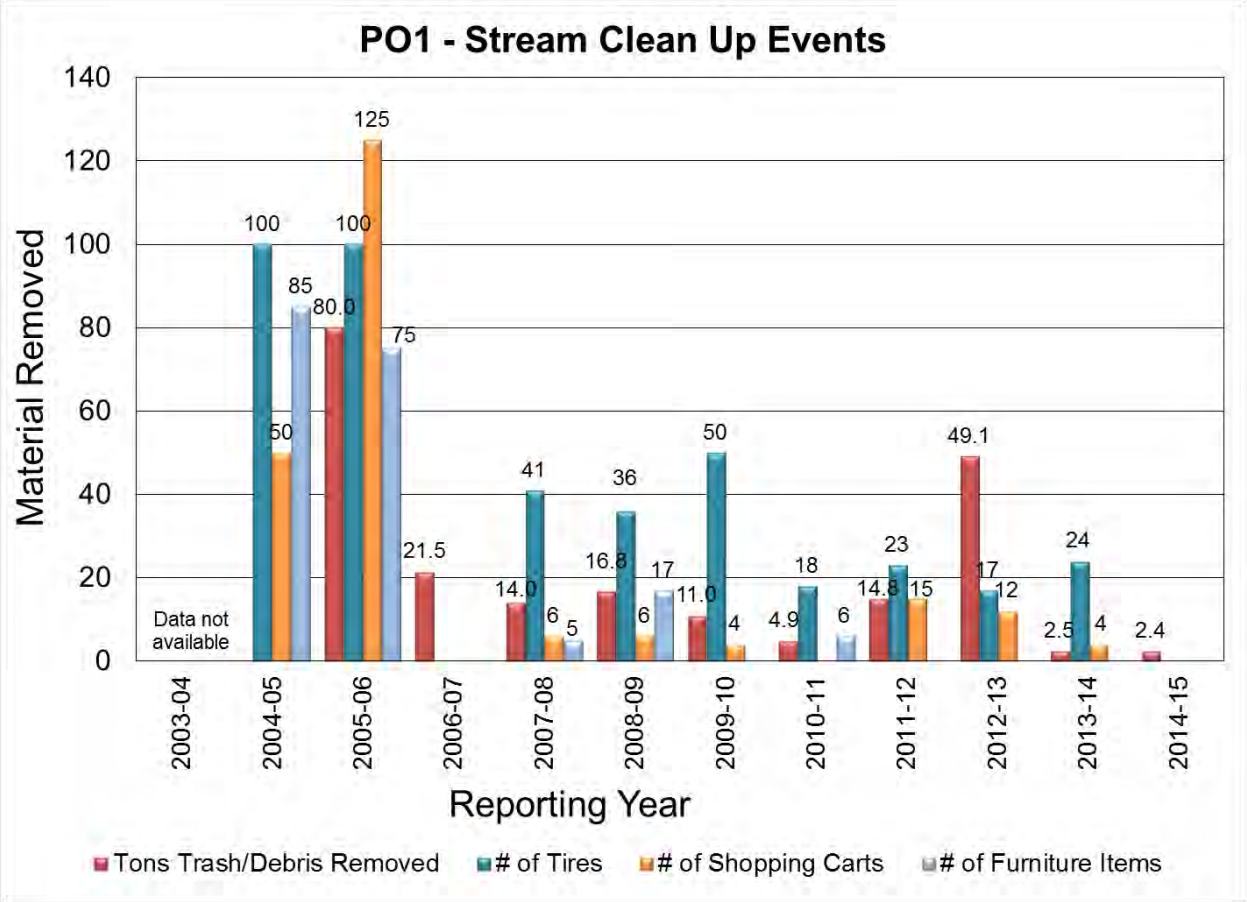
The City is outreaching to and involving the public in the implementation of the Public Outreach program. They are soliciting involvement in the program by advertising in the materials that are distributed, the Web site, newsletters, at community events, and distributing information at public counters. The public is aware of the public education campaign and community events and are involved in the implementation of the program. **(L1, L2)**

- Storm Drain Marker Program - The City has 16,401 catch basins, most of which are stenciled or permanently imprinted with the storm drain message. Since 2003-2004, 5,699 catch basins have been stenciled or permanently imprinted by 615 volunteers.

The public is aware of the education campaign and community events and is involved in the program. Materials are being removed from the local creeks and streams, thus reducing the amount of materials that may adversely impact the local waterways. (**L2, L3, L4**)

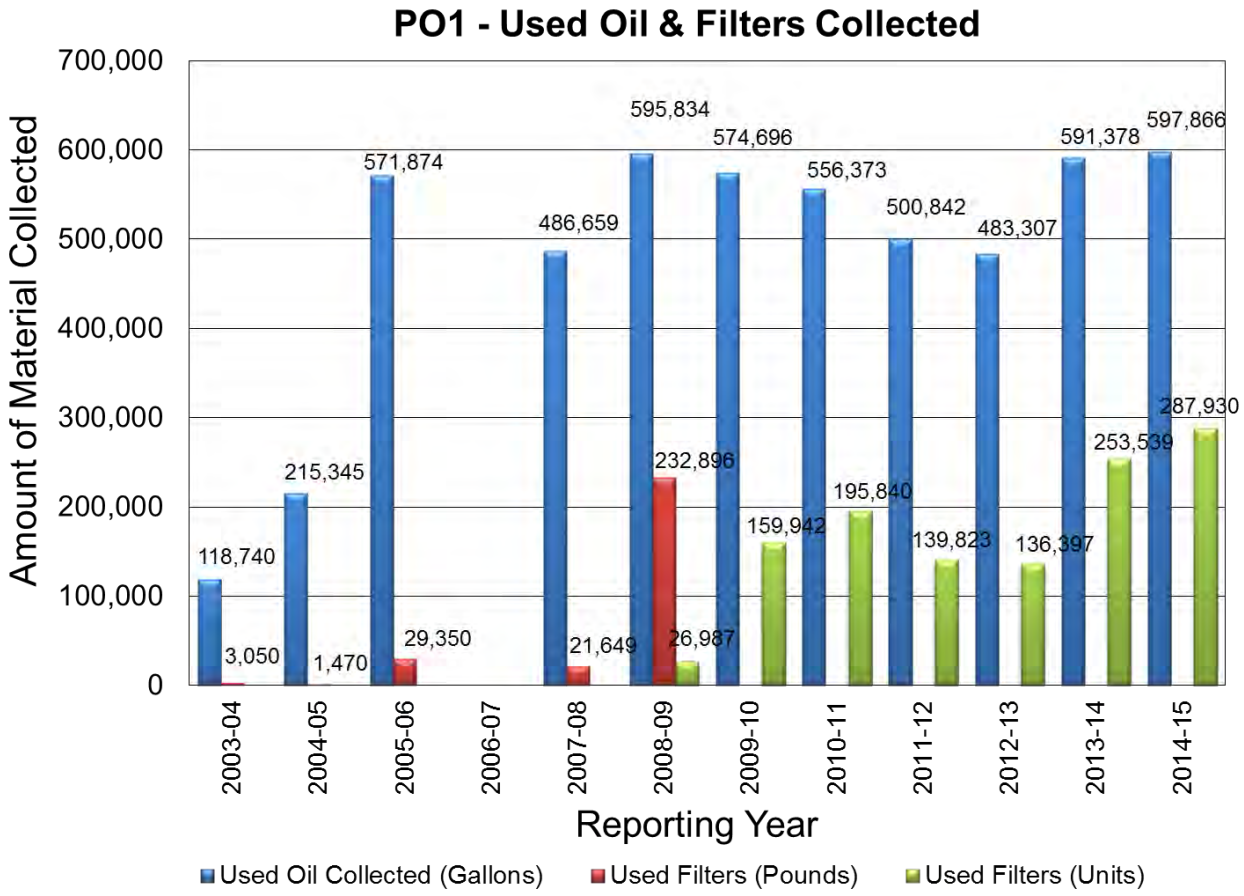
- Stream Cleanup Events - Since 2003-2004, 14,130 volunteers have participated in local stream cleanup events. As a result, approximately 217 tons of trash and debris have been removed. The number of volunteers increased after 2003-2004 and has been consistently high since 2008-2009. As a result of each cleanup event, a large amount of trash and debris has been removed annually from local streams and tributaries. In 2014-2015, a total of 2.4 tons of trash and debris and 0.31 tons of recyclable matrial were removed from four sites. In recent years, a smaller amount of trash and debris (tons and individual items) has been removed annually from local streams and tributaries, although the number of volunteers has remained high. This may be due to an increased awareness of the importance of litter reduction, resulting in behavior change (i.e., increased proper disposal of trash and debris).




PO1 - Stream Clean Up Events
Material Removed
140
120
100
80
60
40
20
0
Data not available
100
50
85
100
125
80.0
75
21.5
14.0
41
6
5
16.8
36
6
17
11.0
50
4
4.9
18
6
14.8
23
15
49.1
17
12
2.5
24
4
2.4
2003-04
2004-05
2005-06
2006-07
2007-08
2008-09
2009-10
2010-11
2011-12
2012-13
2013-14
2014-15
Reporting Year
Tons Trash/Debris Removed
# of Tires
# of Shopping Carts
# of Furniture Items

The City has collected used oil for proper disposal, thus reducing the potential load of pollutants that could enter the storm drain system. **(L2, L3, L4)**

- Used Oil Collection Program – Since 2003-2004, 5.3 million gallons of used motor oil or motor oil products, 288,415 pounds[19] of used oil filters, and 1.2 million units[20] of used oil filters have been collected at the permanent collection facility, the certified used oil collection centers, or via the City's curbside oil collection program. The amount of used oil collected increased substantially (482%) between 2003-2004 and 2005-2006; since that time, the amount of used oil collected has remained consistently high, averaging 548,369 gallons a year since 2007-2008.[21]



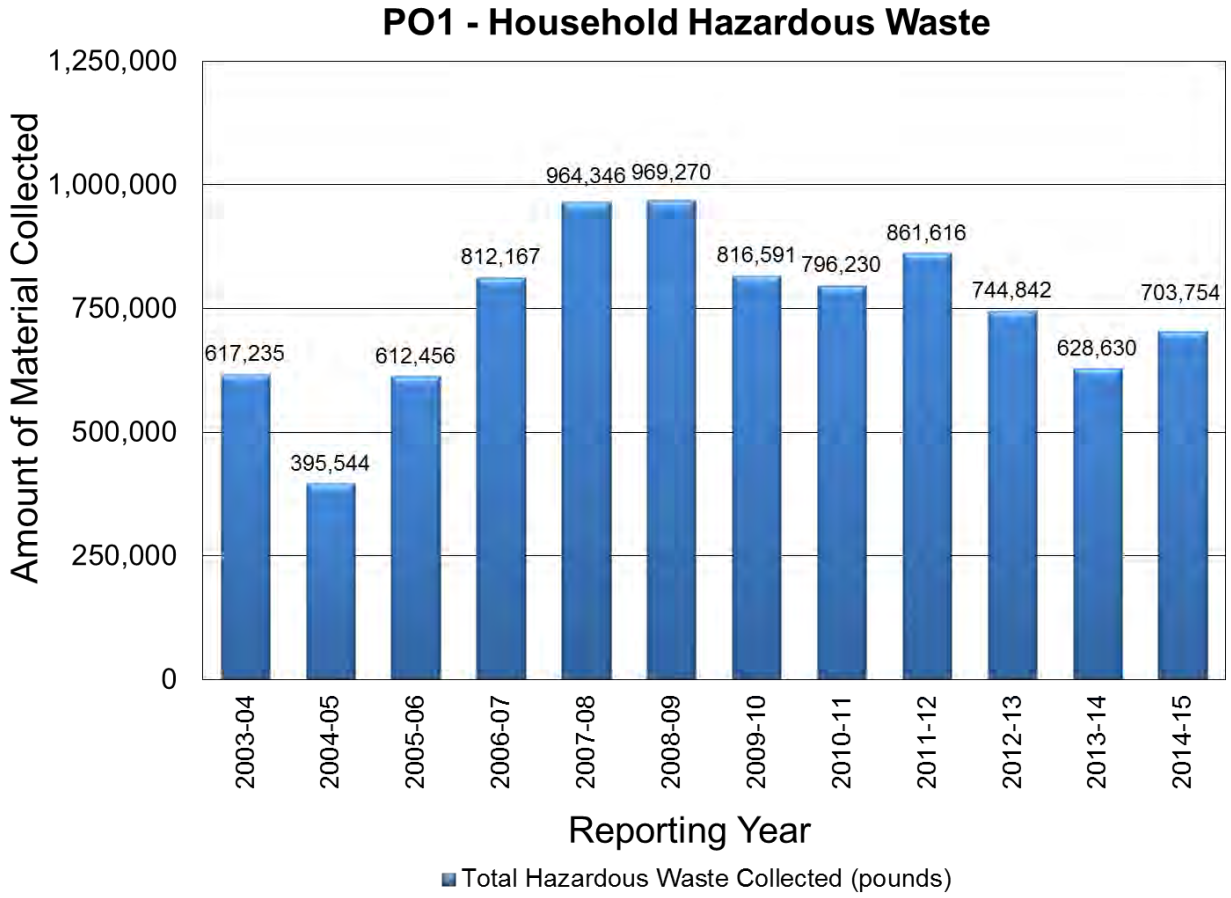
[19] Tracked between 2003-2004 and 2008-2009

[20] Tracked since 2008-2009

[21] Data are not available for 2006-2007, so this reporting period is not included in the average.

The City is raising awareness about HHW collection services and is increasing the amount of HHW that is being disposed of properly, thus reducing the potential load of pollutants that could enter the storm drain system. **(L2, L3, L4)**

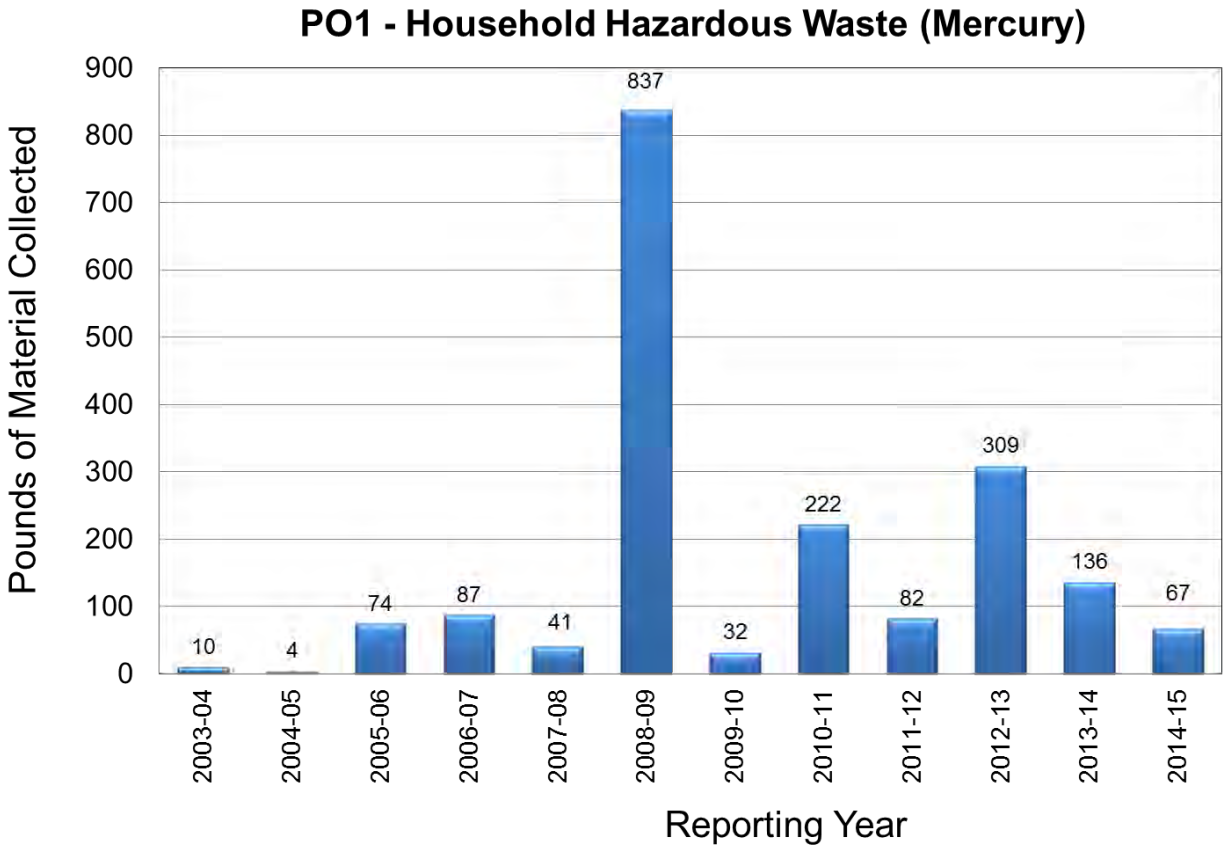
- Residents have properly disposed of HHW through the permanent collection facility. Since 2003-2004, these efforts have resulted in approximately 8.9 million pounds of hazardous waste being collected and disposed of properly.
- On average, the amount of HHW properly disposed has increased by 33% between the previous (2003-2004 to 2006-2007) and current (2007-2008 to 2014-2015) permit terms.[22] This proper disposal of HHW ensures that potential impacts to the storm drain or receiving waters are prevented.



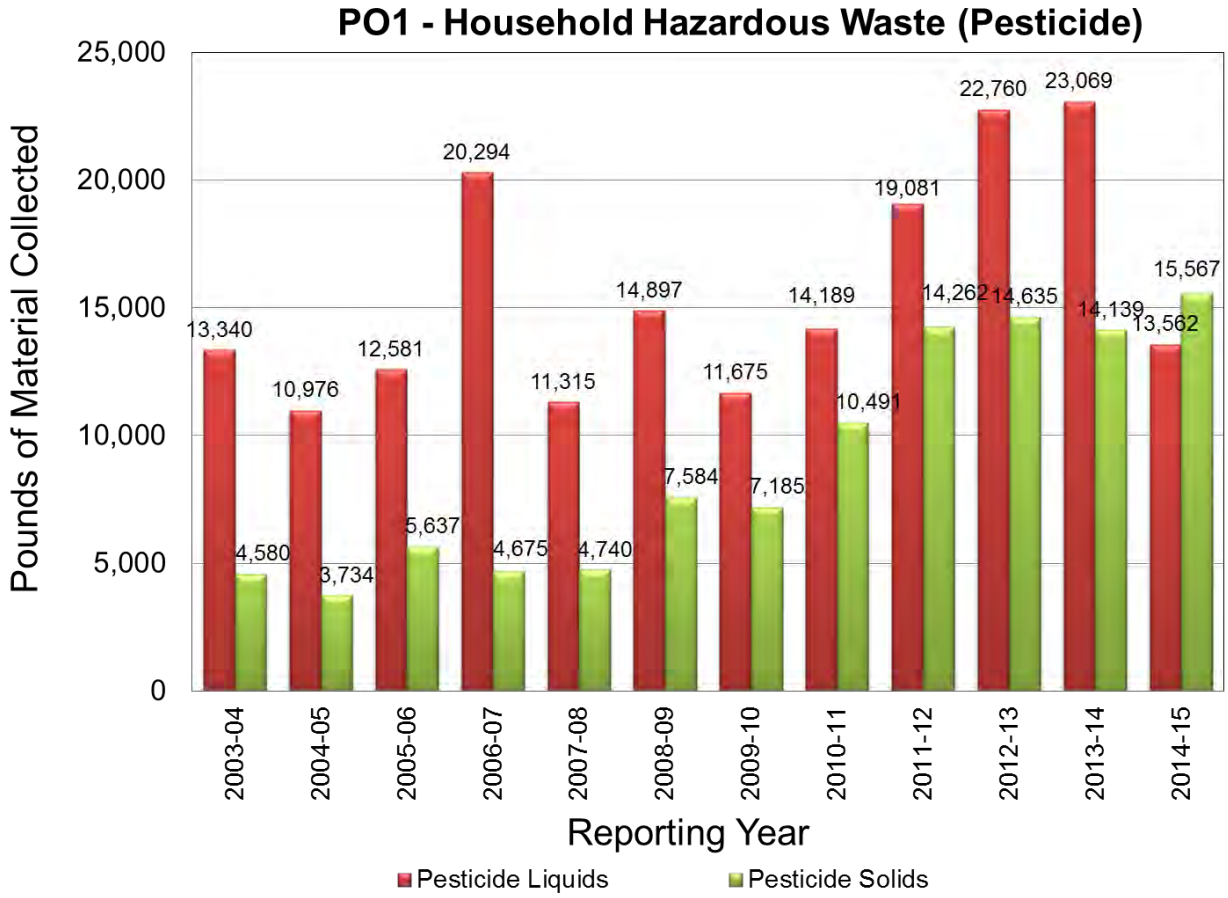
[22] No data are available for 2002-2003

The Permittees are coordinating the HHW program with the Pesticide and Mercury Plans to ensure that these materials are safely and properly disposed of. The key messages are provided through printed materials, as well as the Web site. **(L2, L3, L4)**

- Since 2003-2004, over 1,901 pounds of mercury have been collected at the HHW Facility; most of this was collected in 2008-2009.



- Since 2003-2004, over 187,739 pounds of pesticide liquids and over 107,229 pounds of pesticide solids have been collected at the HHW Facility. On average, the amount of pesticide solids collected at the HHW has increased by 138% between the previous (2003-2004 to 2006-2007) and current (2007-2008 to 2014-2015) permit terms.[23] The amount of pesticide liquids collected has increased 14% from the previous permit term, although annual amounts have been more variable. This indicates increased awareness of the HHW program, resulting in behavior change (i.e., proper disposal).



The City has supported active public participation by maintaining and periodically updating the City's Web site, which includes general stormwater information, links to pesticide disposal information, and stormwater information specific to summer activities and the rainy season. **(L1)**

[23] No data are available for 2002-2003

PO2 – Hotline

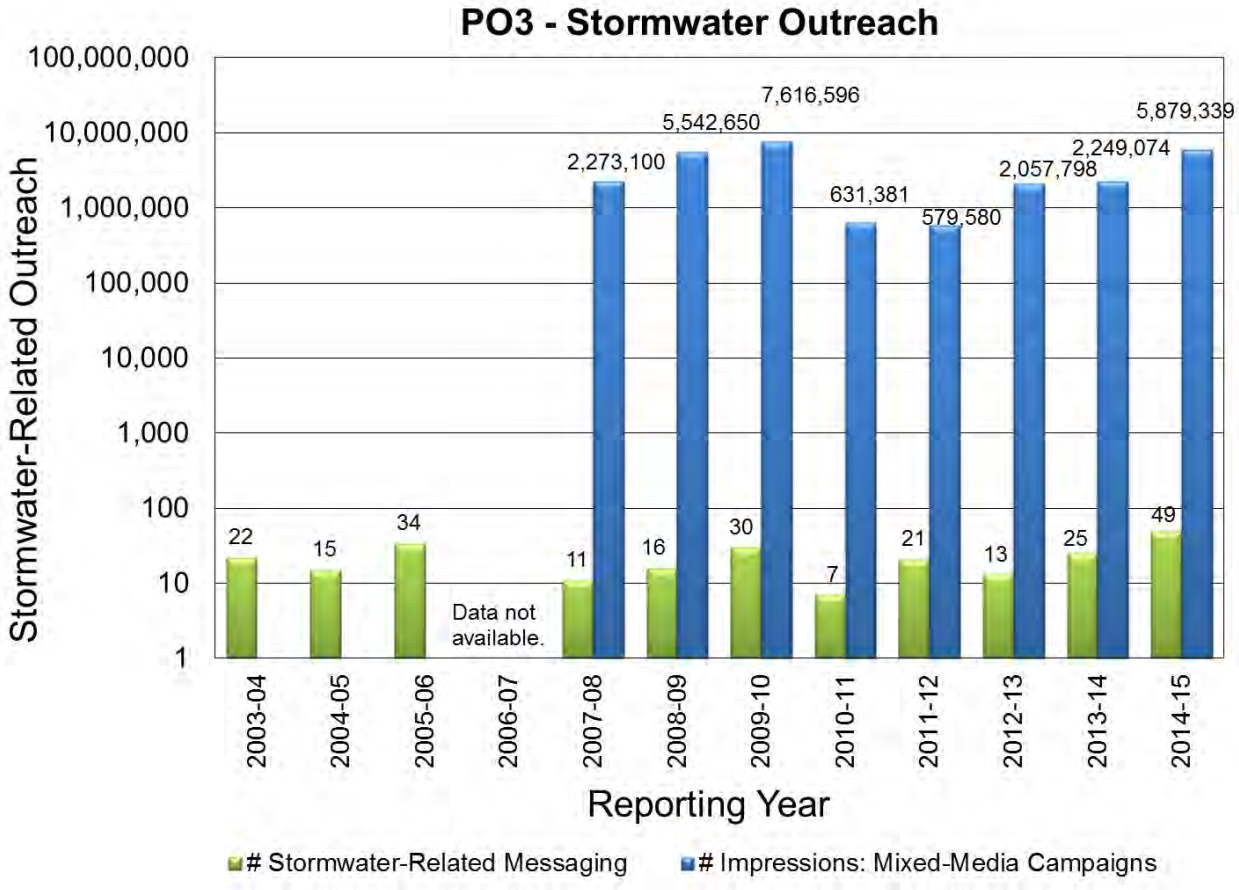
The City has established and advertises the 24-hour hotline, the used oil program, and the HHW consolidation facility contact numbers. The City is advertising the program through the Web site, the media (e.g., PSAs), and the utility bill newsletter. **(L1)**

PO3 - Public Outreach Implementation

The City has developed and is implementing the public education and outreach program that provides key stormwater messages. **(L1)**

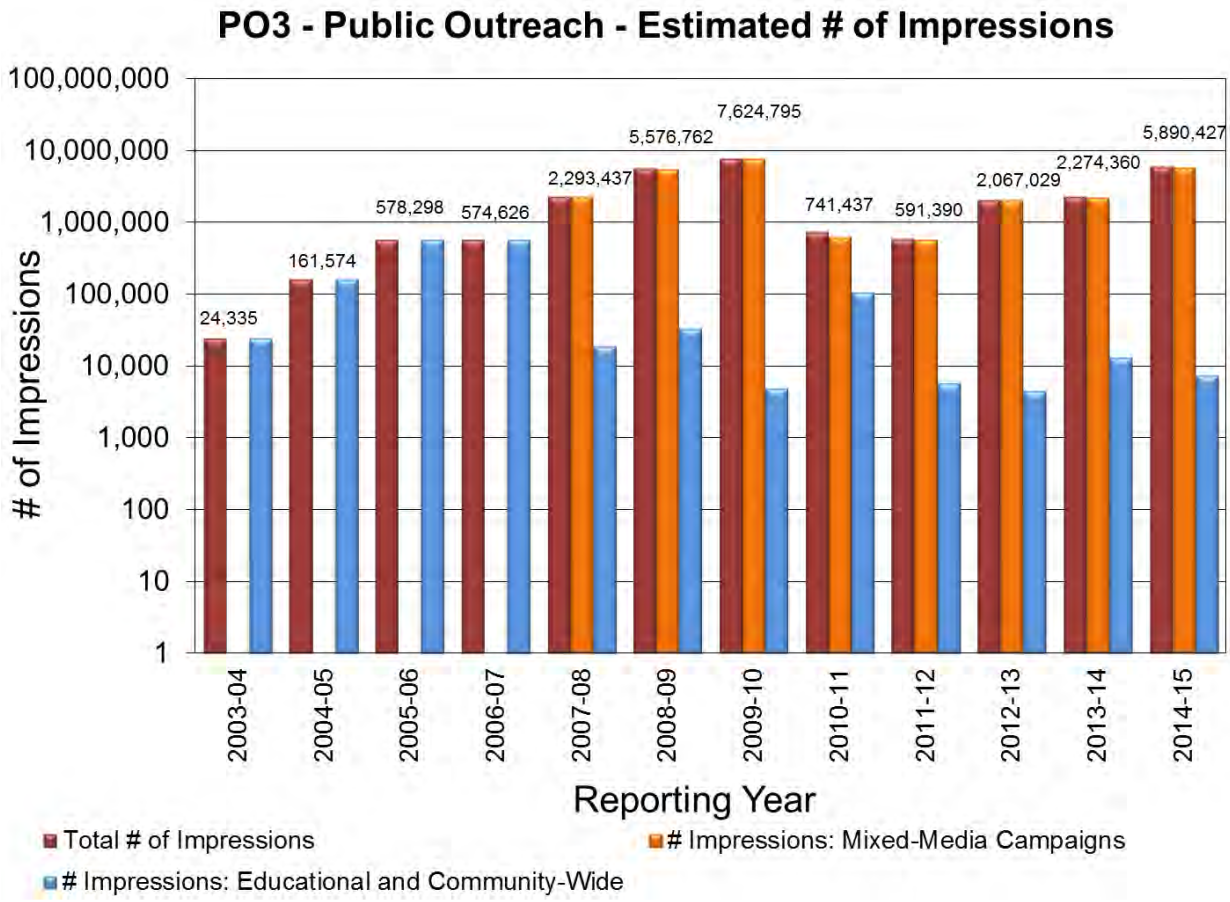
- General Outreach Efforts – The City has developed and is providing a variety of outreach pieces such as brochures and fact sheets, some of which are multi-lingual. The materials are provided at a number of venues including the City's web site, civic locations, community events, and billing inserts. Through these efforts, more than 1.4 million pieces of educational outreach material have been distributed between 2003-2004 and 2014-2015 (1,403,540 total pieces of outreach material).

  The City has continued to work with the local media, the government access cable station, movie theatres, and utility bill newsletters to provide the public with more than 243 different stormwater-related articles or messages since 2003-2004. Between 2007-2008 and 2014-2015, it is estimated that these mixed media campaigns have resulted in more than 27 million (27,059,684) impressions.



- Water Quality Based Plan Outreach – The City has implemented specific efforts in order to implement the Pesticide, Pathogen, and Mercury Plans. Efforts have included the development and distribution of materials addressing the disposal of pet waste, as well as methods for the proper disposal of household items that contain mercury. The City also coordinates with the HHW Facility for proper disposal of pesticides.
- Mass Mailings – Since 2003-2004, outreach has been provided to approximately 100% of the City residential units by conducting mass mailings of various outreach materials. In 2005-2006, quarterly waste management newsletters were mailed to all residents. In 2006 and 2008, AT&T phone books with a recycling guide and stormwater and hotline information insert were mailed to all residents. In 2010-2011, two newsletters, a Clean Water Fee newsletter and the *Stockton Water News*, were provided to all residents via utility billing inserts. The *Stockton Water News* continued to be provided to all residents via utility billing inserts in 2011-2012, 2012-2013, 2013-2014, and 2014-2015.
- Community-Wide Events – The City has regularly attended community-wide events since 2003-2004. Since that time, the City has outreached to the general public by sponsoring, organizing, and/or exhibiting at these events and providing information to an estimated 129,948 event attendees.
- Community Relations – Since 2007-2008, the City has provided community relations in the form of briefing sessions to more than 1,019 attendees. The City also has outreached to and/or coordinated with local community and environmental organizations. In 2014-2015, City staff participated in a live radio interview with 1059 The Bull, a local radio station, promoting Stockton's Clean Water Campaign. The interview occurred on February 12, 2015 and included tips for residents to help prevent stormwater pollution, including car washing and fertilizer use tips, promotion of the Used Oil and HHW Programs, and use of the public hotline to report illicit discharges.
- Partnerships – The City continues to partner with other City departments and agencies and form additional partnerships, such as that with the Stockton Area Water Suppliers (SAWS), so that resources and efforts can be shared. In 2014-2015 the City's Stormwater department worked collaboratively with the Department of Water Conservation and Fats/Oils/Greases Programs and a marketing firm to create a new department brand recognition image. The new image will be used in conjunction with all future program brochures, community event giveaways, and media. In addition to increasing public recognition and awareness that these programs all have shared goals/objectives which reinforce one another, it will allow the programs to maximize use of resources by collaborating on media messaging and sharing these costs.

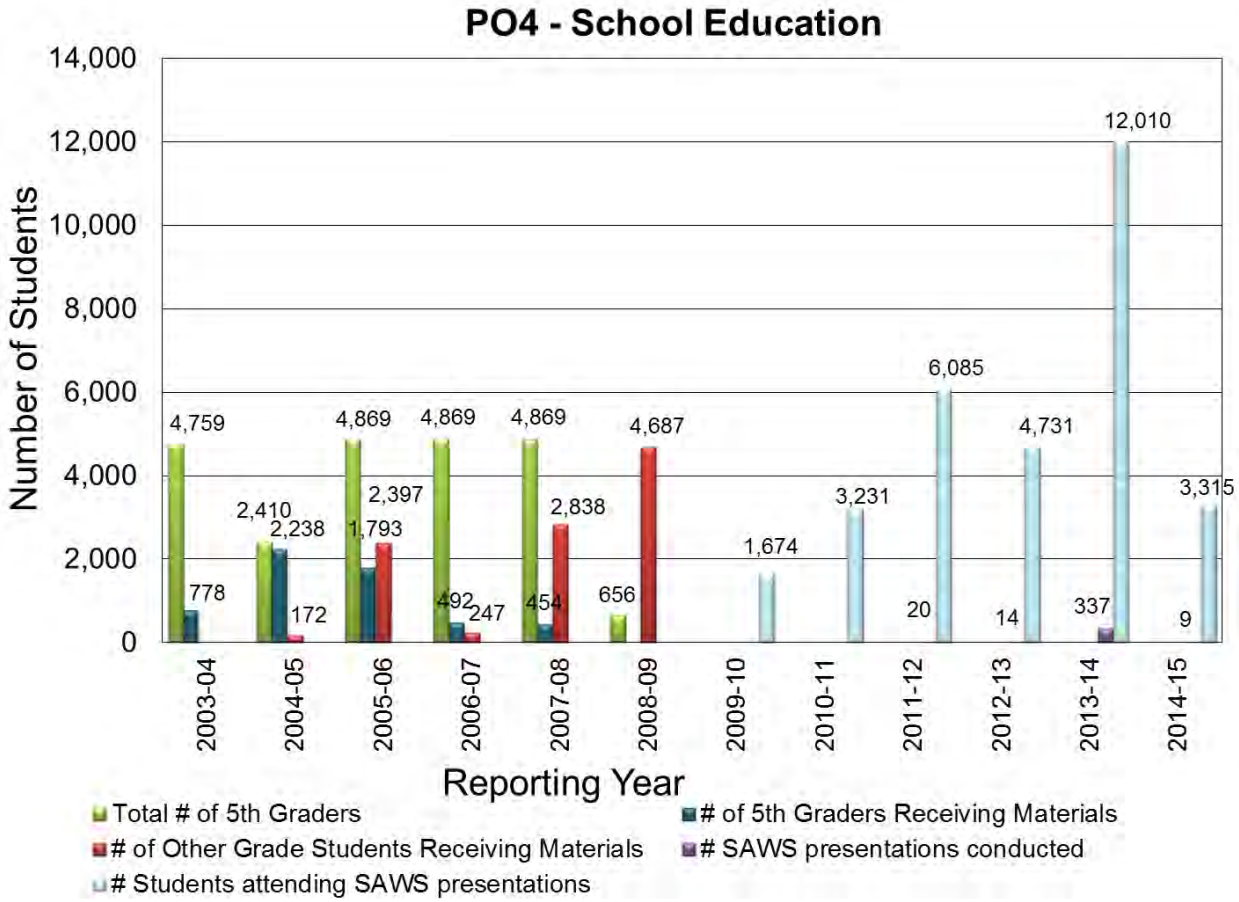
As a result of all of these efforts, more than 28 million impressions (28,398,470) have been made since 2003-2004, including 5,890,427 in 2014-2015. Overall, the number of impressions being made annually has increased significantly since 2003-2004.



PO4 - Public School Education

The City is outreaching to the schools, educators and school children and providing key stormwater messages. Past years' efforts (2003-2004 through 2007-2008) focused primarily on outreach to fifth graders; since then, the focus of the program has shifted to presentations made to school-age children in any grade, in public and charter schools. **(L1)**

- During 2014-2015, the City continued to support the interactive stormwater pollution exhibit that is displayed at the Children's Museum.
- Since 2003-2004, 31,046 students have received materials related to stormwater pollution prevention. The City provided individual stormwater presentations to classrooms, after-school programs, and summer day camp programs. The City also continues to partner with SAWS, which provides structured Stormwater/Water Conservation assemblies for students throughout the City and County. In 2014-2015, SAWS conducted nine individual classroom stormwater presentations to school age children, reaching 3,315 students.



PO5 - Business Outreach

The City is outreaching to the business community and providing key stormwater messages. **(L1)**

- Materials – Since 2003-2004, the City has distributed educational materials to businesses regarding stormwater pollution and BMPs. As a result, approximately 5,883 pieces of educational materials have been distributed to industrial and commercial businesses. Materials are provided via the City's Web site, at community events, via utility billing inserts, and during industrial and commercial business inspections (see **Section 5**).

3.9 PUBLIC OUTREACH PROGRAM MODIFICATIONS

Each year, the City submits a work plan to the Regional Water Board for the activities that will be completed during the upcoming fiscal year. The 2015-2016 work plan identified several key tasks for this Program Element. In addition, as part of the ROWD process, the City has evaluated the effectiveness of program implementation during the Permit term, as well as the experience that staff has had in implementing the program, to identify the performance standards for the Control Measures under this Program Element for the next permit term. Through the development of the annual report, the annual work plan, and the ROWD, the City has determined if any additional program modifications are necessary in order to ensure that the stormwater management program is effective.

The program modifications that have been identified for this Program Element for the upcoming permit term are discussed below (see also Section 4 of the June 2012 ROWD).

- **PO1 – Public Participation:** To omit redundancy, performance standards involving Permittee Web site updates will be addressed only in Control Measure PO3.
- **PO4 – Outreach to School-Age Children:** The focus of this Control Measure has shifted from "Public School Education" to "Outreach to School-Age Children" to reflect the shift to a broader target audience (i.e., all school-age children, not just those attending public schools).
- **PO5 – Business Outreach:** This Control Measure will be incorporated into IC3, Industrial and Commercial Outreach (see Section 6, Industrial and Commercial Program, of the June 2012 ROWD), due to similarities in the purpose of these Control Measures. The majority of the outreach that is conducted for industrial and commercial businesses occurs during implementation of Industrial and Commercial Program Control Measures, such as inspections; thus, it is most efficient to streamline all business outreach efforts only under the Industrial and Commercial Program.

Section 4
Municipal Operations (MO)

4.1 OVERVIEW

The City, as part of its normal operations, conducts a number of activities (e.g., catch basin cleaning, street repairs, street sweeping via a contract) that may generate or mobilize pollutants. The Municipal Operations Program Element comprises Control Measures that are designed to ensure that these operations and maintenance activities are performed using processes and procedures to minimize the pollutants generated and the potential for pollutants to enter the storm drain system.

4.2 CONTROL MEASURES

The City has developed several Control Measures and accompanying performance\e standards to ensure that the municipal operations-related Permit requirements are effectively developed and implemented. For each Control Measure there are accompanying performance standards which, once accomplished, constitute compliance with the SWMP/Permit.

The Municipal Operations Program Control Measures consist of the following:

MO	Control Measure
MO1	Sanitary Sewer Overflow and Spill Response
MO2	New Development and Construction Requirements for Municipal Capital Improvement Projects
MO3	Pollution Prevention at City Facilities
MO4	Landscape and Pest Management
MO5	Storm Drain System Maintenance
MO6	Street Cleaning and Maintenance
MO7	Parking Lots Maintenance
MO8	Training
MO9	Effectiveness Assessment

The next section of the Annual Report provides information on the specific tasks that have been initiated and/or completed during the 2014-2015 reporting period pursuant to the Municipal Operations Program Performance Standards and implementation schedules.

4.3 MO1 – SANITARY SEWER OVERFLOW AND SPILL RESPONSE

The Sanitary Sewer Overflow Emergency Response Plan (SSOERP) minimizes potential impacts to the receiving water from sanitary sewer overflows and spills. Sanitary overflow and spill response comprises four steps: investigation of complaints, containment, notification to appropriate agencies, and clean-up / mitigation. Follow-up to an overflow or spill may include procedures for containing and cleaning spills and leaks that enter the storm drain system.

4.3.1 Implement Sanitary Sewer Overflow Emergency Response Plan

The SSOERP attempts to prevent SSOs from entering the storm drain system and includes reporting information so that the responsible agencies are notified when these spills occur. The Environmental Control Division has a cooperative relationship with the MUD – Stormwater Management Program staff and informs them whenever a spill occurs and a cleanup is necessary. They also work together to collect and record related data. In the event of a private SSO or hazardous spill, communication of both parties is essential in resolving these incidents.

The City maintains a complaint hotline and responds to sanitary sewer overflow complaints and/or notifications in a timely manner. A summary of the sewer overflows is provided below.

Year	Total Number of SSOs	Total Number of SSOs that Entered the Storm Drain System	Total Number of SSOs that Entered a Receiving Water
Last Year 2013-2014	137	26	7
This Year 2014-2015	140	27	5

See **Appendix D-1** for a summary of reported SSOs, including locations, frequencies, total volume estimates, and the amount captured and returned to the sewer system.

4.3.2 Review/Revise Sanitary Sewer Overflow Emergency Response Plan

The City developed a SSOERP to address sewage spills and ensure that every report of an SSO would be addressed by the appropriate personnel so that the impacts of the overflow on the storm drain system would be minimized (March 2009). The City's SSOERP was included as Appendix B-1 to the 2009 SWMP, and reviewed and revised as changes occurred. Although the 2009 SSOERP identified and outlined the necessary actions and BMPs that should be employed to address SSOs, the City recognized that best professional judgment always needs to be used in the field to address unique issues that arise with every spill. For SSOs, MUD has primary responsibility for responding to, cleaning up, and reporting the spills. The 2009 SSOERP included reporting information to facilitate the notification of responsible agencies when these spills occur. In addition, the City's current program to limit infiltration of seepage from sanitary sewers uses a combination of inspecting sanitary systems to ensure proper construction, televising existing storm drain lines, reporting by experienced maintenance personnel, and dry weather field screening. During the construction phase, regular inspection ensures verification of leak testing, no cross connections, and televised final checks of construction quality when necessary.

On June 16, 2009, the County and the California Sportfishing Protection Alliance agreed to incorporate several procedures into the County's SSORP to ensure communication between, and coordinated response from, the County and the City of Stockton with respect to SSOs that originate from the City's sanitary sewer system and might reach the County's MS4. In November 2009, the County's SSORP was

revised to reflect a combined effort of communication and cooperation between the City and County with respect to sanitary sewer spills emanating from the City's collection system that threaten to discharge, or discharge, to the County's storm system (Appendix D-1 of the *2009-2010 Annual Report*).

The specific procedures that were addressed within the revised County SSORP include the following:

1. The County will ensure that the County of San Joaquin's Emergency Dispatch personnel are prepared to field any call from the City of Stockton related to any SSO occurring within the County's jurisdictional area of the Stockton Urbanized Area MS4 ("County's MS4 Jurisdiction") that has discharged to, or threatens to discharge to, the County MS4.
2. For any SSO from the City of Stockton's collection system that discharges, or threatens to discharge, to the County's MS4 Jurisdiction of which the County is aware, the County will work cooperatively with the City to take all feasible steps to prevent the SSO from reaching the County's MS4 Jurisdiction and/or waters of the United States, including by:
    a. Controlling County owned and/or operated storm water pump stations at the request of the City, as necessary;
    b. Allowing the City to obtain access to the County's MS4, as necessary; and
    c. Using reasonable best efforts to facilitate the City's response to its SSOs to the County's MS4 in a cooperative manner.

During the 2010-2011 reporting period, the County's Utilities Maintenance Division developed a SSOERP to incorporate and implement the above procedures.[1] The SSOERP was included in the June 2011 Sewer System Management Plan (SSMP) as Element 6 and replaced the existing SSORP. (It was also included as Appendix D-1 to the *2010-2011 Annual Report*.) The County and City jointly utilize the 2011 SSOERP, which outlines the priority of work that should occur in the case of an SSO, and details the procedures and corresponding staff positions responsible for responding to SSOs. The general procedures are as follows:

- Investigate and Assess
- Control Traffic
- Minimize the Overflow
- Report and Notify
- Correct the Cause of the Overflow
- Estimate the Volume
- Initiate Cleanup
- Sample Receiving Water
- Submit Formal Reports
- Modify Maintenance Procedures.

Additionally, the SSOERP provides prioritized lists of contact information for relevant agencies to be notified in the incidence that an SSO occurs, and includes necessary actions and BMPs for containing

[1] Also during 2010-2011, the City finalized the *Sanitary Sewer Overflow and Backup Field Procedures Manual* (December 2010) (Appendix D-2 of the 2010-2011 Annual Report).

SSOs. The 2011 SSOERP was included as Appendix D-2 of the *2011-2012 & 2012-2013 Annual Report* and will be reviewed and revised by the County as appropriate.

The State Water Board made changes to the City's Waste Discharge Requirements—Monitoring and Reporting Program (MRP), which became effective in September 2013. As such, the City updated the SSOERP on September 9, 2013 to meet the new requirements of the updated MRP. An updated version of the SSOERP was included as Appendix D-2 of the *2013-2014 Annual Report*.

The SSOERP was updated June 1, 2015. This updated version is included as **Appendix D-2**.

4.4 MO2 – NEW DEVELOPMENT AND CONSTRUCTION REQUIREMENTS FOR MUNICIPAL CAPITAL IMPROVEMENT PROJECTS

The New Development and Construction Requirements for Municipal Capital Improvement Projects (CIPs) Control Measure provides protocols to be followed in the design and construction phases of capital projects undertaken by the City. In essence, the City will follow the Development Standards and Construction Program Element requirements for all CIPs, and obtain coverage under the General Construction Permit for projects greater than or equal to one acre in size.

4.4.1 Review CIP Designs to Ensure Specifications and Notes are Included

The City requires that all CIPs be reviewed by Municipal Utilities Department (MUD) Engineering staff to ensure that the Construction BMPs and Stormwater Quality Control and Criteria Plan (SWQCCP) standards are incorporated during the design stage.

During the 2014-2015 reporting period, Public Works staff reviewed all MUD and Public Works CIPs to ensure that the Construction BMPs and SWQCCP standards (when applicable) were incorporated during the design stage.

4.4.2 Require Submission of NOI for CIPs Greater than or Equal to One Acre

The City requires that CIPs 1 acre or greater obtain coverage under the Construction General Permit.

The following table summarizes information for the reporting period regarding Notices of Intent (NOIs).

Total Number of Active Public Construction Sites	Total Number of Active Public Construction Sites ≥ 1 acre	Total Number of Active Sites that Submitted an NOI
8	2	2

4.4.3 Ensure CIP Priority Projects are Developed in Conformance with the SWQCCP

If a CIP meets the criteria as a priority project as defined within the SWQCCP, the CIP is developed so that it conforms to the new development standards. A summary of the CIPs reviewed during the reporting period is provided below.

Total Number of CIP that are Priority Projects	Total Number of CIP Priority Projects in Compliance with the SWQCCP
0	0

Summary of Approved Control Measures for CIPs	
Type of Control Measure	**Total Number Approved**
General Site Design Control Measures (G1 – G4)	0
Site-Specific Source Control Measures (S1 – S8)	0
Treatment Control Measures (T1 – T13)	0
Total Projects[1]	**0**

Note:
1. Total CIP priority projects reviewed and approved for SWQCCP requirements.

4.4.4 Improve Interdepartmental Communication to Facilitate Accurate Recordkeeping and Reporting

The City improved interdepartmental communication to facilitate accurate record keeping and reporting of data. During the 2013-2014 reporting period, the Stormwater Program Manager worked with other departments and divisions to ensure that they were accurately tracking data for the stormwater program and the annual reporting process.Stormwater personnel began participating in other divisional meetings on a routine basis during the 2013-2014 reporting period. These divisional meetings continued in the 2014-2015 reporting period in an ongoing effort to improve communication and recordkeeping despite staffing changes.

4.5 MO3 – POLLUTION PREVENTION AT CITY FACILITIES

The Pollution Prevention at City Facilities Control Measure addresses pollutants that might enter the storm drain system from City-owned facilities (e.g., corporation yard). To further the framework provided by this Control Measure, Facility Pollution Prevention Plans (FPPPs) were developed and will be maintained for the City's facilities that are not otherwise required to secure coverage under the General Industrial Permit. The FPPPs include a site description and identify BMPs that address potential sources of pollutants to the storm drain system as well as procedures for addressing spills that may occur onsite.

4.5.1 Assess Facilities to Determine if They Require Coverage under the General Industrial Permit

The City's Corporation Yard was previously covered under the General Industrial Permit.[2] In June 2007, the Corporation Yard submitted a Notice of Termination (NOT) to the Regional Board. The Corporation Yard was released from this requirement by the RWQCB at the end of 2006-2007. As stated in the NOT, the Corporation Yard is covered by the Permit requirements. As of June 30, 2015, the City has not determined that any other facilities need coverage under the General Industrial Permit.

4.5.2 Modify SWPPP for Corporation Yard and Other Facilities into an FPPP

The City was originally planning to modify the SWPPP for the Corporation Yard and other facilities into an FPPP. Instead, however, the City opted to task Network Environmental Systems, Inc. (NES) with developing a FPPP for the Corporation Yard in conjunction with the Spill Prevention Control and Countermeasure (SPCC) Plan NES was already developing for the Corporation Yard. The SPCC Plan was certified on January 14, 2013. The FPPP contains updated elements including a facility description and map, and BMPs (see Appendix D-2 of the *2011-2012 & 2012-2013 Annual Report*).[3]

4.5.3 Implement SWPPP (FPPP) for Corporation Yard and other Facilities

The 2013 FPPP for the Corporation Yard was finalized in July 2013 and continued to be implemented during the 2013-2014 and 2014-2015 reporting periods.

Prior to finalizing the Corporation Yard FPPP, the City developed and had been implementing BMPs for a wide variety of activities at the Corporation Yard, including materials storage, equipment washing, vehicle maintenance, spill control, and illicit discharges.

For instance, during the 2009-2010 reporting period, the Facilities Maintenance Manager shared with Project Managers and the Senior Facilities Maintenance Supervisor several BMPs for pressure washing City facilities. The Senior Facilities Maintenance Supervisor was made aware of the requirements to not allow pressure washing wash water to discharge to the storm drain system. During the 2010-2011 reporting period, Corporation Yard staff:

- Purchased an additional 24 Flo-gard plus catch basin inserts to more securely hold filters in place during maintenance activities, and to replace the less effective "fabric socks", and
- Obtained an updated map of storm drain catch basins and a map of hazardous materials/waste storage and the spill kits that are available onsite.

[2] The Corporation Yard is the only facility that met the criterion for requiring coverage under the General Industrial Permit.

[3] The electronic version of the FPPP does not include a copy of the facility map, which is kept on-site.

During 2011-2012, 2012-2013, and in previous years, the equipment wash area runoff was collected in a self-contained pit. The material accumulated in the pit was treated as hazardous waste and removed by Evergreen Environmental bi-annually. Additionally, vehicle and equipment washing activities were performed at the wash rack since vehicle and equipment washing has a pollutant potential. Wash water was diverted to an oil water separator, which will be serviced as needed. Corporation Yard staff continues to implement BMPs onsite.

The City's Corporation Yard followed written storm drain maintenance procedures (Storm Drain, Catch Basin, and Filter Insert Maintenance Procedures, included as Appendix D-2 of the *2008-2009 Annual Report*). The procedures include the following:

- All paved surfaces will be kept clear of debris
- Corp Yard to be swept two times per month with 10-foot clearance around catch basins
- Cover materials stockpiles
- Annually, change filters on September 1; inspect and clean filters on November 1, January 1, and March 1

In addition, Corporation Yard staff continue to add more spill kits and provide training for stormwater pollution prevention.

During the 2012-2013 reporting period, a training session for Environmental Management – Stormwater Pollution Prevention for the Corporation Yard, SPCC, and Hazardous Waste was conducted. Corporation Yard staff also produced a video for BMPs for stormwater pollution prevention that the City used for its 2012-2013 Stormwater Pollution Prevention Training (see Appendix D-4 of the *2011-2012 & 2012-2013 Annual Report*).

4.5.4 Update FPPP on an Annual Basis

The FPPP was finalized in July 2013 and will be reviewed and updated on an annual basis, following its certification by the City's Deputy Director.

4.5.5 Review CIPs for Compliance with General Stormwater Requirements

The City reviews CIP project lists to identify those projects for new or existing municipal facilities that have vehicle or equipment wash areas. The wash areas are required to be either self contained (through the implementation of BMPs) or connected to a clarifier or alternative pre-treatment device and plumbed to the sanitary sewer. During the 2014-2015 reporting period, no projects meeting this requirement were designed or planned.

4.5.6 Develop BMP Fact Sheets for Non-Emergency Fire Fighting Flows

The City developed a fact sheet identifying the BMPs that must be incorporated for non-emergency fire fighting flows (i.e., those from controlled or practice blazes during training exercises). Fire department activities are not generally considered significant sources of stormwater pollution, but some activities can result in the discharge of water containing pollutants that pose a threat to both human health and the quality of receiving waters if it enters the storm drain system. The two main types of fire department activities that pose potential problems are:

- Emergency Fire Fighting Flows and
- Non-Emergency Fire Department Activities

Although the Permit recognizes that emergency fire fighting flows (i.e., flows necessary for the protection of life or property) can enter the storm drain system, fire department personnel should follow general BMPs in order to minimize the impact of fire fighting flows to the environment. During the 2008-2009 reporting period, the City developed procedures and BMPs addressing emergency and non-emergency fire fighting flows, entitled, "Emergency and Non-Emergency Fire Department Procedures" (Appendix D-4 of the 2009 SWMP).

4.5.7 Distribute BMP Fact Sheets for Non-Emergency Fire Fighting Flows

The City of Stockton Fire Department routinely updates Standard Operating Procedures (SOPs) for training and proper handling of non-emergency fire fighting flows. In 2009-2010, the Stormwater Program worked collaboratively with training staff from the Fire Department as part of a work group to update the SOPs, and the updated SOPs are included as part of the Fire Department's routine training program. During the 2013-2014 and 2014-2015 reporting periods, no changes relating to stormwater were made by the City's Fire Department. Stormwater personnel worked to introduce new Fire Department staff in charge of training to the "Emergency and Non-Emergency Fire Department Procedures" and to recommend incorporation of these procedures into future trainings.

4.5.8 Develop Procedures to Address Emergency Events

During 2009-2010, the City developed procedures to address emergency events and included them within the *City of Stockton Spill Response Procedures* (Appendix B-1 of the *2009-2010 Annual Report*). An emergency event is considered to be a severe, natural or manmade disaster within the City, including any of the following:

- Earthquakes
- Floods
- Major power outages
- Major fires
- Radiological accidents/attacks
- Chemical accidents/attacks
- Biological accidents/attacks
- Terrorist attacks

In the case of an emergency event, issues related to human health and safety will be prioritized. Once these issues have been addressed, the Stockton Fire Department will notify and coordinate with MUD to address any spills or runoff that are related to the emergency event and ensure the protection of water quality.

During the 2012-2013 reporting period, the Fire Department:

- Provided all new personnel with the City's 2011-2012 Emergency Plan that includes emergency response training and SOPs that specifically address stormwater emergencies;
- Sponsored training to all City senior administration including department directors and deputy directors. The training was delivered during the 2012-2013 reporting period at a Senior Officials Workshop held on May 10, 2013. This workshop focused on the management of a flood emergency, and included all senior officials and city staff that participate in the operation of the City's Emergency Operations Center; and

- Conducted an orientation to the City's new Emergency Operation Plan during a one-day training session that was offered on three separate dates (November 29, November 30, and December 7, 2012). The purpose of the training session was to introduce the contents and organization of the newly revised Emergency Operations Plan.

4.6 MO4 – LANDSCAPE AND PEST MANAGEMENT

The Landscape and Pest Management Control Measure ensures that the discharge of pollutants from the City's use and storage of fertilizers and pesticides is reduced to the Maximum Extent Practicable (MEP). Among other things, the BMPs promote the use of integrated pest management (IPM) and retention and planting of native plant species requiring less water and chemical augmentation to remain healthy. By choosing less toxic and non-chemical landscaping methods, the City serves as a positive example to citizens and prevents adverse impacts on the local water bodies.

