

SACRAMENTO



STORMWATER
QUALITY
PARTNERSHIP

Report of Waste Discharge and Long Term Effectiveness Assessment

*Sacramento Stormwater Quality Partnership —
including the County of Sacramento and the cities of Sacramento, Citrus Heights, Elk Grove, Folsom, Galt, and Rancho Cordova*

March 15, 2013

NPDES
Stormwater
Permit No.
CAS082597

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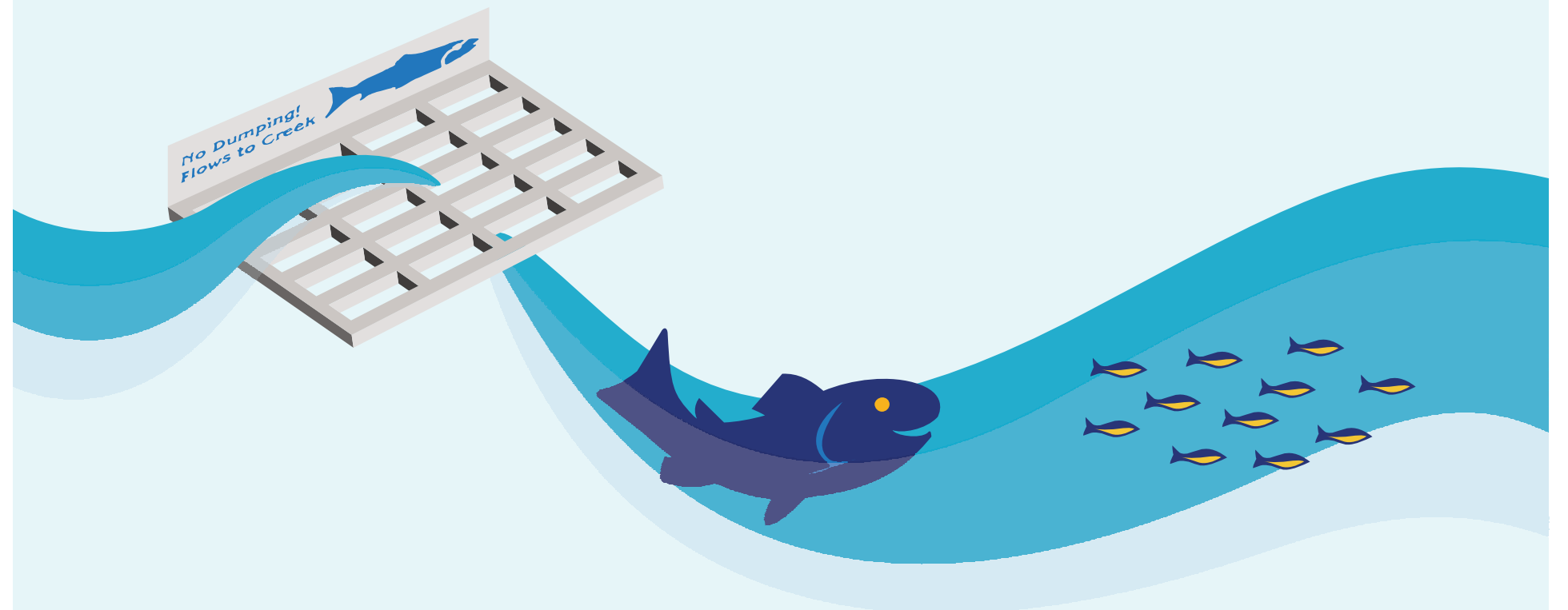
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Submitted to:

State of California Regional Water Quality Control Board
Central Valley Region, 11020 Sun Center Drive #200, Rancho Cordova, CA 95670-6114

NPDES Stormwater Permit No. CAS082597

Sacramento Stormwater Quality Partnership
Report of Waste Discharge and Long Term Effectiveness Assessment
March 15, 2013

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State of California
 Regional Water Quality Control Board
APPLICATION/REPORT OF WASTE DISCHARGE
GENERAL INFORMATION FORM FOR
WASTE DISCHARGE REQUIREMENTS OR NPDES PERMIT



I. FACILITY INFORMATION

A. Facility:

Name: County of Sacramento and Incorporated Cities - MS4			
Address: Various - See Attached Co-Permittee List			
City:	County: Sacramento	State: CA	Zip Code:
Contact Person:		Telephone Number:	

B. Facility Owner:

Name: Various - See Attached Co-Permittee List			Owner Type (Check One)	
Address:			1. <input type="checkbox"/> Individual	2. <input type="checkbox"/> Corporation
City:			3. <input checked="" type="checkbox"/> Governmental Agency	4. <input type="checkbox"/> Partnership
State:			5. <input type="checkbox"/> Other: _____	
Zip Code:				
Contact Person:		Telephone Number:	Federal Tax ID:	

C. Facility Operator (The agency or business, not the person):

Name: Various - See Attached Co-Permittee List			Operator Type (Check One)	
Address:			1. <input type="checkbox"/> Individual	2. <input type="checkbox"/> Corporation
City:			3. <input checked="" type="checkbox"/> Governmental Agency	4. <input type="checkbox"/> Partnership
State:			5. <input type="checkbox"/> Other: _____	
Zip Code:				
Contact Person:		Telephone Number:		

D. Owner of the Land:

Name: Various - See Attached Co-Permittee List			Owner Type (Check One)	
Address:			1. <input type="checkbox"/> Individual	2. <input type="checkbox"/> Corporation
City:			3. <input checked="" type="checkbox"/> Governmental Agency	4. <input type="checkbox"/> Partnership
State:			5. <input type="checkbox"/> Other: _____	
Zip Code:				
Contact Person:		Telephone Number:		

E. Address Where Legal Notice May Be Served:

Address: Various - See Attached Co-Permittee List		
City:	State:	Zip Code:
Contact Person:		Telephone Number:

F. Billing Address:

Address: Various - See Attached Co-Permittee List		
City:	State:	Zip Code:
Contact Person:		Telephone Number:



**APPLICATION/REPORT OF WASTE DISCHARGE
GENERAL INFORMATION FORM FOR
WASTE DISCHARGE REQUIREMENTS OR NPDES PERMIT**



II. TYPE OF DISCHARGE

Check Type of Discharge(s) Described in this Application (A or B):

- A. WASTE DISCHARGE TO LAND B. WASTE DISCHARGE TO SURFACE WATER

Check all that apply:

- | | | |
|---|--|---|
| <input type="checkbox"/> Domestic/Municipal Wastewater Treatment and Disposal | <input type="checkbox"/> Animal Waste Solids | <input type="checkbox"/> Animal or Aquacultural Wastewater |
| <input type="checkbox"/> Cooling Water | <input type="checkbox"/> Land Treatment Unit | <input type="checkbox"/> Biosolids/Residual |
| <input type="checkbox"/> Mining | <input type="checkbox"/> Dredge Material Disposal | <input type="checkbox"/> Hazardous Waste (see instructions) |
| <input type="checkbox"/> Waste Pile | <input type="checkbox"/> Surface Impoundment | <input type="checkbox"/> Landfill (see instructions) |
| <input type="checkbox"/> Wastewater Reclamation | <input type="checkbox"/> Industrial Process Wastewater | <input checked="" type="checkbox"/> Storm Water |
| <input type="checkbox"/> Other, please describe: _____ | | |

III. LOCATION OF THE FACILITY

Describe the physical location of the facility.

<p>1. Assessor's Parcel Number(s) Facility: NA Discharge Point: Outfall Maps (CD)</p>	<p>2. Latitude Facility: NA Discharge Point: Outfall Maps (CI)</p>	<p>3. Longitude Facility: NA Discharge Point: Outfall Maps (CD)</p>
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IV. REASON FOR FILING

<input type="checkbox"/> New Discharge or Facility	<input type="checkbox"/> Changes in Ownership/Operator (see instructions)
<input type="checkbox"/> Change in Design or Operation	<input checked="" type="checkbox"/> Waste Discharge Requirements Update or NPDES Permit Reissuance
<input type="checkbox"/> Change in Quantity/Type of Discharge	<input type="checkbox"/> Other: _____

V. CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

Name of Lead Agency: <u>Central Valley Regional Water Quality Control Board</u>	
Has a public agency determined that the proposed project is exempt from CEQA? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
If Yes, state the basis for the exemption and the name of the agency supplying the exemption on the line below.	
Basis for Exemption/Agency: <u>Porter Cologne Act</u>	
Has a "Notice of Determination" been filed under CEQA? <input type="checkbox"/> Yes <input type="checkbox"/> No	
If Yes, enclose a copy of the CEQA document, Environmental Impact Report, or Negative Declaration. If no, identify the expected type of CEQA document and expected date of completion.	
Expected CEQA Documents:	
<input type="checkbox"/> EIR <input type="checkbox"/> Negative Declaration	Expected CEQA Completion Date: _____



**APPLICATION/REPORT OF WASTE DISCHARGE
GENERAL INFORMATION FORM FOR
WASTE DISCHARGE REQUIREMENTS OR NPDES PERMIT**



VI. OTHER REQUIRED INFORMATION

Please provide a COMPLETE characterization of your discharge. A complete characterization includes, but is not limited to, design and actual flows, a list of constituents and the discharge concentration of each constituent, a list of other appropriate waste discharge characteristics, a description and schematic drawing of all treatment processes, a description of any Best Management Practices (BMPs) used, and a description of disposal methods.

Also include a site map showing the location of the facility and, if you are submitting this application for an NPDES permit, identify the surface water to which you propose to discharge. Please try to limit your maps to a scale of 1:24,000 (7.5' USGS Quadrangle) or a street map, if more appropriate.

VII. OTHER

Attach additional sheets to explain any responses which need clarification. List attachments with titles and dates below:

Co-Permittee information, Certifications and a map of the Urbanized Area (Permit area) immediately follow this application. Discharge Characterization, Long Term Effectiveness Assessment and proposed SQIP Amendments are included in this binder as Sections 2 (and following). A CD (Binder pocket) contains: this entire ROWD/I TFA submittal, Outfall Maps and monitoring data.

You will be notified by a representative of the RWQCB within 30 days of receipt of your application. The notice will state if your application is complete or if there is additional information you must submit to complete your Application/Report of Waste Discharge, pursuant to Division 7, Section 13260 of the California Water Code.

VIII. CERTIFICATION

"I certify under penalty of law that this document, including all attachments and supplemental information, were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated 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 fine and imprisonment."

Print Name: Attached

Title: _____

Signature: _____

Date: _____

FOR OFFICE USE ONLY

Date Form 200 Received:	Letter to Discharger:	Fee Amount Received:	Check #:

CO-PERMITTEE LIST

County of Sacramento (co-lead)

Federal Tax ID: 94-6000529
Michael Peterson, Director
Department of Water Resources
Dana Booth, Program Manager
County of Sacramento
827 7TH Street, Room 301
Sacramento, CA 95814
Ph: (916) 874-4389
Fax: (916) 874-8693
BoothD@SacCounty.Net

City of Citrus Heights

Federal Tax ID:
David Wheaton, Director
General Services
Cesar Montes de Oca, Associate Engineer
City of Citrus Heights
6237 Fountain Square Drive
Citrus Heights, CA 95621-5577
Ph: (916) 727-4768
Fax: (916) 727-1454
CMontesdeOca@CitrusHeights.Net

City of Folsom

Federal Tax ID: 94-6000334
David E. Miller, Director
Public Works/Community Development
Sarah Staley, SWQ Program Manager
City of Folsom
50 Natoma Street
Folsom, CA 95630
Ph: (916) 351-3545
SStaley@Folsom.Ca.US

City of Rancho Cordova

Federal Tax ID: 80-0058934
Cyrus Abnar, Director
Public Works
Britton Snipes, Associate Civil Engineer
City of Rancho Cordova
2729 Prospect Park Drive
Rancho Cordova 95670
Ph: (916) 851-8905
Fax: (916) 851-8787
BSnipes@CityofRanchoCordova.Org

City of Sacramento (co-lead)

Federal Tax ID: 94-6000410
Bill Busath, Division Manager
Department of Utilities
Sherill, Huun, Supervising Engineer
City of Sacramento
1395 35TH Avenue
Sacramento, CA 95822
Ph: (916) 808-1455
Fax: (916) 808-1497
SHuun@CityOfSacramento.Org

City of Elk Grove

Federal Tax ID: 94-3366854
Richard Shepard, Director
Department of Public Works
Darren Wilson, Manager
Engineering Services
City of Elk Grove
8401 Laguna Palms Way
Elk Grove, CA 95758
Ph: (916) 627-3446
Fax: (916) 691-3173
DWilson@ElkGroveCity.Org

City of Galt

Federal Tax ID: 94-6000339
Steven Winkler, Director
Department of Public Works (DPW)
Bill Forrest, Senior Civil Engineer
City of Galt DPW
495 Industrial Drive
Galt, CA 95632
Ph: (209) 366-7260
Fax: (209) 745-0811
WForrest@Ci.Galt.Ca.US



Robert B. Leonard
Chief Deputy County Executive

Bradley J. Hudson
County Executive

Department of Water Resources
Michael L. Peterson, Director

County of Sacramento

CERTIFICATION

Report of Waste Discharge and Long Term Evaluation Effectiveness Assessment for Permit
Number CAS082597 Order No. R5-2008-0142

In accordance with Title 40, Section 122.22, Paragraphs (a)(3), (b)(1) and (d) of the Code of
Federal Regulations

"I certify under penalty of 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
properly 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 fine and imprisonment for knowing violations."

Date: 3/13/13


MICHAEL L. PETERSON, Director
Department of Water Resources



DEPARTMENT
OF UTILITIES

ENGINEERING
SERVICES DIVISION

CITY OF SACRAMENTO
CALIFORNIA

1395 35th AVENUE
SACRAMENTO, CA
95822-2911

PH 916-808-1400
FAX 916-808-1497/1498

**Report of Waste Discharge and Long Term Effectiveness Assessment for Permit
Number CAS082597 Order No. R5-2008-0142**

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Bill Busath, Engineering Services Division Manager
City of Sacramento
Department of Utilities

Date: 3/12/13



CITY OF SACRAMENTO
DEPARTMENT
OF UTILITIES

Making a Difference in Your Neighborhood



CITY OF CITRUS HEIGHTS

6237 Fountain Square Drive • Citrus Heights, CA 95621-5577 • (916) 725-2448
Fax (916) 725-5799 • TDD (916) 725-6185 • www.citrusheights.net

The City of Citrus Heights is committed to providing high quality, economical, responsive city services to our community.

CERTIFICATION

Report of Waste Discharge and Long Term Evaluation Effectiveness Assessment
for Permit Number CAS082597 Order No. R5-2008-0142

In accordance with Title 40, Section 122.22, Paragraphs (a)(3), (b)(1) and (d) of
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Date: 3-13-13

Phone: 916.683.7111
Fax: 916.691.3168

Web: www.elkgrovecity.org

8401 Laguna Palms Way
Elk Grove, California 95758



Sacramento Stormwater Quality Partnership

REPORT OF WASTE DISCHARGE AND LONG TERM EVALUATION EFFECTIVENESS ASSESSMENT FOR NPDES PERMIT NUMBER CAS082597 ORDER No. R5-2008-0142

CITY OF ELK GROVE CERTIFICATION

In accordance with Title 40, Section 122.22, Paragraphs (a)(3), (b)(1) and (d) of the Code of Federal Regulations

I certify under penalty of 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 properly 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 fine and imprisonment for knowing violations.

Executed on the 11th day of March, 2013,

at Elk Grove, CA.



Signature

Darren Wilson, P.E.
Engineering Services Manager

CITY OF FOLSOM

50 Natoma Street
Folsom, California 95630



Public Works Department
Administration/Engineering

CITY OF FOLSOM STORMWATER QUALITY PROGRAM

REPORT OF WASTE DISCHARGE NPDES PERMIT NO. CAS082597

CERTIFICATION

In accordance with Title 40, Section 122.22, Paragraphs (a)(3), (b)(1) and (d) of the Code of Federal Regulations:

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Executed on the 25th day of February, 2013,

At Folsom, California.

A handwritten signature in blue ink that reads "David E. Miller". The signature is written over a horizontal line.

Signature

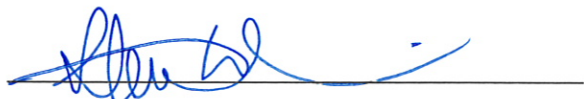
David E. Miller, AICP
Public Works/Community Development Director
City of Folsom

CERTIFICATION

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Date: 3/13/2013

Steven Winkler
Public Works Director



2729 Prospect Park Drive • Rancho Cordova, CA 95670
Phone: (916) 851-8700 • Fax: (916) 851-8787

CERTIFICATION

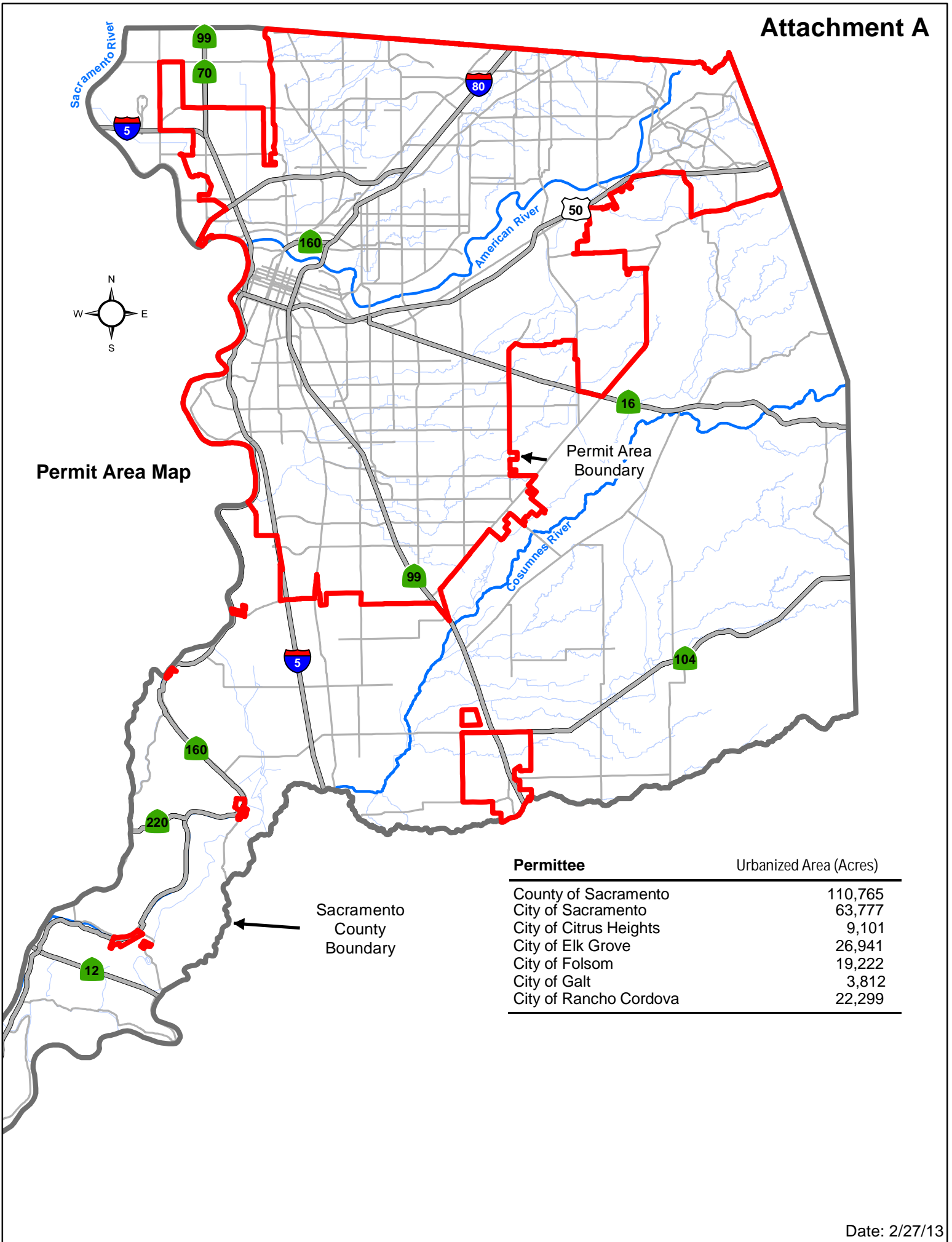
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Date: 3-14-2013



Permit Area Map

Permittee	Urbanized Area (Acres)
County of Sacramento	110,765
City of Sacramento	63,777
City of Citrus Heights	9,101
City of Elk Grove	26,941
City of Folsom	19,222
City of Galt	3,812
City of Rancho Cordova	22,299

The Permittee Outfall Maps are located
in the Outfall Maps folder
on this disk.

2.1 Executive Summary

The Sacramento Stormwater Quality Program (Program) was one of the first municipal stormwater programs established in the state, receiving its NPDES permit in May 1990. This Program is implemented collectively by the Sacramento Stormwater Quality Partnership (Partnership), comprised of the County of Sacramento and the incorporated cities of Citrus Heights, Elk Grove, Folsom, Galt, Rancho Cordova, and Sacramento. This spring marks 23 years of program implementation, thousands of monitoring data points, numerous program successes, and many lessons learned, which have been documented in annual reports, technical reports, and a variety of other compliance submittals. The Long Term Effectiveness Assessment (LTEA) draws upon these results to synthesize a long term evaluation of the Program, which identifies key findings about program effectiveness, and provides a set of recommendations for continued improvement. As the LTEA demonstrates, the Program is a mature program in which foundational elements of program management such as legal authority, funding, collaborative agreements, departmental responsibilities, and staffing management have been long established, and a wide variety of effective Best Management Practices (BMPs) developed and implemented.

Assessment Strategy

The LTEA utilizes both programmatic and environmental outcomes to evaluate effectiveness. Programmatic outcomes show the extent to which the program is implemented, its effect on raising awareness, or on a measurable change in behavior among the target population. Environmental outcomes are based on measured or estimated changes attributable to program activities in the amount of pollutants released to or observed in urban runoff or receiving waters.

The LTEA focuses on programmatic outcomes in instances where a logical link can be drawn from implementation of the activity to environmental benefits, but for which direct measurement of an environmental benefit attributable to the activity is impractical or impossible. In the field of stormwater pollution control, this is often the case, due to the inherently widespread, diffuse nature of most pollutant sources, and the fact that release of these pollutants is affected by the behavior of literally hundreds of thousands of individuals living in the urban environment. It is not always practical to measure programmatic outcomes using numerical indicators, so some of these assessments are qualitative.

Based on a large set of high quality data collected by the Partnership's monitoring program (which spans more than two decades), and utilizing a variety of statistical analyses (to better-evaluate the inherently variable data), the LTEA uses environmental outcomes to assess the overall effectiveness of the program in protecting and improving the water quality of urban discharge and receiving waters. These environmental outcomes are discussed below within the framework of a set of management questions that were established in the Partnership's Stormwater Quality Improvement Plan (SQIP), which guided the design of the water quality monitoring program. The ability to link specific activities to measurable water quality improvements is limited by both the diffuse nature of pollutant sources, and the inherent variability of stormwater data. However, special studies and detailed analysis of our

monitoring data provide important information about the impact of some key activities on water quality.

To some extent, the LTEA focuses the effectiveness of work conducted during the 2008 permit term, which best represents the current status of the Program. However, as necessary, the Partnership utilized data and information from the three previous permit terms (1990-2008) to provide baseline data, evaluate progress, and to support conclusions and recommendations.

The LTEA examines each of the program elements set forth in the Permit and the SQIP: Program Management, Construction, Commercial/Industrial, Municipal Operations, Illicit Discharge, Public Outreach, New Development, and Monitoring/Target Pollutant.

For each of the program elements, the Partnership compiled program assessment data (Appendix A), and worked together to collectively assess the effectiveness of their elements based on the data and through their knowledge and experience. Program managers were also directed to provide recommendations for changes to their elements. The findings and recommendations of the element managers form the basis for what is highlighted in the LTEA and the proposed SQIP amendments that are recommended in the 5-year work plans (Chapter 3).

Key Findings

One of the Key Findings/Challenges for the Partnership is true-source control. As demonstrated by the progress made by the Brake-Pad Partnership for copper and by the Partnership for pesticides, it is much more effective to control the source of contamination at the product manufacturing and/or regulation level. While local governments can control some sources and support effective changes for others, state and federal governments are responsible for implementing many of the changes that will result in water quality improvements. Thus, it would be helpful if the state would take a leadership for these sources. Key findings are as follows:

Program Management

- Each member of the Partnership has established stormwater ordinances that provide the legal authority necessary for full implementation of the Program
- Formal interagency agreements among Partnership members are in place to provide mechanisms for decision making and cost sharing
- Funding mechanisms are in place to support program activities

Construction

- Permittee-specific plan review processes were variable but all resulted in a high rate of compliance
- Permittee-specific progressive enforcement is effective but lacks the regional coordination necessary to track violators across jurisdictional boundaries
- Municipal employees are generally knowledgeable of State Construction General Permit requirements and local requirements for construction site management

Commercial/Industrial

- The regional inspection program for priority businesses is efficient, effective and creates a level playing field for businesses within the Permit area
- Permittee-specific programs for non-priority businesses did not encounter sufficient issues to warrant elevating any additional businesses to a priority standing

Municipal Operations

- Drainage maintenance plays an important role in preventing pollutants from entering waterways from both the physical removal of pollutants as well as the detection of illicit connections/discharges
- Permittee-specific programs ensure a high level of stormwater compliance at municipal facilities

Illicit Discharge

- Training of municipal employees and public awareness of phone ‘hotlines’ has created a successful referral system
- The size of a release and the response rate to the release is more important than the nature of the release (e.g. hazardous vs non-hazardous materials)
- Household Hazardous Waste Programs are an effective tool to reduce the potential for contaminants to enter into the drainage system but more uniform tracking mechanisms are needed

Public Outreach

- The fundamental concept of stormwater flowing untreated into creeks and rivers has yet to be widely understood by the public

New Development

- Permittee-specific plan review processes were variable but all resulted in a high rate of compliance
- Maintenance Agreements/Covenants and maintenance follow-up are effective at ensuring adequate performance of control measures or devices

Monitoring and Target Pollutant

- Urban discharges, urban tributaries, and the rivers have been effectively characterized for the Sacramento permit area
- River water is generally of high quality. Exceedances of water quality standards in rivers are rare to infrequent.
- Water quality exceedances observed in the rivers are generally not linked to urban discharge sources
- The vast majority of constituents monitored do not pose a threat to water quality
- Drinking water beneficial uses in the rivers are adequately protected
- In older development areas, trends are not discernible for most monitored constituents
- True-source control is the most effective method to achieve water quality benefits

- Implementing new development standards significantly improves the quality of urban runoff
- Local involvement/support for state and federal changes with regards to pesticide use have resulted in:
 - Urban tributaries in the Sacramento permit area no longer impaired by diazinon and chlorpyrifos
 - Toxicity occurrences in urban tributaries have decreased significantly. Recent adoption of state and federal regulations restricting pyrethroid use are expected to greatly reduce discharge loads
- Source control investigations for a variety of pollutants have indicated the following:
 - Sediment control BMPs will help reduce the discharges of copper, lead, zinc, mercury, pathogens, polycyclic aromatic hydrocarbons (PAHs), and other sediment bound pollutants. Sediment control is primarily accomplished through the New Development, Municipal Operations, and Construction elements
 - The largest potential source of mercury in urban areas is mercury-containing products such as fluorescent lamps; however, mercury discharges in urban runoff are very minor compared to legacy sources of mercury already in the watersheds
 - Sources of bacterial pathogen indicators are difficult to quantify due to confounding effects of *in situ* growth, and limitations of source identification technology. Wild animals are likely to constitute a significant, yet largely uncontrollable source
 - The major source of copper in urban watersheds is identified as automobile brake pads by Brake Pad Partnership which will be phased-out by 2025
 - The major source of pesticides in urban watersheds is legal application of insecticides by licensed pest control operators

Key Recommendations (for the Next Permit Term)

With the exception of the Monitoring/Target Pollutant Program (below), the key recommendations represented by the 5-year work plans and proposed as SQIP amendments reflect Partnership efforts to achieve the following general goals:

- Greater efficiency in assessing programmatic outcomes:
 - The elimination of “counting” exercises and data collection that do not provide a meaningful measurement of effectiveness of a given BMP, in favor of simpler assessments of program implementation
 - Consistency of data gathering and BMP evaluation among Partnership members
- Consolidation of duplicative and/or overly specific tasks
- Elimination of completed, outdated, and/or ineffective BMPs

In accordance with these goals, the Partnership consolidated tasks into unified 5-year work plans proposed as amendments to the SQIP (Chapter 3).

Monitoring/Target Pollutant

The following key recommendations are proposed for the Monitoring/Target Pollutant Programs:

- Consolidate the monitoring and target pollutant programs into one program
- Reduce the frequency of discrete monitoring events for urban discharge and urban tributaries. Monitoring efforts over the last 20 years have effectively characterized the water quality associated with the urban watershed, but has limited ability to link specific activities to changes in water quality, or to identify changes occurring on a year-to-year basis. Because the occurrence of pollutants in our urban discharge is well understood, continuation of relatively frequent monitoring is no longer necessary.
- Replace frequent discrete monitoring with continuous data sensor stations in urban discharge and urban tributaries.
- Reduce or eliminate toxicity monitoring for urban discharge and urban tributaries. Partnership monitoring and State Water Board reports have clearly identified insecticides as by far the most important and only consistent source of toxicity in urban waters. Because insecticide toxicity is statewide, and pesticide regulation is the responsibility of the State, continued toxicity monitoring by the Partnership and other local agencies is unnecessary.
- Monitor receiving water conditions through ongoing collaboration with regional and state monitoring efforts. The Partnership is currently a partner in the Coordinated Monitoring Program effort with Sacramento Regional County Sanitation District (SRCSD), sampling two sites (upstream and downstream of the urban area) on both the Sacramento and American Rivers. Although the Partnership proposes to continue participating, it will explore opportunities to replace or reduce sampling sites as part of the Delta Regional Monitoring Program (RMP) or other regional monitoring efforts.
- Plan and implement load reduction projects within an integrated regional water management framework. Based on the proven effectiveness of new development standards in improving urban runoff water quality and reducing pollutant loads, the Partnership will focus efforts on implementation and assessment of load reduction projects designed to improve downstream receiving water quality. The Partnership will plan and design the projects within a framework of integrated regional water management and in consideration of the watershed priorities. Examples of projects include dry weather flow reduction programs such as water conservation, River Friendly Landscaping, and Low Impact Development (LID) retrofits such as green streets and parking lots.
- Refine application of the Watershed Treatment Model to evaluate new or improved structural and non-structural BMPs that can improve water quality. This approach will allow the Partnership to integrate watershed priorities into the Program and implement projects to achieve multiple benefits.
- Continue to promote control of pollutants through effective state and federal regulation of products that are major pollutant sources. This is based on the inability to effectively reduce pollutants from widely used products at the local level, and on the significant progress achieved in addressing priority target pollutants such as diazinon, chlorpyrifos, pyrethroids, and copper through product control regulation by state and federal agencies.

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2.2 Program Management

This chapter presents an assessment of long-term effectiveness for Program Management and based on those findings, recommends amendments to the Sacramento Stormwater Quality Partnership's (Partnership) Stormwater Quality Improvement Plan (SQIP) for the next permit term. The evaluations and recommendations represent the collective work of the seven permittees in the Partnership. Each task within Program Management is assessed at Effectiveness Outcome Level 1; therefore, the discussions and recommendations in this chapter are programmatic in nature and pertain more to level and efficiency of effort rather than achievement of an outcome that results in changed behavior, reduction in pollutant loads or environmental improvement.

Introduction

The goal of Program Management is to manage and administer the SQIP to ensure compliance with the Sacramento Area National Pollutant Discharge Elimination System, Permit Number CAS082597; Order Number R5-2008-0142 (2008 Stormwater Permit), including the regional activities of the Partnership and the individual Permittee Programs. As stated in the 2009 SQIP: *“Program management involves ensuring that all elements of the SQIP are implemented on schedule and all requirements of this Order [the Stormwater Permit] are complied with.”*

Each permittee in the Partnership implements and reports on its own Stormwater Program, participates in the Steering Committee that guides and directs the regional activities and pays for their share of the regional activities' cost according to the Permittee Memorandum of Understanding (MOU). The agencies implement similar programs and use consistent reporting mechanisms in order to streamline program implementation and facilitate program-wide assessment of effectiveness and Stormwater Permit compliance. The Permittees coordinate regional responsibilities through the Permittee MOU and execute joint authorizations (similar to task orders) to authorize individual regional activities. This particularly applies to situations where an outside consultant firm or contractor is hired to perform a service that has benefit to all seven Permittees (e.g., monitoring and public outreach).

The individual programs may be structured differently from each other, but all are designed to meet the objectives and requirements of the 2008 Stormwater Permit. The requirements pertaining specifically to Program Management can be paraphrased as follows:

- Provide adequate legal authority to control pollutant discharges
- Prepare and submit Stormwater Permit-required reports and work products (e.g., Annual Reports)
- Coordinate regionally
- Ensure adequate training

Assessment information in this chapter is presented following the order shown above.

Legal Authority

Evaluation

Both collectively as a Partnership and individually, the Permittees possess adequate legal authority to implement and enforce the requirements of the Stormwater Permit.

Discussion

Starting in 1998 when the first Stormwater Ordinances were adopted by the Permittees, and periodically since then, the Permittees' legal counsels have certified the adequacy and effectiveness of the stormwater ordinances (and associated municipal code provisions) for all purposes required by the Permit. In addition, for over a decade, the Permittees have successfully utilized the authority of their ordinances to investigate, eliminate, and conduct enforcement against dischargers violating the ordinances within their respective jurisdictions. Agency staff responsible for enforcement have not identified significant impediments to effectively utilizing the authority and the Permittees have not been challenged on the validity of their ordinances. Occasionally the Permittees have adopted amendments to their ordinances to clarify or update the provisions to reflect changes to the Permit or the programs, but the underlying authority is and has been firmly established.

Starting in 1992, the Permittees have maintained and periodically updated a Permittee MOU to clarify Permittee roles and responsibilities within the Partnership and provide a mechanism for cost-share funding of the regional activities which benefit all seven Permittees. The MOU is updated each Permit term to reflect Permit requirements and/or changes in responsibilities. As required by the 2008 Stormwater Permit, the Permittees evaluated their ordinances to determine if any amendments were needed to enforce all the requirements of the Stormwater Permit and to ensure the ordinances contained implementable and progressive enforcement procedures. None of the Permittees identified the need to amend their ordinances for the purposes stated in the Stormwater Permit, although a few (e.g., Sacramento County and City of Folsom) amended their ordinances for other reasons. Also, each Permittee provided to the Regional Water Board in the 2009 SQIP a statement certified by its chief legal counsel that it has adequate legal authority to implement and enforce each of the requirements contained in 40 CFR 122.26(d)(2)(i)(A-F) and the Stormwater Permit. Details of these activities can be found in the 2009 SQIP and subsequent annual reports.

For the 2008 permit term, as specified in the Stormwater Permit and SQIP, legal authority has been addressed as the first task in various program elements. However, the Permittees have found this organization to be cumbersome. The Stormwater Ordinances maintained by the Permittees apply to the entire program. Also, the ordinances are reviewed and revised to reflect Stormwater Permit changes or recognized process efficiencies that may or may not be related to one specific element. Further, when revised, the entire Ordinance, not sections thereof, is adopted. To address this problem, the Permittees are proposing to address legal authority as a single task within Program Management.

Recommendations

- Delete the legal authority task from the other program elements and consolidate it within Program Management; reflect this change in both the new Stormwater Permit and the SQIP.

- Recognize that review and amendment of the Permittee MOU and stormwater and related ordinances should be conducted on an as needed basis, as determined by the Permittees' legal counsel or Stormwater Program staff.

These recommendations are reflected in the proposed 5-year work plan for Program Management for the next permit term (Chapter 3.2.1).

Permit Compliance Reporting

Evaluation

The Permittees' successfully prepared and submitted all documents and reports by the compliance deadlines stated in the Stormwater Permit.

Discussion

During the 2008 permit term, the Stormwater Program Manager/Coordinator in each Permittee agency supervised the preparation and submittal of annual work plans and annual reports on behalf of their agency by May 1 and October 1 each year, respectively. In addition, the City and County of Sacramento coordinated in leading the effort to develop and submit the following documents to the Regional Water Board:

Program Management

- Stormwater Quality Improvement Plan (draft submittals in June and September 2009 and final submittal in November 2009)
- Partnership Annual Work Plan (May 1 each year)
- Partnership Annual Report (October 1 each year) – including copies of various work products produced during the previous fiscal year (e.g., public awareness survey results, etc.)
- Report of Waste Discharge (ROWD) (180 days in advance of the expiration of the 2008 Stormwater Permit: March 15, 2013) – *serves as application for reissuance of the Stormwater Permit*
- Long Term Effectiveness Assessment (LTEA) (March 15, 2013)

Monitoring and Target Pollutant Elements

- Notice of Water Quality Exceedance (within 90-days of a sampling event wherein an exceedance occurred)

New Development Element

- Hydromodification Management Plan (submitted January 29, 2011, revised submittal July/August 2011 and February 2013)

Stormwater Permit Provision 3d requires a thirty-day public notice and comment period and formal approval by the Regional Board to apply to all proposed significant revisions to the 2009 SQIP. As stated in the 2008 Permit, significant revisions include the HMP, *The Stormwater Quality Design Manual for Sacramento and South Placer Regions*, and any SQIP revisions which are considered significant in terms of the magnitude of public interest, as evidenced by public comments. No significant revisions were proposed to the 2009 SQIP during the 2008 permit term. Various minor, non-substantive changes were not subject to the

public notice and comment period and were proposed in the annual reports and/or annual work plans as allowed by the Stormwater Permit.

Recommendations

None.

Program/Regional Coordination

Evaluation

The Permittee Steering Committee established by the Partnership in the 1990s continued to meet regularly during the 2008 permit term and effectively served as the forum and mechanism for collaborating with all other Permittees and coordinating resources in order to comply with the Stormwater Permit.

Discussion

The Permittees established a Steering Committee early in the formative years of the Partnership, comprised of the Program Manager for each Permittee or his/her designee. They have held regular permittee coordination meetings approximately six times a year since the 2008 Stormwater Permit was adopted, and in the previous permit terms as well. The purpose of the regular meetings is to coordinate and/or authorize upcoming regional activities (and associated staffing, funding or resource-sharing arrangements) and discuss and/or collaborate on issues that may impact the Partnership. The Steering Committee is a forum to inform the Partnership members regarding relevant legislation and regulatory policies upon which the Partnership may wish to opine.

Permit-required tasks are recognized for funding within the MOU. However, the activity specifics, and finances therefore, are authorized by the Steering Committee. The Steering Committee memorializes regional commitments through the use of Joint Authorizations (similar to task orders). The Joint Authorizations describe the proposed activity, identify roles and responsibilities, and provide the associated cost for each agency. Each Permittee's representative to the Steering Committee indicates consent by signature. A super-majority is required to commit the Partnership to fund the activity per the percentages specified within the updated Permittee MOU. However, the Permittee MOU also recognizes and allows subsets of Permittees to collaborate on activities for which the entire Partnership remains uncommitted

Recommendations

None.

Permittee Employee Training

Evaluation

Both collectively as a Partnership and individually, the Permittees have trained affected municipal employees about the Stormwater Permit requirements and practices they should take in their jobs to comply with the Stormwater Permit. These efforts have

been effective in raising awareness (and in many cases, influencing changed behavior) as demonstrated by the evaluations conducted by some of the Permittees.

Discussion

The 2008 Stormwater Permit requires the Permittees to “*provide regular internal and external training on applicable components of the SQIP and related Permits*”. Due to the maturity of the program, staff and management are knowledgeable regarding the key components of the program. Regular training on the Stormwater Permit requirements and pollution prevention practices ensures that all agency staff including new staff are aware of the requirements and their role regarding implementation and pollution prevention practices.

Recommendations

- Continue to include this activity as a single task in Program Management to ensure the Stormwater Program Managers are providing oversight of training done for any of the program elements.
- Prepare and maintain Permittee-specific training plans in the SQIP to describe target audiences, key messages, delivery mechanisms (e.g., classroom vs. field training) and recommended training frequencies.

These recommendations are reflected in the proposed 5-year work plan for Program Management for the next permit term (Chapter 3.2.1).

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2.3 Construction Element

This chapter presents a programmatic assessment of long-term effectiveness for the Construction Element and based on those findings, recommends amendments to the Sacramento Stormwater Quality Partnership's (Partnership) Stormwater Quality Improvement Plan (SQIP) for the next permit term. The evaluations and recommendations represent the collective work of the seven permittees in the Partnership, drawing from the individual assessments presented in Appendix A-2

Introduction

The goal of the Construction Element is to reduce the discharge of sediment and other construction-related pollutants to the municipal storm drain system and/or receiving waters to the maximum extent practicable (MEP).

Each permittee in the Partnership implements its own construction program for the most part, although the agencies have historically collaborated on the development of outreach materials and delivery of training workshops and pre-wet season forums for the construction industry. Also, the Permittees strive for consistency in standards as a service to developers and contractors, so that rules don't change dramatically when moving from one jurisdiction to another. This also provides for more economic equity. The Permittees' programs are mature and went through major improvements following Federal and State regulatory compliance audits conducted in 2002-2005 (2002 – County, Folsom, Galt and Sacramento City; 2004 – Rancho Cordova; and 2005 - Elk Grove.)

The individual programs are structured differently from each other, but all are designed to meet the objectives outlined in the 2008 Stormwater Permit. For the purposes of this long term assessment, information is provided in the following categories:

- Legal Authority
- Plan Review and Permitting (includes standards and specifications)
- Inspections and Enforcement (includes database management)
- Education and Training

The construction industry was significantly impacted by the economic downturn and during the 2008 permit term, all of the permittees saw a sharp decrease in the amount of grading and building permit applications processed through their agencies. Consequently, a decrease in permit fees revenues and property tax revenues forced all of the permittees to lay off staff, reorganize and re-prioritize.

Legal Authority

Evaluation

The Permittees possess adequate authority to effectively require and enforce the development and implementation of Best Management Practices (BMPs), per their respective Ordinances, to control the discharge of construction-related pollutants to the storm drain system from

private and municipal projects. This is accomplished through stormwater ordinances and land grading and erosion control ordinances (and associated municipal code provisions) adopted by their respective governing bodies.

Discussion

Starting in 1998, and periodically since then, the Permittees' legal counsels have certified the adequacy and effectiveness of the ordinances (and associated municipal code provisions) for all purposes required by the Permit, including control of construction-related runoff pollution. In addition, for over a decade, the Permittees have successfully utilized the authority of their ordinances to investigate, eliminate, and conduct enforcement against dischargers violating the ordinances within their respective jurisdictions. Agency staff responsible for enforcement has not identified significant impediments to effectively utilizing the authority and the Permittees have not been challenged on the validity of their ordinances. Occasionally the Permittees have adopted amendments to their ordinances to clarify or update the provisions to reflect changes to the Permit or the programs, but the underlying authority is and has been firmly established.

The Permittees' ensure that municipal projects within their control adhere to the same ordinance requirements as private projects. An ongoing challenge is dealing with Federal, State and special district interests which are not required to obtain permits from the local government agency for their grading, demolition and construction projects.

Recommendations

- Delete this task from the Construction Element.
- Address the task of maintaining legal authority in the Program Management Element (in the SQIP and the Stormwater Permit)
- Recognize that review and amendment of stormwater and related ordinances should be conducted on an *as needed* basis, as determined by the Permittees' legal counsel or Stormwater Program staff.

These and other recommendations are reflected in the proposed 5-year work plan for the Construction Element for the next Permit term (Chapter 3.2.2).

Plan Review and Permitting

Evaluation

The Permittees' construction programs are mature and effectively ensuring permits and construction plans include conditions and specifications to reduce the discharge of sediment and other construction-related pollutants to the municipal storm drain system and/or receiving waters.

Discussion

The Permittees' ordinances require a grading permit and a set of approved erosion and sediment control plans on all private projects meeting a certain threshold. Typically, grading permits are required for projects disturbing one acre or more or moving over a specified amount of soil (this varies from 50 to 350 cy, depending on the permittee). In compliance with the 2008 Stormwater Permit (and previous permit), the Permittees have been taking

appropriate measures during the planning and permitting process to ensure not only that projects comply with the agencies' Ordinance, but also have coverage (if required) under the State's Construction General Permit. For projects subject to CEQA review, the Permittees condition the projects in the CEQA documentation to comply with applicable local and State stormwater regulations during the construction phase.

The field of erosion and sediment control is rapidly evolving and therefore it can be a challenge to stay on top of regulatory, technology and product changes. In fact, the State Water Board issued a new Construction General Permit during the 2008 permit term, and this had significant impacts on construction projects (including municipal projects owned by the Permittees) in terms of risk assessment, reporting and training. To keep up with the changes, all of the Permittees strive to educate agency staff and project applicants continuously throughout the process, which typically starts with informal trainings for plan check staff (usually project-specific), education for the applicant at the permit counter and project-specific meetings as needed.

To assess the effectiveness of their plan review and approval process, the City of Sacramento's stormwater staff evaluated over 30 percent of the approved projects and measured an improvement in the quality of Erosion and Sediment Control (ESC) plans between the 2009/2010 and 2011/2012 fiscal years. This is considered an indication of changed behavior in the construction community (Outcome level 3). All of the other permittees reported in annual reports that 100% of ESC plans submitted to their agencies included appropriate erosion and sediment controls in compliance with local ordinances. The exception to this was Elk Grove, which had one plan set in the 2009/2010 fiscal year without the required information.

Recommendations

- With regards to checking the Construction General Permit coverage status for grading permit applicants, given the advancement of the Water Boards' on-line electronic reporting and tracking system (SMARTS), it is no longer necessary for the Permittees to check the Stormwater Pollution Prevention Plans (SWPPPs) for those projects. Recommend omitting this provision in the next permit.
- Verifying that environmental permits have been obtained from Federal and State agencies before approving a construction project is unnecessary. Permittees notify applicants that all environmental permits need to be obtained prior to construction; however, the permittees do not have the information, authority or resources to verify that these permits are obtained. Recommend omitting requirements associated with verifying permits from other sources.
- Related to assessing effectiveness of plan review and permitting activities, and to make the assessment as meaningful as possible and consistent between all of the agencies, the Permittees are proposing to follow the practice of the City of Sacramento. The proposed assessment method involves conducting evaluations of plans for representative construction projects each year, to make sure that erosion, sediment and pollution control are appropriately addressed (see Task CO.5.1 in the proposed 5-year work plan for the Construction Element.)

These and other recommendations are reflected in the proposed 5-year work plan for the Construction Element for the next Permit term (Chapter 3.2.2)

Inspections and Enforcement

Evaluation

The Permittees' construction programs are mature and inspections are being conducted at a frequency and in a manner that ensures compliance with local ordinances in order to reduce the discharge of sediment and other construction-related pollutants to the municipal storm drain system and receiving waters. The Permittees' progressive enforcement procedures result in compliance with verbal or written notices, stop work orders and occasionally minor monetary penalties. There is a need for more consistency amongst Permittees in inventorying and tracking data so that the data can be combined to make program-wide effectiveness assessments.

Discussion

Past stormwater permits have specified a "one size fits all" inspection frequency for construction sites in the permit area. However, the 2008 Stormwater Permit provided more reasonable flexibility, and allowed each Permittee to determine the inspection priority and frequency for construction sites appropriate for their jurisdiction based on factors such as size, proximity to receiving waters (threat to water quality) and other risk factors. These frequencies were specified in the 2009 SQIP and generally dictated a higher inspection frequency during the winter months (wet season) than during the summer months (dry season). For example, Permittees inspected high priority sites once every two weeks during the wet season (October 1– April 30) and monthly thereafter. Moderate priority sites were inspected monthly throughout the year. Some of the permittees conservatively opted to inspect all sites as if they were high priority.

The Permittees' inspection staff are specially trained in stormwater pollution prevention (e.g., Folsom's stormwater inspector is a Certified Erosion Sediment Storm Water Inspector and Qualified SWPP Practitioner) and inspect each site until construction activities are completed and the site has been stabilized. Each Permittee has adopted its own progressive enforcement strategy to employ its legal authority to promptly and effectively correct any violations observed during inspections. Although every permittee does it differently, the strategy tends to include these components:

Observed non-compliance > verbal warning > written notice to correct/corrective action/field instruction > notice of violation > stop inspections/stop work notice ("red tag") > return to compliance

Recommendations

- The permittees should adopt similar and consistent tracking and reporting tools such that data can be compiled at the end of each fiscal year and for the next LTEA (Year 4 of the new Stormwater Permit) to make program-wide effectiveness assessments. Additionally, this will allow repeat offenders working in numerous jurisdictions to be tracked on a county-wide scale (see Task CO.5.3 in the proposed 5-year work plan for the Construction Element).
- Related to assessing effectiveness of inspection and enforcement activities, and to make the assessment as meaningful as possible and consistent between all of the agencies, the Permittees are proposing to follow the practice of the City of Sacramento. The proposed assessment method involves conducting evaluations of

representative construction projects each year, to make sure that there is effective implementation of BMPs in accordance with local requirements and approved plans, if applicable (see Task CO.5.2 in the proposed 5-year work plan for the Construction Element.)

These and other recommendations are reflected in the proposed 5-year work plan for the Construction Element for the next Permit term (Chapter 3.2.2)

Education and Training

Evaluation

For those permittees who have been able to assess the internal training activity (County and Cities of Sacramento and Folsom), the stormwater refresher training is effective at raising employee awareness of stormwater requirements and BMPs (outcome level 2) but training needs vary between permittees and departments, and annual training is not warranted or cost-effective for all internal audiences.

Discussion

The 2008 Stormwater Permit requires the Permittees to “*provide regular internal and external training on applicable components of the SQIP and related Permits*”. Due to the maturity of the construction program, the apparent knowledge of permit applicants and the construction community, and the enormous amount of outreach conducted by the State Water Board related to the Construction General Permit, the Permittees did not need to conduct external outreach every year during the 2008 permit term, as was the practice in the past. Pre-wet season forums were offered to the construction community during the fall of 2008 and 2009 to raise awareness of local and state evolving regulations and requirements, and the forums always included presentations by key state regulatory personnel. These pre-wet season forums were not offered in the subsequent years because of the sharp decline in construction activity. Agency inspectors distributed pre-wet season reminders to the sites and/or notified them verbally to prepare for the winter.

All of the Permittees continued to ensure that affected agency staff were educated about the requirements and their responsibilities to prevent stormwater pollution. In most cases, this entailed annual refresher training for plan check and inspection staff, although for plan check staff, the permittees typically found it more effective to provide continuous “training” via more frequent communications during project-specific review sessions. Not all the permittees conducted evaluations of their internal training classes, but for those who did, assessment of training efforts indicate a generally high level of knowledge among municipal staff. See Appendix A-2 for some of the data results from the County and Cities of Sacramento and Folsom.

Recommendation

- Continue to include a task in this program element for external outreach and internal training, however, provide flexibility in allowing each permittee to develop their own individualized training plan that specifies appropriate training intervals/frequencies for the various internal audiences.

These and other recommendations are reflected in the proposed 5-year work plan for the Construction Element for the next Permit term (Chapter 3.2.2)

2.4 Commercial/Industrial Program

This chapter presents a programmatic assessment of long-term effectiveness for the Commercial/Industrial Program and based on those findings, recommends amendments to the Sacramento Stormwater Quality Partnership's (Partnership) Stormwater Quality Improvement Plan (SQIP) for the next permit term. The evaluations and recommendations represent the collective work of the seven permittees in the Partnership including the regional activities, drawing from the individual assessments presented each year in the annual reports and in Appendix A-3. When necessary, the assessment references long-term data and information from the three previous permit terms (1990-2008) in order to provide baseline data and/or support the evaluation, conclusions and recommendations.

Introduction

The goal of the Commercial/Industrial Program is to effectively prohibit and eliminate to the maximum extent practicable (MEP) the discharge of pollutants from businesses to the permittees' storm drain systems and receiving waters. There are three main aspects to the element:

Regional Commercial and Industrial Stormwater Compliance Program (CISCP) - The CISCP was established in 2003 to provide a mechanism for addressing the following nine categories of industries identified by the 2002 Stormwater Permit as having a high potential to discharge pollutants in runoff (high priority industries):

- Facilities with coverage under the State Industrial General Permit
- Auto body shops
- Auto repair shops
- Auto dealers
- Equipment rental facilities
- Kennels
- Nurseries
- Retail gasoline outlets (i.e., gas stations)
- Restaurants

Agreements were executed between the Permittees and the Sacramento County Environmental Management Department (EMD) to implement the program, based on the existing expertise and capacity within EMD and the complement to the environmental inspection programs EMD was already conducting. The program includes the following components: legal authority (provided by the County Stormwater Ordinance, through memoranda of understanding with the Permittees), funding (via fees charged to the regulated industries), triennial inspections, enforcement, education, and recordkeeping/reporting.

The CISCIP was the recipient of the National EPA Excellence award in 2008 and continues to serve as a model for other stormwater programs across the State. At the time of the award, it was the only program of its kind in the State and demonstrated techniques such as:

- ensuring a dedicated funding source (fee ordinance whereby industries are charged inspection fees);
- cross-training of existing environmental and health inspectors to conduct stormwater inspections; and,
- advanced database management which allows monthly reports to be generated for the Permittees and Regional Water Board and data analysis to strategically assess effectiveness.

The Sacramento CISCIP is frequently referred to by State Water Board staff as an exemplary program.

Complaint-Based Stormwater Compliance Programs - The individual Permittees address other industries and businesses not included in the list above (including but not limited to mobile businesses such as pressure washing and carpet cleaning) as complaints or referrals are received from the public, EMD, other government agencies/departments, or regulators. In the 2009 SQIP and recent annual reports, these programs have been referred to as “complaint-based” programs, but they entail more than that. Therefore, the Permittees are proposing to call them “Permittee-Specific” programs from here on out, and the proposed 5-year work plan (Chapter 3.2.3) reflects the new terminology.

Legal authority for the Permittees’ programs is provided by the Stormwater Ordinances and the work is funded by stormwater utility or general funds (as described in the 2009 SQIP). The Permittees’ programs also include the following components: inspections, enforcement, education, and recordkeeping/reporting.

Business Outreach – The Permittees have collaborated on various programs designed to outreach to targeted businesses in the permit area such as the development of industry and pollutant-specific educational materials and some bilingual materials. These materials are posted on the Permittees’ websites and distributed during inspections. The 2008 Stormwater Permit included a task requiring the Permittees to conduct outreach to targeted industries twice during the permit term. Target businesses are viewed as businesses that have a higher likelihood of generating non-stormwater discharges or pollutants that have been identified as high priority through the Partnership’s Target Pollutant Program. The priority industries that received this outreach included:

- Automotive washing and detailing businesses
- Carpet cleaning businesses
- Commercial pesticide applicators
- Concrete contractors
- Concrete cutting contractors and businesses
- General building contractors
- Landscape installation contractors and maintenance businesses
- Painting contractors
- Portable toilet rental businesses
- Pressure washing businesses
- Street sweeping businesses

- Swimming pool contractors
- Swimming pool maintenance businesses

This chapter presents long-term effectiveness assessment information in the following order:

- Legal Authority
- Regional Commercial and Industrial Stormwater Compliance Program (CISCP) – Conducted by County EMD
- Complaint-Based Stormwater Compliance Programs
- Evaluation and Updating of Industrial Facility Lists
- Business Outreach, Education and Training

Legal Authority

Evaluation

The Permittees possess adequate authority to effectively require best management practices (BMPs) and enforce the Stormwater Permit requirements to control discharge of industrial-related pollutants to the storm drain system. This is accomplished through Stormwater Ordinances (and associated municipal code provisions) adopted by their respective governing bodies.

Discussion

Starting in 1998, and periodically since then, the Permittees' legal counsels have certified the adequacy and effectiveness of the Stormwater Ordinances (and associated municipal code provisions) for all purposes required by the Permit, including control of industrial-related runoff pollution. In addition, for over a decade, the Permittees have successfully utilized the authority of their ordinances to investigate, eliminate, and conduct enforcement against dischargers violating the ordinances within their respective jurisdictions. Agency staff responsible for enforcement has not identified significant impediments to effectively utilizing the authority and the Permittees have not been challenged on the validity of their ordinances. Occasionally the Permittees have adopted amendments to their ordinances to clarify or update the provisions to reflect changes to the Permit or the programs, but the underlying authority is and has been firmly established.

To provide legal authority for EMD to conduct its industrial compliance program within the permit area, each Permittee executed a Memorandum of Understanding (MOU) with EMD to enforce the County Stormwater Ordinance within its jurisdiction. Additional details can be found in the 2009 SQIP.

Recommendations

Revise the Permit and SQIP as follows:

- Delete this task from the Commercial/Industrial Program
- Address the task of maintaining legal authority in Program Management (in the SQIP and the Stormwater Permit)

- Recognize that the review and amendment of stormwater and related ordinances should be conducted on an as needed basis, as determined by the Permittees’ legal counsel or Stormwater Program staff.

These and other recommendations are reflected in the proposed 5-year work plan for the Commercial/Industrial Program for the next permit term (Chapter 3.2.3).

Regional Commercial and Industrial Stormwater Compliance Program (CISCP) – Conducted by County EMD

Evaluation

The CISCP, conducted by County EMD on behalf of the Partnership, is an award-winning program which is effectively ensuring that facilities that fall within nine priority industry categories (priority industrial facilities) are in compliance with local stormwater ordinances.

Discussion

The long-term effectiveness of the CISCP is discussed in this section in three parts:

- Inspections and Enforcement
- Referrals and Data Analysis Related to State Industrial General Permit Covered Facilities
- CISCP Inspector Training

Inspections and Enforcement. EMD began the first 3-year cycle of inspections of the priority industrial facilities in 2004 and is now in its third inspection cycle which will be completed in June 2013. Table 2.4.1 shows the results from the three cycles to date; this data represents work done in all Permittee jurisdictions:

Table 2.4.1 Summary of CISCP Results, 2004-2012

Inspection Cycle	Fiscal Year	Number of Inspection Conducted	Number of Violations Issued*	Enforcement Actions Issued	Violations Issued per Inspection
Triennial Cycle 1	2004/2005	1,210	1,406	846	1.2
	2005/2006	3,513	2,727	1,612	0.78
	2006/2007	2,473	1,703	1,019	0.69
Triennial Cycle 2	2007/2008	2,093	1,076	725	0.51
	2008/2009	3,129	1,347	972	0.43
	2009/2010	2,053	735	521	0.36
Triennial Cycle 3	2010/2011	1,647	604	421	0.37
	2011/2012	2,180	690	565	0.32
	2012/2013	NA	NA	NA	NA
Total		18,298	10,288	6,681	0.34

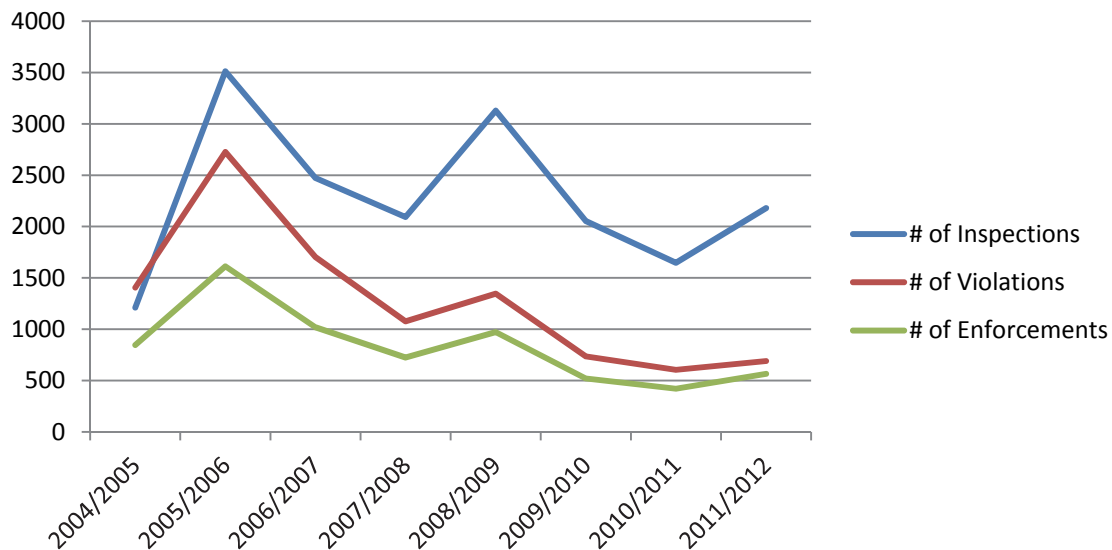
Note: See Appendix A-3 for detailed results per fiscal year, through June 2012. Data available through 2012 indicate that the enforcement actions, notices of violation and ratio of violations per inspection are continuing to decline in the third triennial cycle (see Figure 2.4.1).

** A single inspection can result in multiple violations.*

In the early years of this program, EMD assessed effectiveness at Effectiveness Outcome Level 1 by simply tracking the number of inspections performed and enforcement actions and violations issued. Following adoption of the 2008 Stormwater Permit, as the dataset began to mature, the Permittees created a new performance standard to assess effectiveness of EMD's inspection program. The goal is to track violations and correlate a decrease in the number of violations issued from one triennial inspection cycle to the next as an indication of increased awareness and improved facility operator/owner behavior (Effectiveness Outcome Level 3). Examples of changes in behavior might include: directing wastewater to the sewer, proper housekeeping practices, installation of structural control devices, and other operational changes at the facility.

As shown in Table 2.4.1 and illustrated on Figure 2.4.1, the decreases observed in both enforcement actions and violations observed per inspection over the course of nearly three inspection cycles indicate that this program is effective in bringing priority industries into compliance with local stormwater ordinance requirements and in reducing/eliminating illegal non-stormwater discharges from these facilities. It demonstrates that as inspectors return to sites previously inspected, fewer violations are observed and fewer enforcement actions are needed to gain compliance from facilities, showing a change in behavior on behalf of those that are regulated (Effectiveness Outcome Level 3).

Figure 2.4.1 Number of Inspections, Enforcement and Violations through the CISC



* Individual inspections can result in more than one violation noted.

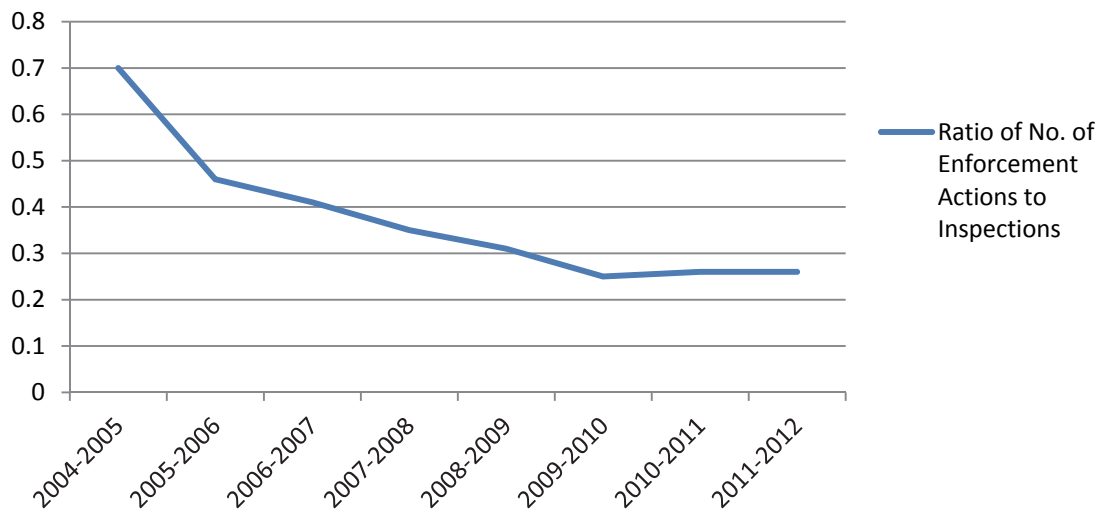
Table 2.4.1 and Figure 2.4.1 show how the number of enforcement actions and violations per inspection has decreased since the start of the CISC in 2004. It is, however, unreasonable to expect these numbers in a mature inspection program to continue to decrease over time.

It is realistic to expect that there will be a certain threshold in the amount of enforcement actions issued and violations noted during a typical three year inspection cycle, as new businesses are added to the program, businesses are removed and/or delisted, or as businesses change staff and ownership (and are therefore not as knowledgeable in Stormwater

Ordinance requirements). As observed over the past few years, the number of enforcement actions/number of inspections conducted and violations noted/number of inspections conducted are starting to level out, indicating that the program has neared and/or reached its threshold for expected number of enforcement actions and violations during a typical inspection cycle. Therefore, the Permittees recommend continuing to track and report all of this data annually but will focus on looking for large fluctuations (i.e., spikes) in the enforcement action and violation ratio data and to evaluate if those changes suggest other program modifications are required for continuous improvement.

The Permittees use another performance standard to assess effectiveness of EMD’s program, whereby the percentage of inspections resulting in enforcement actions is tracked over time. As shown in Figure 2.4.2, there was steady decrease for the first five years of the program, but since 2009, the results have leveled out. This is likely due to the maturity of the program and the level of awareness and education of facility managers in the permit area.

Figure 2.4.2 Percentage of Inspections Resulting in Enforcement



The final performance standard used to measure effectiveness of EMD’s program entails tracking the number of follow-up inspections required to get a facility to return to compliance. The original intent was that a decrease in follow-up inspections would be an indicator of improved pollution prevention behavior on the part of the facility operator. However, the Permittees found that the decrease in follow-up inspections could also be attributed to the CISCIP inspector’s growing expertise and his/her ability to effectively communicate the requirements and expectations to the facility operator. The details of this assessment can be found in Appendix A-3. While Return to Compliance (RTC) will still be tracked, the Permittees are recommending adjusting this performance standard to one that aims at achieving a RTC submittal rate of 100%.

Referrals and Data Analysis Related to State’s Industrial General Permit-Covered Facilities – The EMD inspectors are authorized to enforce the County’s Stormwater Ordinance within each Permittees’ jurisdiction. However, they are not authorized to enforce the State Industrial General Permit. From time to time, the EMD inspectors will come across a facility that appears to require State coverage, but has not filed a Notice of Intent (NOI) with the State Water Board (“non filers”). The 2009 SQIP included a task to refer potential

non-filers to the Regional Water Board and keep track of these referrals and the subsequent filing of the NOI by the facility, with the idea that an increase in the number of NOI filers would signal an increase in awareness and changed behavior (Effectiveness Outcome Level 3) on the part of the facility operators. The Permittees tracked this information over the last three years and found that 14-15 referrals per year were made to the Regional Water Board, and anywhere from one to seven facilities per year subsequently filed an NOI and came into compliance (see Appendix A-3). The Permittees believe that tracking the referrals made to the Regional Water Board (and reporting this information in annual reports) is a useful exercise (Effectiveness Outcome Level 1), however, we are recommending discontinuing any more advanced assessment of the activity because once the referral is made, the responsibility for ensuring the facilities get into compliance lies with the Regional Water Board.

The 2009 SQIP also included a task for the Permittees to annually update the list of State Industrial General Permit facilities requiring outreach materials based on benchmark exceedances tables provided by the Regional Water Board. Because the Regional Water Board did not provide benchmark exceedances tables during the 2008 permit term, this task was not performed. The Permittees are recommending deleting this activity for the next permit term.

CISCP Inspector Training- EMD has provided annual training to its CISCP inspectors since the start of the program in 2004. The audience includes designated stormwater inspectors and others (environmental, health and restaurant inspectors) who were cross-trained to conduct stormwater evaluations during their routine facility inspections. This cross-training strategy leads to more effective utilization of staff and a more cost-effective program, and is one of the reasons why the program won the EPA Excellence Award in 2008. Starting in the 2009/2010 fiscal year, the effectiveness of this training has been evaluated using quizzes administered following each training course to assess the inspectors' knowledge. It was assumed that a minimum score of 80% on quizzes was an indication of high awareness/knowledge (Effectiveness Outcome Level 2). The results (see Appendix A-3) showed average quiz scores for the past three years of 94% or better, indicating a highly effective training program. For the future, the Permittees are recommending continuing the annual inspector training but discontinuing the administering of quizzes

Recommendations

Revise the Permit and SQIP as follows:

- Evaluate facility Return to Compliance as an Effectiveness Assessment instead of trends in the number of follow-up inspections
- Analyze violation data for significant changes/spikes to identify programmatic issues and areas requiring attention
- Eliminate use of quizzes as the performance standard for training and focus on improving training methods
- Eliminate requirement to update outreach list based on Regional Board data analysis

These and other recommendations are reflected in the proposed 5-year work plan for the Commercial/Industrial Program for the next permit term (Chapter 3.2.3).

Complaint-Based Stormwater Compliance Programs - Permittee-Specific Programs

Evaluation

The Permittees individually implement effective commercial and industrial stormwater compliance programs within their jurisdictions to address businesses that are not inspected through the CISCOP conducted by EMD.

Discussion

The components of the Permittee complaint based industrial inspection programs are the same as those described in the Illicit Discharge Element section, which are to:

- establish/maintain legal authority,
- investigate referrals and conduct enforcement,
- track data,
- provide industry outreach,
- maintenance of a public complaint hotline , and
- provide training to key municipal staff to detect and correctly refer potential violations at commercial facilities.

Each Permittee is to effectively eliminate non-stormwater discharges and illicit connections at industrial facilities.

While inspections at industrial facilities can be conducted on a proactive basis, most of the inspections conducted by the Permittees are complaint driven. When looking at the data from complaint responses at commercial facilities within the Unincorporated County, on average, approximately 77% of complaints received were verified as being violations of the County Stormwater Ordinance, indicating a high level of understanding among the public and municipal staff for what constitutes a Stormwater Ordinance violation. Among internal County referrals alone, that percentage jumps to 83%, indicating that municipal staff stormwater training is effective.

The Permittees have clear understanding of factors that contribute to this high level of success with a complaint response program, which include the following:

- Clear designation of staff responsibilities and priorities (including back-up staff as necessary) for responding in a timely manner to illicit discharges
- Coordination with and referral to other municipal agencies that respond to illegal discharges, such as Environmental Management, Code Enforcement, Drainage Maintenance, and Transportation Maintenance, to ensure that reported illicit discharges are dealt with
- Public reporting hotline

While all the Permittees utilize progressive enforcement to bring industrial facilities back into compliance, the performance standards established by the Permittees ranged from decreasing in violations over the course of the 2008 permit term, increasing violations over the term, or decreases in repeat violations (Appendix A-3). This inconsistency in performance standard approach is forcing the Permittees to reestablish a new and consistent performance standard for the next permit term. While enforcement is conducted by the Permittee, an assessment standard aimed at an increase or decrease in the number of

enforcement actions issued to industrial facilities can be interpreted in many different ways. For example, a decrease could indicate that fewer businesses are discharging pollutants to the storm drain system, but it may also mean that the implemented complaint referral system is not working effectively, or that the public and municipal staff is less informed about what constitutes a Stormwater Ordinance violation. Conversely, an increase in enforcement actions may mean that more businesses are discharging pollutants, but could also indicate a more effective referral system, better trained municipal staff, or even may be a reflection of how the economy in general is performing.

The Permittees recommend modifying the performance standards for enforcement actions to assessing the effectiveness of inspection and associated educational and enforcement activities by tracking return to compliance rates. This approach will provide the Permittees with a uniform set of data that will be useful in identifying effective enforcement strategies and areas for improvement. Also, the Permittees are recommending assessing the ability of municipal staff to respond to and/or refer incidences of illicit discharges and connections within three (3) business days of report. This will provide the Permittees with data related to the effectiveness of the employee training and response times.

Recommendations

Revise the Permit and SQIP as follows:

- Adjust performance standard to a complaint responds to and/or refer 100% of all reported incidences within three (3) business days
- Adjust performance standard to aim for a 100% return to compliance rate for all enforcement actions
- Establish consistent data requirements for documentation of inspections and enforcement actions amongst all permittees

These and other recommendations are reflected in the proposed 5-year work plan for the Commercial/Industrial Program for the next permit term (Chapter 3.2.3).

Evaluation and Updating of Industrial Facility Lists

Evaluation

The Permittees compiled and analyzed inspection, enforcement and violation data from the regional and permittee-specific programs to evaluate and propose changes to targeted industrial facility lists to improve overall Stormwater Permit compliance.

Discussion

The Permittees evaluated data from the CISCP program and their Permittee-specific stormwater compliance programs during the 2012/2013 fiscal year to determine if industries needed to be removed or added to the list of nine priority industries inspected by EMD and to the list of businesses in the priority industries targeted outreach. The following types of criteria were used for these assessments:

- Industrial categories and businesses that have a reasonable likelihood of causing non-stormwater discharges or on-going pollutant exposures.

- Industrial facilities/categories and business types that have generated a large number of complaints.
- Industrial facilities/categories and business types that have generated a large number of enforcement actions and violations.

Several situations were evaluated during the 2008 permit term, as follows:

- ***Stonecutters*** - The Permittees considered adding Stonecutting facilities to the CISCIP inventory based on complaint history data compiled by the County and City of Sacramento, particularly during the years when the housing industry was booming. They discovered that this industry type (SIC 3281) actually qualifies as a potential State Industrial General Permit non-filer, but the Regional Water Board has typically not added the facilities to their program because there is a belief that the businesses do all work indoors and therefore have no pollutant exposure. Rather than add another category to EMD's program, the Permittees decided to continue to investigate complaints and refer any such facilities to the Regional Water Board for follow-up. At a minimum, such facilities should be submitting an NOI to the State Water Board and filing for "no exposure" exemption under the State Industrial General Permit. Once a facility receives such coverage, it would automatically get addressed by EMD's program.
- ***Nurseries*** - The Permittees considered removing the nursery category from the list of nine priority industries and addressing such facilities through Permittee-specific investigations (complaint and referral-based) in the future. However, the number of nurseries is low and would not be cost beneficial, secondly, inspections of nurseries help with the Partnership's Target Pollutant Program by potentially eliminating stormwater contact with nutrients and pesticides.
- ***Heating, Ventilation, and Air Conditioning (HVAC) maintenance companies*** - Based on evaluation of the Permittees' enforcement-related data, the Permittees will be adding HVAC maintenance companies (SIC 1711) to the types of mobile businesses that will be receiving outreach information in the next permit term. The HVAC industry generates wastewater during air conditioner cleaning. Most commercial and industrial buildings have roof-top air conditioners, and if the roof gutter downspouts terminate below grade, the discharge of the wastewater goes unnoticed by the public and Permittee field staff. The HVAC industry has been added to the industry outreach list.

As a result of the assessment, no changes are proposed to the CISCIP list of nine priority industries (please refer to the list provided at the beginning of this chapter). The Permittees will continue to evaluate and propose updates for the list in the next permit term. One change was made to the list of businesses to receive targeted outreach during the next permit term; targeted outreach is discussed in more detail in the next section.

Recommendations

- Continue to evaluate and propose updates to the priority industry inspection and outreach lists
- Add HVAC maintenance companies to the targeted priority industry outreach list
- Discontinue assessing effectiveness for the activities in this task

These and other recommendations are reflected in the proposed 5-year work plan for the Commercial/Industrial Program for the next permit term (Chapter 3.2.3).

Business Outreach, Education and Training

Evaluation

The Permittees and EMD have developed an extensive library of industry-related and pollutant-specific outreach materials (in multiple languages) and distributed the materials during facility stormwater compliance inspections, with enforcement-related correspondence, and through other targeted outreach methods. Based on the enforcement and violation records, the Permittees believe that the outreach efforts have been effective in raising awareness and changing facility operator behavior to promote compliance with stormwater ordinances throughout the county.

Discussion

Since the start of the Partnership program in 1990, the Permittees have continued to develop and update industry and pollutant-specific educational materials as needs arise. More of an effort was made after the CISCOP was initiated in 2004 and EMD required more specifically-focused, and some multi-lingual materials to distribute during their routine inspections of the nine industry types. Also, between 2004 and about 2010, the Permittees and EMD conducted a great deal of targeted outreach via educational workshops, in collaboration with the Business Environmental Resource Center (BERC) and other partners.

In the 2009/2010 fiscal year, the County of Sacramento developed a performance standard for this task to track the number of outreach materials distributed. It was assumed at the time that the exercise would yield an indication of increase in awareness of the targeted audiences. However, the County found little value in this bean-counting activity. An increase or decrease in the number of materials distributed could be the result of many factors, and a change in distribution either way cannot be interpreted as either beneficial or not. Therefore, the Permittees are proposing to discontinue use of that assessment technique for the next permit term.

The 2008 Stormwater Permit included a task requiring the Permittees to conduct outreach to targeted industries twice during the permit term. Early in the program, the Permittees identified the following types of businesses that should receive this outreach:

- Automotive washing and detailing businesses
- Carpet cleaning businesses
- Commercial pesticide applicators
- Concrete contractors
- Concrete cutting contractors and businesses
- General building contractors
- Landscape installation contractors and maintenance businesses
- Painting contractors
- Portable toilet rental businesses
- Pressure washing businesses
- Street sweeping businesses
- Swimming pool contractors

- Swimming pool maintenance businesses

These types of businesses tend to be temporary or intermittent sources of unauthorized non-stormwater discharges and/or stormwater pollution. Most are mobile operations without a single base of operation, and therefore are difficult to regulate.

In 2009 and again in 2012, the Permittees sent informational letters and accompanying outreach materials to business owners and operators by mail. BERC was retained to do most of the work. Contact information to the business owners/operators was gathered through business license databases. During the 2012/2013 fiscal year, the activity was assessed with the following results:

- A “landing website”, a single web page that must be accessed by directly inputting the web address into a browser, and is not accessible by link from another web page, was developed. The site provided all industrial outreach materials applicable to those being contacted through the priority industry outreach task.
- This landing site address was provided in the outreach letter mailing as the location where all those receiving the mailing could gain access to outreach materials covering stormwater requirements for their business operations.
- The number of unique visitors to the landing website was tallied. The Permittees felt that if a large number of people were receiving, reading, and understanding the outreach letters that were mailed, and then following up by going online to download outreach materials specific to their industrial activities, that they were then effective in their outreach efforts.
- The Permittees also tallied the number of follow up phone calls for assistance that were received, and the number of letters that were returned as undeliverable.

The resulting statistics are as follows:

- 8,400 letters were sent to 13 mobile industry types (described in the 2009 SQIP)
- 8 unique visitors were tallied to visit the website
- 9 follow up phone calls were received
- 19 letters were returned

The results indicate that this form of outreach is not an effective method of reaching the desired audiences. Therefore, the Permittees are working with BERC to research alternate methods for conducting outreach to businesses.

Recommendations

Revise the Permit and SQIP as follows:

- In the next permit term, develop a strategic outreach plan for mobile business outreach in the first fiscal year and then implement the outreach strategy

These and other recommendations are reflected in the proposed 5-year work plan for the Commercial/Industrial Program for the next permit term (Chapter 3.2.3).

2.5 Municipal Operations Element

This chapter presents a programmatic assessment of long-term effectiveness for the Municipal Operations Program Element and based on those findings, recommends amendments to the Sacramento Stormwater Quality Partnership's (Partnership) Stormwater Quality Improvement Plan (SQIP) for the next permit term. The evaluations and recommendations represent the collective work of the seven Permittees in the Partnership, based on the individual assessments presented in Appendix A-4. When necessary, the assessment references long-term data and information from the three previous permit terms (1990-2008) in order to provide baseline data and/or support the evaluation, conclusions and recommendations.

Introduction

The goal of the Municipal Operations Element is to reduce stormwater pollution to the maximum extent practicable from the construction, operation and maintenance of publicly-owned facilities in a manner that sets an example of pollution prevention for the entire community.

The Stormwater Permit has historically required several key components for reducing stormwater pollution from municipal facilities and activities. For the 2008 permit term, the Permittees have been conducting the following tasks outlined in the 2009 SQIP:

- Illicit Discharge Response
- New development and construction requirements for municipal capital improvement projects
- Pollution prevention at Permittee facilities
- Landscape and pest management
- Storm drain system maintenance
- Storm drain marking program
- Street cleaning and maintenance
- Parking facilities maintenance
- Non-emergency fire fighting flows
- Employee training
- Detention basin maintenance
- Emergency procedures
- Curbside Green Waste Collection (City of Sacramento only)

For the purposes of this long term effectiveness assessment, the categories listed above were re-organized as follows:

- Pollution Prevention at Permittee-Owned Facilities (including parking lots and landscape and integrated pest management)

- Storm Drain System Maintenance (including detention basin maintenance and Storm drain marking)
- Street Cleaning and Maintenance
- Emergency Procedures and Non-Emergency Fire Fighting Flows
- Employee training
- Curbside Green Waste Collection (City of Sacramento only)

This presentation more closely follows that of the proposed 5-year work plan for this element. Several tasks identified in the 2008 Stormwater Permit for the Municipal Operations element were conducted by the Permittees as part of other elements and the effectiveness assessments are therefore described in other chapters of this report:

- Illicit Discharge Response – see Chapter 2.6
- New development requirements for municipal projects – see Chapter 2.8
- Construction requirements for municipal construction projects – see Chapter 2.3

Pollution Prevention at Permittee-Owned Facilities

Evaluation (for all Permittee-Owned Facilities)

Pollution prevention Best Management Practices (BMPs) and/or plans have been established, and are being implemented and maintained at permittee-owned facilities with the potential to discharge pollution, in conjunction with training for facility managers and staff, in order to prevent pollution from entering the storm drain system. The Permittees' work is consistent with the guidance for municipal facilities developed by CASQA¹, by addressing BMPs in the following core categories:

- Screening and identification of priority municipal facilities
- Establishment of site specific pollutant control plans
- Ongoing training of municipal staff
- Inspections and reporting to confirm implementation of BMPs

Permittee-Owned Facilities Covered by State Permit

Discussion

11 permittee-owned facilities in the permit area are covered by the State's Industrial General Permit. In compliance with the State Industrial General Permit, those Permittees have developed and are implementing Stormwater Pollution Prevention Plans (SWPPPs) for the facilities, conducting monitoring, submitting annual reports and paying annual fees. In addition to being subject to the requirements of the State Industrial General Permit, since 2004 these facilities have been subject to the county-wide industrial stormwater inspection program implemented by the County's Environmental Management Program (EMD), which ensures compliance with local stormwater ordinances through site inspections and education every three years. (See Chapter 2.4 for more information on this program.) Enforcement

¹ California Stormwater Quality Association, Municipal BMP Handbook, 2003.

actions are issued and follow-up inspections are conducted as needed to facilitate return to compliance. To pay for these activities, EMD charges the permittee an inspection fee.

Recommendations

- The State will be renewing the State Industrial General Permit in the 2013/14 fiscal year and the requirements will be more onerous with the cost of compliance increasing. Consistent with most of the rest of the State, and to reduce the redundant financial burden on the resource-limited County and Cities, the Permittees recommend that municipal corporation yards not be covered by the State Industrial General Permit but instead be covered under the Municipal Stormwater Permit. The Permittees could establish and implement municipal SWPPPs for such facilities. EMD could continue to inspect the corporation yards as a category in the industrial stormwater inspection program.

These and other recommendations are reflected in the proposed 5-year work plan for the Municipal Operations Element for the next Permit term (Chapter 3.2.4).

Other Permittee-Owned Facilities with Potential to Discharge Pollutants

Discussion

For the remaining permittee-owned facilities not covered by the State Industrial General Permit, during the previous permit term (2002-2008), the Permittees identified those with the potential for discharging pollutants to the storm drain system (aka “targeted facilities”). Consistent with the CASQA guidance, the facilities identified tended to be those engaged in vehicle maintenance and fueling, vehicle washing, and materials storage. The Permittees then developed BMPs and pollution prevention plans for the targeted facilities and updated those plans as needed during the 2008 permit term to reflect changing operations and activities. For instance, the County established Municipal Stormwater Pollution Prevention Plans (Municipal SWPPPs) for 14 facilities (5 have since closed), the City of Sacramento developed Facility Pollution Prevention Plans (FPPPs) for 10 facilities (one has since closed and 3 others [golf course] have been privatized), Elk Grove has a SWPPP for its corporation yard, and Folsom maintains a SWPPP for a park maintenance facility and has drafted a SWPPP for a Water Treatment Plant. The City of Rancho Cordova recently took ownership of a police center and will be developing a Municipal SWPPP for that facility in the near future. Currently there are no such facilities requiring site-specific pollution prevention plans in the Cities of Citrus Heights and Galt.

Establishment and implementation of the site-specific pollution prevention plans, coupled with ongoing training and communication with facility maintenance staff (discussed later), and periodic inspections, have resulted in ongoing compliance at the facilities. For example:

- *Sacramento County reported that municipal SWPPP inspections were conducted in 2010 and 2012, with both rounds of inspections resulting in the need for minor SWPPP updates to correct facility contact information. No pollutant exposure or discharges to the storm drain system were identified during the site inspections.*
- *The City of Sacramento reported that FPPP inspections were conducted twice a year at 5 of its 8 active targeted facilities and improved compliance scores (as compared to the previous inspection scores) were noted at all locations. Baseline data for the*

remaining 3 facilities are scheduled to be completed in the 2012/2013 fiscal year, and assessment inspections are to be conducted after the baseline data is finalized. Assessments for the remaining facilities are scheduled to be completed by the end of the 2013/2014 fiscal year.

- *The City of Folsom conducted annual employee refresher training covering SWPPP BMPs at applicable facilities, and conducted an inspection of their park maintenance facility in 2012. The site was found to be in compliance with its Municipal SWPPP but a few changes were recommended to the SWPPP map to reflect changes in locations of material storage areas.*
- *City of Elk Grove conducts annual inspections of their Corporation Yard. The site has been expanded to provide more space for the City's municipal transit fleet and the corresponding SWPPP has been revised accordingly to include the new facilities. Inspections conducted demonstrate there is an overall compliance with the SWPPP however there needs to be more training to new and existing municipal transit staff to ensure the proper implementation of the SWPPP. In August 2012, the EPA conducted an audit of the City of Elk Grove and their municipal facilities. The City is waiting for the finding of the EPA audit report prior to implementing major structural or physical changes and undergoing major SWPPP revisions.*

Recommendations

- Keep this task as is for the next permit term.
- Modify the assessment task and performance standard for this activity to maintain a minimum of 80% compliance with pollution prevention plans at each facility.

These and other recommendations are reflected in the proposed 5-year work plan for the Municipal Operations Element for the next Permit term (Chapter 3.2.4).

Permittee-owned Parking Lots

Discussion

As required by the 2008 Stormwater Permit, the Permittees established inspection and maintenance practices designed to minimize pollutant discharges from permittee-owned and maintained parking lots exposed to rainfall. For most of the Permittees that own parking facilities, this entails periodic inspections and maintenance activities to remove trash, sediment and motor oil. The effectiveness of these programs for the cost involved is questionable, and it is difficult to estimate pollutant load removal through this type of activity. For example, to comply with the Stormwater Permit, the County's Department of General Services implemented an intensive inspection and cleaning program which resulted in an average annual cost of over \$22,000 for five years, yet pollutant loadings could not be estimated.

Recommendations

- Continue to include a task in the SQIP to maintain Permittee-owned parking lots to minimize the build-up and discharge of pollutants to the storm drain system
- Continue to require that new municipal-owned parking facilities meet the Permittees' stormwater quality/quantity development standards per the latest edition of the Stormwater Quality Design Manual for the Sacramento and South Placer Regions

These and other recommendations are reflected in the proposed 5-year work plan for the Municipal Operations Element for the next Permit term (Chapter 3.2.4).

Integrated Pest Management at Permittee Facilities

Discussion

The Pesticide Plan, developed by the Permittees and approved by the Regional Water Board in 2006, is a comprehensive plan intended to reduce the discharge of pesticides from municipal stormwater systems. The Pesticide Plan is organized into five (5) control strategy categories, and one of these five categories, Permittee Pest Control, establishes additional controls on pesticide applications made by Permittees. This Permittee Pest Control category identifies action items intended to improve the overall effectiveness of permittee pesticide use at municipal facilities, especially by limiting the application of pyrethroids, currently considered the top priority pesticides in Sacramento area urban runoff. Pyrethroids have been replacing certain pesticides (e.g., chlorpyrifos) which were a problem for the Permittees in the past but are now banned for most uses in the State, thanks to efforts by the Partnership and other stormwater programs in the State to advocate with State regulators for more protective regulations. In an effort to minimize water quality risks associated with pesticides, there was a consensus to promote Integrated Pest Management (IPM).

The Permittees have taken various actions to implement the section of the Pesticide Plan relevant to controlling their own pesticide use, for example:

- Permittees typically utilize certified IPM vendors for pest control services. This requirement is especially important for greatly reducing the use of pyrethroids around Permittee facilities, since vendors account for all structural pest control for the Permittees, and the available IPM certification programs greatly restrict the use of insecticide applications.
- All pesticide applications by Permittee staff are required to be done by or under the direction of State-Certified Pesticide Applicators, who must receive annual training on protecting water quality from pesticide impacts.
- Licensed/certified applicators, whether they are vendors or Permittee staff, are trained and required to follow State and Federal pesticide regulations, including label restrictions and surface water protection regulations, including those that are specifically aimed at reducing pyrethroid toxicity in urban runoff. According to a UC Davis study², these regulations are expected to reduce pyrethroid discharges by approximately 85%.

When using pesticides, Permittees are subject to State and Federal regulations that include requirements for training, licensing/certifying, pesticide use, record keeping, and reporting. The action items within the Permittee Pest Control section that are consistent with State and Federal requirements are being implemented by all of the Permittees that are managing pest control activities. The action items related to the development and implementation of an IPM program have been challenging. There have been successes in establishing IPM practices

² Jorgenson, Brant and Tom Young. 2012. Mitigation Opportunities for the Control of Pyrethroid Insecticides from Urban Landscapes and Their Off-Target Transport. Report to California Dept. of Pesticide Regulation.

within structural pest control amongst the Permittees, but most of the Permittees are struggling with the establishment of IPM practices within landscape management. Due to the importance of controlling sources of insecticides (which are the pesticides for which water quality impacts in urban waterways have been identified) the Permittees have focused on implementing IPM for structural pest control at municipal facilities. This effort has benefited from the ability to contract with certified IPM vendors, and the Statewide surface water protection regulations that now apply to all professional applications of pyrethroids. Additional effort and resources will be necessary to improve implementation of IPM in landscape maintenance and vegetation management scenarios (where herbicides are the primary chemicals applied; insecticides are rarely if ever used by municipalities in these settings).

Recommendations

- Maintain a task in this program element for implementing IPM and procedures to ensure proper storage, use and disposal of pesticides.
- Add a new task to incorporate Green Gardener and River Friendly Landscaping principles into design, retrofit and maintenance of municipal landscape areas such as parks, roadsides and medians, etc.

These and other recommendations are reflected in the proposed 5-year work plan for the Municipal Operations Element for the next Permit term (Chapter 3.2.4).

Storm Drain System Maintenance

Evaluation

Storm drain maintenance physically removes waste materials from the storm drain system (sumps, underground pipes, channels, detention basins) materials, along with an associated mass load of pollutants. Though there is no direct link between the load reduction and the receiving water quality, the maintenance activities play an important role in preventing such pollutants entering the receiving water ways. Continued municipal practices will contribute to the load reduction and the level of practices will be determined by the local agencies' financial and staff resources.

Discussion

Storm drain system maintenance includes removing waste materials (typically composed of sediment, leaves and litter) from catch basins, sumps, underground pipes, and open channels. Maintaining this infrastructure requires a tremendous amount of effort and resources.

The Permittees have been collecting quantification data in annual reports by tracking and reporting the quantity of waste removed from the storm drain system each year by Permittee maintenance crews. The total amount of waste materials removed is used to provide for an Effectiveness Assessment Outcome Level 4 (pollutant loads reduced from sources). Table 2.5 below shows the estimated load removed from the storm drain system by all Permittees in various years during the 2008 permit term, as reported in previous annual reports:

Table 2.5 Summary of Maintenance Load Removal Data and Comparison with Urban Discharge Load estimation

Pollutants of Concern	Street Sweeping load (kg)			Sump cleaning load (kg)			Channel cleaning load (kg)		
	04/05 - 06/07 ^a	07/08 ^b	08/09 ^c	04/05 - 06/07 ^a	07/08 ^b	08/09 ^c	04/05 - 06/07 ^a	07/08 ^b	08/09 ^c
Copper (total)	92.4	-	-	15.5	-	-	-	-	-
Lead (total)	77.2	-	-	17.5	-	-	-	-	-
Zinc (total)	304.4	-	-	75.5	-	-	-	-	-
Mercury (total)	0.1	0.178	-	0.03	0.0001	-	-	0.000346	-
Sediment (TSS)	-	10,200,000	9,500,000	-	1,000,000	1,350,000	-	2,910,000	20,300,000
Pollutants of Concern	Maintenance Total ^d			Urban runoff discharge loading (kg) ^e	Ratio of maintenance load removed/ Urban discharge load				
	04/05 - 06/07	07-08	08-09	Average Annual	%				
Copper (total)	107.9			1,414	7.6				
Lead (total)	94.7			1,160	8.2				
Zinc (total)	379.9			29,370	4.1				
Mercury (total)		0.178	-	3.46	5.2				
Sediment (TSS)	-	14,110,000	31,150,000	11,410,573	198 ^f				

Table 2.5 notes

- 04/05 - 06/07 Calculation based on LWA 2009, Additional Total Mercury and Methylmercury Analyses (2009)
- 2007-2008 Sediment and Mercury Loads Removed, Watershed Treatment Model data compilation (LWA 2010)
- 2008-2009 Sediment Data is from the Partnerships Sediment Strategy (Sep, 2012).
- Maintenance total data is calculated by adding street sweeping, sump cleaning and channel cleaning (all available data from previous Annual Reports)
- Urban runoff discharge loading data is from Table 13, Monitoring and Target Pollutant Program, Chapter 2.9 of this report, Long Term Effectiveness Assessment March 2013
- Using average sediment load of 07/08 and 08/09.

As seen in **Table 2.5** above, the maintenance activities result in the removal of pollutant mass associated with those sediments from the urban watershed, and reduction of its *potential* for eventual discharge to receiving waters.

However, analysis of the Permittees' data indicates that increasing the level of effort of storm drain system maintenance may not have a corresponding reduction in the amount of pollutants discharged from urban runoff. As shown in Table 2.5, though significant amount of sediments were removed by maintenance activities (1.2 to 2.7 times of the urban discharge load), the amount of total metals removed by the maintenance activities was only a fraction (<5%) of the total metals in the urban discharge load.

Recommendations

- Maintain the task for cleaning the storm drain system to remove sediments and other pollutants
- Develop a consistent metric (e.g., tons or cubic yards) for data gathering from all Permittees so that the data can be compiled, reported and assessed for the entire permit area using the Watershed Treatment Model during the LTEA process.
- The level of activities will be determined by local agency resources.

These and other recommendations are reflected in the proposed 5-year work plan for the Municipal Operations Element for the next Permit term (Chapter 3.2.4).

Storm Drain Marking

Evaluation

All of the Permittees have completed the work to mark at least 95% of all the existing storm drain inlets in their jurisdictions and now routinely replace illegible markers as discovered. The Permittees believe that the storm drain markings assist in informing the public that the storm drain inlets flow directly to the river; however, the practice does not seem to deter illegal dumping.

Discussion

During previous permit terms, the Permittees worked individually with volunteers in their communities to stencil “No Dumping-Drains to Creek/River” messages on storm drain inlets or apply more permanent plastic decals designed by the Partnership. The work to identify and replace illegible or missing storm drain markings is done by maintenance crews, Stormwater staff, and student interns; however, some Permittees (e.g., Elk Grove’s “Mark-A-Drain” campaign) may still involve volunteers. The Permittees require new storm drain inlets installed as part of development projects to include permanent messages, typically stamped in the concrete.

Recommendations

- Continue to maintain storm drain markers as a part of the routine storm drain maintenance task for the next permit term and continue to require that new and significant redevelopment projects install permanent markings on new storm drain inlets; delete the stand-alone task.

These and other recommendations are reflected in the proposed 5-year work plan for the Municipal Operations Element for the next Permit term (Chapter 3.2.4).

Street Cleaning and Maintenance

Evaluation

Street sweeping physically removes waste materials and an associated mass load of pollutants, from the permittee streets, a part of the urban environment that is directly linked to the storm drain system. As with storm drain maintenance, street sweeping plays an

important role in load reduction and helps prevent pollutants from entering the receiving water ways.

Discussion

All of the Permittees conduct some level of street sweeping with the primary goals of providing for traffic safety and aesthetics. However, the practice also helps to remove sediments and associated accumulated oils, greases, hydrocarbons, metals and other pollutants from the street surfaces so that the materials are not washed down the drain in the next storm. Therefore the practice is considered a BMP and has been a requirement of the Stormwater Permit since 1990.

The Permittees have been collecting quantification data in annual reports by tracking and reporting the quantity of waste swept from the streets each year by Permittee maintenance crews. The total amount of waste materials removed is used to provide for an Effectiveness Assessment Outcome level 4 (pollutant loads reduced from sources). Table 2.5 shows the estimated total amount of street sweeping waste collected by all Permittees in various years during the 2008 permit term, as reported in previous annual reports.

Like other local governments in the State, due to the down economy and lower tax revenues, the Permittees were forced to cut their budgets for street cleaning. Some Permittees stopped cleaning residential streets during the 2008 permit term and reduced frequency of cleaning arterials and collectors.

As seen in Table 2.5, street cleaning results in the removal of pollutant mass associated with sediments removed, and reduction of its *potential* for eventual discharge to receiving waters. However, the analysis of the Permittees' data indicates that increasing the level of effort of street cleaning is not expected to have a corresponding reduction in the amount of specific pollutants (i.e. total metals) discharged from urban runoff.

Recommendations

- Maintain the task for street sweeping to remove pollutants, but have each permittee use a consistent metric so that the data can be compiled, reported and assessed for the entire permit area during the LTEA process.

These and other recommendations are reflected in the proposed 5-year work plan for the Municipal Operations Element for the next Permit term (Chapter 3.2.4).

Emergency Procedures and Non-Emergency Fire Fighting Flows

Evaluation

The Cities of Sacramento, Folsom and County of Sacramento have worked with their fire departments/agencies to identify BMPs for minimizing impacts of non-emergency firefighting flows on the storm drain system, but the appropriate method for complying with the Stormwater Permit requirements depends on the individual agency.

Discussion

The 2008 Stormwater Permit required development of a “response plan” to describe BMPs to be implemented by fire agencies to reduce impacts of non-emergency firefighting flows to the environment. The requirement only applied to the three Permittees with responsibility for firefighting activities in their jurisdiction. This included the Cities of Sacramento and Folsom and Sacramento County (aircraft fire fighting activities only; general firefighting in the county is conducted by Sacramento Metro Fire, a special district). The 2008 Stormwater Permit did not require prohibition or the immediate application of BMPs for emergency firefighting flows (flows necessary for the protection of life or property). All three agencies did not feel that a formal “response plan” was warranted and writing such a document would not be an efficient use of limited resources. The following describes the status for each agency:

- The County of Sacramento established BMPs for Sacramento County Aircraft Rescue Fire Fighting (ARFF) during the 2008 permit term. The BMPs included diverting firefighting flows to large soil areas during training activities and once an emergency response has transitioned to clean-up operations. Additional BMPs include proper housekeeping practices and the prevention of discharges from vehicle and equipment washing.
- The City of Sacramento is in the process of reviewing existing non-emergency fire flows (i.e. flows from controlled or practice blazes) and documenting BMP implementation practices. The review is also evaluating ways to minimize the impact of firefighting flows to the environment. Review and documentation of these activities are scheduled to be completed by the end of the 2012/2013 fiscal year.
- The City of Folsom’s fire department has suffered severe cutbacks and layoffs as a result of the poor economic conditions, making work on this task challenging. During the 2011/2012 fiscal year, the City prepared draft standard operating procedures for its fire department related to using BMPs to control pollution during non-emergency fire fighting activities. As with the City of Sacramento, the procedures are scheduled to be completed by the end of the 2012/2013 fiscal year.

Recommendations

- Continue to include a task in this program element for preventing pollution from non-emergency firefighting flows, however, provide flexibility for the individual agencies as to how this is accomplished (i.e., do not specify a “response plan”).
- In an emergency operation, environmental protection is inherent to response strategies of various responding agencies and is implemented once life, property, and public health have been addressed. Due to the range of potential emergency scenarios coupled with multi-agency interaction during emergency responses, the task pertaining to emergency procedures will be deleted and the Permittees will focus on protective measures for non-emergency fire flows.

These and other recommendations are reflected in the proposed 5-year work plan for the Municipal Operations Element for the next Permit term (Chapter 3.2.4).

Employee Training

Evaluation

For those Permittees who have been able to assess the activity (County and Cities of Sacramento and Folsom), the stormwater refresher training is effective at raising employee awareness of stormwater requirements and BMPs (outcome level 2) but training needs vary between Permittees and departments, and annual training is not warranted or cost-effective for all internal audiences.

Discussion

Assessment of training efforts indicate a generally high level of knowledge among municipal staff, as exemplified by the excerpts below from some of the Permittees' 2009-2012 fiscal year assessment reports:

County of Sacramento (Task MO.10). The County conducted surveys during 2011 and 2012 training sessions to measure employee awareness of stormwater pollution prevention practices during maintenance activities, corporation yard management, emergency responses, and identification and reporting procedures for illicit connections and discharges. The results from the 2011 evaluation showed an average survey score of 91.5%, which is indicative of a very high level of awareness. The 2012 survey results increased to an average test score of 97%, showing not only a high level of employee awareness but also a slight increase in the average score from the previous year.

City of Sacramento (Task MO.12.1). The City conducted pre- and post-training surveys tailored to the functions of the group being trained. Overall, the pre-training survey indicated that staff already had a good understanding of the topics presented (average score of 77% for the first group, and 83% for the second group). The post-training survey showed an increased level of stormwater BMP awareness among City of Sacramento Staff with the first group having an average score of 93% and the second group having a score of 90%.

City of Folsom (Task MO 9). The City asked training participants to complete evaluations at the end of annual stormwater refresher training sessions and the results showed over 90% of respondents were knowledgeable about the training topics and learned something new. A lower percentage (64%) had an understanding of different actions they should take in their jobs to prevent pollution (outcome level 3).

Recommendations

- Continue to include a task in this program element for employee training, however, provide flexibility in allowing each permittee to develop their own individualized training plan that specifies appropriate training methods and intervals/frequencies for the various internal audiences.
- Discontinue the performance standard of using surveys and quizzes during training to assess staff's understanding of the requirements and focus on site-specific pollution prevention plans and/or programs for municipal facilities.

These and other recommendations are reflected in the proposed 5-year work plan for the Municipal Operations Element for the next Permit term (Chapter 3.2.4).

Curbside Green Waste Collection (City of Sacramento only)

Evaluation

The City of Sacramento was successful at increasing participation in its voluntary containerization program over the course of the 2008 permit term. All Solid Waste customers have been offered a green-waste container, and 90% of all customers have opted to participate in this voluntary program.

Discussion

In November 2012, City of Sacramento residents voted in favor of Measure T, which allows the City to implement a citywide containerized yard waste collection program combined with seasonal loose-in-the-street yard waste collection program. The City Council approved implementation of the Solid Waste Business Plan, which includes mandating containerization for all residential customers. In order to implement the new citywide containerized collection strategy, City Code must be changed, and this Code change is anticipated to take place in March 2013. Once the City Code is changed mandating containerization, all of the remaining loose-in-the-street customers will receive a container in June 2013 for collection starting in July 2013.

Recommendations

- Stormwater Program Staff recommends removing the task involving the voluntary containerization from the work plan since citywide containerization will be implemented.

These and other recommendations are reflected in the proposed 5-year work plan for the Municipal Operations Element for the next Permit term (Chapter 3.2.4).

2.6 Illicit Discharge Element

This chapter presents a programmatic assessment of long-term effectiveness for the Illicit Discharge Element and based on those findings, recommends amendments to the Sacramento Stormwater Quality Partnership's (Partnership) Stormwater Quality Improvement Plan (SQIP) for the next permit term. The evaluations and recommendations represent the collective work of the seven permittees in the Partnership, drawing from the individual assessments presented each year in the annual reports and in Appendix A-5. When necessary, the assessment references long-term data and information from the three previous permit terms (1990-2008) in order to provide baseline data and/or support the evaluation, conclusions and recommendations.

Introduction

The goal of the Illicit Discharge Element is to effectively prohibit illegal discharges and connections to the municipal storm drain systems and/or receiving waters. The permittees goals are consistent with the requirements of Clean Water Act (CWA) section 402(p) which requires municipalities to “effectively prohibit non-stormwater discharges”. The provision of the CWA clearly establishes a different standard for non-stormwater discharges than for stormwater, for which the standard is to reduce the discharge of pollutants to the maximum extent practicable. The distinction focuses on keeping non-stormwater discharges out of the respective municipalities’ storm drain systems, rather than on limiting their pollutant content. Therefore, rather than attempting to link this program element to pollutant reduction, the Permittees’ evaluation of this element is at the programmatic level: specifically, “how effectively do the permittees prohibit non-stormwater discharges and eliminate illicit connections?”

The 2008 Stormwater Permit has historically set out various requirements to effectively prohibit non-stormwater discharges and eliminate illicit connections. Thus, the Permittees have established categories of tasks within the Illicit Discharge Element to address these requirements. The major tasks are listed below in the order in which they are presented and discussed in this chapter:

- Legal authority
- Discovery and referral of illicit discharges (including outreach and education, reporting hotline and training for municipal staff)
- Investigation of illicit discharges
- Containment and cleanup
- Enforcement
- Data management
- Maintenance of household hazardous waste disposal programs

Legal Authority

Evaluation

Since the adoption of the 2008 Stormwater Permit, the Permittees have possessed adequate authority to effectively prohibit illicit discharges and eliminate illicit connections through stormwater ordinances (and associated municipal code provisions) adopted by their respective governing bodies.

Discussion: In 2008, the Permittees' respective legal counsel reviewed and certified the adequacy and effectiveness of the stormwater ordinances (and associated municipal code provisions) for all purposes required by the 2008 Stormwater Permit, including effective prohibition of illicit connections and discharges, and allowable discharges. The allowable discharges have historically been outlined in the adopted Stormwater Permits and included as allowable discharges within each Permittee's stormwater ordinance. Yet, legal authority was established to enforce on any allowable discharge if determined to be causing a non-stormwater discharge.

For over a decade, the Permittees have successfully utilized the authority of their respective ordinances to investigate, eliminate, and conduct enforcement against illicit dischargers and illicit connections within their respective jurisdictions. Permittee staff responsible for enforcement has not identified significant impediments to effectively utilizing the authority in the ordinances to prohibit illicit connections and discharges. Occasionally the Permittees have adopted amendments to their ordinances to clarify or update the provisions to reflect changes to the Permit or the programs, but the underlying authority for prohibiting illicit discharges is and has been firmly established.

Recommendations

- Delete this task from the Illicit Discharge Element
- Address the task of maintaining legal authority in Program Management (in the SQIP and the Permit)
- Recognize that review and amendment of stormwater ordinances should be conducted on an *as needed* basis, as determined by the Permittees' legal counsel or Stormwater Program staff

These and other recommendations are reflected in the proposed 5-year work plan for the Illicit Discharge Element for the next Permit term (Chapter 3.2.5).

Discovery and Referral of Illicit Discharges

Evaluation

The Permittees have established illicit discharge detection and referral systems that rely on the observations of and referrals by trained municipal staff, as well as by an informed public via established hotline phone number(s). These systems complement and support the goal to effectively prohibit illicit discharges and connections.

Discussion

As required by the initial 1990 Stormwater Permit, the County and City of Sacramento conducted a field screening program of representative urban watersheds in the permit area.

Upon completion of this screening program, it was determined by the results of the study, among other things, that performing chemical analyses of grab samples from the drainage system and/or urban streams was not an effective method for detecting illicit connections to the storm drain system. The City of Sacramento upon completion of said study only found two illicit connections and the County found none.

While Permittee crews are performing routine maintenance and inspections on the drainage collection system, they investigate anything that looks suspicious or unusual for possible illicit discharge and/or connection. If crews identify an illicit connection, it is immediately eliminated and if necessary remediation and enforcement actions are taken.

The success of each Permittee's current illicit discharge detection and referral system is largely due to the continued implementation of the following activities:

- County-wide public outreach using various types of media to increase the public's awareness of what constitutes an illicit discharge and how to report problems
- Maintenance and promotion of public hotlines, including a single program-wide stormwater hotline (808-4H2O)
- Regular training of key municipal staff to detect and correctly refer/report illicit discharges

The Partnership's regional public outreach program utilizes numerous mechanisms to inform the public that certain types of non-stormwater discharges are considered illicit discharges and are prohibited, and to enlist their help in discovering and reporting problems to the appropriate jurisdiction through the public hotline. Websites, regional media campaigns and printed materials are designed to educate the public to refrain from, and to report observed prohibited non-stormwater discharges. The regional outreach campaign advertises the Partnership's dedicated public stormwater hotline (808-4H2O). In addition to the regional public outreach, each Permittee has placed "No Dumping" messages/decals on storm drain inlets within its jurisdiction to raise awareness of residents and deter illegal dumping.

The Permittees provide regular training to key municipal staff on recognition and reporting of illicit discharges. Some of the staff are those that are deemed most likely to encounter and recognize illicit connections because of the nature of their work, such as (please refer to the respective permittees annual report for actual staff that was trained):

- Transportation maintenance managers and staff
- Drainage maintenance managers and staff
- Code enforcement personnel
- Industrial stormwater inspectors
- Environmental health inspectors
- Hazardous materials inspectors

Sacramento County was the only permittee that established a dedicated internal hotline for other County departments to use when referring problems to the County Stormwater group. However, no complaints were received through this hotline over the last three-year period; rather, most staff referrals were made directly to appropriate staff in the Stormwater group.

Recommendations

- Clarify that the permittees will rely on a well-informed public, maintenance of a public hotline, and training of key municipal staff to provide for detection and referral of illicit discharges
- Discontinue use of any internal agency hotlines; focus on external and internal promotion of the single public Partnership hotline (808-4H2O) for all calls

These and other recommendations are reflected in the proposed 5-year work plans for the Illicit Discharge Element for the next Permit term (Chapter 3.2.5).

Investigation of Illicit Discharges

Evaluation

Throughout the 2008 permit term, the Permittees designated staff has effectively responded to most of the reported illicit discharge calls. The distinction in the 2008 Stormwater Permit between discharges classified as “hazardous” and “non-hazardous” has not proven to be a useful criterion for setting different response timelines.

Discussion

Analysis of the illegal discharge response data indicate that the Permittees respond promptly to the vast majority of illegal discharge referrals. Illicit discharge response times indicate that most of illicit discharges are responded to within the timelines established in the SQIP.

Response procedures that contribute to this high level of success include the following:

- Clear designation of staff responsibilities and priorities (including back-up staff as necessary) for responding in a timely manner to illicit discharges
- Coordination with and referral of reports to other internal and external groups, such as code enforcement, drainage maintenance, and transportation maintenance, to ensure that all reported illicit discharges are appropriately addressed

Analysis of some illicit discharge responses indicates that a large percent of those discharge calls classified as “hazardous” are in fact minor discharges of used motor oil (e.g. a car leaking oil, car leaking anti-freeze, etc.), and other discharges that meet the definition of “hazardous waste” but pose only a minor threat to stormwater quality due to very low quantity/volume.

Recommendations

- Establish a performance standard of 3 business day response time for reported/discovered illicit discharge incidents
- Eliminate different response times for hazardous versus non-hazardous discharges
- Establish consistent data requirements for documentation of illicit discharge investigations by all Permittees

These and other recommendations are reflected in the proposed 5-year work plans for the Illicit Discharge Element for the next Permit term (Appendix 3.2.5).

Containment and Cleanup

Evaluation

The Permittees have response plans/procedures for containment and cleanup of illicit discharges, which includes clear assignment of responsibilities among multiple agencies including the County Environmental Management Department, fire departments, drainage and transportation maintenance, and the sanitary sewer agencies. As appropriate, identified dischargers are held responsible for containment and cleanup, but when necessary to protect the environment, the agencies utilize their authority and resources to ensure prompt and effective containment and cleanup.

Discussion

Throughout the 2008 permit term, the Permittees have been tasked with ensuring proper response to illicit discharges that require containment and cleanup. The roles and responsibilities of public agencies for containment and cleanup are determined by the nature (e.g., hazardous versus non-hazardous; minor versus major) and location (e.g., roadway, storm drainage system, receiving water) of the discharge.

Recommendations

- Develop and/or maintain response, containment and clean-up procedures
- Track response and cleanup efforts

These and other recommendations are reflected in the proposed 5-year work plans for the Illicit Discharge Element for the next Permit term (Chapter 3.2.5).

Enforcement

Evaluation

The enforcement policies and procedures adopted by the Permittees have resulted in effective enforcement and prohibition of repeated non-stormwater discharges.

Discussion

“Effective prohibition” is interpreted by the Permittees as possessing the authority and capacity to prohibit, detect, investigate, and conduct enforcement against parties found to be responsible for causing illicit discharges and connections. It is not interpreted as completely preventing illicit discharges, because the Permittees cannot guarantee individuals’ adherence to the law.

Permittee data on illicit discharge enforcement indicates the following:

- Virtually 100% of illicit discharges for which a responsible party was identified were corrected
- The incidence of repeat offenders is very low

Recommendations

- Establish consistent data requirements for documentation of inspections and enforcement actions amongst all permittees

- Establish consistent performance standards amongst the Permittees to achieve a 100% elimination of illicit discharges and connections through progressive enforcement

These and other recommendations are reflected in the proposed 5-year work plans for the Illicit Discharge Element for the next Permit term (Chapter 3.2.5).

Data Management

Evaluation

Data related to illicit discharge response activities is collected, compiled, maintained and analyzed by the individual Permittees for assessment of their respective programs.

Discussion

Each of the permittees maintains their records according to their operational and management needs. As seen in the Permittees' Annual Reports, these data are retrievable, and collectively document the comprehensive nature of the Permittees' efforts to detect, investigate, clean up, and conduct enforcement against illicit discharges.

Recommendations

- Establish consistent data requirements that will be collected electronically by all permittees in the next permit term
- Implement consistent key indicator assessments by all permittees that focus on response times, timely illicit connection and discharge elimination and tracking of household hazardous waste (HHW) collected
- Revise mapping of illicit discharges from annually to once per permit term

These and other recommendations are reflected in the proposed 5-year work plans for the Illicit Discharge Element for the next Permit term (Chapter 3.2.5).

Maintain Household Hazardous Waste Disposal Programs

Evaluation

The Permittees collectively maintain several options to provide the public with sufficient opportunities to conveniently and properly dispose of household hazardous waste (HHW). The availability of these opportunities decreases the likelihood of improper disposal of the wastes to the storm drain system or receiving waters.

Discussion

The County and City of Sacramento operate two convenient fixed drop-off collection facilities (north and south parts of the urbanized County) that are open year round and available to all County and City of Sacramento residents free of charge. While Programs vary, each of the other Permittees also provides options for proper HHW disposal. See agency-specific websites for more information.

The Permittees' solid waste agencies promote the drop-off sites to the public via telephone books, web sites, utility bill inserts and other means.

The Permittees have found that HHW programs provide quantifiable data that directly correlates to the amount of waste properly disposed of and not illegally dumped. The Permittees will work to establish consistent and uniform data collection and reporting, which will also be used for future Watershed Treatment Model (WTM) evaluations.

Recommendations

- Maintain the task for operating municipal household hazardous waste programs to reduce the potential for illicit discharges and illegal dumping, but have each permittee use consistent metrics for recording waste collected so that the data can be compiled, reported and assessed for the entire permit area during the LTEA process. Consider expanding the definition to include universal wastes such as used/spent mercury-containing products (mercury is a target pollutant for the Partnership)

These recommendations are reflected in the proposed 5-year work plans for the Illicit Discharge Element for the next Permit term (Chapter 3.2.5).

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2.7 Public Outreach Program

This chapter presents a programmatic assessment of long-term effectiveness for the Public Outreach Program and based on those findings, recommends amendments to the Sacramento Stormwater Quality Partnership's (Partnership) Stormwater Quality Improvement Plan (SQIP) for the next permit term. The evaluations and recommendations represent the collective work of the seven permittees in the Partnership, drawing from the individual assessments presented each year in the Annual Reports and in Appendix A-6. When necessary, the assessment references long-term data and information from the three previous permit terms (1990-2008) in order to provide baseline data and/or support the evaluation, conclusions and recommendations.

Introduction

The goal of the Public Outreach Element is to raise awareness and foster community stewardship to help prevent pollution and protect local creeks and rivers. The three main target audiences are the general public, schools, and businesses; and there are sub-groups for each target audience category (e.g., general public includes homeowners and community groups, among others).

The 2008 Stormwater Permit requires the Partnership to use appropriate media to measurably increase the knowledge of target communities regarding the impacts of urban runoff on receiving waters and to provide potential best management practices (BMP) solutions for the target audiences that lead to behavioral change and reduce pollutant releases to the municipal storm drain systems and/or receiving waters.

The Permittees coordinate Public Outreach Program activities with those related to other program elements to ensure consistent and integrated messages. The Partnership maintains relationships with other groups and agencies to share ideas and experiences, and jointly implement outreach where mutually beneficial opportunities exist. Many of the Partnership's outreach activities are conducted regionally, as a collaborative effort among the permittees to prevent duplication, share resources and reach a broader segment of the population. In general, collaborative, county-wide efforts can be more cost-effective; however, in some cases, localized public outreach by individual permittees is more appropriate or cost-effective.

The Partnership conducts tasks within the Public Outreach Program to address the Stormwater Permit requirements. The major tasks are listed below in the order in which they are presented and discussed in this chapter:

- Public Participation
- Partnership Hotline
- Public Outreach
- School Education
- Business Outreach

Public Participation

Evaluation

The Partnership provided and promoted ample opportunities for the public to volunteer and participate in regional events and activities intended to help reduce stormwater pollution, protect local creeks and rivers, and encourage residents to become stewards of the natural environment.

Discussion

The Permittees have promoted, implemented and participated in stewardship programs and events which provide opportunities for the public to engage in activities and events that prevent pollution and clean and protect local waterways. This section highlights some of the work for the 2008 permit term; additional details can be found in the Annual Reports.

Regional Creek Clean Up Events. Most of the Permittees supported the annual regional Creek Week events led by the Sacramento Area Creeks Council (SACC) by sponsoring, providing in-kind resources, and/or participating in activities. For example, the County has helped to promote the events and participated in the Creek Week organizing committee every year. Each year, the Creek Week event successfully gathers approximately 2,000 volunteers to remove trash and/or invasive plants from urban creeks throughout the County. During the 2008 permit term to date, an estimated 75 tons of trash was removed and properly disposed.

Pet Waste Reduction Programs. In an effort to reduce one of the Partnership's target pollutants (coliform pathogens), the Permittees implemented or promoted pet waste reduction campaigns and/or programs aimed at encouraging the public to pick up and properly dispose of pet waste. For example, the County and several other permittees continued to implement and expand the *Scoop the Poop* program that was initiated in 2006 and involved the installation of 71 pet waste disposal stations in parks and along trails. The stations include a plastic bag dispenser that allows park patrons to use or restock plastic bags for picking up waste. The City of Folsom similarly installed signs and bag dispensers in all City parks.

Support of Local Watershed Groups. Most of the Permittees have supported or participated in activities sponsored or conducted by local watershed and environmental groups. For example, the City of Folsom obtained a State grant, convened a stakeholder group and led development of a watershed management plan for the Alder Creek Watershed. The City of Sacramento completed a grant project to implement restoration projects in the Arcade Creek Watershed. The County and Cities of Elk Grove and Rancho Cordova all supported and participated in the development of the Laguna Creek Watershed Management Plan. Finally, the County provided financial and in-kind support for two successful regional LID workshops conducted by the American Basin Council of Watersheds in 2008 and 2010.

Recommendations

- Continue to encourage public participation in creek and watershed stewardship
- Discontinue using these activities as a key indicator effectiveness assessment for the Public Outreach Program

These and other recommendations are reflected in the proposed 5-year work plan for the Public Outreach Program for the next Permit term (Chapter 3.2.6).

Partnership Hotline

Evaluation

The Permittees continued to maintain and advertise the Partnership hotline number in a variety of promotional materials as a convenient means for public reporting of stormwater-related problems.

Discussion

The Permittees continued to maintain and promote the public stormwater hotline (808-4H20) in order to facilitate reporting of stormwater-related problems by the public. During the 2008 permit term, the hotline number was advertised in regional media campaigns, the Partnership website and individual permittee websites, printed materials (e.g. brochures, newspaper ads) and on storm drain inlet markers.

Recommendations

There are no significant changes in this section. This task is reflected in the proposed 5-year work plan for the Public Outreach Program for the next Permit term (Chapter 3.2.6).

Public Outreach

Evaluation

The Permittees have implemented strategies and programs to effectively increase public awareness and promote activities that prevent stormwater pollution, addressing topics such as proper pet waste disposal, proper pesticide use, fundraiser carwashes and home improvement projects.

Discussion

During the 2008 permit term, the Permittees educated the general public about the harmful effects of stormwater pollution and promoted behavioral change through a variety of methods including radio public service advisories (PSA), print ads, television PSA, signage, social media, etc. The Partnership conducted two public opinion surveys (2009 and 2011) to measure changes/increases in public awareness over time and inform continuous improvement of the public outreach strategy. A summary of these activities is included in this section; additional details can be found in Appendix A-6 and the Annual Reports.

Public Opinion Surveys. The five year Regional Outreach Work Plan specified the use of three public opinion surveys during the 2008 permit term. Two (2009 and 2011) of the three surveys have been conducted and analyzed. The final survey is scheduled for the 2013/2014 fiscal year. For the 2009 survey, the Permittees worked with California State University, Sacramento to conduct a phone survey of 400 residents to gauge the level of public awareness and behavior related to stormwater pollution. One of the key findings of the survey was that two-thirds of the respondents did not know that stormwater runs directly into local creeks, streams and rivers without treatment. This was consistent with the 2007 survey results from the previous permit term. Another key finding of the 2009 survey was that there was very little retention of the messages being utilized by the Partnership. These results indicated that more effective outreach was needed; and, that a possible reason for the poor

retention was that there were too many different messages (related to specific pollutants or activities) being advertised at the same time.

To address both of the above survey findings, the Permittees narrowed the focus of the outreach campaign to the basic general message “Be River-Friendly”, beginning in late 2009 and continuing through to 2011. This message was intended to help the public make the connection between pollution and the health of the rivers.

The Partnership conducted a follow-up survey in 2011. The survey results collected in 2011 demonstrated a successful 75 percent increase in retention of the message “Be River-Friendly”; and, of those who recognized the “Be River Friendly” message a high percentage also remembered that stormwater flows directly into creeks and rivers. While the aforementioned results are promising, the survey also indicated that most of the general public still fails to recognize that stormwater flows into creeks and rivers.

The following highlights several other key findings:

- Among survey respondents who recalled Partnership Be River Friendly messages, the percentage of those knowing that storm drains feed directly to streams and rivers was significantly higher.
- The closer a respondent lived to a stream or river, the better the understanding that stormwater runoff goes directly to a stream or river.
- Changes in stormwater-behavior from 2009 to 2011 were either statistically insignificant or slightly in the wrong direction.
- The greatest influence on decision making about buying fertilizers and pesticides is exerted by store staff and opinion leaders among friends and family.
- Newspapers declined as a preferred source of media, while websites remained strong.
- Ants were the most common pest that forced home owners to take some kind of action; spiders were the second most common.
- The most common application of pest control products was by household members, directed at hard surfaces. The most common disposal of pest control products was in the trash.

Public Outreach Strategy. The results of the 2009 and 2011 surveys were used to update the public outreach strategy and the implementation thereof. The 2009 survey results demonstrated that a basic ‘disconnect’ still exists in a large percentage of the population who do not know that storm drains flow directly to local waterways without treatment. As a result, the Permittees focused on a basic message “Be River-Friendly” which was tied into a media campaign that featured advertising on television, radio, and busses, and bus transit shelters throughout the Sacramento area. The committee explored ideas regarding the “look and feel” of the campaign and held focus group sessions to test some advertising concepts or messaging. Out of all of the advertising concepts that were tested in the focus group, the “Rubber Ducky” television ad from the State of Minnesota ranked the most popular. Participants in the focus groups largely considered the tone “light” and “friendly” and expressed appreciation for the use of the analogy that drove the message home. They also liked the fact that real pictures were used to illustrate the message. This particular commercial was called “convincing” and “memorable”. The committee decided to tailor the ad to the Sacramento region.



“Be River-Friendly” Bus ad from the 2011 campaign.



“Be River-Friendly” Billboard from the 2011 campaign.

The campaign ran for approximately 2 years on television, radio, billboards, busses, and bus transit shelters, totaling approximately 84 million impressions. In the 2011/2012 fiscal year another survey was conducted to determine if the campaign was effective in increasing the level of awareness and behavior changes. Although the 2011 results showed no change compared to the 2009 results where two-thirds did not know that storm water runs directly to creeks, streams, and rivers; the specific messages of “Be River-Friendly” and “No Dumping” had higher rates of recall.

In addition, between 2009 and 2011 newspapers declined as a preferred source of media, while websites remained strong. The Permittees revamped the Partnership website in the 2010/2011 fiscal year to make it look more appealing and easier to find stormwater-related information. In addition, a Facebook was created in April 2012 to allow residents to stay up to date on stormwater topics.

Brochures and Promotional Materials (including languages other than English): The Permittees have produced and distributed educational, instructional, and promotional materials targeting the general public, school children, and businesses. In addition, several

stormwater brochures have been translated in other languages such as in Spanish and Russian.

Brochures and promotional materials have been distributed at public events, workshops, public counters, and through the mail. In addition, brochures are available electronically on the Partnership website www.beriverfriendly.net

Mixed Media Campaign: In an effort to reach a wide range of the general public, the Permittees use various media channels including television, radio, bus ads, bus shelters, and newspaper ads. In addition, the Permittees have recently joined social networks such as Facebook to reach its audience. Since the 2008/2009 fiscal year, the Permittees have made approximately 84 million impressions.

Fundraiser Carwash Discharges: In the 2008/2009 fiscal year, The River-Friendly Fundraiser Carwash Program (RFFCP) was developed to provide guidance and help facilitate successful fundraiser carwashes while protecting local creeks and rivers from the pollution that can be carried in the wastewater from car washing activities. The Permittees distributed letters to commercial carwash facilities twice during the Permit term to increase the number of host facilities in the program. As a result, a total of 27 businesses have signed up to become partners

Home and Garden Programs: The Permittees supported and/or implemented several home and garden programs that encourage less toxic pest management methods, including the following:

- **Our Water our World (OWOW)-** To educate consumers on how to manage home and garden pests using less toxic methods and products, the Permittees continued to implement the OWOW program in local hardware stores and nurseries. Recent survey results from manager and employees of stores participating in OWOW show that the program is successful in influencing the sale of less-toxic products in participating stores and helping educate consumers about less toxic products. Additionally, the nursery and garden store employees are reporting that they are offering less-toxic alternatives to more customers who are searching for solutions to ants, fertilizing, aphids and fungal diseases, which is a significant accomplishment for the program. While feedback from OWOW surveys show an increased preference for less-toxic alternatives, the public opinion survey data did not demonstrate a reduction in overall pesticide use.
- **River-Friendly Landscaping-** Since the River Friendly Landscaping program's launch in 2007, it is evident that there is a growing interest of creating River-Friendly landscapes in the Sacramento area. The River Friendly Landscaping Coalition and many programs such as the Green Gardener program, Elk Grove's Greener Gardens project, and the University of Cooperative Extension have been instrumental in expanding the promotion of River Friendly Landscaping.

Promotion of Proper Pet Waste Disposal through the multicultural, mixed media campaign:

During the 2008 permit term, the "Be River-Friendly" public service announcement (PSA) was translated into Hmong, Spanish and Russian and featured pet waste as one of the stormwater pollution problems in our community. The PSA began airing in the 2009/2010 fiscal year, continuing into the 2011/2012 fiscal year.

Partnerships with Public Agencies and Private Organizations: To ensure effective stormwater outreach activities and promote coordination and consistent messages, the Permittees continued to successfully cultivate and maintain relationships with other government agencies, special districts, local businesses, schools, environmental groups, and the media. The Permittees coordinated with the following agencies regarding stormwater outreach:

- Sacramento Area Creeks Council
- Ecolandscape California
- Sacramento Regional County Sanitation District (SRCSD)
- Business Environmental Resource Center (BERC)
- River-Friendly Landscaping Coalition (made up of various agencies)

Community Outreach Events: Historically the Permittees have attended community outreach events to build closer connections within communities and to bring a sense of awareness of the importance of taking action towards pollution prevention. The audiences for these events include the general public population, school children, and businesses. The following table summarizes the events during the 2008 Permit term:

Event	Main Target Audiences			
	General Public	Businesses	School Children	Multi-cultural
Creek Week	x			
Earth Day (various)	x			
Pacific Rim				x
Nursery and Landscape Expo		x		
Harvest Day	x			
China Mall Festival				x
Sacramento Sustainable Business Awards		x		
Celebrate Natomas	x			
Sacramento Valley Landscape and Nursery Expo		x		
Fairy Tale Town Goes Green	x			
Walk on the Wildside	x			
Salmon Festival	x			
Giant Pumpkin Festival	x			
American River Salmon School Days			x	
Western Festival	x			
Yamarka Russian Festival				x
Filipino Fiesta				x
Homing Sea Games				x

Recommendations

- Update the public outreach strategy as needed based on public opinion survey results
- Focus on general stormwater messages (drains to creeks/rivers), proper pesticide use, proper household hazardous waste disposal and proper pet waste disposal
- Maintain educational materials and conduct mixed media messages based on the outreach strategy

These and other recommendations are reflected in the proposed 5-year work plan for the Public Outreach Program for the next Permit term (Chapter 3.2.6).

School Education

Evaluation

The Permittees have supported successful school educational programs that educate students about the harmful effects of stormwater pollution and inspire them to make a difference at home or in their community. It is important to target school children at an early age and encourage them to embrace environmentally friendly behaviors that can be carried into adulthood. The Permittees will continue to implement these programs in local schools.

Discussion

Data indicate that school educational programs such as Splash and classroom presentations supported by Permittees have effectively increased awareness of stormwater issues among students. Results from teacher evaluations and student assessment tests continue to demonstrate an increased level of understanding. Details are provided in the summaries below:

Splash. During the 2008 permit term, the Splash program conducted Splash Knowledge Assessments measuring how well participating students learned water quality principles taught by the Splash program. The goal for the Splash program (80%) was met by achieving an average score results of 87% or higher; which indicates the students have gained a high degree of knowledge and awareness of stormwater issues. This demonstrates that students continued to gain a high level of understanding about the importance of preventing stormwater pollution, thus achieving Effectiveness Outcome Level 2.

Splash in the Class (Classroom Presentations). From the 2008/2009 to the 2011/2012 fiscal year, the Permittees contracted with Splash and/or South Yuba River Citizens League (SYRCL) to provide classroom presentations to 3rd-6th grade students. A total of 11,669 students received classroom presentations during the 2008 Permit term. Teacher evaluation results show that students gained a high degree of knowledge and awareness of issues. Almost 100% of teachers who responded to the surveys agreed or strongly agreed that their students were likely to practice pollution prevention as a result of the presentation, demonstrating that the program was consistently effective in achieving an Effectiveness Outcome Level of 2 (Raising awareness).

Recommendations

There are no significant changes in this section. This task is reflected in the proposed 5-year work plan for the Public Outreach Program for the next Permit term (Chapter 3.2.6).

Business Outreach

Evaluation

The activities included in the business outreach component of the Regional Public Outreach program have resulted in an increased level of awareness among the business community. Continued implementation of these programs will help the Permittees further meet their goals related to Illicit Discharge and Commercial/Industrial Outreach programs.

Discussion

The Regional Public Outreach element coordinates with the Permittee's Illicit Discharge and Commercial/Industrial Elements to produce and disseminate guidance materials that help businesses comply with stormwater regulations. In addition, the Regional Public Outreach Element supports programs such as the Sacramento Sustainable Business Awards and the River-Friendly Landscaping program to encourage best management practices and environmental stewardship. The Regional Public Outreach element also implements a program called "Our Water Our World" to train staff from local hardware stores and nurseries to educate staff on less toxic pest management practices. Details are provided in the summaries below:

Partnering with a Sustainable Business program: In the SQIP, the Clean Water Business program (CWBP) was identified as a task to encourage pollution prevention among businesses and industries, specifically mobile businesses that are often difficult to reach by the Regional Commercial/Industrial Programs. However, after re-evaluating the CWBP program for effectiveness and efficiency, it was determined that working with an existing green business program would be a more effective way to reach program goals. In the 2010/2011 fiscal year, the Partnership began working with the Business Environmental Resource Center (BERC) to help identify and develop a pilot program to work with mobile businesses regarding stormwater pollution. The pressure washing industry was identified as the subject of the pilot program. Staff reviewed the Best Management Practices (BMPs) available for the pressure washers and developed a list that would be appropriate for the Sacramento Area Sustainable Business program (SASB). In the 2011/2012 fiscal year, the Partnership continued to work with BERC to incorporate the pressure washer industry into the SASB. This program promotes businesses that take voluntary actions to prevent pollution and conserve resources. A checklist of suggested measures or practices for pressure washers has been included in the SASB program's application. The pressure washing industry was included in the SASB program in the 2012/2013 fiscal year and will be assessed at Effectiveness Outcome Level 3 in the 2012/2013 fiscal year Annual Report.

Development and Distribution of Educational Materials in languages other than English: The results of the 2004 Public Opinion Survey indicated that greater outreach is needed to Hispanic groups. To address this need in the business community, several brochures were translated into Spanish. The 2007 survey further supported that additional resources need to be targeted towards non-English speaking groups. The Permittees expanded its reach to other non-English speaking business communities such as the Russian business community by translating the following brochures during the 2008 permit term:

- Concrete and Creeks Don't Mix
- Painting without Polluting

Brochures were distributed to non-English businesses by inspectors in the field. In addition, electronic copies are available on the Partnership website www.riverfriendly.net

Encouraging the use of River-Friendly Landscaping (RFL) Guidelines: Since the RFL program began in 2007, landscapers have embraced the seven (7) principles of RFL, a whole systems' approach to gardening and landscaping, throughout the County. In the 2007/08 fiscal year, the Permittees funded the development of the River-Friendly Landscaping Guidelines for landscape professionals which was created to aid professionals in design, installation, and maintenance of River-Friendly landscapes. The guidelines helped pave the way for the formation of the River-Friendly Landscaping Coalition, a group founded by the County in 2007 to foster collaboration between public agencies, non-profit organizations, designers, private landscape architects, and contractors. Several Permittees participated as a member of the Coalition and supported efforts such as the launch of the Green Gardener training program, RFL community workshops, and development of popular publications such as the RFL Mulch and Grasscycling Guide and River-Friendly Landscaping at Home brochure.

Our Water Our World (OWOW) Training: Since the 2008/2009 fiscal year, a total of 18 hardware stores and nurseries have enrolled in this successful program to educate staff on less toxic pest management methods to help better serve customers. A total of 474 staff received training. The 2009/2010 fiscal year survey of staff shows that 92% of the respondents ranked the training as "fairly helpful" or "very helpful" in providing them with the necessary information and knowledge they needed to respond to customer questions about pesticides and alternatives. The survey results for the following two fiscal years show similar results

Recommendations

There are no significant changes in this section. This task is reflected in the proposed 5-year work plan for the Public Outreach Program for the next Permit term (Chapter 3.2.6).

2.8 New Development Element

This chapter presents a programmatic assessment of long-term effectiveness for the New Development Element and based on those findings, recommends amendments to the Sacramento Stormwater Quality Partnership's (Partnership) Stormwater Quality Improvement Plan (SQIP) for the next permit term. The evaluations and recommendations represent the collective work of the seven permittees in the Partnership, drawing from the individual assessments presented in Appendix A-7.

Introduction

The goal of the New Development Program Element is to reduce the discharge of stormwater pollutants and mitigate the increased runoff that can result from new development and redevelopment projects to the maximum extent practicable (MEP).

The Permittees established the following categories of tasks within the New Development Element to address the requirements of the 2008 Stormwater Permit related to planning and development:

- Incorporation of water quality protection principles into plans, policies and procedures
- Development of standards and/or guidance
- Stormwater maintenance agreements
- Outreach and training

For the purposes of this chapter, information about the tasks listed above is presented in the following order:

- Legal authority
- Policy and standards
- Development standards implementation
- Maintenance verification
- Training and outreach

Legal Authority

Evaluation

The Permittees have adequate authority to effectively implement the stormwater quality development standards through stormwater ordinances (and associated municipal code provisions) adopted by their respective governing bodies.

Discussion

In 2008, the Permittees' respective legal counsel reviewed and certified the adequacy and effectiveness of the stormwater ordinances (and associated municipal code provisions) for all purposes required by the 2008 Stormwater Permit, including providing the authority to the municipal agencies to establish, require and implement controls for new and redevelopment projects to reduce pollutant discharges in post-construction runoff. Permittee staff has not identified impediments to effectively utilizing the authority in the ordinances to require post-construction stormwater treatment control measures. Occasionally the Permittees have adopted amendments to their ordinances to clarify or update the provisions to reflect changes to the Permit or the programs, but the underlying authority is and has been firmly established.

The Permittees will continue to maintain local ordinance and codes to support implementation of development standards for priority development projects. They plan to amend the ordinances and/or development standards to address the Hydromodification Management Plan (HMP) and Low Impact Development (LID) six months following approval of the HMP by the Regional Water Board.

Recommendations

- Delete this task from the New Development Element
- Address the task of maintaining legal authority in Program Management (in the SQIP and the Permit)
- Recognize that review and amendment of stormwater ordinances should be conducted on an *as needed* basis, as determined by the Permittees' legal counsel or Stormwater Program staff

These and other recommendations are reflected in the proposed 5-year work plan for the New Development Element for the next Permit term (Chapter 3.2.7)

Policy and Standards

Evaluation

The Permittees' policies and standards effectively require new and significant redevelopment projects to incorporate stormwater quality controls designed to reduce pollutants in post-construction runoff. The Permittees developed the Hydromodification Management Plan (HMP), worked with environmental stakeholders to address their comments, and submitted the plan to the Regional Water Board in January 2011. The HMP was revised and resubmitted in August 2011, revised slightly in 2013 as requested by the Regional Water Board, and is now awaiting approval. The Permittees began work on Low Impact Development (LID) standards and plan to amend development standards and the Stormwater Quality Design Manual to incorporate HMP and LID requirements for priority development projects, once the HMP is approved.

Discussion

The 2008 Stormwater Permit requires the Permittees to develop a Hydromodification Management Plan (HMP) and adopt quantitative and qualitative development standards to require implementation of Low Impact Development strategies.

The Permittees developed the HMP and submitted the complete document to the Regional Water Board on January 28, 2011 and subsequently revised the document to address Regional Water Board staff comments and re-submitted it on August 5, 2011 for approval. In the August 2011 HMP, the Permittees proposed an implementation timeline for HMP requirements and LID standards. The Permittees then retained an expert consultant team and began work on the LID standards and HMP tools. The implementation schedule will be revised based on the final HMP approval date. In February 2013, Regional Water Board staff initiated discussion with the Permittees on the HMP and the Permittees subsequently made a few revisions to address additional comments from the Regional Water Board and resubmitted the document on February 14, 2013. It is anticipated that the Regional Water Board will approve the HMP in May 2013 (a formal hearing and approval by the Board is required, with 30-day public notice).

Recommendations

- Finalize the LID standards
- Develop and maintain necessary design tools to complement the standards
- Update the *Sacramento Stormwater Quality Design Manual* to incorporate the HMP and LID requirements and maintain the manual thereafter

These recommendations are reflected in the proposed 5-year work plan for the New Development Element for the next Permit term (Chapter 3.2.7).

Development Standards Implementation

Evaluation

The Permittees have established effective procedures and protocols to implement development standards through California Environmental Quality Act (CEQA) review, the entitlement process and development plan review. This ensures that municipal and private priority development projects include stormwater quality control measures to treat post-construction runoff.