4.6.1 Implement Pesticide and Fertilizer Application Protocol

The Water Quality Based Program aims to reduce pesticides entering urban runoff by implementing BMPs and IPM to minimize pesticide use. In support of its Pesticide Plan, the City developed and began to implement protocols for routine and non-routine use of pesticides and fertilizers. In general, the City follows these procedures:

- Chemicals are stored in a central facility, meeting Occupational Safety and Health Administration (OSHA), Hazardous materials (HAZMAT), and County Agricultural Commissioner's requirements by providing secure storage and spill control.
- Landscaping is performed to maintain a healthy landscape, and a regular fertilizer program ensures healthy turf.
- Pesticides are used as a last resort, conforming to a sound integrated pest management program.
- To maximize the benefit of applications, all chemicals are applied at the minimum dose while avoiding runoff and wind drift.
- Native plants and trees are used whenever possible to reduce water needs while promoting resistance to disease and pests.

In August 2008, the parks maintenance functions were transferred to Public Works. Maintenance of the golf courses remained under the Parks and Recreation Department, subsequently renamed Community Services. As of July 1, 2009, all park landscape maintenance tasks are contracted. Contract specifications call for parks to be fertilized, as necessary, to maintain the turf in healthy condition. The specifications provided require that fertilizer be a balanced granular type. Weed control is to be provided as necessary and only by the use of non-restricted chemicals or hand pulling. All herbicide applications shall be done in accordance with manufacturer labels and proper IPM practices.

During the 2013-2014 reporting period, the City implemented the pesticide and fertilizer application protocol (Parks and Recreation Department Landscape Management Procedures, Landscape Maintenance BMP MO-1) at park sites, landscaped medians, and golf courses. The City also implemented a pesticide application protocol for the detention basins maintained by the City's Storm Drainage Maintenance Assessment Districts. The Assessment Districts' basin maintenance is outsourced and completed under a contract with Odyssey Landscape, Inc. The City's contract with Odyssey Landscape specifies that the contractor shall use less toxic pesticide alternatives in accordance with IPM techniques and practices. In addition, any pesticide determined to cause cancer, birth defects, mutations, or other severe chronic health effects is banned from use. The contractor is required to supply a written pest control recommendation by a licensed pest control adviser for each material to be used at each site—for approval by the City—and to keep a log of all chemicals and their quantities applied.

The City has reevaluated how it requests and collects information regarding fertilizer and pesticide application from outside contractors on the maintenance done for City-owned parks and landscape medians and golf courses. Since the completion of the evaluation in 2010-2011, there have been no

further changes in how the City requests and collects information from outside contractors. During the 2014-2015 reporting period, Public Works continued to require contractors to accurately track applications and submit pesticide, herbicide, and fertilizer reports in an electronic format that is compatible with City software.

The following table summarizes information regarding the implementation of the **fertilizer protocols**.

	Total Number of Acres Treated with Fertilizers	Total Pounds of Fertilizer Applied	
		Nitrogen	Phosphorous
Last Year 2013-2014	250 (Golf Courses) 646 (Parks)	8,026 (Golf Courses) 8,000 (Parks)[1]	137.5 (Golf Courses) 3,000 (Parks)[1]
This Year 2014-2015	250 (Golf Courses) 646 (Parks)	1,631 (Golf Courses) 400 (Parks)	571 (Golf Courses) 150 (Parks)

Note:
1. The increase in applied fertilizers during the 2013-2014 reporting period reflects a change in contractor performance and an increase in the Parks maintenance budget allocation.

A summary of the **pesticide** (e.g., herbicides, algaecides) applications is provided in the tables below.

	Total Number of Acres Treated with Pesticides
Last Year 2013-2014	77 (Golf Courses) 646 (Parks)
This Year 2014-2015	77 (Golf Courses) 646 (Parks)

4.6.2 Implement IPM Program

The City has developed and implemented an IPM program that requires the use of less toxic or non-toxic approaches to pest management. These efforts support the Pesticide Plan, which focuses on public outreach and IPM to protect water quality and promote safe, and minimal, pesticide use.

During 2010-2011, the City contracted all landscape maintenance and weed control services. Maintenance contracts that started on January 1, 2010, and all future contracts/contract specifications require that the contractor use IPM techniques and practices and least toxic methods of pest control to achieve the expected/specified results. Contractors are encouraged to consult the University of California Agricultural and Natural Resources State Wide Integrated Pest Management Program[4] to determine the most effective and least toxic methods of pest control.

During 2010-2011, the City reevaluated how it requests and collects information regarding implementation of the IPM Program from outside contractors on the maintenance done for City-owned parks and landscape medians and golf courses. City landscape maintenance specifications for all new contracts starting January 1, 2010 and later require contractors to submit a written report by July 15 each year describing the IPM practices, principles, concepts, and least toxic methods of pest control used during the previous year of their contract term. New contracts in 2011-2012, 2012-2013, 2013-2014, and 2014-2015 continued to require the same specifications.

[4] www.ipm.ucdavis.edu

The following table summarizes information regarding the implementation of the IPM program.

	Total Number of Acres Under the IPM Program
Last Year 2013-2014	400 (Golf Courses) 646 (Parks)
This Year 2014-2015	400 (Golf Courses) 646 (Parks)

The specific alternatives to pesticides that were employed by the pest control crews as a part of the implementation of the IPM program are listed below:

Weeds	**Diseases**	**Insects**
☒ Hand weeding/hoeing	☒ Irrigation	☐ Biological Controls
☒ Mulch for suppression	☐ Plant Selection	☐ Plant Selection
☐ Fabric for suppression	☐ Pruning	☐ Pruning
☒ Adjust mowing height	☐ Fertilization	☒ Physical Removal
☐ Improve Drainage	☐ Landscape Design	☐ Landscape Design
☐ Flaming	☐ Other_____	
☐ Landscape Design		

4.6.3 Develop Formal Document Describing IPM-Related Policies and Procedures

During 2009-2010, the City worked to formalize IPM protocols within an administrative directive. The *City Manager Administrative Directive P&R-03* (P&R-03) would have established standard procedures for the administration and use of pesticides, herbicides and fertilizers on City rights-of-way and at City-owned facilities. During 2009-2010, a draft update to P&R-03 was prepared to specify that each department using regulated pesticides, herbicides and/or fertilizers would ensure that employees and/or contractors utilize IPM and alternatives to pesticides whenever applicable. A supplementary IPM Guide referred to IPM policies in greater detail. Contract language was developed to specify that contracted pesticide applicators would utilize IPM. The draft administrative directive and IPM Guide were included as Appendix I-2 of the *2009-2010 Annual Report*. In March 2011, the City revisited the draft administrative directive and categorized it as a non-formal procedure instead of a formally adopted directive. The following language has been included in all contract specifications since January 2010:

"INTEGRATED PEST MANAGEMENT

To the greatest extent practicable, the City expects the Contractor to use the Integrated Pest Management practices, principals, and concepts and least toxic methods of pest control to achieve the expected/specified results. Contractor is encouraged to consult the University of California Agriculture and Natural Resources State Wide Integrated Pest Management Program at www.ipm.ucdavis.edu to determine the most effective and least toxic methods of pest control. By July 15 of each year, Contractor shall provide a written report of Integrated Pest Management practices, principles, and concepts and least toxic methods of pest control used during the previous year."

During the 2013-2014 and 2014-2015 reporting periods, these protocols continued to be utilized by contractors hired by the City.

4.6.4 Maintain and Expand Internal Inventory on Pesticide Use

The Water Quality Based Program aims to reduce pesticides entering urban runoff by implementing BMPs and IPM to minimize pesticide use. To evaluate its municipal pesticide use over time, the City will maintain and expand its internal inventory on pesticide use and continue to track pesticide use by the Department of Public Works.

A summary of total pesticide use (by active ingredient, when available) at City parks, golf courses, and detention basins is provided below. No pesticides were applied to detention basins in 2011-2012, 2012-2013, and 2013-2014. During the 2014-2015 reporting period, Turf supreme with Trimec was applied to the detention basin located off of the 99-frontage, north of Mosher Slough.

Brand Name of Product(s) & EPA Number	Name of Active Ingredient	Total Amount of Material Applied[a] (lbs)	
		2013-2014	2014-2015[e]
Speedzone, 2217-835	2,4-D, Carfentrasone-ethyl Mecoprop-p acid	7.84	18.2
	Azoxystrobin	6.4	5.3
	Chlorothalonil	0	0.42
	Clopyralid	0	0.24
Arrow 2EC	Clethodium	17[b]	0
• Wilco Gopher Bait Type II 36029-23 • PCQ, 12455-50003-AA • Answer Gopher Bait, 56-57	Diaphacinone (.01%)	0.1[c]	0 126 4,844
• Wilco Gopher Bail Type II 36029-23 • PCQ, 12455-50003-AA • Wilco Squirrel Bait, 36029-17	Diaphacinone	60 0 60	30 0 594
Turf Supreme 16-6-8 plus Trimec, 2217-643-7001	2,4-D	360[b]	900
Turf Supreme 16-6-8		0	1,600
Reward, 100-1091	Diquat dibromide	2.5	0
Diuron 4L, 34704-844	Diuron 40 %	0	0
• Round-up Pro, 524-475 • Ranger Pro, 524-517[e] • Prosecutor Professional Max, 100-1169 • Glystar Plus, 42750-61	Glyphosate	0 8,335[d,*] 525 5,291[b]	0 52,653 87.52 --
	Imidacloprid	0	15.51
	Indoxacarb	13.2	10.2
	Mancozeb	0	--
	MSMA	33	--
Goal 2XL, 62719-424	Oxyfluorfen	0	--
	Prodiamine	120	72.8
	Propiconazole	0	14.85
	Pyraclostrobin	0	--

Brand Name of Product(s) & EPA Number	Name of Active Ingredient	Total Amount of Material Applied[a] (lbs)	
		2013-2014	2014-2015[e]
	Quinclorac	2.25	--
Wilco Gopher Getter T1, CAS 57249	Strychinine (.5%)	0.61[b]	--
Oust XP, 352-601	Sulfometuron Methyl {Methyl 2-[[[[(4,6-dimethyl-2-pyrimidinyl)amino]-carbonyl]amino]sulfonyl]benzoate} 75%	0	--
Element 4, 6279-40	Trifloxystrobin	0	--
Turflon Ester, 17545-8-54705	Triclopyr: 3,5,6-trichloro-2-pyridinyloxacetic acid, butoxyethyl ester	0	--
	Total	**14,834**	**60,972**

Notes:

a. An asterisk (*) denotes that a value was calculated by approximating the product (or water) weight as the weight of water at room temperature (70°F).
b. Actual amount of active ingredient applied.
c. Amount shown is total active ingredient applied in 2013-2014 in pounds for all three products combined.
d. For Ranger Pro, most of the actual material applied was water (at a dilution ratio of 1.5oz product per 1 gallon water), which greatly increased the pounds of total material applied.
e. Full inspection reports were not received by the contractor performing maintenance on detention basins in 2014-2015, therefore the amount of pesticide applied to detention basins is not available.

4.6.5 Implement Landscaping Standards

In 2003-2004, the City reviewed and modified the landscaping standards to promote planting and retention of native species and minimization of water use, pesticides, fertilizers, and herbicides. The City continues to implement the Landscaping Standards (Stockton Municipal Code Sections 16.56.040 and 16.72.240). The Landscaping Standards contain language that addresses water conservation and reduction of herbicide and pesticide use by means of appropriate plant selection and usage.

4.7 MO5 – Storm Drain System Maintenance

The Storm Drainage System Maintenance Control Measure provides for the long-term performance and integrity of the City's storm drain system. The City prioritizes catch basins for cleaning based on the required level of maintenance, and all catch basins are marked with a storm drain message, whether stenciled or permanently imprinted. This Control Measure includes special event requirements to prevent debris accumulation in catch basins and storm drains.

4.7.1 Implement Storm Drain System Mapping

The City's Municipal Utilities Department implements maintenance program for the storm drain system, including main lines, catch basins, and catch basin laterals. Records are maintained for numbers of catch basin grates and laterals unplugged, main lines unplugged, catch basins cleaned, catch basin laterals cleaned, main lines cleaned, and lines televised.

The City's Geographic Information Systems (GIS) data were created in 1993 and have been maintained at MUD since then by entering new storm drain lines from improvement plans. The data are stored in the Geodatabase GIS format in a Structured Query Language (SQL) Server database. The City began a storm drain mapping project using GIS during fiscal year 2007-2008. As of 2008-2009, all storm drain lines were indicated on the GIS mapping software (ArcMap by ESRI). Since that year, the City has continued to map and document all storm facilities using this mapping software. When the field crews find errors, they notify City staff so the data can be corrected. The database is periodically updated with the latest information regarding new additions to the system.

4.7.2 Review/Revise Prioritization for Catch Basin Cleaning

The City maintains the storm drain system, including all catch basins, and has established maintenance procedures for catch basins and pumps. The maintenance procedures include protocols for the prioritization of catch basins, inspection and cleaning protocols, and general information on recordkeeping of the waste that is removed.

As of June 30, 2015, the City has a total of 16,401 catch basin laterals, 16,401 catch basins, and 620 miles of lines. Catch basins are cleaned if they are at 40% capacity. Catch basins that drain to receiving waters (without the use of a pump) are inspected annually and cleaned as necessary. All pump stations are cleaned out every other year, regardless of their priority; priority for cleaning is determined by the amount of debris at each station.

In past years, a few State, county, private, or 'other' catch basins were added to the inventory, resulting in an apparent total of 16,430. In 2014-2015, the GIS tracking was refined to include only City catch basins, reducing that total by 29 for a new, more accurate total of 16,401.

The following table contains a summary of the City's prioritization.

Priority	Relevant Conditions	Inspection & Cleaning Frequency	Number of Catch Basins/Pump Station[1]
A (High)	Catch basins that discharges directly to waters of the state (direct outfalls)	Inspect annually prior to rainy season and clean if >40% debris accumulation	3,132
B (Medium)	Pump stations	Inspect monthly, clean every other year	73
C (Low)	Catch basins that discharge to a pump station	Inspect every five years; more routine inspection if incident, complaint, or local flooding occurs. Clean if >40% debris accumulation	12,405
		Total Number of Catch Basins	**16,401**

Note:
1. As of June 30, 2015. Priority ranking values may not have been updated to match the refined number of catch basins in the GIS database.

4.7.3 Maintain and Annually Update Catch Basin Database

The City maintains and annually updates its catch basin database, which identifies catch basins and drainage areas. Catch basin cleaning is also tracked using work orders created by the database. The database information can be exported to GIS as needed.

4.7.4 Implement Catch Basin Maintenance Program

The City regularly cleans a number of catch basins annually regardless of catch basin prioritization. All clogged and partially clogged catch basins are cleaned first and prior to the wet season. During the 2014-2015 reporting period, the City cleaned a total of 1,799 catch basins. This total includes the high priority catch basins, which are inspected once prior to the wet season (between August and October), as well as the low-priority catch basins, which were inspected and cleaned as necessary.

The following table summarizes the inspection and cleaning of high priority catch basins.

Total Number of High Priority Catch Basins Inspected Annually	Total Number of High Priority Catch Basins Cleaned
2,869	362

The following table summarizes the inspection and cleaning of low priority catch basins.

Total Number of Low Priority Catch Basins Inspected	Total Number of Low Priority Catch Basins Cleaned[1]
0	1,437

Note:
1. Total Number of Low Priority Catch Basins Cleaned = All Catch Basins Cleaned - Total Number of High Priority Catch Basins Cleaned

The following table summarizes information regarding overall storm drain system maintenance activities.

	Last Year 2013-2014[1]	This Year 2014-2015
Total Length of Channel/Pipe Cleaned (linear feet)	12,751	11,925
Total Amount of Material/Debris Removed From Catch Basins (tons)	11.46	22.54

Note:
1. Total Length of Channel/Pipe Cleaned in 2013-2014 = All M41436 & M41428

4.7.5 Implement Pump Station Maintenance Program

The City developed maintenance procedures for pump stations. The procedures include protocols for pump station inspection and cleaning and general information on recordkeeping of the waste that is removed. The city has implemented the pump station maintenance program. The City inspects the pump stations annually and cleans them as necessary (a minimum of once every two years).

The following table summarizes the inspection of pump stations.

Total Number of Pump Stations	Total Number of Pump Stations Inspected
73	73

The following table provides a summary regarding overall pump station maintenance activities:

	Total Number of Pump Stations Cleaned	Total Amount of Material/Debris Removed (tons)[1]
Last Year 2013-2014[2]	24	22.25
This Year 2014-2015	45	35.85

Notes:
1. Amount of debris removed is based on wet tonnage.
2. During the 2013 - 2014 reporting period, a lower tonnage of material was removed as compared to the previous year. The amount of material/debris removed by routine cleanings of storm drain catch basins and pump stations may be affected by several variables, such as increased street sweeping, increased debris removal from flood control systems, and below average precipitation.

4.7.6 Develop Maintenance Procedures and Prioritization for Cleaning Detention Basins

The City developed maintenance procedures and prioritization for cleaning detention basins as part of the Water Quality Based Programs. On June 9, 2009, the City contracted with a local firm, Odyssey Landscape Company, Incorporated to routinely inspect and maintain the City's five storm detention basins that are operated under maintenance assessment districts. Under this contract, the contractor performed an initial, extensive clean-out of each of the original seven basins during the summer of 2009. Thereafter, the contractor performed quarterly inspections and routine maintenance as needed, for a total of 13 site visits during the contract period. On May 22, 2012, the City awarded a new two-year contract to Odyssey to provide maintenance to the detention basins for the 2012-2013 and 2013-2014 reporting

years. This contract includes the possibility of a one-time one-year extension. However, work on this contract has currently ceased until some administrative paperwork matters can be resolved.

Consistent with the previous contract, the 2012 contract scope of work includes vector control, weed abatement, rodent control, slope dressing, erosion control, mowing, ripping, discing or grading basin bottoms, trash and debris pick-up and removal, cleaning of basin structures, and sedimentation relocation. Also consistent with the previous contract, quarterly inspections are performed on each of the basins. The 2012 contract continues to specify the use of less toxic pesticide alternatives in accordance with the IPM techniques and practices and requires advance notification and approval of the City prior to the application of any weed abatement and/or pest control substances.

Evaluation of the maintenance frequency needed during the previous contract term indicated to staff that routine maintenance was not necessarily needed every quarter. Therefore, the 2012 contract allows for up to two annual maintenance services per site as needed. This also allows staff to better manage limited funds and reserves. During the 2013-2014 reporting period, three quarterly inspections were conducted at each of the basins.

During the 2014-2015 reporting period, no changes were made to the current protocol of quarterly inspections and two cleanings per year.

4.7.7 Implement Detention Basin Maintenance Program

The City maintains a total of five flood control basins (i.e., Arch Road Industrial, Stockton Airport Business Center, Western Pacific, Charter Way, and Stockton Airport Gateway) located in the industrial sectors of south Stockton (see **Appendix D-3**). These basins were developed prior to the development and implementation of water quality control measures and are therefore primarily designed for flood control. These basins are maintained by an outside contractor.

The maintenance of another basin, the ProLogis Park at Duck Creek extended detention basin, began per the contract during Fiscal Year 2010-2011. The contractor performed the first inspection and maintenance of the basin in August 2010. The operation and maintenance was then turned over to the Stockton Consolidated Storm Drainage Maintenance Assessment District No. 2005-1 (Assessment District).

The Assessment District now maintains a total of three basins (i.e., Riverbend, Morada, and ProLogis Park at Duck Creek) that were developed to provide water quality control functions as well as flood control. During the 2013-2014 reporting period, a total of 24 site inspections/ maintenance events were performed on these basins, resulting in the removal of a total of 10 cubic yards of trash and debris.

During the 2014-2015 reporting period, one round of maintenance events was performed on these basins. The service contract for the maintenance of the basins expired, and due to changes in staffing of the Stormwater Program during Fiscal year 2014-2015, the maintenance work bid-out had to be delayed. One round of maintenance was performed on these basins in 2014-2015 using an abbreviated contract scope of work extension, to ensure weeds were abated and did not develop into a fire hazard, and to ensure waters flowed appropriately through the basins during the rainy season. Full inspection reports were not completed. As a result, information on the amount of trash removed from the basins during maintenance that occurred during the 2014-2015 reporting period is not available.

A summary of detention basin inspections is provided below.

Year	Total Number of Detention Basins[1]	Total Number of Regular Inspections Conducted
Last Year 2013-2014	5 Flood Control Detention Basins	15
	3 Water Quality and Flood Control Detention Basins	9
This Year 2014-2015	Flood Control Detention Basins	0
	Water Quality and Flood Control Detention Basins	0

Note:
1. Flood control detention basins locations include Arch Road Industrial, Stockton Airport Business Center, Western Pacific, Charter Way, and Stockton Airport Gateway. Water quality/ flood control detention basin locations include Riverbend, Morada, and ProLogis Park at Duck Creek.

The amount of trash and debris removed from the forebays and detention basins is summarized below. Note that the total amount is not segregated between forebays and detention basins.

	Total Amount of Trash and Debris Removed from the Forebays and Basins[1] (cubic yards)
Last Year 2013-2014	Flood Control Detention Basins: 4 cubic yards Water Quality and Flood Control Detention Basins: 6 cubic yards
This Year 2014-2015	Flood Control Detention Basins: Not available Water Quality and Flood Control Detention Basins: Not available

Note:
1. Instead of removing accumulated sediment in basin channels, the City uses the sediment within the basin and/or redistributed to assist in compacting basin sides to stabilize slopes and minimize slope degradation (e.g., from rodent holes).

4.7.8 Implement Notification Procedures for ID/IC and Missing Catch Basin Markers or Illegible Stencils

Catch basins are marked with a storm drain message that is either permanently imprinted or stenciled in the curb above the catch basin. Volunteers stencil catch basins through the Public Outreach Program Element (see PO1), and municipal staff are also responsible for stenciling and/or marking the catch basins with missing or faded stencils.

In 2003-2004, the City developed and implemented a protocol so that responsible staff can be notified of and respond to the following:

- Illegible inlet stenciling or missing markers (to be re-stenciled in 180 days)
- Evidence of illicit connections or discharges as discovered by municipal field crews (respond within 2 business days)

All of the catch basins installed since 2003-2004 have been required to be permanently imprinted in the sidewalk with the message "No Dumping – Flows to River" or “No Dumping – Flows to Delta”.

The City has a total of 16,401[5] catch basins, most of which are stenciled or imprinted with the storm drain message. During the 2014-2015 reporting period, collections crew inspected and re-stenciled 2,869 and 1,200 catch basins, respectively.

[5] In past years, a few State, county, private, or ‘other’ catch basins were added to the inventory. In 2014-2015, the GIS tracking was refined, reducing the total by 29 for a more accurate total of 16,401.

4.7.9 Include Special Event Use Provisions in Special Use Permits

Periodically, special events occur at City owned and operated facilities (including parks). The City requires large events, as well as large venues, to address trash and debris removal, including containerization and street sweeping as appropriate. This process occurs through the Public Works Department Solid Waste and Recycling Division.

A "large event" means an event that charges an admission price or is operated by a local agency and serves an average of more than 2,000 individuals per day of operation of the event. A "large venue" means a permanent venue facility that annually seats or serves an average of more than 2,000 individuals within the grounds of the facility per day of operation of the venue facility.

During the 2014-2015 reporting period, a total of 4 events were required to address trash and debris removal, as summarized in the table below.

Date(s)	Event	Tons of Material	
		Total Removed[1]	Amount Recycled
9/20/14	Family Literacy Day in the Park	1.07	0
4/6/15	Earth Day	0.47	0.15
4/25-27/15	Stockton Asparagus Festival[2]	18.09	9.44
5/4/15	Cinco de Mayo	1.68	0.13
Total		**21.31**	**9.72**

Notes:
1. Total material removed includes amount recycled.
2. The Asparagus Festival is by definition the only true “large event” in the City. The other events are larger events selected for reporting purposes.

4.7.10 Treatment Feasibility Study

The City and County were required by the second term Permit to evaluate the feasibility of diverting dry weather discharges from the storm drainage system to the City’s Regional Wastewater Control Facility (RWCF) or, alternatively, to provide treatment of dry weather discharges using BMP treatment controls. Using a prioritization process, each outfall in the storm drain system was analyzed to determine the feasibility for dry weather discharge diversion opportunities. The prioritization effort is summarized in the table below.

Watershed	Outfall Name	Outfall ID	Outfall Type	Treatment Option	Prioritization Score
Recommended for 10% design assessment					
5-Mile Creek	Swenson & 5-Mile Creek P.S.	5M-27	Pump	Diversion	51
Calaveras River	Brookside & I-5 P.S.	CR-40	Pump	Diversion	53
	Sutter & Calaveras River P.S.	CR-45	Pump	Diversion	49
	Holman & Calaveras River P.S.	CR-48	Pump	Diversion	46
Mosher Slough	Mariner & Mosher Slough P.S.	MS-13	Pump	Diversion	53
	Kelly & Mosher Slough P.S.	MS-14	Pump	Diversion	49
San Joaquin River	Eighth Street & San Joaquin River P.S.	SJ-61	Pump	Diversion	47
Walker Slough	Turnpike & Walker Slough P.S.	WK-64	Pump	Diversion	50

The Treatment Feasibility Study Report describing these efforts was submitted to the Regional Water Board in April 2006. Based on the results of the Treatment Feasibility Study, the City prepared four preliminary design reports during the 2008-2009 reporting period for the prioritized outfalls in the order of prioritization.

The name of the CIP Project that the City is currently designing to divert the feasible portion of summer flows into sanitary sewer is called "Connection of Storm Pump Stations to Sanitary System, Project No. M04016".

There were initially four stormwater pump stations selected based on the April 2006 Treatment Feasibility Study and the March 2006 “Feasibility of Discharging Stormwater Summer Flows to the Sewer System" report prepared by CXS Consulting, Inc. The four selected Pump Stations were as follows:

- Alexander & 14-Mile Slough Pump Station
- Swenson & 5-Mile Creek Pump Station
- Mariner & Mosher Slough Pump Station
- Kelly & Mosher Slough Pump Station

The City’s design consultant, Peterson-Brustad. Inc., submitted a Draft Pre-Design Report in June 2009, as well as a Pre-Design Report, Revision 2, in August 2009. The August 2009 Pre-Design Report was included as Appendix D-3 of the *2008-2009 Annual Report* and contains proposed retrofit details as well as the proposed operations.

Following review of the June 2009 Draft Pre-Design Report, the City decided that both the Alexander & 14-Mile Slough Pump Station and Kelly & Mosher Slough Pump Station should be removed from the scope of this project. The Alexander & 14-Mile Slough Pump Station receives only overflows from the Quail Lake sub-division. The runoff flowing through this lake is treated through natural, physical, and biological processes. Therefore, it was not necessary to divert the subject flows into the sanitary system. In the case of Kelly & Mosher Slough Pump Station, the existing 12" sanitary pipe was determined to have insufficient capacity to safely divert the summer flow from this pump station. Replacing the existing pipe with a larger one simply for this project was not considered to be cost-effective.

Therefore, the City decided to add the Stockton Airport Business Center Pump Station from the existing list of feasible pump stations in place of the two eliminated above. This pump station is included in the August 2009 Pre-Design Report.

Watershed	Outfall Name	Outfall ID	Outfall Type	Treatment Option	Prioritization Score
Little John Creek	Stockton Airport Business Center P.S.	LJ-80	Pump	Diversion	43

In April 2010, Peterson. Brustad, Inc., the City’s design firm, completed the design of this project. It consists of three outfalls: Swenson & 5-Mile Creek Pump Station, Mariner & Mosher Slough Pump Station, and Stockton Airport Business Center Pump Station. The City advertised the project and received three bids on May 13, 2010. On June 29, 2010, the City authorized the construction of this project. The construction of the Mariner & Mosher Slough and Stockton Airport Business Center stations was completed on April 30, 2011. The construction of the third station, Swenson & 5-Mile Creek, was completed in late 2011.

Per recommendation made in the CXS Consulting, Inc. report dated March 2006 (Feasibility of Discharging Stormwater Summer Flows to the Sewer System), the four remaining outfalls in the recommended feasible list—Sutter & Calaveras River Pump Station, Holman & Calaveras River Pump Station, 8th St. & San Joaquin River Pump Station, and Turnpike & Walker Slough Pump Station—were

evaluated and determined to be technically infeasible. This group of pump stations was classified as Category B, or cost-prohibitive, because they would require installation of discharge pipes spanning a long distance between the pump station and the outfall, as well as new summer pumps and associated electrical components.

The City will continue to evaluate the Treatment Feasibility Study for additional implementation options.

4.8 MO6 – STREET CLEANING AND MAINTENANCE

The Street Cleaning and Maintenance Control Measure ensures that City streets are maintained and cleaned to reduce pollutants to the MEP. In conducting the Control Measure, the City designates the streets or segments of streets based on the required level of maintenance. Street sweeping requirements and street maintenance materials control are also components of this Control Measure. The City maintains a long-term contractual relationship with two major waste haulers to conduct this work effort.

4.8.1 Implement Street Sweeping Program

The City implements a street sweeping program. Currently, streets and parking lots in the downtown area are swept three times each week. Residential, Industrial, Commercial and Open Space streets are swept every other week on the day after garbage, recycling, and green waste collection. Street sweeping is a component of the 15-year franchise agreements between the City of Stockton, Republic Services (formerly Allied Waste) and Waste Management, Inc., and is sub-contracted out to Universal Sweeping.

The following table summarizes the street sweeping and green waste collection activities conducted during the 2014-2015 reporting period.

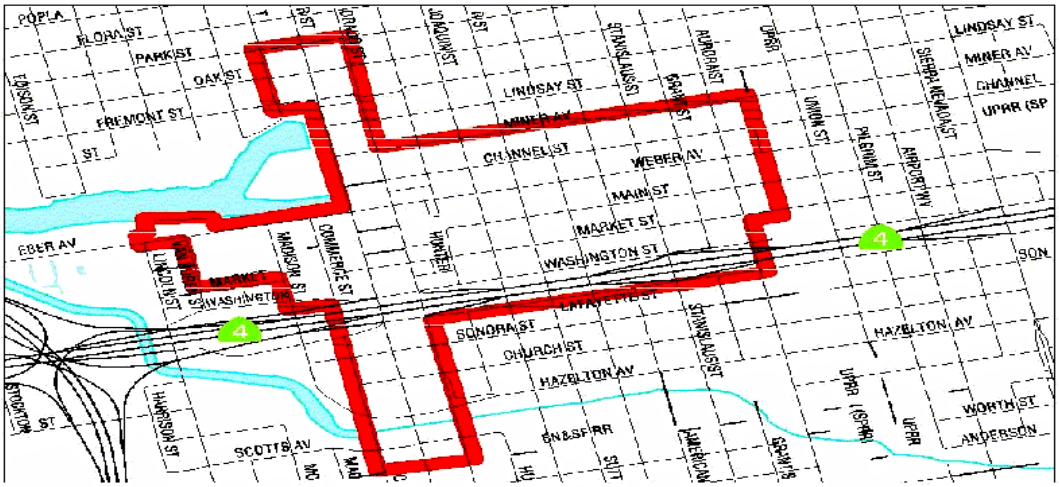
	Total Miles Swept	Total Amount of Debris Removed by Street Sweeping (tons)	Total Amount of Green Waste Collected (tons)
Last Year 2013-2014	46,500	5,800	47,500
This Year 2014-2015	45,983	4,900	45,038

4.8.2 Review/Revise Prioritization of Streets for Street Sweeping Program

At the time the first term permit was drafted, the City swept with its own staff and equipment. Due to lack of funding, sweeping was minimal; streets often were only swept once a month. The Regional Water Board incorporated the concept of prioritization so that the City could prioritize sweeping locations and frequency to adequately address specific areas of the City.

The City currently has 15-year franchise agreements with Republic Services and Waste Management, Inc. which are responsible for street sweeping (see Exhibit H, Street Sweeping and Leaf Collection, included as Appendix D-4 of the *2008-2009 Annual Report*). The frequency was set as noted above in the franchise agreements in June 2004, and sweeping services are provided on a much more frequent basis than before the franchise agreements were implemented. Since then, prioritization has no longer been necessary.

The downtown street sweeping area is depicted below.



NORTH

DOWNTOWN STREET SWEEPING AREA

Street Sweeping is Conducted Every Other Week in Residential Areas

4.8.3 Implement Green Waste Collection Program

As part of the Water Quality Based Programs, the City maintains a program to pick up leaves through the green waste collection component of the solid waste and recycling program developed June 1, 2004. Among other things, the program provides residents with several 90-gallon wheeled carts to use for green waste collection rather than placing loose green waste in the street for pickup. In addition to weekly green waste collection, residents are provided with additional green waste services (e.g., Christmas tree collection, leaf service during "Leaf Season") at no additional charge. Extra green waste carts are available, upon demonstrated need, at no additional charge. Up to five bags of leaves are allowed each week during leaf season at no additional charge.

During the 2014-2015 reporting period, the City continued to implement the green waste collection program through its 15-year franchise agreements with waste haulers, Waste Management and Allied Waste.

4.8.4 Update Maintenance Staff Guide – Road Maintenance and Small Construction BMPs

During 2009-2010, the City updated its *Maintenance Staff Guide – Road Maintenance and Small Construction BMPs* to refer primarily to California Stormwater Quality Association (CASQA) BMPs that are available online (see Appendix D-3 of the *2009-2010 Annual Report*). This approach was used to ensure that BMPs remained up to date and in accordance with CASQA recommendations.

4.8.5 Implement Maintenance Staff Guide – Road Maintenance and Small Construction BMPs

The *Maintenance Staff Guide – Road Maintenance and Small Construction BMPs* details BMPs for a wide variety of maintenance activities, including road maintenance and small construction. The *Maintenance Staff Guide* was originally developed in 2004-2005, and the City continues to implement those BMPs. Public Works – Operations and Maintenance has an established pavement maintenance program that addresses the removal and proper disposal of pavement material, paint residue, and other construction waste. A street sweeper is permanently assigned to each road crew to facilitate daily clean-up of debris, at a minimum, with more frequent clean-up activities conducted as needed.

During 2009-2010, the *Maintenance Staff Guide – Road Maintenance and Small Construction BMPs* was updated, and the updated version has been distributed to City staff. The Maintenance Staff Guide – Road Maintenance and Small Construction BMPs have been implemented by staff since 2010-2011.

4.9 MO7 – PARKING LOTS MAINTENANCE

The Parking Lots Maintenance Control Measure ensures the City's parking lots and structures are kept clear of debris and excessive oil buildup is prevented. This Control Measure consists of a schedule of inspections and cleaning of the parking lots and structures. The City maintains a long-term contractual relationship with two major waste haulers, Waste Management and Republic (formerly Allied Waste), to conduct this work effort.

4.9.1 Implement BMPs for Parking Lot Cleaning

The City maintains several parking lots. A Parking Lot Cleaning BMPs Fact Sheet (included as Appendix D-7 to the 2009 SWMP) was developed and is currently implemented by the City.

All parking lots are monitored and cleaned to prevent excessive oil or debris build-up as needed. City-owned parking lots are swept bi-weekly by the sweepers contracted with the City's contracted waste haulers to control litter. Since the 2010-2011 reporting period, MUD Stormwater has worked collaboratively with the City's Central Parking District to contract with Universal Site services to clean the parking structure surfaces and clean out sand filters that collect oily waste from these parking structures.

During the 2014-2015 reporting period, the following garage and oil/sand separator cleanings took place:

- The Coy, Market Street and Arena Garages were cleaned twice per month from July 2014 through June 2015.
- All garages and lots were cleaned every two weeks.
- Extensive additional cleaning was performed on the Hunter Street, SEB, Channel St., and Market St. Garages in December 2014.
- Random inspections, in addition to cleanings, were performed throughout the 2014-2015 reporting period on all lots and garages.

4.9.2 Inspect City-Owned Parking Lots Annually

The City's Central Parking District is responsible for operations and maintenance of city-owned parking lots and parking structures. A summary of the city-owned parking lots and parking structures is provided below.

- 5 parking structures in the downtown area
- 18 flat parking lots in the downtown area
- 17 park sites throughout the City

4.10 MO8 – TRAINING

Training is important for the implementation of the Municipal Operations Program Element. An effective training program is one of the best pollution prevention BMPs that can be implemented because it prompts behavioral changes that are fundamentally necessary to protect water quality.

Areas of Focus for the Municipal Operations Program Element Training

Target Audience	Format	Subject Material	Comments
• Maintenance crews • Road crews • Street sweepers • Parking Facilities crews • Waste Pickup • Parks & Rec crews • Pesticide/fertilizer applicators • Contract/lease staff involved in above activities	• Classroom • Field demos • Tailgate sessions	• Overview of stormwater management • BMPs for municipal operations	• Pesticide applicators must also attend annual pesticide application classes

4.10.1 Conduct Training

City staff attended training sessions relevant to Municipal Operations during the 2014-2015 reporting period. A Pressure Washing/Stormwater BMPs Workshop was held on August 5, 2014. The information pertaining to this training workshop is detailed in Section 5.

4.11 MO9 – EFFECTIVENESS ASSESSMENT

In order to determine the effectiveness of the Municipal Operations Program, a comprehensive assessment of the program data is conducted as a part of the annual report. The results of this assessment are used to identify modifications that need to be made to the program. Each year the effectiveness assessment is reviewed and revised as needed.

By conducting these assessments and modifying the program as needed, the City ensures that the iterative process is used as an effective management tool. Due to the types of data collected for the Municipal Operations Program, the assessment primarily focused on Outcome Levels 1, 3, and 4.

- Outcome Level 1 (L1) answers the question: Did the City implement the components of the Permit and the 2009 SWMP?
- Outcome Level 3 (L3) answers the question: Can the City demonstrate that the control measure/performance standard significantly modified the behavior of a target audience?
- Outcome Level 4 (L4) answers the question: Can the City demonstrate that the control measure/performance standard reduced the load from sources to the storm drain and/or receiving water?

The table below summarizes the effectiveness assessment that was conducted for the Municipal Operations Program Element. Additional detail for each component of the assessment is provided on the following pages. It should be noted that Outcome Levels 5 and 6 will only be assessed as a part of the Water Quality Based Programs and the Monitoring Program on a longer term basis since those analyses rely on environmental data.

Program Effectiveness Assessment Summary for Municipal Operations

Municipal Operations	Level 1	Level 2	Level 3	Level 4
	Implement Program	Increase Awareness	Behavior Change	Load Reduction
MO1 - Sanitary Sewer Overflow and Spill Response	C – Implementation of SSOERP	N/A	N/A	C – Diversion of SSOs
MO2 - Construction Requirements for Municipal Capital Improvement Projects	C – Reviewed CIP Designs C – Require Submission of NOI C – Ensured CIP Priority Projects are Developed in Conformance with the SWQCCP C – Improved Interdepartmental Communication	N/A	C – NOIs submitted	N/A
MO3 - Pollution Prevention at City Facilities	C – Assessed Facilities C – Developed FPPP for Corporation Yard C – Implemented FPPP for Corporation Yard	N/A	N/A	N/A
MO4 - Landscape and Pest Management	C – Landscape and Pest Management Protocols	N/A	N/A	A

Municipal Operations	Level 1	Level 2	Level 3	Level 4
	Implement Program	**Increase Awareness**	**Behavior Change**	**Load Reduction**
MO5 - Storm Drain System Maintenance	C –Storm Drain Maintenance Program C – Catch Basin Maintenance C – Pump Station Maintenance Program C – Detention Basin Maintenance Program C – Catch Basin Marker/Stencil Maintenance C – Implement Special Event Use Provisions for Trash and Debris Removal	N/A	N/A	C – Materials Removed
MO6 - Street Cleaning and Maintenance	C – Street Sweeping Program C – Green Waste Program C – Implemented Maintenance Staff Guide	N/A	N/A	C – Materials Removed
MO7 - Parking Lots Maintenance	C – Parking Lot Maintenance	N/A	N/A	N/A
MO8 - Training	*See Section 5*	A	A	N/A

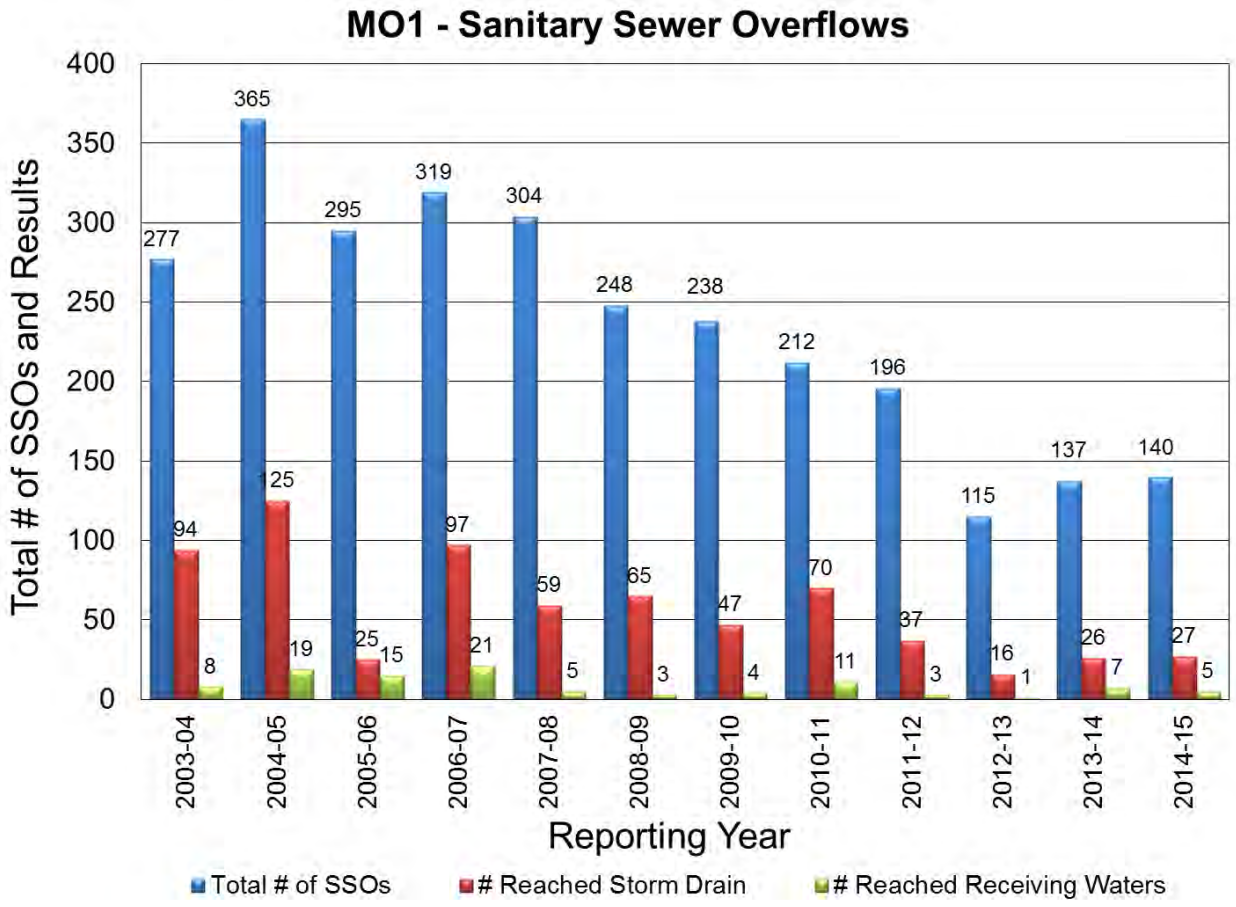
C – An effectiveness assessment was conducted during the reporting periods
A – It is anticipated that an effectiveness assessment may be conducted in future annual reports
N/A – This outcome level is not applicable for this control measure

Following is an assessment regarding the effectiveness of the Municipal Operations Program.

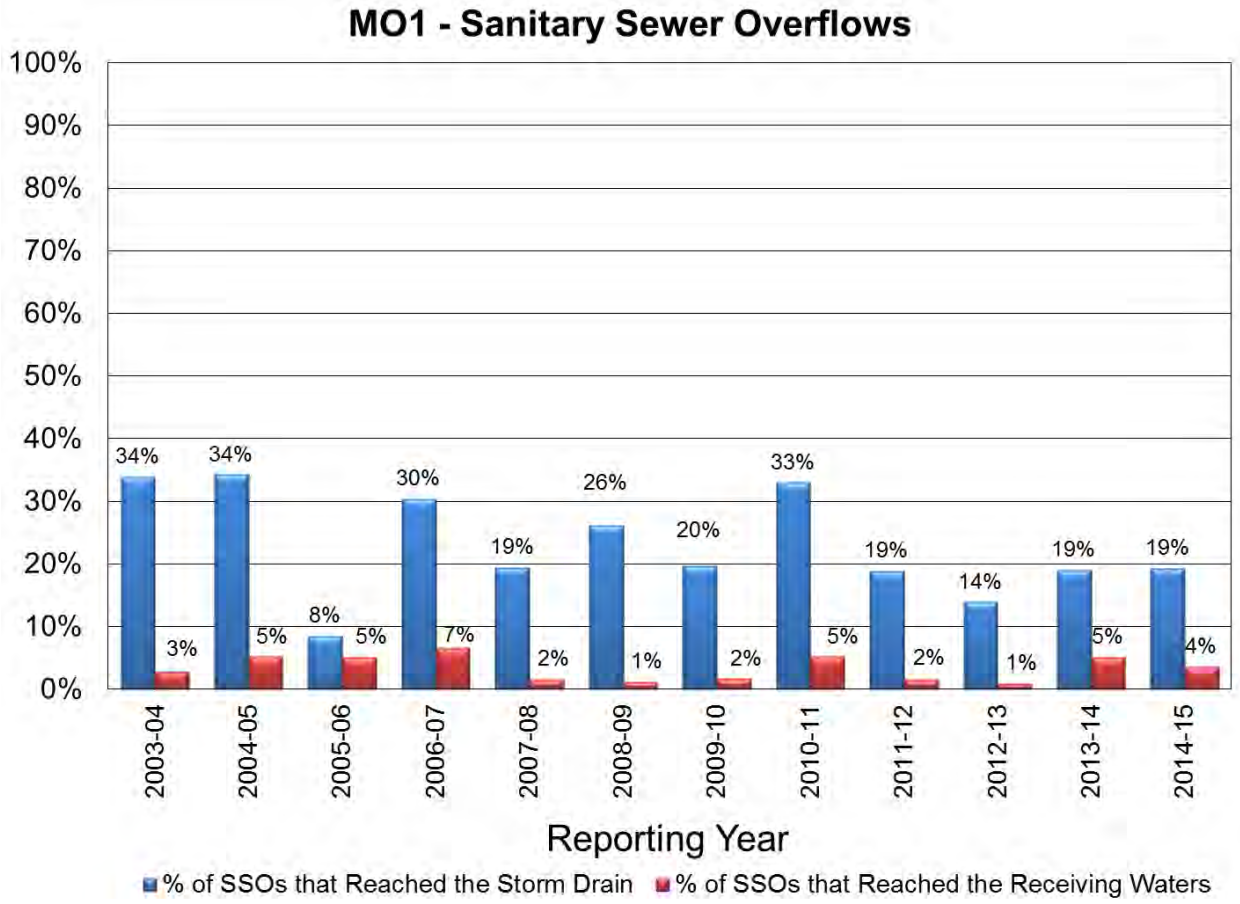
MO1 - Sanitary Sewer Overflow and Spill Response

The City developed and continues to implement the SSOERP and, when possible, prevent the spills from entering the storm drain system and/or the receiving waters. The City also reviews and revises the SSOERP as needed. **(L1, L4)**

- Since 2003-2004, 2,846 SSOs have occurred and were responded to by the City. Of the 2,846 spills, 688 reached the storm drain system, and 102 reached a receiving water. In general, a downward trend has been observed in the total annual number of SSOs and those reaching the storm drain or receiving waters, indicating that implementation of the SSOERP has been effective.



- On average, the City's success rate at preventing SSOs from reaching the storm drain has increased by 5% between the current Permit term (2007-2008 to 2014-2015) and the previous permit term (2003-2004 to 2006-2007). The City's success rate at preventing SSOs from reaching the receiving waters has also increased by 2.5%, on average, from the previous permit term. This indicates an increased load reduction due to the diversion of SSOs.

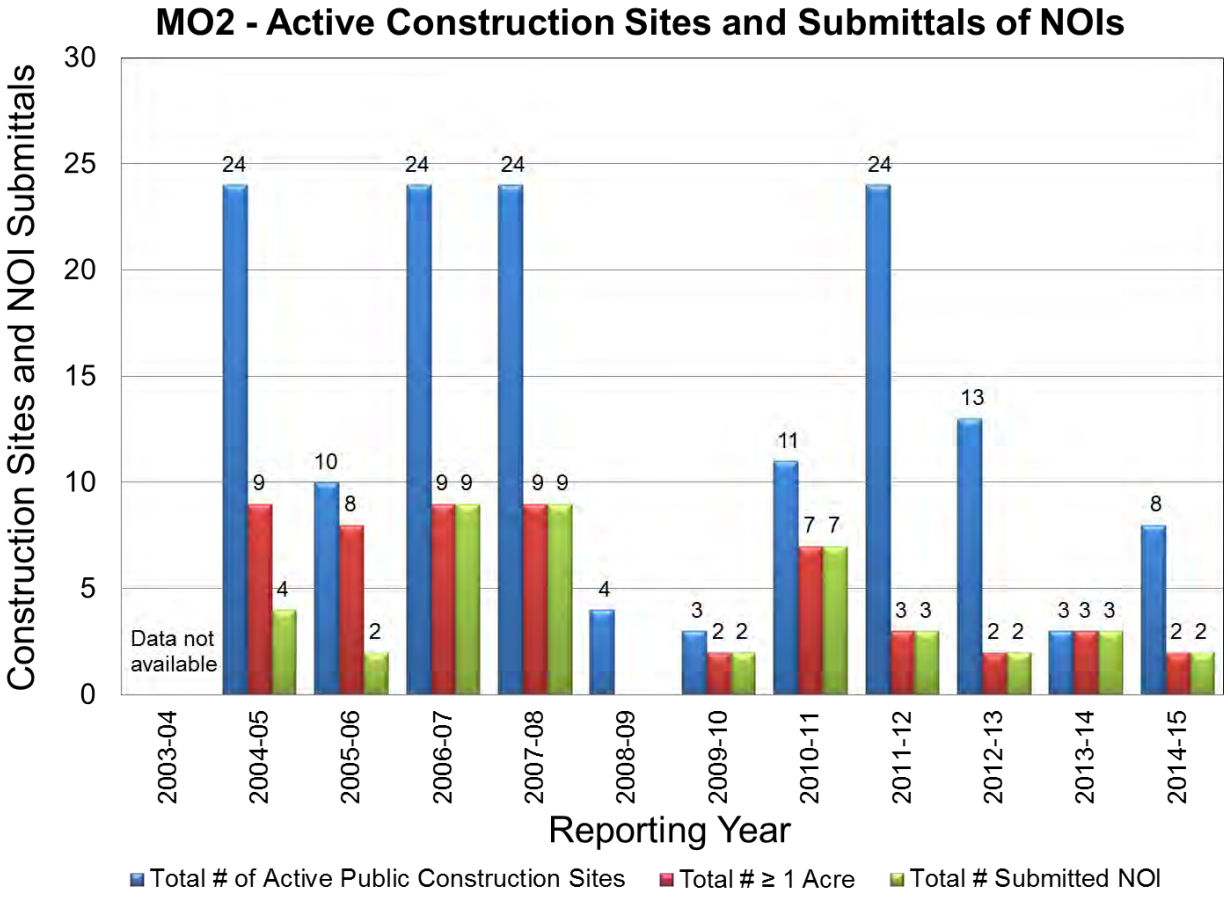


MO2 – Construction Requirements for Municipal Capital Improvement Projects

City staff have reviewed the CIPs to ensure that the construction BMPs and SWQCCP requirements have been incorporated during the design stage. **(L1)**

The City also requires that CIPs greater than or equal to one acre obtain coverage under the General Construction Permit. Staff are aware of this requirement and have, over time, obtained coverage for the projects as needed.

- Since 2006-2007, 100% of CIPs have submitted the required NOIs, a sustained improvement from 2004-2005 (44%) and 2005-2006 (25%). **(L3)**



The City continued to work towards improved interdepartmental communication to facilitate accurate recordkeeping and reporting of data for the stormwater program and the annual reporting process. **(L1)**

MO3 – Pollution Prevention at City Facilities

The City assessed its facilities to determine if they require coverage under the General Industrial Permit. For the City-owned and operated facilities that do not require coverage under the General Industrial Permit but have potential stormwater-related issues, the City implements a FPPP. Currently, the only facility required to implement stormwater BMPs is the Corporation Yard. The City has developed and is implementing an FPPP for the Corporation Yard. **(L1)**

MO4 – Landscape and Pest Management

The City staff involved in landscape and pest management are responsive to the stormwater program requirements and have developed and are implementing standard protocols for the application of fertilizers and pesticides. **(L1)**

- The City continues to require that contractors abide by standardized fertilizer and pesticide applicator protocols and IPM practices.
- In 2003-2004, the City reviewed and revised the landscape standards to promote the planting and retention of drought-tolerant and native species and to minimize the use of water, fertilizers, pesticides, and herbicides. The City continues to implement the landscape standards.