Discussion

As would be expected, each Permittee implements their agency's development standards individually, and during the 2008 Permit term, there were differences in the way that data was tracked, reported and assessed in the various Permittee annual reports. This makes it difficult to compare the data and conduct a program-wide assessment. However, each Permittee used its established procedures and protocols to condition priority development projects to include stormwater quality treatment controls in accordance with Table 3-2 in the *Stormwater Quality Design Manual for Sacramento and South Placer Regions* (2007). The Permittees also ensured implementation of the stormwater treatment requirements through improvement plans review.

During the 2008 Permit term, each Permittee staff reviewed and conditioned/required all priority development projects for stormwater quality compliance during the entitlement phase and/or permitting phase. For the assessment years, 100% of regulated development projects included the required stormwater treatment control measures.

Refer to the Permittee assessments in Appendix A-7 for more details.

Recommendations

- Continue to include a task in this element to ensure private and municipal projects comply with stormwater management requirements through the CEQA entitlement and plan review processes
- Encourage Permittees to record and track data in a consistent fashion so that it may be combined and program-wide effectiveness assessed, including use of the Watershed Treatment Model to estimate pollutant loading reductions, as appropriate

These and other recommendations are reflected in the proposed 5-year work plan for the New Development Element for the next Permit term (Chapter 3.2.7)

Maintenance Verification

Evaluation

The Permittees have established the internal procedures to require maintenance agreements for on-site stormwater quality treatment facilities. Most Permittees conducted maintenance verification.

Discussion

The permittees ensure long-term maintenance of treatment control measures on private development by requiring maintenance covenants or maintenance agreements to be executed before the final approval of the project. The maintenance covenants or agreements are recorded at the Sacramento County Clerk Recorder's Office. Most Permittees verify maintenance by requiring the property owners to provide self-certification letters and/or maintenance documentation. See the SQIP and annual reports for more information on the maintenance verification programs and frequency.

The County and City of Sacramento assessed the effectiveness of their maintenance verification programs and found the following (see Appendix A-7 for more details):

County of Sacramento (Task ND.4.2). *During the 2008 permit term, County stormwater staff tracked long-term maintenance of on-site treatment controls for 121 properties through the annual maintenance verification program. An average of 87% of the property owners contacted by the County were in compliance with the County's maintenance self-certification requirements, exceeding the County's minimum acceptable level of compliance of 80 percent, and demonstrating changed behavior (Outcome Level 3) related to this requirement.*

City of Sacramento (Task ND.4). *As of June 30, 2012, the City has 62 on-site treatment controls with maintenance agreements that the staff tracks long-term maintenance through an annual program. On average, 67% of the sites with maintenance agreements provided maintenance reports showing satisfactory maintenance of the units or treatment*

measures. This did not meet the original performance goal of 100%. A review of the maintenance and response showed that lack of responses is often due to change of property ownership and maintenance staff changes.

Recommendations

- Continue to require maintenance agreement or covenants for priority development projects
- Verify maintenance of installed stormwater measures/devices at least once every three years with a minimum 70% response rate (target set to account for changes in property ownership and management)
- Track the type and number of measures/device and acreage treated to be used in the Watershed Treatment Model

These and other recommendations are reflected in the proposed 5-year work plan for the New Development Element for the next Permit term (Chapter 3.2.7).

Training and Outreach

Evaluation

The Permittees conduct internal and external training and outreach to keep agency staff and the development community informed of the stormwater management requirements for new development and redevelopment projects and promote effective implementation of development standards.

Discussion

All Permittees conducted various forms of training for their staff. The Partnership also conducted two public workshops on the Hydromodification Management Plan in December 2011. All Permittees supported the Partnership's public workshops.

During the 2008 Permit term, surveys were used by a few Permittees (County and City of Sacramento, City of Rancho Cordova, and City of Folsom) to evaluate the effectiveness of their agency-specific training. It is concluded that the current performance evaluation through surveys for the trainees did not reflect the true effectiveness of the training (see detailed discussion in Appendix A-7). The dynamic, ever-changing nature of the New Development Element makes it impossible to develop standardized quiz questions by which to measure/track increased awareness of staff over time. However, the Stormwater Program staff works very closely with plan review staff and is very aware of their knowledge and understanding of requirements for new development and redevelopment projects. The increased awareness of the stormwater requirements has been observed through active communications with planning and development review staff.

Continued training is essential for agency staff in targeted positions to implement the new development standards correctly and consistently. The form of training could vary from informal work group meetings on projects to formal annual training to specific groups.

Public workshops will be provided to the development community and agency staff upon completion of new standards and tools to address the HMP and LID requirements.

Recommendations

- Continue to include a task in this program element for external and internal training, however, provide flexibility in allowing each permittee to develop their own individualized training plan that specifies appropriate training intervals/frequencies for the various internal audiences
- Conduct outreach to development communities on new standards and requirements regarding HMP and LID including a technical workshop for the HMP/LID tools
- Eliminate use of quizzes as the performance standard for training and focus on improving training methods

These and other recommendations are reflected in the proposed 5-year work plan for the New Development Element for the next Permit term (Chapter 3.2.7).

Summary

The new development program is an established program and all Permittees adequately implemented the development standards for priority development projects. The implementation of stormwater requirements could be improved for municipal projects and projects not directly under the local agencies control (i.e. public school projects).

Implementation of new development stormwater quality measures proves to be effective in controlling sediment-related pollutants, as discussed in the Monitoring and Target Pollutant Programs section (2.9.1) management question B (the quality of urban discharge in new developed areas). Maintenance of onsite treatment measures is important to ensure adequate performance of these measures. The Watershed Treatment Model will be used to characterize effectiveness of the New Development Program, specifically sediment load reduction. New development measures and their maintenance information will be gathered and reported on an annual basis. The watershed analysis will be conducted once per Permit term.

The New Development Program will focus on incorporation and implementation of LID to meet the hydromodification management and treatment requirements. In the meantime, the Permittees will identify funding opportunities through the regional Monitoring and Target Pollutant Program for potential retrofit projects to incorporate LID measures.

2.9 Monitoring and Target Pollutant Program

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2.9 Monitoring and Target Pollutant Program

Since 1990, the Sacramento Stormwater Quality Partnership (Partnership) has assessed urban runoff discharge and receiving water quality through the Monitoring Program and created and implemented reduction strategies through the Target Pollutant Program. These programs inform Partnership activities and meet National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System permit (MS4 Permit) Monitoring and Reporting Program (MRP) requirements.

In the coming MS4 Permit term, the Partnership expects to more tightly integrate the Monitoring and Target Pollutant Programs such that assessment monitoring directly supports and evaluates water quality improvement projects. A survey of historical monitoring programs across California demonstrates that the Partnership is unique in the extensive and consistent monitoring of urban runoff discharge paired with downstream receiving waters. This “baseline” of historic data establishes a detailed understanding of urban runoff quality and the management activities that can be measured with the current monitoring program design. With more than 20 years of data collection and implementation experience, the Partnership plans to evolve and refine these programs by focusing on maintenance of the current data set, contributing to regional efforts, and emphasizing strategic project planning and implementation through creation of a Load Reduction Strategy.

The remainder of this section summarizes historic and current monitoring and target pollutant activities, reviews findings, and makes recommendations for the Stormwater Quality Improvement Plan (SQIP) amendments.

Key Concept

The Partnership collected urban runoff and ambient data for the last 20 years, and performed the “Water Quality Assessment” to evaluate these data and design an approach for the next 20 years.

2.9.1 OBJECTIVE AND MANAGEMENT QUESTIONS

The Monitoring and Target Pollutant Programs were designed to assess water quality in urban runoff and receiving waters (rivers and creeks), identify pollutants and key pollutant sources. Using the data required by the MS4 Permit and other special studies, the Partnership performed a Water Quality Assessment that is summarized here. Specifically, the Monitoring Program is used to address the management questions listed ‘A’ through ‘G’ below.

- A. What is the existing condition of receiving water quality and is it protective of beneficial uses?
- B. What is the quality of urban discharge in new developed areas?
- C. What is the trend of urban discharge quality?
- D. What is the relative urban runoff contribution to receiving water quality?
- E. What are the sources to urban runoff that affect receiving water quality?
- F. Are conditions in receiving waters getting better or worse?
- G. How can changes in urban water quality affect receiving water quality?

In addition to addressing these overall stormwater management questions using data and analyses from both the Monitoring Program and Target Pollutant Program, this section also evaluates the effectiveness of these joint Partnership programs in providing these analyses. In other words, this section evaluates program effectiveness through monitoring data as well as the effectiveness of the individual Monitoring and Target Pollutant Programs in providing the appropriate information.

The Partnership collected and analyzed water quality, sediment quality, aquatic toxicity and other types of environmental data to address management questions, support the overall program and specific individual program elements, and associated implementation activities. Table 2.9 - 1 summarizes use of Partnership data to answer management questions.

Key Concept

The management questions are addressed through several analyses, including statistical comparisons and modeled concentrations and loadings. Findings are presented first with more detailed assessment results later in the document and in Appendix B.

Table 2.9 - 1. Management Questions and Analyses Used

Monitoring Activity	Management Questions Addressed	Analyses Used to Address Management Questions
Baseline Monitoring		
River Monitoring	A, F	<ul style="list-style-type: none"> Upstream - downstream non-parametric paired comparisons Trend analysis using ANCOVA [1] factor analysis Water quality objective comparisons
Urban Tributary Monitoring	A, F	<ul style="list-style-type: none"> Trend analysis using ANCOVA factor analysis Water quality objective comparisons Comparisons of watersheds
Urban Runoff Monitoring	C, D, E, G	<ul style="list-style-type: none"> Load modeling Trend analysis using ANCOVA factor analysis Comparisons of land uses
Water Column Toxicity	A, E, F, G	<ul style="list-style-type: none"> Trend analysis comparing even-to-event results
Sediment Monitoring	A, E, F, G	<ul style="list-style-type: none"> Trend analysis (limited data)
Bioassessment Monitoring	A, E, F, G	<ul style="list-style-type: none"> Trend analysis (none performed in current MS4 Permit term)
Special Studies		
Wet Detention Basin	B, C, D, E, F, G	<ul style="list-style-type: none"> Inlet and outlet paired comparisons Mass balance
Pilot Watershed	B, D, E, G	<ul style="list-style-type: none"> Inlet and outlet comparisons [2] BMP load removal [2]
Proprietary Study	B, C	<ul style="list-style-type: none"> Inlet and outlet comparisons BMP load removal

[1] ANCOVA – analysis of covariance

[2] Analyses align with MS4 Permit requirements, however the SQIP modified the intent and purpose; see applicable section for additional detail.

2.9.2 ASSESSMENT FINDINGS

The management questions presented in Section 1.1 are provided as an organizing framework for the Water Quality Assessment. A summary of the methods used and results to the Water Quality Assessment are provided following the findings. More detail is included in **Appendix B**.

2.9.2.1 A. What is the existing condition of receiving water quality and is it protective of beneficial uses?

A1. River Receiving Waters are of High Quality

The Sacramento and American Rivers are generally of high quality based on the following technical assessments:

- Infrequent exceedances of water quality and support of beneficial uses** – The Partnership monitors a wide range of constituents with little to no exceedances (10% or less) exceedances of water quality objectives for metals, and conventionals (e.g., turbidity and electrical conductivity) and more common (>10%) exceedances of *E.coli*, DDT, and chrysene. As shown in Table 2.9 - 20 of Section 2.9.6.9, exceedances occurred in the water bodies having 303(d) listed impairments and are limited to a few key constituents (bacteriological indicators, pesticides, and legacy pollutants) or more general “unknown toxicity.” Additionally, the percentage of exceedances in urban tributaries decreased in most constituents in the 2008-2012 timeframe in comparison with earlier years (see Section 2.9.6.9). The vast majority of constituents monitored are well below water quality objective concentrations, including the drinking water Maximum Contaminant Levels (MCLs).
- Both rivers are high quality and sought after drinking water sources** – Modeling conducted by the Central Valley Drinking Water Policy Workgroup shows²⁴ that these waters support drinking water beneficial uses and worst-case projections to the year 2030 indicate that they will continue to support this beneficial use. The Sanitary Surveys prepared for the American¹ and Sacramento² Rivers concluded that the raw water is of excellent and good quality, respectively, and does not contain pollutants that require additional treatment beyond conventional filtration.
- Significant toxicity is infrequent in all receiving waters** – Significant mortality (>50% per MS4 Permit requirement) was identified in only nine of 80 samples. Five of the nine significant mortality incidences were in river locations upstream of the urban area. In all cases the mortality was not persistent in follow-up testing or was related to epibionts. Only one urban tributary sample (Laguna Creek) had significant mortality in both study years. However, the urban tributary mortality was not persistent and toxicity identification evaluation (TIE) testing could not be completed. The concentrations of pesticides in the sample indicate that they played a role in the original sample. See Section 2.9.4.2 for a discussion of aquatic toxicity results. Though not performed by the Partnership, *Hyalella azteca* testing by others found significant mortality in urban tributaries and the American River, but not in downstream Sacramento River locations (Weston and Lydy, 2010).²²

Key Concept

A high quality receiving water supports beneficial uses at the times when that use is needed.

¹ Starr Consulting. *American River Watershed Sanitary Survey 2008 Update*. December 2008

² Starr Consulting. *Sacramento River Watershed Sanitary Survey 2010 Update*. December 2010

A2. Pyrethroid Insecticides Pose Risk to Aquatic Life

Widespread application of registered pesticides in the urban area impact aquatic life beneficial uses in the urban tributaries and under more limited circumstances in the American River^{22, 23}. This is especially apparent in urban tributaries and periods of high urban runoff flow and low receiving water flow. Pyrethroids were not consistently detected in downstream Sacramento River locations above known effect levels. There are no specific 303(d) impairments based on pyrethroids in the Partnership area; however the Sacramento River Total Maximum Daily Load (TMDL) is developing water quality objectives for several pyrethroid insecticides. See Section 2.9.5.3.2 for a discussion of the Sacramento Urban Tributaries Pesticide TMDL.

2.9.2.2 B. What is the quality of urban discharge in new developed areas?

B1. New Development Land Use and Structural Controls Have Improved Overall Urban Runoff Quality

Comparison of water quality in new development vs. older development areas consistently demonstrates that new development standards are highly effective in improving urban runoff quality based on the following information:

- The North Natomas Detention Basin No. 4 (UR5) study, follow-up confirmation monitoring at the Anatolia and Bear Hollow basins, and long-term urban runoff monitoring demonstrate that water quality basin outlet concentrations are better quality than older development runoff (see Section 2.9.4.3). Figure 2.9 - 1 compares the older development total mercury distribution against data collected at three wet detention basin outlets. Figure 2.9 - 2 shows the 50th percentile value (approximate of median) and the slope of the line is indicative of variability (standard deviation). New development urban runoff concentrations of total mercury have both a lower median by more than an order of magnitude and lower variability. Figure 2.9 - 2 compares individual longer-term urban runoff characterization sites to the new development characterization site (UR5).
- Drainage to the Willow Creek monitoring location mostly consists of areas of Folsom that have water quality detention basins or other treatment control measures (e.g., vegetative swales, proprietary devices, etc.) and the monitoring data at this location is consistently higher quality than other urban tributaries and is most comparable to the new development urban runoff quality (UR5). Figure 2.9 - 3 compares the Willow Creek at Blue Ravine Road site to an urban tributary with older development and the new development urban runoff site. As the Sacramento region grows and redevelops, these new development standards will have a greater overall positive impact.

Key Concept

Implementing new development standards are effective in reducing pollutant concentrations and loading.

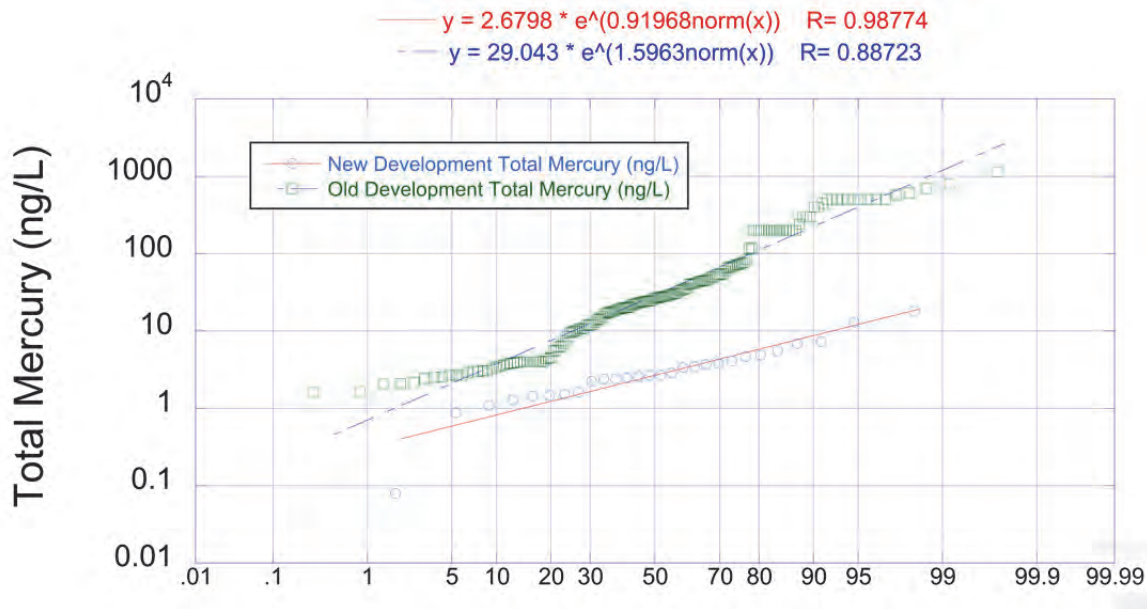
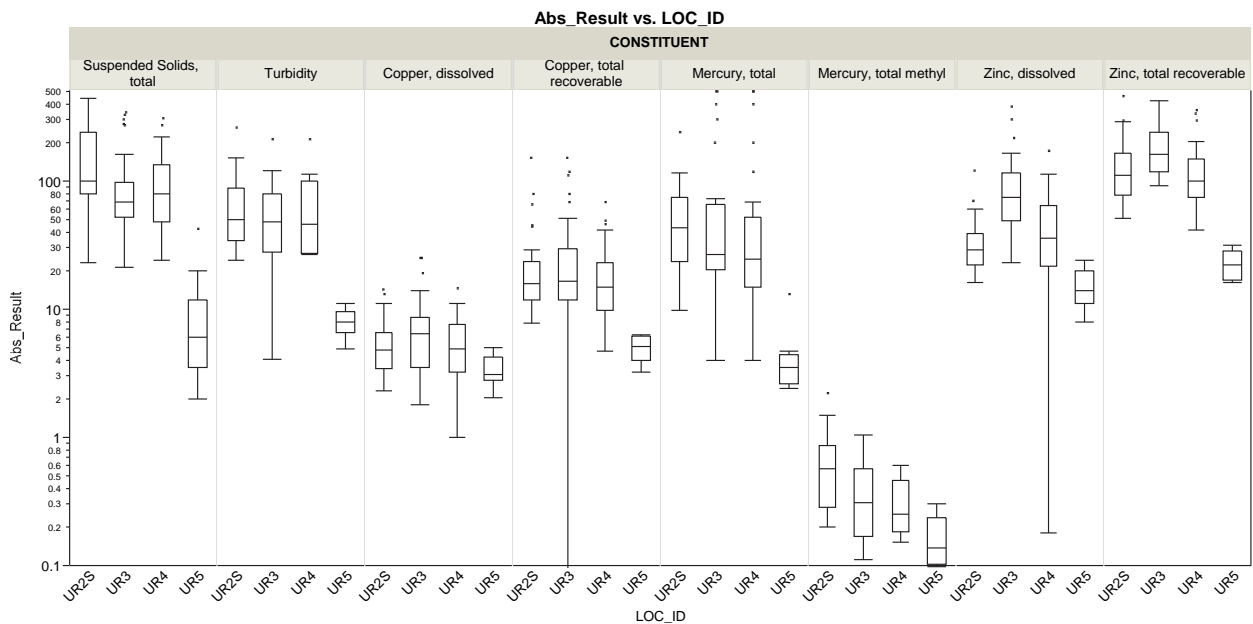
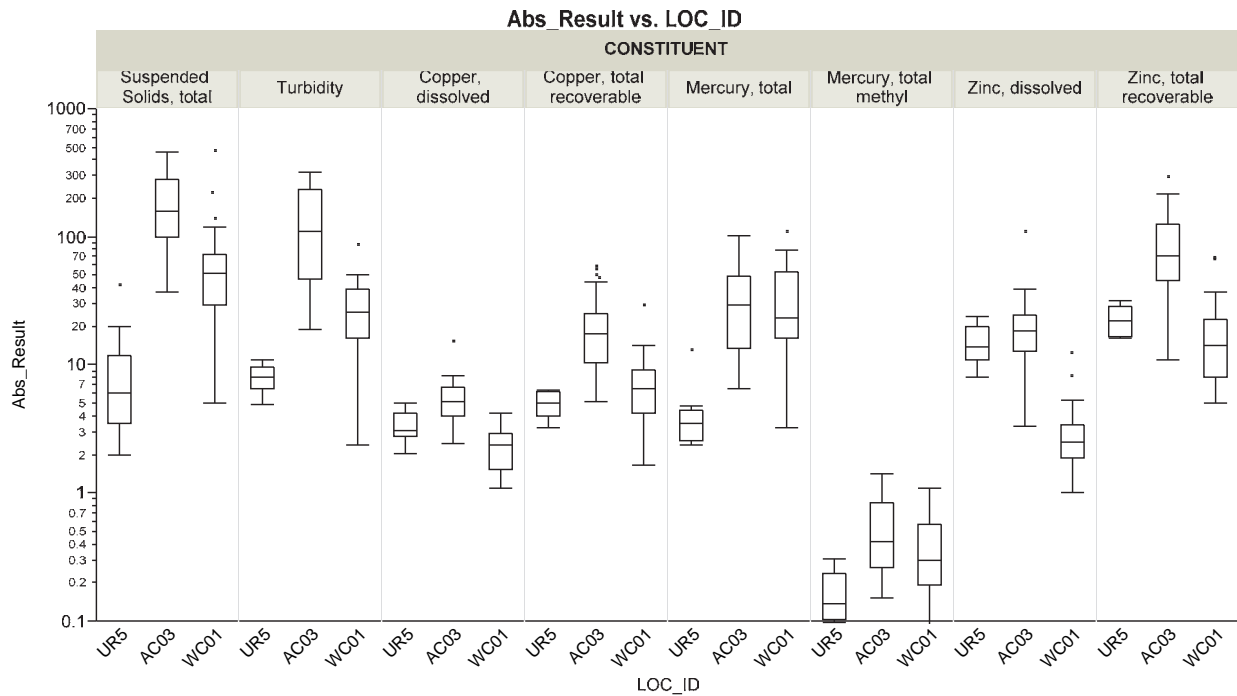


Figure 2.9 - 1. New Development Pollutant Removal Effectiveness (Mercury Example)



Note: Units as follows – TSS [mg/L]; Turbidity [NTU]; Copper, total recoverable and dissolved [μ g/L]; Mercury, total and methyl [ng/L]; Zinc, total recoverable and dissolved [μ g/L]

Figure 2.9 - 2. Comparison of Older (UR2S, UR3, and UR4) and Newer (UR5) Development Urban Runoff



Note: Units as follows – TSS [mg/L]; Turbidity [NTU]; Copper, total recoverable and dissolved [$\mu\text{g/L}$]; Mercury, total and methyl [ng/L]; Zinc, total recoverable and dissolved [$\mu\text{g/L}$]

Figure 2.9 - 3. Comparison of Willow Creek at Blue Ravine Road (WC01) to Older Development Drainage (AC03) and New Development Urban Runoff (UR5)

2.9.2.3 C. What is the trend of urban discharge quality?

C1. Trends in Urban Runoff Quality for Older Development Areas are Not Discernible or Are Declining

The Partnership trend analysis identified as clear decreasing trends for restricted use pesticides and lead (see Section 2.9.6.3.2). Most heavy metals showed declining trends through 1997 and have leveled off since that time. Lead was fully banned as a fuel additive in 1996 after a long phase-out period. The remaining constituents are not exhibiting discernible changes (e.g., >30% required based on variability and observed statistical power; see Section 2.9.6.8), change inconsistently up one year and down the next, or are newly introduced products (e.g., pyrethroids).

The trend analysis was performed only for the older development urban runoff monitoring locations and does not consider the influence of new development urban runoff quality, which was demonstrated to be of significantly better quality than urban runoff from older development land uses. Net changes and trends in load discharge and downstream receiving water quality provide a more comprehensive assessment of impacts from urban runoff and changes in land use practices, including urban growth (see Sections 2.9.6.3.2.1 and 2.9.6.4).

Key Concept

Trend analysis in urban runoff systems was performed using a “factor analysis” to account for event-to-event factors such as days since last rainfall. Ideally, these factors can be identified and quantified such that resulting annual averages can be directly compared.

C2. Diazinon and Chlorpyrifos Urban Use Elimination and Restriction Results in Urban Runoff Quality Improvement Trends

The Department of Pesticide Regulation (DPR) registers pesticides developed by manufacturers for general population and restricted uses. Local ordinances generally cannot be introduced to limit or restrict pesticides or product components. However, the Partnership actively participates and funds in-kind services working with USEPA, DPR, and pesticide manufacturers to effectively reduce or ban usage of certain compounds in consumer-available products. The Partnership refers to these activities as “true source control”. These reformulations and removal of products provide “inflection points” in urban runoff discharge and urban tributary concentrations and loads with steeper declines than other Partnership programs can initiate. Figure 2.9 - 4 shows the average annual diazinon concentration in Arcade Creek adjusted for significant factors. A statistical analysis of these factors concludes that year-to-year changes are much stronger than other factors (e.g., days since last rainfall, rainfall duration, etc.) in the urban runoff dominated wet weather flows. The drop in concentrations between 2003 and 2005 can be attributed to the January 1, 2005 ban in its residential use and the removal of products leading up to that ban.

Key Concept

The Department of Pesticide Regulation regulates consumer pesticide usage. Strategic BMPs are intended to best guide regulatory programs and product replacement to improve urban runoff quality.

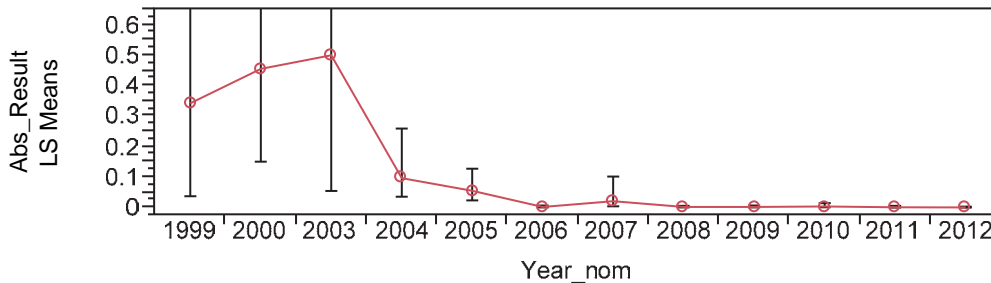


Figure 2.9 - 4. Diazinon Least Square Mean Concentrations at Arcade Creek at Watt by Year

The registration changes in 2005 for diazinon and chlorpyrifos resulted in clear and statistically significant decreases in urban runoff discharge and tributary concentrations below water quality objectives for receiving waters. Section 2.9.2.6 discusses the resultant improvement and the basis for impairment delisting in urban tributaries based on observed pesticide concentrations, and describes removal of toxic effects for *Ceriodaphnia dubia* and *Pimephales promelas* in receiving waters due to urban runoff pesticide concentrations. However, substitute pesticides, namely pyrethroids, have emerged as another potential water quality threat.

2.9.2.4 D. What is the relative urban runoff contribution to receiving water quality?

D1. Urban Tributary Receiving Waters are Urban Runoff Dominated during Wet Weather

Most of the urban tributary watersheds are highly urbanized and dominated by urban runoff during wet weather. Arcade Creek (98% urbanized) for example, rises in flow rate from less than 10 cfs to over 900 cfs in a matter of hours during heavy rain events³. The Partnership has

³ <http://waterdata.usgs.gov/ca/nwis/uv?11447360> Arcade Creek at Del Paso USGS flow gauging station

monitored at least three Sacramento area urban tributaries annually since 2002 (see Figure 2.9 - 10 map of characterization monitoring locations in Section 1.4.1). Monitoring includes continuous stage measurements and the Partnership agencies also monitor urban tributaries for flood control purposes.

While there are specific non-stormwater discharges allowable in the MS4 Permit during dry weather, any significant contributions would likely be intermittent or considered under the illicit and illegal discharge program. When identified, the Permittee works with the responsible parties to discontinue the discharge or properly route it to the sanitary sewer.

D2. Legacy Pollutant Detections in Receiving Waters Are Not Derived From New Urban Runoff Sources

Legacy pollutants “sticking” to urban tributary sediments can be mobilized into the water column and detected in urban tributary water column samples during periods of wet weather. However, there are no known new sources in urban runoff. Hydrophobic constituents, such as organochlorine pesticides (lindane, DDT, etc.) and breakdown products, pentachlorophenol, and polychlorinated biphenyls (PCB) can be persistent in sediments over long periods resulting in these occasional detections in water column samples. These legacy constituents are not found in urban runoff discharge (see **Appendix B** data summaries). Moreover, sediments transported into the urban tributaries are less mobilized than the sediments in the engineered urban runoff conveyance structures except under extreme storm events, where sediments are removed regularly through municipal maintenance activities.

Key Concept

Legacy pollutants are typically constituents that adhere to sediment and do not degrade rapidly with half-life periods exceeding ten years. There are few new sources for many of these now-banned constituents.

D3. Consideration of Site Specific Conditions and Discharge Timing and Duration is Critical to Understanding the Impact of Urban Runoff on Downstream Beneficial Uses

The 1983 National Urban Reduction Program (NURP) report concluded that the impact of urban runoff is subject to site specific conditions, but there have since been little consideration of these issues when assessing the impact on beneficial uses. The report suggested that USEPA develop “wet weather standards, criteria, or modifications to ambient criteria to reflect difference in impact due to the intermittent, short duration exposures characteristic of urban runoff and other nonpoint source discharges.” Since this finding, the tools are now available to make reasonable attempts at establishing these wet weather objectives using objective models like the Biotic Ligand Model (BLM) and hydrologic and continuous simulation modeling to identify the likelihood of critical conditions on a site-specific basis. The BLM considers the bioavailability of copper and uptake through the fish gill. In 27 of 28 samples through the 2004-2012 study period (see Figure 2.9 - 14, Section 2.9.5.3.4) the observed dissolved copper concentration was below the Criterion Continuous Concentration (CCC or chronic exposure period) water quality objective calculated using the updated 2007 USEPA objective. The Partnership participates in the Central Valley Drinking Water Policy Workgroup in development of watershed modeling that tracks in-stream concentrations over a continuous simulation period. The modeling indicated

Key Concept

Site specific objectives consider receiving water conditions (e.g., organic carbon may bind metals and reduce their bioavailability) when setting the water quality objective. In this way the water quality objective is specific to a set of locations and conditions that are protective of the beneficial use.

that urban development does not pose a long-term threat to downstream drinking water quality, especially for disinfection byproduct precursors.^{4,5}

While the Partnership compares receiving water concentrations to water quality objectives, there is no consideration of exposure frequency or duration and actual protection of beneficial uses. As part of each annual report, the Partnership is required to update the Report of Water Quality Exceedance (RWQE) to identify any previously unidentified constituents. The Partnership annually reviews all reported exceedances to determine if urban runoff is causing or contributing to the exceedance and whether the exceedance impacts a beneficial use (see Section 2.9.5.2).

While some constituents may not be chronic water quality problems (i.e., annual average loads are low), if acute issues are identified (e.g., oxygen demand in first flush events) there may be stormwater management techniques that can mitigate impacts. Moreover, if it can be demonstrated that dry weather separate system flow loadings are significant, control measures could be developed to address these sources, such as lawn irrigation runoff, in collaboration with water use efficiency programs. As shown in Section 2.9.6.4 discharge loading summaries, dry weather (dry season and inter-storm wet season) loadings are not negligible for many of the constituents not associated with the high solids loads during storm events (e.g., total dissolved solids, dissolved metals, pyrethroids, and others). Further development of flow and loading models will assist in identification of discharge load reduction opportunities.

D4. Downstream River Concentrations Trend With Upstream Concentrations

Section 2.9.6.7, provides analysis (Table 2.9 - 16) of upstream-downstream river sample paired comparisons. Paired upstream-downstream comparisons evaluate the potential impact from urban influences, including urban runoff.

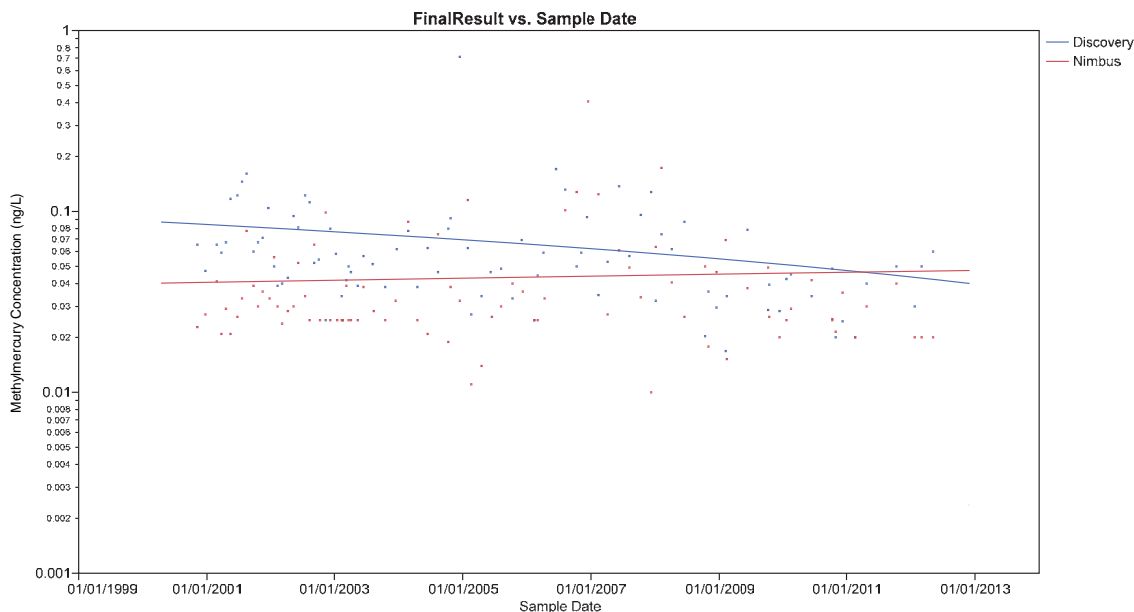
The factor analysis was not performed on the river data because the factors affecting those concentrations include influences from outside of the urban area that could not be adequately captured within the scope of this Water Quality Assessment. However, the cumulative effect of the factors and the more “stable” behavior of the larger river systems can be assessed for trends with year-to-year comparisons.

Urban area input loads increase the downstream concentration of methylmercury in the American River when compared with loads upstream of the urban area (see Section 2.9.6.7). However, comparing the upstream (Nimbus) and downstream (Discovery Park) trend in Figure 2.9 - 5 illustrates that concentration trends the Discovery Park trend line has a decreasing trend, though this is not yet statistically significant and the Nimbus trend line is flat. The downstream concentration is consistently and statistically greater than the upstream concentration, however, the difference in concentrations is smaller in recent years, though with a much larger confidence interval.

⁴ Central Valley Drinking Water Policy Workgroup. *Synthesis Report*. February 21, 2012. <http://www.waterboards.ca.gov/centralvalley/water_issues/drinking_water_policy/dwp_wrkgrp_synthesis_rpt.pdf>

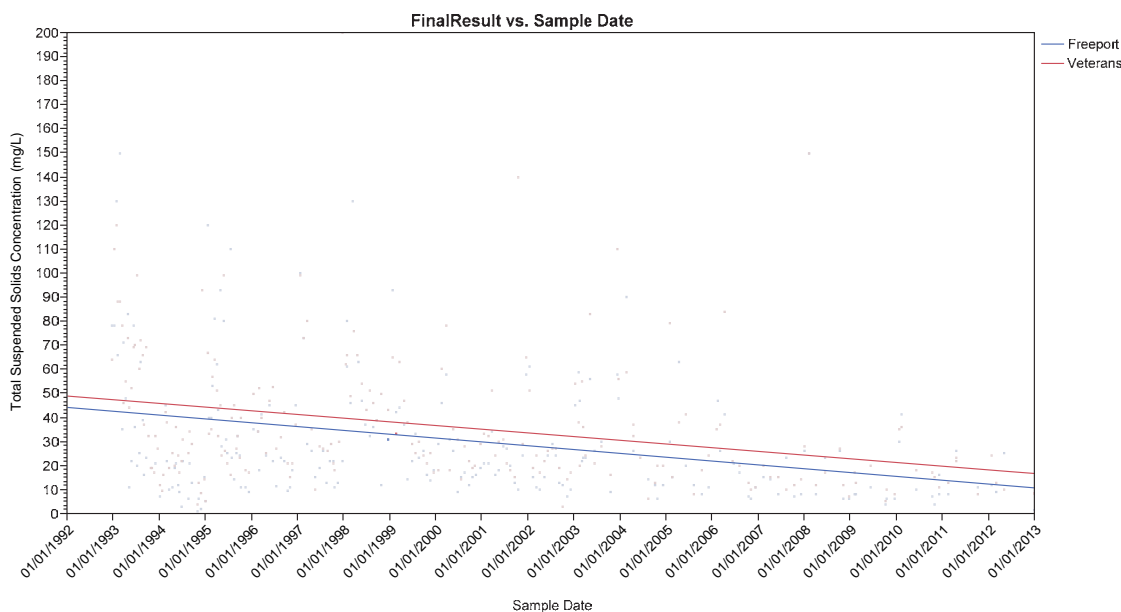
⁵ Malcolm Pirnie, Inc. *Drinking Water Treatment Evaluation Project Report*. Prepared for California Urban Water Agencies. April 2011.

Sacramento River TSS concentrations tend to decrease across the urban area and the confluence with the American River. A paired statistical comparison (Section 2.9.6.7) of upstream-to-downstream concentrations demonstrated improving water quality in the Sacramento River across the urban area (Veterans Bridge to Freeport Marina). The American River flows are nearly always lower than the Sacramento River and approximately one-third of the Partnership area drains to the American River. Figure 2.9 - 6 shows the consistent and parallel trending, and both locations have statistically significant downward slopes based on simple least mean square regressions.



Note: Nimbus as Upstream, Discovery Park as Downstream; shading indicates 95th percentile confidence interval of the line fit mean

Figure 2.9 - 5. American River Methylmercury Concentrations



Notes: Veterans Bridge as Upstream, Freeport Marina as Downstream; shading indicates 95th percentile confidence interval of the line fit mean

Figure 2.9 - 6. Sacramento River Total Suspended Solids Concentrations

2.9.2.5 E. What are the sources to urban runoff that affect receiving water quality?

Through the Target Pollutant Program, the Partnership identified priority pollutants based on a variety of factors that emphasized impairment of receiving waters and contribution from urban runoff. Over the course of the MS4 Permit terms, the Partnership identified urban runoff sources for select high and medium priority target pollutants, which included sediment, pathogens, mercury, pesticides, and metals (copper). These target pollutants, which may affect receiving water quality, are described in further detail below.

Key Concept

The Partnership uses the Target Pollutant Program to identify and quantify sources to urban runoff.

True source control for several target pollutants seeks to eliminate the pollutant through product manufacturing and reformulation controls. As much as possible, the Partnership pursues source control strategies to keep potential pollutants out of urban runoff. Source control focuses on the original source of a pollutant by eliminating or significantly reducing the existence of the pollutant. As illustrated by the discontinuation of all diazinon and most chlorpyrifos used in urban areas as a result of Federal pesticide registration changes, source control can be one of the most cost effective BMP employed by municipal agencies.

E1. Sediment

The Partnership created a conceptual model to illustrate sources and pathways of sediment within an urban watershed context. As illustrated in Figure 2.9 - 7, sediment originates from soil and debris, deposits on impervious surfaces and runs off into the MS4 during rain events. The conceptual model provides a simple framework describing pollutant transport in urban watersheds and can also apply to many of the Partnership's target pollutants that are associated with sediment.

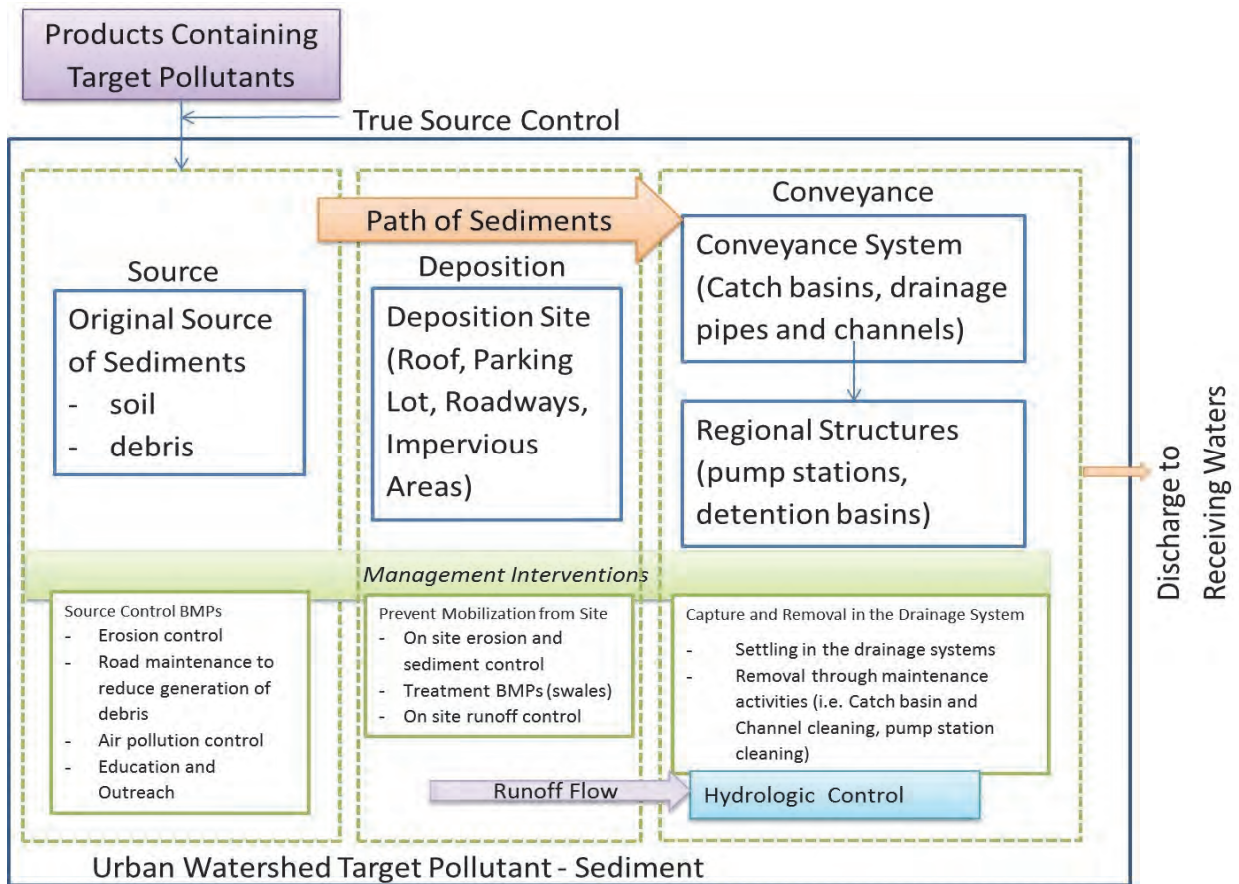


Figure 2.9 - 7. Target Pollutant Conceptual Model

E2. Fecal Coliform Bacteria

Fecal *Coliform* is not pathogenic, but has historically been used as an indicator for untreated human waste. Potential sources of observed fecal coliform bacteria in urban runoff include in situ growth, wild animals, domesticated pets and lack of sanitation facilities for homeless persons. Fecal coliform bacteria are used as an indicator of pathogens. In general, pathogens in urban runoff were not found or were found at low levels in Sacramento area receiving waters and urban runoff.⁶ However, studies outside of California using the most recent analytical methods identified the presence of viruses and pathogens in urban runoff influenced receiving waters and developed better risk assessment models.⁷ The Partnership developed the Fecal Waste Reduction Strategy and continues to implement this strategy to address the occurrence of fecal coliform in urban runoff and receiving waters.

⁶ Hope McCaslin, Ph.D., Larry Walker Associates. *Microbial Source Tracking and Pathogen Detection in Receiving Waters and Urban Runoff for the Sacramento Stormwater Quality Partnership*. August 29, 2008.

⁷ Stefan Wuertz, Ph.D. University of California at Davis, Bambic, Dustin, AMEC Earth and Environmental, et. al. *Quantification of Pathogens and Sources of Microbial Indicators for QMRA in Recreational Waters*. Water Environment Research Foundation. 2011

E3. Mercury

The dominant sources of mercury in the American River and Sacramento River are legacy sources associated with historical gold mining in the Sierra Nevada and mercury mining in the Coast Ranges, as well as geologic sources in the Coast Ranges. Urban runoff was estimated to contribute less than 1% of the total methylmercury load directly to the Delta,⁸ although it is a more significant fraction of the American River watershed load in comparison. Atmospheric deposition on impervious surfaces from remote sources such as coal fired power plants and volcanoes are believed to be a significant source to mercury levels in urban runoff. Additional sources include automobile exhaust and inappropriate disposal of household hazardous waste (e.g., batteries, latex paint, lamps).⁸

Use of the Watershed Treatment Model (WTM),⁹ described in further detail in Section 2.9.5.3.1, highlighted the relative impact of Partnership activities in reducing total mercury in urban runoff (see Table 2.9 - 7, Section 1.5.3.1). In particular, the WTM indicated that mercury-containing household hazardous waste has the potential to be a large contributor of mercury to urban runoff depending on the level of improper disposal.

E4. Pesticides

As previously indicated, registration changes for diazinon and chlorpyrifos have significantly decreased their usage in urban areas. However, in urban areas these insecticides are largely replaced by pyrethroids. Analysis of pesticide application and sales data from the Department of Pesticide Regulation indicated that the great majority of urban applications of pyrethroids were made by licensed structural Pest Control Operators (PCOs).^{10,11} The Partnership continues to identify opportunities to implement true source control of pesticides, by influencing state and federal product regulations.

E5. Copper

Sources of copper include rainfall (trace amounts scavenged); potable water used outdoors (especially where copper pipes are used), naturally occurring copper in soils, brake pad wear, and pesticide use. In the 1990s, Bay Area stormwater programs estimated that approximately 80% of copper in urban runoff might originate from brake pad wear. As a result, brake pad industry representatives and water quality interests (environmental organizations; and state, federal, and local government agencies) voluntarily formed the Brake Pad Partnership. The Partnership participated in the Brake Pad Partnership, which performed a detailed modeling study that confirmed brake pads as a significant anthropogenic source of copper in urban runoff

⁸ Central Valley Regional Water Quality Control Board. *Sacramento – San Joaquin Delta Estuary TMDL for Methylmercury Staff Report*. April 2010.
<http://www.waterboards.ca.gov/rwqcb5/water_issues/tmdl/central_valley_projects/delta_hg/april_2010_hg_tmdl_hearing/apr2010_tmdl_staffrpt_final.pdf>

⁹ Caraco, D. 2001. *The Watershed Treatment Model*. Center for Watershed Protection. Ellicott City, MD.

¹⁰ Alameda County Urban Runoff Clean Water Program, 1997. *Characterization of the Presence and Source of Diazinon in the Castro Valley Creek Watershed*. Prepared by J. Scanlin and A. Feng.

¹¹ Regional Water Quality Control Plan – Palo Alto, 1996. *Diazinon in Urban Areas*, Prepared by A. Cooper

(17% to 60%)¹² and led the effort to pass Senate Bill 346, which will reduce the amount of copper in brake pads to no more than 0.5% by 2025.

2.9.2.6 F. Are conditions in receiving waters getting better or worse?

Urban tributary trends were assessed by visual inspection and the factor analysis of the ten-year data set. Data were collected starting in 2002 (see Section 2.9.6.3.2.2) with some additional sampling in the early 1990s and as part of a Calfed study in the early 2000s. Urban tributary wet weather flows are dominated by urban runoff. Urban runoff trends were generally inconsistent (up and down) or indicated no change. River trends (see **Appendix B** and Section 2.9.2.6) are more difficult to discern. The direct impact of urban runoff to the rivers is less discernible and often masked by the upstream impact. The conditions of the rivers are influenced by activities of upstream point and non-point discharges.

F1. Storm Factor Assessments Allow Identification to Identify Trends in Urban Tributaries

Without consideration of storm factors using an analysis of covariance (ANCOVA), trends are not statistically discernible. Consideration of these factors effectively reduces the data variability. Figure 2.9 - 8 is the modeled least squares regression fit annual mean and confidence intervals where a “mild” increasing trend is suggested over the last five years (2008-2012) for dissolved copper. This regression model had statistically significant factors for “year”, “location”, and “days since last rainfall >0.25”. The increase is also coincidental with a change in field procedures that now requires filtration of samples at the time of collection.

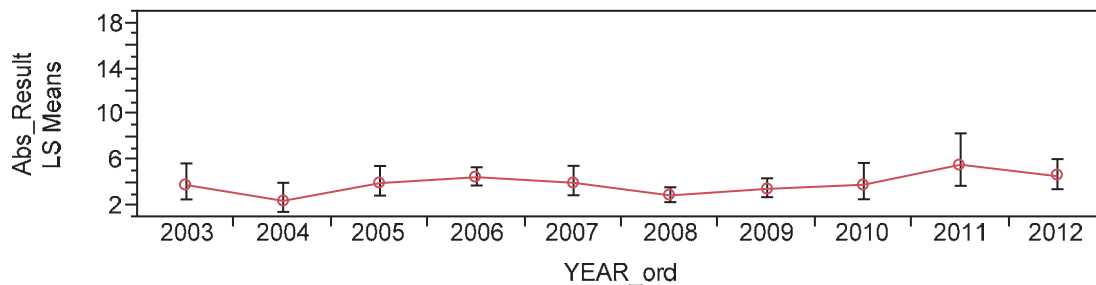


Figure 2.9 - 8. Dissolved Copper at Urban Tributaries

F2. Urban Tributaries Are No Longer Impaired by Diazinon and Chlorpyrifos

Strategic BMPs brought the Partnership in compliance with the Sacramento Urban Tributary OP Pesticide TMDL. The 2012 technical memorandum, “*Evaluation of exceedances of water quality standards for diazinon and chlorpyrifos in Sacramento area receiving waters,*” (See **Appendix G**) found that since elimination of all urban uses of diazinon and most urban uses of chlorpyrifos, there are zero exceedances in rivers and very infrequent exceedances in urban tributaries. Prior to 2005, the urban tributaries were highly impaired by chlorpyrifos and diazinon as confirmed by numerous aquatic toxicity identification evaluations (TIE). The same aquatic toxicity tests no longer exhibit this strong toxicity signal. The Partnership evaluation also determined that Sacramento area urban creeks are no longer impaired, and supports delisting of all Sacramento area urban creeks from the 303(d) list of impaired water bodies.

¹² A. S. Donigian, Jr. and B. R. Bicknell, AQUA TERRA Consultants. Modeling the *Contribution of Copper from Brake Pad Wear Debris to the San Francisco Bay*. Submitted to Association of Bay Area Governments and California Department of Transportation. October 2, 2007.

Per the State Water Resources Control Board (SWRCB) delisting policy,¹³ the number of exceedances in Arcade Creek and Laguna Creek is less than the maximum allowable exceedances, supporting the delisting of these creeks (Table 2.9 - 2).

Table 2.9 - 2. Urban Tributary Exceedance in Comparison with Max Allowed for Delisting (December 2005 – January 2012)

Urban Tributary	Number of Samples	Number of Water Quality Exceedances	Maximum Allowed Exceedances for Delisting
Arcade Creek	51	5	8
Strong Ranch Slough	20	2	NA [1]
Elk Grove Creek	3	1	NA [1]
Laguna Creek	29	1	4

[1] Sample size is smaller than the required delisting sample size; however data for other urban tributaries are considered representative; see text below

The sample sizes for Strong Ranch Slough (n=20) and Elk Grove Creek (n=3) are smaller than the delisting required sample size (a minimum sample size of 28) to allow for delisting based solely on their own dataset. However, as stated by the Regional Water Quality Control Board (Regional Board) in Finding 91c of the 2008 MS4 Permit (excerpt below) the diazinon and chlorpyrifos data collected for Arcade Creek and Willow Creek are determined to be representative of the seven creeks (including Elk Grove Creek and Strong Ranch Slough), which were monitored as part of the Partnership Urban Tributary and Additional Pesticide Monitoring study.

MS4 Permit Finding 91.c: “Diazinon and chlorpyrifos monitoring of the six additional pesticide locations and the Morrison Creek at Brookfield is no longer necessary. The data indicated that the seven creeks sampled had similar concentrations and those concentrations were reduced to non-detectable levels by 2005 once the phase-out went into effect. Analysis of the data shows that these sites are sufficiently characterized by the Arcade Creek at Watt Avenue and Willow Creek at Blue Ravine Road locations, which are part of the monitoring and reporting program of this Order.”

Based on the Permit findings and urban tributaries monitoring data, the finding that urban tributaries are no longer impacted by diazinon and chlorpyrifos is supported.

F3. The Occurrence of Toxicity in Urban Tributaries Has Decreased Significantly

The results of the aquatic toxicity testing are presented in Section 2.9.4.2. When compared to toxicity monitoring results in the 1990’s, the rate of significant mortality has decreased significantly. Only one urban tributary sample out of 34 (two species) had significant mortality during the two years of study between 2008 and 2012. As reported in the Urban Tributary OP Pesticide TMDL:¹⁴

¹³ Water Quality Control Policy for Developing California’s Clean Water Act Section 303(d) List. Adopted September 2004. State Water Resources Control Board

¹⁴ Regional Water Quality Control Board Central Valley Region. *Total Maximum Daily Load (TMDL) Report for the Pesticides Diazinon & Chlorpyrifos in: Arcade Creek, Elder Creek, Elk Grove Creek, Morrison Creek, Chicken Ranch Slough, and Strong Ranch Slough. Sacramento County, California.* September 2004

“Additional toxicity tests conducted for various studies on storm-water collected from Arcade Creek between 1995 and 2000 indicated that almost every water sample caused significant *Ceriodaphnia dubia* mortality (up to 100% mortality within 48 hours)...”

Ceriodaphnia dubia toxicity has decreased significantly since the TMDL adoption and subsequent reduction in use of these insecticides. While less sensitive to OP pesticides, *Pimephales promelas* toxicity has also decreased.

2.9.2.7 G. How can changes in urban water quality affect receiving water quality?

The effect of urban runoff changes on receiving water quality is based on the magnitude of load change in urban runoff relative to the load in the receiving water. For urban tributaries, which are dominated by urban runoff, changes in urban runoff are very likely to have large effects on receiving water quality.

For the rivers, the timing of the urban runoff loading is critical as intermittent storm flows typically occur only during high receiving water flows. The one significant exception is the early wet season, including first flush events, when urban runoff flows can be more significant. Studies of pyrethroids in the American River²² and organic carbon in the Sacramento River¹⁵ have demonstrated this short-term effect.

G1. Recreational Beneficial Uses of Urban tributaries are Limited During Storm Events and Are Not Used as Drinking Water Supplies

When assessing the quality of receiving waters, the beneficial use may be limited to certain conditions due to uncontrollable factors (flow, background sources, etc.). Assessments of receiving water quality and the impact of urban runoff are better focused on the critical periods for beneficial uses and when urban runoff is contributing to impairment. During storm events urban tributaries are unsafe for recreational activities because of high and variable flow rates. The Regional Board allows the Partnership to omit comparisons to drinking water secondary maximum contaminant levels (MCL) for turbidity during periods of storm influence¹⁶. To help ensure delivery of drinking water that meets regulatory requirements, drinking water utilities have the ability to suspend water intake from rivers during more extreme storms when turbidities significantly increase. In dry weather urban tributary flows are less affected by urban runoff. Most urban tributaries lack flow in the late summer and are not used directly as water supply sources.

G2. Urban Runoff Has Decreasing Impacts Moving Downstream in Receiving Waters

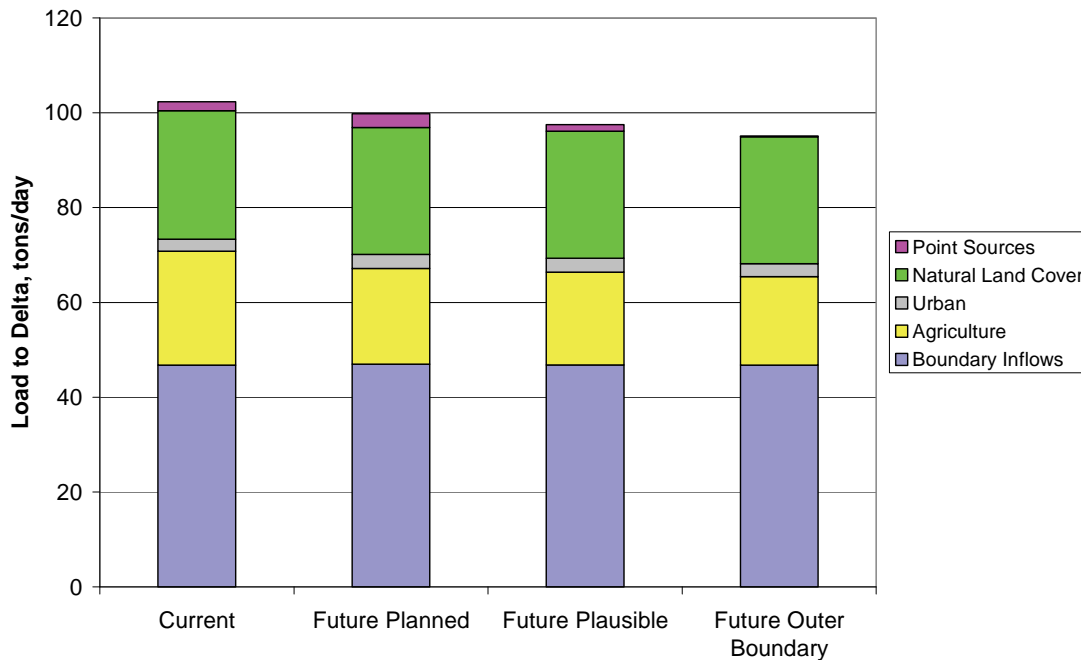
Urban tributaries are dominated by urban runoff wet weather flows and loads in highly urbanized watersheds. In comparison, the relative loading contribution from urban runoff to downstream rivers is significantly less. Loading effects may be greater during shorter term critical periods when river flows are low and urban runoff flows are high (e.g., early season larger rainfall events).

¹⁵ State of California The Resources Agency Department of Water Resources. Division of Environmental Services Office of Water Quality. Municipal Water Quality Investigations Program. Urban Sources and Loads Project. *Steelhead Creek Water Quality Investigation Final Technical Report*. February 2008.

¹⁶ Landau, Kenneth. Central Valley Regional Water Quality Control Board. *Reporting of Exceedances of Turbidity Secondary MCL*. Communication to Cecilia Jensen, Sacramento County. April 14, 2004.

G3. Urban Runoff Changes Have Limited Impact on Sacramento River Concentrations of Drinking Water Constituents

The Partnership participated in the Central Valley Drinking Water Policy Workgroup that evaluated the effect of multiple future urban runoff scenarios on downstream Sacramento River concentrations. In the case of suspended sediment, urban runoff accounted for less than 2% of the total annual Sacramento River load.¹⁷ Figure 2.9 - 9 shows the relative contribution of organic carbon to the Sacramento River under current conditions and future scenarios. While the urban runoff contribution does not noticeably change with the assumed 50% urban growth, decreases in the total load are observed as urban growth removes cropland from service.



Notes: Current conditions are development and loadings estimated for 2012. Future conditions project urban development in 2030. Future Planned assumes full implementation of existing MS4 Permit requirements; Future Plausible assumes moderate implementation of additional new controls; Future Outer Boundary assumes extensive implementation of additional new controls.

Figure 2.9 - 9. Organic Carbon Loading in Sacramento River Watershed (Source: Systech 2011, Figure 4-40)

G4. Exceedances in the Rivers Are Often Not Explainable by Coincident Concentrations Observed in Urban Runoff

All river water quality objective exceedances are reported for each event in Notices of Water Quality Exceedance. Annually the Report of Water Quality Exceedance considers (see Section 2.9.6.9 and **Appendix E**) whether urban runoff caused or contributed to this exceedance. In general, river exceedances of legacy pollutants (e.g., organochlorine pesticides), aluminum, iron, and manganese are not coincidental with urban runoff exceedances. Urban runoff does not contribute to these exceedances.

¹⁷ Task 3 Technical Memorandum Analytical Modeling of the Sacramento River. A Deliverable for California Urban Water Agencies (CUWA) and the Central Valley Drinking Water Policy Work Group Prepared by Systech Water Resources, Inc. April 25, 2011, page 3-4
http://www.waterboards.ca.gov/rwqcb5/water_issues/drinking_water_policy/sacramento_river_calibration.pdf

2.9.3 MONITORING AND TARGET POLLUTANT PROGRAM EFFECTIVENESS FINDINGS

The Monitoring and Target Pollutant Program can assess their effectiveness based on their ability to provide the necessary data to inform the overall Partnership program and to design control strategies, respectively. While the Monitoring Program successfully characterized urban runoff discharge and receiving water conditions, these same data collection techniques are limited in their ability to link Partnership program activities to changes in water quality on a year-to-year basis. The Monitoring and Target Pollutant Programs do not implement specific projects to measure, but have historically acted as the technical tool to evaluate collective Partnership program effectiveness. A review of these two elements resulted in the following findings.

2.9.3.1 Constituents of Concern in Urban Runoff are Similar to Other California Communities or Are Driven by Specific Receiving Water or Downstream Issues

The Partnership monitored a wide range of more than 400 constituents over the 20 year study period. During this time the changes in target pollutant identification and ranking was minimal, usually occurring when research studies identified new potential pollutants, regulatory agencies changed pesticide registration, or analytical methods improved allowing the removal or addition of a better quantified constituent.

The National Resource Defense Council maintains a “stormwater pollutant” list¹⁸ that closely follows the Partnership list. Aside from the conspicuous omission of organic constituents, including pesticides, and mercury, the 1983 National Urban Runoff Program (NURP) issues of concern overlap considerably with current Partnership constituents of concern – sediments, heavy metals, and fecal indicator bacteria.

Key Concept

The Monitoring and Target Pollutant Programs do not assess their effectiveness on the higher level assessments as they provide data and strategies to other elements. The proposed merging of these programs brings in specific special implementation projects that can be assessed for load reductions.

2.9.3.2 Urban Runoff Discharge and Receiving Waters Are Effectively Characterized for Current Conditions in the Sacramento MS4 Area

The Partnership long-term monitoring has adequately characterized urban runoff and receiving waters quality and variability. Twenty years of urban runoff data provides a baseline of data that is variable but without consistent year-to-year trends. Additional data collection will not substantially change the findings from the current characterization.

2.9.3.3 Trend Monitoring Under the Current Approach Will Identify Only Significant Changes

Urban runoff discharge data collected over the last 20 years has demonstrated that concentrations of most constituents in older development runoff are difficult to reduce significantly without product reformulation or substitution (see Section 2.9.6.3.2). The Partnership collected more than 20 years of extensive water column data. The only discernible trends were cases of product

¹⁸ <http://www.nrdc.org/water/pollution/storm/chap2.asp>

reformulation or the elimination of diazinon for urban use and near elimination of chlorpyrifos for urban use. It is not expected that concentrations of most constituents can be reduced significantly (>30%) by Partnership activities in the next five years. Continuous monitoring of field parameters can provide the statistical power to detect smaller reductions (<10%, see Section 2.9.6.8).

2.9.3.4 The Monitoring Program Focused on Urban Tributaries and Receiving Waters Has Limited Ability to Link Individual Partnership Program Activities to Changes in Water Quality, or to Identify Changes Occurring on a Year-to-Year Basis

The effect of changes due to individual BMPs will not be observable in urban runoff or receiving waters unless such changes are large in magnitude. For instance, observable water quality effects are associated with new development BMPs and reduced use of diazinon and chlorpyrifos. However, the lack of observable trends for other target pollutants only indicates that the aggregate effect of all BMPs resulted in less than 30% reduction in concentrations of most constituents, and does not provide information on the effectiveness of any given BMPs. Year-to-year trend data collection cannot be effectively used to change Partnership management programs (Stormwater Quality Improvement Program), which requires permit amendments.

2.9.4 DESCRIPTION OF DATA SOURCES

The current MS4 Permit specified an extensive monitoring plan for the permit period (2008-2013). These permit requirements were developed to support the Partnership program and included requirements to support TMDL efforts (mercury and pesticides). The following historical data are provided in this section:

- Baseline characterization monitoring
 - River monitoring
 - Urban tributary monitoring
 - Urban runoff discharge monitoring
 - Urban tributary sediment monitoring
- Aquatic toxicity monitoring
- Special studies
 - Wet Detention Basin monitoring
 - Pilot watershed
 - Proprietary treatment BMP effectiveness evaluation
- Historic monitoring activities
 - Bioassessment
 - Pyrethroid studies

This overview of data sources is presented to summarize the extent of water quality characterization data collected over the last 20 years. The section also discusses historic monitoring activities and studies that may be relevant to monitoring activities in future years.

2.9.4.1 Baseline Characterization Monitoring

Baseline monitoring characterizes urban runoff and receiving water constituent concentrations and quantifies long-term trends for larger areas. The Partnership performed river monitoring, urban tributary monitoring, urban runoff monitoring, and water column toxicity as part of this characterization. Specific monitoring protocols are described in the annually prepared Sampling and Analysis Plans for the monitoring activities. Sampling and Analysis Plans are submitted to the Regional Board along with the Annual Report. The range of data used in the analysis is shown in Table 2.9 - 3 and the sites are mapped in Figure 2.9 - 10.

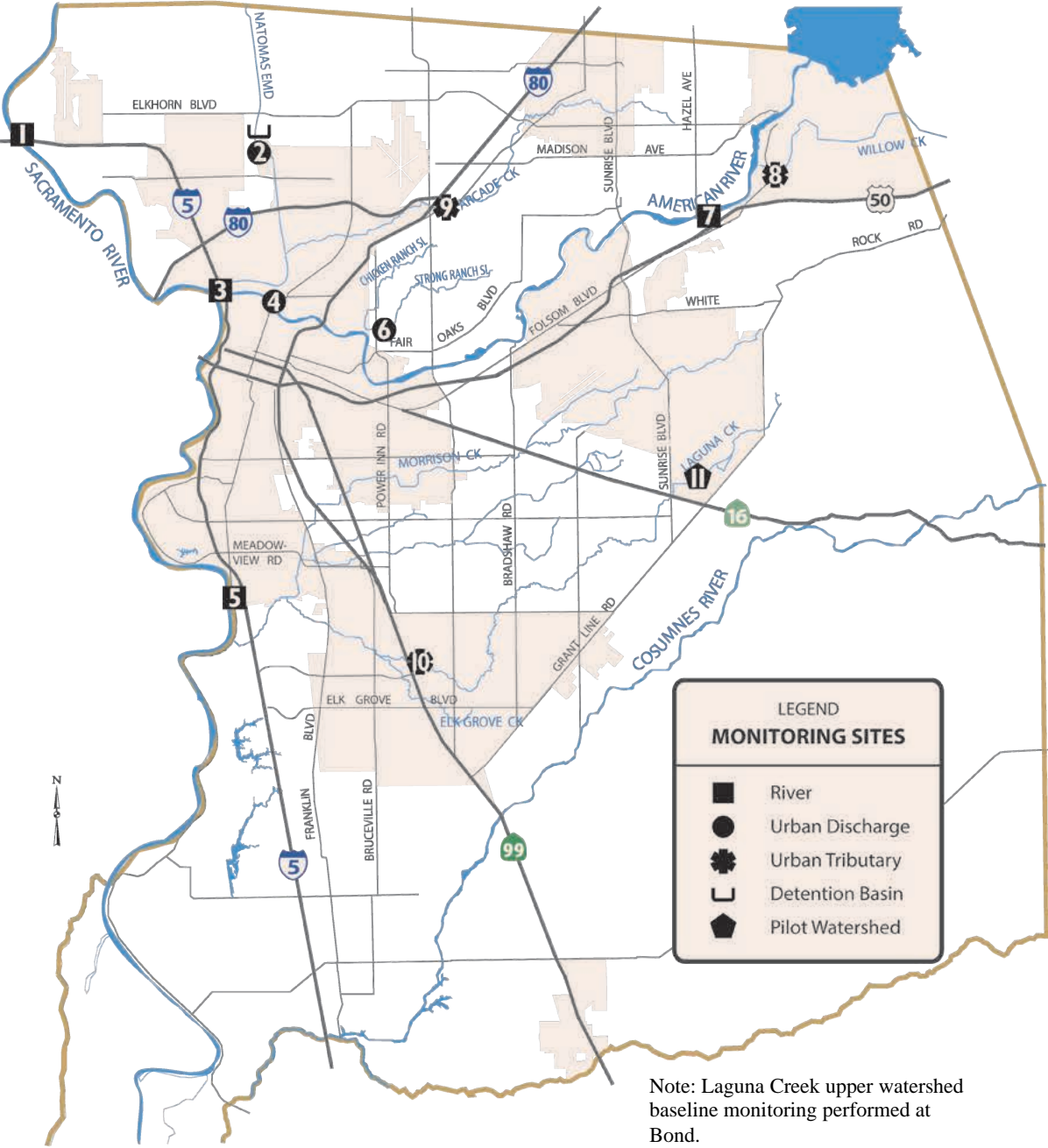
Table 2.9 - 3. Partnership Water Quality Characterization Monitoring Data Used for Analysis

Monitoring Location	Monitoring Period	No. of Events	No. of Wet Weather Events
American River [3]			
Nimbus	1/7/1993 – 5/1/2012	220	57
Discovery Park	12/15/1992 - 5/1/2012	222	57
Sacramento River [3]			
Veterans Bridge	1/7/1993 - 5/1/2012	225	57
Freeport Marina	1/7/1993 - 5/1/2012	218	57
Urban Tributary [1, 2, 3]			
Arcade Creek at Watt	5/18/1999 – 5/1/2012	36	28
Laguna Creek at Highway 99	12/15/2008 – 5/1/2012	15	11
Willow Creek at Blue Ravine	12/14/2003 – 5/1/2012	46	34
Morrison Creek at Brookfield	12/14/2003 – 2/25/2008	36	29
Urban Runoff Discharge			
Sump 104	8/29/1990 – 6/6/2007	77	52
Sump 111	2/15/1990 – 5/2/2012	69	48
Strong Ranch Slough	3/2/1995 – 5/2/2012	60	41
Sump 14 (North Natomas Basin No. 4)	10/1/2009-5/2/2012	13	11

[1] Laguna Creek at Highway 99, Willow Creek at Blue Ravine and Morrison Creek at Brookfield also have collected continuously from data probes currently or previously installed in the field.

[2] Sediment samples collected twice annually

[3] Toxicity samples collected three times annually in two of five years



Monitoring Site Names

- | | |
|---------------------------------------|----------------------------------|
| 1 Sacramento River at Veterans Bridge | 7 American River at Nimbus Dam |
| 2 North Natomas | 8 Willow Creek at Blue Ravine Rd |
| 3 American River at Discovery Park | 9 Arcade Creek at Watt Ave |
| 4 Sump 111 | 10 Laguna Creek Lower Watershed |
| 5 Sacramento River at Freeport Marina | 11 Laguna Creek Upper Watershed |
| 6 Strong Ranch Slough | |

Figure 2.9 - 10. Characterization Monitoring Locations 2008-2013

2.9.4.1.1 River Monitoring

The Sacramento Regional Sanitation District (SRCSD) and Partnership manage the Coordinated Monitoring Program (CMP) through the CMP Steering Committee. The Steering Committee designed the CMP to provide long-term ambient river water quality characterization data, satisfy NPDES permit monitoring requirements, and complete recommended special studies. Following the SRCSD NPDES permit renewal in December 2010, SRCSD and the Partnership entered into a revised agreement to ensure that the CMP continues to meet both sets of NPDES permit requirements. A detailed summary of the river monitoring results is provided in **Appendix B**.

2.9.4.1.2 Urban Tributary Monitoring

Urban tributary water column monitoring was performed at three locations for three wet weather events and one dry weather event every year. To evaluate the effectiveness of the New Development program, the Morrison Creek monitoring location sampled during the previous permit term was replaced with a site representative of new development (Laguna Creek). For the urban tributaries, a storm event flow composite was collected in the first several years, if possible, for the first flush event. For the remaining events, grab samples were collected, while permanent sample collection equipment was not installed at these locations. Continuous data probes were installed at Willow and Laguna Creeks in addition to the USGS flow gages at Arcade and upper Laguna Creek. A detailed summary of the urban tributary monitoring results is provided in **Appendix B**.

2.9.4.1.3 Urban Runoff Discharge Monitoring

Urban runoff (discharge) water column monitoring is performed at three locations for three wet weather events and one dry weather event per year, with no monitoring every third year. Additionally, the historically monitored Sump 104 location was replaced in 2008 with a site representative of new development (North Natomas Basin No. 4 or Sump 14). Storm event or dry period composite samples are collected for all events. The first flush event is targeted each year and was captured in each year that sampling was performed. The Partnership collected samples for a wide range of event types and antecedent conditions that include significant representation of seasonal first flush and a wide range of total event rainfall. These characteristics are key analysis factors.

Key Concept

The Partnership has performed 50 wet weather urban runoff monitoring events at one location and more than 40 at the others. These wet weather events include a wide range of conditions representative of typical climatic conditions.

The histograms in Figure 2.9 - 11 and Figure 2.9 - 12 compare the sampled events to the 1970-2000 climatic record. The sampled event distributions compare well to the historical averages demonstrating that the sampled events well-characterize conditions.

For the “days since last rainfall > 0.25 inch” distributions, the sampled events tend to favor the longer antecedent dry period (first flush) events. The study design included targeting more first flush events to better characterize the longer and more “critical” build-up periods; this also helps to better define the overall behavior of the system.

For the “total event rainfall” distributions the sampled events match the historical distributions well with a similar preference to the larger events. It is generally not possible to effectively sample events much smaller than 0.25 inch.

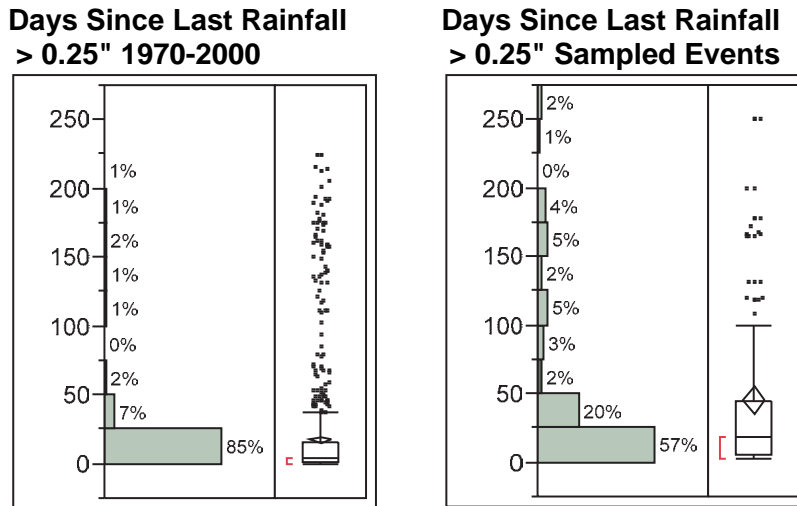


Figure 2.9 - 11. Histogram for Urban Runoff Discharge Sample Event Total Rainfall 1990-2012

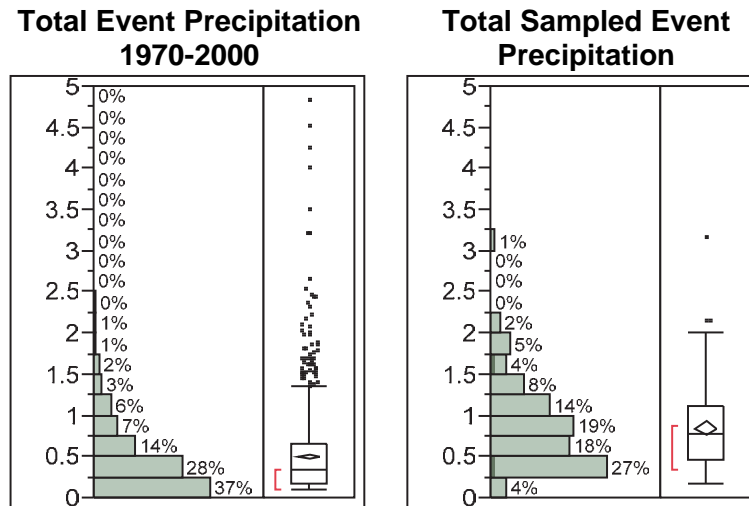


Figure 2.9 - 12. Histogram for Urban Runoff Discharge Sample Event Antecedent Dry Days (>0.25" rainfall) 1990-2012. Detailed summary of the river monitoring results are provided in Appendix B.

2.9.4.1.4 Urban Tributary Sediment Monitoring

The Partnership collected sediment samples at each urban tributary location once during the wet season and once during the dry season. Wet season samples were generally collected during a dry period between the second and third annual urban tributary wet weather monitoring events. Dry sediment samples were most frequently collected as part of the dry weather urban tributary sampling event. The samples were analyzed for total solids and pyrethroid pesticides. Detailed summary of the urban tributary sediment monitoring results are provided in **Appendix B**.

2.9.4.2 Aquatic Toxicity Monitoring

The Partnership collected aquatic water column toxicity samples at all receiving water locations for one dry weather event and two wet weather events in two non-consecutive years (2009/2010 and 2011/2012) per the MS4 Permit MRP requirements. When mortality of the test species exceeded 50% at any time during the seven-day test, a toxicity identification evaluation (TIE) was initiated.

Aquatic toxicity monitoring results in 2009/2010 indicated mortality greater than 50% occurred in seven of the 38 aquatic toxicity tests. In 2011/2012 significant mortality (>50% mortality compared to the control sample) occurred in two of the 42 samples tested. TIEs were inconclusive as to the specific cause of toxicity for events in both years. Synergistic effects between metals and pesticides may have contributed to toxicity, but these effects are not well understood. In one event, the laboratory observed epibiont peritrichs, an organism that attached itself to the surface of the *Ceriodaphnia dubia* as shown in Figure 2.9 - 13. Epibiont peritrichs can interfere with TIE results as they restrict *Ceriodaphnia dubia* feeding, molting, and respiration. This inference may have occurred in previous events based on observed organism “fuzz” that were not confirmed using microscopy.

Key Concept

The observed toxicity in samples was weak, not persistent, and difficult to identify. While alternate species may better identify toxicity, the methods and changing toxicity profile in downstream receiving waters is more suited to research entities.

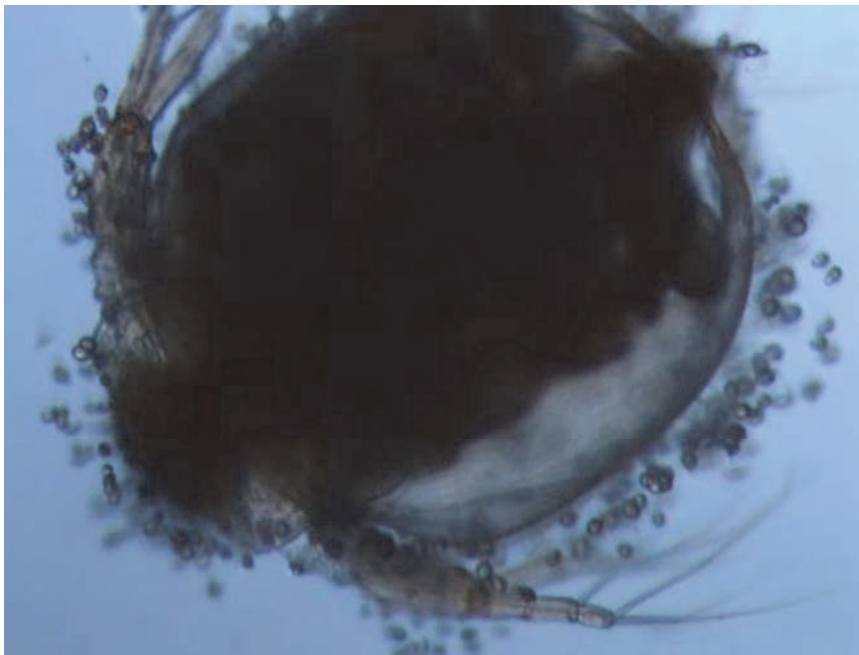


Figure 2.9 - 13. Observed Epibiont Peritrichs on Sacramento Stormwater Quality Partnership *Ceriodaphnia dubia* Test Species

Aquatic toxicity monitoring was not useful in the current MS4 Permit term in identifying and assessing urban runoff impacts because the test species responses were difficult to understand in the absence of strong toxicant signals. In the case of the Sacramento River samples, upstream samples showed the most consistent aquatic toxicity that was not discernible through standard USEPA toxicity identification evaluations, likely related to the epibiont “infections”. The widespread “deterministic” approach previously deployed proved to be expensive without

providing useful data. Detailed summary of the 2009/2010 and 2011/2012 aquatic toxicity monitoring results are provided in **Appendix C**.

The toxicity observed in the one significant mortality urban tributary event are consistent with Surface Water Ambient Monitoring Program (SWAMP) assessment¹⁹:

“Correlation analyses and toxicity identification evaluations (TIEs) were used to determine causes of water and sediment toxicity statewide, and the results of these analyses showed that the majority of toxicity was caused by insecticides. Water toxicity to *C. dubia* has been caused primarily by a combination of organophosphate (OP) and pyrethroid pesticides.”

However, the observed upstream and downstream Sacramento River samples with significant mortality, perhaps related to epibionts, were not necessarily consistent with this finding of the influence of insecticides.

2.9.4.3 Special Studies

2.9.4.3.1 Wet Detention Basin Monitoring

The Partnership conducted a study of wet detention basin effectiveness during the MS4 Permit term. The purpose of the study was to determine and confirm the pollutant removal performance of detention basins built according to the Partnership development standards. The first phase of this study included inlet and outlet monitoring at North Natomas Basin No. 4 for constituents including total mercury, methylmercury, total suspended solids (TSS), bacteria, turbidity, total dissolved solids (TDS), OP pesticides and pyrethroids.²⁰ Key conclusions from the first phase included:

Key Concept

Water quality detention basins were shown to effectively reduce most all the Partnership target pollutants and reduce concentration variability.

- Solids are consistently removed in Basin 4 at statistically significant levels. For Total suspended sediment concentration (SSC), the effectiveness is estimated as 62%. The effectiveness for TSS is estimated as 75%.
- Total mercury was removed without increasing methylmercury concentrations.
- Median effluent metals concentrations are generally lower in wet basin discharges than corresponding data available from two other studies, Heron Bay (outside of Sacramento) and Brown Road (built prior to current development standards) dry weather detention basins.
- The basin removal efficiencies generally range from 20% to 80% for PAHs, a class of hydrocarbons that, like hydrocarbons in general, are not very soluble in water and tend to partition with particulate organic matter. The estimated removal efficiencies for individual constituents that were statistically significant were: chrysene (80%), pyrene (64%), fluoranthene (63%), phenanthrene (54%), biphenyl (28%), fluorene (27%), naphthalene (26%), and 1-Methylnaphthalene (19%).

¹⁹ Dan Markiewicz, Marie Stillway, Swee Teh. Surface Water Ambient Monitoring Program. *Toxicity in California Waters: Central Valley Region*. August 2012.

²⁰ Geosyntec Consultants. Wet Detention Basin Effectiveness Study. Prepared for the Sacramento Stormwater Quality Partnership. 2010.

- The basin removal efficiency was estimated at 87% for E. Coli, which would indicate that much of this Fecal Indicator Bacteria is entering the pond in particulate form or is partitioning onto particulates in the basin.

The second phase of this study conducted inlet and outlet grab samples at two other representative wet detention basins outside of the Natomas area to determine if wet detention basins in other areas perform similarly to North Natomas Basin No. 4. The Bear Hollow and North Anatolia basins were selected for this phase and the grab sample results indicated that they perform similarly to North Natomas Basin No. 4 given site-specific conditions. None of the wet detention basins generated increases in methylmercury concentrations. Most all constituents decreased in concentration through the detention basins with the exception of bacteriological indicator counts at Bear Hollow that may be due to residence of in-basin wildlife. The Addendum to the Wet Detention Basin Effectiveness Reports is included as **Appendix D**.

2.9.4.3.2 Pilot Watershed – New Development BMP Effectiveness Evaluation

MS4 Permit MRP requirements indicate that “Permittees shall prepare and implement a work plan over the permit term for monitoring a receiving water site within the Upper Laguna Creek Collaborative project area.” However, the permit language goes on to indicate that the objective of the study is to monitor the reduction from a minimum of one BMP (e.g., low impact development). This permit language is somewhat in conflict with itself, as it is requiring Permittees to monitor a new receiving water site with the objective of understanding BMP effectiveness. Unfortunately, these are not one and the same. As a result, the Partnership proposed to monitor a BMP or a receiving water site as part of the 2009 SQIP.

The Partnership, in consultation with Regional Board staff, determined that establishing a receiving water monitoring site in the Upper Laguna Creek watershed was the best option for meeting this provision. The Upper Laguna Creek watershed is largely undeveloped, but several large developments are proposed. The Partnership initiated baseline receiving water monitoring in 2012 and anticipated evaluating the effectiveness of BMPs as the watershed is developed over time. As part of the baseline data collection efforts for the Laguna Creek watershed, the City of Elk Grove in partnership with USGS performs continuous flow measurement within the upper watershed to assess flow changes over time.

2.9.4.3.3 Proprietary Treatment BMP Effectiveness Evaluation

The Partnership has an established protocol for evaluating proprietary treatment BMP effectiveness. The Partnership evaluates data submitted by the proprietary BMP manufacturers. The Partnership allows development projects within the Partnership to utilize proprietary treatment BMPs on the Partnership’s approved list. In order to obtain approval for use within the Partnership area, the Partnership evaluates pollutant removal performance data²¹ and maintenance requirements. Currently, the approved proprietary treatment BMPs include:

- StormVault (by Jensen precast)
- StormFilter (by CONTECH)
- Filterra Bioretention System (by Kristar)

²¹ The SSQP protocol for acceptance can be found on the SSQP’s website:
<http://www.beriverfriendly.net/newdevelopment/propstormwatertreatdevice/>

The Partnership will conduct a comprehensive review of the existing protocol and procedure for Proprietary BMPs and data submitted by the manufacturers in the 2013/2014 fiscal year.

2.9.4.4 Historic Monitoring Activities

2.9.4.4.1 Bioassessment

The Partnership performed bioassessment monitoring from 2004 to 2009. The current MRP does not require bioassessment monitoring. Bioassessment monitoring included documentation of mean physical habitat parameters and mean benthic macroinvertebrate metrics. Significant bioassessment monitoring trends were not identified due to the limited number of assessment events per station and lack of reference condition for the different types of creeks. A summary of macroinvertebrate metrics from 2004 to 2009 is summarized in Table 2.9 - 4.

Table 2.9 - 4. Select Mean Benthic Macroinvertebrate Metrics 2004-2009

Urban Tributary	Willow Creek (n=3)			Laguna Creek (n=3)			Arcade Creek (n=2)		Morrison Creek (n=2)	
	BRD	SRD	EBD	SCD	BRD	SRB	SBC	NWA	BRD	FLR
Taxa Richness [1]	21.75	27.5	25	16.5	14	17.5	18.5	7.5	20.5	16
EPT Index [2]	28.62	33.5	16.68	0.075	0.325	0.95	0.4	0	0.55	0.65
Tolerance Value [3]	4.05	3.975	4.15	4.8	4.3	4.75	7.45	7.85	7.25	7.45

Notes:

1. Total number of individual taxa; reflects the diversity of aquatic organism; metric decreases with disturbance

2. Number of families in the Ephemeroptera (mayfly), Plecoptera (stonefly), and Trichoptera (caddis fly) insect orders; metric decreases with disturbance

3. Weighted value for number of aquatic organisms that are pollutant tolerant; metric increases with disturbance

Station ID: Willow Creek – BRD [Blue Ravine Road], SRD [Sibley Road], EBD [East Bidwell Road]; Laguna Creek – SCD [Saddleback Creek Drive], BRD [Bradshaw Road], SRB [Sheldon Road]; Arcade Creek - Sacramento Softball Complex [SBC], Norwood Avenue [NWA]; Morrison Creek – Bradshaw Road [BRD], Florin Road [FLR]

2.9.4.4.2 Pyrethroid Studies

A study on the urban sources of pyrethroids in the Delta area measured pyrethroids in urban runoff in Sacramento, Stockton and Vacaville during the rainy season in early 2008 and 2009 and during the dry season in 2008 (Weston and Lydy, 2010).²² The researchers found that pyrethroids were present in all but one of 33 urban runoff samples and that nearly all residential runoff samples were toxic to the amphipod, *Hyaella azteca*. Within Sacramento, receiving water was sampled along the American River and Sacramento River after four storms and once during dry weather in early 2009. Toxicity was found at all five locations along the American River during February and March, and was attributed to bifenthrin. The authors attributed the toxicity to unusually low river flows during the early winter months. A sample taken later during higher flow in May did not show any toxicity or pyrethroid presence. The Sacramento River was sampled at three points (Garcia Bend, Discovery Park, and Clarksburg) after two storms with only minimal toxicity found, and few detections of pyrethroids.

A follow-up study assessed pyrethroid concentrations and toxicity over variable flows in the American River following six storms over a three year period (Weston and Lydy, 2012).²³ Toxicity was found in just over 50% of samples in the downstream reach of the river, likely due to bifenthrin. Bifenthrin was detected in 11 of 12 runoff sources to the river at concentrations averaging five times the *H. azteca* EC50. However, the authors noted that bifenthrin losses occurred between urban runoff sources and the river, likely due to particle adsorption and sedimentation of particulates. American River toxicity and bifenthrin concentrations were highest during low river flows, but were also detected during high river flows.

2.9.5 COMPLETED AND ONGOING ASSESSMENT EFFORTS

The Partnership collects data to comply with MS4 Permit requirements, identify water quality issues, assess trends in water quality and loading, and evaluate Partnership effectiveness. The Partnership has historical assessment programs such as the Target Pollutant Program as well as Permit-required assessments that were submitted throughout the MS4 Permit term. The following sections and **Appendix B** report the results and methods for a more detailed examination of the 20 year data set:

- Target Pollutant Historical Assessments (Section 1.5.1)
- Notice of Water Quality Exceedance and Report of Water Quality Exceedance (Section 1.5.2)
- TMDL Compliance Assessment (Section 1.5.3)

²² Weston, D.P and M.J. Lydy. 2010. Urban and agricultural sources of pyrethroid insecticides to the Sacramento-San Joaquin Delta of California. *Environ. Sci. Technol.* 44: 1833-1840.

²³ Weston, D.P., and M.J. Lydy. 2012. Stormwater input of pyrethroid insecticides to an urban river. *Environ. Toxicol. Chem.* 2012; 31: 1579–1586.

2.9.5.1 Target Pollutant Historical Assessments

The Partnership implemented the Target Pollutant Program to identify priority pollutants and create strategies to reduce impacts from those pollutants. The Partnership intends to more fully integrate the Target Pollutant Program with the Monitoring Program and focus resources on the pollutants that are controllable and most likely to impair local receiving waters. The target pollutant identification and prioritization process historically scored individual constituents based on a number of categories related to water quality objectives and water quality impairments. The process is performed in five assessment steps: 1) data preparation, comparison to water quality objectives, summary statistics, 303(d) listing updates, 2) target pollutant short listing: based on series of screening criteria, 3) scoring: numerical quantification related to impairment of receiving waters, RWQE status and contribution from urban runoff, 4) ranking: individual constituents are ranked based on their overall score, and 5) grouping: like constituents are grouped and groupings are ranked based on additional factors, including controllability. The prioritization was most recently performed in 2009 and the Target Pollutant groups were identified as shown in Table 2.9 - 5 and previously reported in the SQIP.

Key Concept
 The target pollutant list has been mostly static in the last permit term with removals now possible for OP pesticides. The list closely follows other program lists statewide, but is also influence by local (Delta) and legacy (mercury) issues.

Table 2.9 - 5. 2009 Prioritized Target Pollutant Groups

Target Pollutant Group	Priority
Sediment Erosion	High
Pathogen Indicator	Medium
Pesticide	Medium
Mercury	Medium
PAH	Medium
Unquantified Source	Medium
Drinking Water Issue	Medium
Metals	Medium
Petroleum Product	Medium
Legacy Pollutant	Low

The Partnership developed the pollutant-specific control strategies shown in Table 2.9 - 6 for sediment, pathogens, pesticides, and mercury. These multi-faceted strategies were incorporated into all Partnership program elements, including but not limited to Public Outreach, Municipal Operations, and New Development. The Partnership actively participated in “strategic BMPs” that focus on true source controls, which are product use restrictions or reformulation (e.g., pesticides and the Copper Brake Pad Partnership) through regulatory or legislative changes. Future activities should build on these core program efforts including strategic BMPs,

stakeholder participation, and identification and prioritization of specific water quality issues (e.g., TMDL, Delta issues, etc.).

Table 2.9 - 6. Control Strategy Documents Update Status

Control Strategy Document	Most Recent Update Date
Pesticide Plan	Completed 2004
Fecal Waste Reduction Strategy	Updated 2011
Mercury Plan	Updated 2007
Sediment Reduction Strategy	Completed 2012

2.9.5.2 Notice of Water Quality Exceedance and Report of Water Quality Exceedance Assessments

The MS4 Permit-required notices of water quality exceedance (NWQE) and RWQE developed a list of pollutants of concern and closely match the target pollutant list for constituents with water quality objectives. This creates two separate but similar “constituents of concern” lists. The NWQE reports are submitted on an event basis within ninety days of sample collection and include only a listing of water quality objectives exceeded in receiving waters, without consideration to sources or specific support of beneficial uses.

As part of each annual report, the Partnership is required to update the RWQE to identify any previously unidentified constituents. The Partnership annually reviews all reported exceedances to determine if urban runoff is causing or contributing to the exceedance and whether the exceedance impacts a beneficial use. This process is detailed in the previously submitted flow chart provided as **Appendix E**. Control strategies were developed for the highest priority constituents and all RWQE constituents, where necessary. The Partnership developed control strategies for sediment, pathogens, pesticides, and mercury as listed in Table 2.9 - 6. These strategies were implemented to address priority pollutants, and in the case of sediment, can be used for surrogates for sediment bound pollutants. In this way the sediment strategy can effectively address a wide range of target pollutants. For legacy pesticides that are no longer available and are not present in urban runoff, specific control strategies are not necessary. Exceedance of pathogen indicators were historically developed for disinfection system performance measures (total coliform) and to infer the presence of fecal contamination (fecal coliform), but they do not necessarily indicate the presence of pathogens in receiving waters or prevent the use of receiving waters as drinking water supplies.

2.9.5.3 TMDL Compliance Assessment

The Partnership is subject to two adopted TMDLs, the Urban Tributary Diazinon and Chlorpyrifos TMDL and the Delta Methylmercury TMDL. Other TMDLs are in-development with others scheduled per the 303(d) impairment listings. The Partnership actively participates in TMDL and surface water policy development including the Urban Tributaries Diazinon and Chlorpyrifos TMDL, the Delta Methylmercury TMDL, and the Central Valley Drinking Water Policy development. Through these constituent-specific regulatory processes, the Partnership performed or participated in assessments and technical evaluations. The Partnership was required to complete data analysis in compliance with TMDLs for mercury, diazinon and chlorpyrifos. A

summary of these activities is provided below and detailed studies can be found in **Appendix F** (methylmercury) and **Appendix G** (OP pesticides).

2.9.5.3.1 Mercury “Watershed Model” BMP Study

The MS4 permit MRP requires a complete assessment of data collected by the Partnership for total mercury and methylmercury and requires additional analysis to assess the data collection program and load calculations. The Partnership estimated the average annual load using 30 years of output from continuous simulation. The model was recalibrated as part of the comprehensive assessment in 2013 as reported in Section 2.9.6.4.

In addition to load estimates, the Partnership also estimated the amount of total mercury and sediment prevented from discharging to receiving waters by existing BMPs. Estimates are annual and based on data from fiscal year 2007/2008. Calculation of these loads removed is based on an “accounting” approach that summarizes Partnership activities and programs that remove loads of total mercury and solids.

Based on these estimates, Partnership 2007/2008 activities prevented roughly 325.2 kg of total mercury from discharging to receiving waters (Table 2.9 - 7). Due to the different nature and function of each of the activities, it is difficult to make a direct comparison between the effectiveness of each of the activities. However, according to the estimates, the largest contributor to load removals was the Universal Waste Program, which was estimated to remove 324.9 kg of mercury a year. For comparison, if the Partnership was able to treat the entire Sacramento urbanized area with wet stormwater quality detention basins the amount of mercury removed (approximately 0.05 kilograms), it would still not add up to 1/1000th of the amount of mercury that the Universal Waste Collection Program is potentially removing from the system. This does not imply that treatment control BMPs are ineffective, but instead indicates that inappropriate disposal of universal waste has the potential to be a much greater contributor to mercury in receiving waters relative to other control measures or more broadly urban runoff in general.

Table 2.9 - 7. Estimated Total Mercury and TSS Loads Removed by Partnership Activities in 2007/2008 [1]

BMP	TSS Load Removed (kg/ yr) [3]	Hg Load Removed (kg/ yr) [3]
	361,000	0.050
Treatment Control BMPs [2]	(406,000 - 384,000)	(0.0775 - 0.0450)
	2,890,000	0.879
	(2,970,000 - 2,600,000)	(0.906 - 0.790)
Erosion and Sediment Control BMPs	294,000	0.0291
	(336,000 - 252,000)	(0.0356 - 0.0236)
Channel Cleaning	2,470,000	0.000346
	(2,960,000 - 1,970,000)	(0.00150 - 0.0000395)
Street Sweeping	7,810,000	0.178
	(9,370,000 - 6,250,000)	(0.226 - 0.0597)
Catch Basin & Sump Maintenance	990,000	0.00014
	(1,180,000 - 790,000)	(0.006 - 0.00001)
Universal Waste Collection	n/a	324.9
		(433.27 - 108.32)
TOTAL	208,000,000	325.2

Notes:

Shaded value shown is for total solids

[1] – 2007/2008 data was used to compile the table.

[2] - Two values given for structural BMPs. The top numbers reflect load removal calculated using influent data from Natomas Basin - this represents runoff typical of new development. The bottom numbers reflect load removal calculated using urban runoff data from old development.

[3] - Calculated values are shown without brackets; bracketed values represent the range of possible TSS and Hg load removed by Partnership activities (see Attachment C for additional details on ranges calculations).

[4] - Program Effectiveness Assessment (PEA) levels as specified within CASQA's Municipal Stormwater Program Effectiveness Assessment Guidance document (2007).

2.9.5.3.2 Diazinon and Chlorpyrifos Evaluation

The MS4 permit MRP requirements specified that the Partnership conduct an “assessment to determine if urban storm water is causing or contributing to an exceedance of water quality standards for diazinon and chlorpyrifos,” and “if urban storm water is causing or contributing to an exceedance, then the [Partnership] shall determine the relative contribution of urban storm water runoff to diazinon and chlorpyrifos levels in waters within its jurisdiction.”

The evaluation titled, “*Evaluation of exceedances of water quality standards for diazinon and chlorpyrifos in Sacramento area receiving waters*,” was submitted as part of the Partnership’s 2011/2012 Annual Report and is included in **Appendix G**. The Partnership evaluation concluded that from December 2005 through January 2012, the Sacramento and American Rivers did not exceed water quality standards for diazinon and chlorpyrifos. During this same timeframe, only five exceedances out of 161 of chlorpyrifos occurred in urban tributaries (one in Strong Ranch, two in Arcade Creek, and two in Laguna Creek). Similarly, three exceedances of diazinon out of 161 occurred in urban tributaries (one in Strong Ranch Slough, one in Chicken Ranch Slough

and one in Elk Grove Creek). These infrequent exceedances are indicated in Table 2.9 - 19 and Table 2.9 - 20.

The Partnership evaluation concluded that Sacramento area urban creeks are no longer impaired by diazinon and chlorpyrifos, and support delisting of all Sacramento area urban creeks from the 303(d) list of impaired water bodies for diazinon and chlorpyrifos.

2.9.5.3.3 Central Valley Drinking Water Policy Workgroup Assessment

The Partnership participated in the Central Valley Drinking Water Policy development over the last decade with in-kind support and representative data summaries to characterize current conditions through full participation in the Workgroup Synthesis Report (Workgroup)²⁴ and stakeholder contributions to the Basin Plan amendment and associated Staff Report. The Synthesis Report summarizes the Workgroup's technical work including extensive water quality analytical modeling and development of projected 2030 urban development and control scenarios. That modeling indicated that urban development does not pose a long-term threat to downstream drinking water quality, especially for disinfection byproduct precursors. The proposed Basin Plan Amendment is expected to be adopted in July 2013 and may include narrative objectives for *Cryptosporidium* and *Giardia* to prevent future degradation, though existing conditions are known to currently support recreational beneficial uses.

2.9.5.3.4 Biotic Ligand Model and Site Specific Objectives

Arcade Creek is 303(d) listed as impaired for copper; and, urban runoff is identified as a cause of the impairment based on aquatic life protection. The Partnership collected data in support of the USEPA promulgated water quality objective based on the Biotic Ligand Model (BLM).²⁵ The BLM considers the bioavailability of copper and uptake through the fish gill. In 27 of 28 samples through the 2004-2012 study period (see Figure 2.9 - 14) the observed dissolved copper concentration was below the Criterion Continuous Concentration (CCC or chronic exposure period) water quality objective calculated using the updated 2007 USEPA objective. Site specific objectives and consideration of the timing and duration of stormwater dischargers should be considered when assessing whether an impairment exists. The Partnership has submitted these data to the State Water Resources Control Board in support of a 303(d) delisting request²⁶.

²⁴ <http://www.waterboards.ca.gov/rwqcb5/water_issues/drinking_water_policy/dwp_wrkgrp_synthesis_rpt.pdf>

²⁵ United States Environmental Protection Agency. Aquatic Life Ambient Freshwater Quality Criteria – Copper. February 2007. EPA-822-R-07-001

²⁶ Delia McGrath, City of Sacramento. Letter to Jeffrey Shu, State Water Resources Control Board. *Water Quality Data for 2012 California Integrated Report*. August 20, 2010.

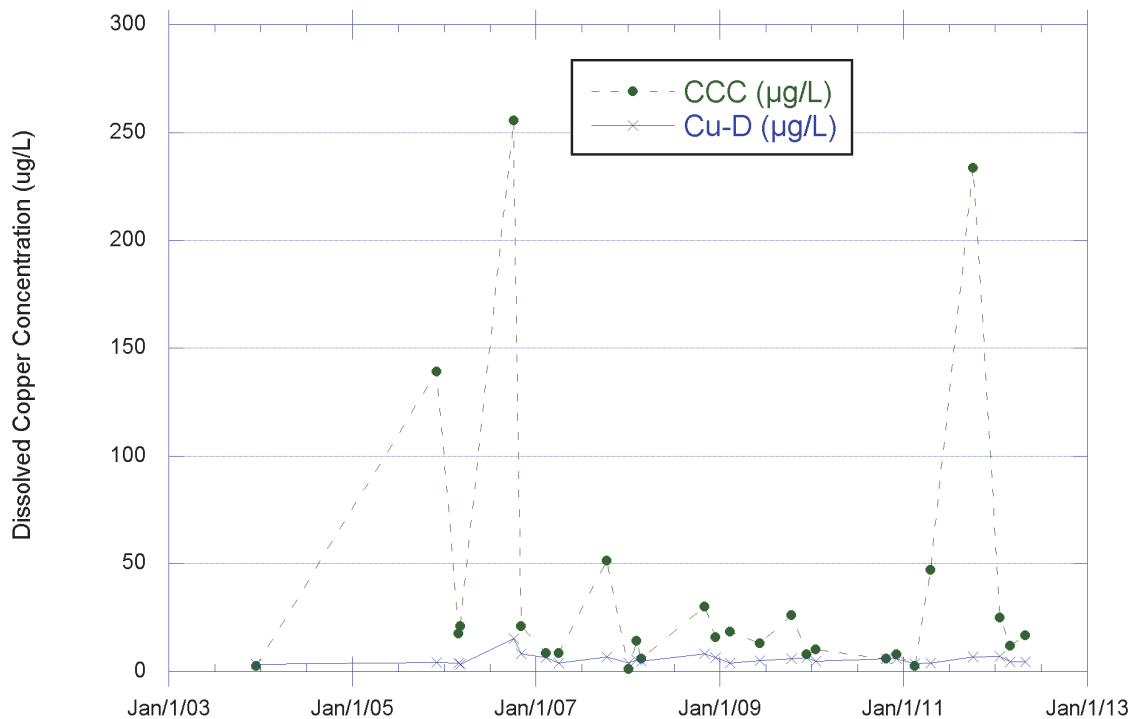


Figure 2.9 - 14. Arcade Creek at Watt Dissolved Copper Concentrations and Criterion Continuous Concentration (Data Comparison 2002-2012)

2.9.6 WATER QUALITY ASSESSMENT METHODS AND RESULTS

The Partnership prepared a comprehensive water quality assessment to evaluate overall effectiveness, characterize urban runoff and receiving water conditions, and develop a basis for recommendations for future monitoring and assessment activities. The comprehensive water quality assessment synthesizes the data collected by the Partnership to date and historical data assessments. The key component of the assessment is the ANCOVA step, which was designed to best understand data “factors” by evaluating their effect on reported concentrations of constituents. Specifically, the comprehensive assessment includes reporting of summary statistics, factor analysis, trend analysis, loading calculations, surrogate or correlation analysis, and power analysis. The detailed comprehensive assessment report is included as **Appendix B**; a summary of the study is provided in this section, to support key findings (Section 2.9.2.1 through 2.9.2.7 and Sections 2.9.3.1 through 2.9.3.4) and recommendations presented in Section 2.9.7 later in the report.

2.9.6.1 Analysis Constituent Selection

The Partnership has collected water column samples for more than 20 years (see Table 2.9 - 3, Section 2.9.4) and analyzed hundreds of samples for more than 400 different constituents. This included three long-term urban runoff discharge characterization sites (new development site substituted in 2008), three long-term urban tributary sites (several additional pesticide monitoring locations), and four river sites. Through the target pollutant identification and prioritization process, the Partnership identified critical constituents to develop control strategies. The list of target pollutants, combined with additional “indicator” constituents directed the detailed assessments for this comprehensive water quality assessment.

The list of selected constituents and associated justification is shown in Table 2.9 - 8. The target pollutant list also includes “petroleum products” and “unquantified sources” as low and medium priority issues respectively that are not specifically addressed in the trend analysis or regressions because of insufficient detected data, differences in analytical methods, and bias of sampling and analytical methods (e.g., Oil and Grease floats on surface, sample contamination from phthalates, etc.). These constituents were assessed only through summary statistics.

The Partnership annually performs an assessment for any observed exceedances of water quality objectives in receiving waters. Each RWQE requires an individual assessment of sources and follow-up action for newly identified constituents as described in **Appendix B**. No new RWQE-identified constituents were identified through this process since 2007. Table 2.9 - 8 indicates the year each constituent was added to the RWQE constituent list.

2.9.6.2 Site Selection and Data Pooling

Urban runoff discharge and urban tributary data were considered separately using the same assessment methods. Historically, only the urban runoff discharge monitoring data were assessed through the ANCOVA methodology. The Partnership previously demonstrated that the urban runoff discharge location data can be pooled into a singular dataset for more statistical power. However, data collection in areas of development based on new Partnership standards demonstrated that urban runoff discharge for many constituents from these newly developed areas is significantly different than the older development characterization sites. Urban development between 1996 and 2010 accounts for approximately 18% of the current urban area,²⁷ and in the case of suspended solids accounts for less than 2% of the urban runoff loading (see Section 2.9.6.4). As a result, new development land use was considered separately from the older land uses. Categorical site identification factors were included in the ANCOVA analysis to better account for older development site differences with pooled data while maintaining the statistical power.

²⁷ California Department of Conservation. Division of Land Management. Farmland Mapping and Monitoring Program. (<http://www.conservation.ca.gov/dlrp/fmmp/Pages/Index.aspx>)

Table 2.9 - 8. Target Pollutants and Constituents Included in the LTEA Assessment

Constituent	Target Pollutant Surrogate Class	RWQE Constituent First Year listed	TMDL Significance	Downstream Significance	General Indicator
Total Mercury	mercury	2005			
Methylmercury	mercury				
TSS	sediment erosion surrogates	2003			
Turbidity	sediment erosion surrogates	2003			
TDS		2003			
Dissolved Copper	metals	2003			
Total Recoverable Copper	metals	2003			
Dissolved Zinc	metals	2007			
Total Recoverable Zinc	metals	2007			
Dissolved Lead	metals	2007			
Total Recoverable Lead	metals	2007			
Nitrate + Nitrite	drinking water issue				
Diazinon	pesticides	2003			
Chlorpyrifos	pesticides	2005			
Bifenthrin	pesticides				
Permethrin	pesticides				
Total Organic Carbon	drinking water issue				
Dissolved Organic Carbon	drinking water issue				
E Coli	pathogen indicators	2003			
DDT	legacy pollutants	2004			
Chrysene	PAHs	2004			

Notes: ' ' indicates constituent meets criteria for Target Pollutant prioritization

2.9.6.3 Factor Analysis

The ANCOVA factor analysis was used to identify and account for differences in observed concentration data for storm characteristics (total rainfall depth, rainfall duration, and peak rainfall intensity), antecedents (days since last rainfall and cumulative rainfall to date), and timing (year or changes over time). The factor analysis can be used to “explain” the urban runoff quality variability such that trends and influences can be better understood and predicted. These factors can also be related to physical mechanisms such as build-up and wash-off. Historic and future results can be better compared once it is established that a constituent variability can be explained by a specific factor (e.g., total event rainfall, days since last rainfall). Explained variance increases the effective statistical power. For example, an understanding of how a target pollutant concentration varies based on total rainfall depth or days since last rainfall can be directly used in a continuous simulation model that tracks these factors over an observed simulation period with a range of climatic conditions.

The factor analysis results are interpreted with “post-processing” or modeling techniques for the urban runoff discharge and urban tributary characterization, trend analysis and loading assessments.

2.9.6.3.1 Factor Significance

The factors shown in Table 2.9 - 9 and Table 2.9 - 10 were assessed for each of the constituents for urban runoff discharge and urban tributaries, respectively. These factors are specific to the event and site sampled. Statistically significant factors were identified based on the ANCOVA p-value (probability that variance was random) results that were close to or less to 0.05 (5%).

The location factor is a categorical parameter that was used to account for differences between sites. The new development location was not included in the pooled dataset because of the significant differences. The location factor was significant for a number of constituents.

The seasonal first flush factor identifies the occurrence of the annual first flush and was significant for all constituents except total mercury. First flush events had statistically significantly higher concentrations than other events. However, this effect is adequately explained by the “days since last rainfall” factors and does not need to be included in the concentration-loading model. Moreover, these other factors are more flexible and less subjective.

After the significant factors were identified and confirmed through follow-up residual and assumption testing, regression equations were developed for the each of the constituents to relate concentration to the significant factors (e.g., site ID, days since last rainfall, total event rainfall, etc.). These regression equations were used in the loading calculations are provided in **Appendix B**.

Table 2.9 - 9. Summary of Urban Runoff Factor Analysis Significance

Constituent	Location	Seasonal First Flush	Event Year	Total Event Rainfall	Event Rainfall Duration	Average Rainfall Rate	Cumulative Season Rainfall	Days Since Last Rainfall (>0.01")	Days Since Last Rainfall (>0.10")	Days Since Last Rainfall (>0.25")
Total Mercury				+	+		+			+
Methylmercury							+			+
TSS				-						+
Turbidity										
TDS				-						+
Dissolved Copper				-						+
Total Recoverable Copper				-						+
Dissolved Zinc										
Total Recoverable Zinc										
Dissolved Lead				-						+
Total Recoverable Lead				-				-		+
Nitrate + Nitrite							-			+
Diazinon					-					
Chlorpyrifos							+		+	
Bifenthrin [1]										
Permethrin [1]										
Total Organic Carbon					+		-			
Dissolved Organic Carbon										+
E Coli							-		+	
DDT [1]										
Chrysene							-			+

Notes: '✓' indicates significant categorical effect; '+' indicates significant increasing effect; '-' indicates significant decreasing effect
 [1] Insufficient detected data

Table 2.9 - 10. Summary of Urban Tributary Factor Analysis Significance

Constituent	Location	Seasonal First Flush	Event Year	Total Event Rainfall	Event Rainfall Duration	Average Rainfall Rate	Cumulative Season Rainfall	Days Since Last Rainfall (>0.01")	Days Since Last Rainfall (>0.10")	Days Since Last Rainfall (>0.25")
Total Mercury	✓	✓				+			+	
Methylmercury	✓	✓				+		+		
TSS	✓	✓				+		+		
Turbidity	✓	✓	✓			+		+		
TDS			✓					+		
Dissolved Copper	✓	✓						+		
Total Recoverable Copper	✓	✓		+	-			+		
Dissolved Zinc	✓	✓						+		
Total Recoverable Zinc	✓	✓	✓	+	-			+		
Dissolved Lead	✓	✓						+		
Total Recoverable Lead	✓	✓	✓	+	-			+		
Nitrate + Nitrite	✓	✓				+			+	
Diazinon	✓	✓	✓	-		+	+	-		
Chlorpyrifos		✓	✓		-	+	+			
Bifenthrin [1]										
Permethrin [1]										
Total Organic Carbon	✓	✓	✓				-	+		
Dissolved Organic Carbon	✓	✓	✓				-	+		
E Coli	✓	✓	✓							+
4,4'-DDT [1]										
Chrysene	✓		✓							+

Notes: '✓' indicates significant categorical effect; '+' indicates significant increasing effect; '-' indicates significant decreasing effect
 [1] Insufficient detected data

2.9.6.3.2 Trends

The Partnership evaluated trends in concentrations of receiving waters and urban runoff discharge using the ANCOVA and time-based categorical factors (i.e., calendar year). In this manner statistically significant variance in the time factor identifies a trend. The ANCOVA is performed as part of the factor analysis along with other significant factors such that other variance can be explained. Table 2.9 - 11 provides a summary of the time factor analysis results for the selected constituents in urban runoff discharge. Trend analysis for receiving waters was only prepared for those constituents that had significant trends in urban runoff. These analyses are provided in **Appendix B**.

2.9.6.3.2.1 Urban Runoff Discharge

The “year” categorical factor was significant for a number of constituents; however, most changes were inconsistent or otherwise changing without an explainable trend. The only constituents with significant trends were diazinon (decreasing), lead (decreasing to 1997), and copper (decreasing until 1997, then slightly increasing). Other constituents showed year-to-year changes, however, the changes were only slightly increasing or decreasing less than the model can accurately quantify.

Table 2.9 - 11. Time Factor Analysis Results for Urban Runoff Discharge

Constituent	Year-to-Year Trend
Total Mercury	No year-to-year significance
Methylmercury	No year-to-year significance
TSS	No consistent statistical trend
Turbidity	No consistent statistical trend
TDS	No consistent statistical trend
Dissolved Copper	Year-to-year differences decreasing to 1997 then increasing slightly through 2012
Total Recoverable Copper	Slight inconsistent increasing trend
Dissolved Zinc	No consistent statistical trend
Total Recoverable Zinc	No consistent statistical trend
Dissolved Lead	Decreasing to 1997 then no change
Total Recoverable Lead	Decreasing trend
Nitrate + Nitrite	Slight and inconsistent increasing trend to no change
Diazinon	Significant year-to-year differences with significant decreasing trend
Chlorpyrifos	Decreasing trend
Bifenthrin	Insufficient data for trend analysis
Permethrin	Insufficient data for trend analysis
Total Organic Carbon	Initial decreasing trend and slight increasing trend to no change
Dissolved Organic Carbon	Slight and inconsistent increasing trend to no change
E Coli	No consistent statistical trend
DDT	Insufficient detected data for trend analysis
Chrysene	No year-to-year significance

Figure 2.9 - 15 shows the modeled TSS least square mean value and 95th percent confidence interval (shown as vertical bar). These values represent the average annual concentration for all sites when adjusted for the factors. Smaller confidence intervals occur when more of the variability is explained by factors. TSS shows an upward trend until 1996 with inconsistent trending downward since that time.

Figure 2.9 - 16 is a simple time series of TSS in all urban runoff sites with sites differentiated with trend lines. The changes are small relative to variability for all but one site, UR2S or Strong Ranch Slough, which demonstrated a statistically significant decline in concentration. Also

apparent in Figure 2.9 - 16 are the lower concentrations of TSS at the new development location, UR5 or North Natomas Basin No. 4. Higher values shown in the TSS trend plots are the seasonal first flush events that occur annually. Figure 2.9 - 17 shows the steep decline in diazinon concentrations in older development urban runoff discharge since 1998, which is also influenced by the higher reporting limits used in the earlier years.

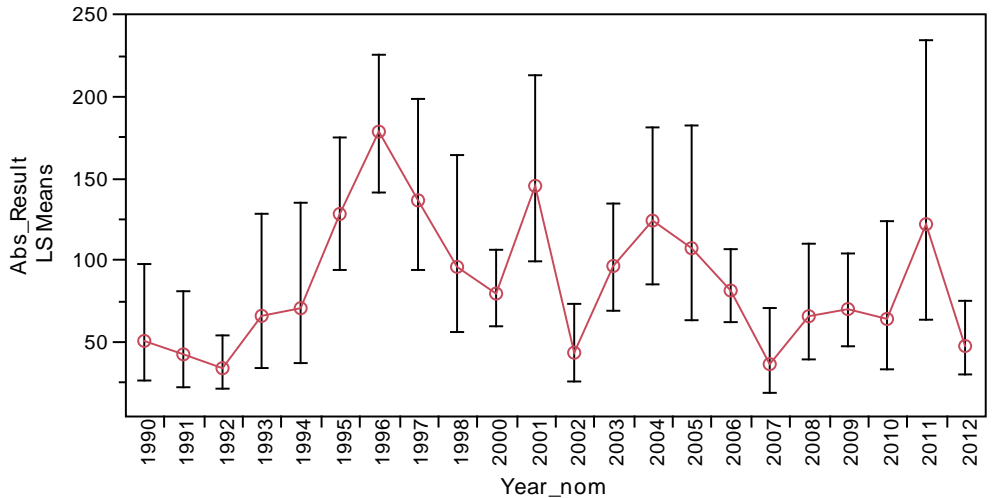
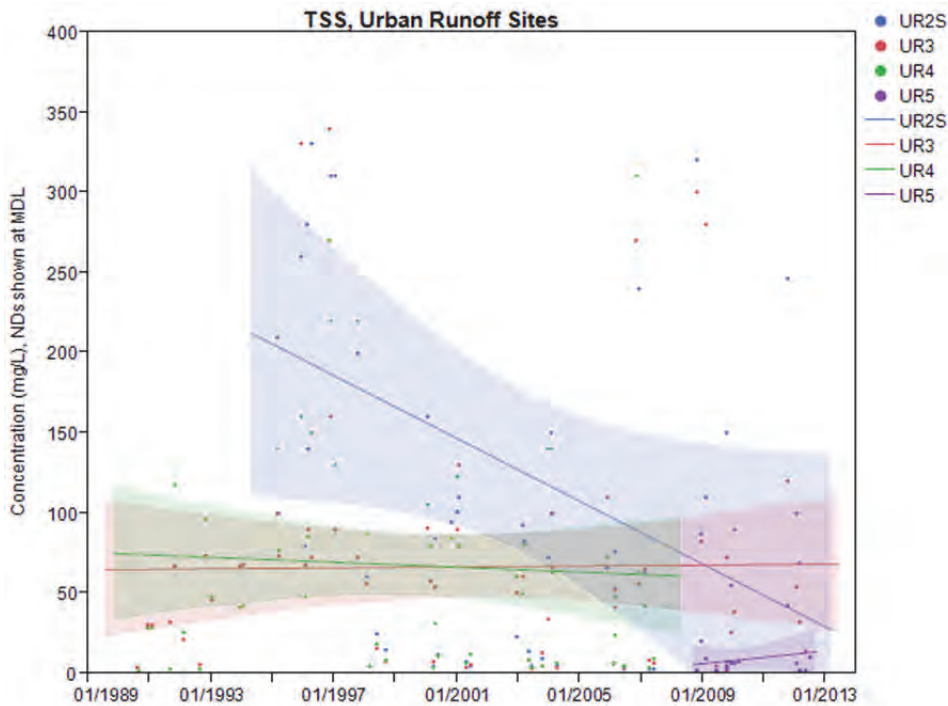


Figure 2.9 - 15. Total Suspended Solids Least Square Means for Older Development Urban Runoff Discharge



Note: shading indicates 95th percentile confidence interval of the line fit mean

Figure 2.9 - 16. Total Suspended Solids Concentration for Urban Runoff Discharge

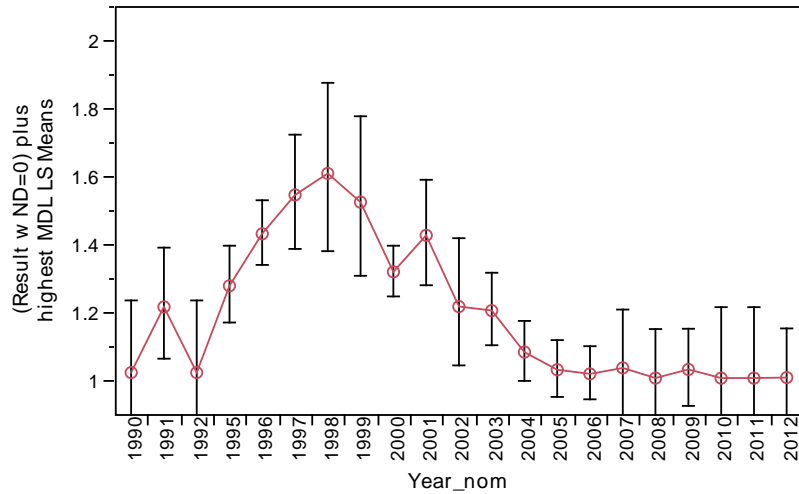


Figure 2.9 - 17. Diazinon Least Square Means for Older Development Urban Runoff Discharge

Figure 2.9 - 18 is the least square means plot for total recoverable lead and demonstrates decreasing trends to 1997, than a milder sloped downward trend. The residual plot shows the observed data differences from the least square means and the trending toward lower variability.

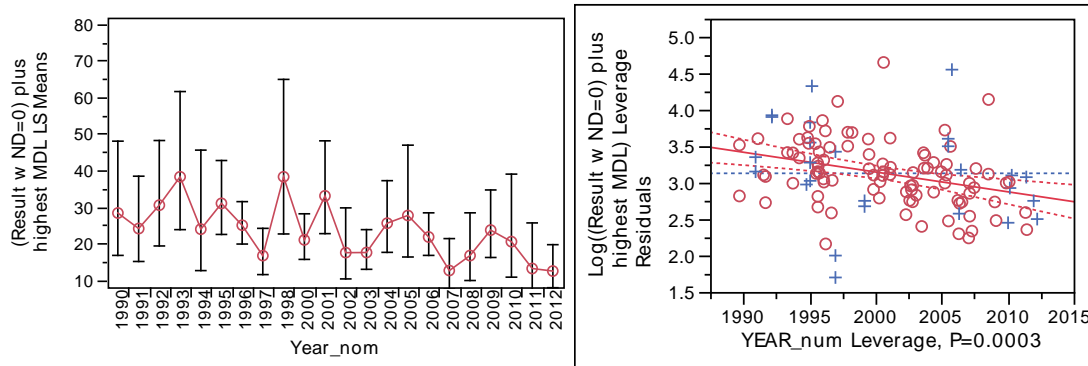


Figure 2.9 - 18. Old Development Urban Runoff Discharge Total Recoverable Lead Least Square Means and Model Residuals

2.9.6.3.2.2 *Urban Tributaries*

The time factor analysis results for urban tributaries is provided in Table 2.9 - 12. Urban uses of diazinon were highly restricted beginning in 2005. Diazinon usage for structural pest control and landscape maintenance in Sacramento County dropped from approximately 10,000 pounds in 2001 to less than 0.04 pounds in 2010.²⁸ This significant change in application was immediately reflected in urban runoff discharge and urban tributary monitoring data. Urban runoff discharge least square means decrease beginning in 1998, though the data before 1998 is of poor quality. Urban tributaries show statistically significant concentration changes for all locations as illustrated for diazinon in Figure 2.9 - 19 where the higher detection limits and inferior analytical methods also likely exaggerate the steep decline from 1998 onward.

²⁸ Department of Pesticide Regulation. Annual Pesticide Use Report Indexed by Chemical. 2010 Data. <http://www.cdpr.ca.gov/docs/pur/purmain.htm>

Table 2.9 - 12. Time Factor Analysis Results for Urban Tributaries

Constituent	Year-to-Year Trend
Total Mercury	Slight decrease through 2008, no statistically significant change after
Methylmercury	No consistent statistical trend
TSS	No consistent statistical trend
Turbidity	No consistent statistical trend
TDS	No consistent statistical trend
Dissolved Copper	No consistent statistical trend
Total Recoverable Copper	Decrease through 2008, no statistically significant change after
Dissolved Zinc	No consistent statistical trend
Total Recoverable Zinc	Slight decrease through 2008, no statistically significant change after
Dissolved Lead	Decrease through 2008, no statistically significant change after
Total Recoverable Lead	Decrease through 2008, no statistically significant change after
Nitrate + Nitrite	Decreasing through 2007, no statistically significant change after
Diazinon	High MDL early years, peaking 2005, decreasing trend since
Chlorpyrifos	High MDL early years, peaking 2005, decreasing trend since
Bifenthrin	No consistent statistical trend
Permethrin	No consistent statistical trend
Total Organic Carbon	No consistent statistical trend
Dissolved Organic Carbon	No consistent statistical trend
E Coli	No consistent statistical trend
4,4'-DDT	Insufficient detected data to assess trends
Chrysene	No consistent statistical trend

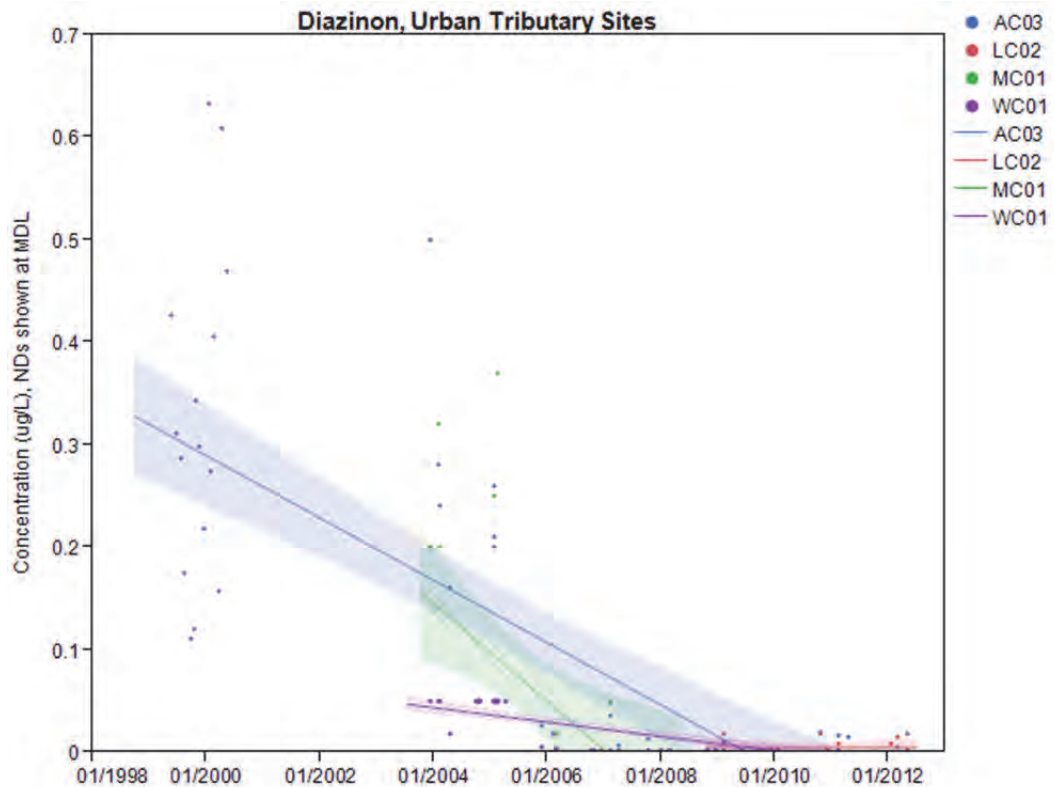


Figure 2.9 - 19. Diazinon Concentration in Urban Tributaries

2.9.6.4 Load Assessments

The factor analysis provides regression equations for estimating concentrations of constituents during a specified storm event. A continuous thirty year rainfall record of these factors was used to run a simulation model for current (2013) conditions. **Appendix B** includes additional information on the modeling methods and results that are summarized below.

Flow volume discharge was estimated using the rainfall record and a rational method flow model that was calibrated to the Arcade Creek at Del Paso drainage. Historically, the Partnership has used an empirical rainfall-runoff regression to model the volume component of discharged load. The rational method and the curve number method (CN-method) were evaluated based on recommendations in previous Partnership load assessments. All three methods of modeling flow volumes are based on the simulation period rainfall. The flow modeling was calibrated using observed data from the Arcade Creek at Del Paso (shown as CN Method A+ D in Figure 20) for a period outside of the simulation period (2008-2013). The calibration was performed on cumulative flow volume as shown in Figure 2.9 - 20.

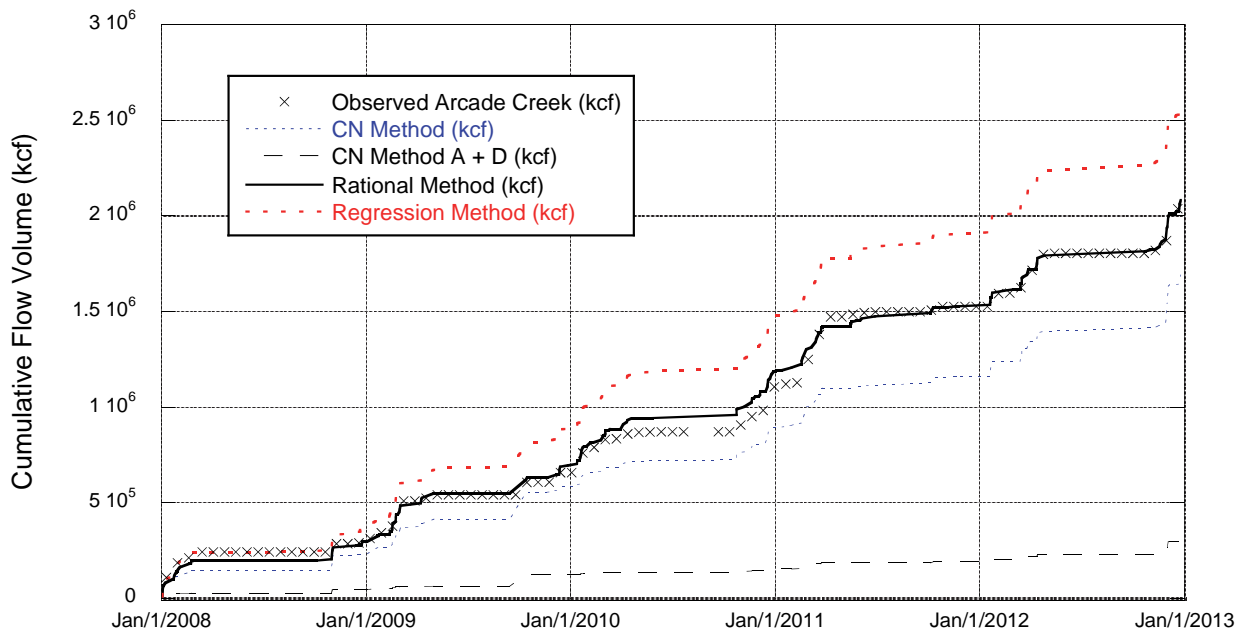


Figure 2.9 - 20. Model Flow Volume Calibration - Arcade Creek at Del Paso Drainage

Several constituents had insufficient detected data to develop concentration regression models useful for loading applications. In these cases (diazinon, chlorpyrifos, bifenthrin, permethrin, 4,4-DDT, and chrysene), median values were used for each of the sites. In some cases the median value was reported as non-detect and the corresponding load estimate is considered an upper limit estimate of the actual load. In cases where all the data are non-detect, the lowest detection limit was used as the model concentration.

The 4,4-DDT load is artificially magnified by the use of older higher detection limit data at one historic site (Sump 104). If only recent data collected using lower detection limits, the estimated load would be considerably lower.

Table 2.9 - 13 summarizes the average annual modeled loading for current conditions (2013) as estimated with the continuous simulation for the three loading regimes – 1) storm events, 2) wet season dry weather, and 3) dry season. Table 2.9 - 14 summarizes the estimated permitted area loading to the downstream river receiving waters for Partnership areas. Previous modeling efforts (Ruby, 2005) erroneously indicated that the American River was the primary receiving water for Sacramento River. Table 2.9 - 14 shows that the Sacramento River receives about 59% of the urban runoff flow volume. It appears that previous model runs assumed that the Steelhead Creek (including Arcade Creek) drained to the American River rather than the Sacramento River. It is confirmed that Steelhead Creek drains to the Sacramento River just upstream of the confluence with the American River.

Table 2.9 - 13. Permitted Area Average Annual Urban Runoff Loading

Constituent	Units	Storm Events	Inter-Storm Wet Season	Dry Season	Total Average Annual
Total Mercury	kg	3.2	0.16	0.10	3.46
Methylmercury	g	28	6.1	3.9	38
Total Suspended Solids	tonnes	6,638	203	130	6,971
Turbidity	NTU*kcf	1.2E+08	5.2E+06	3.4E+06	1.2E+08
Total Dissolved Solids	tonnes	6,392	7,933	5,073	19,398
Dissolved Copper	kg	380	149	95	624
Total Recoverable Copper	kg	1,089	198	127	1,414
Dissolved Lead	kg	47	9.0	5.8	62
Total Recoverable Lead	kg	1,113	29	18	1,160
Dissolved Zinc	kg	2,893	325	208	3,426
Total Recoverable Zinc	kg	8,455	558	357	9,370
Nitrate plus Nitrite	tonnes	38	4.0	2.5	44
Diazinon [1]	kg	<0.66	<0.1	<0.05	<0.80
Chlorpyrifos [1]	kg	<0.096	<0.04	<0.03	<0.16
Bifenthrin [1]	kg	<4.7	<0.8	<0.5	<6.0
Permethrin [1]	kg	<2.4	<0.11	<0.07	<2.5
Total Organic Carbon	tonnes	1,119	444	284	1,847
Dissolved Organic Carbon	tonnes	936	400	256	1,592
E.Coli	MPN [3]	3.2E+10	2.2E+09	1.4E+09	3.6E+10
4,4'-DDT [1, 2]	g	<1,381	<41	<26	<1,448
Chrysene	kg	<4.0	<0.082	<0.053	<4.1
Flow Volume	MCF	3,384	1,435	918	5,738

Notes:

[1] Some sites have non-detect median concentrations and reported load is upper limit based on MDL.

[2] 4,4'-DDT reported as non-detect in the permit term since reporting limits were reduced and the method performance improved. The upper limit load is based on older, higher reporting limits.

[3] Units are MPN/100mL * KCF

Table 2.9 - 14. Permitted Area Average Annual Loading to Major Receiving Waters

Constituent	Units	Sacramento River	American River	Consumnes River	Annual Total
Total Mercury	kg	2.36	1.00	0.11	3.5
Methylmercury	g	26	10	1.3	38
Total Suspended Solids	tonnes	4,816	1,944	210	6,971
Turbidity	NTU*kcf	8.8E+07	3.3E+07	3.4E+06	1.2E+08
Total Dissolved Solids	tonnes	13,330	5,273	795	19,398
Dissolved Copper	kg	430	173	21	624
Total Recoverable Copper	kg	986	385	43	1,414
Dissolved Lead	kg	43	17	1.8	62
Total Recoverable Lead	kg	817	312	30	1,160
Dissolved Zinc	kg	2,402	937	87	3,426
Total Recoverable Zinc	kg	6,545	2,579	247	9,370
Nitrate plus Nitrite	tonnes	31	12	1.3	44
Diazinon [1]	kg	<0.63	<0.16	<0.016	<0.80
Chlorpyrifos [1]	kg	<0.11	<0.043	<0.0059	<0.16
Bifenthrin [1]	kg	<4.3	<1.6	<0.19	<6.1
Permethrin [1]	kg	<1.80	<0.66	<0.076	<2.5
Total Organic Carbon	tonnes	1,284	499	63	1,847
Dissolved Organic Carbon	tonnes	1,108	429	56	1,592
E. Coli	MPN [3]	2.7E+10	7.9E+09	8.0E+08	3.6E+10
4,4'-DDT [1,2]	g	<1,160	<266	<22	<1,448
Chrysene [1]	kg	<2.8	<1.2	<0.13	<4.1
Flow	MCF	4,001	1,528	209	5,738

Notes

[1] Some sites have non-detect median concentrations and reported load is upper limit based on MDL.

[2] 4,4-DDT reported as non-detect in the permit term since reporting limits were reduced and the method performance improved. The upper limit load is based on older, higher reporting limits.

[3] Units are MPN/100mL * KCF

2.9.6.5 Watershed Comparison

The Partnership previously determined that OP pesticide concentrations were not statistically different between urban tributary locations and that the existing long-term urban tributary sites could be used to represent the overall condition of all urban tributaries.²⁹ This assessment also noted the Willow Creek at Blue Ravine Road (WC01) monitoring location was more representative of new development land uses. While the entire Willow Creek watershed may not be developed to current Partnership new development standards, the extensive use of water quality detention basins seems to result in water column concentrations similar to the new development urban runoff discharge characterization location (North Natomas Detention Basin No. 4, UR5). For example, Figure 2.9 - 21 shows distributional summaries (box-plots) of dissolved copper. While there may be differences between the Willow Creek (WC01) and North Natomas Detention Basin No. 4 (UR5) locations, they are visibly more similar to each other (narrow inter-quartile range for the box-plot) than the other locations. This comparison holds for most constituents.