The City continues to implement an IPM program that requires the use of less toxic or non-toxic approaches to pest management. **(L1)**

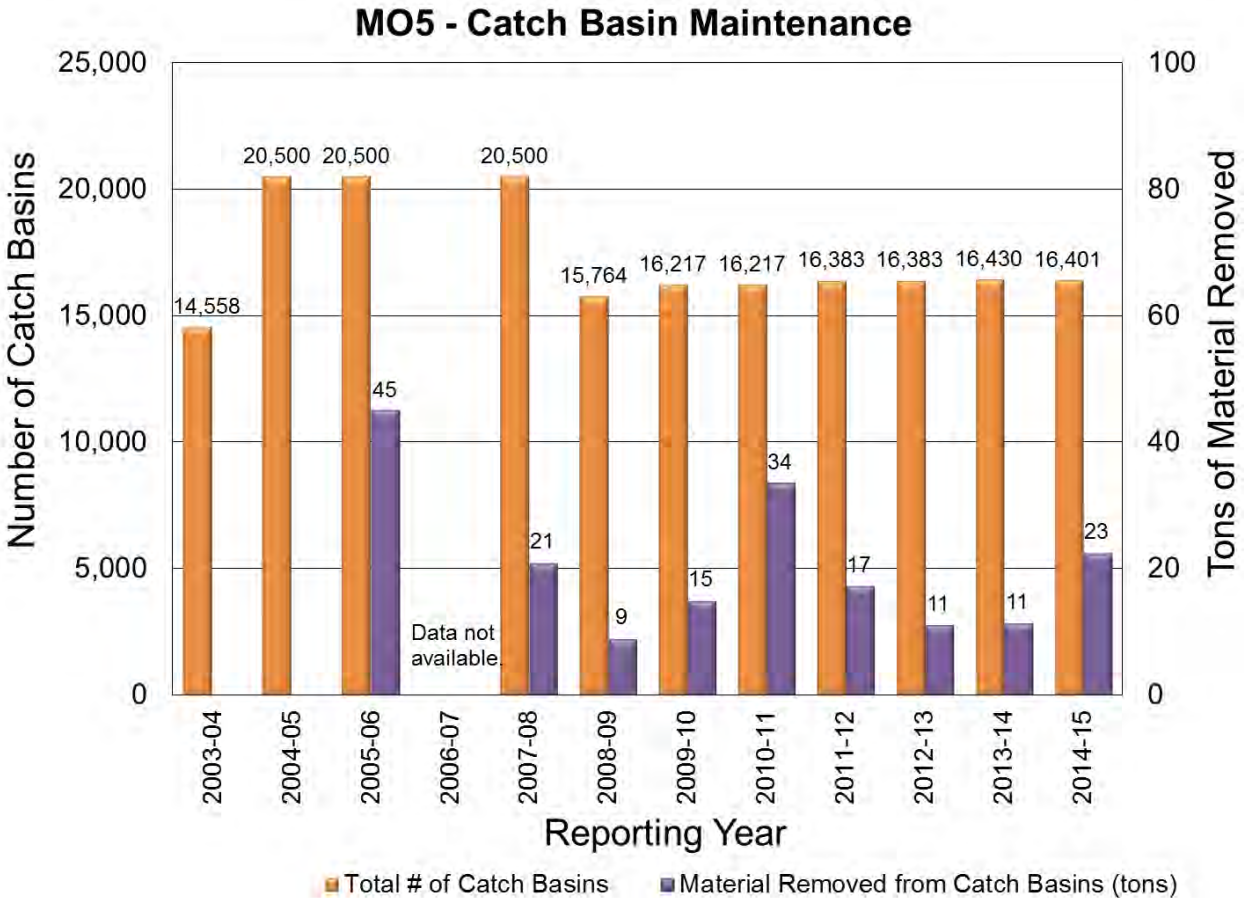
MO5 – Storm Drain System Maintenance

City staff remains responsive to the stormwater program and continues to implement the programs to maintain the storm drain system, including the following: **(L1)**

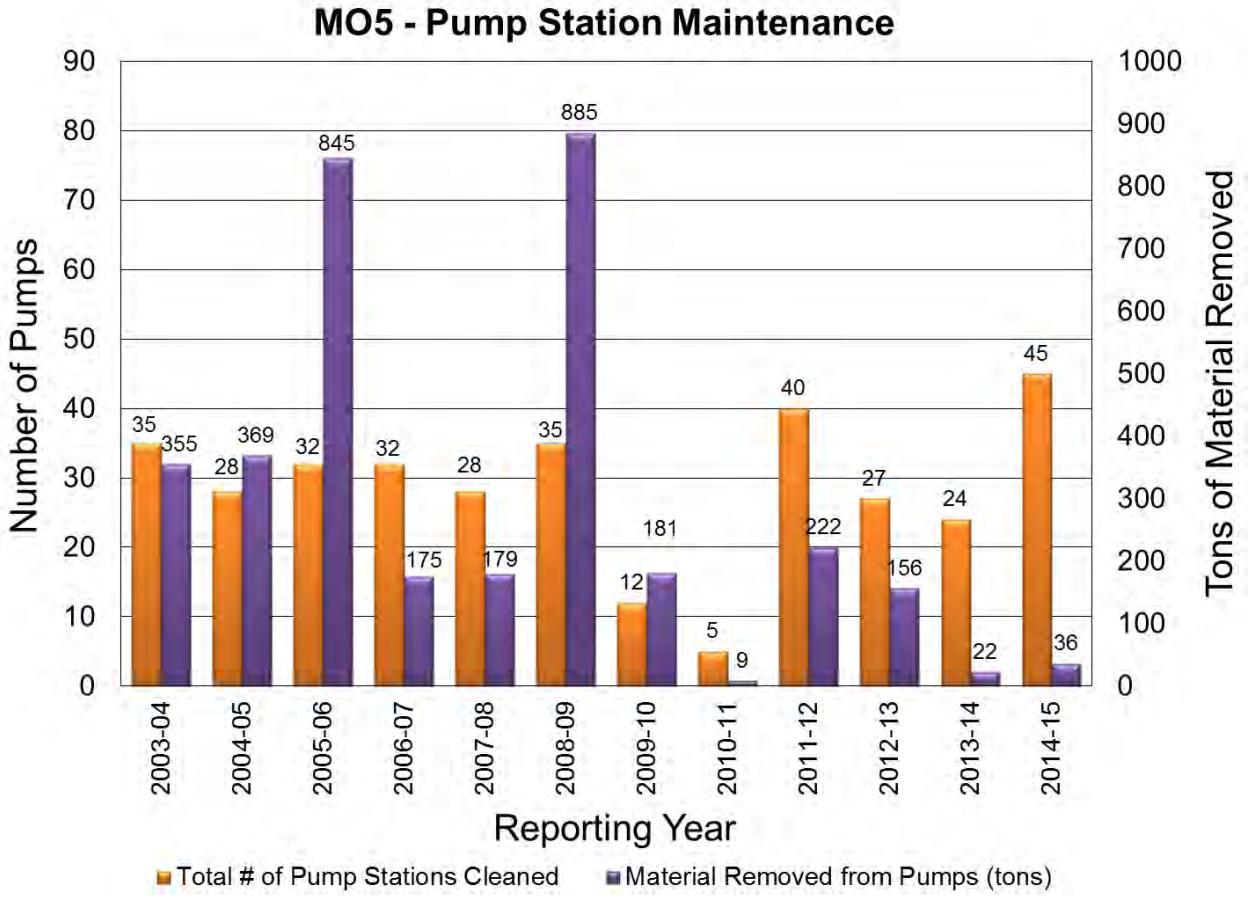
- Storm Drain System Mapping & Maintenance
- Catch Basin Maintenance
- Pump Station Maintenance
- Detention Basin Maintenance
- Catch Basin Marker/Stencil Maintenance

The City continues to utilize the catch basin database to assist in the maintenance of catch basins. **(L1)**

- Catch Basin Maintenance – The City has prioritized its catch basins and cleans a number of catch basins annually, regardless of prioritization. **(L4)**
  - During 2014-2015, the City inspected 3,132 and cleaned 362 high priority catch basins.
  - Since 2005-2006, approximately 186 tons of materials have been removed from catch basins (data are not available for 2006-2007).



- Pump Station Maintenance – The City has inspected pump stations annually and removed approximately 3,433 tons of mud and debris since 2003-2004. **(L4)**



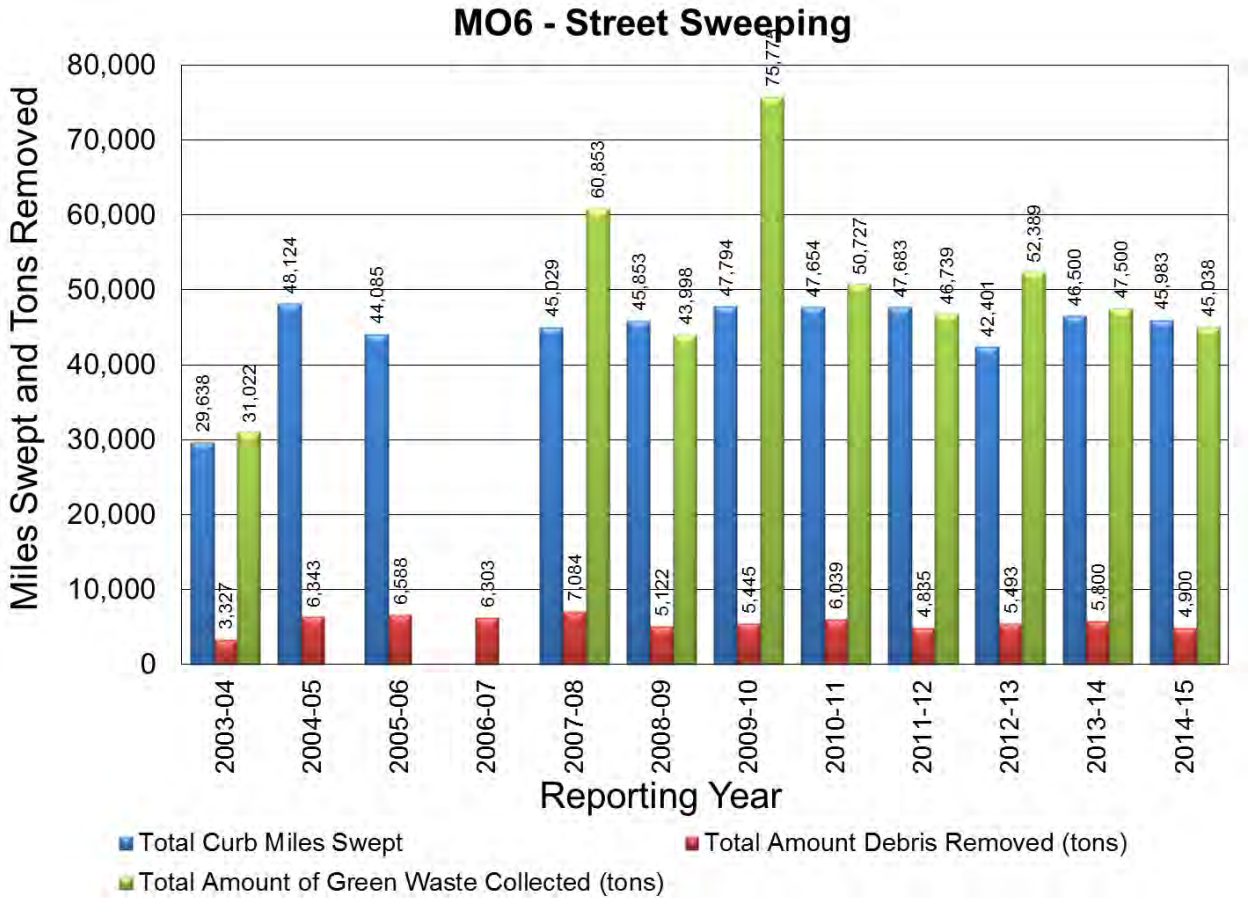
  - Detention Basin Maintenance: The City continued to inspect and maintain a total of eight detention basins (five flood control basins and three water quality and flood control basins). **(L1, L4)**
    - A total of 76 inspections and 52 maintenance events have been performed on the five flood control basins since 2010, resulting in the removal of over 235 cubic yards of trash and debris. A total of 44 inspections and 39 maintenance events have been performed on the three water quality and flood control basins since 2010, resulting in the removal of over 115 cubic yards of trash and debris.
  - Catch Basin Marker/Stencil Maintenance: City staff continued to inspect and re-stencil its 16,401 catch basins as needed, inspecting 2,869 and re-stenciling 1200 during 2014-2015. **(L1)**

- Special Use Provisions: The City is requiring large events (as well as large venues) to address trash and debris removal, including containerization and street sweeping as appropriate. **(L1, L4)**
  - During 2014-2015, a total of four large events were required to address trash and debris removal, resulting in collection of 21.3 tons of trash and debris and 9.7 tons of recyclables.

MO6 – STREET CLEANING AND MAINTENANCE

The street sweeping program is effectively removing material from the streets that may otherwise end up in the catch basins and/or storm drain system. **(L4)**

- Since 2003-2004, approximately 67,279 tons of debris have been removed and properly disposed of through the street sweeping program.
- In addition, approximately 454,041 tons of green waste have been collected and disposed of as a part of the green waste program.[6]



During the reporting period, the City continued to implement the updated Maintenance Staff Guide – Road Maintenance and Small Construction BMPs. **(L1)**

MO7 – PARKING LOTS MAINTENANCE

The City has developed and is currently implementing BMPs for parking lot cleaning. All City-owned parking lots in the permit area have been identified. **(L1)**

[6] Green waste data are unavailable for 2004 through 2007, and curb miles swept are unavailable for 2006-2007.

4.12 MUNICIPAL OPERATIONS PROGRAM MODIFICATIONS

Each year, the City submits a work plan to the Regional Water Board for the activities that will be completed during the upcoming fiscal year. The 2015-2016 work plan identified several key tasks for this Program Element. In addition, as part of the ROWD process, the City has evaluated the effectiveness of program implementation during the Permit term, as well as the experience that staff has had in implementing the program, to identify the performance standards for the Control Measures under this Program Element for the next permit term. Through the development of the annual report, the annual work plan, and the ROWD, the City has determined if any additional program modifications are necessary in order to ensure that the stormwater management program is effective.

The program modifications that have been identified for this Program Element for the upcoming permit term are discussed below (see also Section 5 of the June 2012 ROWD).

- **MO7 – Parking Lots Maintenance:** This Control Measure will be discontinued. Permittee-owned parking lots are currently managed—and will continue to be managed—by the Permittees; however, since this effort is not associated with the POCs, it does not warrant a stand-alone Control Measure.

Section 5

Industrial and Commercial (IC)

5.1 OVERVIEW

The purpose of the Industrial and Commercial Program Element is to effectively prohibit unauthorized non-stormwater discharges and reduce pollutants in stormwater runoff from industrial and commercial facilities to the MEP. The program for industrial and commercial facilities is accomplished by tracking, inspecting, providing outreach, and ensuring compliance at industrial and commercial facilities identified as potentially significant sources of pollutants in stormwater.

5.2 CONTROL MEASURES

The City has developed several Control Measures and accompanying performance standards to ensure that the industrial and commercial business-related Permit requirements are effectively developed and implemented. For each Control Measure there are accompanying performance standards which, once accomplished, constitute compliance with the SWMP/Permit.

The Industrial and Commercial Businesses Program Control Measures consist of the following:

Control Measures for the Industrial and Commercial Program Element

IC	Control Measure
IC1	Facility Inventory
IC2	Prioritization and Inspection
IC3	Industrial/Commercial Outreach
IC4	Enforcement
IC5	Training
IC6	Effectiveness Assessment

The next section of the Annual Report provides information on the specific tasks that have been initiated and/or completed during the reporting period pursuant to the Industrial and Commercial Program performance standards and implementation schedules.

5.3 IC1 – FACILITY INVENTORY

The Facility Inventory Control Measure addresses the need to develop and maintain a complete database of industrial and commercial facilities that have a significant potential to impact water quality. Information for the database is primarily obtained from new business licenses and sanitary sewer hook-up permits. The inventory provides the basis for prioritization of facilities within the City and serves as a repository for all outreach, inspection, and notices for each facility.

5.3.1 Perform Internal Audit of Database

The City reviews the commercial and industrial database prior to the start of each inspection round.

5.3.2 Maintain and Annually Update the Industrial and Commercial Facility Inventory

The City maintains an inventory of industrial and commercial facilities, including those covered under the state Industrial General Permit that are within City jurisdiction. The City utilizes information provided by the Regional Water Board, Business License, and County Health to obtain current facility numbers prior to scheduled inspections. The Commercial Facility Inventory was updated in Fiscal Year 2013-2014 beginning with the inventory of restaurants/Food Service Establishments (FSEs). The inspections of FSEs began in March 2013; the inspections of 313 FSEs were completed during the period from July to November 2014. These facilities were added to the Commercial Facility Inventory, but the full Commercial Facility Inventory has not yet been updated.

Staff continued to update the inventory throughout Fiscal Year 2014-2015. Following the inventory of FSEs, staff updated the Industrial Facility Inventory in preparation for the 2014-2015 inspections. Staff continue to update the inventory of other commercial facility types apart from FSEs. Inspections of these facilities will be conducted after the completion of the industrial inspections and will continue throughout Fiscal Year 2015-2016.

The Industrial and Commercial Facility Inventory is included as **Appendix E-1**.

A summary of the information tracked by the inventory/database is provided below.

Category	Current Inventory[1]	Total Number of Facilities To Be Inspected[2]
Industrial Facilities[3]	153	153
Commercial Facilities (Significant Sources)	1,474	1,474

Notes:

1. The industrial facility data represent the most recent data based on inventory numbers determined during the 2014-2015 reporting period. The commercial facility data represent the most recent data based on inventory numbers determined during the 2013-2014 reporting period, plus an additional 313 Restaurants/Food Service Establishments.
2. The total number of commercial facilities inspected in 2014-2015 included 313 Restaurants/Food Service Establishments. Inspections of other commercial facility types(1,161 facilities) will resume in the 2015-2016 reporting period.
3. The total number of industrial facilities was determined from the number of industrial facilities permitted by the Environmental Control Division and compared with the State's database of registered industrial businesses.

A summary of the Commercial Facilities (Significant Sources) by category is provided below. With the exception of Restaurants/Food Service Establishments, the commercial facility data represent the most recent data based on inventory numbers determined during the 2013-2014 reporting period.

Category	Current Inventory
Automotive-Related Facilities[1]	697
Dry Cleaners/Laundromats	36
Equipment Rentals	9
Pet-Related Facilities[2]	25
Nurseries	6
Restaurants/ Food Service Establishments[3]	592
Retail Gasoline Outlets	109
Other	0
Total	**1,474**

Note:

1. The category of "Automotive-Related Facilities" includes Auto Body Shops, Auto Dealers, and Auto Repair Shops.
2. The category of "Pet-Related Facilities" includes Kennels, veterinary clinics/hospitals, and groomers.
3. The category of Restaurants/ Food Service Establishments also includes schools that are inspected under the combination FOG/Stormwater Inspections. As of June 30, 2014, a total of 224 Restaurants/ Food Service Establishments and 55 schools had been inventoried during the inspection process. During the 2014-2015 reporting period, an additional 313 Restaurants/ Food Service Establishments were inventoried. All other commercial facility types will be inspected during the 2015-2016 reporting period.

5.3.3 Map Industrial and Commercial Facilities

Although the City does not map the industrial and commercial facilities on an annual basis, it does utilize information provided by the Regional Water Board, Business License, City of Stockton's Administrative Services (Business Licenses Division) and County Health to obtain current facility numbers, addresses, and other identifying information prior to scheduled inspections. These data are provided in the inventory, which is included as **Appendix E-1**.

5.3.4 Develop a Mobile Business Pilot Program

During the 2009-2010 reporting period, the Permittees developed a mobile business pilot program for one mobile business category deemed to be a potentially significant source of pollution.

The category chosen for the pilot program was mobile carpet cleaners. The *Mobile Business Pilot Program: Carpet Cleaners Implementation Strategy* (Appendix E-5 of the *2009-2010 Annual Report*) identifies how the various components of the carpet cleaner pilot program (pilot program) will be implemented. The strategy addresses inventory, inspections, outreach/education, and enforcement. The carpet cleaner inventory (Attachment A of Appendix E-2 of the *2009-2010 Annual Report*) includes carpet cleaners located within the San Joaquin County area—those most likely to operate within the jurisdictions of the City and Phase I area of the County. The pilot program serves as a template for the potential development of implementation strategies for other mobile business categories.

The Permittees conducted a Pressure Washing/Stormwater BMPs Workshop during the 2014-2015 reporting period, on August 5, 2014. Preparations for this workshop were performed in 2013-2014, and

the brochure developed for the workshop, *BMPs for Power Washing (Mobile Surface Cleaning),* was included as Appendix E-2 of the *2013-2014 Annual Report*.

5.3.5 Implement a Mobile Business Pilot Program

The Permittees developed and implemented a mobile business pilot program for mobile carpet cleaners. The implementation of the mobile business pilot program was initially due to begin by January 1, 2010, but due to the complexity of implementing a pilot program to reach out to mobile businesses, the development of the program was not completed until the later part of the 2009-2010 reporting period. Thus, the Permittees began implementing the pilot program for carpet cleaners in the 2010-2011 reporting period.

To ensure that the information for the mobile cleaner inventory is accurate and up-to-date, the City contacted each business during the week of January 5, 2011, to verify their business category, service area, and contact information. Those not operating within San Joaquin County were removed from the inventory. In addition to information gained during the verification process, the City utilized additional resources to obtain missing addresses, phone numbers, and other pertinent information. Sources that were utilized include: City and/or County business license information, Yellow Pages® listings, and internet-based listings. The Permittees verified the inventory, and any missing data were cross-referenced among the sources.

During the 2013-2014 reporting year, the mobile business program continued to target mobile carpet cleaners. Building on program successes from the 2010-2011 reporting period, the City continued the self-certification and outreach efforts. On May 15, 2014, staff reviewed and updated the mobile cleaner inventory. Other materials that have been updated included the Self-Certification cover letter, and the Self-Certification Form, and the *Stormwater Pollution Prevention for Carpet Cleaners* brochure (Appendix E-3 of the *2013-2014 Annual Report*). On June 2, 2014, the Self-Certification forms, with enclosures, were sent to 53 mobile businesses believed to be operating within the SUA. Each mobile business was advised to respond within 30 days to remain in compliance with the Mobile Business Program.

During the 2014-2015 reporting period, the City received 14 self-certification letters. The mobile business program is ongoing, and the City will continue self-certification and outreach efforts to target mobile carpet cleaners during 2015-2016.

5.4 IC2 – PRIORITIZATION AND INSPECTION

The Prioritization and Inspection Control Measure establishes procedures for prioritizing industrial and commercial facilities within the City for inspection as well as the inspection requirements associated with the site visits. The inspections ensure that the facility operator has pertinent educational materials, the operator complies with the City ordinances, and unauthorized non-stormwater discharges do not occur. Inspection of facilities covered under the state Industrial General Permit also ensure that the operator has a current Waste Discharge Identification (WDID) number, the SWPPP is available on site, and the operator is effectively implementing BMPs in compliance with City ordinances.

5.4.1 Prioritize Facilities

The City prioritizes all industrial facilities and the significant sources for commercial facilities (e.g., auto body shops, nurseries, and kennels) as high priority and inspects each facility twice during the five-year Permit cycle. If the City encounters a new industrial or commercial facility that may pose a threat to water quality, the City will evaluate the business using the evaluation criteria and ranking system that has been developed.

A summary of the prioritizations is provided below. The industrial facility information is current as of June 30, 2015. With the exception of Restaurants/Food Service Establishments, the commercial facility data represent the most recent data based on inventory numbers determined during the 2013-2014 reporting period.

Category	Total Number of Facilities Prioritized As High	Total Number of Facilities Prioritized As Low
Industrial Facilities	153	0
Commercial Facilities	1,474	0

5.4.2 Evaluate the Prioritization Criteria and Incorporate Exceedances of Water Quality Benchmarks as Criteria for Prioritizing Industrial Facilities

The City evaluated the prioritization criteria (see technical memorandum, *Industrial Facility Prioritization Criteria*, Appendix E-3 of the *2009-2010 Annual Report*) and incorporated exceedances of the water quality benchmark data as criteria for prioritizing the industrial facilities.

During the 2009-2010 reporting period, the City used benchmark data provided by the Regional Water Board for 2007-2008 and 2008-2009 to prioritize the industrial inspections. Facilities that received multiple compliance inspections due to violations or BMP issues—or that had benchmark exceedances during both years, based on reports received from the Regional Water Board—were prioritized so inspections for these facilities were completed first. A total of 35 industrial facilities met this criteria and were inspected before the remaining 86 industrial facilities. During the 2011-2012 reporting period, the City followed a similar process, but focused on inspecting all high priority facilities only. As such, a total of 113 industrial facilities were inspected during 2011-2012. No industrial facilities were inspected during the 2013-2014 reporting period.

During the 2014-2015 reporting period, staff identified all industrial facilities on the State's industrial permittee database and compared them with those on the City's Wastewater Pretreatment Permit facilities list to create the inspection inventory. If inspectors encounter additional facilities while in the field, these facilities will be added to the inventory. All industrial facilities are considered to be a high priority for inspections.

5.4.3 Inspections

The City ordinance allows authorized officers to enter any property or building to perform inspections. On refusal to allow inspection by the owner, tenant, occupant, agent or other responsible party, the City may seek an Administrative search warrant.

In order to ensure that the inspectors conduct thorough and consistent inspections, industrial and commercial checklists have been developed. City industrial inspectors receive proper training to adequately assess facilities and offer assistance in suggesting remedies. City ordinances and City Attorney's Office also provide the proper legal backing for inspections and any necessary enforcement.

5.4.4 Review/Revise the Industrial Inspection Checklists as Needed

The industrial inspection checklist was reviewed and revised during the 2013-2014 reporting period in preparation for the next round of inspections. The revised checklist was included as Appendix E-2 of the *2013-2014 Annual Report*.

5.4.5 Review/Revise the Commercial Business-Specific Inspection Checklists as Needed

Prior to the 2009-2010 commercial facility inspections, the City reviewed the kennel-specific checklist and determined that critical areas within kennel facilities that have a significant potential to discharge a pollutant for which there is a water quality based plan (i.e., pathogens) are inspected. In addition, general updates were made to the commercial inspection checklists. The commercial checklists used during 2009-2010 were provided as Appendix E-5 to the *2009-2010 Annual Report*. The commercial business-specific inspection checklists were also reviewed during the 2011-2012 reporting period in preparation for the start of the 2011-2012 round of inspections.

In 2013-2014, the City updated the checklists and had them ready for use during inspections, which began in March 2014. Revisions were made as needed to ensure that critical areas within facilities that have a significant potential to discharge a pollutant for which there is a water quality based plan are inspected. In particular, vehicle maintenance and repair and restaurant and food service facility checklists were revised to include mercury information and conformance to Universal Waste Rule standards, and the nursery checklist was be revised to include an IPM-related item (Water Quality Based Programs Performance Standard). All updated inspection checklists were included in Appendix E-3 of the *2013-2014 Annual Report*.

5.4.6 Revise Industrial and Commercial Inspection Evaluation Checklists to Include Mercury Handling and Disposal Procedures

During the 2009-2010 reporting period, the City revised the industrial inspection checklist to include two questions pertaining to mercury (Water Quality Based Programs Performance Standard) (Appendix E-4 to the *2009-2010 Annual Report*). During the industrial inspections, the following questions were asked:

- Does the business have a mercury management, reduction, and elimination plan?
- Are mercury-containing devices present which show evidence of leakage, spillage, or damage that could cause leaks?

During the 2013-2014 reporting period, the City revised the commercial inspection evaluation checklists to include discussion of mercury-containing products, along with proper handling and disposal procedures (included as Appendix E-4 of the *2013-2014 Annual Report*).

5.4.7 Inspect High Priority Industrial and Commercial Facilities Twice during Permit Term

The second and final round of commercial and industrial inspections for the Permit term took place in 2011-2012. Prior to the commencement of the inspections, the City issued a press release advising businesses on the start of the inspections, the nature of the inspections, the types of businesses that would be inspected, and items that would be addressed during the inspections (Appendix E-3 of the *2011-2012 & 2012-2013 Annual Report*).

During 2012-2013 and at the request of the RWQCB, the City also conducted one unscheduled inspection of an industrial grain storage facility. Although the facility received a warning from the City stormwater inspector, the facility operators responded promptly, working with the City to resolve the issues and to bring the facility back into compliance. There were no other industrial facilities that necessitated an inspection in response to complaints during the 2011-2012 and 2012-2013 reporting periods.

In 2013-2014, administrative decisions were made to restructure the commercial and industrial inspection program within the City. The City will complete the first round of inspections within the first two and a half years of a permit term and complete the second round of inspections within the final two and half years of the permit term. Although a new permit was not issued in 2013-2014 as anticipated, staff began the next round of inspections in March 2014.

Stormwater inspections for restaurants were restructured in 2013-2014. An administrative decision was made to combine the stormwater inspection with the MUD – Wastewater Fats, Oils, and Grease (FOG) inspection under a combination "Commercial Food Service Establishment" (FSE) inspection. The inspection program launched in March 2014, and by June 30, 2014 a total of 279 food service establishments were inspected (i.e., 224 commercial businesses and 55 food services within Stockton-area schools). In addition, a number of high priority facility inspections were completed on a complaint-driven basis during 2013-2014.

In 2013-2014, to streamline the inspection process and facilitate cooperation on the part of businesses, staff developed a notification letter and an informational brochure, *Commercial & Industrial Stormwater Inspections (What to Expect)*, which was mailed to all affected businesses advising them of what to expect during a routine commercial/industrial stormwater inspection (included as Appendix E-5 of the *2013-2014 Annual Report*).

During the 2014-2015 reporting period, inspections of 313 food service establishments were completed during the period from July to November 2014. Inspections for this commercial facility type are now complete for this round. The City also completed 24 industrial facility inspections. The inspection results are included as **Appendix E-2**.

A summary of the industrial facility inspections conducted during the permit term from 2009-2015 is provided below.

High Priority Industrial Facility Inspection Summary (2009-2015)

Inspection Cycle	Total Number of Industrial Facilities Requiring Inspection	Total Number of Industrial Facilities Inspected		Inspection Results		
		By City	By RWQCB	Number of Facilities with SWPPPs on Site	Number of Facilities Adequately Implementing BMPs	Number of Facilities in General Compliance with Stormwater Control Requirements
First Cycle 2009-2010	121	121	4	98	94	94
2010-2011	N/A	9	N/A	6	1	2
Second Cycle 2011-2012	113	113	0	96	108	113
2012-2013	N/A	1	N/A	1	1[a]	1[a]
Third Cycle 2013-2014	176	N/A	N/A	N/A	N/A	N/A
Fourth Cycle 2014-2015	153	29	N/A	23	21[b]	21[b]

Notes:

a. Although a City stormwater inspector issued a warning to one facility during inspection, the facility operators responded promptly by working with the City to bring the facility back into compliance.

b. The majority of issues identified during inspections were minor (e.g., BMP implementation needed improvement) and did not necessitate follow-up inspections.

A summary of the commercial facility inspections conducted during the 2014-2015 reporting period is provided below.

High-Priority Commercial Facility Inspection Summary (2014-2015)

Category	Total Number of Commercial Facilities Requiring Inspection	Number of Commercial Facilities Inspected	Inspection Results	
			Number of Facilities Adequately Implementing BMPs[1]	Number of Facilities in General Compliance with Stormwater Control Requirements[2]
Automotive-Related Facilities	N/A	N/A	N/A	N/A
Dry Cleaners/Laundromats	N/A	N/A	N/A	N/A
Equipment Rentals	N/A	N/A	N/A	N/A
Pet-Related Facilities	N/A	N/A	N/A	N/A
Nurseries	N/A	N/A	N/A	N/A
Restaurants/ Food Service Establishments	1,474	313	293[a]	292[a]
Retail Gasoline	N/A	N/A	N/A	N/A
Other	N/A	N/A	N/A	N/A
Total	1,474	313	293	292

Notes:

1. The number of facilities adequately implementing BMPs was tabulated as the number of facilities that did not contain any inspection notes stating “Better BMPs Required” and/or required no follow-up inspections.
2. The number of facilities in general compliance was tabulated as the number of facilities that did not contain any inspection notes stating “Better BMPs Required” and/or required no enforcement actions and/or follow-up inspections. No commercial facilities requiring follow-up inspections were reported.

a. The majority of issues identified during inspections were minor (e.g., BMP implementation needed improvement) and did not necessitate follow-up inspections.

A summary of the commercial facility inspections conducted during the permit term from 2009-2015 is provided below.

High-Priority Commercial Facility Inspection Summary (2009-2015)

Inspection Cycle	Total Number of Commercial Facilities Requiring Inspection	Number of Commercial Facilities Inspected	Inspection Results	
			Number of Facilities Adequately Implementing BMPs[1]	Number of Facilities in General Compliance with Stormwater Control Requirements[2]
First Cycle 2009-2010	1,235	1,235	1,138	1,138
2010-2011	N/A	N/A	N/A	N/A
Second Cycle 2011-2012	1,120	1,120	1,070	1,070
2012-2013	N/A	N/A	N/A	N/A
Third Cycle 2013-2014	1,161	279	253	250
Fourth Cycle 2014-2015	1,474	313	293	292

Notes:

1. The number of facilities adequately implementing BMPs was tabulated as the number of facilities that did not contain any inspection notes stating “Better BMPs Required” and/or required no follow-up inspections.
2. The number of facilities in general compliance was tabulated as the number of facilities that did not contain any inspection notes stating “Better BMPs Required” and/or required no enforcement actions and/or follow-up inspections. No commercial facilities requiring follow-up inspections were reported.

The commercial facilities considered temporary or intermittent dischargers are not significant sources of pollutants in stormwater. The City inspects these facilities on an as-needed basis. An inspection is performed only if (1) there is a complaint filed; (2) a phone call, email, or inquiry via Ask Stockton is received regarding the discharge of potential pollutants into storm drain from these facilities; or (3) City field staff identifies a suspicious discharge.

During 2009-2010, the City updated the waste categories it uses to categorize illicit discharges. During 2010-2011, the City utilized the updated waste categories, as described in **Section 2**, to specifically track illicit discharges from these commercial sources.

Under the new system, each illicit discharge is tracked by facility type, activity causing the illicit discharge, and updated waste categories. The facility types to be tracked will incorporate subcategories of commercial facilities, including those considered to be temporary or intermittent sources, as listed below:

- Automotive washing and detailing
- Carpet cleaners
- Commercial pesticide applicators
- Concrete pouring contractors
- Concrete cutting contractors
- General building contractors
- Landscape installation / maintenance contractors
- Painting contractors
- Portable toilet rental and maintenance
- Pressure washers
- Street sweepers
- Swimming pool contractors
- Swimming pool maintenance
- Other

5.4.8 Evaluate the Feasibility of Developing a Compliance Rating System

During the 2009-2010 reporting period, the City evaluated the feasibility of developing a compliance rating system to track the effectiveness of the program and to assist inspectors in defining compliance. The City has determined that it will not develop a compliance rating system because it considers the current program to be effective, and such a system is not anticipated to significantly enhance the effectiveness of the program. The City will continue to implement the current industrial and commercial program, which includes progressive enforcement and the tracking of any enforcement actions taken against specific businesses.

5.4.9 Conduct Follow-up Inspections as Necessary

When facilities are deemed out of compliance, the City conducts follow-up inspections as necessary in order to bring the facility into compliance.

No follow-up inspections were conducted during the 2014-2015 reporting period. The majority of issues identified during the industrial and commercial inspections were minor (e.g., BMP implementation needed improvement) and did not necessitate follow-up inspections. However, some follow-up inspections were conducted after June 30, 2015.

5.4.10 Identify How Inspections May Be Conducted for the Mobile Business Category

During the 2009-2010 reporting period, the Permittees developed a *Mobile Business Pilot Program: Carpet Cleaners Implementation Strategy* (Appendix E-5 of the *2009-2010 Annual Report*). Inspections of carpet cleaner businesses are challenging because they are often small and transient operations that lack a fixed facility location. Thus, a mandatory, regional self-certification program is implemented to cost-effectively and comprehensively address this requirement and to send a consistent message to carpet cleaners regarding the applicable regulations and BMPs that should be implemented. The City will follow up with particular businesses if they are not responsive to the request to complete a self-certification form.

The City verified the carpet cleaner inventory during the week of January 5, 2011, and identified 69 mobile carpet cleaners that were operating within the Stockton Urbanized Area (SUA). On April 25, 2011, mailings were sent to 100% of the inventoried carpet cleaners. The mailings included the following components: a Carpet Cleaners Water Quality Self Certification Letter, a Stormwater Pollution Prevention for Carpet Cleaners Pamphlet (Carpet Cleaners BMP Fact Sheet), a Carpet Cleaners Water Quality Self-Certification Form, and a self-addressed envelope. The mailings required that the businesses complete and return the Self-Certification Form within 90 days (by July 18, 2011). Inventoried mobile businesses were contacted during the week of June 21, 2011 (60 days) to verify their receipt of the mailing and to correct contact formation when appropriate.

The initial mailing for the Mobile Business Pilot Program included 69 carpet cleaner businesses. During the verification process for active mobile businesses, those contacted seem generally aware of the need to collect carpet cleaning wastewater and its proper disposal in the sanitary sewer.

The self-certification process extended into the 2011-2012 reporting period. As of July 7, 2011, 53 of the original 69 mobile carpet cleaners were self-certified. The 2011-2012 carpet cleaner inventory was updated to a total of 64 to reflect the exemption of five carpet cleaners that reported using a dry-chemical process, often called “dry cleaning” since virtually no water is used. Thus, approximately 83% of the carpet cleaner businesses were self-certified as of June 2011. Following a second mailing the week of June 21, 2011, the remaining 11 businesses completed and returned Self-Certification Forms.

Due to the longer than expected development of the mobile business program, there was an overlap in the program’s implementation schedule and the first required annual update. The City determined that an annual update (due by June 30, 2011), six months after the initial verification and two months after the return of the Self-Certification Form, would be redundant and unnecessary.

The City conducted a second round of self-certifications during 2013-2014. On June 2, 2014, the Self-Certification forms, with enclosures, were sent to 53 mobile businesses believed to be operating within the SUA. Each mobile business was advised to respond within 30 days to remain in compliance with the Mobile Business Program. During the 2014-2015 reporting period, the City received 14 self-certification letters. The mobile business program is ongoing, and the City will continue self-certification and outreach efforts to target mobile carpet cleaners during 2015-2016.

5.5 IC3 – INDUSTRIAL/COMMERCIAL OUTREACH

The Industrial/Commercial Outreach Control Measure requires industrial and commercial businesses to reduce pollutants in stormwater discharges and effectively prohibits unauthorized non-stormwater discharges to the storm drain system. Although the City may provide guidance to facility operators on appropriate Source and Treatment Control BMP selection and application, the selection of specific BMPs to be implemented is the responsibility of the discharger.

5.5.1 Review/Revise BMP Fact Sheets for High Priority Facilities

In order to assist the industrial and commercial facilities in selecting and implementing the appropriate types of BMPs, the City developed BMP Fact Sheets for the high priority industrial and commercial businesses. The BMP Fact Sheets are made available on the City's website.[1] Business-specific BMP Fact Sheets are available for the following businesses:

- Auto Body Shops
- Auto Dealers
- Auto Repair Shops
- Dry Cleaning
- Equipment Rental
- Kennels
- Nurseries
- Restaurants
- Retail Gas Outlets

The brochures distributed during 2011-2012 inspections were provided to commercial businesses and included "About Today's Inspection" and the "Green Car Wash Program" (Appendix C-1 of the *2011-2012 & 2012-2013 Annual Report*), in addition to copies of the commercial inspection checklist (Appendix E-3 of the *2011-2012 & 2012-2013 Annual Report*). The "Green Car Wash Program" brochures were provided to businesses to promote the awareness of the fact that allowing a parking lot fundraiser car wash on facility premises could result in the detection of an illicit discharge of soapy water to the stormwater system, and the facility could subsequently be found in violation.

A review and revision of the business-specific BMP Fact Sheets began in June 2014. The first BMP Fact Sheet updated was for the Restaurants/Food Service Establishments (Appendix E-6 of the *2013-2014 Annual Report*).

[1] http://www.stocktongov.com/documents/bySC/Municipal_Utilities.html

During 2013-2014, to streamline the inspection process and facilitate cooperation on the part of businesses, staff developed a notification letter and an informational brochure, *Commercial & Industrial Stormwater Inspections (What to Expect)*, to be mailed to all affected businesses advising them of what to expect during a routine commercial/industrial stormwater inspection (Appendix E-5 of the *2013-2014 Annual Report*).

During the 2014-2015 reporting period, the City revised the brochure "About Today's Industrial Inspection." The revised brochure is included as **Appendix E-3**.

Prior to the 2014-2015 inspections, the City trained the industrial inspectors on stormwater pollution prevention efforts unique to the industrial business community, as well as the new mandates to the industrial community as a result of the effective implementation of the New State Industrial Permit beginning in July 2015. The inspectors were instructed on how to use the industrial inspections as a means of providing outreach to the facility owners/operators about the new mandates.

During the 2015-2016 inspections, the City will work with its inspectors to ensure that facilities that have a significant potential to discharge a pollutant for which there is a water quality based plan (i.e., pesticides, pathogens, mercury) receive guidance. For example, since there is a Pathogen Plan, kennels will receive a kennel-specific BMP Fact Sheet that identifies BMPs that would reduce the pollutants of concern from being discharged (Water Quality Based Programs Performance Standard). The City Stormwater Inspector will also spend additional time discussing the information included in the BMP Fact Sheets while distributing them to businesses with a significant potential to discharge a pollutant for which there is a water quality based plan. In particular, these businesses include: kennels, nurseries, automotive facilities, and equipment rentals.

5.5.2 Distribute BMP Fact Sheets During Inspections

The City distributes BMP Fact Sheets to the facility owners/operators as part of the industrial and commercial facility inspection procedures. The City distributed the brochure "About Today's Industrial Inspection" at 26 of the 29 industrial sites inspected during 2014-2015. The Restaurant BMP fact sheet updated in 2013-2014 (Appendix E-6 of the *2013-2014 Annual Report*) was distributed to all 313 food service establishments inspected during 2014-2015. BMP fact sheets have been and will continue to be updated for distribution during inspections.

A summary of BMP Fact Sheets distributed during the 2014-2015 inspections is provided below.

Category	Total Number BMP Fact Sheets Distributed
Industrial	
Industrial Facilities	26
Commercial	
Automotive-Related Facilities	0
Dry Cleaners/Laundromats	0
Equipment Rentals	0
Pet-Related Facilities	0
Nurseries	0
Restaurants/Food Service Establishments	313
Retail Gasoline Outlets	0
Other	0

5.5.3 Target Outreach Efforts as Needed

Although the City opted not to develop a compliance rating system (see IC2), during the 2011-2012, 2012-2013, 2013-2014 and 2014-2015 reporting periods, the City provided outreach to high priority facilities, as described in **Sections 5.5.1** and **5.5.2**.

5.5.4 Identify BMPs and Develop an Outreach/Education Strategy for the Mobile Business Category Identified in IC1

During the 2009-2010 reporting period, the Permittees identified BMPs for the mobile business category identified in IC1, carpet cleaners, and developed an outreach/education strategy. In order to assist carpet cleaners in selecting and implementing the appropriate types of BMPs, a *Carpet Cleaner BMP Fact Sheet* was developed (Attachment C to Appendix E-2 of the *2009-2010 Annual Report*).

Outreach to carpet cleaners will take several forms, including distribution of BMP Fact Sheets and/or brochures, outreach via carpet cleaner associations and suppliers, and outreach to homeowners. The goal of this multi-faceted approach is to increase carpet cleaners' awareness of water quality issues and promote compliance with regulations.

In 2013-2014, the Permittees prepared a mailing for inventoried carpet cleaners (included as Appendix E-3 of the *2013-2014 Annual Report*) which included the following components:

- Cover letter that provides background information on stormwater quality, the purpose of the mailing, and what is required to be completed;
- Self-Certification Form; and
- *Stormwater Pollution Prevention for Carpet Cleaners* brochure.

The Permittees conducted a second round of self-certifications during 2013-2014. On June 2, 2014, the Self-Certification forms, with enclosures, were sent to 53 mobile businesses believed to be operating within the SUA. Each mobile business was advised to respond within 30 days to remain in compliance with the Mobile Business Program. During the 2014-2015 reporting period, the City received 14 self-

certification letters. The mobile business program is ongoing, and the City will continue self-certification and outreach efforts to target mobile carpet cleaners during 2015-2016.

5.5.5 Implement Outreach Efforts to Mobile Businesses

During the 2010-2011 reporting period, the City conducted mailings of mobile business outreach materials, including the Self-Certification Form, on April 25, 2011 to all inventoried mobile businesses. Outreach materials included a Carpet Cleaners Water Quality Self Certification Letter, a Stormwater Pollution Prevention For Carpet Cleaners Pamphlet (Carpet Cleaners BMP Fact Sheet), and a Carpet Cleaners Water Quality Self-Certification Form.

During the 2010-2011 reporting period, the City identified potential partners in the carpet cleaning industry. The Permittees will be pursuing and exploring relations with these potential partners as a joint effort in reaching out to mobile carpet cleaners in the next permit term.

The City recognizes that residents who choose to do their own carpet cleaning should follow the same BMPs as mobile business operators. The focus of these BMPs is to educate homeowners and to provide the motivation to protect water quality from illicit discharges that may occur during carpet cleaning activities. Outreach to homeowners regarding these BMPs will primarily occur via the County's Web site.[2] During the 2013-2014 reporting period, the updated brochure, *Stormwater Pollution Prevention for Carpet Cleaners*, will be made available on the Web site.

The mobile business program is ongoing, and the Permittees will actively evaluate outreach efforts and the effectiveness of self-certification during the next permit term.

During the 2014-2015 reporting period, the City focused on outreaching to mobile businesses that were not contacted during the first certification. Phone calls were made and the Stormwater Pollution Prevention for Carpet Cleaners brochure was distributed. During 2015-2016, the City intends to send outreach to all Carpet Cleaners and self-certify all of the businesses once more.

[2] www.sjcleanwater.org

5.6 IC4 – ENFORCEMENT

The Enforcement Control Measure outlines the progressive levels of enforcement applied to industrial and commercial facilities that are out of compliance with local ordinances and establishes the protocol for referring apparent violations of facilities subject to the Industrial General Permit to the Regional Water Board.

5.6.1 Implement the Progressive Enforcement and Referral Policy

The City has a progressive enforcement and referral policy so that the enforcement actions match the severity of the violation and include distinct, progressive steps. Options are available for progressive, corrective actions for repeat offenders. Enforcement actions are taken in accordance with the *Municipal Utilities Department Directive Prohibiting Non-Stormwater Discharges to the Storm Drainage System* (MUD Directive) (Appendix B-8 of the *2009-2010 Annual Report*). Inspections are performed to assess compliance with City stormwater ordinances. Noncompliance may include non-submittal by an industrial facility of an NOI, failure to implement BMPs, or other violation of City ordinances.

The number and types of enforcement actions taken *against all industrial/commercial businesses* are summarized below.

Enforcement Actions[1]	2013-2014[2]	2014-2015[3]
None – No Action Taken[34]	17	1
Administrative		
Verbal Warning	11	7
Cease and Desist Order[5]	6	0
Violation Warning Notice[5]	13	3
Notice to Clean[5]	9	4
Stop Work Order[5]	3	0
Administrative Citation (Fine)[5]	10	1
Correction Order[5]	12	7
Criminal Enforcement[6]		
Misdemeanor	0	0
Infraction	0	0
Total	**67**	**22**

Notes:

1. The total number of enforcement actions taken may be greater than the number of verified incidents due to multiple enforcement actions for a single incident.
2. Enforcement actions were taken by the Stormwater Division in 2013-2014.
3. Industrial & Commercial inspections were performed by the Environmental Control Division in 2014-2015. Enforcement was tracked in the Illicit Discharges Database (**Appendix B-1**).
4. **None – No Action Taken:** This enforcement action type denotes that no action was taken. The responsible party may have taken corrective measures before agency personnel arrived and/or a responsible party was not identifiable.
5. The **Notice of Violation – Administrative Citation** form used by MUD – Stormwater includes the following enforcement options: Cease and Desist Order; Violation Warning Notice; Notice to Clean; Stop Work Order; Fine; and Correction Order.
6. **Criminal Enforcement:** This category presumes that an action turned over to the District Attorney resulted in a criminal prosecution within the year of the incident. However, data for this section can only be updated in subsequent years (i.e., after criminal prosecution has been successful).

Total number of incidents with Administrative enforcement: 22

Number of repeat offenders identified during the reporting period: 0

Total number of complaints/problems referred to the Regional Board: 0

5.6.2 Track Enforcement Actions Using the Industrial/Commercial Database

During the 2014-2015 reporting period, the City tracked inspections within an Excel spreadsheet, with commercial inspections separated by month and industrial inspections all together. Enforcement actions associated with inspections were tracked within the Illicit Discharges Database (**Appendix B-1**). No secondary or follow-up enforcement/inspections occurred in 2014-2015.

5.6.3 Implement Procedures for Responding to Regional Water Board-Based Complaints

The City implements procedures for responding to complaints forwarded by the Regional Water Board to ensure inspections occur within two business days. Inspections initiated in response to complaints will determine, at a minimum, if the facility is out of compliance with City stormwater ordinances.

The City has worked (and will continue to work) closely with the Regional Water Board when a facility is identified as requiring a compliance inspection.

5.6.4 Implement Industrial Referral Policy

The City will review and modify, as necessary, the procedures for informing the Regional Water Board of violations at industries covered by the Industrial General Permit. Referral in writing to the Regional Water Board is appropriate concurrently (within 30 days) with issuance of Notices of Violation or the discovery of the non-filer. The City must refer industrial business violations to the Regional Water Board under three circumstances:

- If a facility fails to respond to progressive enforcement actions;
- If an industrial facility receives a notice for a significant violation under the City's stormwater ordinance; or
- If it is determined that a site should obtain coverage under the General Industrial Permit (non-filers).

The referral to the Regional Water Board should include:

  - Name of facility
  - Operator of facility
  - Owner of facility
  - Industrial activity or activities subject to the state Industrial General Permit conducted at the facility
  - Records of communication between the City and facility owner and operator.

Non-filers are referred to the Regional Water Board via its website as they are discovered.

No referrals were made during the 2014-2015 reporting period.

5.6.5 Develop an Enforcement Strategy Specifically Addressing the Mobile Business Category Identified in IC1

During the 2009-2010 reporting period, the Permittees developed an enforcement strategy that specifically addresses the mobile business category identified in IC1, carpet cleaners.

The Permittees have progressive enforcement and referral policies in place to address violations by commercial or industrial businesses, including carpet cleaners. Enforcement actions match the severity of violation and include distinct, progressive steps. Enforcement steps are addressed within the Permittees' ordinances, as well as within the MUD Directive (Appendix B-8 of the *2009-2010 Annual Report*).

The progressively severe corrective actions include verbal warnings, followed by written warnings and legal action, if necessary. Illicit discharges are addressed in a formal manner through the appropriate administrative remedies, depending upon the compliance history of the business. Corrective actions are taken in every instance where a responsible party is identified. Progressive enforcement will be utilized when the Permittees are conducting follow-up actions for businesses that do not respond to the initial mailing by failing to return the Self-Certification Form within the specified timeframe stated on the form (i.e., 90 days). Enforcement will include the following steps:

- **Second notification** – A second mailing (as described within the Carpet Cleaner Self-Certification Form section) will be sent, with a cover letter stating that if the Self-Certification Form and appropriate business license application(s) are not completed within 30 days, a Notice of Violation will be sent to the business owner.
- **Notice of Violation** – If the Permittees do not receive the Self-Certification Form and appropriate business license application(s) within 30 days, a Notice of Violation will be sent to the business owner.

Major violations of stormwater regulations or violations that have a potential for a significant impact to the environment will result in a more stringent enforcement response. Repeat offenders (i.e., businesses with multiple violations within a 12-month period) will also be subject to progressive enforcement actions. Incidents that require clean-up will be re-inspected within a short timeframe appropriate for mobile businesses (i.e., within hours).

Mobile businesses were mailed Self-Certification Forms on June 2, 2014. Unresponsive businesses are scheduled to be re-contacted by Stormwater Program staff during the week of July 7, 2014 by phone. In an effort to obtain 100% compliance, a second mailing will be sent the week of July 7, 2014.

Enforcement against non-responsive mobile carpet cleaning businesses may include a NOV or more stringent enforcement steps. Violations will be mailed to mobile carpet cleaning businesses that are unresponsive 30 days past the initial 90-day allowance.[3] To date, no NOVs have been issued.

[3] During the 2013-2014 reporting year, the response timeframe for businesses to respond to the initial mailing was shortened from 90 days to 30 days. Non-responsive businesses have an additional 30 days to respond from the receipt of a second notification.

The number and types of enforcement steps, taken during the 2014-2015 reporting period, *that were related to Self-Certification Forms* are summarized below.

Total Number of Enforcement Steps Related to Self-Certification Forms	
Second Notification (Mailing)	**Notice of Violation**
0	0

Total number of enforcement actions taken during the 2014-2015 reporting period: 0

Number of repeat offenders identified during the reporting period: 0

The number and types of enforcement actions taken *against carpet cleaners* are summarized below.

	Administrative Remedies			Legal Action
	Verbal Warnings	**Warning Notice or Notice to Clean**	**Notice of Violation**	**Type (Misdemeanor, Infraction. Etc.)**
Total Number	0	0	0	0

Total number of enforcement actions taken during this reporting period: 0

Number of repeat offenders identified: 0

5.7 IC5 – TRAINING

The Training Control Measure is important for the implementation of the Industrial and Commercial Program Element. An effective training program is one of the best pollution prevention BMPs that can be implemented because it prompts behavioral changes that are fundamentally necessary to protect water quality.

Areas of Focus for the Industrial/Commercial Program Training

Target Audience	Format	Subject Material	Comments
• Industrial/Commercial inspectors (City staff, not contracted inspectors) • Code Enforcement Officers	• Classroom • Field Demos	• Overview of stormwater management program • Stormwater ordinance and enforcement policy • BMPs for facilities • Database tracking	• Training seminars or workshops related to the program may be made available by other organizations

5.7.1 Conduct Training

During the 2014-2015 reporting period, training sessions specifically related to the Industrial and Commercial Program Element were held. A training session was developed and presented to the City staff conducting industrial inspections that focused on stormwater pollution prevention efforts unique to the industrial business community, as well as the new mandates to the industrial community as a result of the effective implementation of the New State Industrial Permit beginning in July 2015. The staff were instructed on how to use the industrial inspections as a means to providing outreach to the facility owners/operators about the new mandates.

A summary of the training sessions held is provided below.

Date of Training	Title of Training Module	Number of Attendees	Staff Positions Trained	Trainee City Departments or Divisions
8/5/2014	Pressure Washing/Stormwater BMPs Workshop	17 (4 City staff)[a]	City service contractors, Deputy Director, Program Manager, Public Works Inspector, Administrative Analyst	Stormwater, Community Services
4/2/2015	Inspector-Industrial Stormwater Inspection Training/Permit Review	13 (9 City staff, 4 County staff)	Regulatory Control Officer, Environmental Control Officer, Technical Services Supervisor, Program Manager, Public Works Inspector, Deputy Director	MUD-Stormwater, Environmental Control
5/18/2015	New California Stormwater Permit Regulating Industrial Facilities	6	Environmental Control Officer, Stormwater Inspector	MUD-Stormwater, Environmental Control

Note:

a. According to the sign-in sheet, a total of 17 people attended this workshop. However, a greater number of attendees completed pre-training (19) and post-training (20) surveys.

A summary of the pre- and post-training surveys conducted during the 2014-2015 reporting period is provided below.

Date of Training	Training Module	Total Number of Surveys	Average Pre-Survey Score[1]	Average Post-Survey Score[1]	% Difference
8/5/2014	Pressure Washing/Stormwater BMPs Workshop	19[a]	62%	85%	23%
4/2/2015	Inspector-Industrial Stormwater Inspection Training/Permit Review	11	60%	88%	28%

Notes:

1. Average is weighted based on number of students in each class

a. According to the sign-in sheet, a total of 17 people attended this workshop. However, a greater number of attendees completed pre-training (19) and post-training (20) surveys.

5.8 IC6 – EFFECTIVENESS ASSESSMENT

In order to determine the effectiveness of the Industrial and Commercial Program, a comprehensive assessment of the program data is conducted as a part of the annual report. The results of this assessment are used to identify modifications that need to be made to the program. Each year the effectiveness assessment is reviewed and revised as needed.

By conducting these assessments and modifying the program as needed, the City ensures that the iterative process is used as an effective management tool. Due to the types of data collected for the Industrial and Commercial Program, the assessment primarily focused on Outcome Levels 1and 3.

- Outcome Level 1 (L1) answers the question: Did the City implement the components of the Permit and the 2009 SWMP?
- Outcome Level 2 (L2) answers the question: Can the City demonstrate that the control measure/performance standard significantly increased the awareness of a target audience?
- Outcome Level 3 (L3) answers the question: Can the City demonstrate that the control measure/performance standard significantly modified the behavior of a target audience?

The table below summarizes the effectiveness assessment that was conducted for the Industrial and Commercial Program Element. Additional detail for each component of the assessment is provided on the following pages. It should be noted that Outcome Levels 5 and 6 will only be assessed as a part of the Water Quality Based Programs and the Monitoring Program on a longer term basis since those analyses rely on environmental data.

Program Effectiveness Assessment Summary for Industrial/Commercial Program

Industrial/Commercial	Level 1	Level 2	Level 3	Level 4
	Implement Program	Increase Awareness	Behavior Change	Load Reduction
IC1 - Facility Inventory	C - Maintain/ Update Industrial/ Commercial Facility Inventory	N/A	N/A	N/A
IC2 - Prioritization and Inspection	C – Prioritized Facilities C – Conducted Inspections C – Mobile Business Self-Certification	C – Received Self-Certification Forms	C – BMP Implementation	N/A
IC3 - Industrial/ Commercial Outreach	C – Reviewed/Revised Outreach Material C – Distributed Outreach Material	A	A	N/A
IC4 – Enforcement	C – Implemented Progressive Enforcement C – Tracked Enforcement Actions	N/A	N/A	N/A
IC5 – Training	C –Attended Training	C – Pre- and Post-Training Surveys	N/A	N/A

C – An effectiveness assessment was conducted during the reporting periods.

A – It is anticipated that an effectiveness assessment may be conducted in future annual reports

N/A – This outcome level is not applicable for this control measure

Following is an assessment regarding the effectiveness of the Industrial and Commercial Program.