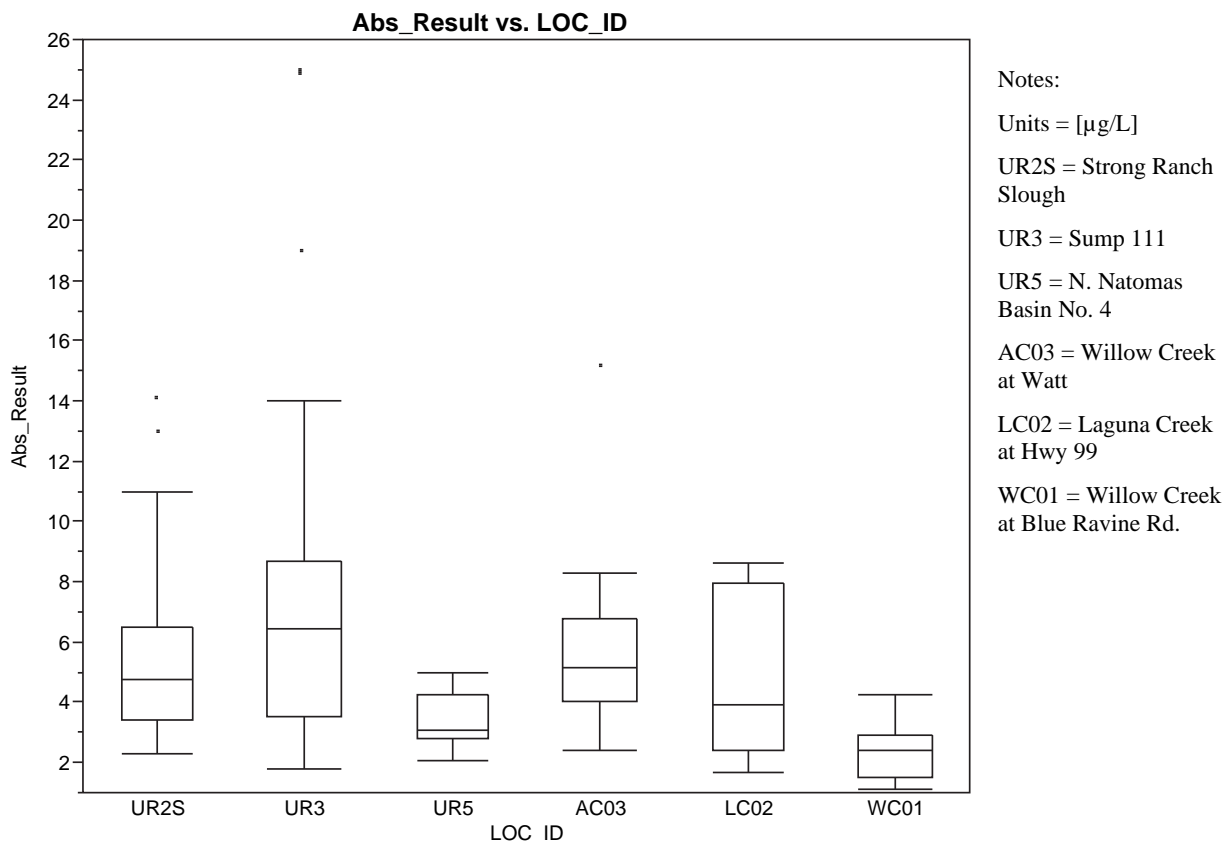


Figure 2.9 - 21. Wet Weather Dissolved Copper Concentrations at Long-Term Monitoring Locations

2.9.6.6 Surrogate Relationship Correlation Analysis

The correlation of target pollutants to other constituents, including TSS, is required in the MS4 Permit and was considered as a factor in the ANCOVA analysis. These relationships as well as

²⁹ Sacramento Stormwater Quality Partnership, *Report of Waste Discharge: Evaluation of Additional Pesticide Monitoring Data - 2007 Update*. June 2007. Prepared by Larry Walker Associates.

correlations with easily measured constituents (e.g., turbidity and field measurements) can be helpful in understanding constituent variability and loading assessments when continuous data records of the field parameters are available. Figure 2.9 - 22 shows this simplified correlation relationship for urban tributaries. USGS developed methodologies for establishing continuous measurement surrogate relationships and identify when the relationship changes and needs recalibration.³⁰ Table 2.9 - 15 summarizes the identified significant relationships. This analysis supports the Partnership’s Target Pollutant Program strategy, which is focused on the sediment control and removal.

Table 2.9 - 15. Correlation Coefficients Between Target Pollutants and Indicator Parameters at Older Development Urban runoff Discharge Sites

Constituent	constituent vs. TSS	ln(constituent) vs. TSS	ln(constituent) vs. ln(TSS)	constituent vs. turbidity	ln(constituent) vs. turbidity	ln(constituent) vs. ln(turbidity)
Mercury, Total		✓			✓	
Methylmercury	✓	✓	✓	✓	✓	✓
TSS				✓		✓
Turbidity	✓	✓	✓			
TDS	✓	✓	✓			✓
Copper, Dissolved				✓		✓
Copper, TR	✓	✓	✓	✓	✓	✓
Zinc, Dissolved	✓	✓	✓		✓	✓
Zinc, TR	✓	✓	✓	✓	✓	
Lead, Dissolved		✓	✓	✓	✓	✓
Lead, TR	✓	✓	✓	✓	✓	✓
Nitrate + Nitrite			✓			✓
Diazinon		✓	✓		✓	✓
Chlorpyrifos						
Bifenthrin			✓			
Permethrin						
TOC						
DOC						
E Coli		✓	✓			
DDT						✓
Chrysene	✓			✓		✓

Note: “✓” indicates significant relationship between the two parameters.

³⁰ USGS surrogate development methods described at <http://nrtwq.usgs.gov/wi/methods> and include real-time computation for chloride, TSS, Total P, E. coli, and Fecal Coliform based measurement of Temperature, Turbidity, and EC and simple or multi-variable regression

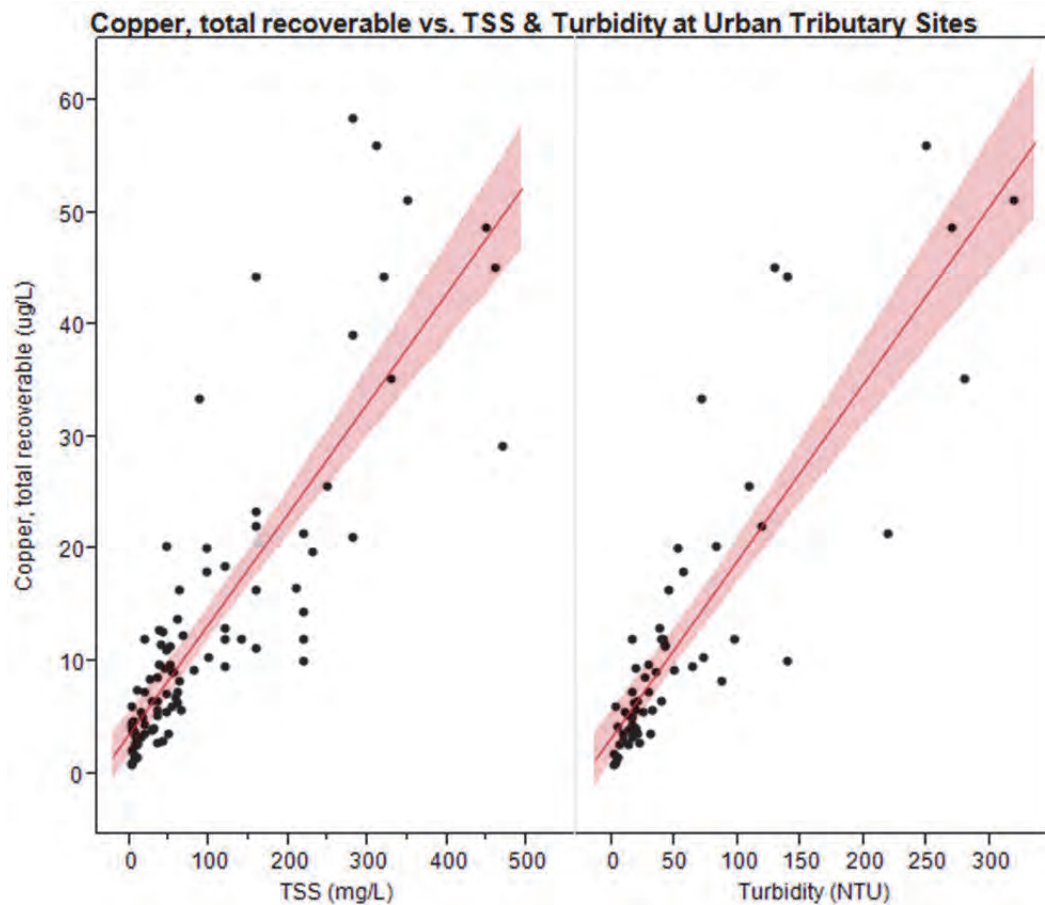


Figure 2.9 - 22. Correlation of Copper with TSS and Turbidity at Urban Tributary Sites

2.9.6.7 Upstream-Downstream River Site Comparisons

A Wilcoxon signed-rank test was used to compare paired upstream and downstream samples in the American and Sacramento Rivers. The dataset included both dry and wet weather sampling for the entire period of record 1990-2012. Table 2.9 - 16 identifies cases of statistically significant differences between sites as well as the direction of the difference (even if the difference was not significant). The direction of the difference is based on the median difference. It is possible to have a significant difference and a median difference of zero, but this suggests that other factors (e.g., dry weather vs. wet weather) play a role in downstream concentrations. Additionally, the American River enters the Sacramento River between the two Sacramento River locations, which likely has a more significant impact on water quality than urban discharges.

Table 2.9 - 16. Statistical Significance of Differences in River Upstream and Downstream Locations

Constituent	American River			Sacramento River		
	n	p-value	direction	n	p-value	direction
Total Mercury	187	< 0.0001	Increase	190	0.003	Decrease
Methylmercury	87	< 0.0001	Increase	88	0.028	Decrease
TSS	205	< 0.0001	No Change	214	< 0.0001	Decrease
Turbidity	90	0.002	Increase	97	< 0.0001	Decrease
TDS	96	0.019	Increase	96	< 0.0001	Decrease
Dissolved Copper	179	< 0.0001	Increase	179	0.001	Decrease
Total Recoverable Copper	182	< 0.0001	Increase	180	< 0.0001	Decrease
Dissolved Zinc	174	< 0.0001	Increase	169	0.185	Increase
Total Recoverable Zinc	177	< 0.0001	Increase	178	0.013	Decrease
Dissolved Lead	149	0.010	Increase	158	0.005	No Change
Total Recoverable Lead	178	< 0.0001	Increase	180	0.094	Decrease
Nitrate + Nitrite	73	0.033	No Change	73	0.293	Decrease
Diazinon	118	0.304	No Change	123	0.592	No Change
Chlorpyrifos	92	0.833	No Change	97	0.475	No Change
Bifenthrin	13	0.052	No Change	13	1.000	No Change
Permethrin	13	1.000	No Change	13	1.000	No Change
Total Organic Carbon	133	< 0.0001	Increase	135	0.046	Decrease
Dissolved Organic Carbon	136	< 0.0001	Increase	141	0.089	Decrease
E Coli	92	0.098	No Change	93	0.148	Increase
Chrysene	63	0.038	Increase	65	0.135	Increase
DDT	27	0.371	No Change	28	0.423	No Change

Note: Shading and bolding indicates a statistically significant difference based on paired Wilcoxon signed-rank test

2.9.6.8 Power Analysis

Statistical power is defined as the probability that a statistically significant difference can be discerned. Power analysis is used to determine the minimum effects (or differences) detectable by a specific statistical test or procedure. The Partnership performed the power analysis throughout the 20 year period to confirm proposed sampling frequency options.^{31,32} The Monitoring Program was developed to detect changes of 30% for most of the target pollutants in urban runoff discharge.

The trends analysis (Section 2.9.6.3.2) only statistically confirmed strong trends caused by product bans (diazinon) and reformulation (lead). While this long-term quality data is informative in guiding Partnership activities, it is difficult to identify specific actions that may cause other changes in concentrations and the factors considered previously may not adequately remove variability. Moreover, areas of new development have significantly better quality urban

³¹ Larry Walker Associates. Technical Memorandum: An Evaluation of Methods for the Assessment of Long Term Effectiveness of the Sacramento CSWMP. Prepared for the City of Sacramento, City of Folsom, City of Galt, and Sacramento County. November 1996.

³² Claus Suverkropp, Larry Walker Associates. Technical Memorandum: Discharge Monitoring Frequency Evaluations. Prepared for the City of Sacramento, City of Folsom, City of Galt, and Sacramento County. November 1998.

runoff and these improvements would not be detectable using the older development long-term sites.

The urban tributary monitoring data was not evaluated for sampling frequency as the dataset is more limited, beginning in 2003 with collection of grab samples and less frequent flow based storm composites.

Several urban runoff discharge scenarios were considered for future sample collection frequencies at the three current sites. The Partnership evaluated the current sampling condition and five scenarios including less frequent sample collection, alternating of years, and a continuous approach (Table 2.9 - 17). It is assumed that storm composite samples would be collected with a similar variability as observed over the last 20 years. For the purpose of this analysis continuous monitoring was converted to event mean concentrations. This power analysis evaluates changes of 10%, 30%, and 50% for a 20 year period for the five scenarios. The same rate of change is assessed for a five year period for one of the continuous data collection scenarios.

None of the five scenarios provided sufficient statistical power for the 10% change (0.5% annual change). All scenarios, except the five year continuous scenario provided sufficient statistical power across the expected range of concentration model variability as measured by root mean square error (RMSE) for the 30% change (1.8% annual change). All the scenarios except the five year continuous scenario provide adequate power to detect a 50% change (3.4 % annual change) for the less variable models (RMSE <0.5) as shown in Figure 2.9 - 23. Partnership RMSE values for constituents are shown in Table 2.9 - 18.

While it remains important to understand changes in urban runoff discharge and receiving waters, given the experience and lack of trend identification over the previous 20 year period, continued monitoring following the current MS4 Permit requirements would likely not provide new useful information on changes in concentration. Changes would more likely be detectable when significant projects or usage policies are introduced.

The power analysis did not specifically analyze different approaches such as other assessment benefits of continuous data sensors, however, for those constituents where it is possible to accurately measure constituents with field probes the number of data points that can be collected is vastly higher. The higher number of samples increases the statistical power and smaller changes can be detected more quickly for those constituents.

Table 2.9 - 17. Monitoring Frequency Scenarios at Individual Sites

Year	Current	Scenario No. 1	Scenario No. 2	Scenario No. 3	Continuous 20-year	Continuous 5-year
0	0	0	0	0	900	900
1	9	0	0	9	900	900
2	9	0	9	0	900	900
3	0	15	9	9	900	900
4	9	0	0	0	900	900
5	9	0	0	9	900	0
6	0	0	0	0	900	0
7	9	0	9	9	900	0
8	9	15	9	0	900	0
9	0	0	0	9	900	0
10	9	0	0	0	900	0
11	9	0	0	9	900	0
12	0	0	9	0	900	0
13	9	15	9	9	900	0
14	9	0	0	0	900	0
15	0	0	0	9	900	0
16	9	0	0	0	900	0
17	9	0	9	9	900	0
18	0	15	9	0	900	0
19	9	0	0	9	900	0
20	9	0	0	0	900	
Total Event Count	126	60	72	90	18,900	4,500

Table 2.9 - 18. Root Mean Square Error for Selected Factor Analysis Model

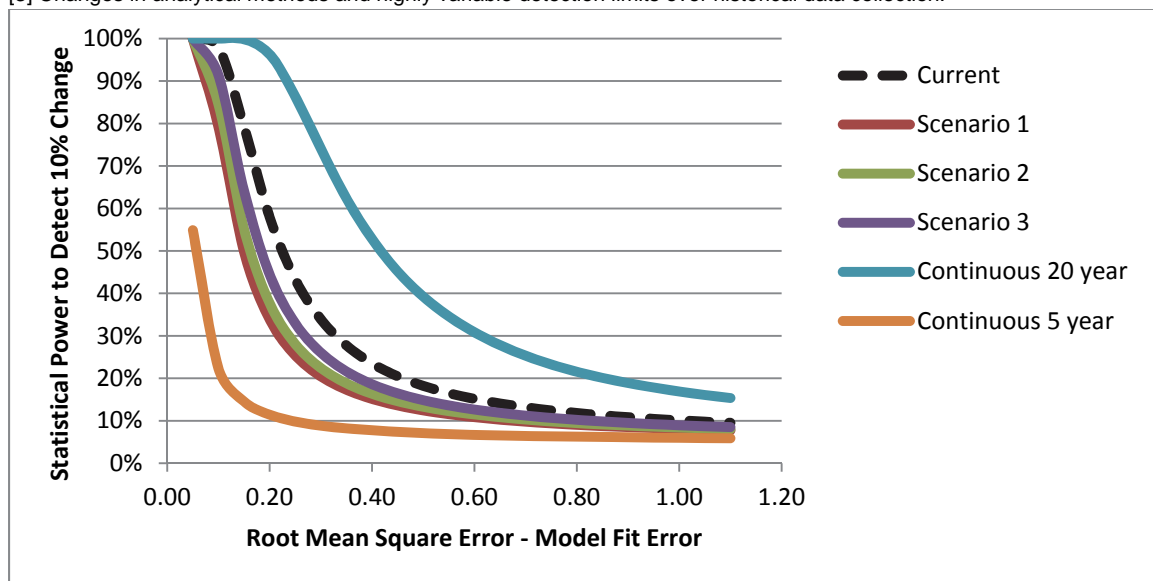
Constituent	Model Root Mean Square Error
E. coli	0.96
Total Dissolved Solids	0.41
Suspended Solids, total	0.56
Turbidity	0.66
Dissolved organic carbon	1.01
Total Organic Carbon	0.96
Nitrate + Nitrite as N	0.10
Copper, dissolved	0.49
Copper, total recoverable	0.17
Mercury, total methyl	0.49
Zinc, dissolved	0.69
Zinc, total recoverable	0.42
Chlorpyrifos	1.42 [1]
Diazinon	0.18 [1]
Bifenthrin	0.97 [2]
Permethrin	0.24 [2]
4,4'-DDT	1.05 [2, 3]
Chrysene	2.88 [2, 3]

Notes:

[1] Concentration regression model not used for load modeling as significant trend change in 2005 required use of more limited data set (2005-2012) with lower rate of detection

[2] Concentration regression model not used for load modeling as there are insufficient detected data available for robust analysis.

[3] Changes in analytical methods and highly variable detection limits over historical data collection.

**Figure 2.9 - 23. Power Analysis for 10% Change Over Twenty Years**

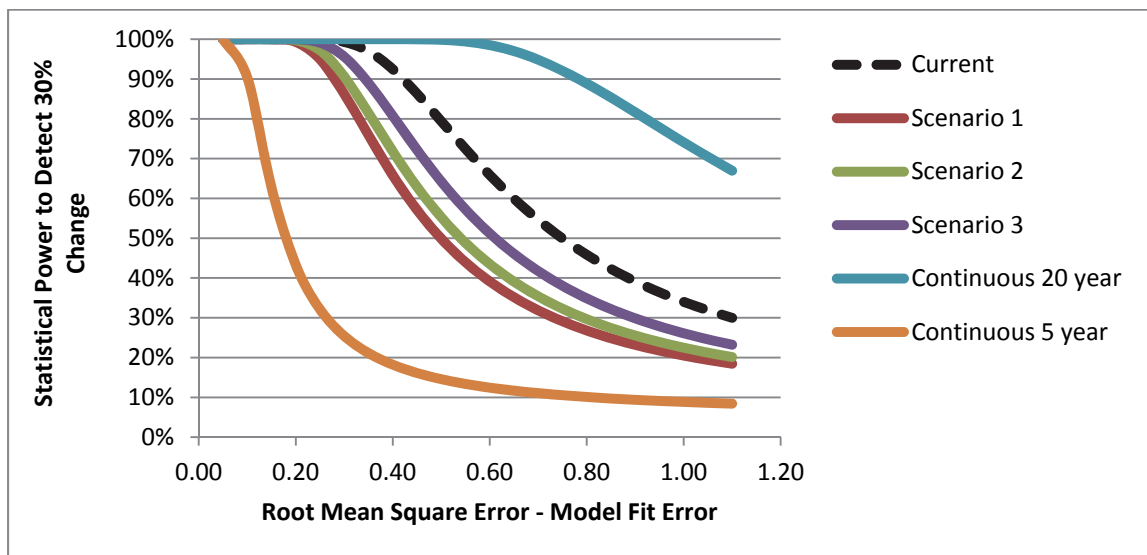


Figure 2.9 - 24. Power Analysis for 30% Change Over Twenty Years

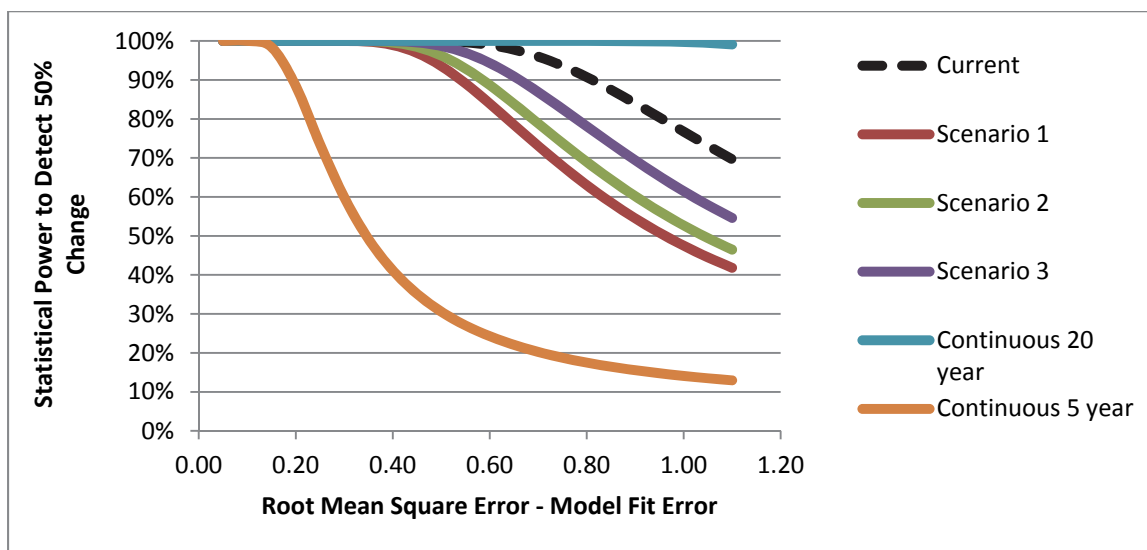


Figure 2.9 - 25. Power Analysis for 50% Change Over Twenty Years

2.9.6.9 Frequency of Water Quality Objective Exceedance

A summary of water quality exceedances is provided in Table 2.9 - 19 and Table 2.9 - 20. As illustrated by Figure 2.9 - 26, the percentage of exceedances in urban tributaries decreases in most constituents in the 2008-2012 timeframe in comparison with earlier years. The data support that receiving waters are of high quality.

Table 2.9 - 20 summarizes the percentage of water quality exceedances in the American and Sacramento Rivers. Few exceedances occurred in the rivers:

- **Diazinon and chlorpyrifos:** The majority of exceedances occurred in the early years with no exceedances occurring in the later years (2008-2012), following the pesticide registration changes and product sales ban.

- ***Escherichia coli***: Exceedances occurred at all river locations (both up and down stream) with the highest exceedance rate (32%) occurring in the American River at Discovery Park.
- **DDT and chrysene**: Exceedances occurred at all river locations. The water quality objectives for these constituents are based on human health cancer risk for consumption of water and fish over a seventy year period. The duration of storm event exposure depends on the hydrology of the river, but is likely more akin to an acute (instantaneous) exposure than a chronic exposure. Comparison of receiving water constituent concentrations to water quality objectives does not consider the duration or frequency of exceedances, making it difficult to accurately assess the beneficial use impact of urban runoff on water quality objectives exceedances in downstream receiving waters.

Table 2.9 - 19. Percent Water Quality Exceedance by Urban Tributary

Constituent	Arcade Creek		Laguna Creek	Willow Creek		Objective	Units	Objective Source
	1998-2012	2008-2012	2008-2012 [3]	2002-2012	2008-2012			
Total Mercury	20.0%	6.7%	0.0%	19.0%	6.3%	0.05	µg/L	CTR-HH water + org
Methylmercury	NA	NA	NA	NA	NA	[1]	ng/L	NA
TSS	NA	NA	NA	NA	NA	[1]	mg/L	NA
Turbidity	NA	NA	NA	NA	NA	<= 20% increase	NTU	Basin Plan
TDS	0.0%	0.0%	0.0%	71.4%	68.8%	125	mg/L	Basin Plan
Dissolved Copper	55.6%	57.1%	36.4%	0.0%	0.0%	[2]	µg/L	CTR-FW AQ Chronic-Diss
Total Recoverable Copper	0.0%	0.0%	0.0%	0.0%	0.0%	1000	µg/L	Title 22 2° MCL
Dissolved Zinc	13.2%	18.2%	0.0%	0.0%	0.0%	[2]	µg/L	CTR-FW AQ Chronic-Diss
Total Recoverable Zinc	0.0%	0.0%	0.0%	0.0%	0.0%	5000	µg/L	Title 22 2° MCL
Dissolved Lead	16.7%	7.1%	0.0%	0.0%	0.0%	[2]	µg/L	CTR-FW AQ Chronic-Diss
Total Recoverable Lead	23.1%	13.6%	0.0%	0.0%	0.0%	15	µg/L	Basin Plan
Nitrate + Nitrite	0.0%	0.0%	0.0%	0.0%	0.0%	10	µg/L	Title 22 1° MCL for NO3N+NO2N
Diazinon	69.7%	0.0%	0.0%	0.0%	0.0%	0.08	µg/L	Basin Plan
Chlorpyrifos	59.9%	7.7%	8.3%	0.0%	0.0%	0.015	µg/L	TMDL Specified Chronic
Bifenthrin	NA	NA	NA	NA	NA	[1]	µg/L	NA
Permethrin	NA	NA	NA	NA	NA	[1]	µg/L	NA
Total Organic Carbon	NA	NA	NA	NA	NA	[1]	mg/L	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA	[1]	mg/L	NA
E Coli	94.4%	100.0%	56.3%	70.3%	57.9%	235	MPN/100 mL	Basin Plan
DDT	2.9%	0.0%	0.0%	2.4%	0.0%	0.00059	µg/L	CTR-HH water + org
Chrysene	65.0%	53.3%	33.3%	14.3%	12.5%	0.0044	µg/L	CTR-HH water + org

[1] No current objectives

[2] Hardness based objective

[3] Sample collection at LC02 started in 2008

Table 2.9 - 20. Percent Water Quality Exceedance in Rivers

Constituent	American River at Nimbus Dam		American River at Discovery Park		Sacramento River at Veterans Bridge		Sacramento River at Freeport		Objective	Units	Objective Source
	1998-2012	2008-2012	2002-2012	2008-2012	2002-2012	2008-2012	2002-2012	2008-2012			
Total Mercury	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.05	µg/L	CTR-HH water + org
Methylmercury	NA	NA	NA	NA	NA	NA	NA	NA	[1]	ng/L	NA
TSS	NA	NA	NA	NA	NA	NA	NA	NA	[1]	mg/L	NA
Turbidity	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	8.82%	4.00%	<= 20% increase	NTU	Basin Plan
TDS	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	125	mg/L	Basin Plan
Dissolved Copper	0.00%	0.00%	0.54%	4.17%	0.00%	0.00%	0.55%	4.00%	[2]	µg/L	CTR-FW AQ Chronic-Diss
Total Recoverable Copper	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1000	µg/L	Title 22 2° MCL
Dissolved Zinc	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	[2]	µg/L	CTR-FW AQ Chronic-Diss
Total Recoverable Zinc	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5000	µg/L	Title 22 2° MCL
Dissolved Lead	0.00%	0.00%	1.20%	4.17%	0.00%	0.00%	0.00%	0.00%	[2]	µg/L	CTR-FW AQ Chronic-Diss
Total Recoverable Lead	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	15	µg/L	Basin Plan
Nitrate + Nitrite	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	10	µg/L	Title 22 1° MCL for NO3N+NO2N
Diazinon	7.58%	0.00%	5.30%	0.00%	7.30%	0.00%	7.30%	0.00%	0.08	µg/L	Basin Plan
Chlorpyrifos	59.05%	0.00%	56.60%	0.00%	57.27%	0.00%	56.76%	0.00%	0.015	µg/L	TMDL Specified Chronic
Bifenthrin	NA	NA	NA	NA	NA	NA	NA	NA	[1]	µg/L	NA
Permethrin	NA	NA	NA	NA	NA	NA	NA	NA	[1]	µg/L	NA
Total Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA	[1]	mg/L	NA
Dissolved Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA	[1]	mg/L	NA
E Coli	6.5%	12.50%	18.95%	32.00%	6.32%	8.00%	11.58%	15.38%	235	MPN/100mL	Basin Plan
DDT	74%	62%	71%	75.00%	64.29%	50.00%	62.07%	50.00%	0.00059	µg/L	CTR-HH water + org
Chrysene	29%	0.0%	32%	12.50%	26.87%	0.00%	28.99%	4.00%	0.0044	µg/L	CTR-HH water + org

[1] No current objectives

[2] Hardness based objective

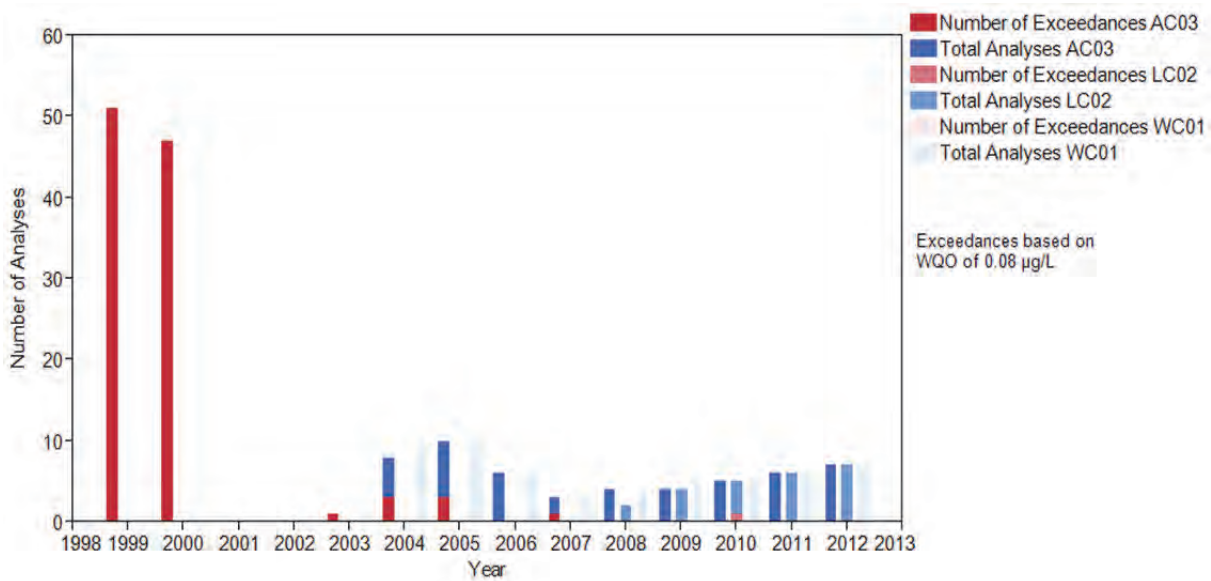


Figure 2.9 - 26. Diazinon Exceedance Rates for Urban Tributaries

2.9.7 RECOMMENDATIONS FOR SQIP AMENDMENTS

The Partnership effectiveness findings of the Monitoring and Target Pollutant Programs (see Section 2.9.3) are summarized as follows:

- Constituents of Concern in Urban Runoff are Similar to Other California Communities or Are Driven by Specific Receiving Water or Downstream Issues
- Urban Runoff Discharge and Receiving Waters Are Effectively Characterized for Current Conditions in the Sacramento MS4 Area
- Trend Monitoring Under the Current Approach Will Identify Only Significant Changes
- The Monitoring Program Focused on Urban Tributaries and Receiving Waters Has Limited Ability to Link Individual Partnership Program Activities to Changes in Water Quality, or to Identify Changes Occurring on a Year-to-Year Basis

Key Concept

Traditional monitoring adequately characterized conditions, but only successfully identified large changes related to product replacement. It is necessary to update the approach and focus on successful load reduction activities and projects.

The Partnership determined that the existing dataset sufficiently characterizes historical urban runoff discharge and receiving water quality. The Partnership found that implementing new development standards are effective in improving urban runoff water quality and reducing discharged loads when compared to older development. Because of the variability of urban runoff data, more subtle trends may not always be statistically discernible through the historical approach of intensive grab and composite sample collection. It is more challenging to link changes in urban runoff or receiving water quality to the effect of specific Partnership activities especially when evaluating the non-structural and non-quantifiable controls, which are important components of the program.

Significant changes in urban runoff discharge and receiving water quality can be quantified using less frequent sample collection, continuous monitoring probes (water quality and quantity), and

more targeted drainage area assessments. As such, the Partnership proposes to focus efforts on identification of discharge load reduction projects to improve downstream receiving water quality and best manage water resources. This approach requires development of a strategy document, identification and development of projects, and identification and development of agency partnerships in the watershed (e.g., water supply, creek restoration, etc.).

Based on the above findings, the overall approach for the Partnership in the next permit term is to group the Target Pollutant and Monitoring Programs together in function and purpose. The proposed five year work plan is shown in Section 3.2.

The key elements of this approach include developing a Load Reduction Strategy as outlined in Section 3.2 work plan. It will be necessary to evaluate the historic pollutant strategies (see Table 2.9 - 6) for inclusion in the overall Load Reduction Strategy, as well as to fulfill TMDL requirements.

2.9.7.1 Load Reduction Strategy

The Partnership will utilize existing Target Pollutant processes and data to identify priority urban runoff related water quality concerns. Once water quality priorities are identified, the Partnership will work to prioritize strategies including structural controls and strategic BMPs. Strategic BMPs will continue efforts in product policy/regulatory development (e.g., pesticide registration,). Examples of structural controls include transforming to green parking lots and homeowner participation of water conservation (e.g., lawn buyback program or river friendly landscaping and efficient irrigation.)

The Watershed Treatment Model (WTM) will be used to evaluate structural and non-structural BMPs that could improve water quality by the Partnership's current stormwater program activities as well as the additional initiatives. This approach will allow the Partnership to integrate watershed priorities into their stormwater management program and implement projects to achieve multiple benefits. The WTM can be used for assessment of the Load Reduction Strategy when specific goals are set for projects (e.g., lawn buyback program goal is to reduce dry weather flows by 10%, watershed goal to meet TMDL wasteload allocation). These effectiveness goals will be set on a project-by-project basis. Data collected by the Partnership (e.g., miles of streets swept, structural control effectiveness, etc.) will be integrated into the WTM where appropriate.

Key Concept

Water quality concentration is important in assessing support of beneficial uses, however, load assessments provide a more comprehensive assessment of improvements and effectiveness, especially when flow reductions are a key strategy as in low impact development.

During the next MS4 Permit phase, the Partnership will identify and make improvements necessary to the WTM to account for Sacramento area-specific conditions and concerns including dry weather loading. Once modified, the WTM will allow the Partnership to identify the relative benefit of different BMP implementation scenarios. As part of the evaluation process, the Partnership will establish criteria for prioritizing strategic BMPs for implementation. Prioritization criteria may include the ability of a project to:

- cost effectively address multiple constituents including TMDLs
- proactively address water quality concerns
- be relatively easy to implement (i.e., level of effort relative to cost and water quality benefit)
- improve urban runoff in existing, older developments
- have a benefit Partnership-wide
- leverage grant/stakeholder funds
- leverage Partnership opportunities

An implementation strategy will be created as part of the Load Reduction Strategy to identify and put into place the mechanisms necessary to implement prioritized strategies. Specifics will vary depending on the BMPs but may include securing grant/stakeholder funds, establishing a rebate program, creating memoranda of understanding (MOUs), developing incentives, etc.

2.9.7.2 Load Reduction Implementation

Once the Load Reduction Strategy is developed, the Partnership will shift to the implementation phase based on the prioritization identified above. The Partnership will build off the recent Citrus Heights and Elk Grove LID project successes and will continue to seek grant funding and regional collaboration for implementation of LID projects in existing developments.

Implementation will also include assessing the water quality benefit of the project, which may include estimated loading impacts derived from the WTM and/or water quality monitoring. While the Load Reduction Strategy participants are Partnership member agencies, efforts will be made to include other partner agencies (e.g., drinking water agencies) and stakeholders (e.g. environmental groups) in the implementation phase to create the most effective solutions. Furthermore, partner agencies and grant funding will be critical in developing viable and fundable projects.

2.9.7.3 Load Reduction Assessments

The Partnership performed more than 20 years of characterization monitoring of urban runoff discharge, urban tributaries, and local rivers. While the data collection was useful in guiding activities and meeting permit requirements during this period, the current assessment and power analysis supports a modification of the approach to pair the use of continuous sensors with less frequent water column sample collection as shown in Table 2.9 - 21. This approach better characterizes flow and quality variability, improves loading assessments, and provides a 'screening' opportunity to identify new water quality issues and changes in the long-term trends. Research assessments will be performed as part of the Load Reduction Strategy special studies or in association with other entities or collaborations. River characterization will be performed as part of the now-developing Delta Regional Monitoring Program (RMP) or as part of the existing CMP, with the possible inclusion of new partners or coordination with the Delta or Sacramento Watershed regional monitoring efforts.

Table 2.9 - 21. Proposed Characterization Monitoring Activities for Next Permit Term

Monitoring Location		Location Description	Proposed Activities
Urban Runoff	Strong Ranch Slough	Long-term station representative of unincorporated County area and older development	Continuous (hourly or more frequent) monitoring of water quality parameters and flows for 75% of storms. Sample collection in one year
	Sump 111	Long-term station representative of light industrial, redevelopment and older development	
	North Natomas Detention Basin No. 4	Station representative of new development and water quality basin	
Urban Tributary	Arcade Creek at Watt Avenue	Large drainage with extensive, primarily older, urban development Existing USGS flow monitoring station	Continuous (hourly or more frequent) monitoring of water quality parameters and flows for 75% of storms. Sample collection in one year Annual sediment sample collection
	Willow Creek at Blue Ravine Road	Drainage area with extensive use of water quality detention basins	
	Laguna Creek at Highway 99	Drainage area with partial development and low density upper watershed	
	Laguna Creek at Bond	Downstream boundary of upper watershed with partial low density development USGS flow monitoring station in cooperation with City of Elk Grove	
River	To be determined	Per Coordinated Monitoring Program or Delta Regional Monitoring Program Details	To be determined

2.9.7.3.1 Continuous Monitoring and Surrogates

Continuous data sensors can provide data collection at high frequencies and in real time through telemetry systems. These data sensors, data loggers, and communication systems can be readily and cost effectively deployed in a variety of systems and configurations. With continued focus on pollutant load reductions and TMDL wasteload allocation attainment, continuous and accurate flow volume data is critical. USGS developed technical approaches³³ for relating the water quality probe data to specific pollutant concentrations as was demonstrated in the “surrogate” section (Section 2.9.6.6) and have also worked extensively with organic carbon and methylmercury sensors (USGS Optical Hydrology Group, CA Water Science Center). The Partnership proposes to collect the continuous sensor data at the long-term urban runoff characterization sites (Sump 111, Strong Ranch Slough, and Sump 14) as well developing collaborative agreements with USGS at the urban tributary locations (Willow Creek, Arcade Creek, and Laguna Creek) or continue the existing practice of wet weather deployment of the probes at three urban tributary locations.

2.9.7.3.2 Urban Runoff Discharge and Urban Tributary Characterization Sample Collection

The power analysis (see Section 2.9.6.8) determined that less frequent sample collection can adequately characterize urban runoff discharge and the urban tributaries. This characterization will be enhanced with the proposed continuous monitoring of field parameters and use of surrogate relationships. This determination is based on the historically observed variability, desired confidence interval, and the desired percent change. It is recommended that water quality samples be collected four times per location in the next permit term at the current urban runoff discharge and urban tributary locations (as discussed in Table 2.9 - 21).

2.9.7.3.3 Participation in Regional Monitoring Program and Coordinated Monitoring Program

The Delta RMP is progressing in governance development and initiating active sampling efforts. This effort intends to pool resources to develop a common technical basis for protecting beneficial uses in receiving waters in the Delta. The Partnership will continue participation in this group and advocate for river assessment studies, including research-level investigations into aquatic toxicity. Aquatic toxicity data can be difficult to interpret at these downstream locations where there are a large number of contributing factors. As discussed previously, the Partnership spent considerable resources over the last 20 years performing these analyses with little benefit to the program. Recent tests identified novel causes of toxicity unrelated to urban runoff (e.g., epibionts), confirmation of the presence of pesticides, and toxicity of test species only in chronic test periods while storms generally last less than a day. A RMP would be the appropriate venue to use and examine new test methods (*Hyalella azteca* in water column) and assess results in the context of beneficial use support.

The Partnership is currently a partner in the CMP effort with Sacramento Regional County Sanitation District (SRCSD), sampling two sites (upstream and downstream of the urban area) on both the Sacramento and American Rivers. The Partnership proposes to continue this participation level until the Delta RMP can replace these activities, and will consider inclusion of additional partners such as the MS4 Phase II Permittees.

³³ <http://nrtwq.usgs.gov/wi/methods>

2.9.7.3.4 Special Studies

The Load Reduction Strategy will identify specific data needs and require assessments of implementation projects. Additional special studies may be included to address specific issues identified during the permit term. Currently, the Partnership is committed to performing an assessment of LID strategies through the Citrus Heights City Hall project and associated Proposition 84 grant. It is also expected that the WTM development work will identify specific data needs to better characterize Partnership program effectiveness.

2.9.7.4 TMDL and Regulatory Compliance

While the Load Reduction Strategy and Assessments will focus on general urban runoff volume and load reductions, TMDLs and other regulatory efforts (e.g., Central Valley Drinking Water Policy) may require pollutant specific monitoring and assessments.

In addition to pollutant or water quality issue-specific workgroups, the Partnership will continue to identify opportunities to implement true source control of products that contain pollutants, by influencing state and federal product regulations. This is based on the inability to effectively reduce pollutants from widely used products at the local level, in comparison with the significant progress achieved in addressing priority target pollutants such as diazinon, chlorpyrifos, pyrethroids, and copper through product control regulation at the state and federal levels.

3.1 Proposed SQIP Amendments

This Chapter presents recommended amendments to the Stormwater Quality Improvement Plan (SQIP) in the form of proposed 5-year work plans for each Program and Element. As required by the 2008 Stormwater Permit (33), Section 3.3 contains the proposed ‘monitoring activities for the upcoming five year term of the permit’ (Monitoring and Target Pollutant Programs). Similarly, Section 3.2 includes the proposed SQIP amendments/5-year work plans for the remaining Programs/Elements.

With the exception of the Monitoring and Target Pollutant Programs, the recommended amendments represented by these 5-year work plans reflect Partnership efforts to achieve the following general goals:

- Greater efficiency in assessing programmatic outcomes:
 - The elimination of “counting” exercises and data collection that do not provide a meaningful measurement of effectiveness of a given BMP, in favor of simpler assessments of program implementation
 - Consistency of data gathering and BMP evaluation among Partnership members
- Consolidation of duplicative and/or overly specific tasks
- Elimination of completed, outdated, and/or ineffective BMPs

In accordance with these goals the Partnership consolidated tasks that have been present in each Permittee’s individual work plan into unified 5-year work plans proposed as amendments to the SQIP.

The Partnership also recommends consolidating the Monitoring and Target Pollutant Programs into one Program that focuses efforts on identification of discharge load reduction strategies. These strategies will be designed to improve downstream receiving water quality and best manage water resources. The new program will also shift to maintaining data set quality by using less frequent sample collection, continuous monitoring probes, and more targeted drainage area assessments. See Chapter 2.9.7 for more information on these proposed amendments to the SQIP.

Sacramento Stormwater Quality Improvement Program Proposed 5-Year Work Plan

Program Element: **Program Management**

Element Goal: **Manage and administer the Stormwater Quality Improvement Program to ensure compliance with the Sacramento Areawide NPDES Stormwater Permit, including the regional activities of the Sacramento Stormwater Quality Partnership and the Individual Permittee Programs.**

Task	2008 Permit Reference	Schedule (Fiscal Year)					Notes	
		FY 1	FY 2	FY 3	FY 4	FY 5		
PM.1 Legal Authority								
PM.1.1	Each permittee shall submit statement certified by chief legal counsel that it has adequate legal authority to implement and enforce the requirements of the NPDES Stormwater Permit	D.6	↔	◆				
PM.1.2	Maintain ordinances that provide legal authority to implement and enforce the requirements of the NPDES Stormwater Permit	D.5	↔	↔	↔	↔	↔	See the Stormwater Quality Improvement Plan (SQIP) for information on each permittee's ordinances (e.g., stormwater
PM.1.3	Revise the Permittee Memorandum of Understanding (MOU) as needed to provide the resources for the Sacramento Stormwater Quality Partnership to comply with the NPDES Stormwater Permit	D.3.e	↔	↔◆				MOU will be revised to update mandatory joint activities.
PM.2 Permit Compliance Reporting								
PM.2.1	Revise SQIP to address Stormwater Permit requirements and submit draft to Regional Water Board	D.2, D.3.c	↔◆					
PM.2.2	Finalize SQIP based on Regional Water Board Comments	D.3.c	↔◆					
PM.2.3	Revise permit compliance reporting templates as needed	D.3.e.ii	↔					
PM.2.4	Prepare and submit Partnership Annual Work Plan	D.3.a, MRP I.A	↔◆	↔◆	↔◆	↔◆	↔◆	May 1st each year. Includes the Monitoring work plan.
PM.2.5	Prepare and submit Partnership (Regional) Activities Annual Report	D.3.b, D.29.a, MRP.I.B	↔◆	↔◆	↔◆	↔◆	↔◆	October 1st each year
PM.2.6	Prepare and submit permittee-specific Annual Report including fiscal analysis	D.3.b	↔◆	↔◆	↔◆	↔◆	↔◆	October 1st each year
PM.2.7	Assess effectiveness of SQIP, program elements and activities	D.2.b, D.3.b	↔◆	↔◆	↔◆	↔◆		Annual Key Indicator Assessments included in the Annual
PM.2.8	Prepare and submit a Partnership Long Term Effectiveness Assessment (LTEA)	D.29.d				↔	↔◆	Includes Partnership program tasks, agency-specific tasks and water quality analysis. Assume submitted as part of ROWD (180
PM.2.9	File a Report of Waste Discharge (ROWD)	D.33				↔	↔◆	180 days before permit expiration
PM.3 Program Coordination								
PM.3.1	Conduct Permittee Steering Committee Meetings	D.3.e	↔	↔	↔	↔	↔	
PM.3.2	Track and comment on relevant legislative and regulatory policies, initiatives, regulations and permits	na	↔	↔	↔	↔	↔	
PM.4 Employee Training								
PM.4.1	Oversee implementation of permittee-specific training programs for targeted employees (including managers)	D.8a, 9a, 10a, 11b, 13h, 14e, 24, 25	↔	↔	↔	↔	↔	See other element work plans for training activities specific to each element. See permittee-specific training plans for targeted groups and frequencies.

Sacramento Stormwater Quality Improvement Program Proposed 5-Year Work Plan

KEY INDICATOR EFFECTIVENESS ASSESSMENTS									
Assessment Activity		Related Task	Schedule (Fiscal Year) and Target Effectiveness					Performance Standard (Target) Baseline Data	
			FY 1	FY 2	FY 3	FY 4	FY 5		
PM.5 Effectiveness Assessments									
	Not Applicable. All Program Management Element assessments will be performed at Outcome Level 1.	NA	NA	NA	NA	NA	NA	NA	NA

Footnotes:

Key indicator effectiveness assessments will be performed at outcome levels 2 and above. The rest of the tasks in the work plan will be assessed at outcome level 1.

- ↔ Ongoing activity/task
- ◆ Deliverable or key milestone
- 3 Effectiveness Assessment Activity Outcome Level (Level 2-4)

Sacramento Stormwater Quality Improvement Program Proposed 5-Year Work Plan

Program Element: **Construction Element**

Element Goal: **Reduce the discharge of sediment and other construction-related pollutants to the municipal storm drain system and receiving waters to the maximum extent practicable (MEP).**

Task		2008 Permit Reference	Schedule (Fiscal Year)					Notes
			FY 1	FY 2	FY 3	FY 4	FY 5	
CO.1 Standards and Specifications								
CO.1.1	Maintain standards and specifications to ensure proper and consistent application of BMPs on construction projects	D.8.a.ii	↔	↔	↔	↔	↔	
CO.2 Permitting								
CO.2.1	Require applicable projects through CEQA to evaluate and if necessary mitigate stormwater quality impacts during construction	na	↔	↔	↔	↔	↔	
CO.2.2	Ensure all approved improvement plans and/or site plans for private and municipal construction projects include an erosion and sediment control plan, when applicable, that meets Permittee requirements	D.8.c.v	↔	↔	↔	↔	↔	
CO.2.3	Verify that applicable private construction projects are covered by the State Construction General Permit by checking that a WDID has been obtained	D.8.c.v	↔	↔	↔	↔	↔	
CO.2.4	Ensure applicable municipal construction projects are covered by and in compliance with the State Construction General Permit	D.8.c.v	↔	↔	↔	↔	↔	
CO.3 Inspections and Enforcement								
CO.3.1	Maintain electronic database of construction projects to track and document inspections and enforcement actions	D.8.a.v	↔	↔	↔	↔	↔	
CO.3.2	Conduct inspections at private and municipal construction projects to ensure compliance with local ordinances and specifications	D.8.a.vi	↔	↔	↔	↔	↔	
CO.3.3	Issue enforcement actions on construction projects not in compliance with local ordinances	D.8.a.vi	↔	↔	↔	↔	↔	
CO.3.4	Refer suspected State Construction General Permit non-filer projects to the Regional Water Board	D.8.a.v	↔	↔	↔	↔	↔	
CO.4 Training and Outreach								
CO.4.1	Conduct training to targeted employees to maintain awareness of stormwater pollution prevention practices	D.8.a.viii	↔	↔	↔	↔	↔	See the permittee-specific training plans for training frequencies.
CO.4.2	Conduct outreach (e.g., pre wet season notifications) and/or provide guidance to the construction community (including active construction projects) in an effort to increase awareness of BMPs/pollution prevention practices	D.8.a.viii	↔	↔	↔	↔	↔	

Sacramento Stormwater Quality Improvement Program Proposed 5-Year Work Plan

KEY INDICATOR EFFECTIVENESS ASSESSMENTS									
Assessment Activity		Related Task	Schedule (Fiscal Year) and Target Effectiveness					Performance Standard (Target)	Baseline Data
			FY 1	FY 2	FY 3	FY 4	FY 5		
CO.5 Effectiveness Assessment									
CO.5.1	Assess plans for representative approved construction projects to ensure that erosion, sediment and pollution controls are appropriately addressed	CO 2.1 , 2.2	3	3	3	3	3	100% of assessed project plans appropriately address erosion, sediment and pollution control	NA
CO.5.2	Assess representative construction projects to ensure effective implementation of BMPs (per approved plan if applicable) to prevent discharge of pollutants	CO 3.2	3	3	3	3	3	100% of assessed projects appropriately implementing erosion, sediment and pollution control	NA
CO.5.3	Assess effectiveness of enforcement activities by identifying and tracking repeat violators (permittee-specific and permit area-wide) using the enforcement records in the electronic database	CO 3.3	1	2	3	3	3	Reduce the incidence of repeat violations by project owner, prime contractor, subcontractor and/or consultant	previous year(s) data for comparison

Footnotes:

Key indicator effectiveness assessments will be performed at outcome levels 2 and above. The rest of the tasks in the work plan will be assessed at outcome level 1.

- ↔ Ongoing activity/task
- ◆ Deliverable or key milestone
- 3 Effectiveness Assessment Activity Outcome Level (Level 2-4)

Sacramento Stormwater Quality Improvement Program Proposed 5-Year Work Plan

Program Element: **Commercial/Industrial**

Element Goal: **To effectively prohibit and eliminate to the MEP the discharge of pollutants from businesses to the permittees' storm drain systems and receiving waters.**

Goal:

Task	2008 Permit Reference	Schedule (Fiscal Year)					Notes	
		FY 1	FY 2	FY 3	FY 4	FY 5		
CI. 1 Commercial and Industrial Stormwater Compliance Program (CISCP) (EMD Lead)								
CI.1.1	Maintain County EMD fee ordinance to fund the regional CISCP	9.a.iii-viii	↔	↔	↔	↔	↔	Work performed by EMD on behalf of Partnership.
CI.1.2	Maintain County EMD enforcement policy to facilitate consistent progressive enforcement	9.a.iii-viii	↔	↔	↔	↔	↔	Work performed by EMD on behalf of Partnership.
CI.1.3	Inspect priority industries once per three year inspection cycle to verify compliance with the stormwater ordinance	9.a.iii-viii	↔	↔	↔	↔	↔	Work performed by EMD on behalf of Partnership. Priority industries are defined in the SQIP.
CI.1.4	Remove facilities from CISCP inspection program with no exposure of pollutants to stormwater runoff	9.a.iii-viii	↔	↔	↔	↔	↔	Work performed by EMD on behalf of Partnership.
CI.1.5	Refer potential Industrial General Permit non-filers to the Regional Water Board	9.a.iii-viii	↔	↔	↔	↔	↔	Work performed by EMD on behalf of Partnership.
CI.1.6	Investigate Regional Water Board referrals within three (3) business days of receipt	9.a.iii-viii	↔	↔	↔	↔	↔	Work performed by EMD on behalf of Partnership.
CI.1.7	Conduct enforcement to ensure that facilities not in compliance with the stormwater ordinance return to compliance	9.a.iii-viii	↔	↔	↔	↔	↔	Work performed by EMD on behalf of Partnership.
CI.1.8	Notify Regional Water Board of violations observed at facilities included in CISCP	9.a.iii-viii	↔	↔	↔	↔	↔	Work performed by EMD on behalf of Partnership. Monthly reports generated by EMD.
CI.1.9	Maintain CISCP database to track and document inspections and enforcement actions	9.a.iii-viii	↔	↔	↔	↔	↔	Work performed by EMD on behalf of Partnership.
CI. 2 Outreach and Training (EMD Lead)								
CI.2.1	Provide training to CISCP inspectors	9.b.iii	↔	↔	↔	↔	↔	Work performed by EMD on behalf of Partnership.
CI.2.2	Develop and distribute industry and pollutant specific educational materials as needed for businesses covered by the regional CISCP	9.b.iii	↔	↔	↔	↔	↔	Work performed by EMD on behalf of Partnership.
CI.2.3	Conduct training, upon request and as needs are identified, for businesses covered by the regional CISCP	9.b.iii	↔	↔	↔	↔	↔	Work performed by EMD on behalf of Partnership.
CI. 3 Inspections and Enforcement (Permittee-specific)								
CI. 3.1	Investigate complaints regarding businesses not covered by regional Commercial and Industrial Stormwater Compliance Program (CISCP) within three (3) business days of receipt	D.9.a.iii-viii	↔	↔	↔	↔	↔	See the Regional Commercial/Industrial Element Work Plan for more information on CISCP.
CI. 3.2	Conduct enforcement to ensure non-compliant facilities return to compliance	D.9.a.iii-viii	↔	↔	↔	↔	↔	
CI. 3.3	Refer potential Industrial General Permit non-filers to the Regional Water Board	D.9.a.iii-viii	↔	↔	↔	↔	↔	
CI. 3.4	Investigate Regional Water Board referrals within three (3) business days of receipt	D.9.a.iii-viii	↔	↔	↔	↔	↔	
CI. 3.5	Maintain and/or develop an electronic database to track and document inspections and enforcement actions	D.9.a.i	↔	↔	↔	↔	↔	
CI. 4 Inspection Data Evaluation (Partnership lead)								
CI. 4.1	Maintain CISCP priority industry inspection list based on evaluation of CISCP and permittees' collective investigation and enforcement data	D.9.a.iii-viii				◆		Task to be performed by the Partnership based on permittee data.
CI. 4.2	Maintain priority industry outreach list based on evaluation of permittees' collective investigation and enforcement data	D.9.a.iii-viii				◆		Task to be performed by the Partnership based on permittee data.

Sacramento Stormwater Quality Improvement Program Proposed 5-Year Work Plan

Task	2008 Permit Reference	Schedule (Fiscal Year)					Notes		
		FY 1	FY 2	FY 3	FY 4	FY 5			
Cl. 5 Outreach and Training (Permittee-specific/Partnership)									
Cl.5.1	Develop and distribute industry and pollutant specific educational materials as needed for businesses not covered by the regional CISCSP	D.9.b.iii	↔	↔	↔	↔	↔	Distribution conducted by individual permittees. Development of new materials may be done collectively by the Partnership.	
Cl.5.2	Conduct training, upon request and as needs are identified, for the businesses not covered by the regional CISCSP	D.9.b.iii	↔	↔	↔	↔	↔	Businesses include special districts such as fire and water districts. Training may be conducted by an individual permittee and/or by the Partnership.	
Cl.5.3	Develop and conduct strategic outreach for mobile businesses	D.9.b.iii	◆	↔	↔	↔	↔	Task to be performed by the Partnership. Outreach task(s) will be developed during FY 1 and will be implemented in FY 2-5.	
KEY INDICATOR EFFECTIVENESS ASSESSMENTS									
Assessment Activity	Related Task	Schedule (Fiscal Year) and Target Effectiveness					Performance Standard (Target)	Baseline Data	
		FY 1	FY 2	FY 3	FY 4	FY 5			
Cl.6 Effectiveness Assessment (EMD Lead)									
Cl.6.1	Analyze trends in violation data to identify issues and areas requiring attention	Cl.1.7, 1.9	3	3	3	3	3	Investigate significant/sudden changes (e.g. spikes or dips) in graphed data to identify problem sources and possible solutions	EMD data starting FY 04/05
Cl.6.2	Assess effectiveness of inspection and associated educational and enforcement activities by tracking Return to Compliance (RTC) documentation	Cl.1.3, 1.7, 2.2	3	3	3	3	3	100% of businesses issued NOV's submitted RTC documentation	NA
Cl.7 Effectiveness Assessment (Permittee-specific)									
Cl.7.1	Assess ability of municipal staff to respond to and/or refer incidences of illicit discharges and connections within three (3) business days of report	Cl.1.1	3	3	3	3	3	Respond to and/or refer 100% of all reported incidences within three (3) business days	NA
Cl.7.2	Assess effectiveness of inspection and associated educational and enforcement activities by tracking return to compliance	Cl.1.2	3	3	3	3	3	100% of businesses returned to compliance	NA

Footnotes:

Key indicator effectiveness assessments will be performed at outcome levels 2 and above. The rest of the tasks in the work plan will be assessed at outcome level 1.

↔ Ongoing activity/task

◆ Deliverable or key milestone

3 Effectiveness Assessment Activity Outcome Level (Level 2-4)

Sacramento Stormwater Quality Improvement Program Proposed 5-Year Work Plan

Program Element: **Municipal Operations**

Element Goal: **Reduce stormwater pollution resulting from the construction, operation and maintenance of publicly-owned facilities and infrastructure in a manner that sets an example of pollution prevention for the entire community**

Task		2008 Permit Reference	Schedule (Fiscal Year)					Notes
			FY 1	FY 2	FY 3	FY 4	FY 5	
MO.1 Pollution Prevention at Permittee Facilities								
MO.1.1	Establish, implement and maintain site-specific pollution prevention plans and/or programs for municipal facilities with the potential to discharge pollutants to the storm drain system and/or receiving waters (targeted facilities)	D.10.a.iii., D.10.b.ii.	↔	↔	↔	↔	↔	
MO.1.2	Ensure compliance with site-specific pollution prevention plans and/or programs at targeted facilities	D.10.a.iii., D.10.b.ii.	↔	↔	↔	↔	↔	
MO.1.3	Maintain municipal-owned and operated parking facilities to minimize the build-up and discharge of pollutants to the storm drain system	D.10.a.iii., D.10.b.ii.	↔	↔	↔	↔	↔	
MO.2 Landscape and Pest Management								
MO.2.1	Implement integrated pest management (IPM) and proper pesticides storage, usage, and disposal procedures	D.10.a.iv., D.10.b.iii., D.27.a.i.	↔	↔	↔	↔	↔	
MO.2.2	Incorporate Green Gardener and River Friendly Landscaping principles and practices into design, retrofit and maintenance of municipal landscape areas when feasible	D.10.a.iv., D.10.b.iii., D.27.a.i.	↔	↔	↔	↔	↔	
MO.3 Storm Drain System Maintenance								
MO.3.1	Maintain the storm drain system (e.g., channels, drain inlets, detention basins, pump stations and sumps) to remove debris and prevent flooding	D.10.a.v., D.10.b.iv.	↔	↔	↔	↔	↔	Quantify total amount of debris removed within the storm drainage system.
MO.3.2	Replace illegible "No Dumping" messages on storm drain inlets to educate the public and deter illegal dumping	D.10.a.vi.	↔	↔	↔	↔	↔	
MO.4 Street Cleaning and Maintenance								
MO.4.1	Maintain street sweeping program to minimize the build-up and discharge of pollutants to the storm drain system	D.10.a.vii., D.10.b.v.	↔	↔	↔	↔	↔	Quantify total amount of waste removed from street sweeping efforts.
MO.4.2	Maintain BMP implementation for activities involving street sweeper rinse water, saw cutting activities, street maintenance materials and waste, and concrete waste	D.10.b.v.	↔	↔	↔	↔	↔	
MO.5 Non-emergency Fire Fighting Flows								
MO.5.1	Describe and implement BMPs for fire fighting activities to minimize pollutants discharged to the storm drain system, without compromise to public health and safety	D.10.a.ix.	↔	↔	↔	↔	↔	Task only applies to permittees with fire agencies under their jurisdictional control.
MO.6 Training								
MO.6.1	Conduct training to targeted employees to maintain awareness of stormwater pollution prevention practices	D.10.a.x.	↔	↔	↔	↔	↔	

Sacramento Stormwater Quality Improvement Program Proposed 5-Year Work Plan

KEY INDICATOR EFFECTIVENESS ASSESSMENTS									
Assessment		Related Task	Schedule (Fiscal Year) and Target Effectiveness					Performance Standard (Target) Baseline Data	
			FY 1	FY 2	FY 3	FY 4	FY 5		
MO.7 Effectiveness Assessment									
MO.7.1	Assess compliance with site-specific pollution prevention plans and/or programs at targeted facilities	MO.1.2	3	3	3	3	3	Maintain minimum 80% compliance with pollution prevention plans and/or programs at each facility	NA
MO.7.2	Track and record data related to debris removed from the storm drain system during maintenance activities	MO.3.1	1	1	1	4	1	Quantify amount of debris prevented from entering receiving waters	NA
MO.7.3	Track and record data related to debris removed from streets during street maintenance activities	MO.4.1	1	1	1	4	1	Quantify amount of debris prevented from entering the storm drain system	NA

Footnote:

- ↔ Ongoing activity/task
- ◆ Deliverable or key milestone
- 3 Effectiveness Assessment Activity Outcome Level (Level 2-4)

Sacramento Stormwater Quality Improvement Program Proposed 5-Year Work Plan

Program **Illicit Discharge**

Element:

Element **To effectively prohibit illegal discharges and connections to the permittees' storm drain systems and receiving waters.**

Goal:

Task		2008 Permit Reference	Schedule (Fiscal Year)					Notes
			FY 1	FY 2	FY 3	FY 4	FY 5	
ID.1 Illicit Discharges and Connection Reporting, Response, Containment and Clean Up								
ID.1.1	Develop and/or maintain response, containment and cleanup procedures	D.11.a.ii-iv, 11.b.i-v	↔	↔	↔	↔	↔	
ID.1.2	Respond to or refer incidences of illicit discharges and connections within three (3) business days of report	D.11.a.ii-iv, 11.b.i-v	↔	↔	↔	↔	↔	
ID.1.3	Ensure elimination of verified illicit discharges and connections	D.11.a.ii-iv, 11.b.i-v	↔	↔	↔	↔	↔	Document response, containment and clean up efforts of illicit discharges and connections .
ID. 1.4	Conduct progressive enforcement to eliminate illicit discharge or connection when a responsible party is identified	D.11.a.ii-iv, 11.b.i-v	↔	↔	↔	↔	↔	
ID.2 Data Management								
ID. 2.1	Develop and/or maintain an electronic database to track and document inspections and enforcement actions	11.a.v	↔	↔	↔	↔	↔	
ID. 2.2	Map the locations of confirmed illicit discharges for FY1-FY3	11.a.v				◆		Map will be used to determine if there are problem areas that would benefit from targeted outreach.
ID.3 Outreach and Training								
ID. 3.1	Distribute educational materials to the public during response and/or enforcement activities	na	↔	↔	↔	↔	↔	
ID. 3.2	Conduct training to targeted employees to maintain awareness of NPDES Stormwater Permit requirements and reporting methods	11.b.vi	↔	↔	↔	↔	↔	
ID. 4 Waste Collection								
ID.4.1	Continue to operate municipal household hazardous waste programs to reduce the potential for illicit discharges and illegal dumping	na	↔	↔	↔	↔	↔	
ID. 4.2	Remove waste from public right of way and/or implement programs (e.g., neighborhood cleanup) to reduce pollutants discharged to the storm drain system	na	↔	↔	↔	↔	↔	
KEY INDICATOR EFFECTIVENESS ASSESSMENTS								
Assessment Activity		Related Task	Schedule (Fiscal Year) and Target Effectiveness					Performance Standard (Target)
			FY 1	FY 2	FY 3	FY 4	FY 5	
ID. 5 Effectiveness Assessment								
ID. 5.1	Assess ability of municipal staff to respond to reported illicit discharges and connections within three (3) business days of report	ID.1.2	3	3	3	3	3	Respond to and/or refer 100% of all reported incidences within three (3) business days of report
ID. 5.2	Assess effectiveness of progressive enforcement to eliminate illicit connections and discharges in the required timeframe as determined by agency staff	ID.1.3, ID.1.4	3	3	3	3	3	100% of illicit connections and discharges are eliminated within the required timeframe

Sacramento Stormwater Quality Improvement Program Proposed 5-Year Work Plan

KEY INDICATOR EFFECTIVENESS ASSESSMENTS								
Assessment Activity		Related Task	Schedule (Fiscal Year) and Target Effectiveness					Performance Standard (Target)
			FY 1	FY 2	FY 3	FY 4	FY 5	
ID.5.3	Track and record data related to waste prevented from entering permittees' storm drain system from operation of municipal HHW programs	ID.4.1, ID.4.2	1	1	1	4	1	Quantify amount of waste prevented from entering the storm drain system or receiving waters

Footnotes:

Key indicator effectiveness assessments will be performed at outcome levels 2 and above. The rest of the tasks in the work plan will be assessed at outcome level 1.

- ↔ Ongoing activity/task
- ◆ Deliverable or key milestone
- 3 Effectiveness Assessment Activity Outcome Level (Level 2-4)

Sacramento Stormwater Quality Improvement Program Proposed 5-Year Work Plan

Program **Public Outreach**

Element:

Element **To raise awareness and foster community stewardship to help prevent stormwater pollution and protect local creeks and rivers to the maximum extent practicable.**

Goal:

Task	2008 Permit Reference	Schedule (Fiscal Year)					Notes	
		FY 1	FY 2	FY 3	FY 4	FY 5		
PO.1 General Public Outreach								
PO.1.1	Maintain and advertise hotline number	12.aii.,bii.	↔	↔	↔	↔	↔	
PO.1.2	Maintain the public outreach strategy as needed to reflect public opinion survey results, program priorities and available resources	12.aiii,biii	↔	↔	↔	↔	↔	
PO.1.3	Develop, distribute and/or make available promotional and educational materials (e.g., brochures) in English and other languages as appropriate	12.aiii.,biii.	↔	↔	↔	↔	↔	
PO.1.4	Conduct a mixed media campaign (e.g., radio, print ads, television, signage, social media, etc.)	12.aiii.,biii.	↔	↔	↔	↔	↔	Messages may include general stormwater messages, proper pesticide use, HHW disposal, proper pet waste disposal, etc.
PO.1.5	Conduct outreach and provide guidance related to control of pollutant discharges from outdoor carwashing activities	12.ai.aiv.bi.,biv.,c.	↔	↔	↔	↔	↔	
PO.1.6	Partner and/or collaborate with other programs and entities to leverage resources in reaching larger audiences with complimentary messages	12.aiii.,biii.	↔	↔	↔	↔	↔	
PO.1.7	Participate in and/or provide promotional and educational materials for targeted community events	12.aiii.,biii.	↔	↔	↔	↔	↔	
PO.1.8	Maintain educational and outreach programs targeting residential landscape and garden design and maintenance (e.g., OWOW, RFL) in an effort to reduce pesticides in urban runoff	12.aiii.,biii.	↔	↔	↔	↔	↔	
PO.1.9	Maintain Partnership and Permittee-specific websites	12.aii.,bii.	↔	↔	↔	↔	↔	
PO.2 School Education								
PO.2.1	Maintain school educational programs (e.g., Splash in the Class) which teach about protecting water quality, stormwater pollution prevention and/or watershed stewardship	12.aiv.,biv.	↔	↔	↔	↔	↔	
PO.3 Business Outreach								
PO.3.1	Work with sustainable business programs to encourage participating businesses to implement stormwater pollution prevention BMPs	12av.,bv.	↔	↔	↔	↔	↔	
PO.3.2	Develop and/or distribute available industry and/or pollutant-specific educational materials (e.g., brochures) in English and other languages as appropriate		↔	↔	↔	↔	↔	
PO.3.3	Support training programs (e.g., OWOW, River-Friendly Landscaping) for landscape professionals in an effort to reduce pesticides in urban runoff	12av.,bv.	↔	↔	↔	↔	↔	

Sacramento Stormwater Quality Improvement Program Proposed 5-Year Work Plan

Task		2008 Permit Reference	Schedule (Fiscal Year)					Notes	
			FY 1	FY 2	FY 3	FY 4	FY 5		
PO.4 Permittee-specific Public Outreach Activities									
PO 4.1	Participate and encourage public participation in creek and watershed stewardship	12.ai,bi.,c.	↔	↔	↔	↔	↔		
PO.4.2	Provide financial and/or in-kind support to community groups, environmental organizations, watershed councils and others, to implement programs (e.g., community action grants or watershed education grants) or projects that help to accomplish the goal of the Stormwater Program	12.a.iii.,b.iii.	↔	↔	↔	↔	↔		
KEY INDICATOR EFFECTIVENESS ASSESSMENTS									
Assessment Activity		Related Task	Schedule (Fiscal Year) and Target Effectiveness					Performance Standard (Target)	Baseline Data
			FY 1	FY 2	FY 3	FY 4	FY 5		
PO.5 Effectiveness Assessment									
PO.5.1	Conduct and evaluate the results of the public opinion surveys to identify changes in awareness and to inform the public outreach strategy	2.1 - 2.8		2		2		70% of survey respondents retain key messages	NA
PO.5.2	Evaluate pesticide reduction training programs (e.g., OWOW, River-Friendly Landscaping) for landscape professionals using a post-training survey of store managers and employees to ensure adequate knowledge of less toxic pesticides and pesticide reduction methods	5.2	2	2	2	2	2	85% of survey respondents find training and associated materials helpful	NA
PO.5.3	Assess the effectiveness of the school educational programs to build awareness and motivate behavioral changes related to stormwater quality protection, through teacher evaluations	3.1	2	2	2	2	2	90% of survey respondents find the presentation made students more environmentally aware and likely to practice pollution prevention	NA

Footnotes:

Key indicator effectiveness assessments will be performed at outcome levels 2 and above. The rest of the tasks in the work plan will be assessed at outcome level 1.

↔ Ongoing activity/task

◆ Deliverable or key milestone

3 Effectiveness Assessment Activity Outcome Level (Level 2-4)

Sacramento Stormwater Quality Improvement Program Proposed 5-Year Work Plan

Program **New Development**

Element:

Element **To reduce the discharge of stormwater pollutants and mitigate the increased runoff that can result from new development and redevelopment projects to the MEP.**

Goal:

Task		2008 Permit Reference	Schedule (Fiscal Year)					Notes
			FY 1	FY 2	FY 3	FY 4	FY 5	
ND.1 Policies and Standards								
ND.1.1	Maintain applicable sections of the General Plan to include urban runoff protection principles during General Plan updates	D.16	↔	↔	↔	↔	↔	
ND.1.2	Amend stormwater quality/quantity development standards to require hydromodification management for development projects	D.15.c	↔◆					
ND.1.3	Amend stormwater quality/quantity development standards to require Low Impact Development (LID) for development projects	D.15.b	↔◆					
ND.1.4	Maintain standards, design manuals and other tools to provide guidance to development community	D.15, D.26	↔	↔	↔	↔	↔	
ND. 2 Entitlements, CEQA, and Plan Review								
ND.2.1	Require priority development projects through CEQA to include stormwater quality/quantity control measures for urban runoff	D.17	↔	↔	↔	↔	↔	
ND.2.2	Condition priority development projects to comply with stormwater quality /quantity development standards	D.17	↔	↔	↔	↔	↔	
ND.2.3	Ensure that improvement plans for private priority development projects comply with urban runoff stormwater quality/quality development standards	D.14, D.22	↔	↔	↔	↔	↔	
ND.2.4	Ensure that improvement plans for municipal priority development projects comply with stormwater quality/quantity development standards	D.14, D.22	↔	↔	↔	↔	↔	
ND.3 Maintenance Requirement and Verification								
ND.3.1	Require maintenance of stormwater quality/quantity treatment measures for priority development projects through agreements, covenants or other means	D.18	↔	↔	↔	↔	↔	
ND.3.2	Require property owners with maintenance agreements or covenants to provide documentation of adequate maintenance at least once every 3 years	D.18, D.22	↔	↔	↔	↔	↔	Specific maintenance verification frequency for each permittee will be defined in the SQIP.
ND.4 Outreach and Training								
ND.4.1	Conduct outreach to the development community when significant changes are made to the stormwater quality/quantity policies and/or standards	D.24	↔	↔	↔	↔	↔	
ND.4.2	Provide training to targeted employees on stormwater quality/quantity policies and standards	D.25	↔	↔	↔	↔	↔	
KEY INDICATOR EFFECTIVENESS ASSESSMENTS								
Assessment Activity		Related Task	Schedule (Fiscal Year) and Target Effectiveness					Performance Standard (Target)
			FY 1	FY 2	FY 3	FY 4	FY 5	
ND. 5 Effectiveness Assessment								
ND.5.1	Assess a representative number of approved plans for priority development projects to ensure stormwater quality/quantity development standards have been appropriately addressed	ND.2.4, 2.5	3	3	3	3	3	100% of assessed projects appropriately address required measures upon final plan review
ND.5.2	Assess representative development projects to ensure control measures were constructed per approved plans	ND.2.4, 2.5	3	3	3	3	3	100% of assessed development projects include control measures constructed properly per approved plan

Sacramento Stormwater Quality Improvement Program Proposed 5-Year Work Plan

KEY INDICATOR EFFECTIVENESS ASSESSMENTS								
Assessment Activity		Related Task	Schedule (Fiscal Year) and Target Effectiveness					Performance Standard (Target)
			FY 1	FY 2	FY 3	FY 4	FY 5	
ND.5.3	Evaluate maintenance documentation to verify that stormwater quality treatment measures are being maintained according to agreement or covenant	ND.3.1, 3.2	3	3	3	3	3	70% of projects have submitted adequate maintenance documentation
ND.5.4	Track and record data related to the number of treatment control measures/devices installed and acreage treated in order to estimate the stormwater pollutants removed by implementing the stormwater quality/quantity requirements	ND.3.2	1	1	1	4	1	Quantify amount of stormwater pollutants prevented from entering the storm drain system

Footnotes:

Key indicator effectiveness assessments will be performed at outcome levels 2 and above. The rest of the tasks in the work plan will be assessed at outcome level 1.

- ↔ Ongoing activity/task
- ◆ Deliverable or key milestone
- 3 Effectiveness Assessment Activity Outcome Level (Level 2-4)

Sacramento Stormwater Quality Improvement Program Proposed 5-Year Work Plan

Program Element: **Monitoring and Target Pollutant Program**

Element Goal: **To identify, implement, and assess projects and programs to reduce the urban runoff loading of pollutants to receiving waters.**

Goal:

Task		Schedule (Fiscal Year)					Notes
		FY 1	FY 2	FY 3	FY 4	FY 5	
MTP.1 Load Reduction Strategy							
MTP.1.1	Perform identification and characterization of existing control strategies for use in Watershed Treatment Model	↔	↔				As part of year two Load Reduction Strategy. Identify and prioritize projects for grant funding and collaboration opportunities.
MTP.1.2	Identify new implementation projects or control strategies and partnership opportunities	↔	↔				As part of year two Load Reduction Strategy. Identify and prioritize projects for grant funding and collaboration opportunities.
MTP.1.3	Develop watershed load reduction plans	↔	↔				As part of year two Load Reduction Strategy. Identify and prioritize projects for grant funding and collaboration opportunities.
MTP.1.4	Develop Load Reduction Strategy	↔	↔◆				
MTP.2 Load Reduction Implementation							
MTP.2.1	Complete construction of the Citrus Heights City Center LID retrofit	↔	↔	↔◆			Subject to final grant funding schedule.
MTP.2.2	Identify new implementation projects or control strategies and partnership opportunities			↔	↔	↔	
MTP.2.3	Implement other identified control strategies			↔	↔	↔	
MTP.3 Load Reduction Assessments							
MTP.3.1	Update discharge volume calculation methodology	↔◆					
MTP.3.2	Perform discharge volume and flow characterization assessment	↔	↔	↔	↔◆		
MTP.3.3	Perform Citrus Heights LID load reduction study	↔	↔	↔◆			Subject to final grant funding schedule.
MTP.3.4	Perform water quality characterization study at three urban runoff discharge and three urban tributaries locations			↔◆			Year may be shifted to match Delta RMP activities.
MTP.3.5	Participate in Delta Regional Monitoring Program or Coordinated Monitoring Program	↔	↔	↔	↔	↔	
MTP.3.6	Perform assessment of load reduction program through loading assessments and trend analysis				↔◆		Completed as part of ROWD including Watershed Treatment Model or other equivalent substitute.
MTP.3.7	Perform surrogate constituent assessment and data collection at three urban runoff discharge and three urban tributary locations	↔	↔	↔	↔	↔	
MTP.3.8	Participate in Central Valley Drinking Water Policy Pathogen Study, if not included in Delta RMP	↔	↔	↔			Subject to study plan developed by Central Valley Drinking Water Policy Work Group.
MTP.4 TMDL and Regulatory Compliance							
MTP.4.1	Participate in Delta Methylmercury TMDL Phase 1 implementation and American River Methylmercury TMDL Development	↔	↔	↔	↔	↔	See MTP.3.3.
MTP.4.2	Advocate delisting of urban tributaries OP pesticide impairment (Urban Tributary OP Pesticide TMDL)	↔	↔	↔	↔	↔	As necessary based on 303(d) data requests and delisting status.
MTP.4.3	Update pollutant-specific TMDL control strategies as needed based on broader load reduction strategy development	↔	↔	↔◆			
MTP.4.4	Evaluate target pollutants and identify new water quality issues of concern				↔	↔◆	As part of ROWD.

Sacramento Stormwater Quality Improvement Program Proposed 5-Year Work Plan

Task		Schedule (Fiscal Year)					Notes	
		FY 1	FY 2	FY 3	FY 4	FY 5		
MTP.4.5	Continue to identify opportunities to implement true source control of products that contain pollutants, by influencing state and federal product regulations	↔	↔	↔	↔	↔	Multiple efforts reported annually.	
KEY INDICATOR EFFECTIVENESS ASSESSMENTS								
Assessment Activity		Related Task	Schedule (Fiscal Year) and Target Effectiveness					Performance Standard (Target)
			FY 1	FY 2	FY 3	FY 4	FY 5	
MTP.5 Effectiveness Assessment								
MTP.5.1	Urban runoff loads are reduced through project implementation or strategies	MTP.3				4	To be determined as part of the development of the load reduction strategy report.	
MTP.5.2	Runoff quality is improved through reduction of net urban runoff loads	MTP.3				5	Quantification of urban runoff load reduction for key constituents of concern.	
MTP.5.3	Evaluate the benefit of urban runoff load reduction on the receiving waters	MTP.4				6	Loading assessments based on mass balance and water column trend analysis demonstrate declining contribution from urban runoff and protection of beneficial uses.	

Footnotes:

Key indicator effectiveness assessments will be performed at outcome levels 2 and above. The rest of the tasks in the work plan will be assessed at outcome level 1.

↔ Ongoing activity/task

◆ Deliverable or key milestone

3 Effectiveness Assessment Activity Outcome Level (Level 2-6)

APPENDICES

A – Agency-Specific Effectiveness Assessments for the 2008 Permit Term (FY 2009/10 – FY 2011/12)

- A-1 Program Management
- A-2 Construction Element
- A-3 Commercial/Industrial Element (Regional and Permittee-specific)
- A-4 Municipal Operations Element
- A-5 Illicit Discharge Element
- A-6 Public Outreach Program (Regional and Permittee-specific)
- A-7 New Development Element

Appendices B through H are on CD only (in the 'appendices' folder)

B – Larry Walker Associates Urban Runoff Discharge and Receiving Water Quality Assessment Report

C – Summaries of Sacramento Stormwater Toxicity Results

D – Addendum to the Wet Detention Basin Effectiveness Study

E – RWQE Data Review Process

F – Additional Total Mercury and Methylmercury Analyses

G – Evaluation of Exceedances of Water Quality Standards for Diazinon and Chlorpyrifos in Sacramento Area Receiving Waters

H – Comprehensive Water Quality Assessment

A-1. Program Management

Element Goal and Introduction

The goal of Program Management is to manage and administer the Stormwater Quality Improvement Plan (SQIP) to ensure compliance with the Sacramento Area NPDES Stormwater Permit, including the regional activities of the Partnership and the individual Permittee Programs. As stated in the 2009 SQIP: *“Program management involves ensuring that all elements of the SQIP are implemented on schedule and all requirements of this Order [the Stormwater Permit] are complied with.”*

Each permittee in the Partnership implements and reports on its own Stormwater Program, participates in the Steering Committee that guides and directs the regional activities and pays for their share of the regional activities' cost according to the Permittee Memorandum of Understanding (MOU). The agencies implement similar programs and use consistent reporting mechanisms in order to streamline program implementation and facilitate program-wide assessment of effectiveness and Stormwater Permit compliance. After the adoption of each permit (including the SQIP), each Permittee provides certification by chief legal counsel that the jurisdiction has sufficient legal authority to implement the adopted permit. Certification by chief legal counsel was proved by each of the Permittees with the SQIP. The Permittees coordinate regional responsibilities through the Permittee MOU and execute joint authorizations (similar to task orders) to authorize individual regional activities. This particularly applies to situations where an outside consultant firm or contractor is hired to perform a service that has benefit to all seven Permittees (e.g., monitoring and public outreach).

The individual programs may be structured differently from each other, but all are designed to meet the objectives and requirements of the 2008 Stormwater Permit. The requirements pertaining specifically to the program management element can be paraphrased as follows:

- Provide adequate legal authority to control pollutant discharges
- Prepare and submit Stormwater Permit-required reports and work products (e.g., Annual Reports)
- Coordinate regionally
- Ensure adequate training

Element Effectiveness Assessment

All tasks in this Element were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

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A-2. Construction Element

A-2.1 Partnership Activities

There are no Partnership-specific activities for this element.

A-2.2 County of Sacramento

Element Goal and Introduction

The primary goal of the Construction Element is to comply with Provision 8 of the 2008 Stormwater Permit by conducting activities intended to prevent sediment and other construction-related pollutants from entering the storm drain system and local creeks and rivers to the maximum extent practicable.

The County requires that private and public construction projects (including County-owned projects) in the unincorporated county be managed to reduce the potential for erosion and discharge of sediments and other pollutants to the County's storm drain system. The County works closely with the other Permittees in the Partnership to ensure that this happens in a coordinated and consistent way that is equitable for the development community and facilitates improved area-wide compliance.

Within the County, the Construction Element is administered and managed by the Department of Water Resources, Stormwater Quality Section, but countywide compliance depends on the combined efforts of several departments and groups in the county that review plans, issue permits and conduct inspections. Externally, the County works closely with the other Permittees in the Partnership to ensure that this happens in a coordinated and consistent way across the region that is equitable for the development community and facilitates improved compliance.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CO.1 Legal Authority

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CO.2 Plan Review and Approval Process

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Effectiveness Outcome Level 2 or above as described below.

CO.2.1 Review Grading Plans and applications

2008 PERMIT REFERENCE 8.a.iv	PERFORMANCE STANDARD Document percentage of sites incorporating erosion and sediment controls				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

The performance standard for this task was established in the 2009/2010 fiscal year. The objective of this performance standard was to demonstrate that the County is adequately ensuring the incorporation of erosion and sediment controls (ESC) on construction projects at the plan review and permitting phase. This is assumed to be an indication of changed behavior on the part of the County plan reviewers and the engineers preparing the plans (Effectiveness Outcome Level 3). Table A-2.2-1 shows the percentage of sites incorporating erosion and sediment controls.

Assessment Results and Recommendations

Table A-2.2-1

Fiscal Year	Grading permits reviewed	Percent of plans that met minimum requirements
08/09	53	100%
09/10	57	100%
10/11	63	100%
11/12	65	100%

During the 2008 permit term, grading permits were required on any project disturbing 1 acre or more OR moving 350 cubic yards of dirt. All projects issued grading permits were required by the County to submit an Erosion and Sediment Control (ESC) plan showing how the project would be incorporating ESC best management practices (BMPs). The County determined that the performance standard did not result in a meaningful assessment. Instead, the recommendation for the next permit term is to ensure that the *final approved* plans adequately incorporate erosion and sediment control BMP's. The proposed 5-year work plan includes a new performance standard to address this.

CO.3 Standards & Specifications

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CO.4 Inventory and Prioritization

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CO.5 Inspections

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CO.6 Enforcement

CO.6.2 Conduct enforcement on construction sites not in conformance with County Ordinances.

2008 PERMIT REFERENCE 8.a.vii	PERFORMANCE STANDARD Document number and types of corrective and enforcement actions				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

The strategy by documenting and tracking the enforcement actions, the County wanted to determine if the construction community adequately understood proper implementation and maintenance of BMP's on construction sites. It was thought that percentage of enforcements would go down with increased awareness in the construction community.

Assessment Results and Recommendations

Table A-2.2-2

Fiscal Year	No. Active Grading Sites	Written Enforcements
08/09	119	80
09/10	96	19
10/11	81	8
11/12	56	23

Table A-2.2-2 above shows the number of active grading sites, and the number of written enforcements The County maintains a tracking system and evaluates the data to measure the decrease in enforcement as a measure in changed behavior most notably to confirm a decrease in the number of violations. Enforcement actions are logged into the County's database system and a report is produced at the end of each fiscal year. The performance standard has been met for this task. The County determined that the performance standard did not result in a meaningful assessment. A more effective assessment would be to audit a percentage of representative sites for compliance with County ordinances. The proposed 5-year work plan includes a new performance standard to address this.

CO.7 Education and Training

CO.7.1 Provide regular internal training on applicable components of the SQIP and related Permits

2008 PERMIT REFERENCE 8.a.viii	PERFORMANCE STANDARD Conduct quizzes to evaluate training effectiveness				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 2

Assessment Methodology

Before the 2008 permit term (the 2008/2009 fiscal year and previous years), the effectiveness of employee training was assessed at Effectiveness Outcome Level 1 by simply reporting the numbers of staff trained in various departments and on various topics each year. In the 2009/2010 fiscal year, a new performance standard was created for this task which involved using quizzes (starting in the 2011/2012 fiscal year) to gage

the attendees’ increased awareness of construction-related stormwater issues as a result of each individual training session.

The quizzes were not intended to assess the overall awareness of staff, but to determine if the specific training session increased the awareness of the staff. During the 2011/2012 fiscal year, a quiz containing 12 questions was given to staff before the training started, and the same quiz was given after training was complete.

Assessment Results and Recommendations

Figure A-2.2-1

Increase in Staff Awareness as a Result of Training Session

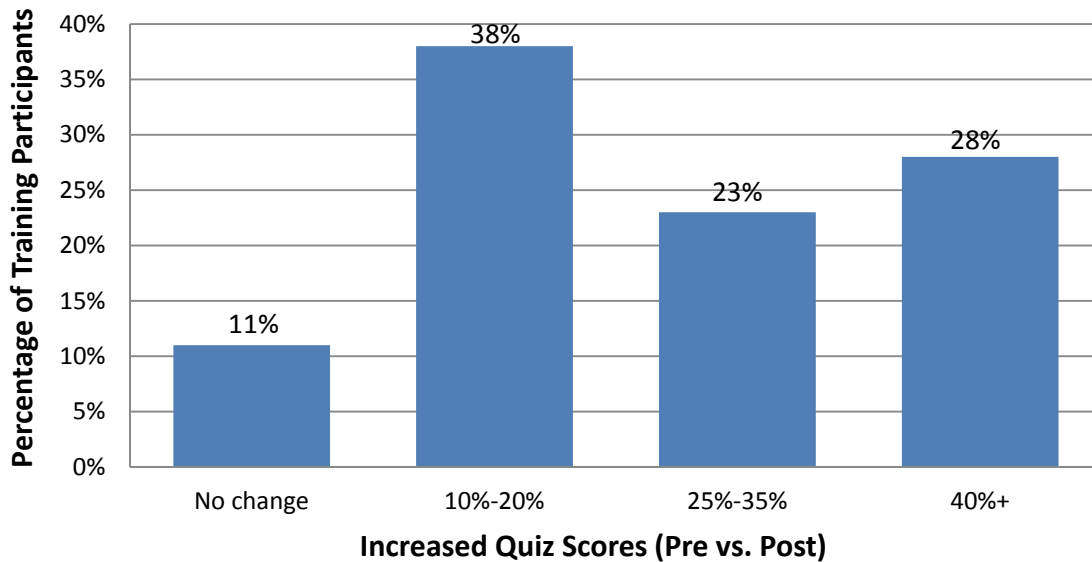


Figure A-2.2-1 shows the increase in staff awareness after training sessions. Four training courses were given to 67 county staff. The County has determined that training conducted in the 2011/2012 fiscal year was effective in raising the awareness among staff regarding storm water BMP’s. Regardless of the level of awareness of staff, the end result of training is to see compliance on construction sites. Therefore, to demonstrate compliance with the SQIP, it would be more effective to monitor behavior of staff by auditing their work (i.e. completeness of approved plans, proper BMP implementation on construction sites, etc.). The proposed 5-year work plan includes new performance standards to address this and will replace the assessment task of conducting quizzes annually.

A-2.3 City of Sacramento Summary

Element Goal

The goal of the Construction Element is to reduce the discharge of stormwater pollutants to the maximum extent practicable (MEP) by requiring construction sites to reduce both sediment in site runoff and other pollutants such as litter and concrete wastes through good housekeeping procedures and proper waste management. Excessive discharge of sediment can cause erosion and harm creek habitat through both scour and smothering of spawning areas.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CO.1 Legal Authority

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CO.2 Permitting, Inspection and Enforcement

CO.2.4 Monthly assess the quality of the ESC plans for 30% of permits issued for regulated private development projects

2008 PERMIT REFERENCE D.8.a.ii	PERFORMANCE STANDARD All regulated projects include adequate ESC plans									
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report							
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09	N/A	FY 09/10	3	FY 10/11	3	FY 11/12	3	FY 12/13	3

Assessment Methodology, Results and Recommendations

One of the key components to minimize the potential and/or actual discharges of pollutants associated with construction activities is to develop and properly implement an Erosion, Sediment and Pollution Control (ESC) plan that is specific to each construction project and effectively minimizes and/or eliminates the discharge of pollutants to receiving waters. Thus, this task throughout this permit term has focused on the proper development of ESC plans that meet minimum requirements. Stormwater Program staff annually reviews a minimum of 30% of the approved ESC plans for regulated private development projects to determine the quality of the ESC plans. This assessment evaluates the knowledge of the department's plan review staff as well as ensures the ESC plans provide adequate information for the contractor and inspector to minimize any potential impacts during construction.

The ESC plans were evaluated to ensure the plans met the following minimum requirements:

- Did the plans identify all possible stormwater discharge points (e.g., drain inlets, natural channels, roadside ditches, creeks, etc.) that could be impacted by the project?
- What BMPs were proposed to protect those discharge points?
- Did the plans properly locate construction entrances, stock pile, and material storage areas away from discharge points?
- Did the plans include a detailed plan for concrete washout and paint washout areas?
- Did the plans indicate procedures for the proper disposal and/or storage of construction and/or demolition debris?

- Did the disturbed area include vegetated areas that could be left undisturbed, permanently or during construction, to act as a BMP?
- Did the plans provide a BMP schedule?
- Were the proposed BMPs adequate for the proposed project?

The projects evaluated were selected based on their risk to water quality, size of project, and type of project. The selected projects included residential subdivisions, commercial developments, mix used projects, and major modifications to existing structures. The results of the ESC Plan assessments are presented in Table A-2.3-1 below:

Table A-2.3-1. Summary of ESC Plan Assessments

Fiscal Year	Building Permits Issued	Approved Plans Assessed	Percent of Assessed Plans	Percent of Plans that Met Minimum Requirements
2009/2010	35	12	34 %	83% (10 of 12)
2010/2011	23	12	52 %	100% (12 of 12)
2011/2012	16	10	63 %	100% (16 of 16)

Stormwater Program staff evaluated more than 30 percent of the approved projects each year and saw an improvement in ESC plan quality over the three years. For the 2010/2011 and 2011/2012 assessment years, this task met the performance standard. The annual trainings and constant communication between the Department of Utilities’ Development Review staff (responsible for approving said plans) and Stormwater Program staff was a significant factor in the increased quality of the ESC plans. The Development Review staff ensures that the ESC plans meet the minimum requirements and provide adequate information for the contractors and inspectors in order to minimize any potential impacts to water quality during construction. Stormwater Program staff recommends that this activity and assessment be continued in the next permit term.

CO.2.5 Ensure that development projects comply with the mandated State Construction General Permit by verifying that a SWPPP is submitted and that a WDID is obtained for all projects that disturb one or more acres of land

2008 PERMIT REFERENCE D.8.C.V	PERFORMANCE STANDARD Prior to the issuance of a building or grading permit a SWPPP and WDID are provided for all projects that disturb one or more acres of land				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 3	FY 09/10 3	FY 10/11 3	FY 11/12 3	FY 12/13 3

Assessment Methodology, Results and Recommendations

The 2008 Stormwater Permit requires the City to ensure that the State Construction General Permit is obtained prior to issuance of a Building/Grading Permit. Development Review staff requires that the applicants provide proof of coverage for applicable projects by providing the WDID number and that a Storm Water Pollution Prevention Plan (SWPPP) was submitted to the Regional Water Board prior to permit issuance. This performance standard demonstrates that both the development community and City plan review staff are aware of the requirements and ensure that applicable projects obtain the required State Permit. Table A-2.3-2 provides a summary of the permits issued and the associated State Construction General Permit coverage.

Table A-2.3-2. Summary of State General Construction Permits for Development Projects

Fiscal Year	Building Permits Issued	Permits Requiring State Permit Coverage	Permits with State Permit Coverage	Percent of Permits Issued with Permit Coverage
2008/2009	79	47	47	100% (47 of 47)
2009/2010	35	11	11	100% (11 of 11)
2010/2011	23	7	7	100% (7 of 7)
2011/2012	16	8	7	88% (7 of 8)

The performance standard for the 2008/2009, 2009/2010 and 2010/2011 fiscal years were met. In the 2011/2012 fiscal year, 1 of the 8 City issued building permits did not obtain State Construction General Permit coverage. This permit issued to the State Lottery project was for a demolition of a structure. The project did not require the review and approval of the Development Review staff that otherwise would have required the project to obtain the State Construction General Permit.

Stormwater Program staff will continue to communicate and/or provide the necessary training to staff that is responsible for issuing these types of permits (i.e. demolition projects) regarding the requirements of the State Construction General Permit, but more importantly the potential impacts these projects may cause to the receiving waters.

This task was slightly modified soon after the adoption of the current Construction General Permit Order. Prior to the adoption of the current Order (2009-0009-DWQ) this task required that all applicable projects submitted to the City a copy of the Notice of Intent, approved WDID number, and a SWPP prior to the issuance of a building/grading permit. Since the adoption of the current Construction General Permit a database system (SMARTS) was developed allowing Stormwater Staff and Development Review Staff to verify that the provided WDID number was valid and that a SWPPP was submitted to the State Board for each applicable project.

For the next permit term, Stormwater Program staff proposes to continue to verify that applicable projects obtain the State General Construction Permit prior to permit issuance by requiring the applicant to provide the WDID number. However, this task will not be used as a key indicator to assess the effectiveness of the Construction Element. Staff will focus on the quality and content of the ESC plans and implementation of the plans during construction.

CO.2.6 Ensure that all municipal construction projects that disturb one or more acres of land comply with the State Construction General Permit requirements and, for those projects disturbing less than one acre, at a minimum submit ESC plans and/or notes

2008 PERMIT REFERENCE D.8.a.vi	PERFORMANCE STANDARD By the fifth year of the permit term, show that 100% of municipal construction projects disturbing greater than or equal to one acre file for a NOI				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 3	FY 12/13 3

Assessment Methodology, Results and Recommendations

During the 2008/2009 and 2009/2010 fiscal years the Stormwater Program staff evaluated and reported all the municipal projects that were constructed throughout the city in an effort to identify those projects that required coverage under the State Construction General Permit and verify the coverage was obtained. The evaluation of said projects and constant communication with the respective project managers confirmed that projects reported without a NOI indeed did not require coverage under the State Construction General Permit. Thus, for 2010/2011 and 2011/2012 fiscal years Stormwater Program Staff only reported those projects that, after evaluation of all municipal projects, disturbed one or more acres of land and were required to comply with the mandated State Construction General Permit. Table A-2.3-3 below provides a summary of the municipal projects and the associated State Construction General Permit Coverage.

Table A-2.3-3. Summary of State General Construction Permits for Municipal Projects

Fiscal Year	No. of Municipal Projects	Projects requiring State Permit Coverage	Projects with State Permit Coverage	Percent of Projects With State Permit Coverage
2008/2009	21	9	9	100% (9 of 9)
2009/2010	60	22	22	100% (22 of 22)
2010/2011	17*	17	17	100% (17 of 17)
2011/2012	13*	13	13	100% (13 of 13)

*Total projects does not include all municipal projects; only the projects that disturbed more than one acre.

This task met its target performance standard for each fiscal year.

For the next permit term, Stormwater Program staff proposes to continue to verify that applicable municipal projects obtain the State General Construction Permit. However, this task will not be used as a key indicator to assess the effectiveness of the Construction Element. Staff will focus on the quality the ESC plans and implementation of the plans and BMPs during construction for municipal projects.

CO.2.7 Inspect private construction projects that disturb one or more acres of land to ensure the required ESC plan measures are implemented and maintained

2008 PERMIT REFERENCE D.8.a.vi	PERFORMANCE STANDARD All regulated construction sites implement and maintain the required ESC plan measures				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology, Results and Recommendations

During the 2010/2011 fiscal year, Stormwater Program staff conducted audits on 12 of the 23 building permits issued by the Building Department that involved grading. The audit evaluated the proper implementation, maintenance, and effectiveness of the BMPs included in the approved ESC plan. The ESC plan included the minimum requirements listed above in task CO.2.4. The 12 projects were audited once or twice during their respective construction phase, and during this audit two of the twelve projects did not fully comply with the approved ESC plans at the time of their respective audits. Therefore, 83% of the audited projects were implementing and maintaining the required ESC plan measures. The two projects that were not fully implementing and maintaining the required ESC plan measures did not have any significant violations or discharge of pollutants to the City’s drainage system or a receiving water at the time of the audit. This assessment did not meet the performance standard of 100 percent of all sites implementing and maintaining the ESC plan measures. Audits of construction sites will be conducted again in the 2012/2013 fiscal year.

Stormwater Program staff recommends that ESC plan implementation during construction continue to be evaluated in the next permit term.

CO.2.8 Inspect municipal construction projects to ensure the required ESC plan measures are implemented and maintained

2008 PERMIT REFERENCE D.8.a.vi	PERFORMANCE STANDARD All regulated construction sites implement and maintain the required ESC plan measures				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 3	FY 12/13 1

Assessment Methodology, Results and Recommendations

During the 2011/2012 fiscal year, Stormwater Program staff conducted audits on 6 of the 13 municipal projects that were under construction and disturbed more than one acre of land. The audits evaluate the proper implementation, maintenance, and effectiveness of the BMPs included in the projects' SWPPPs. The 6 projects were audited once or twice during their respective construction phase, and during this audit one of the six projects audited did not fully comply with BMPs incorporated in the SWPPP at the time of the audit. Therefore, 83% of the audited projects met the target performance standard. The one project that did not meet the performance standard did not have any significant violations or discharge of pollutants to the City's drainage system or receiving water at the time of the audit.

Stormwater Program staff recommends that ESC plan implementation during construction continue to be evaluated in the next permit term.

CO.3 Training and Outreach

CO.3.1 Continue to train annually development and environmental review staff on stormwater quality requirements for development projects

2008 PERMIT REFERENCE D.8.a. viii	PERFORMANCE STANDARD All trained staff understand stormwater quality requirements for development projects				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 2	FY 11/12 2	FY 12/13 2

Assessment Methodology, Results and Recommendations

During the 2010/2011 fiscal year Development Review staff were asked to answer a series of questions, in the form of a quiz, prior to being provided with their annual stormwater training. Those questions were developed from material covered in the previous year's training and included knowledge of new development requirements, Construction General Permit requirements, and construction activities and their respective impacts to water quality.

Based on the results from this quiz, 100% of Development Review staff showed a good understanding of construction requirements and of the impact of construction activities on water quality (defined as 14 or more correct answers out of 16 on construction-related questions). Overall, the group tested during the 2010/2011 fiscal year showed a good understanding of the stormwater requirements and State Construction General Permit requirements. This task met the performance standard for the 2010/2011 fiscal year.

The training quiz was not used during the 2011/2012 fiscal year annual training because little value was obtained from the previous data analysis on the quizzes for 2010/2011 fiscal year. The increased communication between the Stormwater Program staff and Development Review staff showed that staff in this group continues to have a good understanding of the stormwater requirements during the 2011/2012 fiscal year.

Stormwater Program Staff recommends discontinuing quizzes as a part of the training to assess staffs' understanding of the requirements and recommends focusing on implementation assessments to evaluate the understanding of the requirements.

CO.3.2 Continue to train annually project managers from General Services, Transportation, Parks and Utilities departments on stormwater quality requirements for municipal projects

2008 PERMIT REFERENCE D.8.a. viii	PERFORMANCE STANDARD All trained staff understand stormwater quality requirements for all municipal projects				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 2	FY 11/12 2	FY 12/13 2

Assessment Methodology, Results and Recommendations

During the 2010/2011 fiscal year Project Managers and their respective inspectors from the Departments of General Services, Transportation, Parks and Recreation, and Utilities were asked to answer a series of questions prior to being provided with their annual stormwater training. Those questions were developed from material covered in the previous year’s training and included knowledge of new development requirements, Construction General Permit requirements, and construction activities and their respective impacts to water quality.

Based on the combined scores from all the groups trained, 27% of this group showed a good understanding of construction requirements and impacts of construction activities on water quality (defined as 14 or more correct answers out of 16 on construction-related questions), while 73 percent of those tested show an average understanding of said requirements (defined as 8 to 13 correct answers out of 16 on construction-related questions). These results showed that some City project managers and inspectors may not adequately understand the water quality construction requirements. Overall, the groups tested during the 2010/2011 fiscal year showed average understanding of the stormwater requirements and State Construction General Permit. This task met the performance standard for the 2010/11 fiscal years.

The training quiz was not used during the 2011/2012 fiscal year annual training because little value was obtained from the previous data analysis on the quizzes for 2010/2011 fiscal year.

Stormwater Program Staff recommends discontinuing quizzes as a part of the training to assess staffs’ understanding of the requirements and recommends focusing on implementation assessments to evaluate the understanding of the requirements.

CO.3.3 Continue to train annually City inspectors from Utilities, Transportation, Parks and General Services on NPDES program and proper implementation of ESC plan measures on municipal projects

2008 PERMIT REFERENCE D.8.a. viii	PERFORMANCE STANDARD All trained inspectors understand the importance of the NPDES program and have knowledge of current ESC plan measures and proper implementation techniques				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 2	FY 11/12 2	FY 12/13 2

Assessment Methodology, Results and Recommendations

During the 2009/2010 fiscal year City inspectors from the Departments of Utilities and Transportation were asked to take a five (5)-question quiz. Those questions were developed from material covered during that year’s training which included topics related to construction activities and their respective impacts to water quality, City requirements and staff responsibilities, and future requirements of the current State Construction General Permit. Inspectors from the Departments of General Services and Parks were not provided with this quiz due to the fact that they were trained with their respective program manager groups which were not provided with a quiz during that fiscal year.

Based on the results from this quiz, 83% of inspectors staff showed an average or above understanding of construction requirements and impact of construction activities on water quality (defined as 3 to 5 correct answers out of 5 on construction-related questions).

During the 2010/2011 fiscal year, City inspectors from the Departments of Transportation, Parks and Recreation, and General Services were trained and quizzed with their department's project managers. See section CO.3.2 above for assessment results. This task met the performance standard for the 2010/2011 fiscal year.

A-2.4 City of Citrus Heights Summary

Element Goal and Introduction

The goal of the Construction Element is to reduce the discharge of sediment and construction-related pollutants to the City’s storm drain system and local creeks (e.g., Arcade Creek) to the maximum extent practicable.

Citrus Heights has relatively little new construction underway or planned for the future, since most of the City is already built out. Construction consists mainly of redevelopment and roadway improvement projects.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CO.1 Legal Authority

All tasks were assessed at effectiveness outcome level 1; see Annual Reports for the assessment results.

CO.2 Plan Review and Permitting

All tasks were assessed at effectiveness outcome level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at outcome Level 2 or above as described below.

CO.2.1 Review Grading and Improvement Plans; verify compliance with ordinances and appropriate BMPs included

2008 PERMIT REFERENCE 8.a.ii, 8.c.i-iv	PERFORMANCE STANDARD Document percentage of plans incorporating erosion and sediment controls (target is 100% of projects subject to requirements should include appropriate ESC BMP's in plans)				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 3	FY 12/13 3

Assessment Methodology, Results and Recommendations

Over the current permit term the City has all grading permits to incorporate ESC BMPs. Regarding SWPPP the number of projects is reported in each fiscal year in the Annual Report. For FYs 08/09 5 projects, FY09/10 5 projects, FY10/11 no projects, FY11/12 no projects and FY12/13 2 projects included SWPPP as a component of their project plan sets. The recommendation shall be to continue requiring all approved improvement plans and/or site plans for private and municipal construction projects to include erosion and sediment control components and ensuring that all applicable private and public projects are covered by the State of California's Construction General Permit.

CO.3 Standards & Specifications/BMPs for Controlling Sediment and Pollutants

All tasks were assessed at effectiveness outcome level 1; see Annual Reports for the assessment results.

CO.4 Pollution Control at City-Owned Construction Projects and Other Projects Not Subject to City's Permitting Process

All tasks were assessed at effectiveness outcome level 1; see Annual Reports for the assessment results.

CO.5 Inventory, Prioritize and Track Active Construction Sites

All tasks were assessed at effectiveness outcome level 1; see Annual Reports for the assessment results.

CO.6 Inspections (Public and Private Projects)

All tasks were assessed at effectiveness outcome level 1; see Annual Reports for the assessment results.

CO.7 Enforcement (Public and Private Projects)

All tasks were assessed at effectiveness outcome level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at outcome Level 2 or above as described below.

CO.7.3 Maintain tracking system of enforcement data

2008 PERMIT REFERENCE 8.a.v	PERFORMANCE STANDARD Decrease in number of chronic violations, repeat offenders and/or non-filer referrals				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology, Results and Recommendations

The City maintains a tracking system and evaluates the data to measure the decrease in enforcement as a measure in changed behavior most notably to confirm a decrease in the number of chronic violations. Enforcement actions are logged into the City's database system and a report is produced at the end of each fiscal year. The performance standard has been met for this task. The Data shows that there were no chronic violations or repeat offenders during this permit term.

CO.8 Interdepartmental Coordination

All tasks were assessed at effectiveness outcome level 1; see Annual Reports for the assessment results.

CO.9 Education and Training (Internal and External)

All tasks were assessed at effectiveness outcome level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at outcome Level 2 or above as described below.

CO.9.1 Conduct annual refresher training for City staff involved in construction

2008 PERMIT REFERENCE 8.a.viii	PERFORMANCE STANDARD Target 100% City and contractor staff receive annual refresher training. Conduct quizzes to evaluate training effectiveness.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 2	FY 11/12 2	FY 12/13 2

Assessment Methodology, Results and Recommendations

The City of Citrus Heights General Services and Building departments conduct ongoing informal meetings to discuss stormwater quality BMP's. In addition, annual refresher courses have been presented to key City. The number of trainings and staff involved are recorded and a report is produced at the end of each fiscal year. In years, that the City wasn't able to host training events, the City promoted workshops and classes conducted by other Permittees, the State Water Quality Board or by for profit training organizations. The City provided the required training to 6 City Staff for the Construction General Permit. Yearly the City trains 100% of all field personnel, in FY09/10 9 staff, FY 10/11 8 staff, FY11/12 8 staff were trained. The performance standard was met for this task.

A-2.5 City of Elk Grove Summary

Element Goal and Introduction

The main goal of the Construction Element is to ensure that all the requirements of the National Pollutant Discharge Elimination System area-wide municipal separate storm sewer system (MS4) permit are met, by reducing sediment discharge and construction related pollutants to the City storm drain system to the maximum extent practicable.

The NPDES permit requires a number of tasks related to regulation, enforcement and inspection of construction sites in Elk Grove to reduce the discharge of construction-related sediment and pollutants to the maximum extent practicable. The requirements apply to private as well as public construction projects, including those also requiring coverage under the State’s Construction General Permit. For the most part, the focus for inspection and enforcement activities is on land disturbing activities of 350 cubic yards or more and/or one acre or more. However, smaller sites also must comply with the City’s Stormwater Ordinance and smaller site operators are educated and informed about ways to prevent erosion and pollution problems

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CO.1 Legal Authority

All tasks were assessed at effectiveness outcome level 1; see Annual Reports for the assessment results.

CO.2 Plan Review and Permitting

All tasks were assessed at effectiveness outcome level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at outcome Level 2 or above as described below.

CO.2.1 Review Grading and Improvement Plans; verify compliance with ordinances and appropriate BMPs included

2008 PERMIT REFERENCE 8.a.ii, 8.c.i-iv	PERFORMANCE STANDARD Document percentage of sites incorporating erosion and sediment controls (target is 100% of projects subject to requirements should include appropriate ESC BMPs in plans).				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 3	FY 11/12 3	FY 12/13 3

Assessment Methodology, Results and Recommendations

Over the current permit term the City has documented the percentage of plan sets incorporating ESC BMPs. The number of projects is reported in each fiscal year in the Annual Report. The data shows that in FY 08/09, 36 of 36 private and public projects incorporated ESC BMP's onto their respective plans. For FYs 09/10, 10/11 and 11/12, all of the projects with the exception of one in FY 09/10 included SWPPP as a component of their project plan sets. The recommendation shall be to continue requiring all approved improvement plans and/or site plans for private and municipal construction projects to include erosion and sediment control components and ensuring that all applicable private and public projects are covered by the State of California’s Construction General Permit.

CO.3 Standards & Specifications/BMPs for Controlling Sediment and Pollutants

All tasks were assessed at effectiveness outcome level 1; see Annual Reports for the assessment results.

CO.4 Pollution Control at City-Owned Construction Projects and Other Projects Not Subject to City's Permitting Process

All tasks were assessed at effectiveness outcome level 1; see Annual Reports for the assessment results.

CO.5 Inventory, Prioritize and Track Active Construction Sites

All tasks were assessed at effectiveness outcome level 1; see Annual Reports for the assessment results.

CO.6 Inspections (Public and Private Projects)

All tasks were assessed at effectiveness outcome level 1; see Annual Reports for the assessment results.

CO.7 Enforcement (Public and Private Projects)

All tasks were assessed at effectiveness outcome level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at outcome Level 2 or above as described below.

CO.7.3 Maintain tracking system of enforcement data;

2008 PERMIT REFERENCE 8.a.v	PERFORMANCE STANDARD Decrease in number of chronic enforcement actions				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 3	FY 12/13 1

Assessment Methodology, Results and Recommendations

The City maintains a tracking system and evaluates the data to measure the decrease in enforcement as a measure in changed behavior most notably to confirm a decrease in the number of chronic violations. Enforcement actions are logged into the City's database system and a report is produced at the end of each fiscal year. The performance standard has been met for this task. The Data shows that there were 304 cases in FY 08/09, 84 in FY 09/10, 48 in FY 10/11 and 33 in FY 11/12. (Refer to Annual Reports for full details.) The recommendation shall be to continue maintaining an electronic database to track enforcement actions on construction projects not in compliance with local ordinances and/or specifications.

CO.7.3 Track repeat offenders and problem areas

2008 PERMIT REFERENCE 8.a.v	PERFORMANCE STANDARD Decrease in number of chronic violations, repeat offenders and/or non-filer referrals				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 3	FY 12/13 1

Assessment Methodology, Results and Recommendations

The City maintains a tracking system to track repeat offenders and problem areas and a report is produced at the end of each fiscal year. The data shows 22 cases in FY 08/09, 0 in FY 09/10, 20 in FY 10/11 and 3 in FY 11/12. (Refer to Annual Reports for full details). There were no cases of non-filers throughout the analyzed permit term. The recommendation shall be to continue maintaining an electronic database to track enforcement actions on construction projects not in compliance with local ordinances and/or specifications. In addition, repeat offenders and non-filers shall be referred to the Regional Water Quality Board.

CO.8 Interdepartmental Coordination

All tasks were assessed at effectiveness outcome level 1; see Annual Reports for the assessment results.

CO.9 Education and Training (Internal and External)

All tasks were assessed at effectiveness outcome level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at outcome Level 2 or above as described below.

CO.9.6 Assess effectiveness of training

2008 PERMIT REFERENCE 8.a.ix	PERFORMANCE STANDARD Increased awareness of construction community as a result of training.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 3	FY 11/12 3	FY 12/13 3

Assessment Methodology, Results and Recommendations

The City has conducted informal surveys to the construction community regarding awareness of protecting stormwater quality. During the permit term the City of Elk Grove has hosted free-of-charge stormwater quality training to the construction and development community. In years, that the City of Elk Grove wasn't able to host training events, the City promoted workshops and classes conducted by other Permittees, the State Water Quality Board or by for profit training organizations. For profit training events were evident around the time the Board adopted the new Construction General Permit. Here is a summary of the training events per Fiscal Year as identified in each Annual Report: FY 08/09, two training events; FY 09/10, three training events; FY 10/11 several QSP/QSD training events throughout the region; and in FY 11/12, one training event. Generally, awareness has increased among the construction community and mainly due to the requirements of the new Construction General Permit, however, continuous training is a crucial element of a successful water quality program. Outreach must continue to provide guidance to the construction community and keep the message fresh.

A-2.6 City of Folsom Summary

Element Goal and Introduction

The primary goal of the Construction Element is to comply with Provision 8 of the 2008 Stormwater Permit by conducting activities intended to prevent sediment and other construction-related pollutants from entering the storm drain system and local creeks and rivers.

As described in the Stormwater Quality Improvement Plan (SQIP), the City's approach for the Construction Element is multi-faceted. It involves establishing and maintaining legal authority to control pollution (through the Stormwater and Grading Ordinances) from private and public (including City-owned) projects; conducting inspections and progressive enforcement to ensure compliance with the ordinances; and publishing and disseminating standards, specifications, guidance and educational materials. As required by the 2008 Stormwater Permit, the City also conducts several tasks to assist the State in ensuring compliance with the State's Construction General Permit (CGP).

Within the City, the Construction Element is administered and managed by the Stormwater Management Division in the Department of Public Works, but citywide compliance depends on the combined efforts of several departments and groups in the city that review plans, issue permits and conduct inspections. Externally, the City works closely with the other Permittees in the Partnership to ensure that this happens in a coordinated and consistent way across the region that is equitable for the development community and facilitates improved compliance.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CO.1 Legal Authority

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CO.2 Plan Review and Permitting

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at outcome Level 2 or above as described below.

CO.2.1 Review improvement plans and issue grading permits consistent with City requirements

2008 PERMIT REFERENCE 8.a.ii,8.a.ii,8.c.v	PERFORMANCE STANDARD Track number of Grading permits issued; document no. of plans which incorporated ESC controls				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> TASK MODIFIED PER WORK PLAN/ANNUAL REPORT		<input type="checkbox"/> PERFORMANCE STANDARD MODIFIED PER WORK PLAN/ANNUAL REPORT		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

The performance standard for this task was established in the 2009/2010 fiscal year. The objective of this performance standard was to demonstrate that the City is adequately ensuring the incorporation of erosion and sediment controls (ESC) on construction projects at the plan review and permitting phase. This is assumed to be an indication of changed behavior on the part of the City plan reviewers and engineers (Outcome Level 3).

Assessment Results

During the 2008 permit term, grading permits were required on any project disturbing 1 acre or more OR moving 50 cubic yards of dirt. All projects issued grading permits were required by the City to submit an erosion and sediment control (ESC) plan showing how the project would be incorporating ESC BMPs, except custom home lots less than 1 acre. (However, custom home lots were still required to implement BMPs to comply with the City's stormwater ordinance). Those construction projects disturbing 1 acre or more were also required to show proof of coverage under the State Construction General Permit (CGP) by providing a copy of the State Notice of Intent/WDID number and the SWPPP (the City was required to check for 6 items in the SWPPP). During the permit term, the State established a new SMARTS electronic reporting system, such that for the past couple of years, City staff could look up the project on-line to verify CGP coverage.

The table below shows the number of projects that were issued grading permits each year during the 2008 permit term to date. The total number of permits issued went down substantially due to the economic conditions. To date during the permit term, 100% of projects applying for grading permits and required to submit an ESC plan did so.

Fiscal Year	2008/2009			2009/2010			2010/2011			2011/2012		
	Total	% projects with ESC Plan	No. of CGP-covered projects with SWPPP review	Total	% projects with ESC Plan	No. of CGP-covered projects with SWPPP review	Total	% projects with ESC Plan	No. of CGP-covered projects with SWPPP review	Total	% projects with ESC Plan	No. of CGP-covered projects with SWPPP review
Residential < 1 acre	13	NA	NA	16	NA	NA	15	NA	NA	10	NA	NA
Residential > 1 acre	0	0	0	0	0	0	0	0	0	1	1	1
Commercial	15	100	11	4	100	4	4	100	3	2	100	2
Public	18	100	10	2	100	2	3	100	3	3	100	3
Total	46	100	21	22	100	6	22	100	6	16	100	6

NA: Not applicable

Recommendations

For the next permit term, the City proposes to modify this performance standard and progress on this particular task, by focusing more on the content of the ESC plans and following through on implementation of the plans during the construction project. Several assessment tasks are proposed in the new 5-year work plans which reflect this direction.

CO.3 Standards & Specifications/BMPs for Controlling Sediment and Pollutants

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CO.4 Inspections and Enforcement

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CO.5 Notifications to Regional Water Board

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at outcome Level 2 or above as described below.

CO.5.2 Track and report repeat offenders (3 or more violations) to Regional Water Board

2008 PERMIT REFERENCE 8.a.vii	PERFORMANCE STANDARD Decrease in number of repeat offenders/chronic violations to Regional Water Board				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> TASK MODIFIED PER WORK PLAN/ANNUAL REPORT		<input type="checkbox"/> PERFORMANCE STANDARD MODIFIED PER WORK PLAN/ANNUAL REPORT		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

The performance standard for this task was established in the 2009/2010 fiscal year. The original intent behind this performance standard was that a decrease in “serious” violations referred to the Regional Water Board would indicate that the City was more effective in its plan review, inspection and/or enforcement actions (changed behavior on the part of City staff, measured at Outcome Level 3).

Assessment Results

There were not any repeat offenders referred to the Regional Water Board during the 2008 permit term. During the permit term, enforcement actions were tracked by project, in which there was not a project that had 3 or more violations. This could be an indication that the City inspectors are doing a good job of enforcing the requirements and getting quick compliance when problems are noted.

Recommendations

For the next permit term, The City proposes to approach this performance standard differently by modifying the project database to also track enforcement actions by project owner, prime contractor, subcontractor and/or consultant. Also, the proposed 5-year work plan calls for tracking this information across the region, since contractors work in numerous cities and the goal is to promote consistent and equitable treatment and avoid unfair economic advantages in a particular city in the region.

CO.6 Pollution Control at City Construction Projects and Other Projects by Special Districts and Others outside of the City's Jurisdiction

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CO.7 Education and Training

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at outcome Level 2 or above as described below.

CO.7.1 Conduct annual refresher training for City staff involved in construction

2008 PERMIT REFERENCE 8.a.iii	PERFORMANCE STANDARD Conduct training annually to targeted City employees. Increase awareness of City staff.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> TASK MODIFIED PER WORK PLAN/ANNUAL REPORT		<input type="checkbox"/> PERFORMANCE STANDARD MODIFIED PER WORK PLAN/ANNUAL REPORT		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 2	FY 10/11 2	FY 11/12 2	FY 12/13 2

Assessment Methodology

Before the 2008 permit term (the 2008/2009 fiscal year and previous years), the effectiveness of employee training was made at Outcome Level 1 by simply reporting the numbers of staff trained in various departments and on various topics each year. In the 2009/2010 fiscal year, a new performance standard was created for

this task which involved using quizzes (starting in the 2010/2011 fiscal year) to gauge the attendees' increased awareness of construction-related stormwater issues as a result of each individual training session.

Assessment Results

During the 2010/2011 fiscal year, a total of 12 City project managers and inspectors attended annual stormwater refresher training (June 2011) which addressed the new State GCP and impacts to City projects. At the conclusion of the training session, participants were given an evaluation worksheet to assess their awareness and understanding of key issues. The following briefly summarizes the results, which illustrates that employee awareness is high and the training was effective and was likely influential in motivating changes in behavior (*see Folsom's 2010/2011 Annual Report for details*):

Summary of Assessment Results – FY 10/11 City Employee Training

Knowledge/Awareness Areas	% Survey Respondents Knowledgeable
Learned something new in today's training	100% (11 of 11)
Understanding of what employees can do differently in their jobs/on their projects to protect the environment, based on today's training	100% (11 of 11)
Understanding of how the State CGP would apply to one or more of their current or future projects	100% (11 of 11)

By the 2011/2012 fiscal year, the number of City inspectors had dropped significantly due to economic conditions and budget cuts. 2 inspectors attended annual stormwater refresher training on June 8, 2012, along with other Public Works/Utilities Department staff. At the conclusion of the training sessions, participants were given an evaluation worksheet to assess their awareness of key stormwater issues. The following briefly summarizes the results, which illustrates that employee awareness is high and the training is effective and may be motivating changes in behavior (*note that it was not possible to tease out the inspector-specific responses from those of the other attendees; a total of 12 participants completed the evaluation*):

Summary of Assessment Results – FY 11/12 City Employee Training

Knowledge/Awareness Areas Relevant to City Inspectors	% Survey Respondents Knowledgeable
Types of activities that can generate runoff and pollutants and associated BMPs that should be used to prevent pollution for each	91% (11 of 12)
Learned something new in today's training	91% (11 of 12)
Understanding of what employees can do differently in their jobs to protect the environment, based on today's training	64% (23 of 36)

Recommendations

The City recommends continuing this activity but eliminating it as a key indicator/performance standard which is consistent with the Permittees proposed 5-year work plan for the next permit term.

A-2.7 City of Galt Summary

Element Goal and Introduction

The goal of the Construction Element is to reduce the discharge of sediment and construction related pollutants to the City's storm drain system and local creeks to the maximum extent practicable.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CO.1 Legal Authority

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CO.2 Plan Review and Approval Process

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at outcome Level 2 or above as described below.

CO.2.1 Review Grading Plans and applications

2008 PERMIT REFERENCE 8.a. ii, 8.c.i-iv	PERFORMANCE STANDARD Document percentage of sites incorporating erosion and sediment controls (target is 100% of projects subject to requirements should include appropriate ESC BMPs in plans)				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 3	FY 11/12 3	FY 12/13 3

Assessment Methodology, Results and Recommendations

The performance standard for this task was established in the fiscal year 2009/10. The objective of this performance standard was to demonstrate that the City is adequately ensuring the incorporation of erosion and sediment controls (ESC) on construction projects at the plan review and permitting phase. This is assumed to be an indication of changed behavior on the part of the City plan reviewers and engineers (Outcome Level 3).

During the 2008 permit term, grading permits were required on any project disturbing 1 acre or more OR moving 50 cubic yards of dirt. All projects issued grading permits were required by the City to submit an erosion and sediment control (ESC) plan showing how the project would be incorporating ESC BMPs. Those construction projects disturbing 1 acre or more were also required to show proof of coverage under the State Construction General Permit (CGP) by providing a copy of the State Notice of Intent/WDID number and the SWPPP (the City was required to check for 6 items in the SWPPP). During the permit term, the State established a new SMARTS electronic reporting system, such that for the past couple of years, City staff could look up the project on-line to verify CGP coverage.

The City issued a total of five grading permits during the permit term. To date during the permit term, 100% of projects applying for grading permits and required to submit an ESC plan did so.

For the next permit term, the City proposes to modify this performance standard and progress on this particular task, by focusing more on the content of the ESC plans and following through on implementation of the plans during the construction project. Several assessment tasks are proposed in the new 5-year work plans which reflect this direction.

CO.3 Standards & Specifications/BMPs for Controlling Sediment and Pollutants

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CO.4 Pollution Control at City-Owned Construction Projects and Other Projects Not Subject to City's Permitting Process

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CO.5 Inventory, Prioritize and Track Active Construction Sites

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CO.6 Inspections (Public and Private Projects)

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CO.7 Enforcement (Public and Private Projects)

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at outcome Level 2 or above as described below.

CO.7.3 Maintain tracking system of enforcement data; track repeat offenders

2008 PERMIT REFERENCE 8.a.v	PERFORMANCE STANDARD Decrease in number of chronic violations, repeat offenders and/or non-filer referrals				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology, Results and Recommendations

The performance standard for this task was established in the fiscal year 2009/10. The objective of this performance standard was to demonstrate that the City is adequately inspecting implementation of erosion and sediment controls (ESC) on construction projects, and to track any enforcement action by the City and identify repeat offenders. This is assumed to be an indication of changed behavior on the part of the development community (Outcome Level 3).

During the 2008 permit term, coverage under the State’s Construction General Permit (CGP) were required on any project disturbing more than 1 acre. During the permit term, the State established a new SMARTS electronic reporting system, such that for the past couple of years, City staff could look up the project on-line to verify CGP coverage.

A total of forty-four applications were made for the CGP within the Galt City limits. To date during the permit term, no projects were repeat offenders. The City is small enough that frequent inspection was possible to monitor the status of sites and to encourage compliance with the CGP.

For the next permit term, the City proposes to modify this performance standard and progress on this particular task, by focusing more on the content of the ESC plans and following through on implementation of the plans during the construction project. Several assessment tasks are proposed in the new 5-year work plans which reflect this direction.

CO.8 Interdepartmental Coordination

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CO.9 Education and Training (Internal and External)

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CO.9.6 Assess effectiveness of training

2008 PERMIT REFERENCE 8.a.ix	PERFORMANCE STANDARD Increased awareness of construction community as a result of training				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 2	FY 10/11 2	FY 11/12 2	FY 12/13 2

Assessment Methodology, Results and Recommendations

Due to the economic downturn and recession during the permit term, residential construction activity within the City halted by the fiscal year 2008-2009. Not a single residential building permit was issued in the City during the permit term. There were a number of small commercial developments and one multi-family construction site during the permit term.

Since the State's Construction General Permit (CGP) now requires either a QSD or QSP, education and training can be assumed to a certain level.

For the next permit term, the City proposes to modify this performance standard and progress on this particular task by focusing more on an as-needed basis approach. The modified assessment task is proposed in the new 5-year work plans which reflect this direction and removing this as a key indicator.

PM.10 Program Effectiveness

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

PM.11 Long Term Effectiveness Assessment (LTEA)

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

A-2.8 City of Rancho Cordova Summary

Element Goal and Introduction

The primary goal of the Construction Element is to comply with Provision 8 of the 2008 Stormwater Permit by conducting activities intended to prevent sediment and other construction-related pollutants from entering the storm drain system and local creeks and rivers. The City of Rancho Cordova (City) requires that private and public construction projects (including City-owned projects) in Rancho Cordova be managed to reduce the potential for erosion and discharge of sediments and other pollutants to the City's storm drain system. The City works closely with the other Permittees in the Partnership to ensure that this happens in a coordinated and consistent way that is equitable for the development community and facilitates improved area-wide compliance.

As described in the Stormwater Quality Improvement Plan (SQIP), the City's approach for the Construction Element is multi-faceted. It involves establishing and maintaining legal authority to control pollution (through the Stormwater and Grading Ordinances); conducting inspections and progressive enforcement to ensure compliance with the ordinances; and publishing and disseminating standards, specifications, guidance and educational materials for the construction community. As required by the Stormwater Permit, the City also conducts several tasks to assist the State in ensuring compliance with the State's General Construction Permit.

Oversight of the Construction Element is provided by the Stormwater Program Manager in the City's Department of Public Works, but citywide compliance depends on the combined efforts of the Planning and Building Departments and City retained contractors that review plans, issue permits and conduct inspections. Since incorporation in 2004, the City has been slowly transitioning services previously provided by the County over to contractors. Currently only limited services are provided by the County. Those services include training for City staff and contractors (provided by the County's Construction Management and Inspection Division, CMID), and plan check services related to checking for SWPPP required components (by County Department of Water Resources, DWR).

Element Effectiveness Assessment

CO.1 Legal Authority

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CO.2 Plan Review and Approval Process

CO.2.1 Review Grading and Improvement Plans; verify compliance with ordinances and appropriate BMPs included

2008 PERMIT REFERENCE 8.a.iv	PERFORMANCE STANDARD Document percentage of plans incorporating erosion and sediment controls (target is 100% of projects subject to requirements should include appropriate ESC BMPs in plans)										
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report <input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report										
ASSESSMENTS LEVEL AND SCHEDULE	<table border="1"> <tr> <td>FY 08/09</td> <td>1</td> <td>FY 09/10</td> <td>1</td> <td>FY 10/11</td> <td>3</td> <td>FY 11/12</td> <td>3</td> <td>FY 12/13</td> <td>3</td> </tr> </table>	FY 08/09	1	FY 09/10	1	FY 10/11	3	FY 11/12	3	FY 12/13	3
FY 08/09	1	FY 09/10	1	FY 10/11	3	FY 11/12	3	FY 12/13	3		

Assessment Methodology, Results and Recommendations

During the 2008 permit term, the City conditioned projects to include erosion and sediment control (ESC) BMPs in compliance with City regulations. All projects, regardless of size, were subject to the Stormwater Ordinance (City Code 15.12) and projects disturbing one acre or more or moving 350 cubic yards of soil were required to comply with the Land Grading and Erosion Control Ordinance.

The City’s strategy for assessing effectiveness during the 2008 permit term was to track the number of grading permits issued and the corresponding percentage of plans that included appropriate ESC BMPs. This in turn, is considered an indicator of increased awareness and changed behavior (assessment outcome level 3) on the part of the regulated construction community, since in years’ past, plans were submitted that did not comply with the requirements. This data is shown below in Table A-2.8-1.

Table A-2.8-1

Annual Report Year	Grading Permits Issued	No. projects covered by State CGP	% plans incl. ESC
FY 08-09	5	5	100%
FY 09-10	3	3	100%
FY 10-11	8	7	100%
FY 11-12	8	7	100%

CO.3 Standards & Specifications/BMPs for Controlling Sediment and Pollutants

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CO.4 Pollution Control at City-Owned Construction Projects and Other Projects Not Subject to City’s Permitting Process

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CO.5 Inventory, Prioritize and Track Active Construction Sites

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CO.6 Inspections (Public and Private Projects)

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CO.7 Enforcement (Public and Private Projects)

CO.7.3 Maintain tracking system of enforcement data; track repeat offenders

2008 PERMIT REFERENCE 8.a.iv	PERFORMANCE STANDARD Decrease in number of chronic violations, repeat offenders and/or non-filer referrals				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09	FY 09/10	FY 10/11	FY 11/12	FY 12/13
	1	1	1	1	3

Assessment Methodology, Results and Recommendations

The City has not had any violations that exceeded verbal and/or written warnings of potential violations.

CO.8 Interdepartmental Coordination

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CO.9 Education and Training (Internal and External)

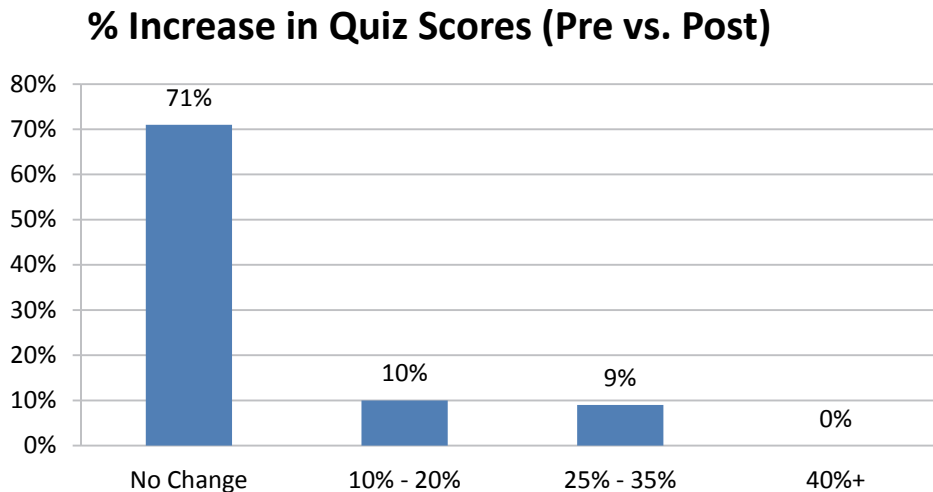
CO.9.1 Conduct annual refresher training for City and contractor staff involved in construction

2008 PERMIT REFERENCE 8.a.iv	PERFORMANCE STANDARD Target 100% City and contractor staff receive annual refresher training. Conduct quizzes to evaluate training effectiveness.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 2	FY 11/12 2	FY 12/13 2

Assessment Methodology, Results and Recommendations

Two training courses were given to 21 city staff. Figure A-2.8-1 below compares pre- and post-training quiz results. The County has determined that training conducted in the fiscal year 2011/12 was effective in raising the awareness among staff regarding storm water BMP's. Regardless of the level of awareness of staff, the end result of training is to see compliance on construction sites. Therefore, to demonstrate compliance with the SQIP, it would be more effective to monitor behavior of staff by auditing their work (I.e. completeness of approved plans, proper BMP implementation on construction sites, etc.). The proposed 5-year work plan includes new performance standards to address this.

Figure A-2.8-1



A-3. Commercial/Industrial Program

A-3.1 Regional Commercial/Industrial Program

Element Goal and Introduction

The primary goal of the Regional Commercial/Industrial Program is to reduce the discharge of stormwater pollutants to the maximum extent practicable and effectively eliminate illegal non-stormwater discharges from Permittee-identified priority commercial and industrial facilities and businesses within the boundaries of the Sacramento Area-wide NPDES Municipal Stormwater Permit (Stormwater Permit) area. As required by the Stormwater Permit, the Regional Commercial/Industrial Program works to address these conditions by conducting regular compliance inspections and associated enforcement at priority commercial and industrial facilities (listed in C.I.2), as well as through outreach targeted at business operators and their employees.

Through Memoranda of Understanding (MOU) executed with each of the Permittees, the Sacramento County Environmental Management Department (EMD) is authorized to implement the Commercial and Industrial Stormwater Compliance Program (CISCP) in which triennial (three year cycle) stormwater compliance inspections and associated enforcement are conducted at identified priority commercial and industrial facilities on behalf of all the Permittees. Implementation of the CISCP makes efficient use of Permittee resources, provides regional consistency, and minimizes impacts to businesses through consolidation of inspections with other EMD inspection programs.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. See Annual Reports for the Effectiveness Outcome Level 1 reporting.

CI.1 Legal Authority

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CI.2 Priority Industry and Industrial Pollutant Identification

CI.2.1 Update priority inspection list based on evaluation of enforcement-related data

2008 PERMIT REFERENCE	PERFORMANCE STANDARD				
9.b.iii	Updated list of priority industries for inspection				
<input type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09	FY 09/10	FY 10/11	FY 11/12	FY 12/13
	1	1	1	1	3

Assessment Methodology

The performance standard was established to identify industry types that could be included into the CISCP. Industry types would be identified through the Permittee's Complaint-Based Stormwater Compliance Program (CBSCP) as industries, over the course of a permit term that have generated a large number of complaints and enforcement actions, which could then be added to the CISCP for on-going routing inspections. The

routine inspections would identify stormwater ordinance violations at those priority facilities and provide educational materials designed to prevent future violations (Effectiveness Outcome Level 3).

Assessment Results

After evaluating enforcement related data from both the CISCIP and CBSCP inspection programs, we have concluded that no changes to the priority inspection list are required at this time. Current inspection list includes:

- Facilities with coverage under the State Industrial General Permit (IGP)
- Auto body shops
- Auto repair shops
- Auto dealers
- Equipment rental facilities
- Kennels
- Nurseries
- Retail gasoline outlets (i.e., gas stations)
- Restaurants

The Permittees were considering adding Stonecutting facilities to the CISCIP inventory based on City and County of Sacramento CBSCP complaint data. However, the Partnership ultimately decided not to include them. This industry type (SIC 3281) actually qualifies as a potential State Industrial General Permit non-filer. These businesses typically are NOT added to the State Industrial General Permit program because the Regional Water Board finds this industry does not typically have business practices with exposure to stormwater. The Partnership could add them as another industry type to EMD’s program; however, they could potentially just file for non-exposure and removal from EMD’s program as well. The Partnership will continue to address this industry type on a complaint basis, and when necessary, refer potential non-filers to the Regional Water Board for permit coverage and in turn, they will be inspected by EMD’s program.

Recommendations

Continue with the task of updating priority industry inspection list during the next permit term. Since this task does not serve as a good key indicator of the overall Commercial/Industrial Element, the Partnership recommends removing this task as a key indicator assessment.

CI.2.2 Update priority industry outreach list based on evaluation of enforcement-related data

2008 PERMIT REFERENCE 9.b.iii	PERFORMANCE STANDARD Updated list of priority industries for outreach				
<input type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

The performance standard was established to identify industry types that could benefit from receiving stormwater pollution prevention outreach materials. Industry types would be identified through the Permittee’s Complaint-Based Stormwater Compliance Program (CBSCP) as industries, over the course of a permit term that have generated a large number of complaints and enforcement actions, which could then be added to the industry outreach list. The routine outreach would inform business owners about stormwater regulations and ways to adjust business practices to avoid stormwater ordinance violations (Effectiveness Outcome Level 3).

Assessment Results

Based on evaluation of enforcement related data, we will be adding Heating, Ventilation, and Air Conditioning (HVAC) maintenance companies (SIC 1711) to the types of mobile businesses that will be receiving outreach information. The HVAC industry was identified during the 2008 permit term as an industry type that generates waste water during air condition cleaning. Most commercial and industrial buildings have roof top air

conditioners, and if the down spots terminate below grade, the discharge of the waste water will go unnoticed by the public and field staff.

Recommendations

Continue with the task of updating priority industry outreach list once during the next permit term. Also, recommend removing this task as a key indicator assessment since this task does not serve as a good key indicator of the overall effectiveness of the Commercial/Industrial Element,

CI.3 Commercial and Industrial Stormwater Compliance Program (CISCP) – EMD

CI.3.4 Track violations during 3 year cycle

2008 PERMIT REFERENCE 9.a.iii-viii	PERFORMANCE STANDARD Decrease in violations observed from one 3-yr cycle to the next				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

The intent of the performance standard for this task is to show a decrease in the number of violations issued from one CISCP triennial inspection cycle to the next. A decrease in violations would show an increase in awareness and a change in facility operator/owner behavior (e.g. directing waste water to the sewer, proper housekeeping practices, installation of structural control devices, etc.). This task is counting the number of violations issued during inspections, in which one individual inspection can result in multiple violations, and therefore tracking the number to show a decrease in multiple violation inspections.

Assessment Results

A decrease of violations issued during CISCP inspection has occurred during the 2008 permit term. The first year of inspections was the only year that the number of violations exceeded the number of inspections, which means inspections averaged more than one violation issued per inspection. As shown in Table A-3.2-1, the number of violations issued has decreased over the three triennial inspection cycles and shows an overall decrease during the 2008 permit term. The number of violations has been less than the number of inspections per year since the 2004/2005 inspection year. When looking at the 2011/2012 inspection year, the CISCP observed (at a minimum) 1,418 inspections with no violations issued, or a 31% violation rate. The decrease in violations during the 2008 permit term shows a change in behavior (Outcome Level 3) observed in facility operators (e.g. directing waste water to the sewer, proper housekeeping practices, installation of structural control devices, etc.), and therefore achieves our performance standard.