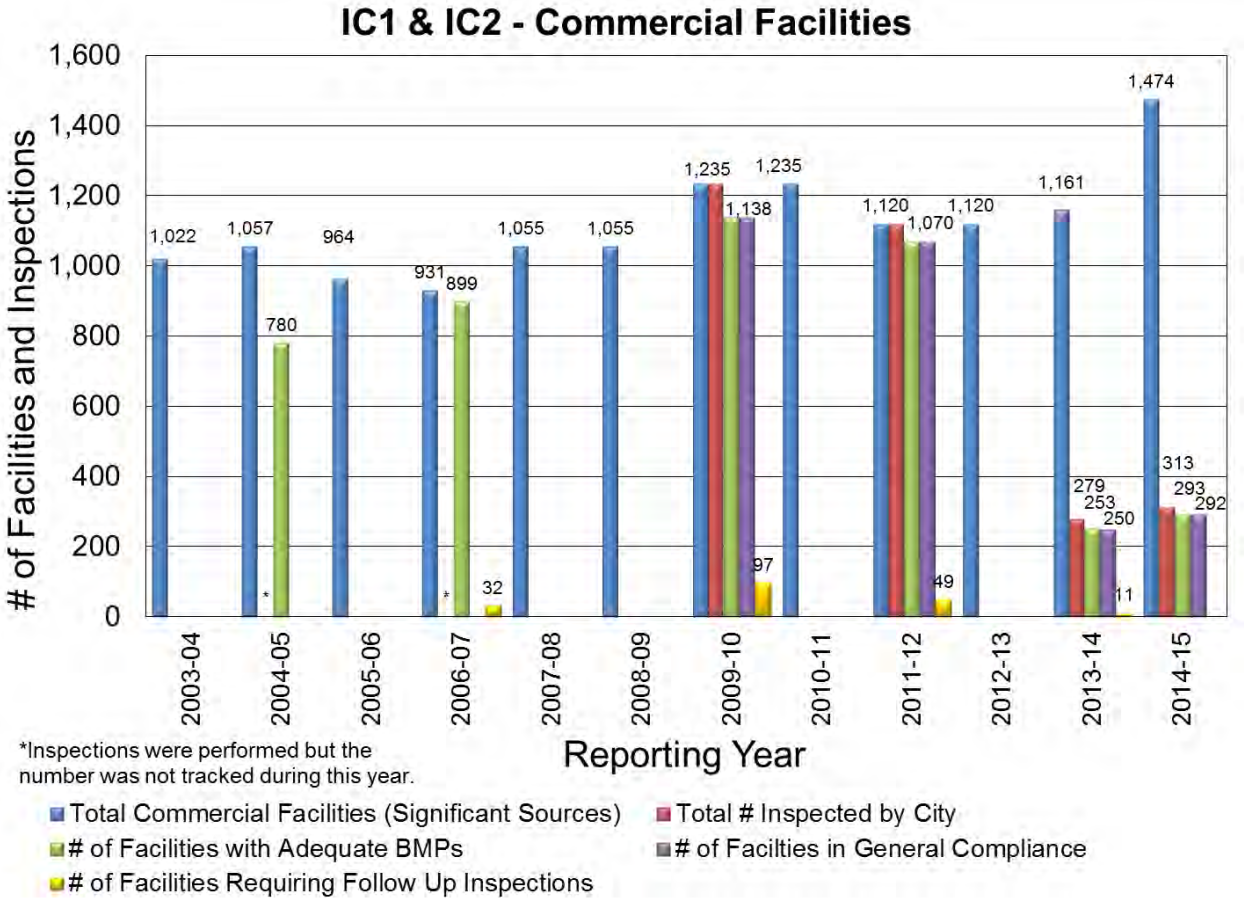
IC1 - Facility Inventory

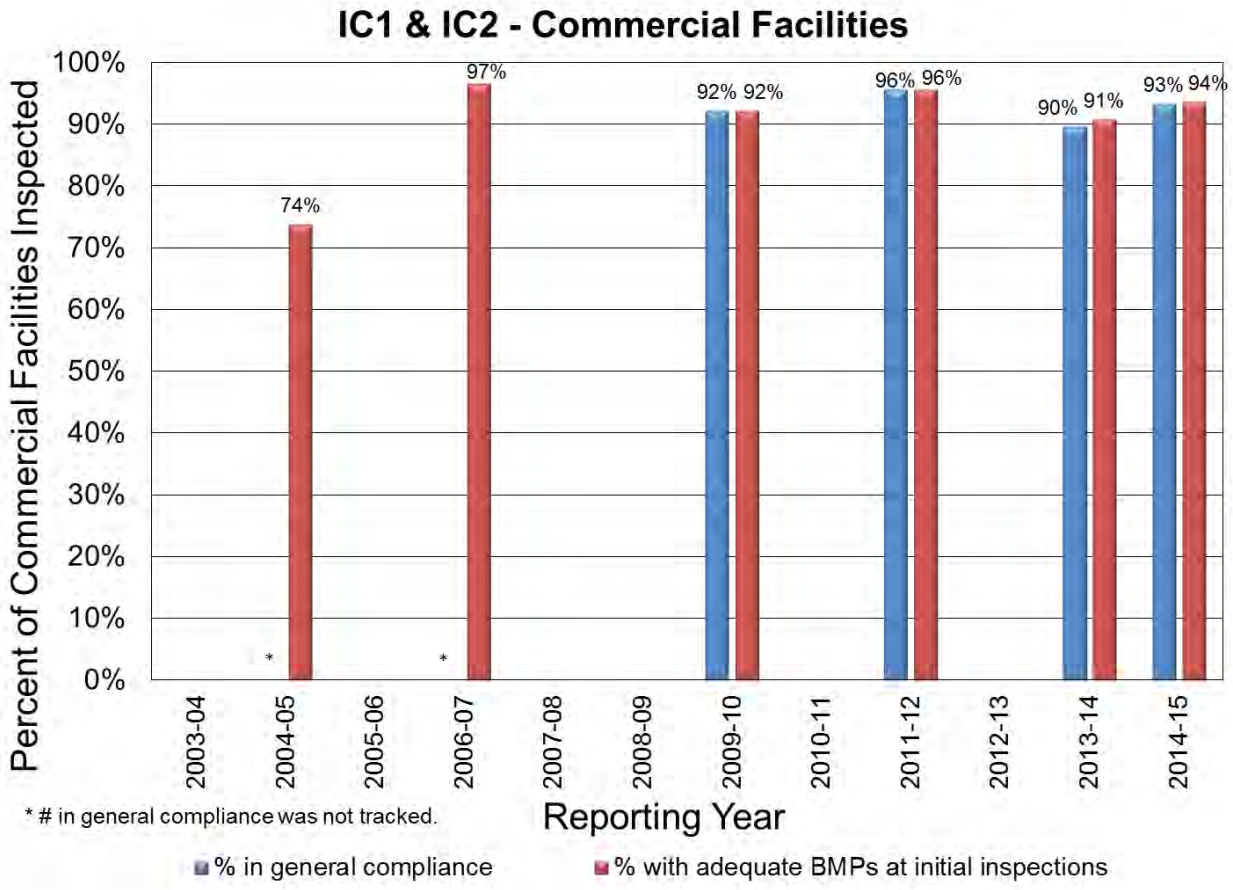
The City maintains and updates the inventory of industrial and commercial facilities prior to the start of each inspection round. As of June 30, 2015, 153 industrial facilities and 1,474 commercial facilities have been inventoried as existing within the City's jurisdiction. **(L1)**

IC2 - Prioritization and Inspection

Since 2003-2004, the City has performed more than 662 industrial and 2,947 commercial facility inspections. During the most recent inspections conducted in 2014-2015, all of the industrial and commercial facilities inspected were prioritized as "high" (29 and 313 inspections, respectively). **(L1, L3)**

- Of the 29 industrial facilities inspected in 2014-2015, 21 (72%) were in general compliance with stormwater control requirements.
- Of the 313 commercial facilities inspected in 2014-2015, 292 (93%) were in general compliance with stormwater control requirements.
- The number of commercial facilities adequately implementing BMPs at the time of initial inspection and those in general compliance with stormwater control requirements has increased over time, indicating increased awareness of the requirements and the need for BMPs.
    - The average number of industrial facilities with adequate BMPs in place at the time of the initial inspection has increased by approximately 11% (10.8%) since the previous permit term (86.4% since 2007-2008, compared to 75.6% from 2003-2004 to 2006-2007).
    - The average number of commercial facilities with adequate BMPs in place at the time of the initial inspection has increased by 20% since the previous permit term (94% since 2007-2008, compared to 74% from 2003-2004 to 2006-2007).
    - Since tracking began (2009-2010), an average of 87% of industrial facilities and nearly all (99.85%) of the commercial facilities have been found to be in general compliance with stormwater control requirements.


IC1 & IC2 - Commercial Facilities
# of Facilities and Inspections
1,600
1,400
1,200
1,000
800
600
400
200
0
1,022
1,057
780
964
931
899
32
1,055
1,055
1,235
1,138
1,235
97
1,120
1,070
49
1,120
1,161
279
253
250
11
1,474
313
293
292
2003-04
2004-05
2005-06
2006-07
2007-08
2008-09
2009-10
2010-11
2011-12
2012-13
2013-14
2014-15
Reporting Year
*Inspections were performed but the number was not tracked during this year.
Total Commercial Facilities (Significant Sources)
Total # Inspected by City
# of Facilities with Adequate BMPs
# of Facilties in General Compliance
# of Facilities Requiring Follow Up Inspections



The City implemented the Mobile Business Pilot Program for carpet cleaners. **(L1, L2)**

- The City received 14 self-certification letters from mobile cleaners.

IC3 - Outreach

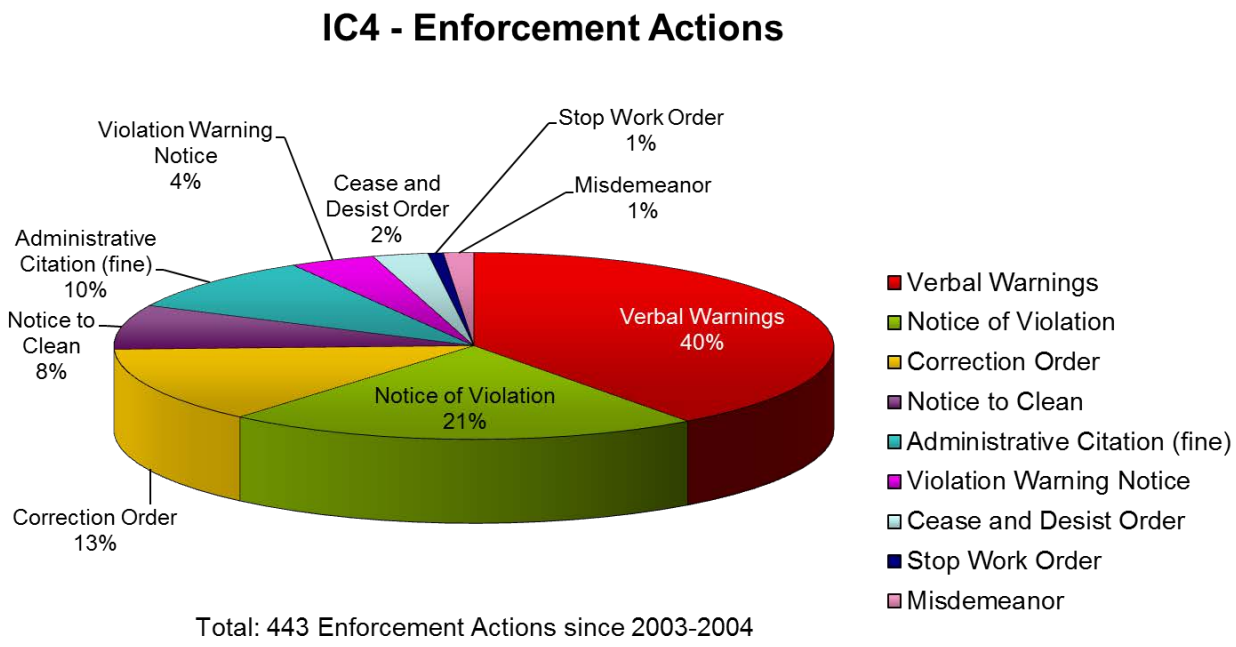
The City updated and distributes BMP Fact Sheets to the facility owners/operators as a part of the industrial and commercial facility inspection procedures. The brochure "About Today's Industrial Inspection" was distributed at 26 industrial sites during inspections. **(L1)**

IC4 - Enforcement

The City has developed and currently employs a progressive enforcement policy so that the enforcement actions match the severity of the violation and include distinct, progressive steps. **(L1)**

Since 2003-2004, the City has taken 443 enforcement actions against industrial and commercial businesses and utilized progressive enforcement when necessary. **(L1)**

- The primary type of enforcement actions used has been Verbal Warnings (40%); however, progressively more severe enforcement actions have been taken as needed to bring facilities into compliance.



The City continued to track enforcement actions taken. **(L1)**

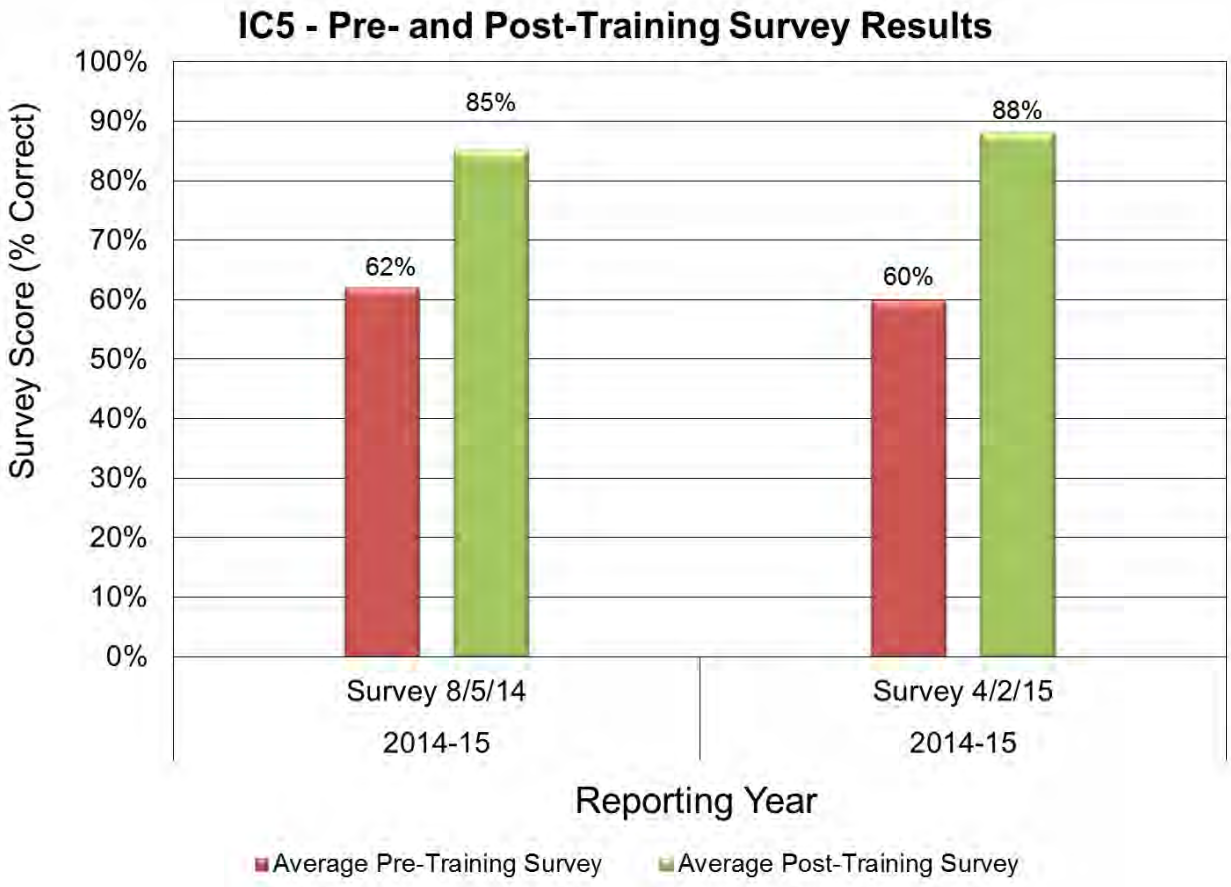
The City has developed and currently implements procedures for informing the Regional Water Board about potential non-filers or other enforcement related issues **(L1)**

The City has developed and implemented an enforcement strategy for mobile carpet cleaners operating within the SUA. **(L1)**

IC5 - Training

The City provided three Industrial & Commercial training modules for 19 staff during 2014-2015. **(L1)**

Two pre- and post-training surveys were administered during 2014-2015. These showed average increases of 23% and 28% in correct responses after the trainings, indicating increased awareness and understanding of the subject material that was presented. **(L2)**



5.9 INDUSTRIAL AND COMMERCIAL PROGRAM MODIFICATIONS

Each year, the City submits a work plan to the Regional Water Board for the activities that will be completed during the upcoming fiscal year. The 2014-2015 work plan identified several key tasks for this Program Element. In addition, as part of the ROWD process, the City has evaluated the effectiveness of program implementation during the Permit term, as well as the experience that staff has had in implementing the program, to identify the performance standards for the Control Measures under this Program Element for the next permit term. Through the development of the annual report, the annual work plan, and the ROWD, the City has determined if any additional program modifications are necessary in order to ensure that the stormwater management program is effective.

The program modifications that have been identified for this Program Element for the upcoming permit term are discussed below (see also Section 6 of the June 2012 ROWD).

- **IC2 – Prioritization and Inspection:**
    - The Permittees will utilize POCs as a screening tool to further refine the list of industrial and commercial facilities that are inspected. This will allow the Permittees to narrow the scope of inspections, while increasing their frequency.
    - The Permittees will implement a Self-Certification Program for low priority facilities, similar to what has been implemented through the Mobile Carpet Cleaner Pilot Program, in order to effectively address discharges from intermittent sources.

Section 6

Construction (CO)

6.1 OVERVIEW

During construction projects, a number of activities may generate or mobilize pollutants. The purpose of the Construction Program Element is to coordinate City programs and resources to effectively reduce pollutants in runoff from construction sites during all construction phases.

6.2 CONTROL MEASURES

The City has developed several Control Measures and accompanying performance standards to ensure that the construction-related Permit requirements are effectively developed and implemented. For each Control Measure there are accompanying performance standards which, once accomplished, constitute compliance with the SWMP/Permit.

The Construction Program Control Measures consist of the following:

CO	Control Measure
CO1	Municipal Code for Construction Sites
CO2	Plan Review and Approval Process
CO3	Construction Projects Inventory
CO4	Construction Outreach
CO5	Construction Site Inspections & BMP Implementation
CO6	Enforcement
CO7	Training
CO8	Effectiveness Assessment

The next section of the Annual Report provides information on the specific tasks that have been initiated and/or completed during the reporting period pursuant to the Construction Program performance standards and implementation schedules.

6.3 CO1 – MUNICIPAL CODE FOR CONSTRUCTION SITES

The goal of this Control Measure is to ensure that the City has adequate legal authority to control pollutants from construction sites with land disturbances greater than or equal to one acre. This authority is typically provided through the adoption of an ordinance (and resulting codification in the City's Municipal Code) and erosion and sediment control standards. This Control Measure addresses specific legal authority issues related to construction activities and should be implemented in coordination with Section 1 of the SWMP.

6.3.1 Review/Modify Grading and Erosion Control Ordinance and Standard Specifications

The City adopted a Grading and Erosion Control Ordinance (Municipal Code Section 15.48) effective July 1, 1997.[1] Pursuant to this ordinance, construction activities (with some exclusions, such as mining and agriculture) disturbing more than 50 cubic yards of material and clearing and grubbing more than 0.5 acres are required to obtain a Grading and Erosion Control Permit.

During the 2008-2009 reporting period, the City reviewed and modified the Grading and Erosion Control Ordinance and the Standard Specifications, including items such as changing the Grading and Erosion Control Ordinance language stating "…Disturbances of 5 Acres or More" to "Disturbances of 1 Acre or More". The revised Grading and Erosion Control Ordinance and the Standard Specifications were provided as Appendix F-1 of the *2008-2009 Annual Report*.

[1] This ordinance, Stockton Municipal Code - Grading and Erosion Control (Title 15: Buildings and Construction), can be found online at www.stocktongov.com/. The City of Stockton Standard Specifications (Appendix D-1 of the SWMP) also require erosion and sediment control measures.

6.4 CO2 – PLAN REVIEW AND APPROVAL PROCESS

Effective planning of construction site activities leads to minimizing erosion and preventing pollutants from entering the storm drain system. The City requires projects that disturb greater than one acre of land to address pollutants and activities during the construction phase of the project. Prior to issuing a grading permit, the City reviews construction drawings to ensure that erosion and sediment control BMPs and source and treatment control BMPs are identified.

6.4.1 Review Grading and Building Permit Applications for SWPPP Requirements

The City's Grading and Erosion Control Ordinance (see Control Measure CO1) requires the submittal with grading plans of proof that a NOI has been filed and that a SWPPP has been developed. The City provides a "Planning & Permits" page for project developers on its Web site that includes information on SWPPP requirements, as well as a link to the Construction General Permit and related State Board guidance.[2] The SWPPP requirements listed on the City "Planning & Permits" page cover site map(s), stormwater BMPs, and a monitoring program/plan. Additionally, the page references Section A of the Construction General Permit, which describes the elements that a SWPPP must contain.

To ensure that site plans, improvement plans, and building plans are reviewed for stormwater requirements, all plans that are submitted to the City are routed to the MUD representative at the Permit Center for review. A plan review process flow chart was provided as Appendix F-1 to the 2009 SWMP. As part of this review, the MUD representative in the Permit Center reviews project plans, as well as grading and building permit applications, to determine if a SWPPP is required and to verify the following:

- An NOI has been submitted to the State Water Resources Control Board;
- The name of and contact information for the person responsible for SWPPP implementation are provided; and
- The location of and details for all construction activity BMPs are listed.

No permit is issued until the stormwater requirements are satisfied.

During the 2014-2015 reporting period, the City reviewed the following permit applications to ensure that they complied with the above requirements.

Time Period	Grading Permit Issued	No. of Applicants Requiring SWPPPs and NOIs
Last Year 2013-2014	15[a]	15[a]
This Year 2014-2015	12	12

Note:
a. One additional project was terminated during 2013-2014.

A detailed list of all construction sites tracked during the 2014-2015 reporting period is provided as **Appendix F-1**.

[2] http://www.stocktongov.com/government/departments/municipalUtilities/utilStormPlan.html

6.4.2 Develop a Plan & Permit Application Review Procedure Handout

Although the City has not specifically developed a Plan & Permit Application Review Procedure handout explaining the review procedure to be provided to all construction project applicants identified as having to comply with the Grading and Erosion Control Ordinance, a flow chart of the plan review process is provided as Figure 2-3 of the 2009 SWQCCP and encompasses both construction and post-construction requirements. This flow chart is available to the public on the City's Web site and can be found within the 2009 SWQCCP.[3]

6.4.3 Distribute the Plan & Permit Application Review Procedure Handout

A flow chart of the plan review process was provided as Figure 2-3 of the 2009 SWQCCP and encompasses both construction and post-construction requirements. This flow chart is available to the public on the City's Web site and can be found within the 2009 SWQCCP.

6.4.4 Evaluate the County's Construction Small Site SWMP

During the 2009-2010 reporting period, the City evaluated the County's Construction Small Site Stormwater Management Plan and determined that a similar handbook is not warranted for the City, since smaller sites (<1 acre) are adequately addressed by the City's current process. Such sites are not routinely inspected by MUD Stormwater; however, all sites that have a building permit are inspected by Building Inspectors, and they conduct a Stormwater Inspection. If a site has inadequate BMPs, the site is referred to MUD Stormwater for continued follow-up.

In 2013-2014, the City completed a Construction General Permit Fact Sheet, entitled *Stormwater Program Best Management Practices for all Construction Sites,* for distribution at the permit counter by City staff. The fact sheet provides a general overview of the various BMPs required on construction sites. The new fact sheet has been designed to assist applicants for both small and large sites during the project planning phase and throughout the construction phase.

During the 2014-2015 reporting period, the City found it unnecessary to update or change the Construction General Permit Fact Sheet.

[3] http://www.stocktongov.com/files/sw_swqccp.pdf

6.5 CO3 – CONSTRUCTION PROJECTS INVENTORY

The Construction Projects Inventory Control Measure involves tracking construction sites from the planning stage to completion. This is essential for ensuring that stormwater pollutants are reduced to the MEP. Maintaining a database to track all stages of the construction process is the foundation of construction-related source identification and helps to ensure that pollution prevention and source control are emphasized during all phases of the construction project.

6.5.1 Maintain and Update the Construction Project Database

The MUD – Stormwater Management Program maintains a database system that is capable of tracking inspections that occur at each construction site. The current database fields include:

- Site owner and contact information
- Name, address, and description (type) of project
- WDID numbers
- Inspector and inspection date
- Comments on site conditions
- Notices of Violation and other letters sent

The City maintained and updated the Construction Project Database during the 2014-2015 reporting period.

The following construction sites were tracked within the City's database.

Construction Site Category	Total Number of Active Construction Sites Requiring SWPPPs	Total Number of Completed Construction Sites
Private Projects	10	5
Public Projects	2	2

A detailed list of all construction sites tracked during the 2014-2015 reporting period is provided as **Appendix F-1**.

6.6 CO4 – CONSTRUCTION OUTREACH

The Construction BMP Implementation Control Measure is required to ensure that appropriate BMPs are implemented at construction sites to prevent pollutants from being discharged to the storm drain system. This Control Measure focuses on the City's requirements for BMPs at construction sites and the associated outreach efforts to the building community.

6.6.1 Distribute Appropriate BMP Fact Sheets During Inspections

As noted in Control Measure CO2, all construction project applicants identified as having to comply with the Grading and Erosion Control Ordinance are provided a two-page handout describing the application review procedure. The City also provides a link on its Web site to the State's Model SWPPP that includes a list of BMPs applicable to construction activities.

During 2009-2010, a flyer announcing and explaining the requirements of the new General Construction Permit requirements was developed and mailed out to property owners with active construction projects. During the 2010-2011 reporting period, appropriate outreach materials (e.g., concrete washout/trash, general BMPs) were provided during inspections. In addition, property owners were referred to the CASQA BMP handbooks.

In 2011-2012 and 2012-2013, the Wet Season Stormwater Construction Site Reminder was sent to all active construction site managers, operators, and developers in charge of sites that are inspected by the City on a monthly basis as a reminder to prepare their sites for the rainy season.

During the 2013-2014 reporting period, the City developed a Construction General Permit Fact Sheet, entitled *Stormwater Program Best Management Practices for all Construction Sites,* for distribution at the permit counter by City staff. It is also available on the City's Web site.[4] The fact sheet provides a general overview of the various BMPs required on construction sites. The City also updated the Web site with the City's PowerPoint presentation for the May 9, 2014 Construction Stormwater Workshop.[5]

During the 2014-2015 reporting period, the Fact Sheet was distributed by staff at the Permit Center to small development sites applying for either a building permit or grading permit, including sites less than one acre; however, the number of sheets distributed was not tracked. Fact Sheet distribution did not occur during inspections in 2014-2015, and this outreach will begin for inspections conducted in 2015-2016.

6.6.2 Conduct Contractor Tailgate Meetings

The City conducts education and training for construction activities through informational brochures, the City's Web site, and through one-on-one discussions during site inspections by MUD – Stormwater Construction staff. Experience has shown that the best environment to educate contractors is in the field, where issues, BMP implementation, and regulatory requirements can be discussed on-site.

Tailgate meetings are held on an as-needed basis by the MUD Stormwater Inspector as inspections are conducted. These meetings are held on-site with the site superintendent and any of the sub-consultants that are present that day. During these meetings, the MUD Stormwater Inspector reviews the Construction General Permit and City requirements for construction sites, including BMPs.

A summary of the contractor tailgate meetings held during the 2014-2015 reporting period is provided below.

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[4] http://www.stocktongov.com/files/sw_construction_bmp.pdf

[5] http://www.stocktongov.com/files/sw_construction_training.pdf

Date	Location	Number of Active Construction Sites Represented	Number of Attendees
8/11/14	Administrative Office of the Courts	1	6
12/2/14	0M7804	1	9
12/5/14	Administrative Office of the Courts	1	5
12/10/14	0G4704 Hwy 5 Stockton Widening	1	6
12/30/14	0G4704 Hwy 5 Stockton Widening	1	7
	Total	5	33

6.6.3 Conduct Training for Developers, Builders and Contractors

During the 2010-2011 reporting period, the City invited developers, builders and contractors to internal construction training. In 2011-2012, three contractor tailgate meetings were held (drawing 13 attendees). In 2012-2013, eleven tailgate meetings were held (70 attendees), and in 2013-2014, 11 contractor tailgate meetings were held (76 attendees).

During the 2014-2015 reporting period, the City held five contractor tailgate meetings, which drew 33 attendees, as shown in **Section 6.6.2**.

6.7 CO5 – CONSTRUCTION SITE INSPECTIONS & BMP IMPLEMENTATION

The Construction Site Inspection Control Measure is critical to the ultimate success of the Construction Program Element. An effective construction site inspection program requires having adequate legal authority to enforce City requirements, tracking active construction sites to identify repeat violators, and conducting inspections to ensure the sources are identified and that BMPs are being implemented and maintained. The inspection program also provides the basis for notifying the Regional Water Board when inspectors identify non-compliant sites including non-filers or repeat violators. Building and engineering inspectors should also be aware of stormwater quality issues and notify the MUD – Stormwater Management Program if any violations are noticed.

6.7.1 Review/Revise Stormwater Construction Site Inspection Form

The MUD – Stormwater Management Program's current inspection checklist includes key fields recommended by the Regional Water Board, as well as an area for general comments. During the first field visit, the inspector verifies that SWPPPs are on-site and being implemented. BMP implementation is assessed at each site. If any problems are identified, the current practice is to identify the sources and conduct a comparison of on-site conditions with SWPPPs or grading plans.

The City reviewed the Stormwater Construction Site Inspection Form and updated it in September 2007. During the 2009-2010 reporting period, the City's Stormwater Construction Site Inspection Form was reviewed and updated by the stormwater construction inspector. The updated Stormwater Construction Site Inspection Form was included as Appendix F-2 of the *2009-2010 Annual Report*.

During the 2014-2015 reporting period, the City continued to use the Stormwater Construction Site Inspection Form.

6.7.2 Evaluate Options for a Construction Site Compliance Rating System

During the 2009-2010 reporting period, the City discussed options for a rating system for construction site compliance. A rating system will not be developed; however, the intent of this performance standard is being met by the City's existing inspection process. The City determined that the consistency desired for the construction inspection program is currently achieved through use of the updated Stormwater Construction Site Inspection Form, regular inspections, documentation with photographs, and progressive enforcement.

6.7.3 Inspect Construction Sites ≥ 1 Acre

All construction sites greater than or equal to one (1) acre are inspected once per month (at a minimum) during the wet season and one time during the dry season until a notice of termination for coverage under the General Construction Permit is issued by the Regional Water Board.

Additional inspections are conducted as time allows or as follow-up when problems were detected in previous inspections. The inspection program ensures that the following minimum requirements are effectively implemented at construction sites:

- Sediments generated on the project site are retained using adequate source control BMPs;
- Construction-related materials, wastes, spills, or residues are retained at the project site to avoid discharges to streets, drainage facilities, receiving waters, or adjacent properties by wind or runoff;
- Non-stormwater runoff from equipment and vehicle washing and any other activity is contained at the project site; and

- Erosion from slopes and channels are controlled by implementing an effective combination of BMPs.

A summary of the active construction sites and inspections conducted is provided below.

Reporting Period	Number of Active Construction Sites Greater than or Equal to One (1) Acre	Number of Regular Inspections[1] Conducted *at Each Active Construction Site*	Number of Follow-Up Inspections[2] Conducted *at Each Active Construction Site* due to Violations
Last Year 2013-2014	27	208	12
This Year 2014-2015	14	251	12

NOTES:
1. Regular inspections: Number of construction sites adequately implementing and maintaining BMPs
2. Follow-up inspections: Number of construction sites adequately implementing and maintaining BMPs

A detailed list of all construction sites tracked and inspected during the 2014-2015 reporting period is provided as **Appendix F-1**.

6.8 CO6 – ENFORCEMENT

The Enforcement Control Measure outlines the progressive levels of enforcement applied to construction sites that are out of compliance with local ordinances and establishes the protocol for referring apparent violations of construction sites subject to the General Construction Permit to the Regional Water Board. The progressive enforcement and referral policy, as well as the accompanying legal authority to execute it, is an important tool for providing a fair and equitable approach to bringing contractors and developers into compliance with the City's municipal code requirements.

6.8.1 Implement Progressive Enforcement and Referral Policy

City inspectors currently have the legal authority, under the Stormwater Management and Discharge Control Ordinance (Chapter 13.16)[6], to issue administrative complaints (Notice of Violation, or NOV) and, if necessary, to pursue civil actions, criminal actions, and criminal penalties, including arrests and issuance of citations. The Regional Board is routinely mailed copies of NOVs.

The City has developed a *Municipal Utilities Department Directive Prohibiting Non-Stormwater Discharges to the Storm Drainage System* (MUD Directive) for Construction Activities, Commercial/Industrial Businesses, Residential Activities, and Special Events (see Appendix B-5 of the 2009 SWMP). The MUD Directive[7] identifies the steps that should be taken when citing violators of ordinances, allows for Citywide consistency in the enforcement of the local ordinances, and provides a mechanism for cost recovery. The progressively severe corrective actions involve verbal warnings followed by written warnings and legal action, if necessary. Illicit discharges by industrial or commercial facilities or construction sites are addressed in a formal manner through issuance of notices of violations, citations, or notices and orders (Cease and Desist) depending upon the compliance history of the facility. Corrective actions are taken in every instance where a responsible party is identified.

The City generally refers construction site violations to the Regional Board under two circumstances:

- If three *significant violations* have occurred; and
- If it is determined that a site should obtain coverage under the General Construction Permit (*potential non-filers*)

If a construction site has received its third notice for a significant violation of the City's Stormwater Management and Discharge Control Ordinance[8] within a 12-month period, the City notifies the Regional Board. The construction site referral is made in writing within 30 days of the inspection that led to the third notice. It should be noted that some referrals may vary from this schedule due to the nature of the violation and the type of response involved (i.e., an egregious violation would result in immediate notification of the Regional Board).

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[6] The relevant ordinances are available on the City of Stockton's Web site, http://www.stocktongov.com, or at http://qcode.us/codes/stockton/.

[7] The City had planned to develop an Enforcement Consistency Guide (ECG); however, the MUD Directive and the Investigative Guidance Manual being developed (see ID3) together adequately address consistency in the enforcement of the local ordinances and provide standard guidelines and protocols for identifying, documenting, responding to, and enforcing violations.

[8] Chapter 13.16 of the Stockton Municipal Code, available at http://qcode.us/codes/stockton/

6.8.2 Track Enforcement Actions Using Construction Database

During the 2014-2015 reporting period, the City tracked the results of construction inspections. The City continues to use the database to ensure thorough tracking and documentation of all enforcement actions.

Enforcement Action Type	Number[1]	
	2013-2014[3]	2014-2015
Administrative		
Verbal Warning	79	86
Written Warning	0	0
Cease and Desist Order[2]	0	1
Violation Warning Notice[2]	0	9
Notice to Clean[2]	30	45
Stop Work Order[2]	0	0
Administrative Citation (Fine)[2]	2	0
Correction Order[2]	38	47
Criminal Enforcement		
Misdemeanor	0	0
Infraction	0	0

Notes:

1. The total number of enforcement actions taken is greater than the number of verified sources due to multiple enforcement actions for a single discharge.
2. The *Notice of Violation – Administrative Citation* form used by the City includes the following enforcement options: Cease and Desist Order; Violation Warning Notice; Notice to Clean; Stop Work Order; Fine; and Correction Order.
3. During the 2013-2014 reporting period, some enforcement actions taken (e.g., verbal warning, verbal notices to correct) were not tabulated in a master database. However, for the 2014-2015 reporting period, staff will track these categories of enforcement actions in a master database for data verification purposes.

Total number of enforcement actions taken during the reporting period: 189

Number of repeat offenders identified during the reporting period: 0[9]

The City generally refers construction site violations to the Regional Board under two circumstances:

- If three *significant violations* have occurred; and
- If it is determined that a site should obtain coverage under the General Construction Permit (*potential non-filers*)

If a construction site has received its third notice for a significant violation of the City's Stormwater Management and Discharge Control Ordinance within a 12-month period, the City notifies the Regional Board. The construction site referral is made in writing within 30 days of the inspection that led to the third notice. It should be noted that some referrals may vary from this schedule due to the nature of the violation and the type of response involved.

[9] Repeat offenders were counted as the number of consistent repeated violations where enforcement had to be escalated to the second citation level.

6.8.3 Review/Modify Procedures for Informing Regional Water Board of Violations

The City will review and modify, as necessary, the procedures for informing the Regional Board of violations at construction sites subject to the General Construction Permit. Referral to the Regional Board is appropriate concurrently (within 30 days) with issuance of a third citation, or immediately if the violation is egregious. As of the 2009-2010 reporting period, the City has reviewed the procedures for informing the Regional Board of violations at construction sites subject to the General Construction Permit. No modifications were deemed necessary. City staff routinely discusses reporting requirements during internal meetings.

6.9 CO7 – TRAINING

Training is important for the implementation of the Construction Program Element. An effective training program is one of the best pollution prevention BMPs that can be implemented because it prompts behavioral changes that are fundamentally necessary to protect water quality.

Areas of Focus for Construction Program Element Training

Target Audience	Format	Subject Material	Comments
• Stormwater construction inspectors • Building inspectors • Grading permit inspectors • Developers • Builders • Contractors	• Classroom • Field demos • Tailgate sessions	• Overview of stormwater management • Stormwater impacts of land development • Stormwater ordinance and enforcement policy • Construction stormwater inspection training • BMPs for construction activities • Tracking database	• Training seminars or workshops related to Construction may be made available by other organizations
• Grading plan and SWPPP reviewers	• Classroom • Field demos	• Overview of stormwater management • BMPs for construction activities • SWPPP requirements • Tracking database	• Training seminars or workshops related to Construction may be made available by other organizations

6.9.1 Conduct Training

Staff attended training sessions related to the construction program during the 2014-2015 reporting period. A summary of the training sessions is provided below.

Date of Training	Title of Training Module	Number of City Attendees	Staff Positions Trained	Trainee City Departments or Divisions
9/12/2014	Construction Site/Plan Review	15	Permit Center Staff: Engineers, Permit Technicians, Engineering Service Manager, Planners, Revenue Assistant, Plan Checker, Office Specialist	Community Development Department/Permit Center

6.10 CO8 – EFFECTIVENESS ASSESSMENT

In order to determine the effectiveness of the Construction Program, a comprehensive assessment of the program data is conducted as a part of the annual report. The results of this assessment are used to identify modifications that need to be made to the program. Each year the effectiveness assessment is reviewed and revised as needed.

By conducting these assessments and modifying the program as needed, the City ensures that the iterative process is used as an effective management tool. Due to the types of data collected for the Construction Program, the assessment primarily focused on Outcome Levels 1 and 3.

- Outcome Level 1 (L1) answers the question: Did the City implement the components of the Permit and the 2009 SWMP?
- Outcome Level 3 (L3) answers the question: Can the City demonstrate that the control measure/performance standard significantly modified the behavior of a target audience?

The table below summarizes the effectiveness assessment that was conducted for the Construction Program Element. Additional detail for each component of the assessment is provided on the following pages. It should be noted that Outcome Levels 5 and 6 will only be assessed as a part of the Water Quality Based Programs and the Monitoring Program on a longer term basis since those analyses rely on environmental data.

Program Effectiveness Assessment Summary for Construction

Construction	Level 1	Level 2	Level 3	Level 4
	Implement Program	Increase Awareness	Behavior Change	Load Reduction
CO1 - Municipal Code for Construction Sites	N/A	N/A	N/A	N/A
CO2 - Plan Review and Approval Process	C – Plan Review Process	N/A	N/A	N/A
CO3 - Construction Projects Inventory	C – Maintained and Updated the Database	N/A	N/A	N/A
CO4 - Construction Outreach	C – Distributed Materials C – Held Tailgate Meetings as Needed	A	A	N/A
CO5 - Construction Site Inspections & BMP Implementation	C – Conducted Inspections	A	C – BMP Implementation	N/A
CO6 - Enforcement	C – Conducted Enforcement Actions	N/A	N/A	N/A
CO7 - Training	C – Staff Attended Training	A	A	N/A

C – An effectiveness assessment was conducted during the reporting periods.
A – It is anticipated that an effectiveness assessment may be conducted in future annual reports
N/A – This outcome level is not applicable for this control measure

Following is an assessment regarding the effectiveness of the Construction Program.

CO2 – Plan Review and Approval Process

Project plans are reviewed by a MUD representative at the Permit Center to ensure that the construction requirements are met. **(L1)**

The City provides educational materials to the developers via its Web site and at the permit counters. Developers and construction contractors are becoming better educated and responsive to the City's stormwater requirements as indicated by the following: **(L1)**

- Since 2003-2004, 213 applicants have applied for coverage under the General Construction Permit, and they all have submitted proof of an NOI to the City.

CO3 – Construction Projects Inventory

The City has developed and is maintaining a Construction Project Database. The Construction Project Database is updated on an ongoing basis. **(L1)**

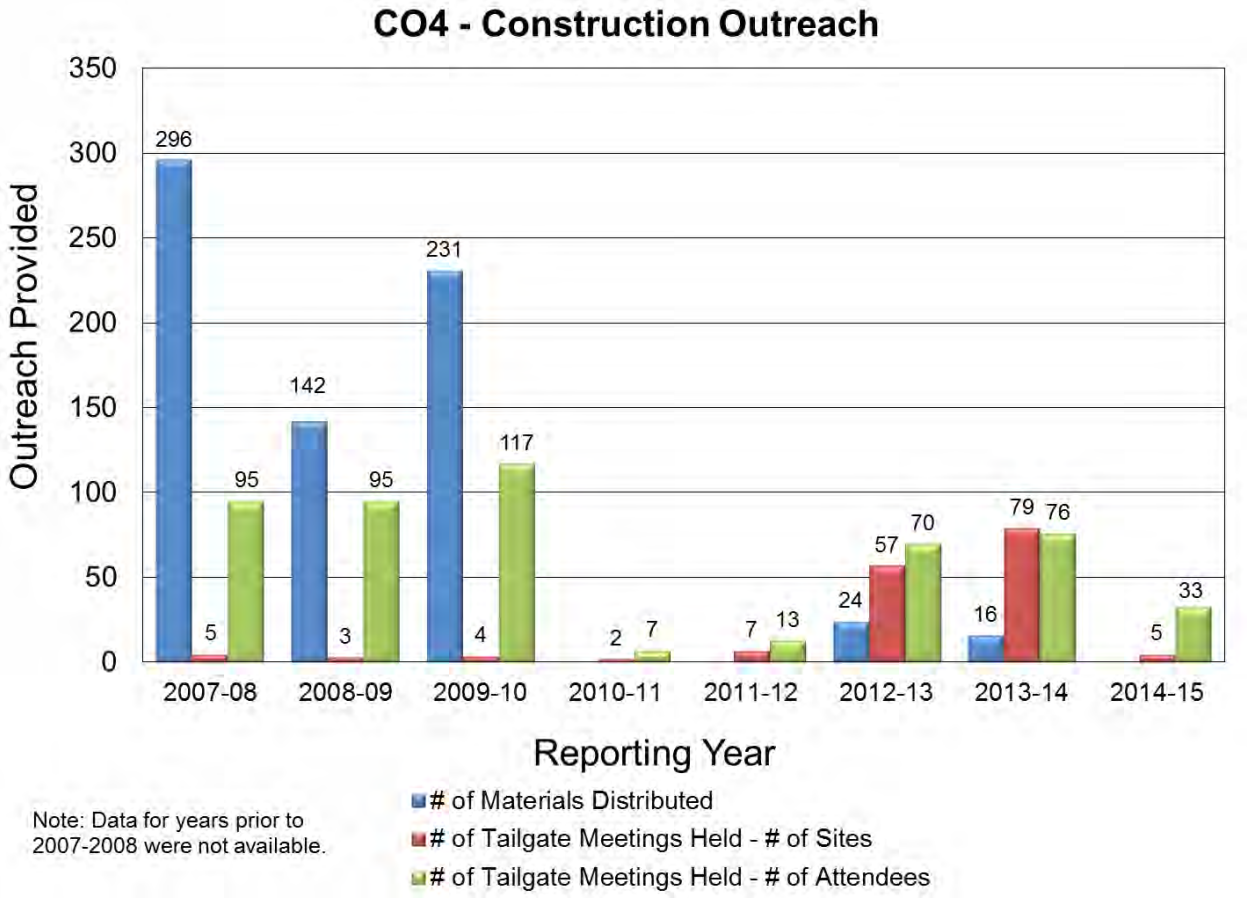
CO4 – Construction Outreach

All construction project applicants identified as having to comply with the Grading and Erosion Control Ordinance are provided with a two-page handout describing the application review procedure. The City also provides a link on its Web site to the Construction General Permit and related State Board guidance. **(L1)**

The City has developed and is distributing construction-related outreach materials. The City also holds tailgate meetings as needed. **(L1)**

The MUD Stormwater Inspector holds tailgate meetings on-site with the site superintendent. The MUD Stormwater Inspector reviews the Construction General Plan and associated City requirements at these meetings. **(L1)**

- Since 2007-2008, 162 construction sites have been represented at tailgate meetings, with a total of 506 attendees.

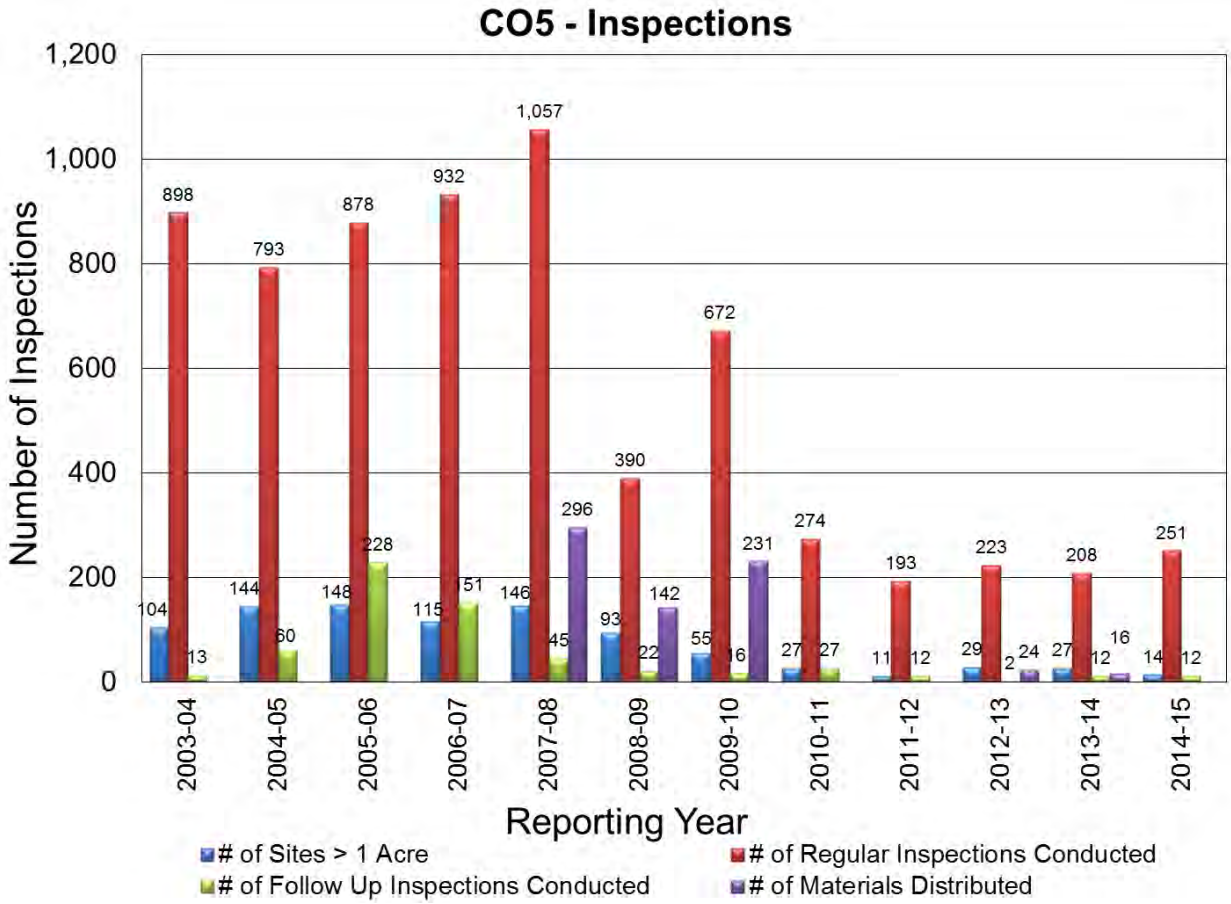


CO5 – Construction Site Inspections and BMP Implementation

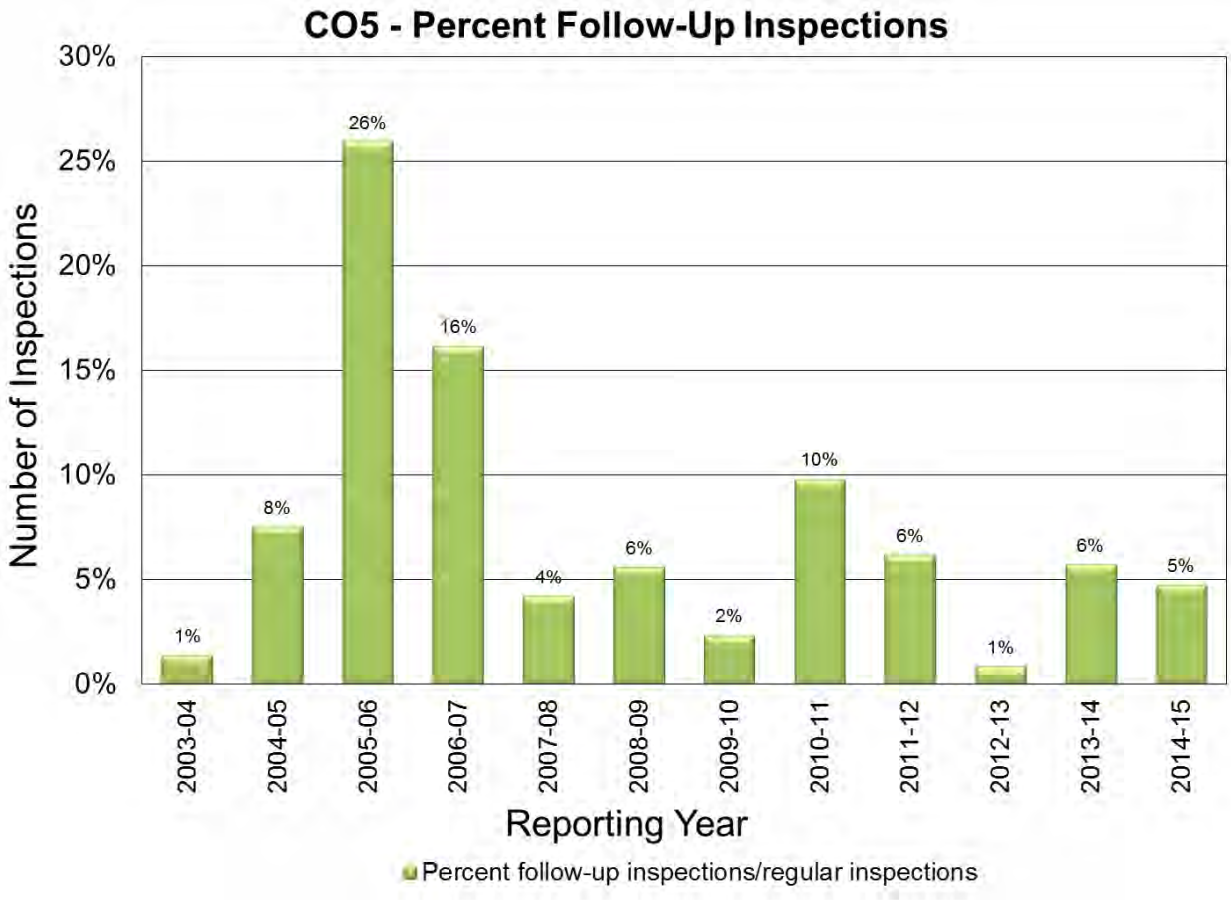
The City reviewed the Construction Site Inspection Form, determined that it was adequate, and conducted routine inspections of all active construction sites within City's jurisdiction. **(L1)**

Developers/contractors remain responsible and continue to be proactive when implementing and maintaining the construction site BMPs. **(L1, L3)**

- Since 2003-2004, the City has conducted 6,769 inspections and found that 91% of the construction sites that were inspected were in compliance with the City's stormwater program requirements and ordinances and did not require enforcement actions or follow-up inspections.



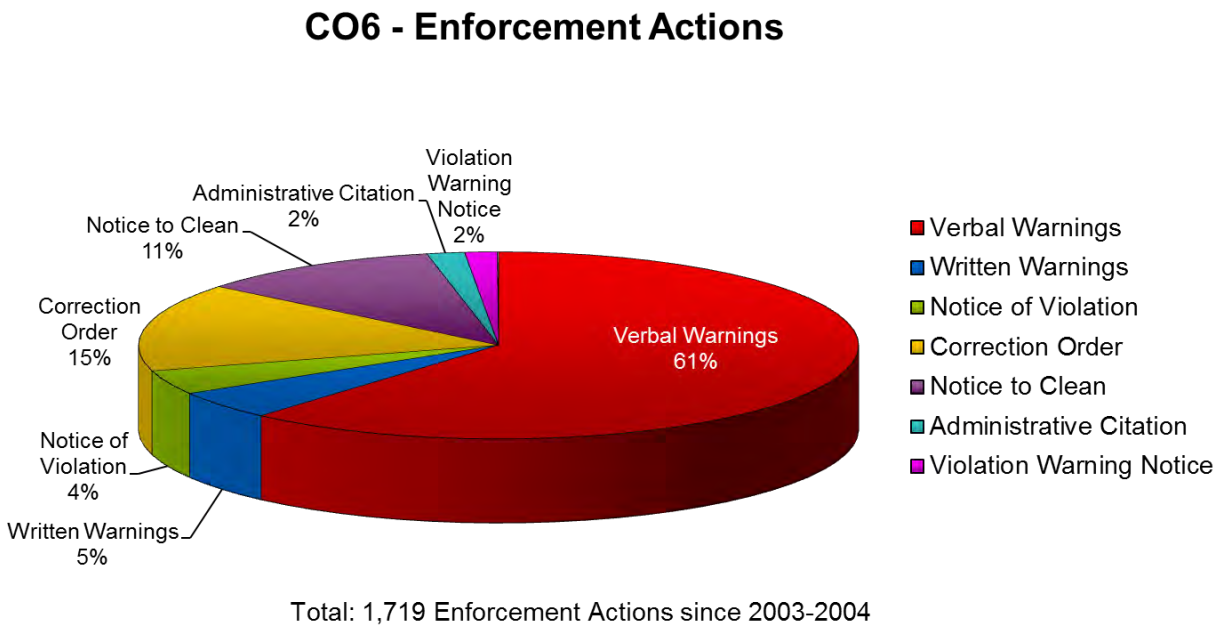
- The number of follow-up inspections required per regular inspection at construction sites decreased between 2005-2006 and 2014-2015—and has remained low since 2007-2008—indicating that construction sites owners and operators are aware of the BMPs that are required to be implemented and maintained and are doing so.