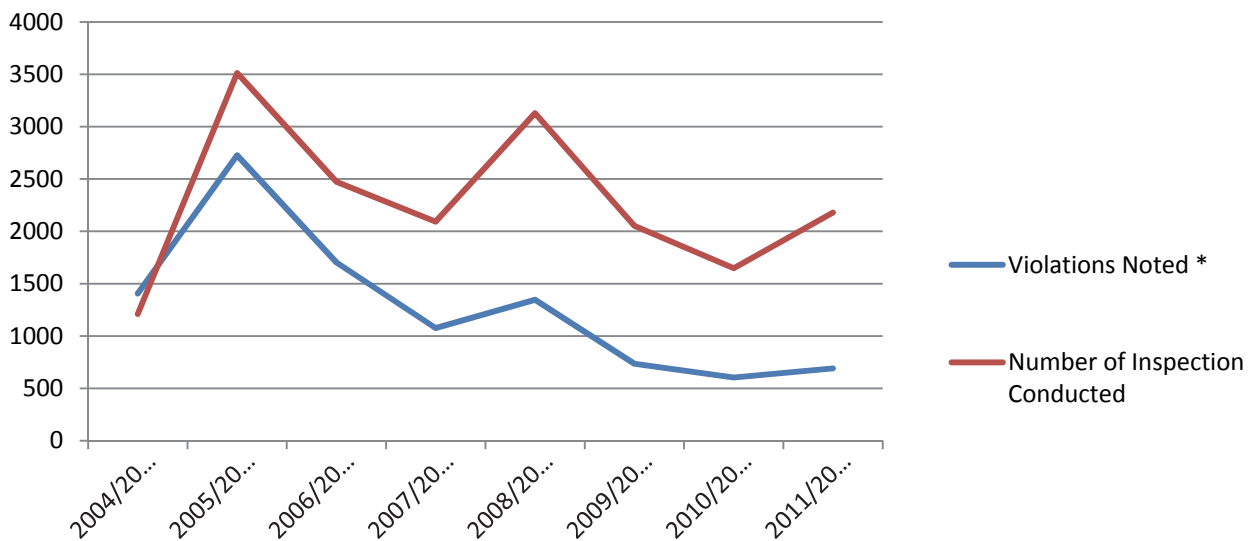
At this point, filtering of existing data would be needed to further support the performance goal. Narrowing of the existing data down to the number of facilities that have not changed location, activities, and owner/operator since the first triennial inspection cycle might show that a decrease in violations resulted from a change in behavior. This narrowed data set however would not truly represent the existing CISCP inventory; and therefore, may not provide the information necessary for moving forward into the next permit term.

Table A-3.2-1 Number of Violations Issued through CISC

Inspection Cycle	Fiscal Year	Number of Inspections Conducted	Number of Violations Issued*
Triennial Cycle 1	04/05	1,210	1,406
	05/06	3,513	2,727
	06/07	2,473	1,703
Triennial Cycle 2	07/08	2,093	1,076
	08/09	3,129	1,347
	09/10	2,053	735
Triennial Cycle 3	10/11	1,647	604
	11/12	2,180	690
	12/13	NA	NA
Total		18,298	10,288

* Individual inspections can result in more than one violation noted.

Figure A-3.2-1 Number of Violations Issued Per Inspection through the CISC



* Individual inspections can result in more than one violation noted.

Recommendations

Recommend continuation of tracking of violations numbers and violations issued. Recommended changes would be to remove the performance standard of decreasing violations from one triennial cycle to the next, and add a performance standard aimed at analyzing trends in violation data to identify areas for improvement. The percentage of inspections resulting in violations over the past few years have remained at 25.6%. The new performance standard will be developed to identify the cause of this occurrence and potential areas for improvement.

CI.3.5 Track follow-up inspections during 3 year cycle

2008 PERMIT REFERENCE 9.a.iii-viii	PERFORMANCE STANDARD Decrease in follow-up inspections required from one 3-yr cycle to the next				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

Follow-up inspections are required when a facility operator fails to submit the required Return to Compliance (RTC) documentation within the specified timeframe. RTC submittals are required of the facility operator to prove that the violation has been corrected, to demonstrate an understanding of the regulations and a good faith effort to avoid future violations. A decrease in follow-up inspections would demonstrate the facility operators' willingness to comply and would show a change in behavior (Effectiveness Outcome Level 3).

Assessment Results

The number of follow-up inspections has decreased from one triennial inspection cycle to the next, including a decrease during the 2008 permit term. As shown in Table A-3.2-2, the 2005/2006 fiscal year experienced 244 follow-up inspections compared to only 2 follow-up inspections in the 2011/2012 fiscal year. Although the 2012/2013 fiscal year data is not yet available, the 2008 permit term has experienced a decrease from roughly 5% of all enforcement actions resulting in follow-up inspections to nearly zero follow-up inspections in the 2011/2012 fiscal year. This decrease in follow-up inspections correlates to facility operators understanding the regulations and being able to bring their facility into compliance within the specified timeframe. This demonstrates that the performance standard for this task has been met and achieves an Effectiveness Outcome Level 3.

This decrease can also be attributed to the CISCP inspector's knowledge of the Stormwater Program and ability to clearly communicate what is necessary to achieve compliance. Furthermore, this decrease can be attributed to the CISCP's Compliance Assistance Bulletins (CABs). CABs have been developed for all of the targeted industry types within the CISCP and address the common pollutants associated with each industry type and BMPs that can be implemented to control those pollutant sources

Table A-3.2-2 Number of Follow-up Inspections Conducted by CISCP

Fiscal Year	Number of Inspections	Number of Follow-up Inspections	% Inspections Resulting in Follow-up Inspections
04/05	1210	5	0%
05/06	3513	244	7%
06/07	2473	196	7.9%
07/08	2093	176	8.4%
08/09	3129	154	4.9%
09/10	2053	70	3.4%
10/11	1647	1	0%
11/12	2180	2	0%
12/13	NA	NA	NA

Recommendations

Recommend continuation of tracking the number of follow-up inspections in the next permit term. Recommend adjusting performance standard to one that aims at achieving a RTC submittal rate of 100%. Tracking a decrease over each permit term will no longer be needed since that goal has been attained.

CI.3.6 Track number of businesses with significant priority industrial pollutant exceedances using Regional Water Board compiled data

2008 PERMIT REFERENCE 9.a.iii-viii	PERFORMANCE STANDARD Decrease in Industrial General Permit facilities with significant priority industrial pollutant exceedances. Data will be compared on a year to year basis over the course of the current permit term.				
<input type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

The task and performance standard was developed to use facility specific State Industrial General Permit stormwater monitoring data provided by the Regional Water Board to identify facilities with significant industrial pollutant exceedances. The goal of the performance standard was to see a decrease in State Industrial General Permit sampling exceedances over time through targeted CISCIP inspections and enforcement.

Assessment Results

Completion of this task was dependent upon receipt of Regional Water Board compiled data for significant priority industrial pollutant stormwater sampling exceedances at Industrial General Permit facilities over the course of each fiscal year. The Permittees did not receive lists of pollutant benchmark exceedances with respect to sampling data from facilities regulated under the State’s Industrial General Permit from the Regional Water Board during the 2008 permit term. Therefore, this task and assessment was not conducted.

Recommendations

Recommendation for the next permit term will be to discontinue this task and performance standard. The task is dependent upon State compilation and delivery of data that was not achieved during the 2008 permit term.

CI.3.8 Conduct enforcement (incl. warnings, NOVs, Cease and Desist Orders, ACPs, and Cost Recoveries)

2008 PERMIT REFERENCE 9.a.iii-viii	PERFORMANCE STANDARD Decrease in enforcement actions from one 3-yr cycle to the next				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

The intent of the performance standard for this task is to show a decrease in enforcement actions from each CISCIP triennial inspection cycle. A decrease in violations would show an increase in awareness and a change in facility operator’s behavior by adjusting activities to prevent stormwater pollution and non-stormwater discharges.

Assessment Results

The CISCIP started in 2004 and will be completing the third triennial cycle in the 2012/2013 fiscal year. Table A-3.2-3 summarizes the number of inspections and violations issued over the course of CISCIP inspection program. A decrease in violations has occurred over the course of the inspection program. As graphed in Figure A-3.2-1, an increase in violations was observed in the first triennial cycle, followed by a decrease in the second triennial cycle. When looking at the 2008 permit term, a decrease occurred in violations from 2008 to 2009. Since 2009, the percentage of inspections resulting in violations has remained at an average of 25.6%, which would still be a decrease from the 31% observed in 2008. This observed decrease in violations

achieves our performance standard and could be viewed as a change in behavior (Effectiveness Outcome Level 3).

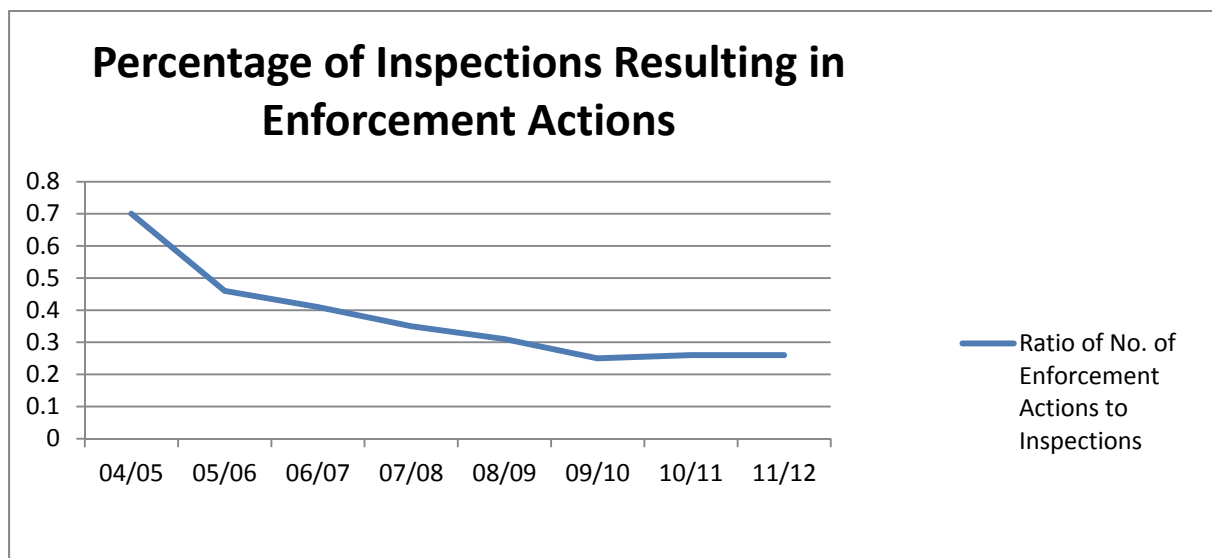
At this point, filtering of existing data would be needed to further support the performance statement goal. Narrowing of the existing data down to the number of facilities that have not changed location, activities, and owner/operator since the first triennial inspection cycle might show that a decrease in violations resulted from a change in behavior. This narrowed data set however would not truly represent the existing CISCIP inventory; and therefore, may not provide the information necessary for moving forward into the next permit term.

Further information needs to be collected to identify why the percentage of inspections resulting in violations have remained at an average of 25.6% since 2009.

Table A-3.2-3 Number of Enforcement Actions Conducted through the CISCIP

Fiscal Year	No. of Enforcement Actions	No. of Inspections	Percentage of Inspections Resulting in Violations
04/05	846	1210	70%
05/06	1612	3513	46%
06/07	1019	2473	41%
07/08	725	2093	35%
08/09	972	3129	31%
09/10	521	2053	25%
10/11	421	1647	26%
11/12	565	2180	26%

Figure A-3.2-2 Percentage of Inspections Resulting in Violations



Recommendations

Recommend continuation of tracking enforcement actions during the next permit term. Recommended changes would be to remove the performance standard of decreasing enforcement actions from one triennial cycle to the next, and add a performance standard aimed at assessing the effectiveness of enforcement actions and associated educational materials, and the percentage of facilities that achieve a return to compliance (RTC) within the required timeframe.

CI.3.11 Conduct post-training quizzes of inspectors

2008 PERMIT REFERENCE 9.a.iii-viii	PERFORMANCE STANDARD 80% minimum average quiz score				
<input type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 2	FY 09/10 2	FY 10/11 2	FY 11/12 2	FY 12/13 2

Assessment Methodology

Annual training is provided to CISCIP inspectors for conducting stormwater inspections. Training includes identification of non-stormwater discharges, illicit connections and poor housekeeping practices. Training also includes referral procedures of violations observed at non-CISCIP facilities. Quizzes were required at the end of the training sessions to assess the knowledge of the CISCIP inspectors. The performance standard for this task was to maintain a minimum quiz score of 80% to show an above average knowledge of stormwater regulations.

Assessment Results

As shown in Table A-3.2-4, The CISCIP inspectors scored an average quiz score of 96.6% over the three years of administered quizzes. The average quiz score observed during these three years shows a high awareness level of the CISCIP inspectors in regards to stormwater regulations, identification of stormwater violations and referral procedures for observed stormwater violations at non-CISCIP facilities. The average quiz score of 96.6% accomplishes our performance standard goal and shows an increase/maintained inspector awareness and achieves the Effectiveness Outcome Level 2.

Table A-3.2-4 CISCIP Annual Training Quiz Scores

Fiscal Year	Number of Inspectors Trained	Average Quiz Score
09/10	64	94%
10/11	37	97%
11/12	46	99%

Recommendations

Recommend continuation of annual CISCIP stormwater inspector training. Recommended changes would be to discontinue task and performance standard aimed at assessing inspector awareness since awareness was established to be above average; and therefore, further assessment is no longer needed.

CI.3.15 Track NOIs filed for potential non-filers referred to the Regional Water Board

2008 PERMIT REFERENCE 9.a.iii-viii	PERFORMANCE STANDARD Increase in percentage of non-filers referred to Regional Water Board filing NOIs				
<input type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

Task and performance standard was established to track the number of facilities referred to the Regional Water Board for potential coverage under the State Industrial General Permit. Facilities determined by the Regional Water Board to be within the requirements for permit coverage would then also be included into the CISCIP inspection program. An increase in the percentage of facilities referred to the Regional Water Board would increase the number of facilities within the CISCIP program and therefore increase the number of facilities subject to routine inspections. Overtime, those facility operators that are subject to routine

inspections would have an increase awareness of stormwater regulations and would also be required to adjust any behaviors in order to comply with the local Stormwater Ordinance (Effectiveness Outcome Level 3).

Assessment Results

As shown in Table A-3.2-5, the number of facilities referred to the Regional Water Board maintained an average of 14.6 per year since the 2009/2010 fiscal year. The number of referrals did not increase or decrease over the three years. The number of referred facilities found to be conducting activities that require State Industrial General Permit coverage decreased over the course of the three years. This could be attributed to a number of variables and factors including:

- Most non-filers have been identified;
- Facility operator can adjust activities to avoid coverage;
- Facility operator moves locations and does not file;
- Facility operator goes out of business;
- Facility operator chooses not to file for coverage.

The Permittees lack legal authority to force facility operators to file for State Industrial General Permit coverage, and also lack legal authority to enforce the requirements of the State Industrial General Permit.

Table A-3.2-5 Facilities Referred for State Industrial General Permit Coverage

Fiscal Year	Number of potential non-filers referred to RWB	Number of facilities that submitted NOI	Percentage of Referrals that submitted NOIs
09/10	15	7	47%
10/11	14	1	7%
11/12	15	2	13%

Recommendation

Recommend continuation of tracking facilities referred to the Regional Water Board for State Industrial General Permit coverage. Recommend discontinuation of performance standard aimed at increasing the percentage of facilities referred due to the variables that exist with this activity.

CI.4 Permittee Evaluations

CI.4.1 Evaluate CISCOP enforcement-related data to identify business categories that need not be included in the CISCOP

2008 PERMIT REFERENCE 9.a.iii-viii	PERFORMANCE STANDARD Identify business categories that can be excluded from the CISCOP				
<input type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09	FY 09/10	FY 10/11	FY 11/12	FY 12/13 3

Assessment Methodology

Task and performance standard are intended to identify business categories that could be excluded from the CISCOP. This task coincides with Task CI.2.1 that addresses facilities that could be included into the CISCOP inspection program based upon number of enforcement actions taken by the Permittees upon a particular industry type. Similarly, the lack of enforcement actions taken by CISCOP on an industry type could remove that industry type and allow for others to be added. This would allow for the CISCOP to be tailored to the needs of the Permittees.

Assessment Results

Based on evaluation of CISCIP enforcement-related data, the Permittees have determined that no industry types should be removed from the CISCIP inspection inventory at this time.

Recommendations

Recommend continuation of task to evaluate industry types to be included and/or excluded in the CISCIP. Recommend removal of assessment as a key indicator assessment since this task does not serve as a good key indicator of the overall effectiveness of the Commercial/Industrial Element.

CI.5 Outreach

CI.5.4 Distribute educational materials to priority industries at least twice during permit term

2008 PERMIT REFERENCE 9.b.iii	PERFORMANCE STANDARD Increased awareness of pollution prevention									
<input type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report							
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09	NA	FY 09/10	1	FY 10/11	NA	FY 11/12	NA	FY 12/13	2

Assessment Methodology

The task and performance standard was developed to increase the awareness of priority industry awareness of stormwater regulations and stormwater pollution prevention practices. Priority industries were identified as activities that have a higher likelihood of causing non-stormwater discharges and/or creating prohibited conditions that may result in pollutant exposure that could be contacted by stormwater. Conducting targeted outreach to these industries will increase the industry’s awareness (Effectiveness Outcome Level 2) and potentially decrease the amount of pollutants discharged to the municipal storm drain system and enforcement actions taken by the Permittees.

Assessment Results

Permittees continued to conduct outreach to the following priority industries in the 2009/2010 and 2012/2013 fiscal years:

- Automotive washing and detailing businesses
- Carpet cleaning businesses
- Commercial pesticide applicators
- Concrete contractors
- Concrete cutting contractors and businesses
- General building contractors
- Landscape installation contractors and maintenance businesses
- Painting contractors
- Portable toilet rental businesses
- Pressure washing businesses
- Street sweeping businesses
- Swimming pool contractors
- Swimming pool maintenance businesses

Businesses included in priority industries subject to outreach are considered potential temporary or intermittent sources of unauthorized non-stormwater discharges and/or stormwater pollution. Most of the businesses are mobile operations without a single base of operation, and therefore are difficult to regulate.

The Permittees conducted outreach to priority industries twice during the five-year term of the 2008 Stormwater Permit. The objectives of the outreach were to increase awareness of stormwater pollution and relevant regulations, educate business owners and operators about BMPs for addressing pollution, and encourage environmental stewardship.

Sacramento County Business Environmental Resource Center (BERC) managed the outreach database for direct mailing of educational materials to businesses on behalf of the Permittees.

During the second round of outreach this permit term, the Permittees conducted an assessment of how effective this outreach task was at reaching this set of industries. Essentially, a “landing website” was established (<http://www.beriverfriendly.net/ind2012>). This website could not be accessed other than going directly to the site, and the only place it was advertised was in the outreach materials mailed to the contact person for businesses that fell into priority industry types. Industry-specific outreach materials were posted to the site as a means of getting further detail on BMPs and stormwater compliance recommendations by industry type.

Approximately 8,400 letters were mailed during the 2008 permit term. However, there were only eight (8) unique visitors to the website, nine (9) follow-up phone calls received and 19 letters returned.

Recommendations

Recommend developing and implementing a strategy for outreach to mobile businesses during the next permit term.

A-3.2 County of Sacramento

Element Goal and Introduction

The goal of the Sacramento County Commercial/Industrial Element is to comply with the requirements of Provision 9 of the 2008 Stormwater Permit by reducing the discharge of stormwater pollutants to the maximum extent practicable and eliminating illegal non-stormwater discharges from commercial and industrial facilities and operations within the urbanized area of the unincorporated County.

The Permittees are responsible for all other industrial activities performed within their jurisdictional boundaries that are not covered within the CISC. The Permittees refer to this as the Complaint-Based Stormwater Compliance Program (CBSCP). The CBSCP is primarily driven by complaints filled by the public, field staff, EMD inspectors, and observed violations by stormwater staff.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CI.1 Legal Authority

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CI.2 Complaint-Based Stormwater Compliance Program (CBSCP) – Sacramento County Department of Water Resources (DWR)/Stormwater Section

CI.2.3 Conduct enforcement (incl. warnings, NOVs, Cease and Desist Orders, ACPs, and Cost Recoveries)

2008 PERMIT REFERENCE 9.a.iii-viii	PERFORMANCE STANDARD Decrease in enforcement actions over the course of the current permit term				
<input type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

Performance standard for this task is aiming for a decrease in enforcement actions taken by County Stormwater staff over the course of the 2008 permit term to show a change in behavior that promotes stormwater pollution prevention and elimination of non-stormwater discharges. A change in industry behavior that prevents stormwater pollution and illicit discharges would result in fewer complaints filed with the County and less observed violations by County field staff. Fewer observed and reported complaints could be viewed as an increase in industry awareness and a positive change in behavior.

Assessment Results

The current data set provides only three years of comparable progressive enforcement data. The 2008/2009 fiscal year data reported the combined number of all enforcement actions conducted by County Stormwater staff and did not separate the residential and industrial enforcement actions. Also, the data is limited since the complete 2012/2013 fiscal year data is not available. The currently available data indicates an increase in progressive enforcement has occurred during the 2008 permit term; and thus, the performance standard is not being met. Table A-3.2-6 summarizes the number of progressive enforcement actions taken by County Stormwater staff during the 2008 permit term.

The increase in progress enforcement from the 2009/2010 fiscal year to the 2011/2012 fiscal year could be attributed to an increase in behavior warranting enforcement. Alternatively, it could be attributed to an increase in public awareness of illicit discharge identification and reporting. Also, County field staff's awareness of illicit discharge and reporting procedures was identified as above average with the employee surveys conducted during the 2008 permit term. Being that most of the enforcement actions are complaint driven, the increase in the number of enforcement actions can be seen as an increase in public/County staff awareness and a change in behavior (Effectiveness Outcome Level 3) that results in an increase in reported illicit discharges and prohibited conditions.

Table A-3.2-6 Number of Industrial Enforcement Actions Taken by County Stormwater Staff

Fiscal Year	Progressive Enforcement Conducted			Total
	Verbal Warning	Written Warning	NOV	
08/09*	23	42	58	123
09/10	3	9	15	27
10/11	3	11	12	26
11/12	6	7	23	36

*Industrial and residential complaints were reported together

Recommendations

Recommend continuation of conducting enforcement and tracking progressive enforcement data. Recommended changes for the next permit term would be to discontinue the performance standard aimed at reducing the number of enforcement actions. Suggested performance standard for the next permit term will be to track the effectiveness of inspections and associated educational and enforcement activities and to aim for a 100% RTC rate.

CI.2.5 CBSCP database - track inspections, enforcement and outreach materials distributed,

2008 PERMIT REFERENCE 9.a.iii-viii	PERFORMANCE STANDARD Use data to adjust and improve program				
<input type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

Performance standard was developed to review enforcement data and identify potential improvements in the CBSCP. The assessment of data could yield information that would result in new outreach material for targeted industry types or adjustments to enforcement related activities. Identified areas for improvement and change would result in a change in County Stormwater staff's behavior (Effectiveness Outcome Level 3).

Results

The review of past enforcement and compliance assistance activities performed by County Stormwater staff resulted in the adding of HVAC facilities to our industry outreach distribution list during the 2008 permit term. Adding this industry accomplishes our performance standard goal.

Recommendations

Recommend deletion of this task for the next permit term. Assessment of data related to enforcement and outreach will continue to be performed in the next permit term, yet addressed through various other tasks and performances standards designed to identify improvements to the program.

CI.3 Outreach

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

A-3.3 City of Sacramento Summary

Element Goal

The goal of the Commercial/Industrial Element is to reduce or eliminate the discharge of pollutants into the City of Sacramento (Sacramento City) storm drainage system that are produced from all types of business activities to the maximum extent practicable (MEP). Thus, the City, in conjunction with the Sacramento County Environmental Management Department (EMD), developed and is implementing programs that investigate, regulate, and/or educate owners, operators, and/or tenants of industrial and commercial businesses within the City.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CI.1 Legal Authority

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CI.2 Complaint-based Storm Water Compliance Program (CBSCP)

CI.2.2 Continue to conduct enforcement

2008 PERMIT REFERENCE D.9.a.iii-viii	PERFORMANCE STANDARD Reduction in the number of repeat violations/offenders within a two year period				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 3	FY 11/12 3	FY 12/13 3

Assessment Methodology, Results and Recommendations

Stormwater Program staff continued to implement the CBSCP by effectively responding to, documenting, prioritizing, and inspecting 100 percent of all the water quality-related complaint calls received. The CBSCP effectiveness was evaluated by tracking repeat violations/offenders within a two year period during the 2010/2011 and 2011/2012 fiscal years.

From the 2008/2009 fiscal year to the 2009/2010 fiscal year, there were four (4) sites with reported multiple violations/offences during the two-year period. From the 2009/2010 fiscal year to the 2010/2011 fiscal year, there were four (4) sites with reported multiple violations/offences during the two-year period. A comparison of the data from those two time period does not show a reduction or an increase in the number of repeat violators/offenders within any two year period. During the 2011/2012 fiscal year, Stormwater Program Staff re-visited all reported complaints that resulted in an actual violation of the City's Ordinance for the periods of 2008/2009 to part of 2011/2012. In total 54 re-inspections took place and only one repeat violation was observed during this assessment. However, since a majority of the facilities did not have repeated complaints or violations at their facilities, this activity does demonstrate an Outcome Level of Level 3 - Change in Behavior.

Since different numbers of complaint calls are received every year (e.g., 78 for the 2009/2010 fiscal year, 58 for the 2010/2011 fiscal year), it is challenging to compare year-over-year data. However, the low number of repeated offenders compared to the total number of annual calls shows that first time violators are being properly educated.

Stormwater Program staff recommends that this key indicator assessment be modified to be consistent with other Permittees and focus on response time to investigate complaints and percentage of issues corrected.

Stormwater Program staff will continue to track the types of businesses, problems and violations to determine if new or better educational or inspection programs are needed to reduce or eliminate the discharge of pollutants from business activities.

CI.3 Training and Outreach

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

A-3.4 City of Citrus Heights Summary

Element Goal and Introduction

The goal of the Commercial/Industrial Element is to reduce the discharge of stormwater pollutants to the maximum extent practicable and to effectively eliminate illegal non-stormwater discharges from commercial and industrial facilities and operations in the Citrus Heights.

The City has a MOU with Sacramento County EMD to conduct triennial inspections as required by the stormwater permit of over 270 commercial/industrial facilities in Citrus Heights. The types of facilities are described in Table 5.4-1 (Refer to Annual Report) to characterize the make-up of the City’s commercial and industrial sectors. The majority of these facilities are restaurants, and there a quite a few gas stations and auto repair shops, but virtually no industry. The EMD MOU authorizes trained and qualified EMD inspectors to conduct inspections and issue enforcement actions, using the legal authority provided by the City’s Stormwater Ordinance. EMD also passed a fee ordinance in 2004 which authorizes the agency to recover costs from the industrial and commercial facilities inspected so that the City’s other funding sources are not unduly burdened. The work performed by EMD on the City and other Permittees’ behalf is described in Chapter 2 (Section 2.7).

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. See Annual Reports for the Effectiveness Outcome Level 1 reporting.

CI.1 Legal Authority

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CI.2 Complaint-Based Stormwater Compliance Program (CBSCP)

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at outcome Level 2 or above as described below.

CI.2.3 Conduct enforcement (incl. warnings, NOVs, Cease and Desist Orders, ACPs, and Cost Recoveries)

2008 PERMIT REFERENCE 9.a.iii-viii	PERFORMANCE STANDARD Decrease in enforcement actions from one permit cycle to the next				
<input type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology, Results and Recommendations

Sacramento County Environmental Management Department provides enforcement for illegal non-stormwater discharges from commercial and industrial facilities and operations in the Citrus Heights. Refer to Sacramento County for assessment methodology, results and recommendations.

CI.2.4 Maintain CBSCP database to track inspections, enforcement and outreach materials distributed to businesses by category

2008 PERMIT REFERENCE 9.a.iii-viii	PERFORMANCE STANDARD Use data adjust and improve program				
<input type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology, Results and Recommendations

Sacramento County Environmental Management Department provides enforcement for illegal non-stormwater discharges from commercial and industrial facilities and operations in the Citrus Heights. Refer to Sacramento County for assessment methodology, results and recommendations.

CI.3 Outreach

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

A-3.5 City of Elk Grove Summary

Element Goal and Introduction

The primary goal of the Commercial/Industrial Element is to continue to ensure that all the requirements of the Stormwater Permit are met, by conducting the various administrative and coordination activities described below. The main goal is to reduce the discharge of stormwater pollutants to the maximum extent practicable and to eliminate illegal stormwater discharges from commercial and industrial facilities.

Sacramento County Environmental Management Department (EMD) conducts triennial stormwater compliance inspections and complaint response inspections on behalf of the City of Elk Grove at all auto body, auto dealer, auto repair, equipment rental, nursery, kennel, restaurant, retail gasoline outlets, and General Industrial Stormwater Permit facilities. Triennial inspections are designed to ensure that facility operators are in compliance with the local Stormwater Ordinance. Inspection criteria includes elimination of unauthorized non-stormwater discharges and illicit connections, and ensuring that BMPs are being implemented to reduce stormwater pollution to the MEP. At General Permit facilities, WDID# and presence of an up to date, site-specific SWPPP is also confirmed. Appropriate compliance information and literature is always provided to the operator at time of inspection.

As of July, 2011, there were about 400 commercial/industrial facilities in Elk Grove that were subject to EMD inspections. Of the 400, restaurants make up about 70%, with gas stations and auto repair shops together representing about 20% and auto body shops, auto dealers, nurseries, kennels, equipment rental companies and State General Permitted facilities making up the remaining 10%. The existing MOU between the City and EMD authorizes EMD inspectors to conduct inspections and issues enforcement actions using legal authority provided by the City's Stormwater Ordinance. EMD directly collects fees from the businesses it inspects.

For the commercial businesses located in the City that are not addressed by EMD, the City responds to reports of pollution through its illicit discharge program. The City also takes referrals from EMD and the general public regarding illicit connections and illegal dumping. The City has found that its progressive enforcement approach has been successful in achieving compliance. The City continues to refer to EMD for inspection and investigation of any complaints related to business includes in EMD's program.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CI.1 Legal Authority

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CI.2 Complaint-Based Stormwater Compliance Program (CBSCP)

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CI.3 Outreach

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

A-3.6 City of Folsom Summary

Element Goal and Introduction

The goal of the Commercial/Industrial Element is to comply with the requirements of Provision 9 of the 2008 Stormwater Permit by reducing the discharge of stormwater pollutants to the maximum extent practicable and eliminating illegal non-stormwater discharges from commercial and industrial facilities and operations within the City of Folsom.

Folsom contracts with others to most effectively perform many of the activities required for this program element. The City has a memorandum of understanding (MOU) with Sacramento County EMD to conduct triennial inspections of certain commercial and industrial facilities as required by the stormwater permit. As of July 2012, there were over 300 commercial/industrial facilities in Folsom subject to EMD inspections. Of those, restaurants make up the largest part (almost 85%), with gas stations and auto repair shops together representing about 10% of the total industries inspected, and auto dealers, auto body shops, kennels and facilities covered by the State's Industrial General Permit making up the remainder. The MOU authorizes trained and qualified EMD inspectors to conduct inspections and issue enforcement actions using the legal authority provided by the City's Stormwater Ordinance. EMD collects fees from the industries to fund its work. The work performed by EMD on the City's behalf is described in Section A-3.1 of this chapter.

For commercial businesses in the City not addressed by the EMD program, the City handles reports of pollution problems largely through its illicit discharge program discussed in Section A-5.6. The City takes referrals from EMD for problems observed at businesses not included in their inspection program. The City investigates these cases, along with illicit discharge complaints from the public, City staff/field crews, the Regional Water Board and other sources, as described in Section A-5.6. Examples of cases that might be referred include observed pollution problems with mobile businesses such as carpet cleaners and pressure washers. The City Stormwater Inspector is the primary responder to complaints. The Fire Department, Hazmat Division and Code Enforcement Division also respond to certain complaints and illicit discharges. The City's complaint-based program typically involves an initial inspection, follow-up investigations as needed, delivery of educational materials/guidance, and enforcement as needed. The City has found its progressive enforcement procedures, in combination with targeted outreach to business operators and their employees, to be successful in achieving compliance without the need to pursue monetary fines. The City refers to EMD for investigation of any complaints related to businesses included in EMD's program.

Folsom and other permittees contract with the Business Environmental Resource Center (BERC) to conduct outreach to businesses on a regional basis (see Section A-6 of this chapter). Additional local outreach is conducted by Folsom's stormwater inspector when he responds to complaints and referrals; for the most part, that outreach is described in Section A-5.6 (illicit discharge).

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CI.1 Legal Authority

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CI.2 Complaint-Based Stormwater Compliance Program (CBSCP)

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at outcome Level 2 or above as described below.

CI.2.3 Conduct enforcement (incl. warnings, NOVs, Cease and Desist Orders, Administrative Violations, and Cost Recoveries)

2008 PERMIT REFERENCE 9.a.iii-viii	PERFORMANCE STANDARD Increase in incidents addressed from one permit cycle to the next				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

Before and at the start of the 2008 permit term (FY 2008/09 and previous years), this activity was assessed at Outcome Level 1 by simply reporting the numbers of incidents reported and investigated each year. Starting in FY 2009/10, a new performance standard was created for this task. The objective of this performance standard was to demonstrate the assumption that as the City Stormwater Quality Program matures and increases awareness amongst the community, business operators and employees, there would be an increase in the number of incidents reported and therefore needed to be investigated (City employees are required to investigate all public complaints). The increase in complaints and referrals would be an indication that the public's behavior related to reporting incidents had changed; Outcome level 3).

Assessment Results

During the 2008 stormwater permit term (during the period July 1, 2008 to June 30, 2012), the City responded to 343 reported complaints that included both business-related complaints and illicit discharge complaints. During the previous permit term (from July 1, 2003 to June 30, 2008), the City responded to 730 reported complaints. These total numbers are based on data reported in the City's annual reports and are also reported in section A-5.6 of this chapter (illicit discharge). The total numbers decreased from one permit cycle to the next, rather than increase as expected. Although the performance standard was not met, this could also be an indication of a more aware/informed public that is no longer causing illicit discharges to go to the storm drain system.

Recommendations

As reported in section A-5.6 of this chapter (illicit discharge), there are several factors which can influence a result of increases or decreases in complaints over time, and as described in the results section above, an increase or decrease is not a good indicator of effectiveness of the City's program. For this reason, the City does not recommend use of this performance standard as a key indicator for the next permit term. This is consistent with the proposed Partnership Illicit Discharges 5-Year Work Plan.

CI.2.4 CBSCP database - track inspections, enforcement and outreach materials distributed, businesses by category

2008 PERMIT REFERENCE 9.a.iii-viii	PERFORMANCE STANDARD Use data to adjust and improve program				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> TASK MODIFIED PER WORK PLAN/ANNUAL REPORT		<input type="checkbox"/> PERFORMANCE STANDARD MODIFIED PER WORK PLAN/ANNUAL REPORT		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

The objective of this performance standard was to require the City to evaluate the data in the CBSCP database at the end of the 2008 permit term and use the information to adjust and improve the program as needed.

Assessment Results

The City, along with the County and City of Sacramento evaluated the inspection and enforcement data to determine if changes were needed to the commercial/industrial inspection program and also the targeted outreach for certain businesses. Based on the data, it was decided that the businesses captured in the current commercial business inspection program and the businesses in which targeted outreach is performed, is in line with the needs demonstrated by the data and therefore, no changes are recommended.

Recommendations

None.

CI.3 Educational Outreach

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

A-3.7 City of Galt Summary

Element Goal and Introduction

The goal of the Industrial Element is to reduce the discharge of pollutants to the maximum extent practicable and to effectively eliminate illegal non-stormwater discharges from commercial and Industrial facilities and operations in the City of Galt.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CI.1 Legal Authority

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CI.2 Complaint-Based Stormwater Compliance Program (CBSCP)

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CI.3 Outreach

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

A-3.8 City of Rancho Cordova Summary

Element Goal and Introduction

The goal of the Commercial/Industrial Element is to comply with the requirements of Provision 9 of the Stormwater Permit by reducing the discharge of stormwater pollutants to the maximum extent practicable and eliminating illegal non-stormwater discharges from commercial and industrial facilities and operations within the urbanized area of the unincorporated County.

The Permittees are responsible for all other industrial activities performed within their jurisdictional boundaries that are not covered within the CISC. The Permittees refer to this as the Complaint-Based Stormwater Compliance Program (CBSCP). The CBSCP is primarily driven by complaints filled by the public, field staff, EMD inspectors, and observed violation by field staff.

The County of Sacramento Department of Water Resources (stormwater staff) conducts the CBSCP on behalf of the City of Rancho Cordova. The data provided in this section is representing activities performed within the boundaries of the City of Rancho Cordova.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CI.1 Legal Authority

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

CI.2 Complaint-Based Stormwater Compliance Program (CBSCP)

CI.2.3 Conduct enforcement (incl. warnings, NOVs, Cease and Desist Orders, ACPs, and Cost Recoveries)

2008 PERMIT REFERENCE 10.a.xi, 10.b.xi	PERFORMANCE STANDARD Decrease in enforcement actions over the course of the current permit term				
<input type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

Performance standard for this task is aiming for a decrease in enforcement actions taken over the course of the 2008 permit term to show a change in behavior that promotes stormwater pollution prevention and elimination of non-stormwater discharges. A change in industry behavior that prevents stormwater pollution and illicit discharges would result in fewer complaints filed with the County and less observed violations by County field staff. Fewer observed and reported complaints could be viewed as an increase in industry awareness and a positive change in behavior (Effectiveness Outcome Level 3).

Assessment Results

The current data set available provides with for only three years of progressive enforcement data. The 2008/2009 Fiscal Year data was reported as combined number of all enforcement conducted by County Stormwater Staff and not separated between residential and industrial enforcement actions. Also, the data is limited since the complete 2012/2013 Fiscal Year data is not available. With the current data set available, an decrease in progressive enforcement has occurred in 2008 permit term and so far the performance standard

is being met. Table A-3.8.1 summarizes the number of progressive enforcement actions taken by County Stormwater Staff during the 2008 permit term.

The decrease in progress enforcement from Fiscal Year 2009/2010 to Fiscal Year 2011/2012 could be attributed to an increase in public's awareness of illicit discharge prevention. Being that most of the enforcement actions are complaint driven, the decrease in the number of enforcement actions can be seen as an increase in public/County staff awareness and a change in behavior (Effectiveness Outcome Level 3) that results in an decrease in illicit discharges and prohibited conditions. Yet, a decrease in County field staff's during the 2008 permit term could also be a result of a decrease in violations observed and reported, therefore potential resulting in a decrease in enforcement actions. Further data would be necessary to identify the causes in the reduction of enforcement actions.

Table A-3.8.1 Number of Industrial Enforcement Actions in Rancho Cordova

Fiscal Year	Progressive Enforcement Conducted			Total
	Verbal Warning	Written Warning	NOV	
2008-2009*	3	4	11	18
2009-2010	3	3	2	8
2010-2011	3	2	3	8
2011-2012	1	0	5	6

*Industrial and residential complaints were reported together

Recommendations

Recommend continuation of conducting enforcement and tracking progressive enforcement data. Recommended changes for the next permit term would be to discontinue performance standard aimed at reducing the number of enforcement actions. Suggested performance standard for the next permit term will be to track the effectiveness of inspections and associated educational and enforcement activities and to aim for a 100% RTC rate.

CI.2.5 CBSCP database - track inspections, enforcement and outreach materials distributed, businesses by category

2008 PERMIT REFERENCE 10.a.xi, 10.b.xi	PERFORMANCE STANDARD Use data to adjust and improve program				
<input type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

Performance standard developed to review enforcement data to identify potential improvements in the CBSCP. The assessment of data could yield information that would result in new outreach material for targeted industry types or adjustments to enforcement related activities. Identified areas for improvement and change would result in a change in County behavior (Effectiveness Outcome Level 3).

Assessment Results

The review of past enforcement and compliance assistance activities performed by County stormwater staff resulted in the adding of HVAC facilities to our Industry Outreach distribution list during the 2008 permit term. Adding this industry accomplishes our performance standard goal.

Recommendations

Recommend deletion of task for the next permit term. Assessment of data related to enforcement and outreach will continue to be performed in the next permit term, yet addressed through various other tasks and performances standards designed to identify improvements to the program.

CI.3 Outreach

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

A-4. Municipal Operations Element

A-4.1 Partnership Activities

There are no Partnership-specific activities for this element.

A-4.2 County of Sacramento

Element Goal and Introduction

The goals of the Municipal Operations Element are to control stormwater pollution potentially resulting from operation and maintenance of County-owned facilities and infrastructure and to set an example of model pollution prevention for the public.

The Municipal Operations Element addresses stormwater pollution prevention through implementing Best Management Practices (BMPs) during operation and maintenance activities conducted at fixed locations (e.g., buildings, corporation yards, vehicle maintenance garages, parks) and in the field (e.g., operation of roads/right of way and utility infrastructure) throughout the County's jurisdiction. Examples of activities which have the potential to contribute pollutants to runoff and the storm drain system include: construction of capital improvement and other projects; landscape and pest management; corporation yard management; and operation and maintenance of the storm drain system (including detention basins), streets and parking facilities. The County Department of Water Resources (DWR) Stormwater Quality Section (stormwater staff) oversees and guides the work and conducts some of the tasks, but various departments throughout the County provide significant and essential resources and support services to implement the work described in the Stormwater Quality Improvement Plan (SQIP). These departments include: Water Resources, General Services, Regional Parks, Transportation, Waste Management, Sheriff and Airports. The stormwater staff coordinates with staff in these departments on a regular basis, provides access to outreach materials and other resources, and provides annual stormwater refresher training to targeted employees.

This element does not address facilities owned by, or activities conducted by, entities outside of the County's jurisdictional control. For example, the only fire-fighting activities within the County's jurisdiction are associated with the airports; the rest are handled by Sacramento Metro Fire District.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.1 Illicit Discharge Response

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.2 New Development and Construction Requirements for Municipal Capital Improvements Projects

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.3 Facility Management

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Effectiveness Outcome Level 2 or above as described below.

MO.3.3 Assess Municipal SWPPP effectiveness

2008 PERMIT REFERENCE NA	PERFORMANCE STANDARD Identify changes in BMP implementation and employee behavior.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

During the 2002 permit term, the County assessed all County-owned facilities and developed Municipal Storm Water Pollution Prevention Plans (Municipal SWPPPs) for County facilities that were not covered under the State Industrial General Permit, had the potential for pollutant exposure, and/or potential to discharge pollutants to the storm drain system. In the process of creating the Municipal SWPPPs, the County educated facility personnel and corrected observed conditions that had the potential to expose or discharge pollutants to the storm drain system. During the 2008 permit term, the facilities with Municipal SWPPPs were evaluated for effectiveness in preventing pollutant exposure and/or discharges to the storm drain system through site inspections. Inspections were conducted in 2010 and again in 2012. Site inspections included Municipal SWPPP review, inspection of the facility to identify activities not addressed within the Municipal SWPPP, current conditions of the facility, and department communication of inspection findings and any necessary Municipal SWPPP adjustments. The goal of the evaluations was to verify Municipal SWPPP compliance as an indication of changed employee behavior by being aware of and implementing BMPS to prevent pollution (Effectiveness Outcome Level 3).

Assessment Results

Municipal SWPPP inspections were conducted in 2010 and again in 2012. Both rounds of inspections resulted in the need for minor Municipal SWPPP updates to correct facility contact information, but no pollutant exposure or discharges to the storm drain system were identified. Table A-4.2-1 provides a summary of the inspection results, which show that each facility was in compliance with the Municipal SWPPP. This observed change in facility activities and employee behavior is an indication that Effectiveness Outcome Level 3 was achieved. The performance standard for this activity was met.

The County believes this program has been successful because the facility personnel were educated before the Municipal SWPPPs were put in place and were told that inspections would be conducted periodically to assess compliance

Table A-4.2-1 Municipal SWPPP Inspection Results, FY 08/09 – 11/12

Department Name	Facility Name	Activities Conducted	Inspection Dates	Inspection Notes	Facility Notes
General Services (DGS)	Florin Garage	Vehicle Maintenance Vehicle Fueling	6/18/2010 7/12/2012	Facility was compliant with Municipal SWPPP at both inspections. All vehicle maintenance is performed indoors. DGS implements an Emergency Action Plan, Hazardous Materials Plan and Spill Prevention and Countermeasure Control Plan at this site	Facility Active
	North Garage	Vehicle Maintenance Vehicle Fueling Vehicle Washing	6/18/2010 7/5/2012	Facility was compliant with Municipal SWPPP at both inspections. All vehicle maintenance is performed indoors. Vehicle washing is conducted in a wash bay plumbed to sanitary sewer. DGS implements an Emergency Action Plan, Hazardous Materials Plan and Spill Prevention and Countermeasure Control Plan at this site	Facility Active

Department Name	Facility Name	Activities Conducted	Inspection Dates	Inspection Notes	Facility Notes
	South Garage	Vehicle Fueling	6/18/2010 7/12/2012	Facility in compliance with Municipal SWPPP at both inspections. Facility provides vehicle fueling for County vehicles. No other activities performed at this site. DGS implements an Emergency Action Plan, Hazardous Materials Plan and Spill Prevention and Countermeasure Control Plan at this site.	Facility Active
	Marconi Garage	Vehicle Fueling Vehicle Maintenance	6/18/2010 7/5/2012	Facility in compliance with Municipal SWPPP at both inspections. Facility provides vehicle fueling for County vehicles. No other activities performed at this site. DGS implements an Emergency Action Plan, Hazardous Materials Plan and Spill Prevention and Countermeasure Control Plan at this site. All vehicle maintenance is performed indoors. Vehicle smog check performed at this site. No major auto repair performed. Facility closing soon.	Facility Active. Vehicle fueling only. Vehicle maintenance no longer due to Sheriff's department moving out of facility.
	Rockingham	Vehicle Maintenance	6/18/2010 See Notes	Facility was compliant with Municipal SWPPP. All vehicle maintenance at this site is performed indoors.	Facility closed prior to 2012 inspections. Department will restore Municipal SWPPP if facility re-open
Transportation (DOT)	Roseville & Watt Satellite Storage Yard	Material Storage	6/17/2010 7/12/2012	Facility was compliant with Municipal SWPPP at both inspections. Hazardous materials stored on-site in a storage shed. Lose material stored on-site with containment walls.	Facility Active
	Sailor Bar Satellite Storage Yard	Material Storage	6/16/2010 7/19/2012	Facility was compliant with Municipal SWPPP at both inspections. Facility located within American River Parkway. No storm drains or pervious surface at facility.	Facility Active
Sheriff's	Garfield Sheriff's Station	Vehicle Washing	6/18/2010 7/5/2012	Facility was compliant with Municipal SWPPP at both inspections. All vehicle wash water is discharged to sanitary sewer.	Facility Active
	Florin Sheriff's Station	Vehicle Washing	6/18/2010 7/12/2012	Facility was compliant with Municipal SWPPP at both inspections. All vehicle wash water is discharged to sanitary sewer.	Facility Active
	Marconi Sheriff's Station	Vehicle Washing	See Notes	No inspection conducted. Facility closed.	Facility closed prior to 2010 inspections. Department will restore Municipal SWPPP if facility re-open
	Northwest Sheriff's Station	Vehicle Washing	See Notes	No inspection conducted. Facility closed.	Facility closed prior to 2010 inspections. Department will restore Municipal SWPPP if facility re-open
	Rio Cosumnes Correctional Center	Vehicle Washing	6/24/2010 See Notes	Facility was compliant with Municipal SWPPP.	Facility located outside of the Permit area. No further inspections required.
	Rockingham Sheriff's Station	Vehicle Washing	6/17/2010 See Notes	Facility was compliant with Municipal SWPPP. All vehicle wash water is discharged to sanitary sewer.	Facility closed prior to 2012 inspections. Department will restore Municipal SWPPP if facility re-opens
	Bond Road Sheriff's Station	Vehicle Washing	6/18/2010 7/12/2012	Facility was compliant with Municipal SWPPP at both inspections. All vehicle wash water is discharged to sanitary sewer. Facility closing.	Sheriff Station Closed. Facility still active for vehicle fueling and vehicle washing.

Recommendations

Recommend continuing this task and adjusting the performance standard for the next permit term to assess the compliance with site-specific pollution prevention plans at Effectiveness Outcome Level 3.

MO.4 Integrated Pest Management Program

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.5 Storm Drain System Maintenance

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Effectiveness Outcome Level 2 or above as described below.

MO.5.1 Maintain the storm drain system (e.g., drain inlets, ditches/channels, detention basins and pump stations) to remove debris accumulation and prevent flooding

2008 PERMIT REFERENCE 10.a.v., 10.b.iv.	PERFORMANCE STANDARD Decrease amount of waste discharged to waters of the State. Document amount of waste removed.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 4	FY 09/10 4	FY 10/11 4	FY 11/12 4	FY 12/13 4

Assessment Methodology

The County’s storm drain system maintenance program is assessed by tracking and reporting the quantity of waste collected from the system each year by County maintenance crews. The total amount of waste removed is assumed to approximately correlate to the amount of waste prevented from entering receiving waters and provides for an Effectiveness Outcome Level 4 (pollutant loads reduced from sources).

Assessment Results and Recommendations

Table A-4.2-2 summarizes the data recorded to date for the 2008 permit term, which shows that over 4000 cubic yards of waste was removed from the storm drain system in four years. The performance standard for this task was met. The County recommends continuing this activity and performance standard for the new permit term.

**Table A-4.2-2
Quantity of Waste Removed During Storm Drain System Maintenance, the FY 08/09–11/12**

Type of Facility	Quantity of Waste Removed Per Year (cy)				Total Quantity of Waste Removed in Cubic Yards
	08/09	09/10	10/11	11/12	
Mainline Pipes	65	45	69	59	265
Lateral Pipes	889	993	923	783	3588
Storm Drain Inlets	*	57	186	108	351
Storm Drain Manholes	18	4	12	12	46
Stormwater Pump Stations (Sump Cleaning Program)	*	*	*	*	*
Manhole Sumps (Sump Cleaning Program)	*	*	*	*	*
Totals:	972	1099	1191	964	4226

* Quantities of waste removed from these facilities are included in the Storm Drain Manhole total.

Recommendations

Recommend continuation of storm drain system maintenance. Recommend changing performance standard language to maintain the storm drain system (e.g., channels, drain inlets, detention basins, pump stations and sumps) to remove debris and prevent flooding (Effectiveness Outcome Level 1). This task will be used in the proposed assessment activity of tracking and recording data related to debris removed from the storm drain system during maintenance activities to quantify the amount of debris prevented from entering receiving waters (Effectiveness Outcome Level 4).

MO.5.2 Clean prioritized catch basins and sumps

2008 PERMIT REFERENCE NA	PERFORMANCE STANDARD Decrease amount of waste discharged to waters of the State. Document amount of waste removed.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 4	FY 09/10 4	FY 10/11 4	FY 11/12 4	FY 12/13 4

Assessment Methodology, Results and Recommendations

Catch basin and sump maintenance are reported above for task MO.5.1.

MO.5.3 Visually monitor Permittee owned open channels and perform maintenance to remove waste and accumulated trash

2008 PERMIT REFERENCE NA	PERFORMANCE STANDARD Decrease amount of waste discharged to waters of the State. Document amount of waste removed.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 4	FY 09/10 4	FY 10/11 4	FY 11/12 4	FY 12/13 4

Assessment Methodology

The effectiveness of the County’s open channel maintenance program is assessed by tracking and reporting the quantity of waste collected from concrete lined channels and unlined open channels each year by County maintenance staff. The total amount of waste removed is assumed to approximately correlate to the amount of waste prevented from entering receiving waters and provides for an Effectiveness Assessment Outcome level 4 (pollutant loads reduced from sources).

Assessment Results

Table A-4.2-3 and Figure A-4.2-1 summarize the quantities of waste removed from open channel maintenance between 2004 and 2011, including the number of miles maintained and the average quantity of waste removed per mile maintained. The County switched in July of 2011 to recording waste removed in tonnage, so Table A-4.2-3 only summarizes quantities recorded in cubic yards. Over 16,000 cubic yards of waste were removed from the system and thus prevented from entering receiving waters (Effectiveness Outcome Level 4, reduce pollutant loads from sources). The performance standard was met for this activity.

One might expect that the amount of waste removed in a particular year would increase as the miles maintained increased. However, as shown in Figure A-4.2-2, there does not appear to be a correlation between miles maintained and quantities of waste removed. This might be due to the unpredictability of the maintenance activities, staffing, neighborhood types, drainage facility age and fluctuations in annual rainfall amounts from year to year. A conclusion can still be drawn that for every mile maintained, the County averaged 71 cubic yards of waste removed from concrete-lined channels and 9 cubic yards from unlined open channels.

Table A-4.2-3 Cubic Yards of Waste Removed Per Mile Maintained

Facility Type	Fiscal Year	Waste Removed (cubic yards)	Miles Maintained	Cubic Yards removed / mile maintained
Concrete lined channels	04/05	460	77	6
Concrete lined channels	05/06	487	32	15
Concrete lined channels	06/07	826	59	14
Concrete lined channels	07/08	575	50	12
Concrete lined channels	08/09	1080	15	72
Concrete lined channels	09/10	1658	38	44
Concrete lined channels	10/11	2672	30	89
Totals		7758	301	31
Unlined open channels	04/05	1879	138	14
Unlined open channels	05/06	221	88	3
Unlined open channels	06/07	304	365	1
Unlined open channels	07/08	299	126	2
Unlined open channels	08/09	1270	76	17
Unlined open channels	09/10	877	59	15
Unlined open channels	10/11	922	113	8
Totals		5772	965	6

Figure A-4.2-1 Cubic Yards of Waste Removed from Creek and Channel Maintenance

Quantity of Waste Removed Creek and Maintenance

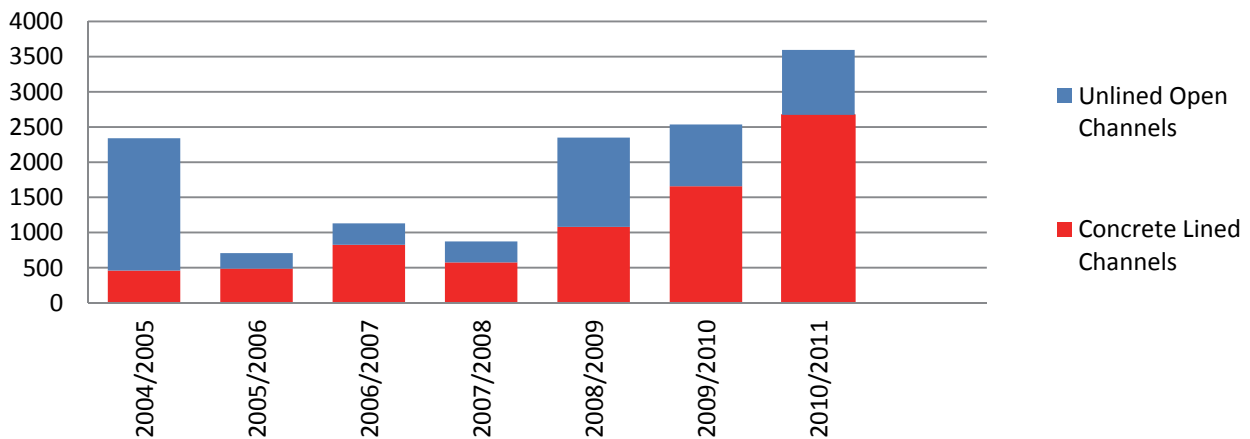
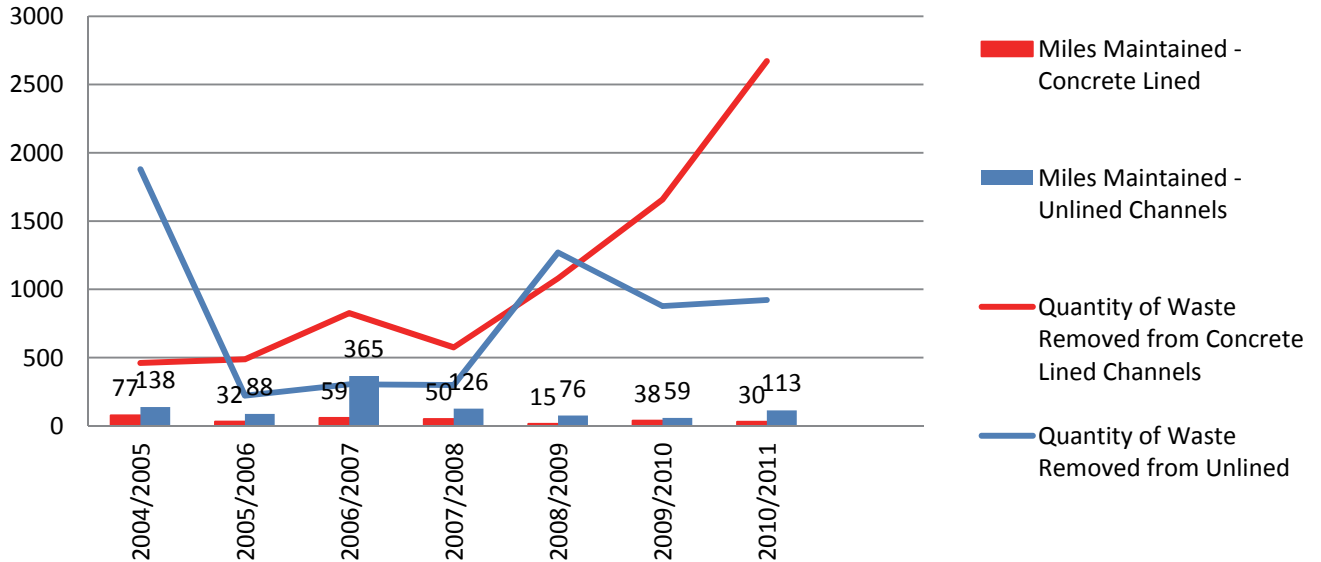


Figure A-4.2-2 Correlation between Miles Maintained and Quantity of Waste Removed from Open Channel Maintenance

Correlation Between Miles Maintained and Quantity of Waste Removed



Recommendations

Recommend continuation of storm drain system maintenance. Recommend changing performance standard to maintain the storm drain system (e.g., channels, drain inlets, detention basins, pump stations and sumps) to remove debris and prevent flooding (Effectiveness Outcome Level 1). This task will be used in the proposed assessment activity of tracking and recording data related to debris removed from the storm drain system during maintenance activities to quantify the amount of debris from entering receiving waters (Effectiveness Outcome Level 4).

MO.6 Storm Drain Stenciling Program

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.7 Street Sweeping Program

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Effectiveness Outcome Level 2 or above as described below.

MO.7.1 Conduct street sweeping activities

2008 PERMIT REFERENCE 10.a.vii, 10.b.v.	PERFORMANCE STANDARD Decrease amount of waste discharged to waters of the State. Document amount of waste removed.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 4	FY 09/10 4	FY 10/11 4	FY 11/12 4	FY 12/13 4

Assessment Methodology

The effectiveness of the County's street sweeping program is assessed by tracking and reporting the quantity of waste collected from street sweeping each year. The total amount of waste removed is assumed to approximately correlate to the amount of waste prevented from entering the storm drain system and receiving waters and provides for an Effectiveness Outcome Level 4 (pollutant loads reduced from sources).

Assessment Results

Table A-4.2-4 summarizes the quantity of waste removed from street sweeping activities and total miles swept over the past 7 years. Nearly 45,000 cubic yards of debris/waste was removed from County streets during that period (over 27,000 cubic yards for the 2008 permit term to date) and therefore prevented from discharging to local receiving waters. The performance standard for this activity was met by reducing the loads of waste discharged to the receiving water (Effectiveness Outcome Level 4).

The decrease in miles swept over the course of the 2008 permit term is due to the County's economic constraints that caused a reduction in funds allocated for street sweeping. Yet, the County continued to sweep priority A and B streets at the frequencies established in the 2008 SQIP.

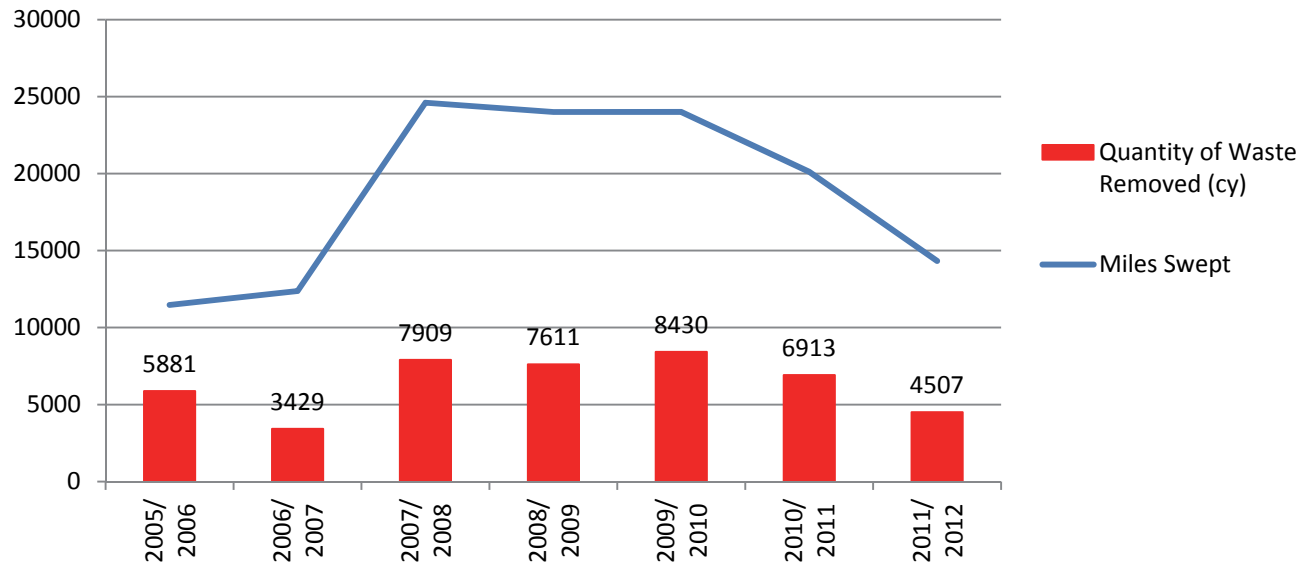
Table A-4.2-4 Quantity of Waste Removed from Street Sweeping

Fiscal Year	Priority Street	Sweeping Frequency	Units	Approximate Total Length	Miles Swept	Qty of Waste Removed
05/06	A	1/month	Curb Miles	NA	7547	*
	B	6/year	Curb Miles	NA	1277	*
	C	1/year	Curb Miles	NA	2647	*
total					11471	5881
06/07	A	1/month	Curb Miles	NA	7932	*
	B	6/year	Curb Miles	NA	1968	*
	C	1/year	Curb Miles	NA	2470	*
total					12370	3429
07/08	A	1/month	Curb Miles	NA	720	*
	B	6/year	Curb Miles	NA	5670	*
	C	6/year	Curb Miles	NA	18217	*
total					24607	7909
08/09	A	1/month	Curb Miles	60	720	*
	B	6/year	Curb Miles	945	5670	*
	C	6/year	Curb Miles	6072	17610	*
total					24000	7611
09/10	A	1/month	Curb Miles	60	720	*
	B	6/year	Curb Miles	945	5670	*
	C	6/year	Curb Miles	6072	17610	*
total					24000	8430
10/11	A	1/month	Curb Miles	60	720	*
	B	5/year	Curb Miles	787	4725	*
	C	5/year	Curb Miles	5060	14675	*
total					20120	6913
11/12	A	1/month	Curb Miles	60	1339	*
	B	6/year	Curb Miles	787	5843	*
	C	2/year	Curb Miles	5060	7143	*
total					14325	4507
Grand Total					130893	44680

* Quantities of waste removed from priority street type are not recorded separately. All quantities for each fiscal year are reported as one total.

One might expect that the amount of waste removed in a particular year would increase as the miles maintained increased. However, as shown in Figure A-4.2-3, there does not appear to be a direct correlation between quantity of waste removed and miles swept from year to year. Figure A-4.2.3 demonstrates the variability of data from year to year when comparing miles swept versus quantity of waste removed. The data fluctuates each year due to neighborhood type, amount of sweeping complaint responses, foliage density and annual rainfall amounts.

Figure A-4.2.3 Miles of Street Swept Compared to Quantity of Waste Removed



Recommendations

Recommend continuation of County street sweeping program. Recommend changing performance standard to maintaining the street sweeping program to minimize the build-up and discharge of pollutants to the storm drain system (Effectiveness Outcome Level 1). This task will be used in the proposed assessment activity of tracking and recording data related to debris removed from streets during maintenance activities to quantify the amount of debris prevented from entering the storm drain system (Effectiveness Outcome Level 4).

MO.8 Parking Lot Maintenance

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.9 Non-Emergency Fire Fighting Flows

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.10 Employee Training

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at outcome Level 2 or above as described below.

MO.10.2 Assess effectiveness of employee training

2008 PERMIT REFERENCE 10.a.xi, 10.b.xi	PERFORMANCE STANDARD Maintained/Increased employee awareness as measured by surveys during annual training.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 2	FY 11/12 2	FY 12/13 2

Assessment Methodology

The County provides annual stormwater pollution prevention training all field maintenance staff. Starting in the 2010/2011 fiscal year, surveys were distributed at the end of the training session with 5-6 post training questions that were related to the material covered during the training. The purpose of the survey was to verify that employees learned something new and were more aware of stormwater pollution prevention methods as a result of the training (Effectiveness Outcome Level 2). The goal was to demonstrate over time that the employees maintained or increased their awareness.

Assessment Results

Surveys were conducted during the annual stormwater employee training in 2011 and 2012 to measure employee awareness of stormwater pollution prevention practices during maintenance activities, corporation yard management, emergency responses, and identification and reporting procedures for illicit connections and discharges. The goal was to achieve an average survey score of at least 80%; this would indicate a fairly high degree of knowledge and awareness by the employees. Table A-4.2-5 summarizes the employee survey results from 2011 and 2012. The results from the 2011 evaluation showed an average survey score of 91.5%, which indicated a very high level of awareness. The 2012 survey results increased to an average test score of 97%, showing not only a high level of employee awareness but also a slight increase in the average score from the previous year. The performance standard for this activity was met.

Table A-4.2-5 Maintenance Employee Stormwater Training Survey Results

Department	Year	Number Trained	Training Topics	Average Survey Score
Department of Water Resources	2011	61	Stormwater Pollution Prevention BMPs during drainage maintenance activities, corporation yard management, Industrial General Permit awareness, and Illicit discharge and connection identification and reporting procedures	92% pass rate
	2012	115		91% pass rate
Department of Transportation	2011	57	Stormwater Pollution Prevention BMPs during road maintenance activities, corporation yard management, Industrial General Permit awareness, and Illicit discharge and connection identification and reporting procedures	97.5% pass rate
	2012	109		97% pass rate

Recommendations

Recommendations for the next permit term will be to continue with employee stormwater training. Recommend removal of performance standard related to employee surveys. Employees will be evaluated through the Illicit Discharge Element for their effectiveness at responding to and reporting illicit discharges and connections.

MO.11 Detention Basin Maintenance

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.12 Emergency Procedures

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

A-4.3 City of Sacramento Summary

Element Goal and Introduction

The goal of the Municipal Operations Element is to mitigate potential pollutants generated by municipal facilities and their activities to the maximum extent practicable (MEP), to continue pollutant reduction efforts performed by the Sacramento City Department of Utilities (DOU) staff, and to set an example of model pollution prevention for the public.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.1 Spill Response

All tasks in this category were assessed at effectiveness outcome level 1; see Annual Reports for the assessment results.

MO.2 New Development and Construction Requirements for Municipal Capital Improvements Projects

See Appendices A-2.3, Construction Element, and A-7.3, New Development Element for effectiveness assessment data.

MO.3 Pollution Prevention at City Facilities

MO.3.2.1 Obtain approval of developed Stormwater Pollution Prevention Plans (SWPPPs) and Facilities Pollution Prevention Plans (FPPPs) by responsible staff for implementation

2008 PERMIT REFERENCE D.10.a.iii., D.10.b.ii	PERFORMANCE STANDARD Show plans are developed and have been signed by an authorized City representative acknowledging acceptance of responsibility for implementation				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09	FY 09/10	FY 10/11	FY 11/12	FY 12/13
	2	2	2	2	NA

Assessment Methodology, Results and Recommendations

Increasing the number of signed/approved pollution prevention plans over the course of the permit term is the targeted objective of this task. Demonstrating and increasing pollution prevention plan approval by obtaining a signature of an authorized City representative is an Effectiveness Outcome Level 2 Assessment– Raising Awareness.

At the beginning of the Effectiveness Assessment evaluations (2009), 13 facilities were targeted to have their pollution prevention plans certified and signed by a City representative. Baseline was established in the 2009/2010 fiscal year and was calculated to be 23% (3 of 13), and took into consideration the number of these facilities that had SWPPP/FPPPs with signatures at the time of the earliest facility review in June 2004. Since the June 2004 review, additional signatures of authorized City representatives acknowledging implementation responsibility have been received; however, frequent turnover in City representatives have made keeping up with valid signatures cumbersome. Additionally, one (1) of the targeted facilities has been closed, maintenance operations at three (3) other targeted facilities have become privatized, thus leaving a total number of nine (9) targeted facilities remaining for the Effectiveness Assessment evaluation.