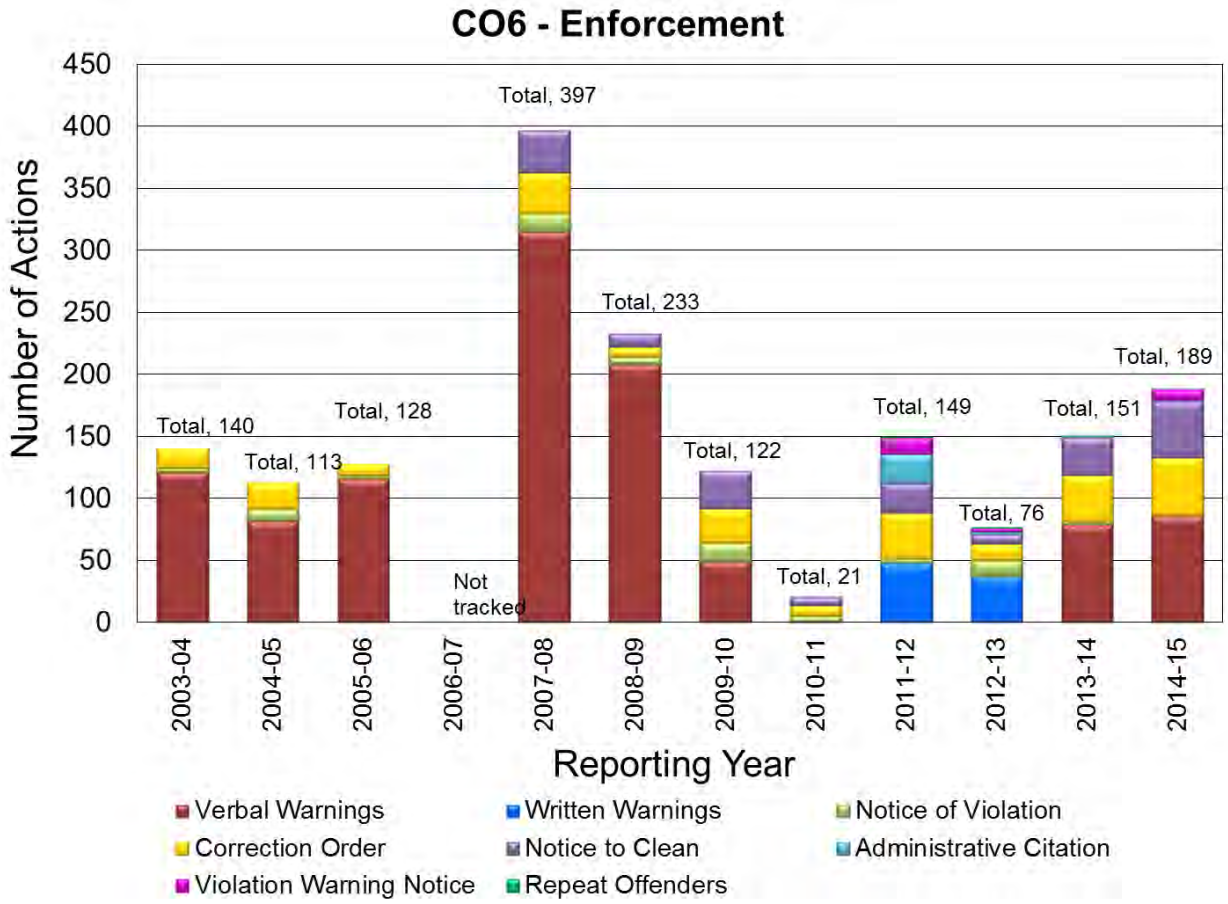
CO6 – Enforcement

The City tracks enforcement actions in the Construction Project Inventory Database, which is regularly maintained. **(L1)**

- While 1,719 enforcement actions have been taken between 2003-2004 and 2014-2015, most of the enforcement actions (1,141, or 61%) have been verbal or written warnings. No criminal enforcement has been required during any year.



- The decrease in the number of enforcement actions taken since 2007-2008 is generally consistent with the decrease in the number of active construction sites during this timeframe. However, the slight increase in the number of enforcement actions in 2014-2015 is most likely related to the increased presence of field staff conducting inspections and identifying stormwater-related issues during this reporting period.



CO7 – Training

During 2014-2015, a total of 15 staff attended one training session regarding Construction Site/Plan Review. **(L1)**

6.11 CONSTRUCTION PROGRAM MODIFICATIONS

Each year, the City submits a work plan to the Regional Water Board for the activities that will be completed during the upcoming fiscal year. The 2014-2015 work plan identified several key tasks for this Program Element. In addition, as part of the ROWD process, the City has evaluated the effectiveness of program implementation during the Permit term, as well as the experience that staff has had in implementing the program, to identify the performance standards for the Control Measures under this Program Element for the next permit term. Through the development of the annual report, the annual work plan, and the ROWD, the City has determined if any additional program modifications are necessary in order to ensure that the stormwater management program is effective.

The program modifications that have been identified for this Program Element for the upcoming permit term are discussed below (see also Section 7 of the June 2012 ROWD).

- **CO4 – Construction Outreach:** The contractor tailgate meetings will not be held. The Permittees have found that these meetings are not an effective outreach or training mechanism for this target audience. Instead, BMP information will continue to be distributed during inspections, and the Permittees will notify the target audience of appropriate training opportunities.
- **CO5 – Construction Site Inspections & BMP Implementation:** Given that sediment may convey POCs if not managed correctly, the dry season inspections were increased from once during the dry season to monthly inspections.

Section 7
Planning and Land Development (LD)

7.1 OVERVIEW

The addition of impervious areas for homes, industrial and commercial businesses, parking lots, streets and roads increases the amount of stormwater runoff, as well as the potential for pollution. The Planning and Land Development Program Element ensures that the impacts on stormwater quality from new development and redevelopment are limited through implementation of Site Design Controls, Source Controls, Volume Reduction Measures, and Treatment Controls. The general strategy for development is to avoid, minimize, and mitigate (in that order) the potential adverse impacts to stormwater. The potential for long-term stormwater impacts from development is also reduced by requiring ongoing operation and maintenance of post-construction treatment controls selected for a site.

7.2 CONTROL MEASURES

The City has developed several Control Measures and accompanying performance standards to ensure that the planning and land development-related Permit requirements are effectively developed and implemented. For each Control Measure there are accompanying performance standards which, once accomplished, constitute compliance with the SWMP/Permit.

The Planning and Land Development Program Control Measures consists of the following:

LD	Control Measure
LD1	Incorporation of Water Quality Protection Principles into City Procedures and Policies
LD2	New Development Standards
LD3	Plan Review Sign-Off
LD4	Maintenance Agreement and Transfer
LD5	Training
LD6	Effectiveness Assessment

The next section of the Annual Report provides information on the specific tasks that have been initiated and/or completed during the 2014-2015 reporting period pursuant to the Planning and Land Development Program performance standards and implementation schedules.

7.3 LD1 – INCORPORATION OF WATER QUALITY PROTECTION PRINCIPLES INTO CITY PROCEDURES AND POLICIES

Traditional methods of land development tend to increase stormwater discharge volumes and flow velocities. These alterations to the natural hydrologic regime may lead to increased erosion and flooding and decreased habitat integrity. Water quality and watershed protection principles and policies such as minimization of impervious areas, pollutant source controls, preservation of natural areas, and peak runoff controls can help to minimize the impacts of urban development on the local hydrology and aquatic environment. Integration of stormwater quality and watershed principles into the City's General Plan will serve as the basis for directing future planning and development in order to minimize these adverse effects. In addition, the California Environmental Quality Act (CEQA) process provides for consideration of water quality impacts and appropriate mitigation measures.

7.3.1 Review and Revise CEQA Review Documents

The CEQA review process is necessary for determining what impacts a proposed development project could have on the environment. The City's current CEQA review process includes procedures for considering potential stormwater quality impacts and providing for appropriate mitigation.

The City reviews and revises the CEQA review documents as needed for consistency with the Permit. MUD reviews all CEQA documents, responding to checklist items under the Hydrology and Water Quality section.

7.3.2 Revise Municipal Code

The City's Stormwater Management and Discharge Control Ordinance No. 010-97 (Section 13.20) serves as the enforcement mechanism to ensure new development and redevelopment projects comply with the General Plan and City policies, including the Stormwater Quality Control Criteria Plan (SWQCCP) requirements for post-construction BMPs.

During fiscal year 2008-2009, the City of Stockton updated/codified the Stormwater Management Control Ordinance. No additional changes to the Standards are necessary.

7.4 LD2 – NEW DEVELOPMENT STANDARDS

Post-construction BMPs, including those for site design, source control, volume reduction, and treatment, are necessary for development and redevelopment projects in order to mitigate potential water quality impacts. In addition, Priority Projects identified within the Permit require specific mitigation measures. In order to assist developers in meeting these requirements, the City developed a guidance manual for stormwater quality control measures for new development and redevelopment, the SWQCCP.

7.4.1 Require Priority Projects to Implement the 2009 SWQCCP

The City and County updated the 2003 SWQCCP to reflect new permit requirements with a special emphasis on the implementation of low impact development (LID) strategies in the Stockton Urbanized Area. Revision of the SWQCCP included a stakeholder participation element. Stakeholder input was solicited through three stakeholder meetings and three rounds of public comment. Modifications to the SWQCCP included the creation of a Volume Reduction Requirement to provide a measureable criterion for achievement of LID. The Volume Reduction Requirement is defined as the post-project runoff volume minus the pre-project runoff volume for the 0.51" rainfall event. The Volume Reduction Requirement must be met through the application of Volume Reduction Measures (e.g., rain barrels, interception trees) and LID Treatment Controls (e.g., bioretention, tree-well filters).

The City Council of the City of Stockton adopted the 2009 SWQCCP in February 9, 2010. Priority Projects were required to comply with the 2009 SWQCCP from that date forward. The 2009 SWQCCP is available on the City's website.[1] A 2009 SWQCCP fact sheet (Appendix G-1 of the *2009-2010 Annual Report*) and Volume Reduction Requirement (VRR) Calculator (Appendix G-2 of the *2009-2010 Annual Report*) were developed in February 2010 to communicate changes to the SWQCCP and assist with new requirements. On March 11, 2010, the City and County held a four hour workshop at the San Joaquin County Agricultural Center for key personnel and the development and construction community to highlight the requirements of the 2009 SWQCCP. This workshop was also used to introduce the VRR Calculator and illustrate how it is to be used to comply with the Volume Reduction Requirement.

7.4.2 Review Local Development Standards for Compatibility with the 2009 SWQCCP

During the 2010-2011 reporting period, the City reviewed its development regulations in the context of the 2009 SWQCCP requirements. A summary of findings is provided below:

- Setbacks: For the residential medium-density zoning district, the City of Stockton's Development Standards require the following: side setbacks of five feet, front setbacks of 15 feet and rear setback of 10 feet. Setbacks are considered minimal and provide the flexibility needed to minimize clearing and grading and conserve natural resources.
- Landscaping: The Landscaping Standards do not prohibit integration of stormwater management with landscape features.
- Tree Canopy/Tree Preservation: Tree preservation is indirectly encouraged through the Volume Reduction Requirement. The Volume Reduction Requirement can be reduced through the conservation of trees and other natural vegetation. The 2009 SWQCCP also includes tree interception as a Volume Reduction Measure. No known conflicts exist.

[1] http://www.stocktongov.com/government/departments/municipalUtilities/utilStorm.html

- Street Width: The Public Works Standard Specifications include street schematics that depict curb and gutter. Standard Specifications indicate that the minimum street width for residential collector street with no parking is 26 feet. The 2009 SWQCCP strongly encourages the use of swales in place of curb and gutter.
- Parking Lot Design: The City's minimum parking space requirements are standard in comparison with most other communities. For example, for most business types, 1 space per 200 square feet of gross floor area is required for the first 50,000 square feet of floor area. Gross floor area exceeding 50,000 square feet is required to provide 1 space per 500 square feet. Landscape and parking requirements specify that continuous curbing must be provided, but alternatives may be approved. The Parking Standards address shared parking which may reduce impervious cover: where two or more adjacent nonresidential uses have distinct and differing peak parking usage periods, (e.g. a theater and a bank), a reduction in the required number of parking spaces may be approved.
- Rooftop Runoff: The SWQCCP strongly encourage rooftop runoff to be conveyed to vegetated swales and vegetative buffer strips. The SWQCCP also actively encourages the use of rain gardens, cisterns and rain barrels. No known conflicts exist.

This review revealed that the majority of Stockton's codes and ordinances were not in conflict with the 2009 SWQCCP.

During 2012-2013, the City conducted another review of its development regulations in the context of the 2009 SWQCCP requirements. The City found that although the 2009 SWQCCP strongly encourages the use of swales in place of curb and gutter, the Standard Specifications require the inclusion of curb and gutter. In the next revision of the SWQCCP, City will recommend the removal of swales as an option contained in the SWQCCP.

An update of the Standard Specifications is not anticipated at this time, but the City plans to hold a dialogue with Public Works staff so that this issue may be revisited during the next permit term.

7.5 LD3 – PLAN REVIEW SIGN-OFF

Stormwater quality controls should be considered throughout the development plan review and approval process. The City provides comprehensive review of development plans in order to ensure that stormwater controls minimize stormwater quality impacts.

7.5.1 Review the Post-Construction Plan Review Database

The City requires that each Priority Project submit a Project Stormwater Quality Control Plan (SWQCP) that documents how the project is complying with the requirements contained within the 2009 SWQCCP. An Excel spreadsheet is used to document control measures proposed on the site plan. The City has reviewed the SWQCP template and the Excel spreadsheet.

7.5.2 Revise the Post-Construction Plan Review Database

The City has revised the SWQCP template and Excel spreadsheet. Each Priority Project is required to submit a SWQCP as documentation of compliance with the 2009 SWQCCP. The Stormwater Quality Control Plan (SWQCP) guidance is provided as Appendix E to the 2009 SWQCCP on the City's website.[2]

7.5.3 Use Post-Construction Plan Review Database

The City utilized the SWQCP template and Excel spreadsheet for each Priority Project, as described above.

7.5.4 Participate on the DRC

The City's Development Review Committee (DRC), which is made up of representatives from various City departments, primarily reviews and approves larger projects and sub-divisions and ensures that the erosion control, SWPPP requirements, and post-construction controls are identified and included on the tentative map. A MUD representative is on the DRC to ensure that post-construction stormwater quality controls are addressed and included during the planning of new development projects. If there are any issues identified by the DRC, they are resolved with the developer prior to project approval.

A summary of MUD participation on the DRC is presented below:

Number of times the DRC met during the reporting period: 3

Number of meetings the MUD staff participated in during the reporting period: 3

[2] http://www.stocktongov.com/government/departments/municipalUtilities/utilStorm.html

7.5.5 Review Project Plans and Grading Plans for Stormwater BMPs

The City reviewed project and grading plans to make sure that stormwater BMPs were incorporated. Since the 2009 SWQCCP was formally adopted by the City Council on July 7, 2009, some of the projects reviewed have fallen under the 2009 SWQCCP requirements. During the 2010-2011 reporting period, the majority of the projects fell under the SWQCCP requirements; whereas during the 2011-2012 and 2012-2013 reporting periods, few of the projects met the criteria to be subject to the SWQCCP requirements. During the 2013-2014 reporting period, 16 projects required SWQCCP review. During the 2014-2015 reporting period, 17 projects required SWQCCP review.

A summary of the projects that were reviewed is provided below.

Reporting Period	Total Number of Project Plans Reviewed
Last Year 2013-2014	16
This Year 2014-2015	17

The table below summarizes the Priority Projects:

Priority Project Category[1]	Total Projects Reviewed
Significant Redevelopment	5
Commercial Developments (≥100,000 SF)	6
Automotive Repair Shops	0
Retail Gasoline Outlets	1
Restaurants	1
Parking Lots (≥ 5,000 SF or 25 spaces)	4
Streets and Roads (>1 acre paved surface)	0
Home Subdivisions (≥ 10 units)	0
Total	17

Note:

1. The Development Standards apply to all Priority Projects or phases of Priority Projects at the date of adoption unless the projects already had approval by the City or County Engineer, a permit for development or construction or an approved tentative map prior to the Development Standards date of adoption.

During the 2014-2015 reporting period:

Total number of Priority Projects approved: 4

Total acreage covered by the approved Priority Projects: 1.98 *(as of June 30, 2015)*

The following table provides a summary of the type and number of post-construction BMPs that were implemented as a part of the Priority Projects that were approved. Definitions and guidance for each of the controls can be found in the City's 2009 SWQCCP.

Control Measure Type	Total Number Approved
Site Design Controls	
G-1: Conserve Natural Areas	2
G-2: Protect Slopes and Channels	2
G-3: Minimize Soil Compaction	3
G-4: Minimize Impervious Area	3
Total Site Design Controls	10
Source Controls	
S-1: Storm Drain Message and Signage	3
S-2: Outdoor Materials Storage Area Design	0
S-3: Outdoor Trash Storage and Waste Handling Area Design	2
S-4: Outdoor Loading/Unloading Dock Area Design	0
S-5: Outdoor Repair/Maintenance Bay Design	0
S-6: Outdoor Vehicle/Equipment/Accessory Wash Area Design	0
S-7: Fuel Area Design	0
Total Source Controls	5
Volume Reduction Measures	
V-1: Rain Garden	0
V-2: Rain Barrel/ Cistern	0
V-3: Vegetated Roof	0
V-4: Interception Trees	0
V-5: Grassy Channel	0
V-6: Vegetated Buffer Strip	0
Total Volume Reduction Measures	0
Treatment Control Measures	
L-1: Bioretention	2
L-2: Stormwater Planter	0
L-3: Tree-well Filter	0
L-4: Infiltration Basin	0
L-5: Infiltration Trench	0
L-6: Porous Pavement Filter	0
L-7: Vegetated (Dry) Swale	0
L-8: Grassy Swale	0
L-9: Grassy Filter Strip	0
C-1: Constructed Wetland	0
C-2: Extended Detention Basin	0
C-3: Wet Pond	0
C-4: Proprietary Treatment Controls (see table below for details)	2
Total Treatment Control Measures	4

Number of Priority Projects draining to regional treatment facility[3]: 0 *(as of June 30, 2015)*

Additional detail on approval of proprietary control measures (Treatment Control Measures C-4) is provided in the table below.

Facility Name	Type of Treatment Unit
Waterloo Community Clinic	Contech Stormfilter
Chevron West	Contech Stormfilter

A summary of approved control measures is provided in the table below.

Type of Control Measure	Total Number Approved During the Reporting Period
Site Design Control Measures	10
Source Control Measures	5
Volume Reduction Measures	0
Treatment Control Measures	4
Total Projects[1]	4

Note:
1. Total Priority Projects reviewed and approved for 2009 SWQCCP requirements.

The City has a comprehensive database established for all developments projects reviewed for stormwater quality as well as for other requirements.

7.5.6 Explore Options for a GIS or Other Electronic System for Tracking Projects with Post-Construction Treatment Control BMPs

During the 2007-2008 reporting period the City developed a GIS system for tracking projects with post-construction BMPs.

7.5.7 Implement a GIS or Other Electronic System for Tracking Projects with Post-Construction Treatment Control BMPs

Information related to tracking the project while under active construction is kept within the Stormwater Construction Inspection database and is included as **Appendix F-1** (List of All Construction Sites Tracked and Inspected). Specifically, the construction inspector tracks project information including contact information, project size and WDID number.

By June 30, 2010, the City completed GIS plotting of all permanent post-construction stormwater treatment devices that had been approved and constructed within the City of Stockton up until that date. Staff also developed maps which pinpointed the location of all devices (see Appendix G-1 of the *2009-2010 Annual Report*). As new devices are constructed, they are plotted, and the maps are updated annually. During the 2010-2011 reporting year, the maps were updated with eight (8) new constructed devices (see Appendix G-1 of the *2010-2011 Annual Report*). During the 2011-2012 and 2012-2013

[3] A regional treatment facility is a treatment facility that serves more than one development project regardless of acreage

Fiscal Years, the maps were updated with eleven (11) newly constructed devices (Appendix G-1 of the *2011-2012 & 2012-2013 Annual Report*). In the 2013-2014 reporting period, ten more sites were added that included post-construction treatment features.

During the 2014-2015 reporting period, 16 indicator marks representing new devices installed on six locations were added to the map of Post-Construction Treatment Devices (**Appendix G-1**).

The location maps will assist in monitoring and maintenance and will be placed on the MUD Web site for public information.

In addition, the City tracks relevant information for all permanent post-construction stormwater treatment devices in its Post-Construction BMP Treatment Devices Database (**Appendix G-2**).

7.5.8 Conduct Inspections of Completed Priority Projects

Completed projects with post-construction treatment control BMPs are inspected annually as part of the management of Stockton Consolidated Storm Drainage Maintenance Assessment District No. 2005-1 to ensure that all approved control measures have been implemented and are being maintained. City-maintained BMPs are addressed through a contractor (see below), and privately-maintained BMPs are addressed through maintenance agreements (see Section 7.6).

During the 2010-2011 reporting period, the City developed maintenance procedures for the inspection and maintenance of the underground proprietary stormwater treatment devices operated under the Stockton Consolidated Storm Drainage Maintenance Assessment District No. 2005-1 and by the City. A total of 11 units are inspected and maintained under a contract with the City. Nine of the units are operated under the Maintenance Assessment District and exist in residential developments. The remaining two units (at Legion Park and Stockton Event Center) are owned and operated by the City at-large. A map of the Maintenance Assessment Districts is included as **Appendix G-3**.

Maintenance includes the semi-annual inspection of the treatment devices, removal of accumulated sediment, and for a few devices, replacement of filter cartridges as needed to ensure optimal operation of the units. In January 2011, initial inspections were performed to establish a baseline assessment of the condition of each of the units. A second round of inspections and a first clean-out of each of the units occurred in March 2011. After the first round of clean-outs, the units are to be inspected each fall, in advance of the winter rains, between September 15 and October 31, and again each spring, between May 1 and June 30. Routine pump-outs and any necessary maintenance on the units are to occur in the spring.

In October 2011 and June 2012, all units were inspected according to the established procedure and schedule. The inspections scheduled for fall 2012 were not completed as a result of extended delays in the City's internal process for approving the extension of the original contract.

Inspections resumed in June 2013. Only the Stockton Events Center Continuous Deflective Separation (CDS) Unit required a routine maintenance servicing clean out and cartridge replacement. Maintenance on the Stockton Events Center CDS Unit was scheduled for the 2014-2015 reporting period; however, the inspection and maintenance service contract was due to expire, so no inspections were conducted during this reporting period. A high priority has been placed on releasing a new bid in Fiscal Year 2015-2016 so that the inspection and maintenance schedule can be resumed.

7.6 LD4 – MAINTENANCE AGREEMENT AND TRANSFER

Maintenance agreements and transfers ensure that selected post-construction stormwater control measures will remain effective upon project completion. As a condition of approval for all Priority Projects, the City requires the owner/developer/successor-in-interest (ODS) of stormwater control measures to provide proof of control measure maintenance in the form of a Stormwater Treatment Device Access and Maintenance Agreement and a Maintenance Plan. Alternatively, a maintenance district zone may be established by the City.

7.6.1 Require Stormwater Treatment Device Access and Maintenance Agreement

The City integrated the development/submittal of a stormwater maintenance agreement as a condition within the project approval process for Priority Projects. To enforce the requirements of post-construction BMPs, a Maintenance Agreement is required to be executed between the City and the ODS for any private facilities who remain the responsible party in operating and maintaining the post-construction treatment control measures. However, if the project is annexed to the City, the Stockton Consolidated Storm Drainage Maintenance Assessment District No. 2005-1, established on July 26, 2005, is responsible for operation and maintenance of all post-construction treatment control measures built within each subdivision zone. Funding to provide O&M services is provided through an annual tax roll levied upon the ODS of the property in the subject district.

The SWQCCP addresses the City's Development Standards (see LD2) as well as the need for the development and submittal of Maintenance Agreements when a developer is responsible for ongoing maintenance of on-site treatment BMPs.

During the 2014-2015 reporting period, the City required the Stormwater Treatment Device Access and Maintenance Agreement as part of the project approval process.

A summary of the maintenance agreements executed during the reporting period is provided in the table below.

Agreements for City-Maintained BMPs	Agreements for Privately Maintained BMPs
0[a]	6

Note:
a. Agreements are not required for City-maintained BMPs.

7.6.2 Finalize and Populate Post-Construction BMP Tracking Spreadsheet

By June 2011, staff completed the GIS tracking of all post-construction treatment devices, both those that are privately owned and those maintained by the Stockton Consolidated Storm Drainage Maintenance Assessment District No. 2005-1. A citywide map containing all approved and fully constructed BMPs was developed. A map of the City's Assessment Districts is provided as **Appendix G-3**.

Staff also worked throughout the 2010-2011 reporting period to update property owner information for all additional privately owned properties with signed and recorded access and maintenance agreements. Due to the economic crisis and the high foreclosure rates during this time, staff experienced difficulties securing accurate property owner information of these parcels to send the new annual maintenance reminder letter.

Throughout the reporting period, staff continued to track all new post-construction treatment devices that were both approved and installed. No new Assessment Districts were added during the 2013-2014 or 2014-2015 reporting periods.

7.6.3 Finalize Post-Construction BMP Maintenance Oversight Protocols

Maintenance efforts began on the post-construction treatment devices operated under the Stockton Consolidated Storm Drainage Maintenance Assessment District No. 2005-1. City staff developed and utilized a basin maintenance inspection form that was provided as Appendix G-2 of the *2008-2009 Annual Report*.

The City's BMP maintenance oversight protocol includes sending a letter to each owner of privately maintained post-construction stormwater treatment devices reminding them of their maintenance responsibilities, as stipulated in their executed and recorded access and maintenance agreements with the city. The letter requests copies of documentation from the owner's operation and maintenance records that verifies that the unit has undergone periodic inspection, the manufacturer's general maintenance guidelines for the unit have been followed, and the unit continues to operate at peak performance. The City also sends follow-up letters to those owners who fail to respond to the first letter. This second letter indicates that failure to respond will result in an inspection completed by the City and that the owner will be invoiced for reimbursement of cost to the City as well as for any required maintenance.

7.6.4 Implement Post-Construction BMP Maintenance Oversight Protocols

The letters described above were mailed to 68 owners by certified mail on September 23, 2010. The owners were given until November 5, 2010 to respond. The City received a response from 50 (73.5%) of the owners, who sent in documentation of inspection and maintenance, notified the City that the property had been sold, or stated that their development plans had slowed and the device had not been installed. A second, more severe letter was generated and sent specifically to those owners who failed to respond to the first letter by November 5, 2010. A copy of the mailing list and letter was provided in Appendix G-3 of the *2010-2011 Annual Report*.

During the 2014-2015 reporting period, letters were sent to all owners, reminding them of their responsibility and requesting updated information by a certain date. The City will follow up with any owners that did not respond to this notification.

7.7 LD5 – TRAINING

Training is important to the successful implementation of the Planning and Land Development Program Element. An effective training program is one of the best pollution prevention BMPs that can be implemented because it prompts behavioral changes that are fundamentally necessary to protect water quality.

Areas of Focus for Training

Target Audience	Format	Subject Material
• Plan Checkers • Engineers • Building and Construction Inspectors	• Classroom	• Overview of storm water management • Stormwater Ordinance • Enforcement policy • SWQCCP and overview of post-construction control measures • Project tracking database

7.7.1 Conduct Project Planning and Design Training

City staff did not attend any training sessions relevant to Project Planning and Design during the 2014-2015 reporting period.

7.7.2 Conduct Project Inspection Training

City staff did not attend any training sessions relevant to Project Inspection during the 2014-2015 reporting period.

7.8 LD6 – EFFECTIVENESS ASSESSMENT

In order to determine the effectiveness of the Planning and Land Development Program, a comprehensive assessment of the program data is conducted as a part of the annual report. The results of this assessment are used to identify modifications that need to be made to the program. Each year the effectiveness assessment is reviewed and revised as needed.

By conducting these assessments and modifying the program as needed, the City ensures that the iterative process is used as an effective management tool. Due to the types of data collected for the Planning and Land Development Program, the assessment primarily focused on Outcome Level 1.

- Outcome Level 1 (L1) answers the question: Did the City implement the components of the Permit and the SWMP?

The table below summarizes the effectiveness assessment that was conducted for the Planning and Land Development Program Element. Additional detail for each component of the assessment is provided on the following pages. It should be noted that Outcome Levels 5 and 6 will only be assessed as a part of the Water Quality Based Programs and the Monitoring Program on a longer term basis since those analyses rely on environmental data.

Program Effectiveness Assessment Summary for Planning and Land Development

Planning and Land Development	Level 1	Level 2	Level 3	Level 4
	Implement Program	Increase Awareness	Behavior Change	Load Reduction
LD1 - Incorporation of Water Quality Protection Principles into City Procedures and Policies	C – Reviewed CEQA Documents	N/A	N/A	N/A
LD2 - New Development Standards	C – Required Implementation of 2009 SWQCCP C – Reviewed Local Development Standards	N/A	N/A	N/A
LD3 - Plan Review Sign-Off	C – Used Plan Review Database and Required SWQCP Submittal C – Participated on DRC C – Reviewed Project Plans for BMPs C – Implemented BMP Tracking System	A	N/A	N/A
LD4 - Maintenance Agreement and Transfer	C – Required Maintenance Agreement C – Used GIS to Track Post-Construction Treatment Devices	N/A	N/A	N/A
LD5 - Training	A	A	N/A	N/A

C – An effectiveness assessment was conducted during the reporting periods.
A – It is anticipated that an effectiveness assessment may be conducted in future annual reports
N/A – This outcome level is not applicable for this control measure

The following is a general assessment regarding the effectiveness of the Planning and Land Development Program:

LD1 - Incorporation of Water Quality Protection Principles into City Procedures and Policies

The City's current CEQA review process includes procedures for considering potential stormwater quality impacts and providing for appropriate mitigation. The City's MUD reviews all CEQA documents, responding to checklist items under the Hydrology and Water Quality section. **(L1)**

LD2 - New Development Standards

Since mid-July 2009, the City has required Priority Projects to implement the 2009 SWQCCP. A fact sheet and Volume Reduction Calculator were developed to communicate changes to the SWQCCP and assist with compliance. **(L1)**

The City reviewed local development standards for compatibility with the 2009 SWQCCP and determined that the majority of Stockton's codes and ordinances do not present barriers to the 2009 SWQCCP. The City will continue to hold a dialogue with Public Works staff to discuss the potential to update the Standard Specifications during any future revisions. **(L1)**

LD3 - Plan Review Sign-Off

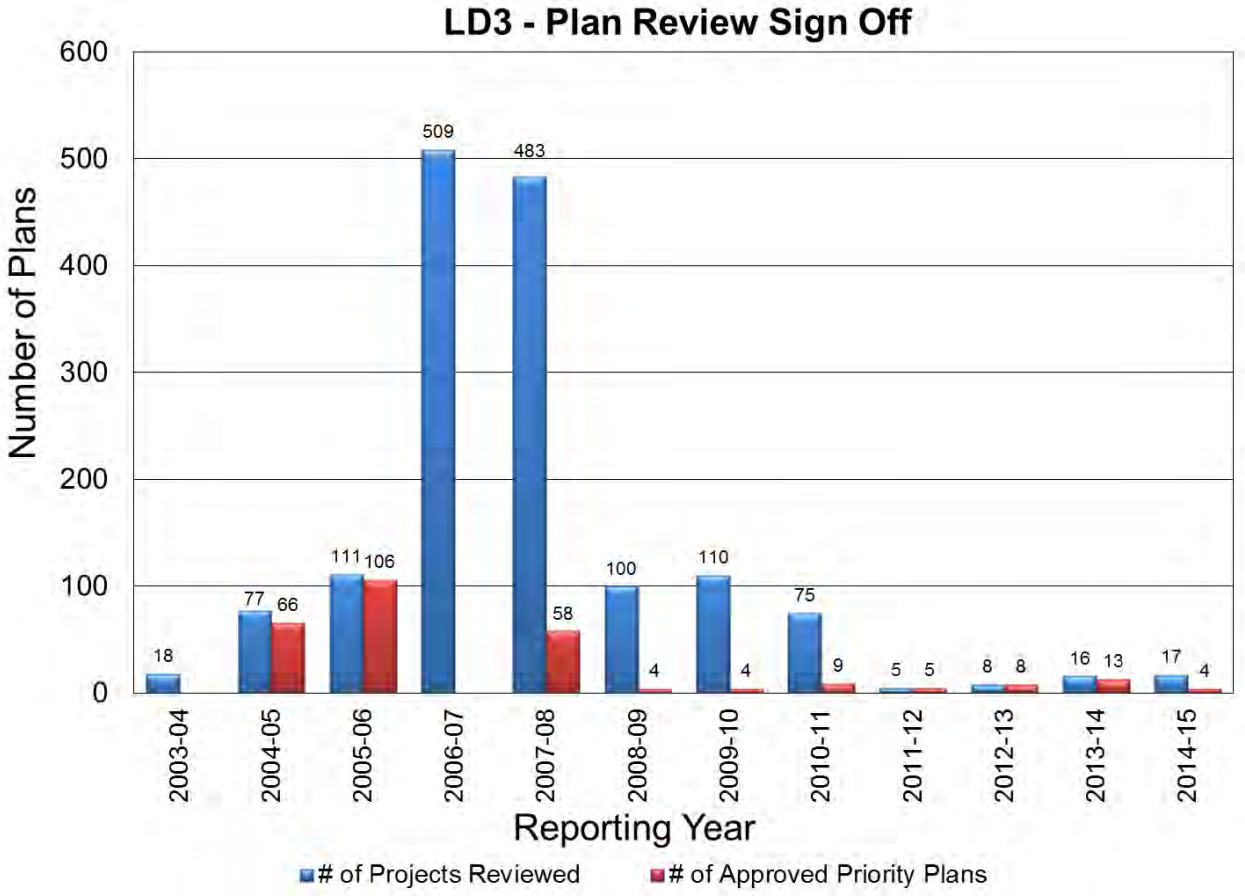
The City continued to require submittal of a Stormwater Quality Control Plan (SWQCP) that documents how the project is complying with the 2009 SWQCCP. The City also uses the Microsoft Excel Volume Reduction Requirement Calculator to document control measures proposed on the site plan. **(L1)**

The City's Development Review Committee (DRC), which is made up of representatives from various departments, primarily reviews and approves larger projects and subdivisions and ensures that the erosion control, SWPPP requirements, and post-construction controls are identified and included on the tentative map. A MUD representative continues to participate on the DRC to ensure that post-construction stormwater quality controls are addressed and included during the planning of new development projects. **(L1)**

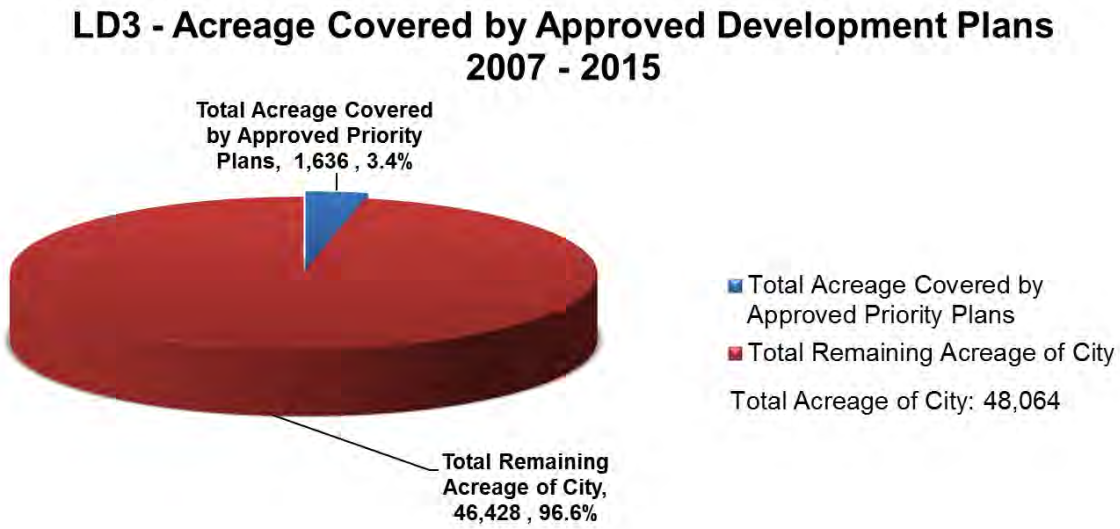
During 2014-2015, the City participated in three DRC meetings to ensure that post-construction stormwater quality controls are addressed and included during the planning of new priority projects. **(L1)**

The City has a comprehensive database established for all development projects reviewed for stormwater quality issues as well as for other requirements. **(L1)**

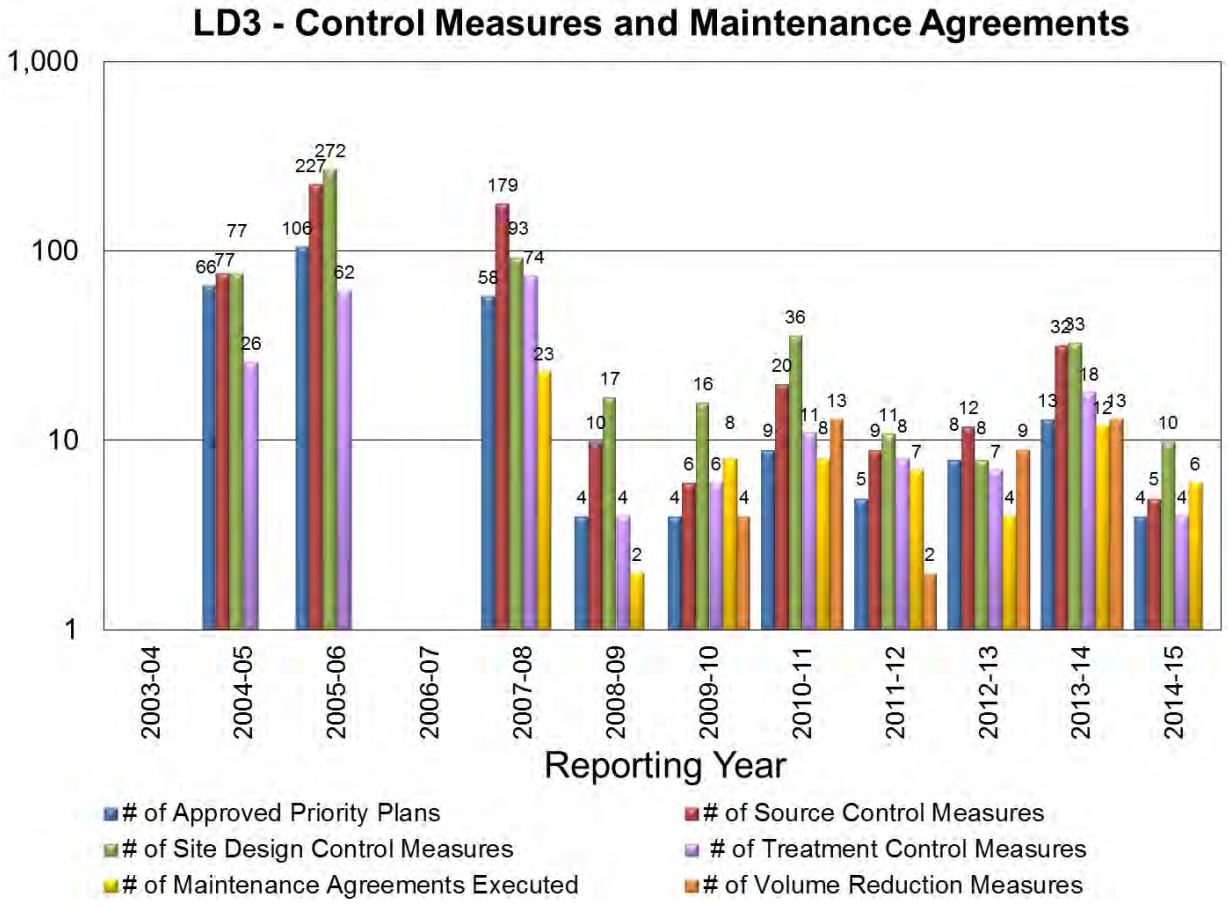
Since 2003, the City has reviewed and approved 277 Priority Project plans. Due to the current economic climate, the City has continued to see low numbers of development applications since 2007-2008, including Priority Projects. This is reflected in the figure below. **(L1)**



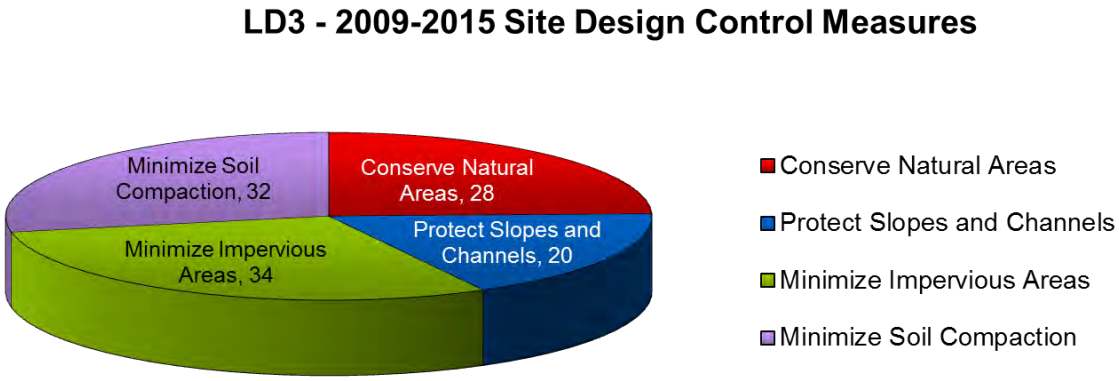
As illustrated in the figure below, approximately 3.4% of the City's acreage is covered by approved Priority Project plans. **(L1)**



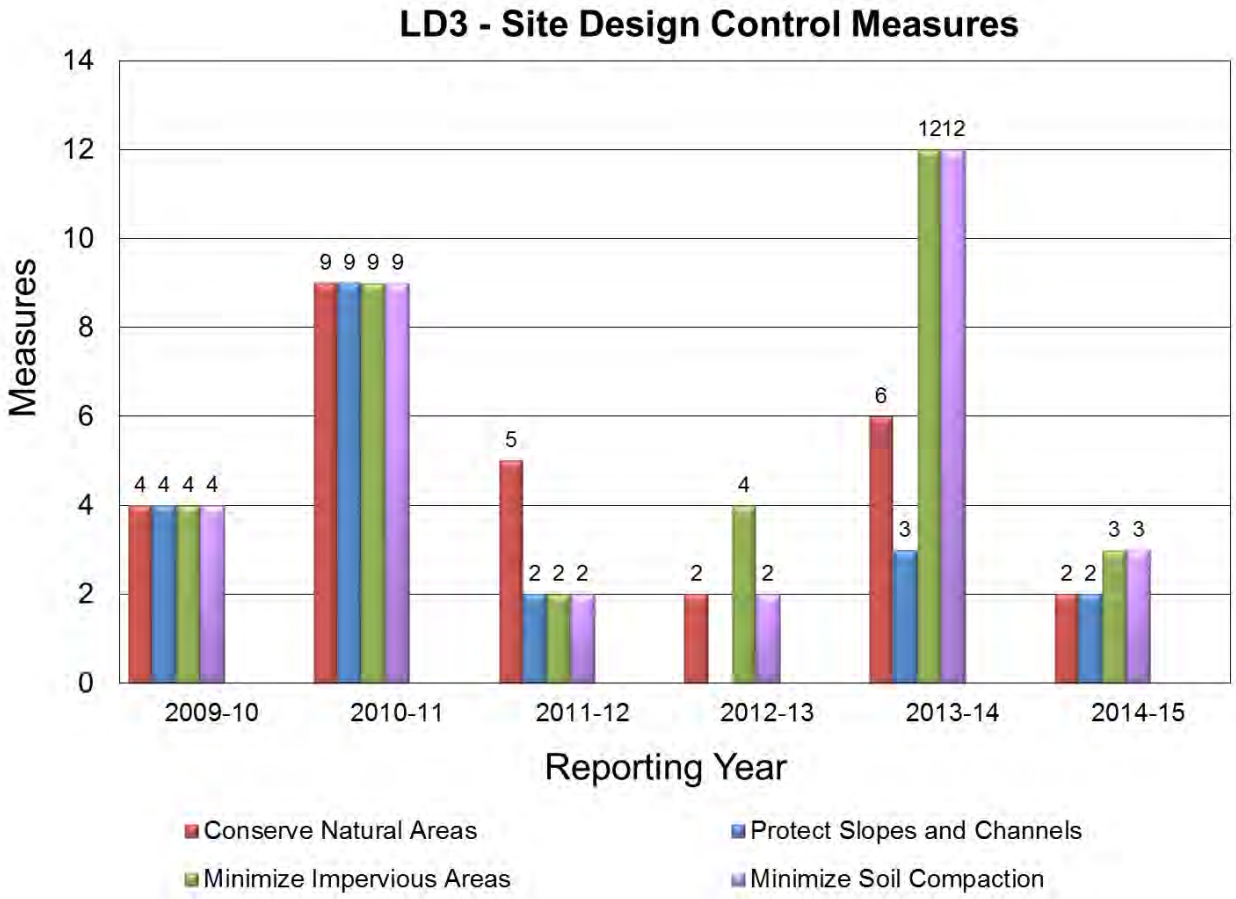
Since 2003, 573 Site Design Control Measures, 577 Source Control Measures (i.e., site-specific control measures), 41 Volume Reduction Measures, and 220 Treatment Control Measures have been incorporated for 277 priority projects. (Note that Volume Reduction Measures were not required until the adoption of the revised SWQCCP in 2009.) **(L1)**



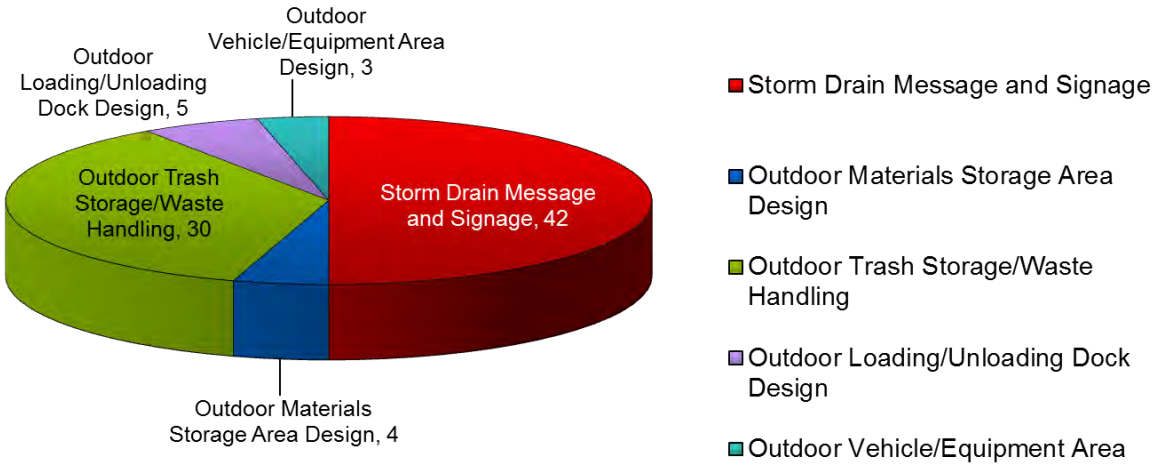
Since the 2009 SWQCCP was approved, priority projects have included a variety of all four categories of control measures (site design, source control, volume reduction, and treatment control), as shown in the figures below. **(L1)**



Total: 114 Site Design Control Measures

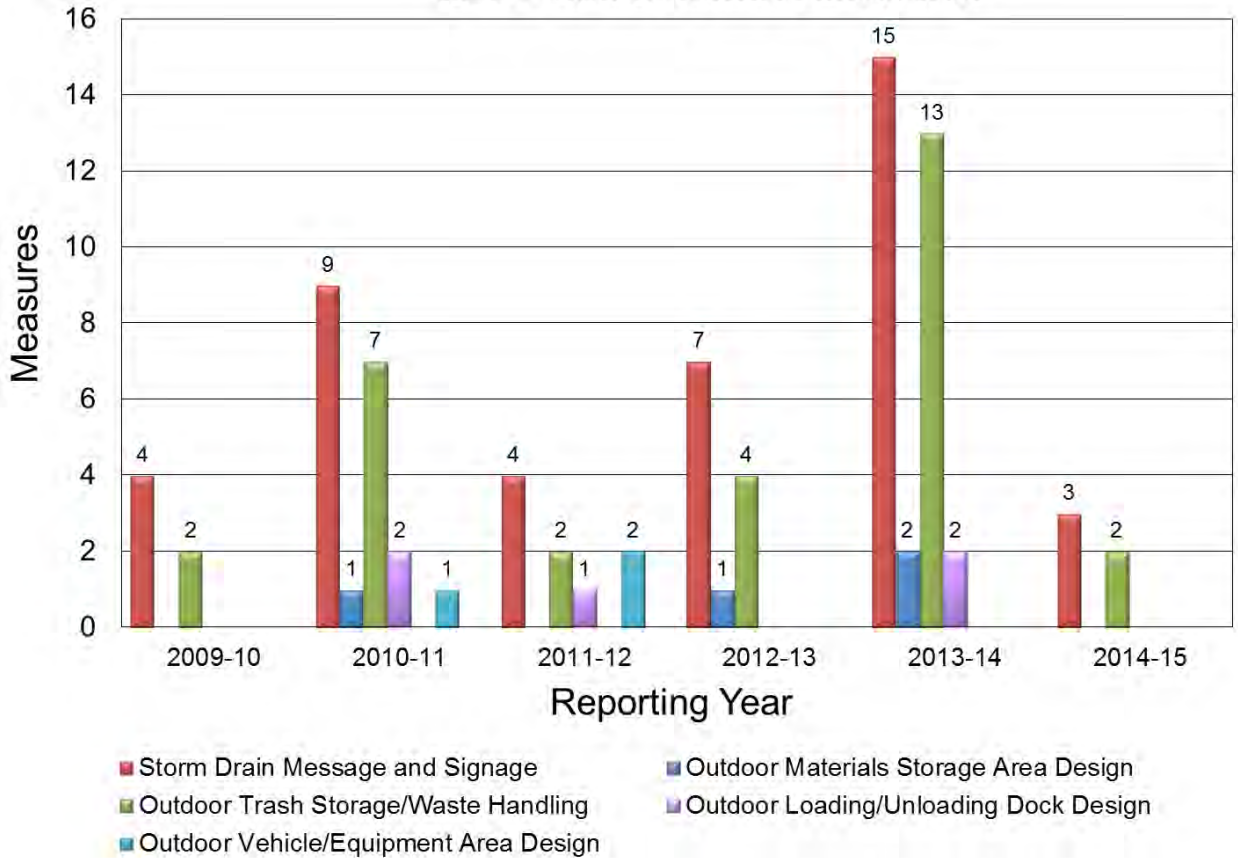


LD3 - 2009-2015 Source Control Measures

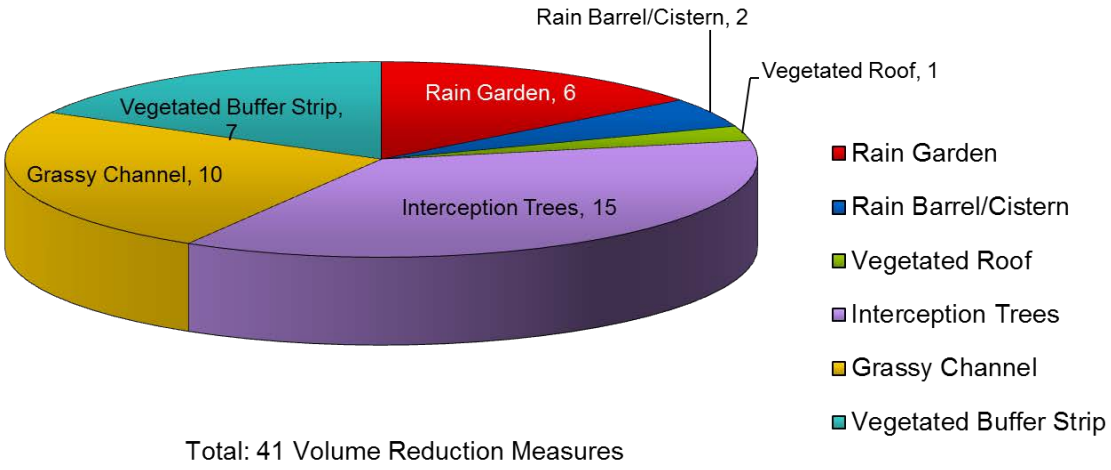


Total: 84 Source Control Measures

LD3 - Source Control Measures

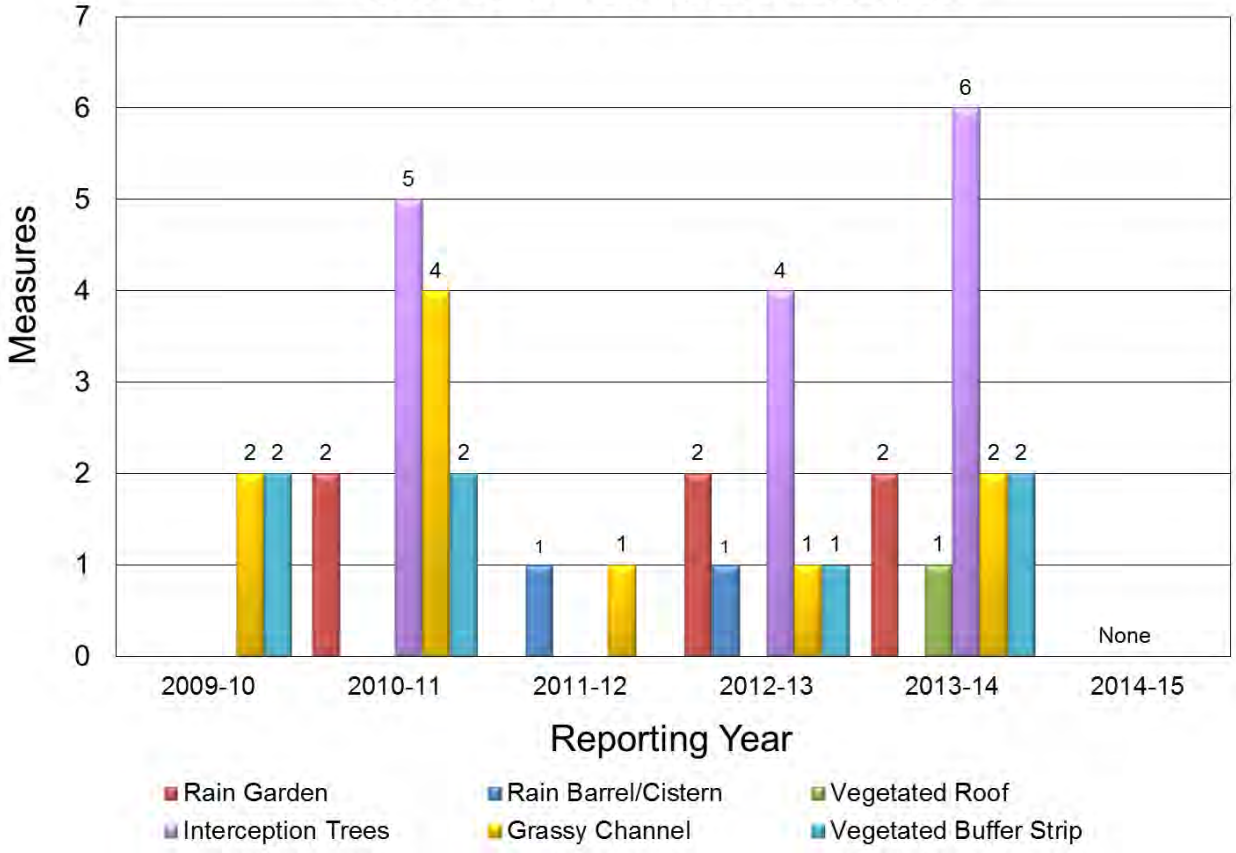


LD3 - 2009-2015 Volume Reduction Measures

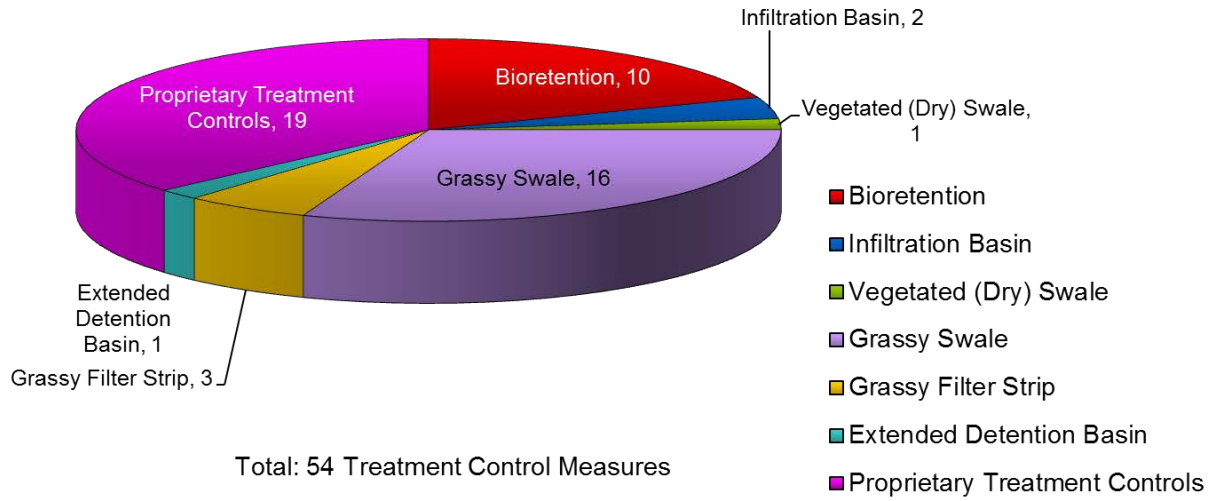


Total: 41 Volume Reduction Measures

LD3 - Volume Reduction Measures

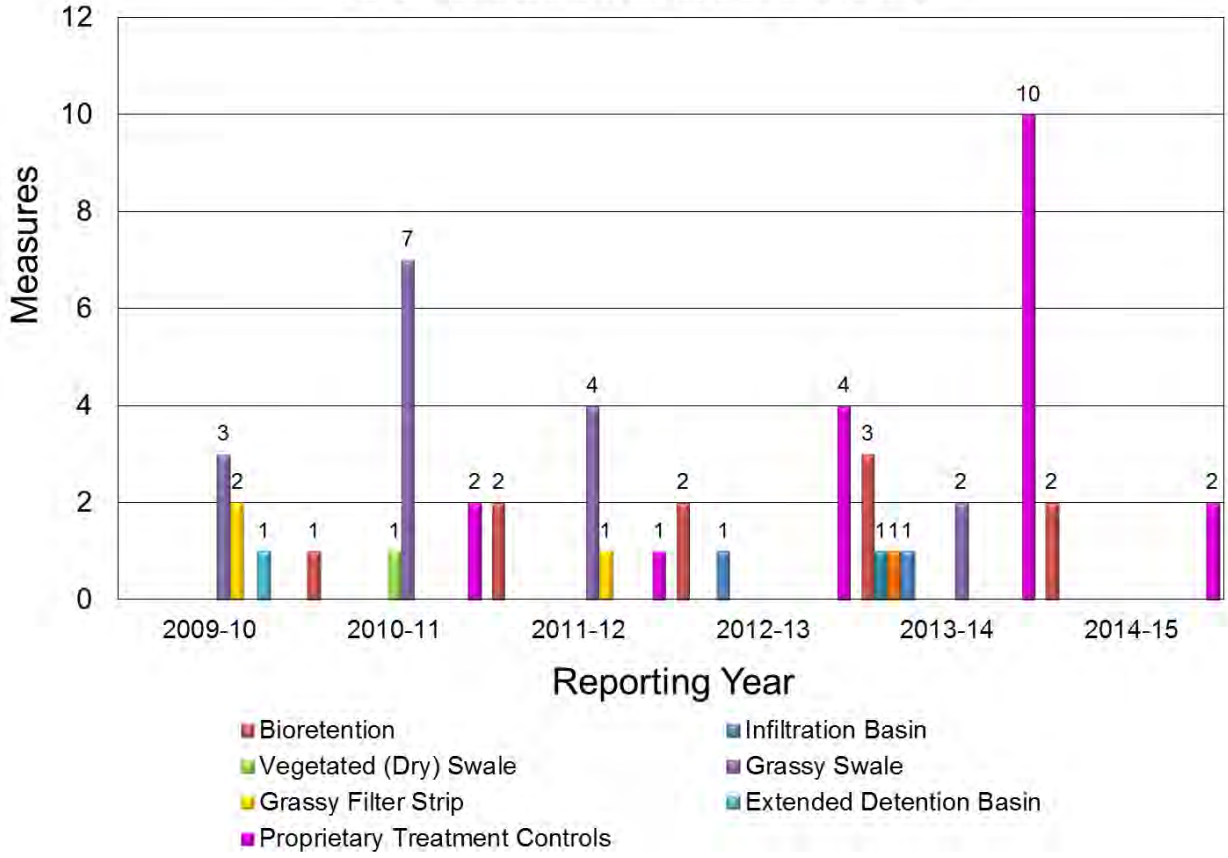


LD3 - 2009-2015 Treatment Control Measures



Total: 54 Treatment Control Measures

LD3 - Treatment Control Measures



The City completed the GIS layer of all post-construction BMPs that have been approved and constructed within the City to date. The City will continue to develop layers that identify devices maintained by the Consolidated Storm Drainage Maintenance Assessment District and identify the properties that benefit from those devices. **(L1)**

LD4 - Maintenance Agreement and Transfer

The City continues to require and execute maintenance agreements for all post-construction BMPs. Six maintenance agreements were executed in the 2014-2015 reporting period. All six agreements will be privately maintained. **(L1)**

The City continues to implement GIS as a method for tracking post-construction BMPs. **(L1)**

7.9 PLANNING AND LAND DEVELOPMENT PROGRAM MODIFICATIONS

Each year, the City submits a work plan to the Regional Water Board for the activities that will be completed during the upcoming fiscal year. The 2015-2016 work plan identified several key tasks for this Program Element. In addition, as part of the ROWD process, the City has evaluated the effectiveness of program implementation during the Permit term, as well as the experience that staff has had in implementing the program, to identify the performance standards for the Control Measures under this Program Element for the next permit term. Through the development of the annual report, the annual work plan, and the ROWD, the City has determined if any additional program modifications are necessary in order to ensure that the stormwater management program is effective.

No modifications were identified for the upcoming permit term for this Program Element.

Section 8

Water Quality Monitoring Program

The Permit requires monitoring of urban runoff and receiving waters as detailed in the Monitoring and Reporting Program (MRP). The MRP requires the characterization of urban runoff and receiving waters, water column toxicity, sediment toxicity monitoring, and an assessment of the effectiveness of the control measures. Characterization elements are designed to monitor trends over long-term periods and to identify specific constituents of concern (COCs). Water Quality Based Programs related to identified COCs (pesticides, pathogens, mercury, and low dissolved oxygen) are further used to identify the geographic and temporal scale of urban runoff impacts with respect to these constituents (see Section 9).

A brief description of the monitoring elements specified in the MRP is provided in **Table 8-1**. For the purposes of the Annual Report, elements prescribed in Sections II.A through II.F are grouped under the title of "baseline monitoring". Elements prescribed in Sections II.G, II.H, III.A, and III.B are grouped under the title of "supplemental monitoring," since each of these elements has its own work plan and monitoring sites. Water Quality Based Programs prescribed in Section II.I are discussed in Section 9 of this Annual Report.

Table 8-1. Monitoring and Reporting Program Sections and Associated Programs

MRP Section	General Description	General Information (Section 10)	Baseline Program (Section 8)	Supplemental Program (Section 8)	Water Quality Based Programs (Section 9)
I	Guidance for submission of work plans and reports including Annual Report	X			
II.A	Requirements for baseline monitoring, which is described as coordinating monitoring of urban discharge and receiving waters		X		
II.B	Sampling protocol		X		
II.C	Urban Discharge Monitoring		X		
II.D	Receiving Water Monitoring		X		
II.E	Water Column Toxicity Monitoring		X		
II.F	Dry Weather Field Screening		X		
II.G	Sediment Toxicity Monitoring			X	
II.H	Bioassessment Monitoring			X	
II.I	Water Quality Based Programs				X
III.A	Detention Basin Monitoring			X	
III.B	BMP Effectiveness Study			X	

8.1 BASELINE MONITORING ACTIVITIES

The baseline monitoring focuses on urban runoff discharges, receiving waters, water column toxicity, and dry weather field screening. The urban runoff discharge, receiving water, and water column toxicity monitoring are coordinated activities so that the monitoring for each occurs on the same day and receiving water and water column toxicity monitoring are collected at the same sites. Dry weather field screening is conducted during each monitoring year as needed to ensure that the Permittees evaluate all of their outfalls at least once during the Permit term.

Baseline monitoring activities completed during 2014-2015 are summarized in **Table 8-2** and discussed in the following sections.

Table 8-2. 2014-2015 Baseline Monitoring and Reporting Program Accomplishments

Monitoring Activity	Status
Urban Runoff Discharge Characterization (see Section 8.1.2)	• 2 wet weather events successfully monitored at 4 sites (10/31/14 and 12/11/14) • 2 dry weather events successfully monitored at 4 sites (8/26/14 and 4/20/15) • All events coordinated with receiving water monitoring
Receiving Water Monitoring (see Section 8.1.2)	• 2 wet weather events successfully monitored at 4 urban sites (10/31/14 and 12/11/14) • 2 dry weather events successfully monitored at 4 urban sites (8/26/14 and 4/20/15) • 1 dry weather event successfully monitored at 3 upstream sites (8/26/14) • All events coordinated with urban runoff discharge and water column toxicity monitoring
Water Column Toxicity (see Section 8.1.3)	• 2 wet weather events successfully monitored at 4 urban sites (10/31/14 and 12/11/14) • 2 dry weather events successfully monitored at 3 upstream sites and 4 urban sites (8/26/14 and 4/20/15) • All events coordinated with receiving water monitoring
Dry Weather Field Screening (see Section 8.1.4)	• 100% of the County outfalls screened • > 20% of the City outfalls screened

8.1.1 Storm Tracking and Selection

Monitoring of stormwater runoff is a key component of the baseline monitoring program and requires a high level of coordination of equipment and field crews. Incoming storms are tracked and assessed against storm selection criteria (e.g., amount of precipitation, days since last rain event, duration of event) and the forecasted reliability that the storm will occur in the SUA. Wet weather monitoring is particularly challenging in the SUA, as rainfall forecasts are often unreliable due to the convective nature of incoming storms. In addition, because storms normally intersect Stockton traveling from the west to the east, it is not unusual for northern Stockton to receive substantial rainfall, while southern Stockton remains dry, or vice versa.

Wet weather events are timed to capture urban runoff impacts with the highest possible representation of the targeted storm event (i.e., high percent capture), using flow-based composite samplers at urban discharge stations when possible. Grab sampling techniques, which are, when feasible, conducted near the peak of storm event hydrographs, are used at all receiving water stations. Due to standard method requirements, grab sampling is used for the following constituents at urban discharge stations:

- Oil and grease;
- Indicator bacteria (*E. coli*, fecal coliform, and total coliform);
- Pesticides; and
- Mercury/ methylmercury.

The daily total rainfall at the Stockton Metro Airport[1] during the 2014-2015 monitoring year[2] is shown in **Figure 8-1**. The total cumulative seasonal rainfall is also shown (compared to the historic average[3]) as well as the timing of monitoring events. Historic average annual rainfall at the Stockton Metro Airport is 14 inches. The 2014-2015 monitoring year was dryer than average with 11.25 inches of rain, which is 80% of historic annual rainfall. The California Department of Water Resources classified the 2014 water year (ending September 30, 2014) as "critically dry" for the San Joaquin Valley.

[1] http://cdec.water.ca.gov/cgi-progs/selectQuery?station_id=SOC&dur_code=D&sensor_num=45&start_date=07/01/2014+00:00&end_date=06/30/2015+00:00

[2] 7/1/14 to 6/30/15

[3] Based on 1981-2010 data. http://www.cnrfc.noaa.gov/awipsProducts/RNOWRKCLI.php

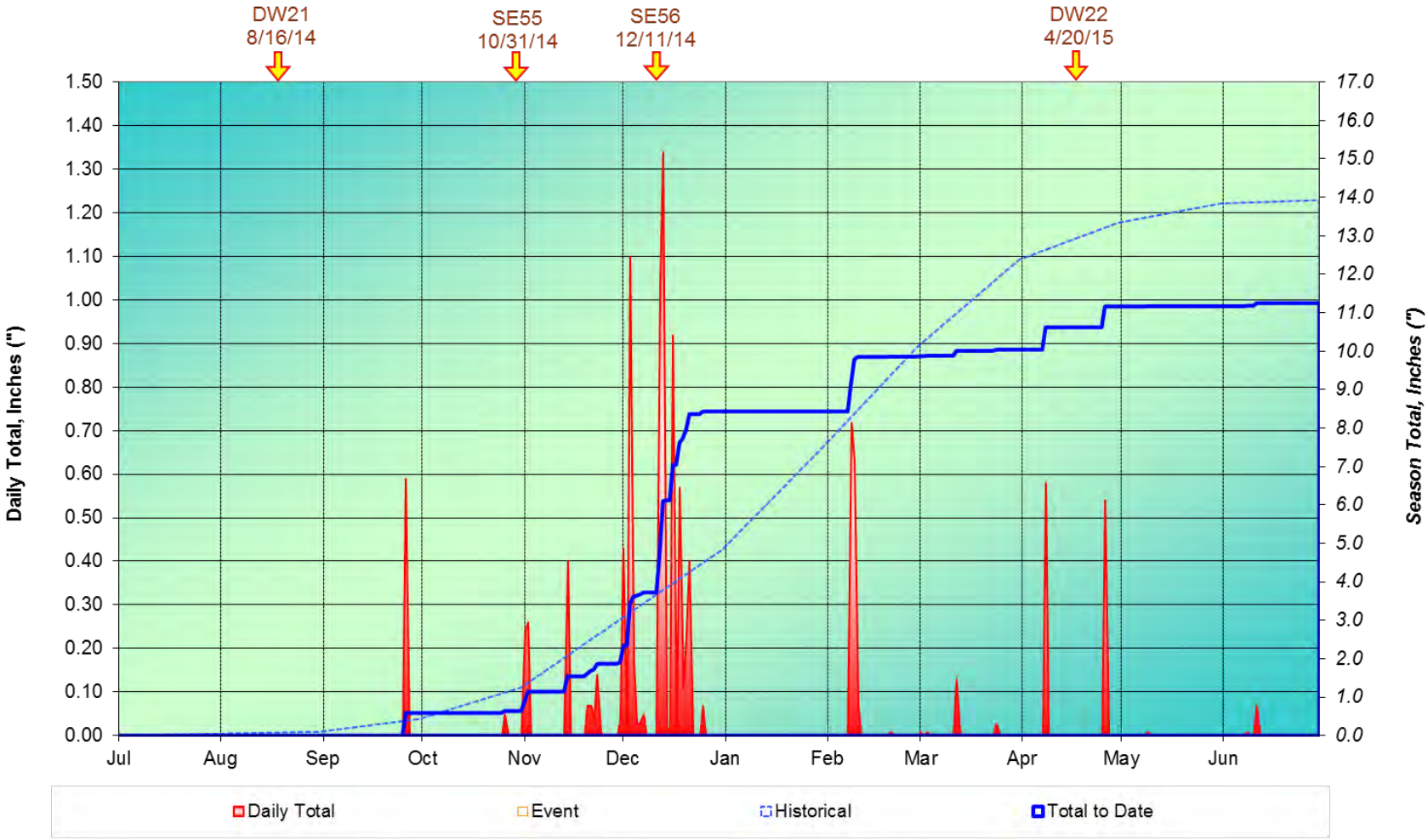


Figure 8-1. 2014-2015 Precipitation at Stockton Metro Airport and Captured Monitoring Events[4]

[4] Precipitation data is taken from the Stockton Metro Airport. Data for this site is available at: http://cdec.water.ca.gov/cgi-progs/selectQuery?station_id=SOC&dur_code=D&sensor_num=45&start_date=07/01/2014+00:00&end_date=06/30/2015+00:00

8.1.2 Urban Runoff Discharge and Receiving Water Monitoring

Provisions II.C and II.D of the MRP require the Permittees to conduct urban discharge and receiving water monitoring. Urban discharge monitoring characterizes the quality of urban runoff discharged from four storm drain outfalls within the SUA. In addition, receiving water monitoring characterizes the quality of the receiving waters within the SUA. Four receiving water sites were sampled downstream of the urban discharge sites to gauge the potential impact of the discharge on receiving waters. The co-located sites are used to help determine if the urban discharge is causing or contributing to exceedances of applicable water quality objectives (discussed in Section 8.4).

The MRP also requires three additional upstream sites (upstream of the SUA boundary) in order to characterize the quality of water entering the SUA. Three upstream sites rather than four are required because, of the four watersheds with urban discharge sites, only three extend upstream past the border of the SUA. The upstream receiving water sites are intended to be as close to the boundary of the SUA as possible; however, waterbodies at the boundary of the SUA are often seasonally dry, so upstream locations were selected as close to the SUA boundary as possible where flow was most likely to be present. For example, to increase the number of events where the Calaveras River was sampled upstream, the upstream receiving water site was moved to the Stockton Diverting Canal at the South Main Street Bridge in 2010-2011[5].

The following watersheds contain baseline urban discharge monitoring sites, receiving water monitoring sites, and upstream receiving water monitoring sites (where applicable):

- Mosher Slough (MS)
- Calaveras River (CR)
- Duck Creek (DC)
- Smith Canal (SC)

Monitoring sites that were sampled in 2014-2015 are shown in **Figure 8-2** (higher resolution maps are included in **Appendix H-1**).

- Urban discharge sites are labeled with a station and number code (e.g., MS-14)
- Urban receiving water sites are labeled with an "R" for receiving water (e.g., MS-14R).
- Sites upstream of the SUA are labeled with an "RUS" for receiving water, upstream (e.g., MS-14RUS). It should be noted that the Calaveras River upstream receiving water site is labeled CR-1 because it was moved from its previous location (CR-46RUS), to a preexisting monitoring location.

[5] A formal request for consideration was sent to the Regional Water Board during 2009-2010 to change the monitoring location. The Permittees received no response, but proceeded with the site change so as to collect more upstream samples.

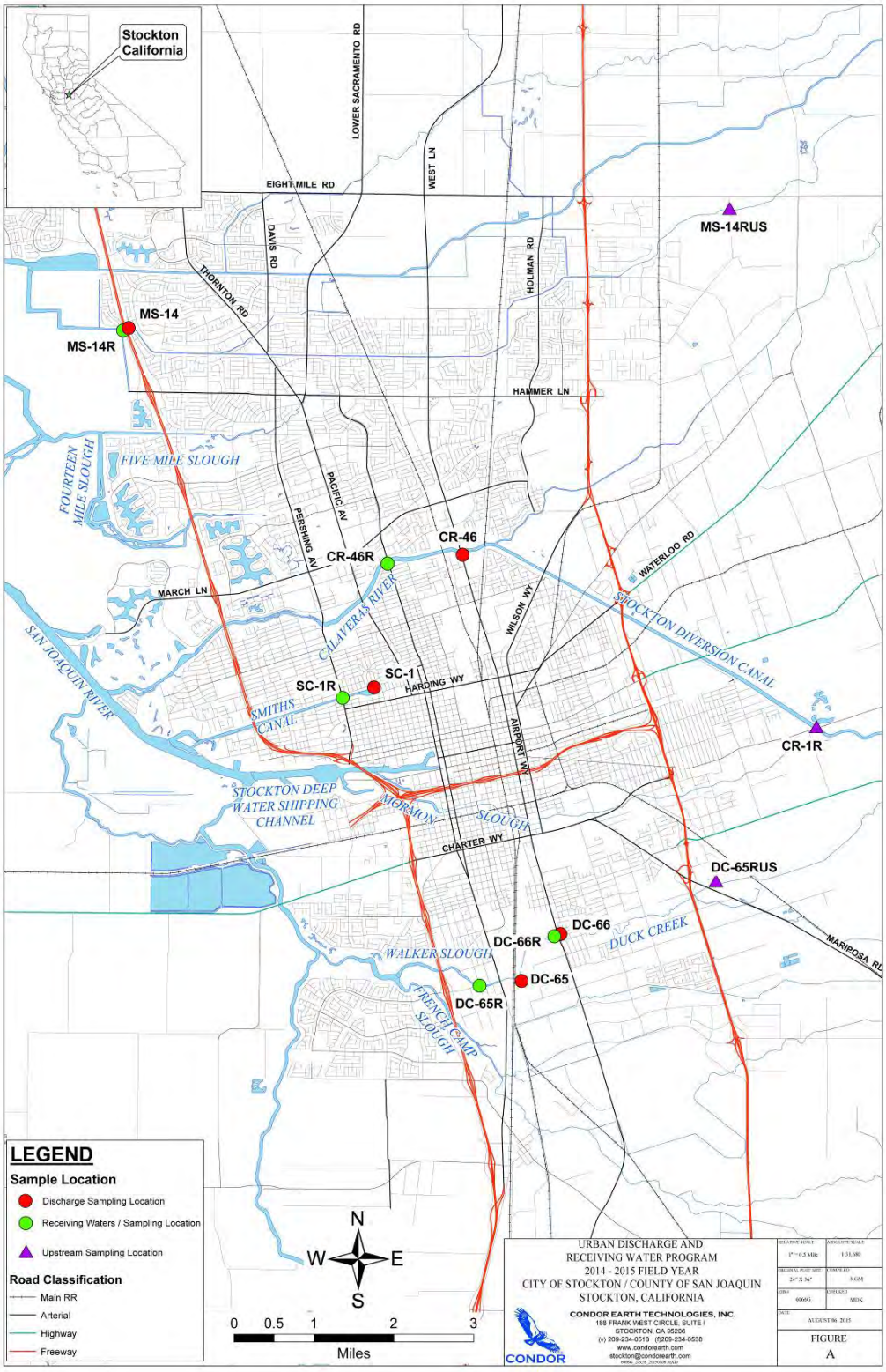


Figure 8-2. 2014-2015 Urban Runoff and Receiving Water Monitoring Locations

Urban discharge monitoring sites are outfalls representative of the various land uses within the urbanized area. The selected urban discharge monitoring sites are representative of commercial, industrial, residential, and mixed land uses. The urban discharge and receiving water monitoring sites and corresponding land uses are summarized in **Table 8-3**.

Table 8-3. 2014-2015 Urban Discharge and Receiving Water Monitoring Sites

Monitoring Program	Station ID	Monitoring Site Location	Predominant Land Use	Drainage Area (acres)
Urban Discharge	MS-14	9211 Kelly Drive	Residential	533
	CR-46	4250 North West Lane	Commercial	169
	DC-65[a]	555 Zephyr Drive	Industrial	343
	DC-66[a]	2916 South Airport Way	Mixed use	399
	SC-1	840 Baker Place	Mixed use	1,866
Receiving Water	MS-14R	Mosher Slough at Mariners Drive Bridge	Residential	NA
	CR-46R	Calaveras River at east side of the bridge for El Dorado St.	Commercial	NA
	DC-65R[b]	Duck Creek at Odell Ave. over-crossing	Industrial	NA
	DC-66R[b]	Duck Creek on west side of the South Airport Way Bridge	Mixed Use	NA
	SC-1R	Smith Canal at east side of the bridge for Pershing Avenue	Mixed use	NA
Receiving Water – Upstream Sites	MS-14RUS	Mosher Slough on east side of the over-crossing at Hildreth Lane	Agricultural	NA
	CR-1	Calaveras River at South Main Street Bridge	Agricultural / Open space	NA
	DC-65RUS	Duck Creek at Stagecoach Road	Industrial / Agricultural	NA

Notes:
NA = Not Applicable
a. The Duck Creek urban discharge sampling location during dry weather events is DC-66, and DC-65 for wet weather events. The discharge from DC65 is diverted to the sanitary sewer during most of the dry weather season.
b. The Duck Creek receiving water sampling location during dry weather events is DC-66R, and DC-65R for wet weather events.

The MRP requires monitoring during two wet weather events and two dry weather events each year. Monitoring was completed during 2014-2015 at each urban discharge and receiving water site twice during the wet season and twice during the dry season. The timeline of the 2014-2015 events is shown in **Figure 8-1**. The sites that were sampled during each event are listed in **Table 8-4**. Wet weather events (labeled "SE" for storm event) and dry weather events (labeled "DW" for dry weather) are numbered from the initiation of monitoring wet weather and dry weather events (in 1992 and 2004, respectively).

Table 8-4. Sites Sampled and Type of Sample Collected in 2014-2015

Monitoring Program	Station ID	DW21 8/26/14	SE55 10/31/14	SE56 12/11/14	DW22 4/20/15
Urban Discharge	MS-14	G	C	G[1]	G
	CR-46	G	C	C	G
	DC-65/DC-66	G*	G[2]	G[2]	G*
	SC-1	G	C	C	G
Receiving Water	MS-14R	G	G	G	G
	CR-46R	G	G	G	G
	DC-65R/DC-66R	G*	G	G	G*
	SC-1R	G	G	G	G
Upstream Receiving Water	MS-14RUS	G	NS	NS	NS
	CR-1	G	NS	NS	NS
	DC-65RUS	G	NS	NS	NS

Notes:
C = Composite
G = Grab
NS = Not sampled due to lack of representative upstream flow / dry channel.
* Dry weather Duck Creek samples were collected at DC-66 and DC-66R
1: Duck Creek DC-65 sampling equipment was not functioning properly during both wet weather events; samples were collected as grabs
2: Mosher Slough MS-14 sampler had electrical issues; samples were collected as grabs

Details of 2014-2015 Urban Runoff Discharge and Receiving Water Wet Weather Monitoring Events

Each monitoring event is unique in terms of the antecedent weather conditions, flow in the waterbody, field conditions, etc. Runoff quality is particularly influenced by the amount and intensity of rainfall and time of sampling with respect to the rainfall hydrograph. While field notes are taken during dry weather events, more in-depth field measurements are taken to characterize wet weather events. Accordingly, field measurements for wet weather event SE55 are summarized in **Table 8-5** and field measurements for wet weather event SE56 are summarized in **Table 8-6.**

Table 8-5. Details of Wet Weather Event SE55 on 10/31/14

Locations	MS	CR	DC	SC
Time of first rain		12:55 10/31/14		
Time of last rain		16:25 10/31/14		
Total rain (in)		0.31		
Time of first sample	14:41	13:47	-	14:38
Time of last sample	16:06	15:16	-	16:36
Total runoff volume (kcf)	132.33	26.68	-	231.10
Percent storm capture	100	100	-	100
Number of successful aliquots	32	39	0	39
Total sampling time (hrs)	1.5	1.5	-	2
Grab sample time	16:12	15:05	15:50	15:40
Upstream Receiving Water Conditions				
Sampling time Flow measurement time Velocity (fps) Width (ft) Depth (ft)	Insufficient flow to take upstream receiving water sample	Insufficient flow to take upstream receiving water sample	Lack of represent-ative upstream flow	No upstream receiving water site
Downstream Receiving Water Conditions				
Sampling time	16:50	15:45	16:30	16:20
Flow measurement time	16:50	15:45	16:30	16:20
Velocity (m/s)	3	0.1	1	0.1
Width (ft)	88	60	48	120
Depth (ft)	4.25	5.5	2.5	6.2
Antecedent Conditions[1]				
Time of last precipitation				
Date of last storm > .1		09/26/2014		
Time since last storm		35 days		
Date of last storm > .25		09/26/2014		
Time since last storm		35 days		
Cumulative rainfall to date (in)		0.82 (7/1/14 to 10/30/14)		

Notes:

1. Precipitation data is taken from the Stockton Metro Airport. Data for this site is available at: http://mesowest.utah.edu/cgi-bin/droman/download_ndb.cgi?stn=KSCK&year1=2014&day1=19&month1=6&hour1=&timetype=LOCAL&unit=0

Table 8-6. Details of Wet Weather Event SE56 on 12/11/14

Locations	MS	CR	DC	SC
Time of first rain		10:55 12/11/14		
Time of last rain		12:55 12/12/14		
Total rain (in)		1.51		
Time of first sample		1054	-	1132
Time of last sample		1631	-	1312
Total runoff volume (kcf)	486.44	252.87	-	1,164.40
Percent storm capture	-	100	-	100
Number of successful aliquots	0	39	0	39
Total sampling time (hrs)	-	5.6	-	1.7
Grab sample time	11:05	11:10	10:50	11:18
Upstream Receiving Water Conditions				
Sampling time Flow measurement time Velocity (fps) Width (ft) Depth (ft)	Insufficient flow to take upstream receiving water sample	Insufficient flow to take upstream receiving water sample	Lack of represent-ative upstream flow	No upstream receiving water site
Downstream Receiving Water Conditions				
Sampling time	11:50	12:00	12:30	12:26
Flow measurement time	11:50	12:00	12:30	12:26
Velocity (m/s)	1.8	NR	0.75	1.5
Width (ft)	88	60	48	120
Depth (ft)	6	10	3.5	5
Antecedent Conditions[1]				
Time of last precipitation				
Date of last storm > .1		12/03/2014		
Time since last storm		8 days		
Date of last storm > .25		12/03/2014		
Time since last storm		8 days		
Cumulative rainfall to date (in)		3.9 (7/1/14 to 12/10/14)		

Notes:

1. Precipitation data is taken from the Stockton Metro Airport. Data for this site is available at: http://mesowest.utah.edu/cgi-bin/droman/download_ndb.cgi?stn=KSCK&year1=2014&day1=19&month1=6&hour1=&timetype=LOCAL&unit=0

NR: Not recorded, water surface covered with hyacinth, preventing flow measurement

Monitored Constituents and Analytical Methods

The constituents and corresponding analytical methods for urban discharge and receiving water monitoring are in accordance with the reporting limits (RLs) that are specified in the MRP. During the 2014-2015 events, samples were analyzed according to the methods shown in **Table 8-7.**

Table 8-7. Constituent Analysis for Urban Runoff Discharge and Receiving Water Monitoring

Constituent	EPA Method Used in Analysis	Target Reporting Limit	Units
Conventionals			
Turbidity	180.1	0.1	NTU
Total Suspended Solids	160.2	2	mg/L
Total Dissolved Solids	160.1	2	mg/L
Total Organic Carbon	415.3	1	mg/L
Biochemical Oxygen Demand	405.1	2	mg/L
Chemical Oxygen Demand	SM 5220D	20 - 900	mg/L
Alkalinity	310.1	2	mg/L
Oil and Grease	1664A	5	mg/L
Specific Conductance	120.1	1	µmhos/cm
pH	SM 4500-H+B	0.0 - 14.0	std. units
Temperature	Field	0.1	ºC
Dissolved Oxygen	Field	0.1	mg/L
Nutrients			
Total Phosphorous	365.1	0.05	mg/L
Nitrate-Nitrite	300.0	0.1	mg/L
Total Ammonia-Nitrogen	350.1	0.1	mg/L
Total Kjeldahl Nitrogen	351.2	0.1	mg/L
Bacteria			
E. coli (fresh waters)	SM 9223B	10	MPN/100mL
Fecal coliform	SM 9221B	20	MPN/100mL
Total coliform	SM 9221B/9223B	20	MPN/100mL
Metals			
Aluminum (Al)	200.8	50	µg/L
Copper (Cu)	200.8	0.5	µg/L
Iron (Fe)	200.8	100	µg/L
Lead (Pb)	200.8	0.5	µg/L
Mercury (Hg)	1631E	0.5	ng/L
Methylmercury	Draft EPA 1630	0.05	ng/L
Zinc (Zn)	200.8	1	µg/L
Hardness	SM 2340H+B	2	µg/L
Pyrethroids	625mNCI	5	ng/L
Organophosphate Pesticides	625m		µg/L
Chlorpyrifos		0.01	µg/L
Diazinon		0.05	µg/L

Urban discharge and receiving water quality results for the constituents in **Table 8-7** are included in **Appendix H-2**, which contains the following information:

- Sample location
- Station type (urban discharge [UD] or receiving water [RW])
- Sampling method (composite or grab)
- Sample date and time
- Sample result
- Method detection limits (MDLs)
- RLs
- Data qualifiers
- Comparison to the lowest applicable water quality objective (WQO)
- The analyzing laboratory

For analyses that were non-detect, the value is reported as less than the MDL where the MDL is provided by the lab; otherwise, the value is reported as less than the RL. A discussion of data quality evaluation and Quality Assurance/Quality Control (QA/QC), is included in **Section 8.3**. A discussion of urban discharge water quality objective exceedances, which potentially caused or contributed to receiving water exceedances, is included in **Section 8.4**.

8.1.3 Water Column Toxicity Monitoring

Provision II.E of the MRP requires the Permittees to conduct short-term chronic toxicity testing at each receiving water station on an annual basis. Water column toxicity monitoring was conducted at receiving water sites during one wet weather and two dry weather events in 2014-2015 in conjunction with the baseline receiving water monitoring. For each event, samples collected were compared to a laboratory control sample to determine if there was a statistically significant difference in *Ceriodaphnia dubia* (*C. dubia*) survival and reproduction or fathead minnow survival and growth between the control and the environmental samples. Pacific EcoRisk tested the samples for toxicity, and used the Geis method for the fathead minnow toxicity test to avoid pathogen related mortality (PRM) since PRM had been observed in fathead minnow during a previous wet weather event (described in the 2010-2011 Annual Report). This alternate method was approved by the Regional Water Board and the EPA.

In accordance with the Permit, if 100% mortality of *C. dubia* or fathead minnow is detected within 24 hours of test initiation, a dilution series must be conducted. If statistically significant toxicity is found at the end of a six day test for *C. dubia* or a seven-day test for fathead minnow, a targeted Toxicity Identification Evaluation (TIE) is conducted. Further, a TIE should be conducted if significant toxicity is detected and a greater than or equal to 50% increase in *C. dubia* or fathead minnow mortality, or reduction in *C. dubia* reproduction relative to the laboratory control is reported. Finally, if a toxicant is identified through the targeted TIE process, a Toxicity Reduction Evaluation (TRE) is performed to identify the potential sources of toxicity. The water column toxicity results are summarized in **Appendix H-3**. Samples showing toxicity are shown in **Table 8-8** and discussed in the following section.

Table 8-8. Water Column Toxicity Detected during 2014-2015

		Upstream Receiving Water Sites			Urban Receiving Water Sites			
Event	Date	MS-14RUS	CR-1	DC-65RUS	MS-14R	CR-46R	DC-65R/ DC-66R	SC-1R
DW21	8/26/14	--	--	--	--	FS[1]	--	--
SE55	10/31/14	--	--	--	--	CR, FG	--	--
SE56	12/11/14	--	--	--	--	FG	--	--
DW22	4/20/15	--	--	--	--	--	--	--

Notes:
CR = Significant reduction in *Ceriodaphnia dubia* reproduction.
FS = Significant reduction in fathead minnow survival.
FG = Significant reduction in fathead minnow growth.
-- = No significant toxicity.
[1] Pathogen related mortality was observed, which is a common side effect that does not necessarily indicate ambient toxicity.

2014-2015 Observed Toxicity

The Calaveras River receiving water (CR-46R) was the only site with observed toxicity during 2014-2015. Toxicity meeting the TIE trigger of greater than 50% increase in fathead minnow mortality was observed in samples from CR-46R during the first dry weather event, DW21. Pathogen-related mortality, which interferes with the capacity to differentiate between a toxic response and a response to pathogens, was observed in the CR-46R sample. PRM has been a recurrent issue at both the Calaveras River upstream (observed at both CR-46RUS and CR-1R) and CR-46R locations. A TIE was conducted to evaluate PRM as a potential cause of the toxicity. The follow-up test was performed with a 0.2 µm filtered sample (to remove potential pathogens) tested side by side with an untreated sample. There was 90% survival in the unfiltered treatment, indicating that the reduction in survival seen in the original

sample was not persistent. In addition, PRM was observed in the unfiltered sample, but not in the filtered sample.

During the first wet weather event, SE55, the CR46R sample had a statistically significant decrease in *C. dubia* reproduction and fathead minnow growth. The CR-46R sample from the second wet weather event, SE56, also had a statistically significant decrease in fathead minnow growth. No follow-up actions were required.

8.1.4 Dry Weather Field Screening

Provision II.F of the MRP requires the Permittees to screen 20% of their outfalls annually to identify potential illicit connections and illegal discharges. Dry weather field screening efforts conducted during 2014-2015 by the City and County are described below. Further discussion of measures taken by the City and County to identify potential illicit discharges and illegal connections is included in Section 2.

City

In 2014-2015, 22 of the 113 outfalls were screened (~21%) as shown in **Figure 8-3** (higher resolution maps are included in **Appendix H-4**).

Field staff was unable to locate one outfall, 5M-31, which is on Five-Mile Slough. Consequently, this outfall was not sampled. Of the remaining outfalls, eight contained sufficient flow for field screening analysis. Samples from these outfalls were tested for temperature, pH, phenols, chlorine, total copper, electrical conductivity (EC), methyl blue activated substances (MBASs, which are detergents/surfactants), and turbidity. Action levels for these constituents are shown in **Table 8-9**. If these action levels are exceeded, a follow-up investigation is conducted to try to identify the source(s) of the exceedance.

Table 8-9. Dry Weather Field Screening Action Levels

Constituent	Units	Action Levels
Phenols	mg/L	>0.017
Total copper	mg/L	>2
Electrical Conductivity	µmhos/cm	>700
Methyl Blue Activated Substances (MBAS)	mg/L	>0.275
Turbidity	NTU	>55

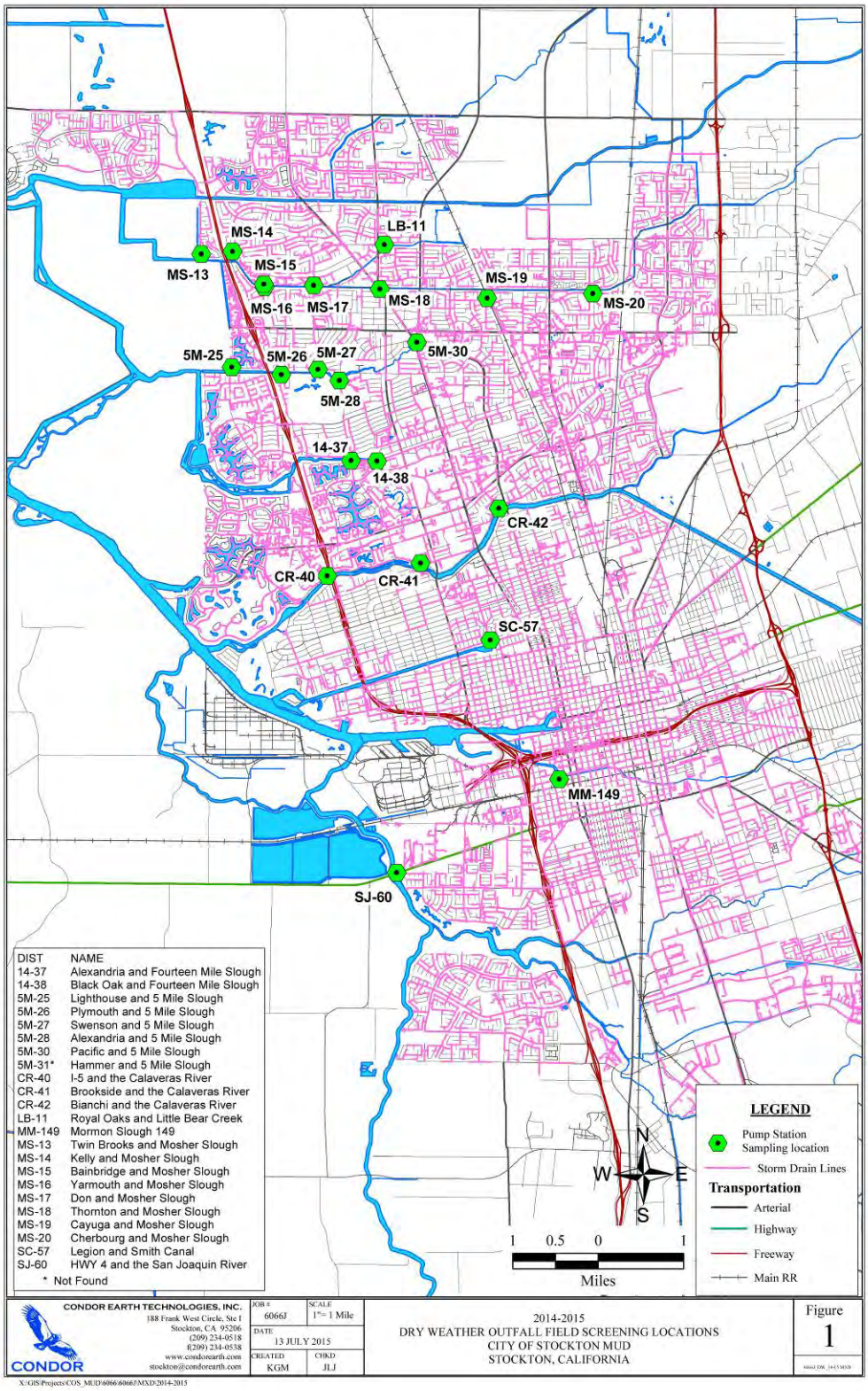


Figure 8-1. Dry Weather Field Screening Outfalls Monitored in 2014-2015

Documentation of all the outfalls screened and follow-up actions are detailed in **Appendix H-5**. Dry weather field screening results for the eight outfalls, which had sufficient flow for sampling, are summarized in **Table 8-10**, and shown in **Figure 8-4**.

Table 8-10. Dry Weather Field Screening Results for Outfalls with Sufficient Flow for Sampling

Outfall ID	Waterbody	Date of First Sample	Any Exceedance ?	Observed (µmhos/cm)	Date of Follow-up Sample	Any Exceedance ?	Observed (µmhos/cm)
14-37	14-Mile Slough	06/15/15	EC	864	06/16/15	EC	856
CR-40	Calaveras River	06/02/15	No	------	06/03/15	No	------
CR-41	Calaveras River	06/02/15	No	------	06/03/15	No	------
CR-42-E-2	Calaveras River	06/15/15	No	------	06/16/15	No	------
LB-11	Little Bear Creek	07/08/15	No	------	07/09/15	No	------
MS-13	Mosher Slough	07/08/15	No	------	07/09/15	No	------
MS-14	Mosher Slough	07/08/15	No	------	07/09/15	No	------
SC-57-1	Smith Canal	06/17/15	EC	925	06/18/15	EC	881

Of the eight sites with sufficient flow for sampling, two sites exceeded action levels. Site 14-37 (Alexandria and Fourteen Mile Slough) and SC-57-1 (Legion and Smith Canal) exceeded action levels for EC during their initial events. As a result, a follow-up event was conducted for each site. During the follow-up event, sites 14-37 and SC-57-1 exceeded the action level again for EC. This set of outfalls was previously screened during 2009-2010, and no action levels were exceeded.

Upstream source tracking was conducted for site 14-37 on 6/15/15 immediately following the first exceedance of the EC action level. Source tracking locations and EC levels at these locations are shown in **Figure 8-5**. Upstream source tracking was also conducted on 6/16/15 following the second exceedance of the EC action level. Source tracking locations and EC levels at these locations are shown in **Figure 8-6**.

Upstream source tracking was conducted for site SC-57-1 on 6/17/15 immediately following the first exceedance of the EC action level. Source tracking locations and EC levels at these locations are shown in **Figure 8-7**. Upstream source tracking was also conducted on 6/18/15 following the second exceedance of the EC action level. Source tracking locations and EC levels at these locations are shown in **Figure 8-8**.

Higher resolution maps are included in **Appendix H-6**.

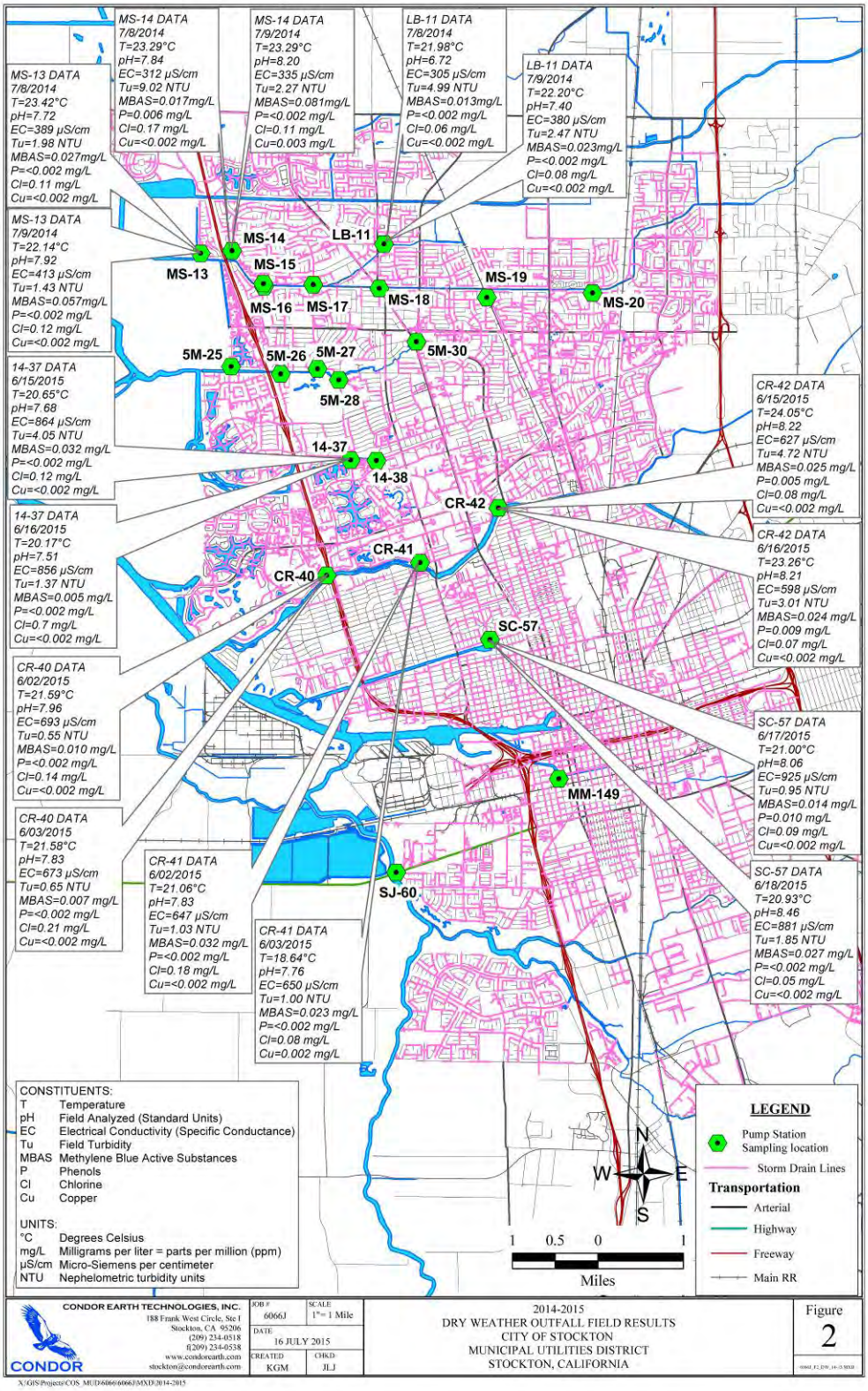


Figure 8-2. 2014-2015 Dry Weather Field Screening Results

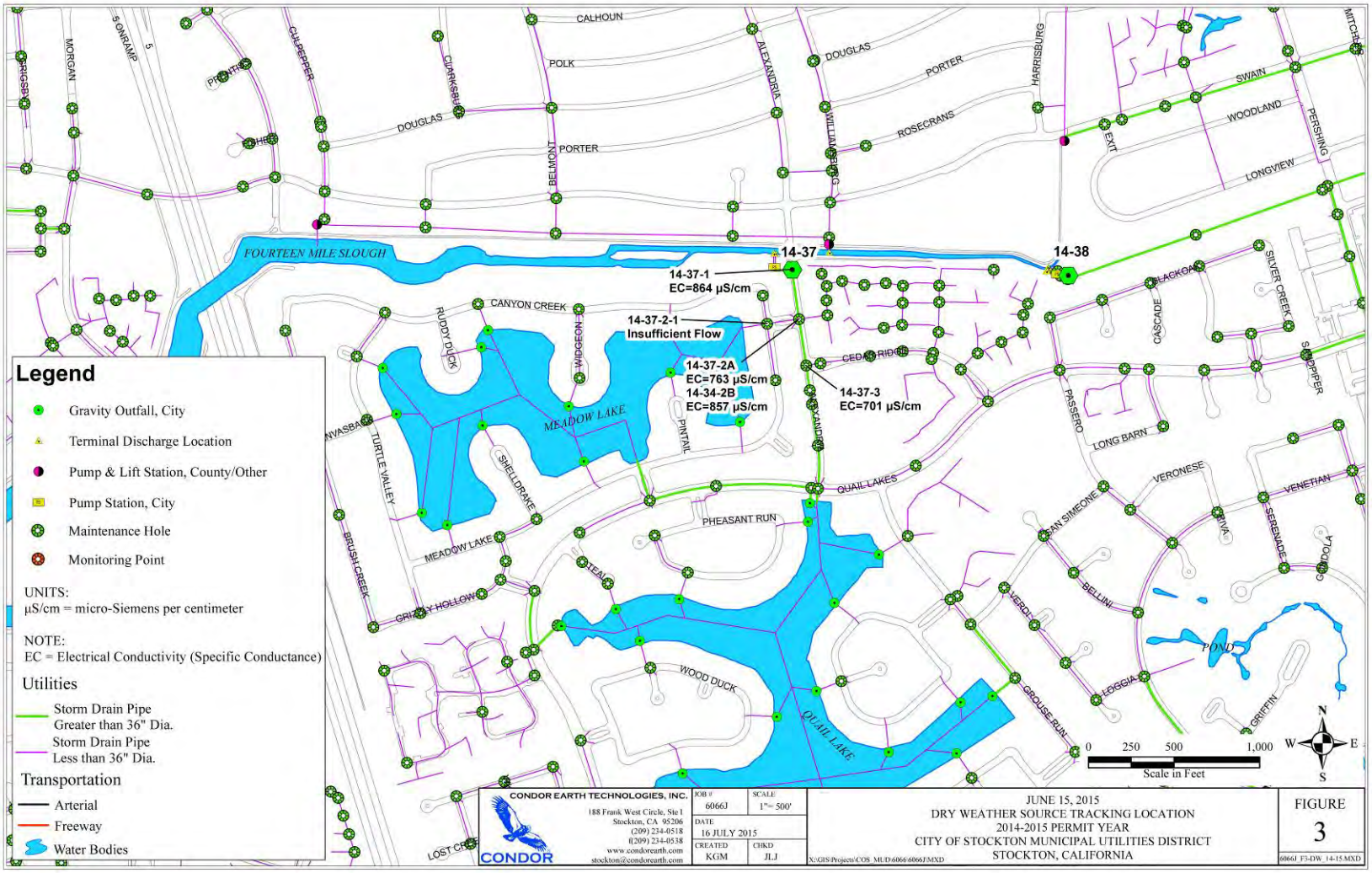


Figure 8-3. Initial Source Tracking Results Upstream of Outfall 14-37 on 6/15/15

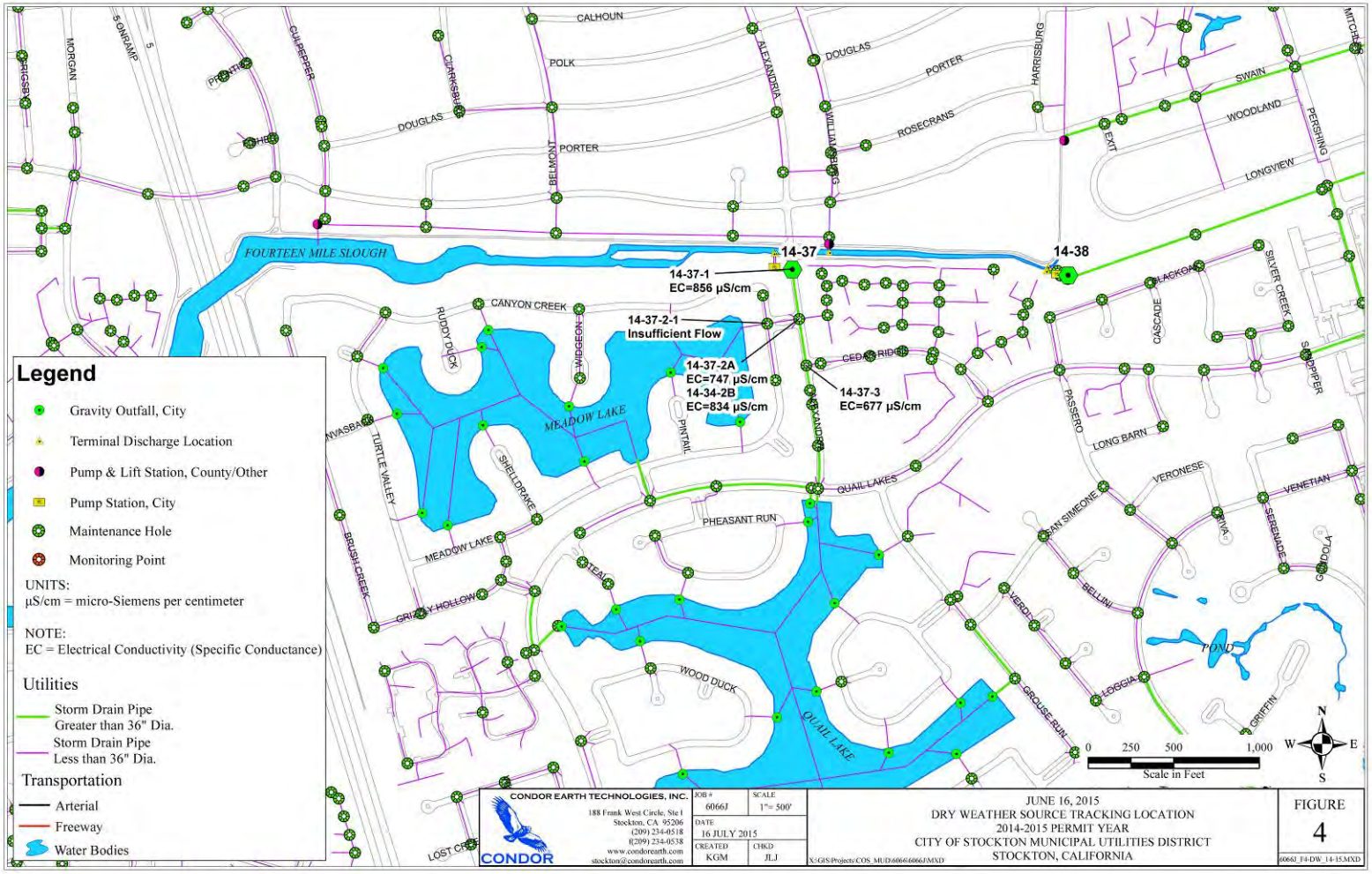


Figure 8-4. Follow-Up Source Tracking Results Upstream of Outfall 14-37 on 6/16/15

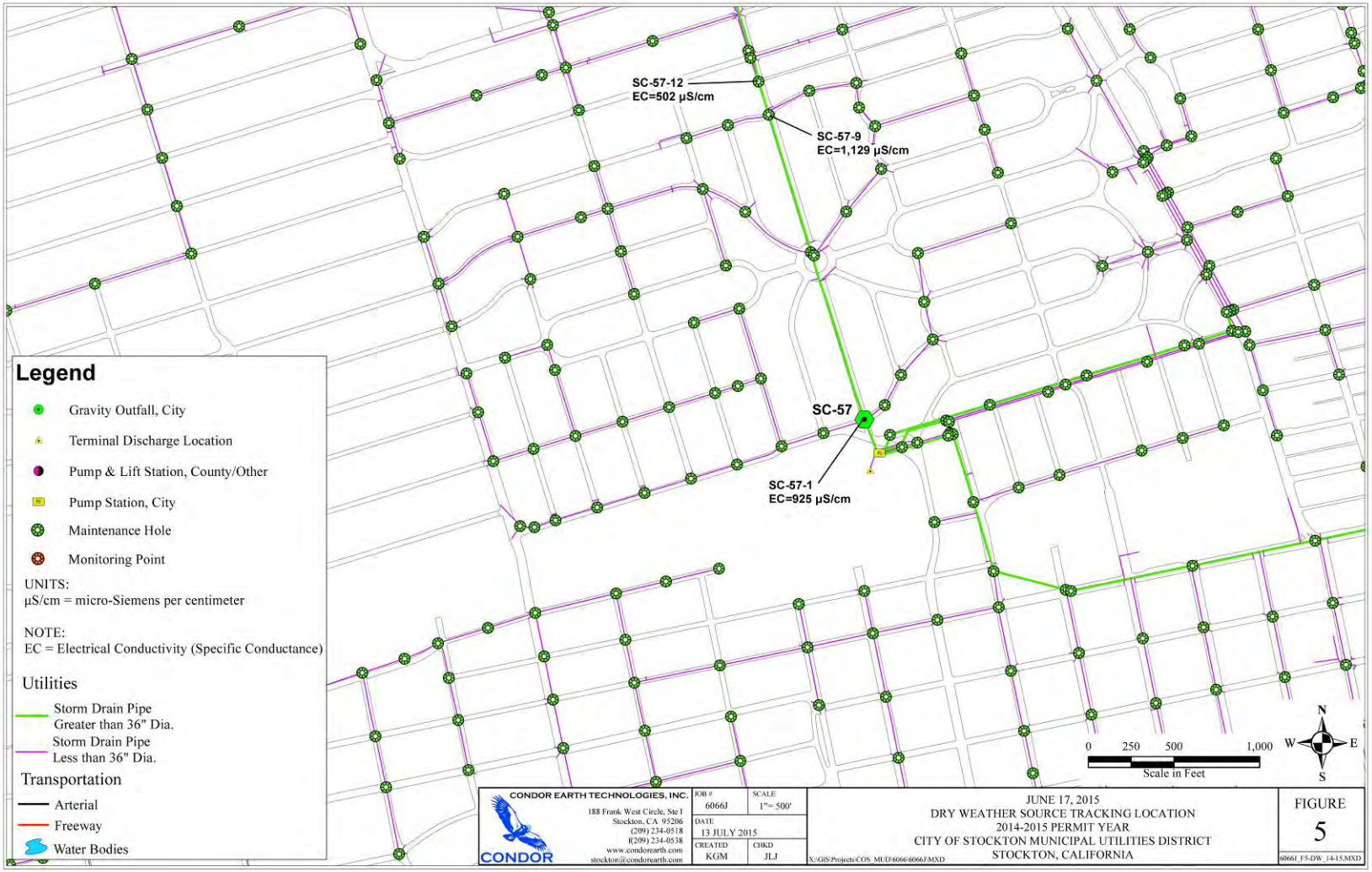


Figure 8-5. Initial Source Tracking Results Upstream of Outfall SC-57-1 on 6/17/15

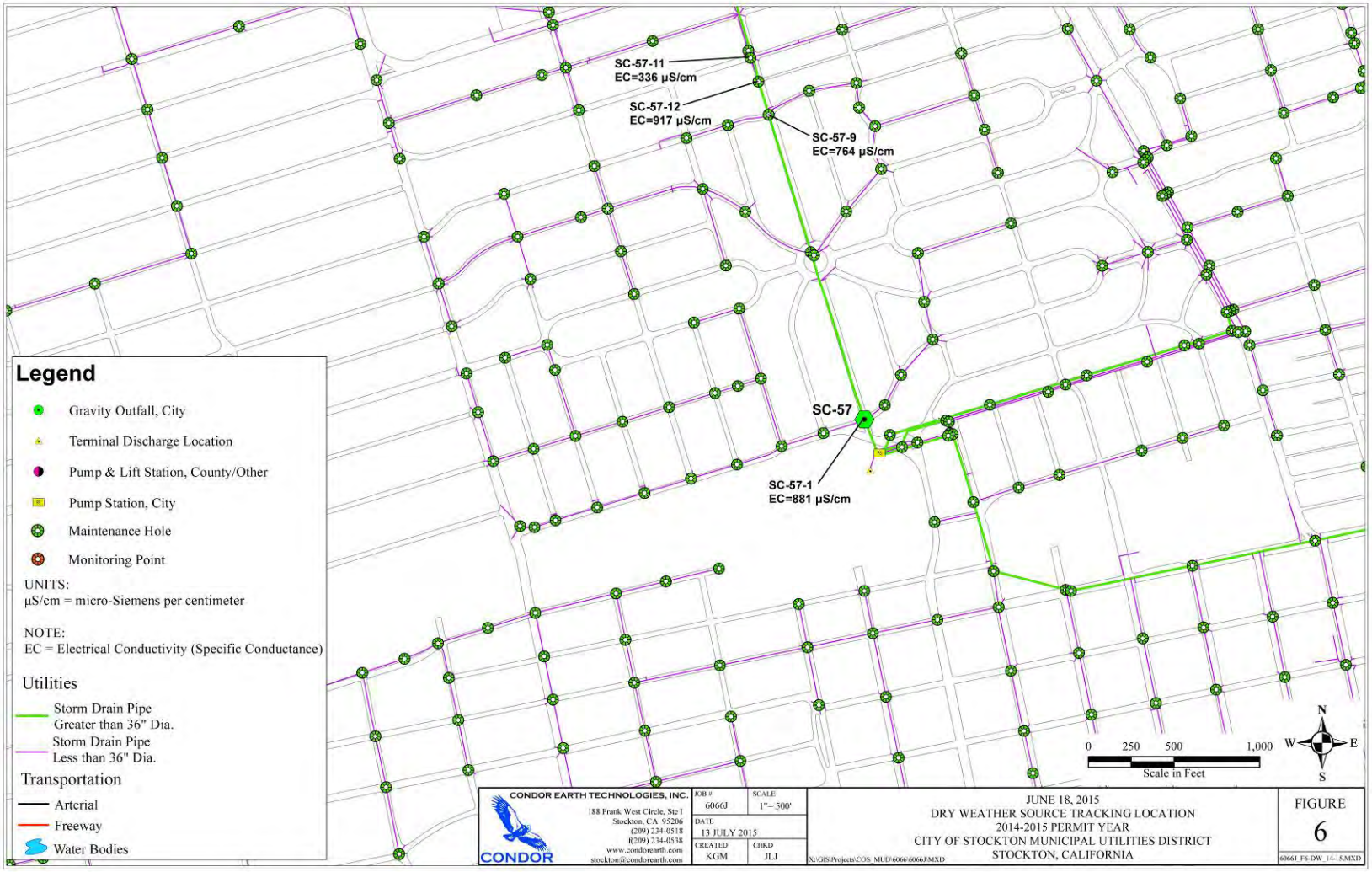


Figure 8-6. Follow-Up Source Tracking Results Upstream of Outfall SC-57-1 on 6/18/15

On 6/15/15, dry weather storm drain flow was observed near the Fourteen Mile Slough and Alexandria Pump Station (14-37). The EC level was measured at 864 uS/cm. The main storm drain line was investigated to isolate the source. The flow was traced back into the Meadow Lake area until insufficient flow ended the drain investigation. Minor irrigation runoff (puddling), but no active flow, was observed in the surrounding area. Maps indicate drain lines located under Meadow Lake, and lake water infiltration into the storm drain could potentially be a source of higher EC concentrations. Another possibility is groundwater infiltration into the storm drain. The EC levels measured from groundwater monitoring wells at the Stockton Wastewater Treatment Facility in March 2015 ranged from 1500 to 2500 uS/cm. The EC level had dropped to 701 by the intersection of Alexandria Place and Cedar Ridge Drive, ending the source tracking effort. On 6/16/15 the same locations were measured, with similar trends in EC levels as the initial source tracking results.

On 6/17/15, dry weather flow was observed near the Smith Canal and Legion Park Pump Station (SC-57). The EC concentration from a grab sample, collected at the intersection of S Tuxedo Avenue and North Kensington Way, was 925 uS/cm. Following the flow from the main trunk of the system (following North Kensington Way), there was no clear trend in concentration. By the intersection of North Kensington Way and Smith Lane, the concentration was 502 uS/cm, below the action level. A drive through the area revealed minor irrigation runoff (puddling) but no active flow. Follow up samples were collected on 6/18/15. The EC concentration at Kensington and Smith Lane was 917 uS/cm, while it was previously 502 uS/cm. Even though there was no flow at the next intersection Monterey and Kensington, the EC level was 336 uS/cm. Given the age of the infrastructure, groundwater infiltration to the storm drain is the likely source of elevated EC.

A complete report of the source tracking is provided in **Appendix H-7.**

County

The County monitors all of its 44 outfalls annually. Field screening occurs during dry weather periods throughout the reporting period. Each event is preceded by a non-rainfall period of at least two weeks. During 2014-2015, none of the outfalls monitored had sufficient flow to conduct field screening investigations.

8.2 SUPPLEMENTAL MONITORING

Supplemental monitoring completed during the Permit term is summarized in **Table 8-11** and the corresponding sections below**.**

Table 8-11. Supplemental Monitoring and Reporting Program Status

Monitoring Activity	Status
Legion Park BMP Study (see Section 8.2.1)	• Completed in 2009-2010
Low Impact Development (LID) BMP Effectiveness Study (see Section 8.2.2)	• Completed in 2010-2011
Bioassessment (see Section 8.2.3)	• Completed in 2009-2010
Sediment Toxicity Work Plan Toxicity Monitoring (see Section 8.2.4)	• Completed in 2011-2012
Detention Basin Monitoring (see Section 8.2.5)	• Completed in 2010-2011

8.2.1 Legion Park Best Management Practice (BMP) Study

Provision III.B of the MRP requires that two BMP effectiveness studies be conducted during the permit term. The Permittees elected to meet the requirements for one of these studies by continuing to monitor the media filter stormwater treatment system at the Legion Park Pump Station. The goal of the project was to reduce the loading of constituents associated with urban runoff that is discharged from the Legion Park Pump Station into the Yosemite Lake/Smith Canal receiving water system.

Monitoring was completed during 2009-2010, and a memorandum entitled, "Evaluation of Legion Park Media Filter Stormwater Treatment System," was submitted to the Regional Water Board on 12/21/10 and included as an appendix to the 2010-2011 Annual Report.

8.2.2 LID BMP Effectiveness Study

To fulfill the second BMP effectiveness study requirement of Provision III.B of the MRP, the Permittees were required to identify and develop a Sampling and Analysis Plan (SAP) for a LID BMP. Due to the downturn in the economy, there were limited new development-related BMPs within the SUA that were feasible for monitoring. However, the Permittees were ultimately able to select a Filterra unit installed at the City's Waterfront Promenade and Marina Redevelopment Project area as a BMP for study.

The Permittees developed a SAP for monitoring the Filterra unit, which indicated that five wet weather events would be sampled during each of two years: 2010-2011 and 2011-2012. The unit was monitored for conventional constituents, metals, total suspended solids (TSS), turbidity, suspended sediment concentration, nutrients, and pyrethroids. However, because the unit was not originally designed for monitoring, it proved impossible to separate treated effluent from untreated sheet flow runoff from the parking lot, culminating in unreliable monitoring results. For this reason, only two events were able to be sampled during 2010-2011. Monitoring was discontinued in 2011-2012, as summarized in the 2012 ROWD.

8.2.3 Bioassessment Report

Bioassessment monitoring was required by the 2002-2007 permit and was successfully completed in 2005. The bioassessment monitoring program was designed to detect biological trends in the receiving waters of the SUA and to collect data to contribute to the Surface Water Ambient Monitoring Program (SWAMP). In general, the ultimate goal of bioassessment is to assess the biological integrity of receiving waters, to detect biological responses to pollution, and to identify probable causes of biological responses not detected by more traditional chemical and physical water quality analyses.

Permit Provision D(27) and MRP, Provision II(H) required an assessment of the data that was previously collected in 2004 and 2005 (Appendix H-4 in the 2007-2008 Annual Report). However, given the limited amount of data, the report was only a preliminary analysis (Appendix H-5 to the 2009-2010 Annual Report). The report recommended continued monitoring once a regional index of biotic integrity (IBI) is developed. In addition, since the development of an IBI may take some time, the Permittees opted to continue monitoring in 2009-2010. This monitoring was discussed in the 2009-2010 Annual Report.

8.2.4 Sediment Toxicity Work Plan Monitoring

Permit Provision D(26)(a-i) and MRP, Provision II(G) required the Permittees to submit the Sediment Toxicity Work Plan (Appendix H-8 of the SWMP). The purpose of the sediment toxicity monitoring program was to: (1) characterize sediment toxicity within the SUA receiving waters subject to urban discharge; (2) assess the significance of the increase in urban pyrethroid usage; and, (3) based on the results, identify BMPs for controlling sources of sediment toxicity.

Sediment toxicity monitoring was conducted from 2008-2012, and final results were summarized in the 2012 ROWD and in the *Sediment Toxicity Final Report* dated January 15, 2013.

8.2.5 Detention Basin Monitoring

Permit Provision D(29) and MRP, Provision III(A) required the Permittees to update and submit a Detention Basin Monitoring Work Plan. The Permittees' detention basin monitoring was designed to evaluate the effectiveness of La Morada Basin[6] in removing various constituents. A Detention Basin Monitoring Work Plan was included in Appendix H-5 of the SWMP and described influent and outflow wet weather monitoring, dry weather sediment chemistry monitoring, and sediment toxicity monitoring during both wet and dry weather. Influent and outflow water samples were monitored during two wet weather events during 2008-2009 and one wet weather event in 2010-2011[7] for the following constituents: Conventional constituents (e.g., total dissolved solids [TDS], total suspended solids [TSS], turbidity), indicator bacteria, chlorpyrifos and diazinon, pyrethroids, total mercury, and methylmercury. Sediment chemistry monitoring was conducted during one dry weather event in 2008-2009 and one dry weather event in 2010-2011 and included the following constituents: chlorpyrifos and diazinon, total mercury, and pyrethroids.

A complete analysis of detention basin monitoring data was presented in the 2010-2011 Annual Report, and also summarized in the 2012 ROWD.

[6] The La Morada Basin was formerly called both Basin 2 and the San Joaquin Area Flood Control Agency.

[7] Only one wet weather event was monitored due to a lack of qualifying storm events.

8.3 DATA QUALITY EVALUATION

Quality assurance/quality control (QA/QC) refers to the process of reviewing lab and "field" initiated checks on the sampling and analytical process. These checks, which include field blanks, method blanks, field duplicates, lab duplicates and matrix spike/matrix spike duplicates (MS/MSD), and data review are used to confirm that data are of high quality. Lab reports are initially screened by the field monitoring contractor for missing analytical data (both environmental and QA/QC), holding time violations, discrepancies in analytical methods or detection limits, and any apparent out-of-range environmental results. If the analytical work appears to be missing any requested analysis, the lab is asked to complete the missing analysis if it is possible to do so within the specified holding time. Periodically data analyses are requested even if missed samples exceed the hold time. Data qualifiers are appended to the environmental data points where appropriate by applying the data quality objectives provided by the laboratories.

The QA/QC process identifies isolated incidents of out-of-range lab and sampling performance, but more importantly identifies potential long term trends in lab and sampling performance. An important and ongoing component of the QA/QC program is to report and correct these problems as they arise.

Overall, no significant problems with data quality were identified during 2014-2015. There were isolated instances of constituents detected in field blanks, field duplicates not meeting relative percent difference standards (RPD), and lab QA/QC issues. However, when conducting such a large monitoring and reporting program, it is normal for field, lab, and/or analytical issues to arise for a small number of samples. In general, the data collected and reported are considered of high quality and suitable for data analysis with the qualifications noted in the **Appendix H-2** data report. **Table 8-12** summarizes the main qualifiers used.

Table 8-12. Definitions of Commonly Used QA/QC Qualifiers and Instances of Application

Qualifier	Definition of Qualifier	Data to Which Qualifier Applies
FB	The concentration of a given constituent was detected in the field blank. The associated environmental sample taken at the same site is considered an estimate.	• A field blank was taken at one site for all constituents during each baseline monitoring event.
FD	The relative percent difference (RPD) between the concentrations of a given constituent in the field duplicate and the associated environmental sample was outside the acceptable limit. This indicates that the duplicability and precision of the results for this constituent may be low.	• A field duplicate was taken at one site for all constituents during each baseline monitoring event.
J	The concentration of a given constituents is between the method detection limit (MDL) and the reporting limit (RL) and is therefore an estimate. The J qualifier does not indicate poor data quality because all the RLs used meet permit requirements.	• The J qualifier is common in all data in the monitoring program.
ND	A given constituent was not detected and is given as < MDL. The ND qualifier does not indicate poor data quality but rather that a constituent was simply not detected.	• The ND qualifier is common in all data in the monitoring program.

8.4 REPORT OF WATER QUALITY EXCEEDANCES

Pursuant to the MRP and Permit Provision C.3, the Permittees must provide a summary of the monitoring data and recommendations for improvements to the SWMP. To support this effort, all receiving water monitoring data are compared with applicable WQOs contained in:

- The Water Quality Control Plan for the Sacramento and San Joaquin River Basins (Basin Plan)
- The California Toxics Rule (CTR)
- California Title 22 Regulations[8]

The approach consists of three steps:

> **Step 1**: Measured *receiving water* concentrations were compared against the relevant WQOs from the Basin Plan, the CTR, and/or the Title 22 drinking water maximum contaminant levels (MCLs).
>
> **Step 2**: When the reported receiving water concentrations exceeded the WQOs, the urban runoff concentrations as monitored from upstream outfalls were compared to the WQOs. Based on these comparisons, the WQO exceedances were classified as "likely caused or contributed to by urban runoff" if both urban discharge and urban receiving water concentrations exceed the lowest applicable WQO.
>
> **Step 3**: When water quality exceedances were determined to be "likely caused or contributed to by urban runoff," upstream receiving water exceedances were reported to characterize any upstream input into the waterways that may also have caused or contributed to the exceedance.

Pursuant to the RWQE Permit requirements, the Permittees must address those constituents that are identified as potentially causing or contributing to an exceedance of a WQS. It should be noted, however, that simple comparisons of receiving water constituent concentrations to the WQO do not consider the *duration* of exceedances nor the impact (or lack thereof) on the beneficial uses. The duration of wet weather event exposure depends on the hydrology of the waterbody, which can be very dynamic, and thus, more likely that an acute (instantaneous) exposure to a contaminant would occur. In contrast, an exposure on human health (longer term) timescale is less likely, but, where applicable, human health criteria are used for comparison. As a result of the lack of duration data and the relatively few data points available, the approach used in this Annual Report should be viewed as a planning-level effort to assess potential WQO exceedances. The Permittees presented a long term assessment of potential WQO cause and contribute exceedances in the ROWD.

The number of potential cause and contribute exceedances for each of these constituents is summarized in **Table 8-13** (wet weather) and **Table 8-14** (dry weather).

[8] It should be noted that there is some question as to the applicability of these water quality objectives and criteria to stormwater discharges. It is not clear that a proper Water Code section 13241 analysis was performed on the state water quality objectives used herein. In addition, the State Water Resources Control Board (SWRCB) has determined that the federal water quality criteria, such as are contained in the CTR, do "not apply to regulation of storm water discharges." *See* SWRCB Policy for Implementation of Toxics Standards for the Inland Surface Waters, Enclosed Bays, and Estuaries of California at pg. 1, fn 1; *see also* CTR Preamble, 65 Fed. Reg. 31682 (5/18/00), which does not identify municipal stormwater as a potentially affected entity. Moreover, there is no indication that these objectives and criteria were ever intended to be applied to stormwater discharges at the end of pipe. Nevertheless, these objectives and criteria are utilized herein for the purposes of this report.

Table 8-13. Total Number of Potential Cause and Contribute Exceedances on Each Waterbody during Two Wet Weather Events (SE55 and SE56)

	Waterbody			
Constituent	**Mosher Slough**	**Calaveras River**	**Duck Creek**	**Smith Canal**
Aluminum (total)	2	2	2	2
Copper (dissolved)	1	2	0	0
Copper (total)	1	1	0	0
Iron (total)	1	2	2	2
Zinc (total)	0	1	0	0
Dissolved Oxygen	1	0	0	0
E. coli	2	2	1	1
Fecal Coliform	2	2	2	1

Table 8-14. Total Number of Potential Cause and Contribute Exceedances on Each Waterbody during Two Dry Weather Events (DW21 and DW22)

	Waterbody			
Constituent	**Mosher Slough**	**Calaveras River**	**Duck Creek**	**Smith Canal**
Aluminum (total)	0	0	2	1
Copper (dissolved)	0	0	2	0
Copper (total)	0	0	2	0
Iron (total)	0	0	2	1
Oil and Grease	1	1	0	2
Dissolved Oxygen	1	0	0	0
Electrical Conductivity	0	0	0	2
E. coli	1	0	0	0
Fecal Coliform	1	0	0	0

All monitoring data, along with comparisons to WQOs, are presented in **Appendix H-2.** At the end of this section, summaries of all potential "cause and contribute" WQO exceedances for each site are summarized by site:

- Mosher Slough: **Table 8-15** (wet weather) and **Table 8-16** (dry weather)
- Calaveras River: **Table 8-17** (wet weather) and **Table 8-18** (dry weather)
- Duck Creek: **Table 8-19** (wet weather) and **Table 8-20** (dry weather)
- Smith Canal: **Table 8-21** (wet weather) and **Table 8-22** (dry weather)

As described previously, the Duck Creek receiving water samples could not be collected during DW22 because the channel was dry, with no continuous flow. Therefore, potential "cause and contribute" exceedances could not be evaluated for Duck Creek during event DW22.

The tables listed above indicate that urban discharges may be contributing to receiving water exceedances for the following constituents:

- Metals (total aluminum, dissolved and total copper, total iron, and total zinc);
- Pathogen indicators (*E. coli* and fecal coliform);
- Oil and grease;
- Dissolved oxygen; and
- Electrical conductivity.

Table 8-15. Mosher Slough Wet Weather Water Quality Objective (WQO) Analysis from 2014-2015

			SE55		SE56	
Constituent	**Units**	**WQO**	**Urban Discharge (MS-14)**	**Urban Receiving Water (MS-14R)**	**Urban Discharge (MS-14)**	**Urban Receiving Water (MS-14R)**
Aluminum (total)	µg/L	200	**1,930**	**652**	**1,590**	**1,120**
Copper (dissolved)	µg/L	12.8/2.4[a]	NE	NE	**6.18**	**4.24**
Copper (total)	µg/L	13.3/2.5[a]	NE	NE	**20.7**	**20.8**
Iron (total)	µg/L	300	**2,480**	**845**	NE	NE
Dissolved Oxygen	mg/L	>6.0	**4.77**	**4.63**	NE	NE
Fecal Coliform	MPN/100 mL	400	**79,000**	**4,900**	**11,000**	**11,000**
E. coli	MPN/100 mL	235	**>24,192**	**12,997**	**14,136**	**11,199**

Notes:
NE: No cause and contribute exceedance for this event
a. Copper water quality objectives (WQOs) were calculated based on receiving water hardness at each paired discharge and receiving water sample location and are presented for SE55/SE56.

Table 8-16. Mosher Slough Dry Weather Water Quality Objective (WQO) Analysis from 2014-2015

			DW21			DW22		
Constituent	**Units**	**WQO**	**Upstream Receiving Water (MS-14RUS)**	**Urban Discharge (MS-14)**	**Urban Receiving Water (MS-14R)**	**Upstream Receiving Water (MS-14RUS)**	**Urban Discharge (MS-14)**	**Urban Receiving Water (MS-14R)**
Dissolved Oxygen	mg/L	>5.0	9.05	**4.10**	**4.12**	NE	NE	NE
Oil & Grease	mg/L	0	NE	NE	NE	NS	**3.5**	**3.17**
Fecal Coliform	MPN/100 mL	400	NE	NE	NE	NS	**1,300**	**2,300**
E. coli	MPN/100 mL	235	NE	NE	NE	NS	**235**	**331**

Notes:
NE: No cause and contribute exceedance for this event
NS: Not Sampled due to dry conditions

Table 8-17. Calaveras River Wet Weather Water Quality Objective (WQO) Analysis from 2014-2015

			SE55			SE56	
Constituent	**Units**	**WQO**	**Urban Discharge (CR-46)**	**Urban Receiving Water (CR-46R)**	**Urban Receiving Water (CR-46R FD)**	**Urban Discharge (CR-46)**	**Urban Receiving Water (CR-46R)**
Aluminum (total)	µg/L	200	**4,210**	**1,740**	**637**	**4,720**	**896**
Copper (dissolved)	µg/L	22.2/3.9[a]	NE	NE	NE	**5.05**	**7.45**
Copper (total)	µg/L	23.1/4.0[a]	**71.3**	**25.0**	17.5	**33.0**	**8.59**
Dissolved Oxygen	mg/L	>6.0	**0.06**	**5.31**	NE	NE	NE
Iron (total)	µg/L	300	**5,970**	**2,290**	**1,040**	**4,630**	**1,160**
Zinc (total)	µg/L	188/39.3[a]	NE	NE	NE	**202**	**48.0**
Fecal Coliform	MPN/100 mL	400	**4,900**	**1,700**	**1,700**	**46,000**	**3,300**
E. coli	MPN/100 mL	235	**637**	**677**	50	**>24,192**	**1,789**

Notes:
NE: No cause and contribute exceedance for this event
a. Copper and zinc water quality objectives (WQOs) were calculated based on receiving water hardness at each paired discharge and receiving water sample location and are presented for SE55/SE56.

Table 8-18. Calaveras River Dry Weather Water Quality Objective (WQO) Analysis from 2014-2015

			DW21			DW22		
Constituent	Units	WQO	Upstream Receiving Water (CR-1R)	Urban Discharge (CR-46)	Urban Receiving Water (CR-46R)	Upstream Receiving Water (CR-1R)	Urban Discharge (CR-46)	Urban Receiving Water (CR-46R)
Oil & Grease	mg/L	0	NE	NE	NE	NS	**4.51**	**2.64**

Notes:
NE: No cause and contribute exceedance for this event
NS: Not sampled due to dry conditions

Table 8-19. Duck Creek Wet Weather Water Quality Objective (WQO) Analysis from 2014-2015

			SE55		SE56	
Constituent	Units	WQO	Urban Discharge (DC65)	Urban Receiving Water (DC-65R)	Urban Discharge (DC65)	Urban Receiving Water (DC-65R)
Aluminum (total)	µg/L	200	**3,620**	**337**	**3,030**	**432**
Iron (total)	µg/L	300	**4,450**	**483**	**3,100**	**511**
Fecal Coliform	MPN/100 mL	400	**110,000**	**4,300**	**17,000**	**3,300**
E. coli	MPN/100 mL	235	NE	NE	**6,867**	**3,448**

Note:
NE: No cause and contribute exceedance for this event

Table 8-20. Duck Creek Dry Weather Water Quality Objective (WQO) Analysis from 2014-2015[a]

			DW21			
Constituent	**Units**	**WQO**	**Upstream Receiving Water (DC-65RUS)**	**Urban Discharge (DC-66)**	**Urban Receiving Water (DC-66R)**	**Urban Receiving Water (DC-66R) Field Duplicate**
Aluminum (total)	µg/L	200	**1,580**	**400**	**2,360**	**2,270**
Copper (dissolved)	µg/L	4.0[b]	1.8	**5.7**	1.8	**5.0**
Copper (total)	µg/L	4.2[b]	**5.5**	**7.8**	**4.4**	**4.2**
Iron (total)	µg/L	300	**1,170**	**512**	**2,210**	**1,740**

Notes:

a. Receiving water samples could not be collected during DW22 because the channel was dry, with no continuous flow. Therefore, potential "cause and contribute" exceedances could not be evaluated for Duck Creek during event DW22.

b. Total and dissolved copper quality objectives (WQOs) were calculated based on receiving water hardness at each paired discharge and receiving water sample location; upstream hardness was used to calculate upstream WQOs. The WQOs presented are for UD and RW.

Table 8-21. Smith Canal Wet Weather Water Quality Objective (WQO) Analysis from 2014-2015

			SE55		SE56		
Constituent	**Units**	**WQO**	**Urban Discharge (SC-1)**	**Urban Receiving Water (SC-1R)**	**Urban Discharge (SC-1)**	**Urban Receiving Water (SC-1R)**	**Urban Receiving Water (SC-1R FD)**
Aluminum (total)	µg/L	200	**6,970**	**388**	**1,280**	**461**	**469**
Iron (total)	µg/L	300	**9,460**	**590**	**2,560**	**692**	**641**
Fecal Coliform	MPN/100 mL	400	NE	NE	**49,000**	**1,700**	**2,300**
E. coli	MPN/100 mL	235	NE	NE	**>24,192**	**441**	**393**

Note:
NE: No cause and contribute exceedance for this event

Table 8-22. Smith Canal Dry Weather Water Quality Objective (WQO) Analysis from 2014-2015

			DW21		DW22	
Constituent	**Units**	**WQO**	**Urban Discharge (SC-1)**	**Urban Receiving Water (SC-1R)**	**Urban Discharge (SC-1)**	**Urban Receiving Water (SC-1R)**
Aluminum (total)	µg/L	200	NE	NE	**257**	**836**
Iron (total)	µg/L	300	NE	NE	**312**	**636**
Oil & Grease	mg/L	0	**3.3**	**4.4**	**5.0**	**5.39**
Electrical Conductivity	µS/cm	700	**852**	**1,263**	**804**	**902**
Solids, Total Dissolved (TDS)	mg/L	450	NE	NE	**527**	**555**

Note:
NE: No cause and contribute exceedance for this event

The following sections discuss each constituent with a potential cause or contribute exceedance and indicate how they are being addressed within the stormwater program.

8.4.1 Metals

For most metals, two aquatic life-based toxicity criteria exist and depend upon the duration of the exposure: acute and chronic. Chronic criteria refer to 4-day average concentrations, while acute criteria refer to the highest concentration to which aquatic life can be exposed for a short period (e.g., 24 hours). Consequently, chronic criteria are typically lower than acute criteria. Due to the dynamic hydrology during wet weather events and because the duration of the metals WQO exceedances in the receiving waters is unknown, it is reasonable to use the acute criterion for assessing the impact of wet weather discharges, and the chronic criterion for assessing dry weather inputs.

For aluminum and iron, the WQO is based on Title 22 MCLs. Title 22 MCLs are classified as primary or secondary, based on whether they protect long-term human health during consumption of water or simply drinking water taste and odor, respectively. For constituents that have both primary and secondary MCLs, the secondary MCL is often significantly lower. It is highly unlikely that any of the concentrations measured during urban discharge and receiving water monitoring represent levels at which long-term human health exposure occurs. As a result, it is unclear whether human health WQOs should be used for stormwater quality assessments. Nonetheless, the more conservative approach of comparing aluminum monitoring results to secondary MCLs was used for both wet and dry weather discharges.

Total Aluminum

Total aluminum potential cause and contribute exceedances occurred on all four waterbodies during both wet weather events, on Duck Creek during both dry weather events, and on Smith Canal during DW22. Aluminum is a common, naturally occurring component of soil.[9] Control of naturally occurring aluminum is difficult and there are no specific stormwater program source control programs for aluminum. However, the stormwater program has a number of control measures and BMPs that address erosion and reduce sediment transport, including site design measures, source control, volume reductions and treatment controls. In the 2009 Stormwater Quality Control Criteria Plan (SWQCCP)[10], Low Impact Development (LID) policies and objectives are given for new development and redevelopment sites. For example, the SWQCCP specifically discourages development in areas that are susceptible to erosion and encourages minimization of impervious cover. Reductions in impervious cover increase infiltration and decrease the velocity of runoff thereby preventing erosion. In addition, the Permittees also require BMPs to minimize and/or eliminate the discharge of sediment from construction sites (see Section 6). The Permittees require that all construction sites disturbing one or more acres comply with the State Water Resources Control Board's General Construction Permit, which includes LID provisions. In addition, the City is planning to update the fact sheet provided during construction site inspections of sites less than an acre with additional information on reducing sediment transport.

The stormwater program also has control measures and BMPs that address metals in general. These control measures include street sweeping, catch basin cleaning, industrial and commercial inspections, illicit discharge elimination, household hazardous waste collection, and public education.

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[9] Hausenbuiller, R. L. *Soil Science: Principles and Practices*. Dubuque, Iowa: WM. C. Brown Company, 1974. Print.

[10] The SWQCCP is available on the City's website at: http://www.ci.stockton.ca.us/mud/General/stormwater/SQCCP.cfm

Copper

Potential cause and contribute exceedances for dissolved and total copper occurred on both Mosher Slough and the Calaveras River during SE56, and on Duck Creek for both dry weather events. An exceedance for total copper also occurred on Mosher Slough during SE55. Copper can be introduced through atmospheric deposition, erosion, and water supply. Direct anthropogenic sources of copper include:

- Brake pads
- Tailpipe emissions
- Vehicle washing
- Motor oil
- Corrosion
- Auto repair/body shops
- Radiator repair
- Machine shops
- Metal finishers
- Metal fabricators
- Coil coaters
- Industrial facilities
- Wineries
- Food processors
- Printers
- Laboratories
- Dentists
- Medical service
- Plumbers
- Carpet cleaners
- Dry cleaners
- Pools and spas
- Restaurants
- Food waste
- Human waste
- Household products
- Root control
- Surface cleaners
- Laundry gray water
- Roof runoff
- Illegal dumping

Copper is able to accumulate on streets as a result of tailpipe emissions, atmospheric deposition, and wear on brake pads. Therefore, street sweeping is effective in preventing copper from entering storm drains. Catch basin cleaning and detention basin maintenance also remove sediments that enter the storm drains from street runoff. Because motor oil contains copper, the Permittees promotion of the used oil collection center, household hazardous waste collection, and curbside collection of used oil target residential automotive sources of copper. In addition, BMPs directed at auto repair/body shops and promoted through the stormwater program address a number of automotive sources of copper.

Zinc

One potential cause and contribute exceedance for total zinc occurred on the Calaveras River during SE56. Sources of zinc in urban runoff are very similar to copper and include atmospheric deposition, erosion, paint, vehicle maintenance facilities, metal finishers, laboratories, surface cleaners, brake pads, and others. The City and County implement a number of control measures that may affect zinc concentrations, including street sweeping, catch basin cleaning, industrial/commercial inspections, illicit discharge elimination, and public education. The Permittees help collect zinc-containing materials such as paint and surface cleaners through their household hazardous waste events.

8.4.2 Low Dissolved Oxygen

Potential cause and contribute exceedances for low dissolved oxygen occurred on Mosher Slough during SE55 and DW21. Low dissolved oxygen may be a function of shallow water depth, elevated water temperature, and diminished flow. Permit Provision D. 28.b required the Permittees to develop a Low Dissolved Oxygen Plan (DO Plan). This plan was developed and submitted to the Regional Water Board as Appendix I-5 to the 2008-2009 Annual Report. The Permittees have implemented the DO Plan during the Permit term, focusing specifically on dissolved oxygen in the SUA.

8.4.3 Pathogen Indicators

During epidemiological studies conducted by the USEPA in the early 1980s, total coliform and fecal coliform were deemed unreliable indicators of human health risks. Instead, *E. coli* and enterococcus were recommended as the preferred indicators for fresh and marine waters, respectively. In response to implementation guidance published by USEPA in 2003, a Basin Plan amendment was adopted by the Regional Water Board in 2003, which recommended that for protection of recreational water uses (REC-1), the single sample maximum objective of 400 MPN/100mL for fecal coliform be replaced with a single sample maximum objective for *E. coli* of 235 MPN/100mL. The amendment has yet to be approved by the State Water Board.

USEPA guidance also recommends the use of geometric mean concentrations, as opposed to single samples, for long-term waterbody assessments. However, the geometric mean is generally calculated with multiple samples collected within a 30-day period. For less frequent sampling, as conducted under the MRP, comparison to single sample WQOs is considered more appropriate. Thus, for the potential cause or contribute analysis herein, measured *E. coli* and fecal coliform concentrations were compared to the single sample maximum WQOs for protection of recreational waters.

The typical sources of indicator bacteria are:

- Soils
- Birds
- Wildlife
- Pet and livestock waste
- Sewage from leaks, spills, and illicit connections
- Trash and food waste
- Homeless encampments
- Diaper cleaning and disposal
- Regrowth of bacteria in soils and sediments

There were potential cause and contribute exceedances for both fecal coliform and *E. coli* on Mosher Slough during SE55, SE56, and DW22, and on Duck Creek during SE56, and on Smith Canal during SE56. There was an additional exceedance for fecal coliform, but not *E. coli*, on Duck Creek during SE55.

Parallel to the urban and receiving water characterization effort, the Permittees have a pathogen water quality based monitoring program that focuses on pathogen indicators including *E. coli* and fecal coliform.[11] The monitoring program includes source characterization and identification monitoring followed by targeted BMP implementation and effectiveness assessment. The program uses a phased approach that focuses on specific waterways each year. Characterization monitoring has been completed on all waterbodies, and source identification monitoring has been conducted in Smith Canal, Mormon Slough, Five Mile Slough, and Mosher Slough using *Bacteroidales* genetic markers to identify the sources of fecal indicator bacteria. Source identification monitoring showed similar trends in bacterial sources among monitored waterbodies, with a mixture of universal (representing inputs by all warm-blooded animals), human, and canine sources, with relatively rare inputs from cow/horse sources.

The stormwater program has in place control strategies that directly address indicator bacteria concentrations in urban runoff. The existing programs include street sweeping, storm drain system cleaning and stenciling, illicit discharges inspection and elimination, and pet waste stations at City parks and the Marina. The Permittees' efforts to control indicator bacteria are described in Section 3, and the Pathogen Plan is discussed in detail in Section 9.

[11] See Pathogen Plan, City of Stockton/San Joaquin County, April 2009 (Appendix I-2 of respective City and County Final Stormwater Management Plans). This is the most recent version of the Plan, which has been revised from the original submitted to the Regional Water Board on 8/18/04.

8.4.4 Oil and Grease

The Basin Plan WQO is a narrative that "waters shall not contain oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses," which, for the purposes of the cause or contribute analysis, has been interpreted as a very stringent numeric WQO of 0 mg/L. The reporting limit for oil and grease is 5 mg/L, but concentrations detected were estimated to be in the range of 1.5 mg/L to 4 mg/L. Therefore, while nearly all reported values were below the reporting limit and thus are only estimates, because the Basin Plan WQO is so stringent (narrative WQO of 0 mg/L), it appears that urban runoff may have the potential to cause or contribute to receiving water WQO exceedances at all sites. There were potential cause or contribute exceedances for oil and grease on Mosher Slough during DW22, and on Smith Canal during DW21 and DW22.

Oil and grease in stormwater may be free floating or attached to sediments, trash and debris. Oil and grease contain a wide variety of hydrocarbon compounds that have an affinity for sediments and much of the hydrocarbon load absorbs to particles that may eventually settle out. The most common source of oil and grease in stormwater is runoff from parking lots, roads, fast food restaurants, and gas stations, including improper disposal of motor oil and oil filters. The City and County's efforts to control oil and grease include promotion of the used oil collection center, household hazardous waste collection, and curbside collection of used oil target residential automotive sources of oil. In addition, BMPs directed at restaurants address restaurant sources of oil.

8.4.5 Electrical Conductivity and Total Dissolved Solids

Potential cause or contribute exceedances for electrical conductivity occurred on Smith Canal during DW21 and DW22. Electrical conductivity is a measure of the concentration of salts in the water, and is affected by the presence of inorganic dissolved solids such as chloride, nitrate, phosphate and sulfate anions, and sodium, magnesium, calcium, iron and aluminum cations. Because salts are ubiquitous in soils, there are no specific control measures in place for conductivity. However, the Permittees conduct street sweeping and illicit discharge control to reduce the total dissolved solids input to receiving waters.

8.5 PROGRAM MODIFICATIONS

Each year, the Permittees submit an annual work plan to the Regional Water Board for the activities that will be completed during the upcoming fiscal year. The 2015-2016 work plan identified several key tasks for the Water Quality Monitoring Program. In addition, as part of the ROWD process, the Permittees have evaluated the effectiveness of program implementation during the Permit term, as well as the experience that staff has had in implementing the program, to identify the performance standards for the Water Quality Monitoring Program for the next permit term. Through the development of the annual report, the annual work plan, and the ROWD, the Permittees have determined if any additional program modifications are necessary in order to ensure that the stormwater management program is effective.

Proposed modifications to the Water Quality Monitoring Program were presented in **Section 2** of the ROWD.

Section 9

Water Quality Based Programs

9.1 OVERVIEW

The purpose of the Water Quality Based Programs (WQBPs) is to address specific pollutants that have been identified as potentially impacting local receiving water quality. Individual plans addressing these pollutants are designed to characterize their fate and transport, assist with source identification, and assist with the selection of control measures (the individual pollutant-based plans are summarized in **Table 9-1**. Over the course of the reporting year, the following pollutant-specific, WQBPs were implemented:

- Pesticide Plan (continued from the 2002 Permit)
- Pathogen Plan (continued from the 2002 Permit)
- Mercury Plan (developed pursuant to the 2007 Permit)
- Low Dissolved Oxygen Plan (continued from the 2002 Permit)

A progress summary for each of the plans is provided below.

Table 9-1. 2014-2015 Efforts Completed for the Water Quality Based Programs

WQBP	Efforts Completed
Pesticide Plan (Section 9.2)	• Provided public education/outreach to promote safe pesticide handling and uses of safer pesticide alternatives. • Promoted IPM in municipal and public pest management practices. • Monitored during two storm events and once during the dry season for chlorpyrifos, diazinon, and pyrethroids.
Pathogen Plan (Section 9.3)	• Continued BMP Implementation for Phases I-III through public outreach and pet waste station maintenance. • Continued effectiveness monitoring through indicator bacteria WQO assessment at baseline monitoring locations.
Mercury Plan (Section 9.4)	• Promoted proper handling and disposal of mercury-containing products through public education/outreach. • Continued BMPs to minimize erosion, and transport of sediment-associated mercury. • Continued monitoring for the Delta Methylmercury TMDL Control Study. • Participated in the Delta Mercury Exposure Reduction Program.
Low Dissolved Oxygen Plan (Section 9.5)	• Final Report submitted on January 31, 2013.

9.2 PESTICIDE PLAN PROGRESS REPORT

In order to address the organophosphate (OP) pesticide impairment of urban streams, in accordance with Provision D.18.a.v. of the 2002 NPDES Permit, the Permittees developed a Pesticide Plan that addressed the use of diazinon and chlorpyrifos by the City/County, contracted staff, and general public. The Pesticide Plan was provided to the public, interested parties and the Regional Water Board for review and was finalized with an addendum letter to Regional Water Board on September 22, 2004.

The Permittees have implemented the Pesticide Plan since 2004. The results of the pesticide monitoring during the 2002 Permit term were summarized in detail in the 2005-2006 Annual Report and 2007 ROWD. Results suggested that diazinon and chlorpyrifos were no longer stormwater pollutants of concern in the SUA.

In December 2007, the Permittees received their third term municipal stormwater permit (Order No. R5-2007-0173), which included a requirement for the continued implementation of the Pesticide Plan (specified in Provision D.28.a). The 2007 Permit also required the Permittees to continue to monitor diazinon, chlorpyrifos and pyrethroids. An updated pesticide plan was submitted to the Regional Water Board on June 1, 2008 with the 2008 SWMP. The updated plan reflected minor changes to the monitoring requirements in the 2007 Permit. The updated plan was subsequently revised to address the comments received and submitted to the Regional Water Board on April 15, 2009 with the updated 2009 SWMP.

The Pesticide Plan continues to focus on public outreach, the promotion of IPM, and water quality monitoring to determine if OP pesticides continue to be POCs. As such, the Pesticide Plan includes the following components:

- Public education and outreach;
- Municipal operations; and
- Water quality monitoring.

The Pesticide Plan components implemented during the 2014-2015 reporting year are summarized in sections **9.2.1** through **9.2.5**.

9.2.1 Public Education and Outreach

The Pesticide Plan relies heavily on education and outreach efforts that promote less toxic pest control methods and use of IPM. As outlined in **Section 3**, efforts have focused on public outreach to residential users via materials distributed at local hardware stores, public events, and the web site. Public education and outreach includes the following components:

- "Our Water Our World" program,
- Annual public outreach messages,
- Pest control workshops,
- Survey of pesticides available to the public, and
- Coordination with Household Hazardous Waste (HHW) collection.

9.2.1.1 "Our Water Our World" Program

The Permittees participate in the University of California (UC) Statewide IPM Program with Orchard Supply Hardware (OSH) to encourage the use of less toxic products and proper disposal of pesticides. Known as the "Our Water Our World" (OWOW) program, it is now supported in all 82 California OSH stores (including OSH at 1015 West Hammer Lane, Stockton). The OWOW program provides over 20

different fact sheets on less-toxic pest management strategies to retail outlets that sell pesticides; holds community outreach events in stores to promote less toxic methods and products; and trains store personnel on IPM principles. The Permittees' focus is specifically at the OSH Stockton store location. The OWOW program is also part of the outreach efforts at community events.

During 2014-2015, on behalf of the Permittees, the County distributed OWOW fact sheets in English and Spanish, which target the general public. The County also maintains aisle displays, product markers, and OWOW fact sheets at the OSH store. OWOW program materials were also made available during Senior Awareness Day (May 29, 2015).

9.2.1.2 Annual Public Outreach Messages

The Permittees promoted educational materials through their websites to encourage IPM practices. The materials that were available are summarized in more detail in **Section 3**. In 2014-2015, City staff distributed brochures regarding recommended practices around the home[1] and in the garden.[2] Staff also included articles in the monthly utility bills regarding "green gardening". The County's Stormwater Management Program Staff and Solid Waste Staff participate in joint outreach activities, such as the Home and Garden Show, to educate the general public about storm drain pollution prevention, limiting the use of pesticides, using less toxic pesticides, and using natural pest control methods on lawns and gardens to reduce the amount of pesticides entering the storm drain system.

9.2.1.3 Pest Control Workshops

The Pesticide Plan indicates that the Permittees will hold annual public workshops in the summer in order to promote safer pest control. The Permittees implemented pest control workshops through the County's Solid Waste Division support of the San Joaquin UC Master Gardeners Program. During the 2014-2015 reporting period, the Master Gardener workshop series was held at Micke Grove Regional Park in Lodi, CA. The Master Gardeners series educates residents on a variety of home gardening and landscape topics. Stormwater Program messaging was also featured within the Master Gardener's Quarterly Newsletter. The publication *Garden Notes* (Volume January-March 2014) highlighted a full page article written by Master Gardener Susan Mora Loyko, retired City of Stockton Stormwater Outreach Coordinator.

9.2.1.4 Survey of Pesticides Available to the Public

The Permittees are required to conduct a survey of the regional sales of residential and commercial pesticides on a bi-annual basis (i.e., once every two years). The survey allows the Permittees to identify potential pesticide use. The survey was developed during 2008-2009[3]. The first survey was completed during 2009-2010 (Appendix I-1 of the 2009-2010 Annual Report) and the second survey was conducted during 2011-2012 (Appendix I-2 of the 2012 ROWD).

9.2.1.5 Coordination with Household Hazardous Waste Collection

The Permittees promote the County's HHW Program on their websites and at outreach events. In addition to providing printed materials, staff members advise the public as needed of proper disposal options and services offered by the HHW Facility.

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[1] http://www.stocktongov.com/files/InYourHome.pdf

[2] http://www.stocktongov.com/files/InYourGarden.pdf

[3] The survey design and protocols were submitted with the 2009 Annual Work Plan, and were included as Appendix I-1 in the 2008-2009 Annual Report

The County maintains and updates hazardous waste disposal information on its website[4] to inform the public of proper pesticide handling and disposal procedures. During 2014-2015, the Permittees collected pesticide liquids and solids via the HHW Program (described in **Section 4**).

9.2.2 Municipal Operations

The Permittees' efforts to track municipal annual pesticide use and utilization of IPM are described below. The Permittees' municipal operations activities include the following:

- Review of pesticide application protocols and landscaping standards,
- Implementation of IPM protocols, and
- Training for municipal employees.

9.2.2.1 Review of Pesticide Application Protocols and Landscaping Standards

In their efforts to review and modify their IPM protocols, including pesticide, herbicide, and fertilizer application protocols at park sites, landscaped medians, and golf courses, the Permittees have developed formal documentation describing their IPM-related policies and procedures, as described in **Section 4** and summarized below.

City

The City's IPM protocols are outlined in the draft update to administrative directive P&R-03, prepared during 2009-2010 to specify that each department using regulated pesticides, herbicides and/or fertilizers would ensure that employees and/or contractors utilize IPM and/or alternatives to pesticides whenever applicable. The draft administrative directive was included as Appendix I-2 of the 2009-2010 Annual Report. In March 2011, the City revisited the draft administrative directive and categorized it as a non-formal procedure instead of a formally adopted directive. The City developed a supplementary IPM Guide that referred to IPM policies in greater detail. The IPM Guide was included as Appendix I-2 of the 2009-2010 Annual Report.

Contract language was developed to specify that contracted pesticide applicators would utilize IPM. The following language has been included in all contract specifications since January 2010:

"INTEGRATED PEST MANAGEMENT

To the greatest extent practicable, the City expects the Contractor to the use Integrated Pest Management practices, principals, and concepts and least toxic methods of pest control to achieve the expected/specified results. Contractor is encouraged to consult the University of California Agriculture and Natural Resources State Wide Integrated Pest Management Program at www.ipm.ucdavis.edu to determine the most effective and least toxic methods of pest control. By July 15 of each year, Contractor shall provide a written report of Integrated Pest Management practices, principles, and concepts and least toxic methods of pest control used during the previous year."

County

The County formalized their IPM protocols in the IPM Policies and Practices Guide (**Appendix I-3** of the 2009-2010 Annual Report). The document describes IPM protocols used by the County, as well as the proper handling, application, and disposal of pesticides and training requirements for municipal staff and pest control operators.

[4] http://www.sjgov.org/solidwaste/HHW%20facility%20home.htm

9.2.2.2 Implementation of IPM Protocols

The IPM approach focuses on the long-term prevention and elimination of pests through a combination of techniques. Protocols are implemented by the Permittees as described below.

City

During 2014-2015, the City implemented the pesticide and fertilizer application protocol (Parks and Recreation Department Landscape Management Procedures, Landscape Maintenance BMP MO-1) at park sites, landscaped medians, and golf courses.

The City continued to implement a pesticide application protocol for the detention basins maintained by the City's Storm Drainage Maintenance Assessment Districts. In previous years, the Assessment Districts' basin maintenance has been outsourced and completed under a contract with Odyssey Landscape, Inc. The City's contract with Odyssey Landscape specified that the contractor shall use less toxic pesticide alternatives in accordance with IPM techniques and practices. The contractor has been required to supply a written pest control recommendation by a licensed pest control adviser for each material to be used at each site—for approval by the City—and to keep a log of all chemicals and their quantities applied. In 2014-2015, maintenance activities on detention basins were performed through limited contract extensions by the service contractor, pending contract renewal. During 2014-2015, the service contractor did not apply chemicals for weed control.

During 2014-2015, Public Works continued to require contractors to submit pesticide, herbicide and fertilizer reports in an electronic format that is compatible with City software. City acreage treated with pesticides and under the IPM program is reported in **Section 4.**

County

The County's Channel Maintenance Division implemented IPM-related policies and procedures described in its IPM Policies and Practices Guide (**Appendix I-3** of the 2009-2010 Annual Report), including proper handling, application, and disposal of pesticides and training requirements for municipal staff and pest control operators. Pesticide use and acres treated using IPM practices are reported in **Section 4**.

9.2.2.3 Training for Municipal Employees

Because pesticide application is now primarily performed by outside contractors, training for City employees on proper pesticide application protocols is no longer necessary. Contract language for outside contractors performing pest management and landscape maintenance promotes the use of IPM.

The County's IPM Policies and Practices Guide addresses the proper handling, application, and disposal of pesticides and outlines training requirements for municipal staff and pest control operators. During 2014-2015, the Public Works Department and Parks and Recreation Department continued IPM training and education through the California Department of Pesticide Regulation. The County incorporates IPM practices into its Municipal Operations training and supports additional training offered to the Channel Maintenance Division's pesticide applicators by the State. County staff is also under advisement of a State certified Pest Control Advisor, which hosts handling, application and integrated pest management trainings.

9.2.3 Water Quality Monitoring

The Permittees submitted a Pesticide Plan update in April 2009 with the 2009 SWMP, which included revised monitoring efforts to reflect the requirements in the 2007 Permit. Monitoring began in July 2008 and continued through the 2014-2015 monitoring year.

Monitoring was conducted in the Calaveras River (CR-2R), Mosher Slough (MS-14D, MS-14R, and MS-14RU), Five-Mile Slough (FM-3R), and Smith Canal (SC-5R). Stormwater samples were collected at the western perimeter of the SUA (NW-Rain) at the Mosher Slough MS-14D and east of the SUA (NE-Rain) at the Mosher Slough MS-1R monitoring locations. The monitoring locations are shown in **Figure 9-1**.

Monitoring is required for chlorpyrifos, diazinon and pyrethroids in urban runoff/discharges and within waterbodies during the following time periods:

- One wet weather event during the dormant spray season: December – March
- One wet weather event following the dormant spray season: March – June [Non-Dormant Spray Season]
- One dry weather event during the dry Season: June – October

The schedule of monitoring events completed during 2014-2015 is summarized in **Table 9-2**.

Table 9-2. Timing and Frequency of Pesticide Plan Monitoring Events

Waterbody	Site Type and Name	Dormant Spray Season Storm (2/6/15)	Non-Dormant Spray Season Storm (4/7/15)	Dry Season (5/29/15)
Mosher Slough – urban discharge	Pump Station: MS-14D	√	√	√
Mosher Slough – upstream	Receiving Water: MS-14RU	---[a]	---[a]	---[a]
Mosher Slough – downstream	Receiving Water: MS-14R	√	√	√
Five Mile Slough	Receiving Water: FM-3R	√	√	√
Calaveras River	Receiving Water: CR-2R	√	√	√
Smith Canal	Receiving Water: SC-5R	√	√	√
Rainwater Within City Limits	Rainwater collection site (MS-14D): NW Rain	√	√	---[b]
Rainwater Outside City Limits	Rainwater collection site (MS-1R): NE Rain	√	√	---[b]

Notes:
a= Not sampled. Upstream site was dry
b= Rainwater is not sampled during dry events

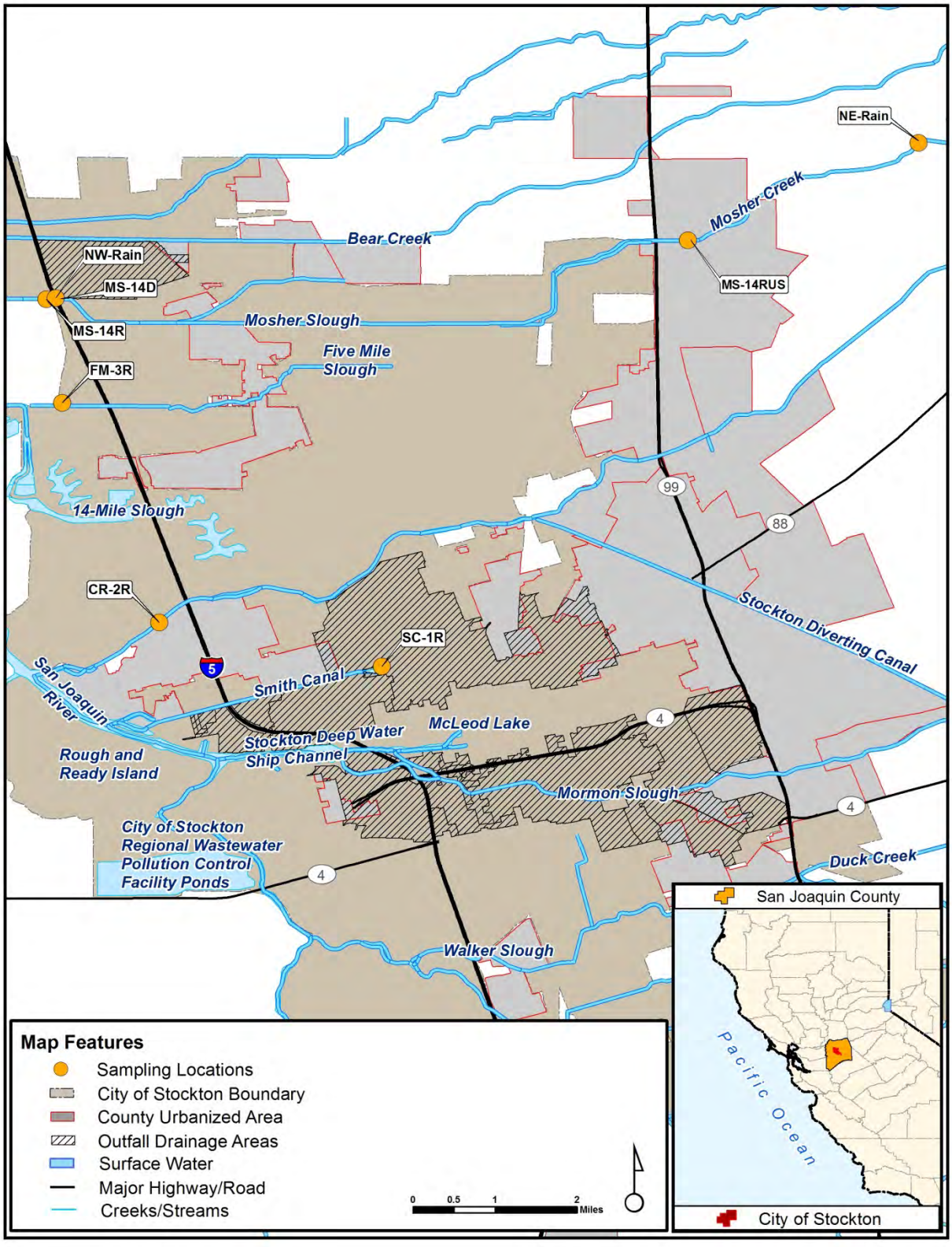

Figure 9-1. Pesticide Plan Monitoring Locations

9.2.3.1 Pesticide Plan Monitoring Results

During 2014-2015, a total of 19 samples were collected and analyzed for diazinon, chlorpyrifos, and pyrethroids, as shown in **Table 9-3** and **Table 9-4**. Complete 2014-2015 monitoring data are included in **Appendix I-1.** In cases of non-detection, results are reported as "less than" the detection limit.

The frequency of detection and the rate of WQO exceedances are shown in **Table 9-3**. The WQOs for diazinon and chlorpyrifos were the California Department of Fish and Game (CDFG) revised criteria of 160 ng/L and 25 ng/L (acute), and 100 ng/L and 15 ng/L (chronic) respectively, which are also the targets for the Sacramento-San Joaquin Delta Diazinon and Chlorpyrifos Total Maximum Daily Load (TMDL). There are currently no WQOs for pyrethroids.

During 2014-2015, there were two detections of diazinon above the reporting limit, both in rainwater samples. Chlorpyrifos was detected in 68% of samples, and pyrethroids were detected in all samples, which is higher than detection rates in previous monitoring years. All samples with WQO exceedances were rainwater samples, with chlorpyrifos WQO exceedances during both events, and a diazinon WQO exceedance during the dormant spray season storm event.

Table 9-3. Frequency of Detections and WQO Exceedances during the Pesticide Plan 2014-2015 Monitoring Years

Pesticide	Number of Samples	Number of Samples with Detections[a]	Detection Rate	Number of Samples above the WQO[b]	WQO Exceedance Rate
Diazinon	19	2	11%	1	5%
Chlorpyrifos	19	13	68%	3	16%
Pyrethroids	19	19[c]	100%	NA[d]	NA

Notes:

a = Detected results include results that are greater than the reporting limit. Results in between the detection limit and reporting limit that are qualified are not included.

b = WQOs for diazinon and chlorpyrifos are 16 ng/L (acute)/10 ng/L (chronic) and 25 ng/L (acute)/ 15 ng/L (chronic), respectively.

c= Number of samples where one or more pyrethroids were detected

d = Not Applicable. There are no applicable water quality objectives for pyrethroids.

Table 9-4. Chlorpyrifos Concentrations (ng/L) Observed during 2014-2015 Pesticide Plan Monitoring

Waterbody	Site Type and Name	Dormant Spray Season Storm (2/6/15)	Non-Dormant Spray Season Storm (4/7/15)	Dry Season (5/29/15)
Mosher Slough – urban discharge	Pump Station: MS-14D	5.0	2.3	ND < 0.5
Mosher Slough – upstream	Receiving Water: MS-14RU	NS	NS	NS
Mosher Slough – downstream	Receiving Water: MS-14R	3.0	1.4	ND < 0.5
Five Mile Slough	Receiving Water: FM-3R	0.98 J	0.9 J	ND < 0.5
Calaveras River	Receiving Water: CR-2R	1.3	0.8 J	ND < 0.5
Smith Canal	Receiving Water: SC-1R	0.9 J	ND < 0.5	ND < 0.5
Rainwater Within City Limits	Rainwater collection site (MS-14D): NW Rain	**15**	9.6	----
Rainwater Outside City Limits	Rainwater collection site (MS-1R): NE Rain	**18**	**25**	----

Notes:
J = Result was qualified as an estimated value. The constituent was detected at a level less than the reporting limit and greater than the method detection limit. Data is of limited reliability.
NS = Not sampled, dry channel.
ND = Not Detected
Bold = Result above the WQO

Table 9-5. Diazinon Concentrations (ng/L) Observed during 2014-2015 Pesticide Plan Monitoring

Waterbody	Site Type and Name	Dormant Spray Season Storm (2/6/15)	Non-Dormant Spray Season Storm (4/7/15)	Dry Season (5/29/15)
Mosher Slough – urban discharge	Pump Station: MS-14D	ND <0.1	ND <0.1	ND <0.1
Mosher Slough – upstream	Receiving Water: MS-14RU	NS	NS	NS
Mosher Slough – downstream	Receiving Water: MS-14R	ND <0.1	ND <0.2	ND <0.1
Five Mile Slough	Receiving Water: FM-3R	ND <0.1	ND <0.1	ND <0.1
Calaveras River	Receiving Water: CR-2R	ND <0.1	ND <0.2	ND <0.1
Smith Canal	Receiving Water: SC-1R	ND <0.1	ND <0.1	ND <0.1
Rainwater Within City Limits	Rainwater collection site (MS-14D): NW Rain	**10**	ND <0.1	----
Rainwater Outside City Limits	Rainwater collection site (MS-1R): NE Rain	4.0	ND <0.1	----

Notes:
NS = Not sampled, dry channel.
ND = Not detected
Bold = Result above the WQO

Table 9-6. Pyrethroid Concentrations (ng/L) Observed during 2014-2015 Pesticide Plan Monitoring

Waterbody	Site Type and Name	Pyrethroid	Dormant Spray Season Storm (2/6/15)	Non-Dormant Spray Season Storm (4/7/15)	Dry Season (5/29/15)
Mosher Slough – urban discharge	Pump Station: MS-14D	Bifenthrin	120	18	0.3 J
		Cyfluthrin	6.8	4.3	ND
		Lambda-Cyhalothrin	0.7	1.0	ND
		Cypermethrin	3.3	2.6	ND
		Deltamethrin:Tralomethrin	4.1	1.0	ND
		Esfenvalerate:Fenvalerate	2.0	0.3 J	ND
		Permethrin	35	11 J	ND
Mosher Slough – upstream	Receiving Water: MS-14RU		NS	NS	NS
Mosher Slough – downstream	Receiving Water: MS-14R	Bifenthrin	17	7.7	0.5
		Cyfluthrin	3.6	2.9	ND
		Lambda-Cyhalothrin	0.8	0.5	ND
		Cypermethrin	2.9	1.5	ND
		Deltamethrin:Tralomethrin	1.6	0.6 J	ND
		Esfenvalerate:Fenvalerate	0.5 J	ND	ND
		Permethrin	7.8 J	4.3 J	ND
Five Mile Slough	Receiving Water: FM-3R	Bifenthrin	0.3 J	0.2 J	0.2 J
Calaveras River	Receiving Water: CR-2R	Bifenthrin	1.5	2.8	0.2 J
		Cypermethrin	0.4 J	0.6	ND
		Deltamethrin:Tralomethrin	0.5 J	1.1	ND
Smith Canal	Receiving Water: SC-1R	Bifenthrin	0.47 J	0.2 J	0.4 J
Rainwater Within City Limits	Rainwater collection site (MS-14D): NW Rain	Bifenthrin	18	0.6	NA
		Cyfluthrin	0.5	ND	
		Lambda-Cyhalothrin	0.3 J	0.4 J	
		Cypermethrin	0.3 J	ND	
		Esfenvalerate:Fenvalerate	0. 0.57 J	ND	
		Permethrin	6.0 J	ND	

Waterbody	Site Type and Name	Pyrethroid	Dormant Spray Season Storm (2/6/15)	Non-Dormant Spray Season Storm (4/7/15)	Dry Season (5/29/15)
Rainwater Outside City Limits	Rainwater collection site (MS-1R): NE Rain	Bifenthrin	1.3	1.1	NA
		Lambda-Cyhalothrin	0.4 J	2.2	
		Esfenvalerate:Fenvalerate	0.9 J	ND	
		Fenpropathrin	0.4 J	ND	
		Tetramethrin	6.8	ND	

Notes:
J = Result was qualified as an estimated value. The constituent was detected at a level less than the reporting limit and greater than the method detection limit. Data is of limited reliability.
NS = Not sampled, dry channel.
ND = Sample was non-detect for pyrethroids, with the following method detection limits:

Pyrethroid	Method Detection Limit (ng/l)	Pyrethroid	Method Detection Limit (ng/l)
Allentrin	0.1	Esfenvalerate:Fenvalerate	0.2
Bifenthrin	0.1	Fenpropathrin	0.2
Lambda-Cyhalothrin	0.2	tau-Fluvinate	0.2
Cyfluthrin	0.4	Pendimethalin	0.50
Cypermethrin	0.2	Permethrin	4.0
Deltamethrin:Tralomethrin	0.2	Tetramethrin	0.2

Spatial and Temporal Trends Observed during Pesticide Plan Monitoring

To display the chlorpyrifos, diazinon, and pyrethroid data collected and elucidate spatial and temporal variations in pesticide concentrations, a geographic information systems (GIS) tool was utilized, as shown in **Figures 9-2 – 9-4.** A few general trends were observed, as discussed in the sections below.

Chlorpyrifos

During 2014-2015, chlorpyrifos was detected in most of the wet weather samples at levels below the acute and chronic WQOs. Levels of chlorpyrifos were above the chronic WQO in three of the four rainwater samples. However, it was not detected in any dry weather samples.

Over the past Permit term, most detections of chlorpyrifos occurred during the 2009-2010 monitoring period, as reported in the 2012 ROWD. Overall, there have been infrequent detections of chlorpyrifos in receiving water and urban runoff, suggesting that the phase-out by the USEPA (completed in 2005) has been effective in reducing the concentrations of chlorpyrifos in stormwater. Chlorpyrifos has only been infrequently detected in dry weather samples, with no detections during 2013-2014 or 2014-2015.

Diazinon

As discussed above and consistent with previous monitoring results, data collected indicate that WQOs for diazinon are consistently attained in Stockton waterways. Diazinon was not detected in any urban

discharge or receiving water samples, however it was detected in both rainwater samples from the dormant spray storm season event. The diazinon concentration in rainwater from the northwest rainwater location (near MS-14D) was at the chronic WQO.

All detections of diazinon during the current Permit term (except for two rainwater samples, 12/21/2008 and 3/13/2012) have been at levels below relevant WQOs, as reported in the 2012 ROWD. The lack of detections in urban discharge or receiving water samples during 2014-2015, in combination with prior monitoring results, offer further evidence that diazinon is not a POC in Stockton waterways.

Pyrethroids

Pyrethroids were detected in samples from all locations during all three events. Bifenthrin was the only pyrethroid present in all samples; however, most locations had low levels of bifenthrin (above the detection limit but below the reporting limit). Similar to previous years, the storm samples from the urban discharge location MS-14D on Mosher Slough had the highest levels of pyrethroids and the highest number of pyrethroids detected. The storm samples from the downstream receiving water location MS-14R had similarly high numbers of pyrethroids detected, with lower levels present. Samples from both rainwater locations had multiple pyrethroids detected.

Pyrethroids are typically most prevalent at MS-14D. In past years, pyrethroids were detected at this location during both dormant spray storm sampling events and during the dry season. Consistent with previous years, bifenthrin was most frequently detected. Typically, most detections of pyrethroids occur during the dormant spray season storm events.

Most studies on pyrethroids to date have focused on pyrethroids in sediment samples, as pyrethroids tend to bind with sediments. However, recent research has begun to focus on pyrethroids in the water column, and a recent publication has shown that they are ubiquitous in urban runoff within the Central Valley[5]. The Pesticide Plan 2014-2015 results confirm that pyrethroids are present in Stockton area waterways, and that continued Pesticide Plan monitoring and implementation actions should focus on pyrethroids.

[5] Weston, DP, Lydy, MJ. 2010. Urban and agricultural sources of pyrethroid insecticides to the Sacramento-San Joaquin Delta of California. Environmental Science and Technology 44, 1833-1840.

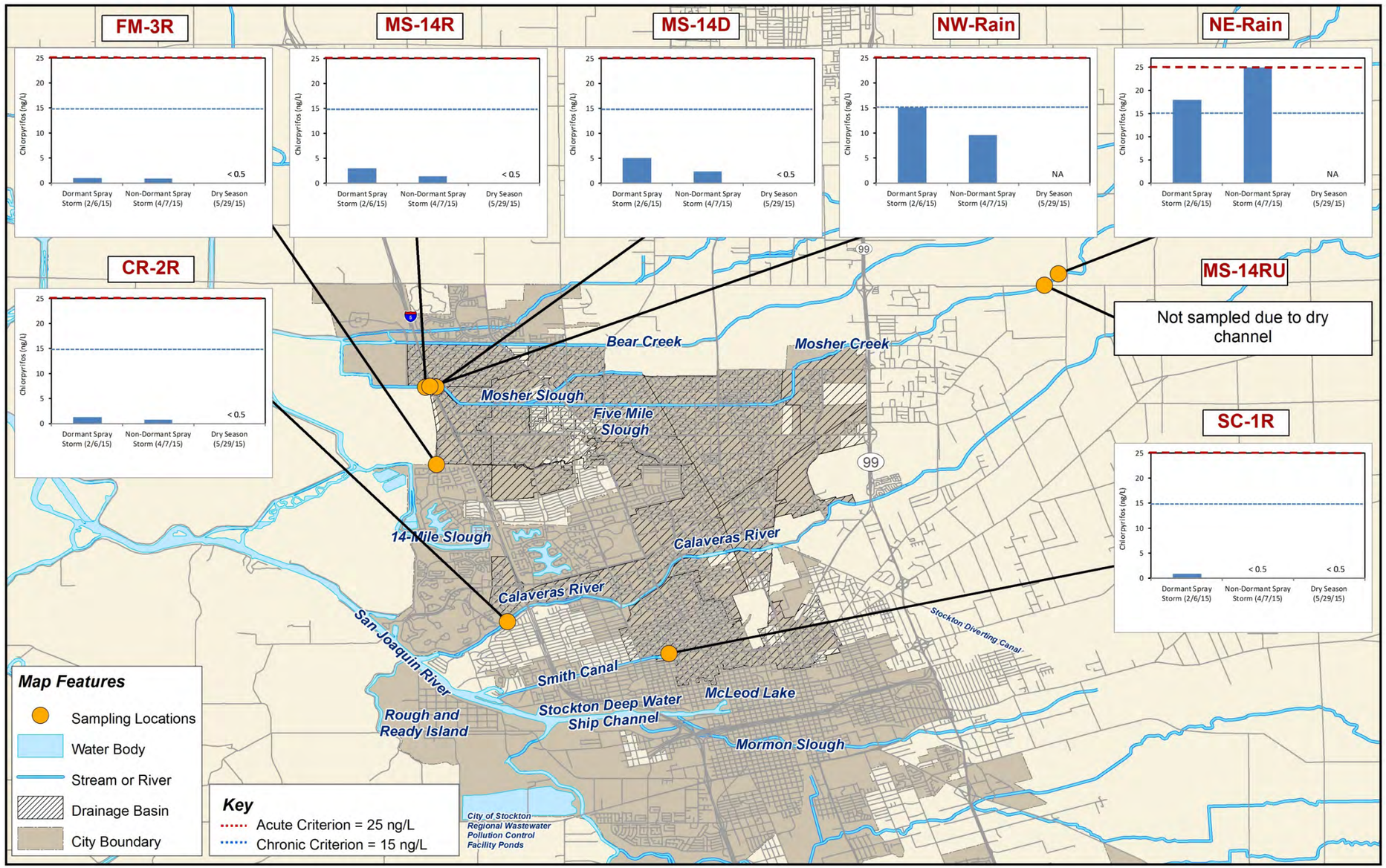

Figure 9-2. Chlorpyrifos Concentrations Observed During 2014-2015 Pesticide Plan Monitoring

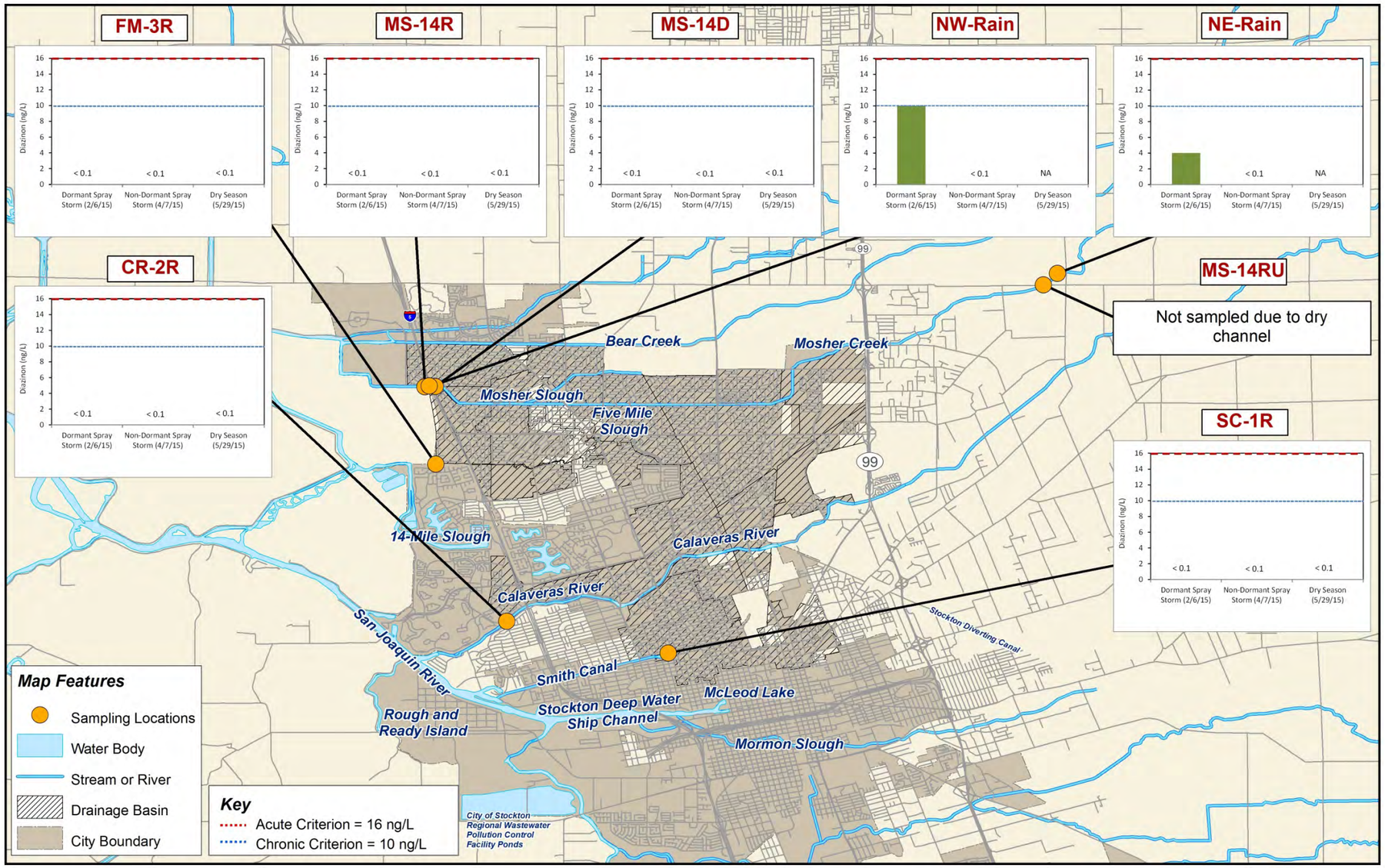

Figure 9-3. Diazinon Concentrations Observed During 2014-2015 Pesticide Plan Monitoring

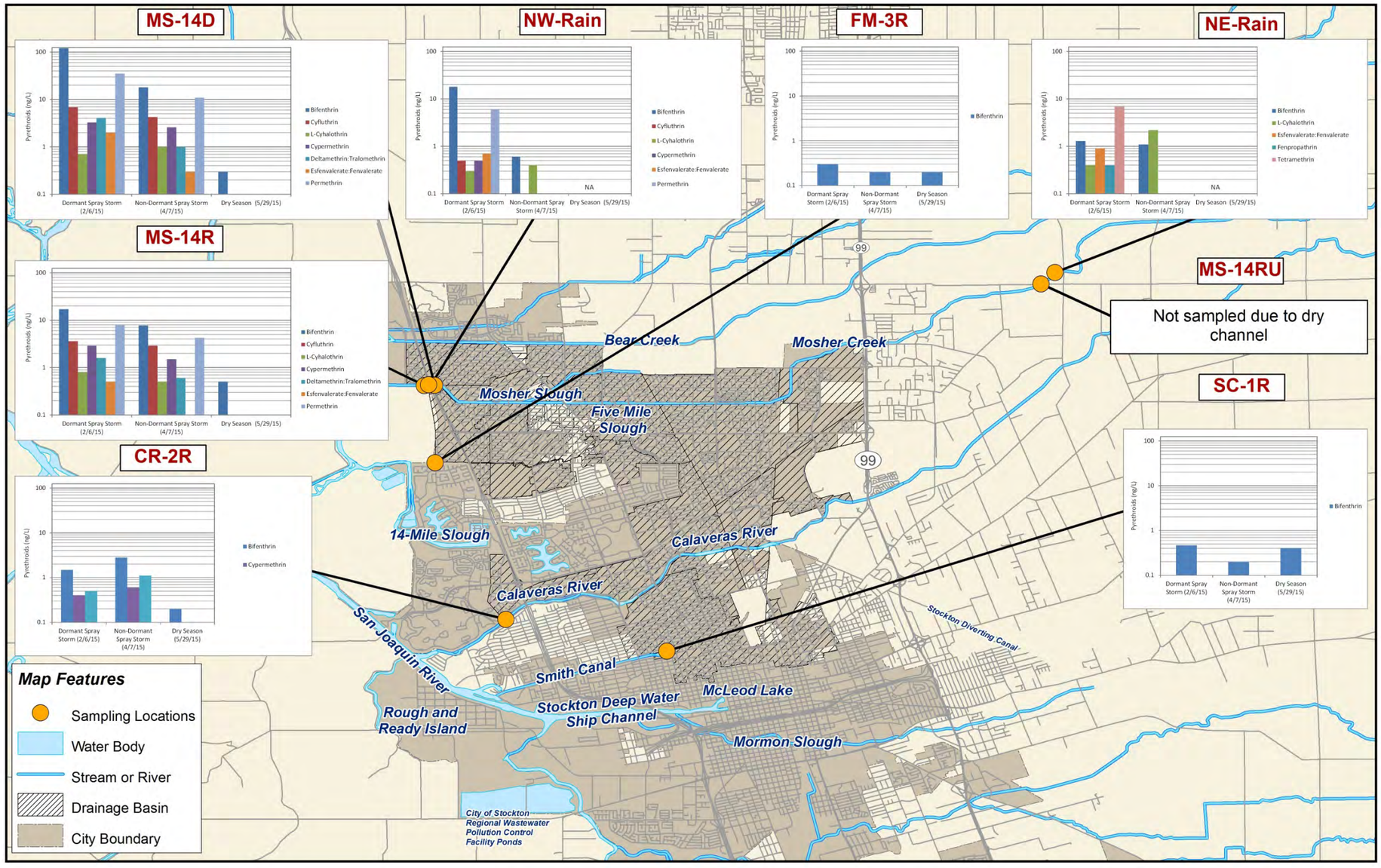

Figure 9-4. Pyrethroid Concentrations Detected During 2014-2015 Pesticide Plan Monitoring

9.2.4 Pesticide Plan Program Modifications

Each year, the Permittees submit an annual work plan to the Regional Water Board for the activities that will be completed during the upcoming fiscal year. The 2014-2015 work plan identified several key tasks for the Pesticide Plan. In addition, as part of the ROWD process, the Permittees have evaluated the effectiveness of program implementation during the Permit term, as well as the experience that staff has had in implementing the program, to identify the performance standards for the WQBPs for the next permit term. Through the development of the annual report, the annual work plan, and the ROWD, the Permittees have determined if any additional program modifications are necessary in order to ensure that the stormwater management program is effective.

The program modifications that have been identified for this Program Element for the upcoming Permit term are discussed in Section 2 of the June 2012 ROWD.

9.3 PATHOGEN PLAN PROGRESS REPORT

The Pathogen Plan focuses on the urban waterbodies within the SUA that are classified as impaired due to the presence of fecal indicator bacteria. The Permittees developed a Pathogen Plan in accordance with Provision D.18.b of the 2002 Permit, which required the Permittees to identify, monitor, and mitigate the controllable sources of bacteria. The Pathogen Plan was designed to accomplish these goals and satisfy permit requirements through the following components:

- **Characterization Monitoring** (using traditional indicator bacteria) to determine the magnitude of bacterial contamination at various points in each waterbody
- **Source Identification (ID) Studies** to identify the host (human, cow/horse, or dog) that contributed to fecal contamination
- **BMP Development and Implementation** to identify effective BMPs to reduce fecal contamination
- **Effectiveness Monitoring and Plan Assessment** to determine whether BMPs have effected fecal contamination

The Pathogen Plan addresses six waterbodies and is implemented in a phased approach that focuses on two waterbodies during each phase. Each phase includes the above components. The status of Pathogen Plan implementation for each phase is summarized in **Table 9-7**.

Table 9-7. Status of Pathogen Plan Implementation Phases.

Phase	Waterbody	Start Date	End Date[1]	Characterization Monitoring	Source ID Monitoring	BMP Implementation	Effectiveness Monitoring[2]
Phase I	Smith Canal Mormon Slough	July 1, 2004	June 30, 2012	Completed 2004-2005	Completed 2006-2007	Ongoing	Ongoing
Phase II	Mosher Slough Five Mile Slough	July 1, 2007	June 30, 2015	Completed 2007-2009	Completed 2009-2010	Ongoing	Ongoing
Phase III	Lower Calaveras River Walker Slough	July 1, 2010	June 30, 2018	Completed 2010-2012.	Not scheduled[3]	Ongoing	Ongoing

Notes:
[1] The end dates are per the Pathogen Plan. The ROWD proposed continuing effectiveness monitoring during the next Permit term.

[2]Effectiveness monitoring for fecal indicator bacteria is conducted on Smith Canal, Mosher Slough, Calaveras River, and Duck Creek as part of the Baseline Monitoring Program (**Section 8**).

[3]The Permittees communicated this modification to the Phase III approach to the Regional Water Board in the Pathogen Plan Monitoring Update, November 14, 2012, Letter to Diana Messina, Central Valley Regional Water Quality Control Board.

9.3.1 Characterization Monitoring

The goal of the characterization monitoring is to determine long-term trends in bacteria loading and identify bacteria "hot spots" that contribute to the loadings. Monitoring of traditional indicator bacteria (i.e., total coliform, fecal coliform, and *E. coli*) was conducted at strategic locations along the impaired waterbodies. All monitored sites were examined to determine if any sites consistently exceed bacteria criteria. Those sites that consistently exceed bacteria criteria were considered primary candidates for Source Identification monitoring. Characterization monitoring was completed for all waterbodies (see **Table 9-5**) and summarized in previous Annual Reports as well as the ROWD.

9.3.2 Source Identification Monitoring

Source ID is conducted by analyzing *Bacteroidales,* which are anaerobic bacteria that are highly abundant in the intestines of warm-blooded animals. Their anaerobic nature is desirable because environmental persistence is thought to be much less than aerobic microbes (e.g., fecal coliform) that can persist for years and perhaps even regrow in the environment. Source ID employs polymerase chain reaction (PCR) methods[6] that allow for identification of unique deoxyribonucleic acid (DNA) sequences to selectively quantify bacteria *Bacteroidales* from specific hosts. Methods were used to quantify bacteria from general warm-blooded animal inputs (referred to as "universal"); humans; cows and horses; and dogs. Source identification (Source ID) monitoring has been completed for Phase I and Phase II waterbodies (see **Table 9-5**) and summarized in previous Annual Reports as well as the ROWD.

9.3.3 BMP Implementation

The ultimate goal of the Pathogen Plan is to mitigate potential impacts by identifying sources of fecal bacterial contamination and implementing BMPs which focus on those sources. Targeted BMPs are selected based on the dominant controllable sources of fecal contamination determined from Source ID monitoring. The Permittees' BMP implementation efforts are focused on controlling pet waste and human sources. The BMPs implemented focus on the entire SUA, and are applicable to the Phase I, Phase II and Phase III waterbodies.

Pet Waste Control

The Permittees' efforts to promote proper disposal of pet waste have focused on public education and outreach as well as installation of pet waste stations and signage at local parks. Efforts by the Permittees during 2014-2015 are summarized in **Section 3** (Public Outreach) and described below:

- **Public Education and Outreach**. The Permittees promoted proper pet waste disposal through the following activities:
    - The City distributed bookmarks with pet waste messaging at all community outreach events oriented towards children and families.
    - The City wrote an article on *Pet Care and Our Environment* that was included in the June 2014 edition of the *Stockton Water News* utility billing insert, which was distributed to a total of 52,812 residents and businesses.

[6] Kildare, B., Leutenegger, C., McSwain, B., Bambic, D., Rajal, V., Wuertz, S. 2007. 16s rRNA-based assays for quantitative detection of universal, human-, cow-, and dog-specific fecal *Bacteroidales*: A Bayesian approach. Water Research, 41: 3701-3715.

- The City provided outreach and literature on the proper disposal of pet waste through the City's Web site.[7] Informational brochures (i.e., Outside Your Home[8] and BMPs for Kennels[9]) discuss proper disposal of pet waste. In addition, The City displayed an informational public service announcement video on their website discussing the problem of pet waste pollution and actions pet owners can take to properly dispose of pet waste.
- The City and County also continue to distribute the Stormwater Activity Book, focusing on stormwater pollution prevention for children, at outreach events where children are present.
- The County continued its support of the State Water Resource Control Board's Erase the Waste Campaign. The campaign was promoted by the Stormwater Program through the County's web site.

- **Pet Waste Stations and Signs**. The City previously developed language for and produced new Pet Waste Signs (described in the 2009-2010 Annual Report). In addition, the Permittees previously installed pet waste bag dispensing stations at several marinas within San Joaquin County, pursuant to the Keep the Delta Clean Grant (described in the 2008-2009 Annual Report).

  The County's Parks and Recreation Department and Public Works Solid Waste Division monitored the effectiveness of the Keep the Delta Clean Pilot pet waste bag dispensing stations program at several marinas in San Joaquin County. At present, pet waste has not been a problem in County owned and operated Parks and Recreation facilities. The County continues to support the KDC program for possible expansion to new and existing parks. Even though the marinas are not located in the Phase I area, the placement of the pet waste stations and accompanying Keep the Delta Clean campaign will spread the Phase I message of reducing nonpoint source pollution in rivers, streams, and other Delta waterbodies.

Human Source Control

Human-derived fecal contamination was identified in Phase I and Phase II waterbodies through source ID monitoring. Human inputs were primarily present during dry weather events. BMPs for human fecal source control were identified in the updated Pathogen Plan submitted with the Permittees' SWMP.

The Permittees track sanitary sewer overflows, which are a potential source of human-derived fecal contamination in Stockton waterways, as described in **Section 4.3**. Additionally, the Permittees' illicit discharge program (described in **Section 2.3-2.4**) incorporates control measures to identify illicit connections (e.g., a sanitary sewer connection to the storm drain). The City will continue to track and respond to sanitary sewer overflows and illicit connections as a potential source of human fecal input.

Additionally, the Permittees previously identified houseboats on Smith Canal as a possible contributor of human fecal pollution. Houseboats located north of the San Joaquin River are regulated by the Central Valley Flood Control Board and houseboats located on the south levee are the responsibility of the County Sheriff. Initial permits are issued for houseboats, but no further inspections are conducted after the initial permit issuance. Interagency coordination exists to address houseboat discharges. County ordinance restricts a houseboat or live-aboard from being anchored in a public water way for no more than 30 days and are required to show pump out receipts. All other boats are subject to 15 day limits and may be subject to citation and steep fines for non-compliance. California Department of Fish and

[7] http://www.stocktongov.com/government/departments/municipalUtilities/utilStormOut.html

[8] http://www.stocktongov.com/files/OutsideYourHome.pdf

[9] http://www.stocktongov.com/files/sw%20bmp%20kennels.pdf

Wildlife, the US Coast Guard and the County sheriff coordinate to hand out citations and fines. Marinas also have rental agreements with boaters requiring pump out receipts.

9.3.4 Effectiveness Monitoring

Effectiveness monitoring is conducted after BMPs have been implemented to assess the effectiveness of control programs. Assessment includes monitoring fecal indicator bacteria levels to determine if BMPs impacted the impairment of the waterbodies. Effectiveness monitoring is being conducted on Smith Canal, Mosher Slough, the Calaveras River, and Duck Creek as part of the Baseline Monitoring Program (**Section 8**). Indicator bacteria levels in each waterbody were evaluated for potential cause and contribute exceedances over two wet weather and two dry weather events during 2014-2015. There were WQO exceedances observed during wet weather events on each waterbody, but only one WQO exceedance during dry weather for *E. coli* and fecal coliform on Mosher Slough (described in **Section 8**). In general, long term trends in indicator bacteria levels have been consistent over the past permit term relative to prior permit terms (described in Section 2 of the 2012 ROWD).

9.3.5 Pathogen Plan Program Modifications

Each year, the Permittees submit an annual work plan to the Regional Water Board for the activities that will be completed during the upcoming fiscal year. The 2014-2015 work plan identified several key tasks for the Pathogen Plan. In addition, as part of the ROWD process, the Permittees have evaluated the effectiveness of program implementation during the Permit term, as well as the experience that staff has had in implementing the program, to identify the performance standards for the WQBPs for the next permit term. Through the development of the annual report, the annual work plan, and the ROWD, the Permittees have determined if any additional program modifications are necessary in order to ensure that the stormwater management program is effective.

The program modifications that have been identified for this Program Element for the upcoming Permit term are described in Section 2 of the 2012 ROWD.

9.4 MERCURY PLAN

The Sacramento-San Joaquin Delta Estuary (the Delta) is on the Clean Water Act Section 303(d) List of Impaired Water Bodies because of elevated levels of methylmercury in fish. To address mercury impairment in the Delta, the Permittees developed a Mercury Pollution Prevention Plan (Mercury Plan) that included a mercury monitoring program (Methylmercury Monitoring Plan). The Plans identified the Permittees' strategy to reduce methylmercury exposure in the Delta. In 2008, the Permittees developed and submitted the Mercury Plan and monitoring program according to Provision 28.d of the Permittees' 2007 Permit.

The focus of the Mercury Plan is to reduce mercury in urban runoff. The Mercury Plan identifies possible sources of mercury to urban runoff and describes public outreach and education strategies to mitigate the controllable sources of mercury pollution. It addresses the following goals:

- Public outreach to promote proper use and disposal of products containing mercury, including coordination with household hazardous waste facilities and commercial and industrial outreach
- Assessment and reduction of municipal use of mercury-containing products
- Support of sediment and erosion control efforts
- Characterization of total mercury and methylmercury in Stockton waterbodies and stormwater discharges

The Mercury Plan approach is shown in **Figure 9-5**, and includes the components described below.

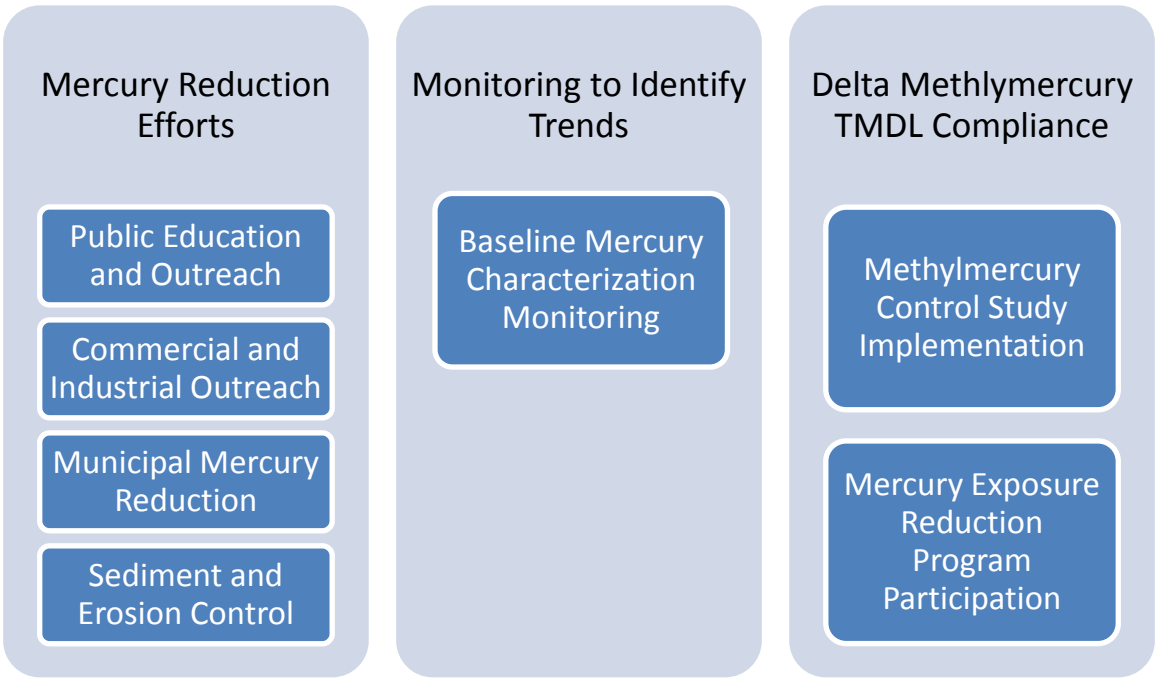

Figure 9-5. The Mercury Plan Approach

9.4.1 Public Outreach

The goal of public outreach is to promote public awareness about mercury pollution prevention, as well as inform the public of the health risk of mercury contamination in fish and Department of Health Services fish consumption advisories. The County provides this information on its website and communicates the

information at community outreach events.[10] A major component is to inform the public about common products that contain mercury and safe disposal options.

The Permittees promote the HHW Program to encourage proper disposal of products containing mercury. The HHW Program, a joint effort of the Permittees, collected mercury-containing products during 2014-2015, as described in **Section 4**. Information about HHW collection is made available by the Permittees to the public through the County website[11] and HHW Facility brochures. Their outreach brochure lists accepted products, including fluorescent bulbs, mercury thermometers, mercury thermostats and other devices containing mercury.

9.4.2 Commercial and Industrial Outreach

The Permittees conduct inspections of industrial and commercial facilities with the purpose of helping local businesses become better aware of what can be done to reduce or eliminate stormwater pollutants. These inspections include discussions about mercury-containing products, along with proper handling and disposal procedures (**Section 5**). During 2009-2010, the City revised the industrial inspection checklist to include questions pertaining to mercury. In 2013-2014, the City revised the commercial inspection evaluation checklists to include discussion of mercury-containing products, along with proper handling and disposal procedures. Staff began a round of commercial and industrial inspections in March 2014, which incorporated the updated checklists.

Mercury pollution prevention education is managed by the County's Environmental Health Department. The hazards and disposal of products that may contain mercury, such as fluorescent light bulbs and mercury thermometers, are addressed in free training classes available to small business throughout the year.[12] The County's Stormwater Management Program continues to distribute mercury specific fact-sheets during each Stormwater Commercial Business and Industrial Inspection. The mercury specific fact sheet is also available through the County's Stormwater Management Program website.

9.4.3 Municipal Mercury Reduction

The Permittees are required to identify the extent of their use of mercury containing products. This was accomplished through a mercury use survey, administered to municipal departments during 2009-2010 and summarized the Municipal Mercury Use Survey Report, which was included as an appendix to the 2009-2010 Annual Report. The Survey Report identified mercury-containing products used by the Permittees, along with recommended guidelines to reduce mercury from municipal operations when possible and to ensure the proper management of mercury-containing products.

The Permittees also continued to implement a Storm Drainage System Maintenance Control Measure. The Permittees prioritize catch basins for cleaning based on the required level of maintenance, label all catch basins with a storm drain message, and implement special event requirements to prevent debris accumulation in catch basins and storm drains. This Control Measure is described further in **Section 4**.

9.4.4 Sediment and Erosion Control

Sediment-associated elemental mercury from historic mining activity is a prevalent mercury source within the Central Valley. Erosion control and sediment control BMPs are implemented at construction sites within the SUA to avoid increased erosion and transport of mercury-contaminated soil into receiving

[10] http://www.sjcleanwater.org/Mercury.htm

[11] http://www.stocktongov.com/government/departments/publicWorks/garbHWHouse.html

[12] http://www.sjcehd.com/Programs/Others/unified.htm

waters via runoff. Accordingly, the stormwater program has a number of control measures and BMPs that address erosion and reduce sediment transport, including site design measures, source control, volume reductions and treatment controls. In the 2009 Stormwater Quality Control Criteria Plan (SWQCCP)[13], Low Impact Development (LID) policies and objectives are given for new development and redevelopment sites. For example, the SWQCCP specifically discourages development in areas that are susceptible to erosion and encourages minimization of impervious cover. Reductions in impervious cover increase infiltration and decrease the velocity of runoff thereby preventing erosion. In addition, the Permittees also require BMPs to minimize and/or eliminate the discharge of sediment from construction sites (see **Section 6**). The Permittees require that all construction sites disturbing one or more acres comply with the State Water Resources Control Board's General Construction Permit, which includes LID provisions. Efforts conducted during 2014-2015 under the Construction Program Element are further described in **Section 6**.

9.4.5 Mercury Characterization Monitoring

The Permittees conducted baseline mercury characterization monitoring from 2008-2011 to characterize the concentrations and loads of methylmercury entering the Delta from Stockton urban runoff. Baseline characterization monitoring was conducted at ten locations over three years for total mercury, methylmercury, and suspended sediment concentrations (SSC), capturing two dry-weather events and three wet-weather events per year for a total of 15 events. Based on the characterization monitoring results, estimates of the annual mercury loading from the municipal stormwater discharges within the SUA to the Delta were calculated. The mercury monitoring efforts, results, and annual loading estimates were presented in the *Baseline Mercury Monitoring Report* in December 2011, and summarized in the ROWD.

9.4.6 Delta Methylmercury TMDL Compliance

The Permittees are named as NPDES permitted urban runoff dischargers within the Sacramento-San Joaquin Delta Methylmercury TMDL[14]. As a part of Phase I of the TMDL, the City and the County are required to conduct a Methylmercury Control Study (Control Study) and participate in the Mercury Exposure Reduction Program (MERP). Progress for the Control Study and MERP participation is reported in the following sections.

9.4.6.1 Methylmercury Control Study

The Permittees submitted a Control Study Workplan to the Regional Board on April 22, 2013, and received feedback from the technical advisory committee and Regional Board staff during August 2013. The Permittees submitted a revised Control Study Workplan in October 2013 to address the comments received. The Control Study focuses on evaluating the mercury and methylmercury removal performance of the Airport Business Center detention basin within the SUA, along with examining the potential for methylmercury production in the basin. The Permittees are implementing the Control Study according to the schedule in **Table 9-8**.

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[13] The SWQCCP is available on the City's website at: http://www.ci.stockton.ca.us/mud/General/stormwater/SQCCP.cfm

[14] Central Valley Regional Water Quality Control Board. 2012. Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Methylmercury and Total Mercury in the Sacramento-San Joaquin River Delta Estuary. Rancho Cordova, CA. Available online: www.waterboards.ca.gov/rwqcb5/water_issues/tmdl/central_valley_projects/delta_hg/2011oct20/bpa_20oct2011_final.pdf

Table 9-8. Methylmercury Control Study Schedule

Task	Estimated Completion
~~Submit Control Study Work Plan to Regional Board~~	~~April 19, 2013~~
~~Regional Board and TAC Work Plan Review~~	~~May-July 2013~~
~~Finalize Work Plan~~	~~October 21, 2013~~
~~Initiate Control Study Sampling~~	~~October 2013~~
~~• First Year Monitoring~~	~~• Oct 2013 – Sep 2014~~
~~• Second Year Monitoring~~	~~• Oct 2014 – Sep 2015~~
• Third Year Monitoring	• Oct 2015 – Sep 2016
Submit Control Study Progress Report	October 2015
Regional Board and TAC Progress Report Review	November 2015-January 2016
Complete Control Study Sampling	September 2016
Submit Control Study Final Report to Regional Board	October 2018

Notes:
Tasks marked with strikethrough have been completed

The Control Study includes monitoring for mercury and methylmercury using grab samples; along with ancillary constituents (suspended sediment, TSS, TDS, turbidity, phosphorus, sulfate, and iron) using composite samples, and field readings. Samples are collected at the detention basin inlets and outlet. During dry weather events, sediment samples are collected for mercury and methylmercury. Sampling occurs during three wet weather events and one dry weather event for three years.

The second year of Control Study monitoring was completed during 2014-2015. A summary of completed events is shown in **Table 9-9**. A summary of the Control Study monitoring progress will be reported in the Control Study Progress Report due October 2015.

Table 9-9. Summary of Control Study Monitoring Completed during 2014-2015

Event	Date Completed	Inlet 1 (Pock Lane)	Inlet 2 (Industrial Way)	Inlet 3 (Parkside)	Outlet	Sediment[1]	Notes
SE1	10/31/14	G	G,C	G,C	G,C		The sampler at the Pock Lane inlet location failed to initiate sampling program.
SE2	12/11/14	G,C	G,C	G,C	G,C		
SE3	2/6/15	G,C	G,C	G,C	G,C		
DW1	6/8/15	G	G	G	G,C	G	Composite samples were not collected from inlet locations. • Insufficient flow at Pock Lane and Industrial Way inlets. • Sampler at Parkside Lane failed to initiate sampling

Notes:
[1]Sediment samples collected during dry weather events only.
G = Grab samples collected
C = Composite samples collected

9.4.6.2 Delta Mercury Exposure Reduction Program Participation

The Delta Mercury Control Program requires the entities identified in the Basin Plan to develop and implement a mercury exposure reduction program. The Delta MERP Participants are those entities and agencies that have formally submitted a letter describing their intent to participate in the collective exposure reduction program. The Permittees submitted their letter during 2013-2014, and are participating in the Delta MERP.

The Delta MERP is designed to increase understanding of contaminants in fish and reduce exposure to mercury among people who eat fish from the Delta. The Delta MERP is producing educational materials based on fish consumption guidelines, and that also focus on presenting a balanced message including health risks associated with exposure to mercury in fish, ways to reduce exposure, the health benefits of fish, and low-mercury fish species and areas. The Delta MERP is also focusing efforts on training opportunities for entities involved in the Delta MERP including county agencies, Tribal organizations, community-based organizations, and health care providers.

During 2014-2015 the Permittees contributed funding to the MERP and have been actively tracking its development and progress.

9.4.7 Mercury Plan Program Modifications

Each year, the Permittees submit an annual work plan to the Regional Water Board for the activities that will be completed during the upcoming fiscal year. The 2014-2015 work plan identified several key tasks for the Mercury Plan. In addition, as part of the ROWD process, the Permittees have evaluated the effectiveness of program implementation during the Permit term, as well as the experience that staff has had in implementing the program, to identify the performance standards for the WQBPs for the next permit term. Through the development of the annual report, the annual work plan, and the ROWD, the Permittees have determined if any additional program modifications are necessary in order to ensure that the stormwater management program is effective.

The program modifications that have been identified for this Program Element for the upcoming Permit term are described in Section 2 of the 2012 ROWD.

9.5 LOW DISSOLVED OXYGEN PLAN

Periodic depletions of dissolved oxygen (DO) levels below Basin Plan WQOs resulted in the designation of six SUA waterways as 303(d)-impaired for DO. As specified by Provision D(18)(c) and D(18)(d) of the second term Permit, the Permittees developed two separate work plans to address DO impairment of waterbodies within the SUA. In August 2003, the Smith Canal Drainage Area Analysis - Dissolved Oxygen Work Plan (Smith Canal Plan) was submitted and subsequently approved by the Regional Water Board in a letter dated December 16, 2003. In March 2004, the Dissolved Oxygen Plan (DO Plan) was finalized with a revision letter to the Regional Water Board on September 27, 2004. The Permittees submitted the Smith Canal Drainage Area Analysis and Low Dissolved Oxygen Work Plan Final Report in 2006.

Provision D.28.b.i/ii of the Permit directed the Permittees to develop and implement a Low Dissolved Oxygen Plan to address the DO impairment identified in urban waterways. The 2008 Low DO Plan was provided for public and regulatory review, and a revised Low DO Plan was submitted to the Regional Water Board on April 15, 2009.

9.5.1 Low DO Plan Monitoring

Monitoring in accordance with the Low DO Plan commenced in December 2008 and was completed in 2012 for those portions of the six SUA waterways on the 303(d) list for DO impairment:

- Smith Canal (entirety)
- Stockton Deep Water Ship Channel (DWSC near McLeod Lake – Stockton Channel)
- Mormon Slough (Commerce Street to Stockton DWSC)
- Five-Mile Slough (Alexandria Place to Fourteen Mile Slough)
- Calaveras River (lower)
- Mosher Slough (Downstream of Interstate 5)

Low DO Plan monitoring consisted of sediment sampling, monthly water quality grab sampling, and continuous monitoring of DO, temperature, pH and turbidity at specific locations. A full presentation of all monitoring results and conclusions was submitted in the *Low Dissolved Oxygen Plan Final Report* on January 31, 2013.

9.5.2 Low DO Plan Program Modifications

Each year, the Permittees submit an annual work plan to the Regional Water Board for the activities that will be completed during the upcoming fiscal year. In addition, as part of the ROWD process, the Permittees have evaluated the effectiveness of program implementation during the Permit term, as well as the experience that staff has had in implementing the program, to identify the performance standards for the WQBPs for the next permit term. Through the development of the annual report, the annual work plan, and the ROWD, the Permittees have determined if any additional program modifications are necessary in order to ensure that the stormwater management program is effective.

The program modifications that have been identified for this Program Element for the upcoming Permit term are described in Section 2 of the 2012 ROWD.

Section 10

Program Implementation, Assessment, and Reporting

10.1 OVERVIEW

The City is actively and adaptively managing the SWMP through the implementation, assessment, and reporting of the Program Elements and the related Control Measures and Performance Standards.

10.2 CONTROL MEASURES

The City has developed several Control Measures and accompanying performance standards to ensure that program implementation, assessment, and reporting-related Permit requirements are effectively developed and implemented. For each Control Measure there are accompanying performance standards which, once accomplished, constitute compliance with the SWMP/Permit.

The Control Measures consist of the following:

Control Measure
Program Implementation
Evaluation/Assessment
Reporting

This section of the Annual Report provides information on the specific tasks that have been initiated and/or completed during the 2014-2015 reporting period pursuant to the Performance Standards and implementation schedules.

10.3 PROGRAM IMPLEMENTATION

The SWMP has been structured to identify the specific activities that must be implemented, as well as the responsible party for implementing the activities. This has been accomplished through the establishment of Control Measures and Performance Standards. However, some Control Measures and Performance Standards require a series of tasks to be undertaken in order to complete them. Therefore, progressive implementation of the Performance Standards throughout the Permit term will be necessary in order to completely implement the Program Elements.

Successful implementation of the SWMP also requires an extensive training effort by the City to ensure that its employees understand the Stormwater Program and conduct their activities in a manner to minimize pollutants from stormwater discharges. The City's proposed training effort is described within each of the SWMP Program Elements.

10.3.1 Annual Work Plan

An Annual Work Plan is submitted to the Regional Water Board by **April 1** of each year. The Annual Work Plan summarizes the proposed activities that the City will undertake during the next fiscal year (July 1 – June 30). While the Annual Work Plan generally follows the Control Measures and Performance Standards outlined within the SWMP, it may also include additional activities that the City has identified as being necessary during the last reported period.

The City submitted the annual work plan for 2015-2016 to the Regional Water Board on March 31, 2015. The work plan identifies the various performance standards that will be initiated and/or completed during the next fiscal year.

10.4 EVALUATION/ASSESSMENT

Paramount to the success of the stormwater program is the need for the City to evaluate the effectiveness of its program by compiling and reviewing program data. As a part of this process and overall effectiveness assessment strategy, the City is currently assessing effectiveness as a part of the annual reporting process (see each of the Program elements). The strategy for assessing effectiveness will continue to build upon the results of the annual reports and initial assessments and will address the stormwater program in terms of achieving both programmatic goals and environmental goals.

By utilizing the iterative process and conducting effectiveness assessments, the City can use the information gained to adapt its programs and ensure that the resources expended are providing commensurate benefit and are protective of water quality. The results of these assessments and proposed modifications to the SWMP will be provided to the Regional Water Board on an annual basis as a part of the reporting process.

10.5 REPORTING

The City will continue to coordinate with the County in developing standardized formats for all reports that are required pursuant to the stormwater Permit. This will include annual reports, fiscal analysis reports, and program effectiveness assessments. Pursuant to the federal regulations, all work plans and reports will be signed and certified.

For this Annual Report, the reporting templates for both the City and the County were updated to ensure that the report would address the performance standards that needed to be initiated and/or completed during the 2014-2015 reporting period. The templates will continue to be updated as needed.

10.5.1 Annual Report

An annual report is submitted to the Regional Water Board by **September 1** of every year. The purpose of the Annual Report is to document the status of the SWMP implementation, present results from activities implemented, provide a compilation of deliverables and milestones reached during the previous fiscal year (July 1 – June 30), and report on the overall status and effectiveness of the SWMP. Updates, improvements, or revisions to the SWMP are also identified in the Annual Report.

This report covers the period from July 1, 2014 through June 30, 2015.

10.5.2 Report of Waste Discharge

The municipal stormwater Permit expired on December 6, 2012. As a result, the City was required to submit a ROWD to the Regional Water Board 180 days prior to its expiration (June 6, 2012). The ROWD serves as the application for the re-issuance of the Permit. The ROWD was submitted as required in June 2012.

10.6 PROGRAM MODIFICATIONS

Each year, the City submits a work plan to the Regional Water Board for the activities that will be completed during the upcoming fiscal year. The 2015-2016 work plan identified several key tasks for this Program Element. In addition, as part of the ROWD process, the City has evaluated the effectiveness of program implementation during the Permit term, as well as the experience that staff has had in implementing the program, to identify the performance standards for the Control Measures under this Program Element for the next permit term. Through the development of the annual report, the annual work plan, and the ROWD, the City has determined if any additional program modifications are necessary in order to ensure that the stormwater management program is effective.

The program modifications that have been identified for this Program Element for the upcoming permit term are discussed below (see also Section 10 of the June 2012 ROWD).

- The primary modification to the Program Implementation, Assessment, and Reporting Program is for the Permittees to incorporate the Annual Work Plan (currently submitted by April 1 of each year) into the Annual Report that is submitted on September 1 of each year. Submitting the Annual Work Plan in September for the next fiscal year is more efficient for the Permittees. During the development of each Annual Report, the Permittees assess what has been completed, what program modifications should be proposed, and what activities will be conducted during the next fiscal year. By incorporating the Annual Work Plan into the Annual Report, the program will have continuity from year to year, allowing the Permittees to maximize their efforts.