As of December 2012, there are now eight (8) out of nine (9) facilities currently that have valid certifications and signatures resulting in an Outcome Level 2 – Raising Awareness from 23% to 89% since the earliest facility review. Regular interaction and communication with City representatives and other appropriate City staff during inspections and implementation changes showed continued understanding of the stormwater requirements

Stormwater Program Staff recommends discontinuing this task as an assessment, and will focus on implementation assessments. Having signatures is not as valuable as the regular interaction with City representatives and other appropriate City staff during inspections and implementing changes at the facilities. Having a key indicator related to BMP implementation effectiveness has been found to be more appropriate. Stormwater Program staff will still continue obtaining signatures, but would like to incorporate this activity as a detail of an implementation task.

MO.3.7.4 Conduct inspection at established frequencies and audit facilities for conformance with site-specific pollution prevention plans

2008 PERMIT REFERENCE D.10.a.iii., D.10.b.ii	PERFORMANCE STANDARD Show an increase in the effectiveness ranking for all sites by the end of the permit term				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 3	FY 12/13 3

Assessment Methodology, Results and Recommendations

The initial assessment outcome of this task began at the Effectiveness Outcome Level 1 - Documenting Activities, and the goal was to show an Effectiveness Outcome Level 3 - Change in Behavior through improved BMP selection and through implementation and maintenance of the BMPs at targeted facilities in later years of the permit term.

In addition to gathering and documenting site-specific information during the documentation phase, review of facility-oriented BMPs from multiple sources was also included in the documentation process in order to establish a comprehensive list of possible BMPs. An inspection report for each site incorporates appropriate BMPs from that comprehensive list of BMPs, and an effectiveness ranking system establishes the baseline and subsequent effectiveness ranking scores for the BMPs implemented at each facility. By the end of the permit term, the desired result was to show an increase in the effectiveness ranking ("Site Score") for all targeted sites. Table A-4.3-1 lists the targeted facilities, the baseline site score developed at the beginning of implementation of pollution prevention plans, the most current site score collected based on inspections and comments that may be important for each of the targeted facilities. The assessment for this task was conducted through evaluating and comparing the site score with the baseline score for each facility.

Table A-4.3-1: Facility Site Scores for Targeted Facilities with Pollution Prevention Plans

Targeted Facilities	Baseline Site Score (%)	Most Current Site Score (%)	Comments
28 th Street Landfill (closed landfill)	N/A	N/A	This facility operates under a General Industrial Permit, and inspections are conducted by Landfill staff. BMP Effectiveness will be assessed through compliance with the permit. The facility will not be assessed through the effectiveness ranking system.
Sutter's Landing Maintenance Garage (located at the 28th St. Landfill)	100	100	The City ceased operations associated with the Sutter's Landing Maintenance Garage, so this facility is no longer one of the targeted facilities.

Targeted Facilities	Baseline Site Score (%)	Most Current Site Score (%)	Comments
Combined Wastewater Treatment Plant	72	79	
North Area Corporation Yard	57		Baseline finalized in October 2012, and first inspection with assessment to be conducted during the rainy season of the 2012/2013 fiscal year.
24th Street Corporation Yard	64		Baseline finalized in July 2012, and first inspection with assessment to be conducted during the rainy season of the 2012/2013 fiscal year.
Meadowview City Service Complex			Baseline to be finalized in the 2012/2013 fiscal year followed by two inspections with assessments conducted during the 2013/2014 fiscal year.
Kinney Police Garage	72	79	
Rooney Police Garage	73	81	
E.A. Fairbairn Water Treatment Plant	80	86	
Sacramento River Water Treatment Plant	85	91	
Bartley Cavanaugh Golf Course	100		The City privatized all golf course maintenance operations at these facilities shortly after inspections began, and they have been removed from the Targeted Facilities list. Haggin Oaks has been visited since the change in operations, and the organization and cleanliness of the facility has significantly improved under new operators.
Bing Maloney Golf Course	93		
Haggin Oaks Golf Complex	75		

Stormwater Program Staff recommends altering the performance standard for this task to maintaining a minimum 80% compliance with the facility pollution prevention plan at each facility.

MO.4 Landscape and Pest Management

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.5 Storm Drain System Maintenance

MO.5.1 Continue implementing the inspection and cleaning schedule for drainage collection system

2008 PERMIT REFERENCE D.10.a.v., D.10.b.iv	PERFORMANCE STANDARD Quantify total amount of waste removed within the entire drainage collection system, and estimate pounds of target pollutants removed				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 4	FY 09/10 4	FY 10/11 4	FY 11/12 4	FY 12/13 4

Assessment Methodology, Results and Recommendations

The total amount of waste removed from the entire drainage collection system is quantified in Table A-4.3-2 below. The waste removed includes sediment, vegetation and trash. Such waste removal qualifies as an Outcome Level 4 – Reducing Loads.

Table A-4.3-2: Quantity of Waste Removed from the Storm Drainage System

Type of facility	Quantity of Waste Removed (CY)			
	2008/2009 Fiscal Year	2009/2010 Fiscal Year	2010/2011 Fiscal Year	2011/2012 Fiscal Year
Underground storm drain main lines	105	376	660	736
Drainage inlets and associated leads				
Manholes				
Open drainage channels	30,000*	4,016	2,049	5,042
Screens				
Sump Stations	380	661	354	289
Totals:	30,485	5,053	3,063	6,067

* During the 2008/2009 fiscal year, drainage maintenance crews completed a Sacramento River project that generated significantly higher quantity of waste removed than reported in other years.

The maintenance activities result in the removal of pollutant mass associated with those sediments from the urban watershed, and reduction of its *potential* for eventual discharge to receiving waters. Stormwater Program staff recommends working with the Permittees to try to develop consistent metrics amongst all Permittees so that the data can be compiled, reported and assessed for the entire permit area using the Watershed Treatment Model during future effectiveness assessments.

MO.6 Street Cleaning and Maintenance

MO.6.1 Continue to implement street sweeping program

2008 PERMIT REFERENCE D.10.a.vii, D.10.b.v	PERFORMANCE STANDARD Quantify total amount of waste removed from street sweeping efforts, and estimate pounds of target pollutants removed				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report <input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report				
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 4	FY 09/10 4	FY 10/11 4	FY 11/12 4	FY 12/13 4

Assessment Methodology, Results and Recommendations

The total amount of waste removed during street sweeping operations is quantified in Table A-4.3-3 below. The waste removed includes sediment, vegetation and trash. The quantity of waste removed from street sweeping qualifies as an Outcome Level of Level 4 – Reducing Loads.

Table A-4.3-3: Quantity of Waste Removed during Street Sweeping Operations

Quantity of Waste Removed (tons)			
FY 08/09	FY 09/01	FY 10/11	FY 11/12
2,008*	1,142	1,117	953

*The quantity of waste removed for the 2008/2009 fiscal year is double due to the change in sweeping frequency in subsequent fiscal years. Economic impacts to the City's budget have led the City Council to approve a reduction in street sweeping services, and a new sweeping frequency for all streets with a curb and gutter was implemented beginning in the 2009/2010 fiscal year.

The street maintenance activities result in the removal of pollutant mass associated with those sediments from the urban watershed, and reduction of its *potential* for eventual discharge to receiving waters. Stormwater Program staff recommends working with the Permittees to try to develop consistent metrics amongst all Permittees so that the data can be compiled, reported and assessed for the entire permit area using the Watershed Treatment Model during future effectiveness assessments.

MO.7 Curbside Green Waste Collection

MO.7.1 Continue implementing the Voluntary Containerized Green Waste Program

2008 PERMIT REFERENCE D.4.b., 10.a.vii	PERFORMANCE STANDARD Increase participation in the voluntary program to 90% of customers (approximately 102,000)				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 3	FY 09/10 3	FY 10/11 3	FY 11/12 3	FY 12/13 3

Assessment Methodology, Results and Recommendations

Increasing participation in this voluntary containerization program to 90% over the course of the permit term is the targeted goal of this task. Increase participation in the voluntary program qualifies as Outcome Level 3 – Change in Behavior.

At the start of the 2008/2009 fiscal year, there were 50,000 Solid Waste Division customers participating in the voluntary green waste containerization program. It was the Stormwater Program's goal to have 90% participation by the end of the 2014, but a reduction in the street sweeping program during the 2009/2010 fiscal year led City Council to approve an acceleration of the voluntary containerization program. In October 2010, all customers were offered a green-waste container which led to an increase in participation of 103,000 Solid Waste customers. Participation by the end of the 2010/2011 fiscal year had increased to approximately 90% (103,000/115,000) reaching this task's goal.

In November 2012, City of Sacramento residents voted in favor of Measure T, which allows the City to implement a citywide containerized yard waste collection program combined with seasonal loose-in-the-street yard waste collection program. The City Council approved implementation of the Solid Waste Business Plan, which includes mandating containerization for all residential customers. In order to implement the new citywide containerized collection strategy, City Code must be changed, and this Code change is anticipated to take place in March 2013. Once the City Code is changed mandating containerization, all of the remaining loose-in-the-street customers will receive a container in June 2013 for collection starting in July 2013. Stormwater Program Staff recommends removing the task involving the voluntary containerization from the work plan.

MO.8 Parking Facilities Maintenance

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.9 Detention Basin Maintenance

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.10 Emergency Procedures

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.11 Non-emergency Fire Fighting Flows

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.12 Training

MO.12.1 Provide regular training to targeted staff on relevant components of the SQIP, and evaluate awareness of BMP practices by conducting a survey twice in the permit term

2008 PERMIT REFERENCE D.10.a.x.	PERFORMANCE STANDARD Increase awareness of available BMPs and pollution prevention practices				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 3	FY 09/10 3	FY 10/11 3	FY 11/12 3	FY 12/13 3

Assessment Methodology, Results and Recommendations

During the 2011/2012 fiscal year, surveys were given to two (2) training groups to assess whether training sessions are effective at raising the awareness of the participants (which would provide an Outcome Level 2 – Raising Awareness). The first training group consisted of staff that receives training twice in a permit term, and the second training group receives annual training.

The approach taken for this assessment included Pre- and Post-training quizzes containing 6 or 7 questions tailored to the functions of the group being trained. Generally, the quizzes covered questions on general stormwater regulations, the identification of potential pollutants, how to report illegal discharges, and BMPs specific to the group being trained. All of the quizzes were scored as a percentage and averaged for an overall score for the group.

Overall, the pre-training quiz indicated that the surveyed staff already had a good understanding of the topics presented (average score of 77% for first group, and 83% for second group). Post-training survey showed good improvement of understanding (93% for first group and 90% for second group). This data showed an increase in awareness of the topics presented for each group.

The training quiz will not be used during the 2012/2013 fiscal year training. After evaluating the results of the survey, it was determined that very little value was obtained from the data on the surveys, and that this approach may not be the ideal indication of whether or not long-term awareness has been raised. An increase in communication with applicable municipal staff throughout the fiscal year provides a more appropriate standard for the identification of an increased awareness of stormwater requirements.

Stormwater Program Staff recommends discontinuing surveys during training to assess staff's understanding of the requirements, and recommends focusing on FPPP assessment activities.

A-4.4 City of Citrus Heights Summary

Element Goal and Introduction

The Municipal Operations Element specifies activities for controlling stormwater pollution which may occur during operation of city-owned facilities in Citrus Heights, to keep pollutants from entering storm drains and local creeks. City-owned facilities include public buildings, parking lots, roads, bridges, landscape medians, storm drains and drainage ways. The City is not responsible for facilities and operations managed by federal and state agencies, special districts (e.g., parks, school, sewer, water, and transportation) and private utilities.

Typical municipal activities include solid waste hauling and disposal; hazardous and recycling waste collection, storage and disposal; vehicle and equipment washing and maintenance, pipe, channel and basin maintenance and repair/replacement, street cleaning, street overlays and repairs, vegetation management and graffiti abatement. Municipal operations activities will be conducted in a manner that does not inadvertently contribute pollution to local waterways. Another important goal is to set the example of model pollution prevention for the public.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.1 Illicit Discharge Response

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.2 New Development and Construction Requirements for Municipal Capital Improvements Projects

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.3 Facility Management

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.4 Integrated Pest Management Program

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.5 Storm Drain System Maintenance

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Effectiveness Outcome Level 2 or above as described below.

MO.5.1 Maintain the storm drain system (e.g., drain inlets, ditches/channels, detention basins and pump stations) to remove debris accumulation and prevent flooding

2008 PERMIT REFERENCE 10.a.v. , 10.b.iv.	PERFORMANCE STANDARD Decrease amount of waste discharged to waters of the State.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09	FY 09/10	FY 10/11	FY 11/12	FY 12/13
	1	4	4	4	4

Assessment Methodology, Results and Recommendations

The City maintains a tracking system and evaluates the data to measure the amount of sediment removed from the storm drain system. The volume of sediment removed is logged into the City's database system and a report is produced at the end of each fiscal year. The performance standard has been met for this task. The data shows that 370 CY were removed in the 2009/2010 fiscal year, 105 CY in the 2010/2011 fiscal year, 90 CY in the 2011/2012 fiscal year and 110 CY in 2012/2013 fiscal year. (Refer to Annual Reports for full details.) The recommendation shall be to continue storm drain system maintenance efforts and quantify the total amount removed per fiscal year.

MO.5.2 Clean prioritized catch basins and sumps

2008 PERMIT REFERENCE NA	PERFORMANCE STANDARD Decrease amount of waste discharged to waters of the State.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 4	FY 10/11 4	FY 11/12 4	FY 12/13 4

Assessment Methodology, Results and Recommendations

The City maintains a tracking system and evaluates the data to measure the amount of sediment removed from the storm drain system. The system includes all catch basins and sumps and does not prioritize any specific facilities. The volume of sediment removed is logged into the City's database system and a report is produced at the end of each fiscal year. The performance standard has been met for this task. The data shows that 370 CY were removed in the 2009/2010 fiscal year, 105 CY in the 2010/2011 fiscal year, 90 CY in the 2011/2012 fiscal year and 110 CY in the 2012/2013 fiscal year. (Refer to Annual Reports for full details.) The recommendation shall be to continue storm drain system maintenance efforts and quantify the total amount removed per fiscal year.

MO.5.3 Visually monitor permittee owned open channels and perform maintenance as needed based upon waste and trash accumulation

2008 PERMIT REFERENCE NA	PERFORMANCE STANDARD Decrease amount of waste discharged to waters of the State.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 4	FY 10/11 4	FY 11/12 4	FY 12/13 4

Assessment Methodology, Results and Recommendations

The City's utilizes the Sacramento Regional Conservation Corps to clean all creeks and ditches yearly. In addition, it contract with Coastline Water Resources to clean all the concrete lined channels every year. By observation, the amount of waste discharged to water of the state decreases yearly. The performance standard has been met for this task. The recommendation shall be to continue to visually monitor Permittee owned channels and perform maintenance as needed based upon waste and trash accumulation.

MO.6 Detention Basin Maintenance

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.7 Storm Drain Inlet Marking Program

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.8 Operation and Maintenance of Transportation Facilities

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Effectiveness Outcome Level 2 or above as described below.

MO.8.1 Street Sweeping for Curbed Streets — Conduct street sweeping activities

2008 PERMIT REFERENCE 10.a.vii. , 10.b.v.	PERFORMANCE STANDARD Decrease amount of waste discharged to Waters of the State.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 4	FY 10/11 4	FY 11/12 4	FY 12/13 4

Assessment Methodology, Results and Recommendations

The City maintains a tracking system and evaluates the data to measure the amount of sediment removed by conducting street sweeping activities. The volume of sediment removed is logged into the City’s database system and a report is produced at the end of each fiscal year. The performance standard has been met for this task. The Data shows 433 tons in 2009/2010 fiscal, 500 tons in 2010/2011 fiscal year and 370 tons in 2011/2012 fiscal year. (Refer to Annual Reports for full details.) The recommendation shall be to continue street sweeping activities and quantify total amount of waste removed from street sweeping efforts.

MO.9 Waste Management Services

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.10 Fire Emergency and Non-Emergency Operations/Response

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.11 Employee Training

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Effectiveness Outcome Level 2 or above as described below.

MO.11.2 Assess effectiveness of employee training

2008 PERMIT REFERENCE 10.a.xi, 10.b.xi	PERFORMANCE STANDARD Maintained/Increased employee awareness as measured by quizzes during annual training				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 2	FY 11/12 2	FY 12/13 2

Assessment Methodology, Results and Recommendations

The City of Citrus Heights General Services and Building departments conduct ongoing informal meetings to discuss stormwater quality BMP's. In addition, annual refresher courses have been presented to key City. The number of trainings and staff involved are recorded and a report is produced at the end of each fiscal year. In years, that the City wasn't able to host training events, the City promoted workshops and classes conducted by other Permittees, the State Water Quality Board or by for profit training organizations. The City provided the required training to 6 City Staff for the Construction General Permit. Yearly the City trains 100% of all field personnel, in 2009/2010 fiscal year 9 staff, 2010/2011 fiscal year 8 staff, 2011/2012 fiscal year 8 staff were trained. The performance standard was met for this task.

A-4.5 City of Elk Grove Summary

Element Goal and Introduction

The goal of the Municipal Operations element is to prevent or reduce pollutants in runoff from all municipal land use areas, facilities and activities in compliance with Provision 10 of the Stormwater Permit. Municipal facilities include buildings, transportation facilities (e.g., roads, roadsides, parking lots and fleet service areas), storm drainage collection and storage systems (e.g., pipes, open channels, stormwater detention basins and roadside ditches). Municipal activities include materials storage and handling, waste storage and disposal, vehicle and equipment washing and maintenance, pipe, channel and basin maintenance, street cleaning, vegetation management and repair/construction. Routine management and operations and maintenance of the storm drain system, streets and public areas must be conducted in a manner that does not inadvertently contribute pollution to local creeks and rivers. Additionally, the City must strive to be a model of pollution prevention for the community.

The Municipal Operations Element addresses operation of City-owned facilities within the NPDES Permit area (urbanized areas), not covered by the State NPDES General Permit for Stormwater Discharges Associated with Industrial Activity (Industrial General Permit). This element does not address facilities owned by, or activities conducted by, entities outside of the City’s jurisdictional control. For example, the only fire-fighting activities within the City’s jurisdiction are handled by the Cosumnes Community Services District (CCSD). The CCSD currently has an NPDES permit which is administered by the Regional Water Board.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.1 Illicit Discharge Response

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.2 New Development and Construction Requirements for Municipal Capital Improvements Projects

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.3 Facility Management

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Effectiveness Outcome Level 2 or above as described below.

MO.3.2 Evaluate SWPPP implementation and effectiveness at municipal facilities

2008 PERMIT REFERENCE	PERFORMANCE STANDARD				
	Document evaluations performed.				
<input type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report	<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report			
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 3	FY 09/10 3	FY 10/11 3	FY 11/12 3	FY 12/13 3

Assessment Methodology, Results and Recommendations

In 2005, the City of Elk Grove created a SWPPP for the City's Corp Yard. Key City and contract employees since have implemented the SWPPP. A key feature of the SWPPP calls for weekly tailgate meetings to discuss stormwater pollution preventions. Agenda and discussions are logged for each meeting. The effectiveness assessment for this tasks calls for changing behavior. Evaluations performed reveal behavior

has changed but only if a key staff member on the supervisor level knowledgeable about stormwater quality issues takes the lead on implementing the SWPPP. The City of Elk Grove has experienced some staff turnover at the Corp Yard and the change in personnel has resulted in a new staff members not having the knowledge about properly implementing the SWPPP. City management has recognized this situation and as a result they have created a new notification procedure to address any storm drainage and illicit discharge concerns. In addition, management has also created a Role and Responsibility document for each of the Drainage Engineering staff. A key component of the document will be to provide training for appropriate municipal operations including implementation of the SWPPP. The task for the upcoming permit term is to ensure compliance with site-specific pollution prevention plans/programs at targeted facilities.

MO.4 Integrated Pest Management Program

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.5 Storm Drain System Maintenance

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Outcome Level 2 or above as described below.

MO.5.1 Maintain the storm drain system (e.g., drain inlets, ditches/channels, detention basins) to remove debris accumulation and prevent flooding

2008 PERMIT REFERENCE 10.a.v., 10.b.iv.	PERFORMANCE STANDARD Decrease amount of sediment discharged to waters of the State.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 4	FY 09/10 4	FY 10/11 4	FY 11/12 4	FY 12/13 4

Assessment Methodology, Results and Recommendations

The City maintains a tracking system and evaluates the data to measure the amount of sediment removed from the storm drain system. The volume of sediment removed is logged into the City’s database system and a report is produced at the end of each fiscal year. The performance standard has been met for this task. The data shows that 430 tons were removed in 2008/2009 fiscal year, 610 tons in 2009/2010 fiscal year, 560 tons in 2010/2011 fiscal year and 107 tons in 2011/2012 fiscal year. (Refer to Annual Reports for full details.) The recommendation shall be to continue storm drain system maintenance efforts and quantify the total amount removed per fiscal year.

MO.5.2 Clean prioritized catch basins and sumps

2008 PERMIT REFERENCE 10.a.v., 10.b.iv.	PERFORMANCE STANDARD Decrease amount of sediment discharged to waters of the State and document amount of sediment removed.				
<input type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 4	FY 11/12 4	FY 12/13 4

Assessment Methodology, Results and Recommendations

The City maintains a tracking system and evaluates the data to measure the amount of sediment removed from prioritized catch basins and sumps. The volume of sediment removed is logged into the City’s database system and a report is produced at the end of each fiscal year. The data shows that 45 tons were removed in 2008/2009 fiscal year, 46.2 tons in 2009/2010 fiscal year, 15.4 tons in 2010/2011 fiscal year and 15 tons in 2011/2012 fiscal year. (Refer to Annual Reports for full details.) The recommendation shall be to continue catch basin and sump and quantify the total amount removed per fiscal year.

MO.6 Storm Drain Stenciling Program

In addition, selected tasks were assessed at outcome Level 2 or above as described below.

MO.7 Street Sweeping Program

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at outcome Level 2 or above as described below.

MO.7.1 Street Sweeping for Curbed Streets — Conduct street sweeping activities as described in Section 6.5 and Appendix 6.5

2008 PERMIT REFERENCE 10.a.vii, 10.b.v.	PERFORMANCE STANDARD Decrease amount of sediment discharged to Waters of the State.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 4	FY 09/10 4	FY 10/11 4	FY 11/12 4	FY 12/13 4

Assessment Methodology, Results and Recommendations

The City maintains a tracking system and evaluates the data to measure the amount of sediment removed by conducting street sweeping activities. The volume of sediment removed is logged into the City's database system and a report is produced at the end of each fiscal year. The performance standard has been met for this task. The Data shows that 460 tons were removed in 2008/2009 fiscal year, 426 tons in 2009/2010 fiscal year, 431 tons in 2010/2011 fiscal year and 739 tons in 2011/2012 fiscal year. (Refer to Annual Reports for full details.) The recommendation shall be to continue street sweeping activities and quantify total amount of waste removed from street sweeping efforts.

MO.8 Parking Lot Maintenance

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Effectiveness Outcome Level 2 or above as described below.

MO.9 Non-Emergency Fire Fighting Flows

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

A-4.6 City of Folsom Summary

Element Goal and Introduction

The goal of the Municipal Operations Element is to reduce stormwater pollution resulting from the construction, operation and maintenance of City-owned facilities in a manner that sets an example of model pollution prevention for the Folsom community.

The Municipal Operations Element addresses operation and maintenance activities conducted at fixed locations (e.g., buildings, corporation yards, parks) and in the field (e.g., operation of roads/right of way and utility infrastructure) throughout the City's jurisdiction. Examples of activities which have the potential to contribute pollutants to runoff and the storm drain system include: construction of capital improvement and other projects; landscape and pest management; emergency and non-emergency firefighting activities; and operation and maintenance of the storm drain system (including detention basins), streets and parking facilities.

The Stormwater Division staff in the Public Works/Utilities Department oversees and conducts some of the tasks, but various other divisions within the department and other departments (e.g., Parks and Community Development) provide significant and essential resources and support services to implement the work described in the Stormwater Quality Improvement Plan (SQIP).

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.1 Illicit Discharge Response

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.2 New Development and Construction Requirements for Municipal Capital Improvements Projects

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.3 Facility Management

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.4 Integrated Pest Management Program

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.5 Storm Drain System Maintenance

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Outcome Level 2 or above as described below.

MO.5.1 Maintain the storm drain system (e.g., drain inlets, ditches/channels, detention basins) to remove debris accumulation and prevent flooding

2008 PERMIT REFERENCE 10.a.v.,10.b.iv	PERFORMANCE STANDARD Decrease amount of waste discharged to waters of the State.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> TASK MODIFIED PER WORK PLAN/ANNUAL REPORT		<input type="checkbox"/> PERFORMANCE STANDARD MODIFIED PER WORK PLAN/ANNUAL REPORT		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 4	FY 09/10 4	FY 10/11 4	FY 11/12 4	FY 12/13 4

Assessment Methodology

The effectiveness of the City's storm drain maintenance program is assessed by tracking and reporting the quantity of waste collected from the storm drain system each year by City maintenance crews (with assistance on selected projects by contract prison crews). The total amount of debris removed is assumed to approximately correlate to the amount of debris prevented from entering receiving waters and provides for an Effectiveness Assessment Outcome level 4 (pollutant loads reduced from sources).

Assessment Results

The following table summarizes the results for the 2008 permit term to date:

Fiscal Year	Quantity Cleaned					Total Quantity Waste Removed (Cy)
	Storm Drain Pipe (miles)	Storm Drain Inlets (ea)	Storm Drain Manholes (ea)	Unlined Open Channels (miles)	Culverts (ea)	
08/09	29,085	122	96	10	15	219
09/10	16,250	132	80	6	10	75
10/11	31,125	111	84	8	10	75
11/12	6,715	103	47	8	10	85
12/13	N/A	N/A	N/A	N/A	N/A	N/A
Total						454

N/A: Not available.

The results show a total of 454 cubic yards of waste removed during the 2008 permit term to date. There was a drop in the amount of waste removed from the system from the 2008/2009 to 2009/2010 fiscal years, but fairly steady numbers every year after that. Unfortunately, due to the random nature of this data, it is not possible to correlate the quantity of waste removed through these operations with the quantity (miles or units) cleaned in any given year. There are various factors that may account for this. For example, the amount of staff involved in the activity: if the City cleans one mile of an unlined channel with 2 staff vs. 20 prison crew members, it is very likely that the maintenance done with more people will result in more waste removed. Also, the City focuses on different maintenance zones each year, and the amount of waste collected from a zone likely depends on the age of the neighborhoods/developments (e.g., maturity of trees/vegetation and amount of leaf litter/green waste) in that zone, the amount of imperviousness (e.g., amount of roads and parking lots), whether or not there is construction going on in the zone (additional sediment loading), and types of businesses (some businesses may be more likely to add pollution/debris to the system than others).

In addition to the maintenance work done by City crews, volunteers such as Friends of Folsom Parkway and Folsom Adopt a Creek/Trail (ACT) groups conducted creek clean-up projects each year to remove litter, debris and/or invasive weeds. The City encouraged and supported the volunteer activities by scheduling, providing maps and arials, and sending crews to pick up and dispose of the waste the day after the event. Also, the City hosts a creek cleanup day in April each year, in conjunction with the regional Creek Week program managed by the Sacramento Area Creeks Council (Folsom is a financial sponsor as well) and Folsom's Trail Days event. The quantities of waste collected by volunteers are not tracked and reported in annual reports, but the City will consider doing so for the next permit term.

Recommendations

The City recommends continuing this activity and performance standard for the new permit term.

MO.6 Storm Drain Inlet Marking Program

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.7 Operation and Maintenance of Transportation Facilities

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at outcome Level 2 or above as described below.

MO.7.1 Street Sweeping for Curbed Streets — Continue to implement street sweeping program

2008 PERMIT REFERENCE 10.a.vii.,10.b.v	PERFORMANCE STANDARD Decrease amount of waste discharged to waters of the State. Document amount of waste removed				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> TASK MODIFIED PER WORK PLAN/ANNUAL REPORT		<input type="checkbox"/> PERFORMANCE STANDARD MODIFIED PER WORK PLAN/ANNUAL REPORT		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 4	FY 09/10 4	FY 10/11 4	FY 11/12 4	FY 12/13 4

Assessment Methodology

The effectiveness of the City’s street sweeping program is assessed by tracking and reporting the quantity of waste swept from the streets each year by City maintenance crews. The total amount of debris removed is assumed to approximately correlate to the amount of debris prevented from entering the storm drain system and receiving waters and provides for an Effectiveness Assessment Outcome level 4 (pollutant loads reduced from sources).

Assessment Results

The following table summarizes the results for the 2008 permit term to date:

Fiscal Year	Length Swept (curb miles)	Total Quantity Waste Removed (Cy)
08/09	2096	570
09/10	1530	54
10/11	508	119
11/12	599	46.5
12/13	Not Available	Not Available
Total		789.5

The results show a total of almost 800 cubic yards of waste removed during the 2008 permit term to date from street sweeping activities. There was an overall drop in the amount of waste removed from the system, which is primarily due to reduced street maintenance. Like other local governments, due to the down economy and lower tax revenues, the City was forced to cut its budget for street cleaning; the budget went from \$204K in the 2008/2009 fiscal year to \$47K in the 2009/2010 fiscal year

and \$21K for the last two years. The City stopped cleaning residential streets in the 2009/2010 fiscal year and reduced frequency of cleaning arterials and collectors in subsequent years. Whereas over 2,000 curb miles were cleaned in the 2008/2009 fiscal year, one-quarter that amount (an average of 550 curb miles) are cleaned now.

Unfortunately, due to the random nature of this data, it is not possible to correlate the quantity of waste removed through these operations with the quantity (miles or units) cleaned in any given year. There are

various factors that may account for this. For example, the amount of waste collected will depend on the timing and amount of leaf fall in the fall/winter, and this varies each year. The amount of sediment deposited on a road in a given year could be influenced by additional sediment tracking if the road is used as a haul route for a nearby construction project.

Recommendations

The City recommends continuing this activity and performance standard for the new permit term.

MO.8 Fire Emergency and Non-Emergency Response and Operations

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.9 Employee Training

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at outcome Level 2 or above as described below.

MO.9.1 Provide regular internal training on applicable components of the SQIP

2008 PERMIT REFERENCE 10.a.xi	PERFORMANCE STANDARD Maintained/Increased awareness of available BMPs and pollution prevention practices, as measured by quizzes during training.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> TASK MODIFIED PER WORK PLAN/ANNUAL REPORT		<input type="checkbox"/> PERFORMANCE STANDARD MODIFIED PER WORK PLAN/ANNUAL REPORT		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 2	FY 09/10 2	FY 10/11 2	FY 11/12 2	FY 12/13 2

Assessment Methodology

Before the 2008 permit term (2008/2009 fiscal and previous years), the effectiveness of employee training was made at Outcome Level 1 by simply reporting the numbers of staff trained in various departments and on various topics each year. Starting in the 2009/2010 fiscal year, a new performance standard was created for this task and the original intent was to track trends in employee awareness over the course of the permit term. Then in June that year a pilot quiz was conducted during the annual refresher training provided to 75 employees, to provide baseline data for the permit term assessment. However, it quickly became clear that the performance standard was problematic. For example, the control group of employees was not the same from year to year. Budget cuts due to economic conditions caused reorganization and there were significant changes/ turnover in staffing from one year to the next. Recognizing this, in the 2010/2011 fiscal year, the City moved to an assessment strategy of using quizzes to gage the attendees' increased awareness as a result of each individual training session.

Assessment Results

During the 2010/2011 fiscal year, 47 City maintenance employees (representing drainage, streets, sewer and water utilities) attended annual stormwater refresher training (June 2011) which addressed the following topics: receiving waters and watersheds in Folsom; BMPs for pollution prevention; illicit discharge response, investigation and cleanup; and SWPPP compliance at the City's Corporation Yard (covered by the State's Industrial General Permit). At the conclusion of the training sessions, participants were given an evaluation worksheet to assess their awareness of key stormwater issues. The following briefly summarizes the results, which illustrates that employee awareness is high and the training is effective and may be motivating changes in behavior (see *Folsom's 2010/2011 Annual Report* for details):

Summary of Assessment Results – FY 10/11 City Employee Training

Knowledge/Awareness Areas	% Survey Respondents Knowledgeable
Learned something new in today's training	70% (21 of 30)

Knowledge/Awareness Areas	% Survey Respondents Knowledgeable
Understanding of what employees can do differently in their jobs to protect the environment, based on today's training	63% (19 of 30)
Understanding of what employees can do differently in their jobs to protect the environment, based on today's training	60% (18 of 30)

During the 2011/2012 fiscal year, a combined total of 36 City employees attended two annual stormwater refresher training sessions (June 2012) which addressed the same stormwater topics as the previous year, with the addition of a focus on pollution prevention at the City's Water Treatment Plant. At the conclusion of the training sessions, participants were given an evaluation worksheet to assess their awareness of key stormwater issues. The following briefly summarizes the results, which illustrates that employee awareness is high and the training is effective and may be motivating changes in behavior (see *Folsom's 2011/2012 Annual Report* for details):

Summary of Assessment Results – FY 11/12 City Employee Training

Knowledge/Awareness Areas	% Survey Respondents Knowledgeable
Location of SWPPP supplies at the Corp Yard and who to talk to if supplies need restocking	91% (11 of 12)
Types of activities that can generate runoff and pollutants and associated BMPs that should be used to prevent pollution for each	91% (11 of 12)
Learned something new in today's training	91% (11 of 12)
Knowledge of where runoff goes when it leaves the Water Treatment Plant site	100% (21 of 21)
Actions that can be taken to prevent pollution of runoff at the Water Treatment Plant	95% (20 of 21)
Actions that can be taken to prevent pollution of runoff at the Water Treatment Plant	100% (21 of 21)
Understanding of what employees can do differently in their jobs to protect the environment, based on today's training	64% (23 of 36)

Recommendations

The evaluation results summarized above indicate that additional emphasis should be placed on training about one of the knowledge areas in future years' employee training: understanding of what employees can do differently in their jobs.

The City recommends continuing this activity but eliminating it as a key indicator/performance standard which is consistent with the permittees proposed 5-year work plan for the next permit term.

A-4.7 City of Galt Summary

Element Goal and Introduction

The primary goal of the Municipal Operations Element is to control stormwater pollution resulting from the operation and maintenance of City-owned facilities and area, including buildings, yards, parks and open space, parking lots, landscape medians, roadways and utilities such as water, sewer and storm drain systems.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.1 Illicit Discharge Response

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.2 New Development and Construction Requirements for Municipal Capital Improvements Projects

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.3 Facility Management

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.4 Integrated Pest Management Program

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.5 Storm Drain System Maintenance

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at outcome Level 2 or above as described below.

MO.5.1 Maintain the storm drain system (e.g., drain inlets, ditches/channels, detention basins) to remove debris accumulation and prevent flooding

2008 PERMIT REFERENCE	PERFORMANCE STANDARD										
10.a.v., 10.b.iv.	Decrease amount of sediment discharged to waters of the State. City of Galt will document amount of sediment removed.										
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report <input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report										
ASSESSMENTS LEVEL AND SCHEDULE	<table border="1"> <tr> <td>FY 08/09</td> <td>1</td> <td>FY 09/10</td> <td>1</td> <td>FY 10/11</td> <td>1</td> <td>FY 11/12</td> <td>1</td> <td>FY 12/13</td> <td>3</td> </tr> </table>	FY 08/09	1	FY 09/10	1	FY 10/11	1	FY 11/12	1	FY 12/13	3
FY 08/09	1	FY 09/10	1	FY 10/11	1	FY 11/12	1	FY 12/13	3		

Assessment Methodology, Results and Recommendations

The City inspects all drain inlets on an annual basis and then removes sediment from the few problem inlets identified during the inspection. Approximately 5-10 cubic yards are removed annually. The City does not have a proactive maintenance plan for storm drain pipes or manholes, but rather reactive when problems areas surface. The City has its own pipe video robot crawler to TV inside each pipe. The City is the process of videotaping the wastewater collection system pipes to reduce sanitary sewer overflows. When that process is completed then it is anticipated that the storm drain system will be inspected next. Unlined open channels are sprayed or use goats for vegetation control as the City's US Army Corps of Engineers (USACE) regulatory permits forbid mechanical methods within the channels banks.

As mentioned, the amount of sediment removed is fairly constant each year.

The City hosts a creek cleanup day in April each year, in conjunction with the regional Creek Week program managed by the Sacramento Area Creeks Council. The quantities of waste collected by volunteers are not tracked and reported in annual reports, but the City will consider doing so for the next permit term.

The City recommends continuing this activity and performance standard for the new permit term.

MO.6 Detention Basin Maintenance

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. The City has only two detention basins, both sited within city parks. Maintenance of the basins is done associated with the maintenance of the parks.

MO.7 Storm Drain Inlet Marking Program

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.8 Operation and Maintenance of Transportation Facilities

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at outcome Level 2 or above as described below.

MO.8.1 Street Sweeping for Curbed Streets - Conduct street sweeping activities

2008 PERMIT REFERENCE 10.a.vii., 10.b.v.	PERFORMANCE STANDARD Decrease amount of sediment discharged to Waters of the State.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology, Results and Recommendations

The effectiveness of the City's street sweeping program is assessed by tracking and reporting the quantity of waste swept from the streets each year by City maintenance crews. The total amount of debris removed is assumed to approximately correlate to the amount of debris prevented from entering the storm drain system and receiving waters and provides for an Effectiveness Assessment Outcome level 4 (pollutant loads reduced from sources).

The following table summarizes the results for the 2008 permit term to date:

Fiscal Year	Length Swept (curb miles)	Total Quantity Waste Removed (Cy)
08/09	6,263	458
09/10	4,536	509
10/11*	6,130	760
11/12**	5,280	870
12/13	Not Available	Not Available
Total		2,597
*	Extrapolated from 7 months of data	
**	Extrapolated from 6 months of data	

The results show a total of over 2,500 cubic yards of waste removed during the 2008 permit term to date from street sweeping activities. There was an overall increase in the amount of waste removed from the system, which appears to be due to extrapolated data.

Unfortunately, due to the random nature of this data, it is not possible to correlate the quantity of waste removed through these operations with the quantity (miles or units) cleaned in any given year. There are

various factors that may account for this. For example, the amount of waste collected will depend on the timing and amount of leaf fall in the fall/winter, and this varies each year.

The City recommends continuing this activity and performance standard for the new permit term.

MO.8.3 Maintenance of City-Owned Parking Lots —Maintain City-owned parking facilities to minimize the build-up and discharge of pollutants to the storm drain system

2008 PERMIT REFERENCE 10.a.vlii., 10.b.vi.	PERFORMANCE STANDARD Document acres maintained and type of maintenance annually				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology, Results and Recommendations

The City’s maintains eight parking lots not associated with parks, mostly centered about the Galt Market. Maintenance is a reactive program when problem areas surface. The pavement has been assessed with the City’s pavement management program. The landscaping associated with the parking lots are maintained under contract. Like other local governments, due to the down economy and lower revenues, the City was forced to cut its budget for proactive programs. As the amount of City-owned parking is relatively small in comparison to commercial zoned areas, therefore, the City does not recommend use of this performance standard as a key indicator for the next permit term. This is consistent with the proposed Partnership Municipal Operations 5-Year Work Plan.

MO.9 Waste Management Services

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.10 Fire Emergency and Non-Emergency Operations/Response

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.11 Employee Training

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

A-4.8 City of Rancho Cordova Summary

Element Goal and Introduction

The goals of the Municipal Operations Element are to control stormwater pollution potentially resulting from operation and maintenance of City-owned facilities and operations in compliance with Provision 10 of the 2008 Stormwater Permit, and to set an example of model pollution prevention for the public.

The Municipal Operations Element addresses operation and maintenance activities conducted at fixed locations (e.g., City Hall and the Kilgore police station) and in the field (e.g., operation of roads/right of way and utility infrastructure) throughout the City's jurisdiction. Examples of activities which have the potential to contribute pollutants to runoff and the storm drain system include: construction of capital improvement and other projects; landscape and pest management; and operation and maintenance of the storm drain system (including detention basins).

This element does not address facilities owned by, or activities conducted by, entities outside of the City's jurisdictional control. For example, fire-fighting activities within the City are handled by Sacramento Metro Fire District, parks are owned and maintained by the Cordova Parks and Recreation District and schools are owned and maintained by either the Folsom-Cordova or Elk Grove Unified School Districts.

The 2008 permit term has been a period of transition for the City. The City's Public Works Department has continued to oversee and guide the work and has conducted some of the tasks, but various contractors and other departments have provided significant and essential resources and support services to implement the work described in the Stormwater Quality Improvement Plan (SQIP). The City has made arrangements with the Sacramento County Department of Water Resources to provide some services.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.1 Illicit Discharge Response

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.2 New Development and Construction Requirements for Municipal Capital Improvements Projects

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.3 Facility Management

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.4 Integrated Pest Management Program

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.5 Storm Drain System Maintenance

MO.5.1 Maintain the storm drain system (e.g., drain inlets, ditches/channels, detention basins) to remove debris accumulation and prevent flooding

2008 PERMIT REFERENCE 10.a.v., 10.b.iv.	PERFORMANCE STANDARD Decrease amount of waste discharged to waters of the State. Sacramento County performs this activity on behalf of the City of Rancho Cordova. County will document amount of waste removed. See County Work Plan for Municipal Operations.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report	<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report			
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 4	FY 10/11 4	FY 11/12 4	FY 12/13 4

Assessment Methodology, Results and Recommendations

Storm drain system maintenance assessment methodology is a quantitative measurement of waste removed from drainage maintenance activities. The total amount of waste removed correlates to the amount of waste prevented from entering receiving waters and provides for an Effectiveness Assessment Outcome Level 4 (reducing loads from sources).

Assessment Results

Table A-4.8.1 summarizes the quantity of waste removed during storm drain system maintenance over the past five years. As shown in figure A-4.8.1, a data trend cannot be established by comparing miles maintained versus quantity of waste removed from storm drain system maintenance. Due to the random nature of this type of maintenance activity, it is not possible to correlate the quantity of waste removed through these operations with the quantity (miles or units) cleaned in any given year. There are various factors that may account for this. For example, neighborhood type (new development vs. old development), variations in foliage density, and fluctuations in annual rainfall.

Table A-4.8.1 Quantity of Waste Removed During Storm Drain System Maintenance

Type of Facility	Quantity of Waste Removed Per Year (cy)					Total Quantity of Waste Removed in Cubic Yards
	07/08	08/09	09/10	10/11	11/12***	
Mainline Pipes	*	29	4	92	4.6	125
Lateral Pipes	*	131	27	400	347	740
Storm Drain Inlets	*	0	0	50	70	50
Storm Drain Manholes	*	1	0	0	8	1
Stormwater Pump Stations (Sump Cleaning Program)	*	*	*	*	*	NA
Manhole Sumps (Sump Cleaning Program)	*	*	*	*	*	NA
Totals:	100	161	31	542**	429.6	834 total Cubic Yards

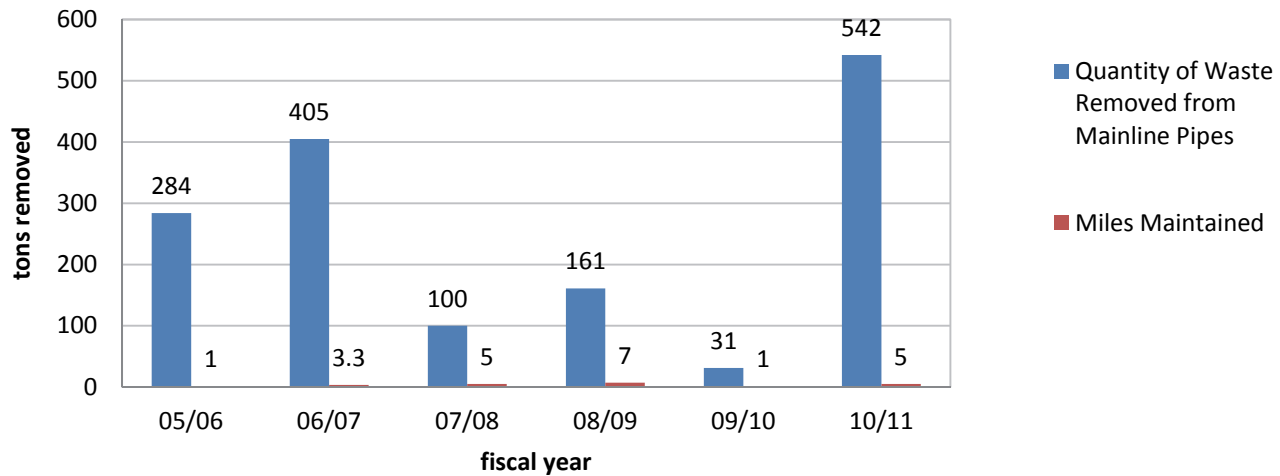
* Quantities of waste removed from these facilities are included in the Storm Drain Manhole total

**Quantity of waste removed was not accurately reported in the 2010/2011 Annual Report. Numbers reported in this table reflect the accurate quantities removed.

***Quantities of waste removed recorded in tonnage.

Figure A-4.8.1 Correlation between Miles Maintained and Quantities Removed

Correlation between Miles Maintained and Quantities Removed



The quantity of waste removed was originally recorded as cubic yards. As of 2011/2012 fiscal year, the County stopped recording in cubic yards and switch to tonnage, allowing for a more accurate measurement of waste removed. Yet, due to the mixed nature of the waste removed during maintenance activities (vegetation, trash, sediments), it is not possible to convert cubic yards to tonnage or vice versa for continuity sake. Therefore, data shown in this report is for waste removed and recorded as cubic yards and stops prior to 2011/2012 fiscal year. Future data will be reported in tonnage and should yield a more consistent measurement for data comparison and trend analysis.

Recommendations

Recommend continuation of storm drain system maintenance. Recommend changing performance standard to maintain the storm drain system (e.g., channels, drain inlets, detention basins, pump stations and sumps) to remove debris and prevent flooding (Effectiveness Outcome Level 1). This task will be used in the proposed assessment activity of tracking and recording data related to debris removed from the storm drain system during maintenance activities to quantify the amount of debris prevented from entering receiving waters (Effectiveness Outcome Level 4).

MO.5.2 Clean prioritized catch basins and sumps

2008 PERMIT REFERENCE NA	PERFORMANCE STANDARD County will document maintenance activities and amount of waste removed. See County Work Plan for Municipal Operations.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 4	FY 10/11 4	FY 11/12 4	FY 12/13 4

Assessment Methodology, Results and Recommendations

Catch basin and sump maintenance assessment methodology is a quantitative measurements of debris removed from drainage maintenance activities. The total amount of debris removed correlates to the amount of debris prevented from entering receiving waters and provides for an Effectiveness Assessment Outcome level 4 load reduction accomplishments. All catch basin and sump maintenance data is recorded collectively with the storm drain manhole maintenance data. Refer to section MO.5.1.

MO.5.3 Visually monitor permittee owned open channels and perform maintenance based upon sediment and trash accumulation

2008 PERMIT REFERENCE NA	PERFORMANCE STANDARD County will document maintenance activities and amount of waste removed. See County Work Plan for Municipal Operations.			
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report	<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 4	FY 10/11 4	FY 11/12 4
		FY 12/13 4		

Assessment Methodology

Catch basin and sump maintenance assessment methodology is a quantitative measurements of debris removed from drainage maintenance activities. The total amount of debris removed correlates to the amount of debris prevented from entering receiving waters and provides for an Effectiveness Assessment Outcome level 4 load reduction accomplishments.

Assessment Results

Table A-4.8.2 summarize the quantities of waste removed from open channel maintenance between 2004 and 2011, including the number of miles maintained and the average quantity of waste removed per mile maintained. The County switched in July of 2011 to recording waste removed in tonnage. Over 16,000 cubic yards of waste were removed from the system and thus prevented from entering receiving waters (Effectiveness Outcome Level 4, reduce pollutant loads from sources). The performance standard was met for this activity.

One might expect that the amount of waste removed in a particular year would increase as the miles maintained increased. However, there does not appear to be a correlation between miles maintained and quantities of waste removed. This might be due to the unpredictability of the maintenance activities, staffing, neighborhood types, drainage facility age and fluctuations in annual rainfall amounts from year to year. A conclusion can still be drawn that for every mile maintained, the County averaged 71 cubic yards of waste removed from concrete-lined channels and 9 cubic yards from unlined open channels.

Table A-4.8.2 Cubic Yards of Waste Removed Per Mile Maintained

Facility Type	Fiscal Year	Waste Removed (cubic yards)	Miles Maintained	Cubic Yards removed / mile maintained
Concrete lined channels	04/05	8	4	2
Concrete lined channels	05/06	94	5	18
Concrete lined channels	06/07	22	10	2
Concrete lined channels	07/08	73	6	12
Concrete lined channels	08/09	144	2	72
Concrete lined channels	09/10	269	4	67
Concrete lined channels	10/11	104	5	21
Concrete lined channels	11/12	256*	4	-
Unlined open channels	04/05	17	8	2
Unlined open channels	05/06	30	12	3
Unlined open channels	06/07	9	39	0.2
Unlined open channels	07/08	6	3	2
Unlined open channels	08/09	1047	2	524
Unlined open channels	09/10	52	1	52

Facility Type	Fiscal Year	Waste Removed (cubic yards)	Miles Maintained	Cubic Yards removed / mile maintained
Unlined open channels	10/11	494	5	99
Unlined open channels	11/12	114*	6	-

* Quantities of waste removed recorded in tonnage.

A data trend cannot be established by comparing miles maintained versus quantity of waste removed from unlined open or concrete lined channels. This is further explained in Chapter 2, Section 2.5

The Sacramento Stormwater Quality Partnership (Partnership) is in the process of evaluating past sampling data in an effort to derive reasonable pollutant load removal rates to better characterize load removals for Target Pollutants associated with storm drain system cleanings. Stormwater Program Staff have determined that estimating pounds of target pollutants removed would be a performance standard more appropriately conducted under the Target Pollutant element; therefore, it is recommended that the performance standard for this key indicator task will be altered to exclude estimations of pounds of target pollutants removed.

The quantity of waste removed was originally recorded as cubic yards. As of 2011/2012 fiscal year, the County stopped recording in cubic yards and switched to tonnage, allowing for a more accurate measurement of waste removed. Yet, due to the mixed nature of the waste removed during maintenance activities (vegetation, trash, sediments), a conversion from cubic yards to tonnage cannot be done. Therefore, data shown in this report is for waste removed and recorded as cubic yards and stops prior to 2011/2012 fiscal year. Future data will be reported in tonnage and should yield a more consistent measurement for data comparison and trend analysis.

Recommendations

Recommend continuation of storm drain system maintenance. Recommend changing performance standard to maintain the storm drain system (e.g., channels, drain inlets, detention basins, pump stations and sumps) to remove debris and prevent flooding (Effectiveness Outcome Level 1). This task will be used in the proposed assessment activity of tracking and recording data related to debris removed from the storm drain system during maintenance activities to quantify the amount of debris prevented from entering receiving waters (Effectiveness Outcome Level 4).

MO.6 Detention Basin Maintenance

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.7 Storm Drain Inlet Marking Program

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.8 Operation and Maintenance of Transportation Facilities

MO.8.1 Conduct street sweeping activities as described in Section 9.5 and Appendix 9B of the Rancho Cordova SQIP.

2008 PERMIT REFERENCE 10.a.vii. , 10.b.v.	PERFORMANCE STANDARD Decrease amount of waste discharged to Waters of the State.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 4	FY 10/11 4	FY 11/12 4	FY 12/13 4

Assessment Methodology, Results and Recommendations

The City currently contracts for street sweeping services. Recently GPS tracking was included in the service required. The assessment methodology assumes that tracking quantity of waste removed is a surrogate measure of the amount of waste kept out of the storm drain system and receiving waters. The following table shows the amount of waste removed for the 2008 permit term to date.

Table A-4.8.4 Waste Removed During Street Sweeping in Rancho Cordova

Annual Report Year	Curb Miles of Streets Swept	Quantity of Waste Removed (tons)
FY 08/09	8800	371
FY 09/10	8800	208
FY 10/11	8800	352
FY 11/12	8800	424
Totals	35200	1355

The City recommends continuing this task as is in the new permit term.

MO.9 Waste Management Services

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.10 Fire Emergency and Non-Emergency Operations/Response

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

MO.11 Employee Training

MO.11.3 Assess effectiveness of employee training

2008 PERMIT REFERENCE	PERFORMANCE STANDARD
10.a.xi, 10.b.xi	Maintained/Increased County employee awareness as measured by quizzes during annual training
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report <input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1 FY 09/10 1 FY 10/11 2 FY 11/12 2 FY 12/13 2

Assessment Methodology

The County of Sacramento performs annual employee training for which most of those employee's perform maintenance activities within the City of Rancho Cordova's jurisdictional boundaries. The County conducted surveys during the 2011 and 2012 employee training to measure employee awareness of stormwater pollution prevention practices during maintenance activities, corporation yard management, emergency responses, and identification and reporting procedures for illicit connections and discharges. The awareness surveys were performed during the annual employee stormwater training. The goal for the employee training program is to achieve an average survey score of at least 80%; this would indicate a fairly high degree of knowledge and awareness by the employees.

Assessment Results

The results from the 2011 evaluation showed an average survey score of 91.5%, which is indicative of a very high level of awareness. The 2012 survey results increased to an average test score of 97%, showing not only a high level of employee awareness but also a slight increase in the average score from the previous

year. Employee evaluations will be performed again in 2013. The goal is to compare the training results from one year to the next and show a maintained or increased higher level of employee awareness related to stormwater pollution prevention. Table A-4.8.4 summarizes the employee survey results from 2011 and 2012.

Table A-4.8.4 Employee Survey Results

Department	Year	Number Trained	Training Topics	Average Survey Score
Department of Water Resources	2011	61	Stormwater Pollution Prevention BMPs during drainage maintenance activities, corporation yard management, Industrial General Permit awareness, and Illicit discharge and connection identification and reporting procedures	92% pass rate
	2012	115		91% pass rate
Department of Transportation	2011	57	Stormwater Pollution Prevention BMPs during road maintenance activities, corporation yard management, Industrial General Permit awareness, and Illicit discharge and connection identification and reporting procedures	97.5% pass rate
	2012	109		97% pass rate

Recommendations

The training quiz will not be used during the 2012/2013 fiscal year training. After evaluating the results of the survey, it was determined that very little value was obtained from the data on the surveys, and that this approach may not be the ideal indication of whether or not long-term awareness has been raised. An increase in communication with applicable municipal staff throughout the fiscal year provides a more appropriate standard for the identification of an increased awareness of stormwater requirements.

Stormwater Program Staff recommends discontinuing surveys during training to assess staff's understanding of the requirements, and recommends focusing on implementation assessments to evaluate the understanding of the requirements.

A-5 Illicit Discharge Element

A-5.1 Partnership Activities

There are no Partnership-specific activities for this element.

A-5.2 County of Sacramento

Element Goal and Introduction

The goal of the Illicit Discharge Element is to comply with the requirements of Provision 11 of the 2008 Stormwater Permit by reducing the discharge of stormwater pollutants to the maximum extent practicable and effectively eliminating illicit non-stormwater discharges from non-commercial/industrial sources (commercial/industrial sources are addressed in the Commercial/Industrial Element chapter). Illicit discharges can result from dumping of liquid or solid wastes into the storm drain system, or from allowing pollutants to come into contact with stormwater (or stormwater runoff) where they are then transported into the storm drain system. The County's program has three major components:

- **Maintain effective legal authority** (Sacramento County Code 15.12) to prohibit illicit discharges
- **Educate** County staff and the public about how to identify and report illicit discharge problems, including developing educational materials and maintaining a hotline for public reporting of problems
- **Conduct investigations and enforcement** of the Stormwater Ordinance to eliminate illicit discharges/connections reported by the public, County maintenance crews and others.

The County Department of Water Resources (DWR) Stormwater Quality Section (Stormwater staff) relies heavily on the activities of other groups to implement activities to control illicit discharges, as follows:

- County maintenance crews and other personnel within the Departments of Water Resources (DWR), Transportation (DOT) and Department of Waste Management and Recycling (DWMR), as well as external groups such as the Sacramento Area Sewer District (SASD), may encounter spills and other illicit discharges during their routine maintenance activities. DWR and DOT crews conduct first response activities and containment, cleanup and disposal of materials, for non-hazardous and hazardous pollutant discharges to the storm drain system. Their response activities are followed up with referral reports to County Stormwater staff for tracking, investigation and enforcement purposes.
- The County contracts with the Sacramento Metropolitan Fire District and City of Sacramento Fire Department to provide emergency response for major hazardous materials spills that cannot be easily handled by the DOT Hazmat Team.
- Plan reviewers in various County departments and County building inspectors may identify proposed or newly-installed illicit connections. After taking action to eliminate any such connections, they report the findings to County Stormwater staff.
- County solid waste programs provide various disposal options to the general public that help reduce illegal dumping into the storm drain system and local creeks and rivers. These programs include household hazardous waste events and regional collection/transfer centers; battery, oil, and paint recycling centers; and curbside recycling of used motor oil. The County also has a Conditionally Exempt Small Quantity Generator Program to allow small businesses to dispose of their hazardous waste, since the businesses are not allowed to participate in community residential household hazardous waste collection events. County Stormwater staff collects data on the quantity of recycled material or hazardous waste collected as a result of these programs.

During the 2008 permit term, the County conducted the complaint-based investigation/enforcement work for illicit discharges and connections discovered in the City of Rancho Cordova. For the most part, the documentation of those activities and associated data is provided in the City's section of this chapter (A-5.9).

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ID.1 Legal Authority

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ID.2 Reporting of Illicit Discharges and Connections

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ID.3 Screening for Illicit Connections

ID.3.1 Conduct ongoing field screening for illicit connections through routine maintenance activities being conducted by field crews

2008 PERMIT REFERENCE 11.a.ii ; 11.b.ii	PERFORMANCE STANDARD Decrease in no. of illicit connections detected by field screening activities since last permit term				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

The County of Sacramento implemented an illicit connection and reporting program in 2006 by developing procedures for conducting on-going screening for illicit connections. Field crews have received annual training for illicit connection identification and reporting since 2006. All reported illicit connections are investigated and Stormwater staff enforce on the responsible party to immediately remove the illicit connection.

Assessment methodology is to annually track the number of illicit connections reported by field crews and verified by Stormwater staff. The performance standard was created to track and show a decrease in the number of illicit connections over time, as an indication of changed behavior by the public due to increased awareness and understanding of stormwater regulations (Effectiveness Outcome Level 3).

Assessment Results

County crews conducted on-going field screening during the 2008 permit term and reported two illicit connections over the past five years. The 2008 permit term showed a decrease in reported illicit connections compared to the previous permit term of eighteen (18) illicit connections reported. Table A-5.2-1 summarizes the number of illicit connections reported over both permit terms

Table A-5.2-1 Illicit Connections Reported During 2002 and 2008 Permit Terms

2002 Permit Term		2008 Permit Term	
Fiscal Year	# Illicit Connections*	Fiscal Year	# Illicit Connections*
03/04	2	08/09	1
04/05	8	09/10	0
05/06	6	10/11	0
06/07	1	11/12	1
07/08	1	12/13	NA
Totals	18		2

**Note: The number of illicit connections identified in this table includes only illicit connections identified at residential and commercial facilities inspected by the complaint based program. These numbers do not include illicit connections identified by the EMD CISCIP inspection program.*

A decrease in illicit connections is shown when comparing the 2002 permit term to the 2008 permit term data. While the performance standard was achieved, the cause for the decrease is not necessarily the result of a change in public behavior (Effectiveness Outcome Level 3).

Recommendations

Recommendations for the next permit term would be to continue with on-going field screening for illicit connections. Recommended changes would be to adjust performance standard task to report and respond to identified illicit connections with an Effectiveness Outcome Level 1. This task will be used in the proposed assessment activity of determining the County’s effectiveness at responding to and eliminating illicit connections (Effectiveness Outcome Level 3).

ID.4 Investigations of Illicit Discharges and Connections

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ID.5 Illicit Discharge and Connection Response, Containment and Cleanup

ID.5.2 Respond to, contain and clean up illicit discharges

2008 PERMIT REFERENCE 11.a.iv ; 11.b.iii	PERFORMANCE STANDARD Decrease in number of responses, containment and cleanup of illicit discharges over the course of the current permit term				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input checked="" type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

The performance standard for this task was developed to track the number of illicit discharges and connections reported that required cleanup to be performed by Sacramento County. The objective was to show a decrease in cleanup activities over time due to a change in public behavior that minimized illicit discharges and connections.

Assessment Results

The number of responses conducted as well as the situations resulting in cleanup activity performed by Sacramento County decrease over the permit term. Table A-5.2-2 summarizes the number of illicit discharge and connection responses that resulted in cleanup performed by Sacramento County. The decrease in number of responses over the 2008 permit term could be attributed to a change in public behavior and awareness of preventing non-stormwater discharges and illicit connections (Effectiveness Outcome Level 3).

Yet, the responses to illicit discharges are primarily generated through public complaints, and the decrease in responses could also be attributed to the public choosing to not report observed discharges. Without further data (i.e. public survey asking if they report all observed violations) a strong conclusive statement about a change in public's behavior cannot be made.

Table A-5.2-2 Number of Responses Resulting in Cleanup Performed by Sacramento County

Fiscal Year	Number of Responses/Investigations Conducted by County Crews	Number of Responses Requiring Containment/Cleanup by County Crews
08/09	Not Tracked	Not Tracked
09/10	239	185
10/11	203	163
11/12	141	106
12/13	NA	NA

Recommendations

Recommendations for the next permit term would be to continue with conducting responses and cleanup activities. Proposed changes will be to adjust the performance standard to respond to or refer incidences of illicit discharges and connections within three business days with an Effectiveness Outcome Level 1. This task will be used in the proposed assessment activity of determining the County's effectiveness at responding to and eliminating illicit connections (Effectiveness Outcome Level 3). Current performance standard of tracking a decrease in responses and clean-up as way of showing an increase in public awareness and behavior cannot yield strong conclusive statements without further data that measures the public's actual awareness. Changing the performance standard to one that evaluates the County's awareness and performance will allow for a more controlled study group that will yielding stronger conclusive statements.

PERMIT REF	PERFORMANCE STANDARD				
NA	Track amount of waste removed from right-of way				
<input type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 4	FY 10/11 4	FY 11/12 4	FY 12/13 4

Assessment Methodology

Tracking the amount of waste removed is used as a tool to measure a reduction in the amounts of these pollutants that would have otherwise discharged to the storm drain system (Effectiveness Outcome Level 4). The waste collected by Sacramento County DOT and is properly disposed of and or recycled.

Assessment Results

The County of Sacramento DOT collected 76 lead acid batteries and removed an estimated 20,113 gallons of hazardous waste from the public right-of-way during the 2008 permit term. The materials reclaimed by County reduces our impacts on the reciving waters and therefore achives a level 4 outcome and achieves the assessment level goal. Table A-5.2-3 summarizes the estimated quantities of motor oil, antifreeze, latex paint and lead acid batteries that were removed from the right-of-way by County DOT during the 2008 permit term.

The County of Sacramento DOT performed right-of-way cleanup within the City of Rancho Cordova and stopped performing those service in the 2011/2012 fiscal year. Quantities were reported as a combined total of waste removed from areas within the County of Sacramento and the City of Rancho Cordova. As shown in Table A-5.2-3, a reduction in the quantities is observed in the 2011/2012 fiscal year due to the termination of DOT's services provided to the City of Rancho Cordova.

Table A-5.2-3 Estimated Amount of Waste Removed from Public Right-of Way by County DOT

Material	Unit	08/09 Quantities	09/10 Quantities	10/11 Quantities	11/12 Quantities	12/13 Quantities	Total Quantities
Lead Acid Batteries	Each	16	23	24	13	NA	76
Used Motor Oil	Gallons	1990	4866	6696	1083	NA	14635
Waste Latex Paint	Gallons	755	2065	1540	897	NA	5257
Used Antifreeze	Gallons	200	10	10	1	NA	221

Recommendations

Recommend deletion of performance standard. County DOT will continue to provide right-of way clean up, yet the quantities of waste removed from the public right-of way is an estimation performed by field staff which does not necessarily provide an accurate measurement; and, right-of-way responsibility changes with time. The County will track and record data related to waste prevented from entering the Permittees' storm drain system from operation of municipal HHW programs. The HHW programs provides for a more accurate measurements of waste collected and prevented from illegal disposal.

ID.5.3 Respond to and abate illicit connections

2008 PERMIT REFERENCE 11.a.iii ; 11.b.ii	PERFORMANCE STANDARD Decrease in no. of responses and abatements of illicit connections over the course of the current permit term				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

The performance standard for this task was developed to track the number of reported and/or observed illicit connections that required abatement performed by Sacramento County. The objective was to show a decrease in cleanup activities over time due to a change in public behavior that minimized illicit discharges and connection.

Assessment Results

There were no reports of illicit connections requiring responses and abatements by County crews over the course of the permit term associated with residential properties. All reported and investigated illicit connections during this permit term were associated with industrial activities and are reported under the Industrial Element.

Recommendations

Recommendations for the next permit term would be to continue with illicit discharge complaint and enforcement/abatement activities. Recommended changes would be to adjust performance standard to ensure elimination of verified illicit connections at Effectiveness Outcome Level 1. This task will be used in the proposed assessment activity of determining the County's effectiveness at responding to and eliminating illicit connections (Effectiveness Outcome Level 3).

ID.6 Enforcement

ID.6.2 Conduct progressive enforcement (e.g., warnings, NOVs, Cease and Desist Orders, Administrative Civil Penalties (ACPs), and Cost Recoveries)

2008 PERMIT REFERENCE 11.b.iv	PERFORMANCE STANDARD Decrease in number of enforcement actions over the course of the current permit term				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

The performance standard for this task was developed to track the number of enforcement actions taken by Stormwater staff over the course of the permit. A decrease in the number of enforcement actions would correlate to an increase in public awareness (Effectiveness Outcome Level 3).

Assessment Results

As shown in Table A-5.2-4, a decrease in the number of enforcement actions did occur over the course of the 2008 permit term. The enforcement data in the 2008/2009 fiscal year did not record residential enforcement separate from industrial enforcement actions. Residential and industrial enforcement actions were recorded separately starting in the 2009/2010 fiscal year, which is why the data reported below decreases in the 2009/2010 fiscal year. The observed decrease in enforcement actions directly correlates with the observed decrease in the number of complaints reported and responded to by County crews. As stated before in section ID.5.2, the number of enforcement actions conducted does not equal the number of cleanup activities performed by the County since the responsible party cannot always be identified. As shown in Figure A-5.2-1, a decrease in cleanup activities and situations resulting in enforcement actions occurred over the course of the permit term, and could potentially be correlated to an increase in public awareness and a change in public behavior. However, too many variables exist to directly link a decrease in enforcement actions to a change in public behavior.

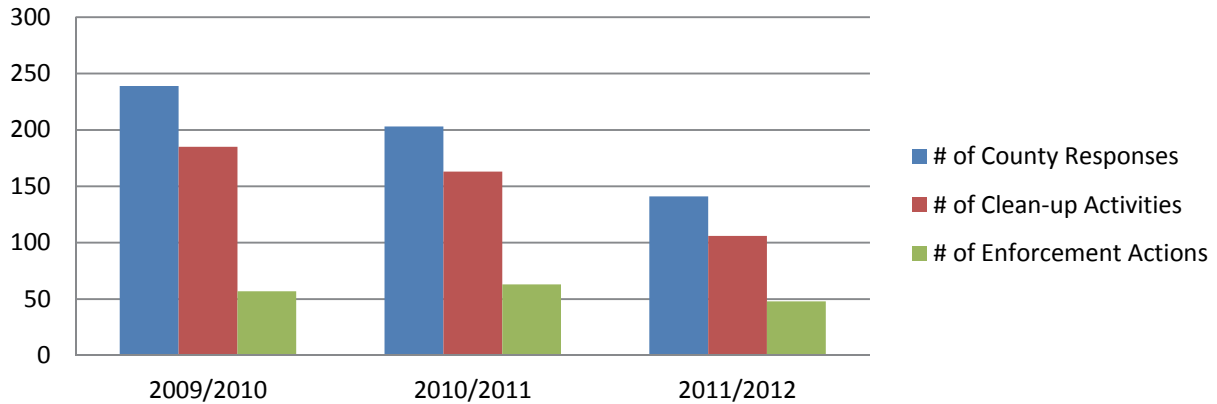
Table A-5.2-4 Progressive Enforcement Conducted over 2008 Permit Term

Fiscal Year	Progressive Enforcement Conducted			Total
	Verbal Warning	Written Warning	NOV	
08/09*	23	42	58	123
09/10	15	31	11	57
10/11	13	43	7	63
11/12	16	25	7	48
12/13	NA	NA	NA	NA

* Data reported for 2008/2009 includes enforcement actions taken on Industrial facilities.

Figure A-5.2-1 Number of County Illegal Discharge Responses, Cleanup and Enforcement Actions

County Responses, Cleanup and Enforcement Action



Note: The number of responses requiring cleanup by County crews does not match the number of enforcement actions taken by the County since the responsible party cannot always be identified.

Recommended Changes

Continue tracking enforcement actions and adjust the performance standard for this task to track the County's effectiveness at conducting progress enforcement by eliminating illicit discharges and connections in a timely manner at an Effectiveness Outcome Level 1. This task will be used in the proposed assessment activity of determining the County's effectiveness at responding to and eliminating illicit connections (Effectiveness Outcome Level 3).

ID.7 Data Management

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ID.8 Outreach/Training

ID.8.2 Provide County employee training to field screening and illicit discharge response crews annually

2008 PERMIT REFERENCE 11.b.vi	PERFORMANCE STANDARD Maintained/Increased employee awareness as measured by surveys during annual training. First survey to be conducted in the 2010/2011 fiscal year.				
<input type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 2	FY 11/12 2	FY 12/13 2

Assessment Methodology

During the 2008 permit term, training for County employees related to illicit discharge response was covered in the annual refresher training. Employee training topics include identification of illicit connection, illegal discharges, prohibited conditions and referral procedures. Surveys were conducted during the 2008 permit term to assess employee awareness of illegal discharges and connection identification and referral procedures.

Assessment Results

Refer to the employee training section in the Municipal Operations Element chapter for employee survey results.

Recommendations

Continue to provide annual training to County employees for illicit discharge identification and reporting procedures at an Effectiveness Outcome Level 1. Recommend changing performance standard to remove employee surveys since employee awareness and behavior will be assessed through illicit discharge identification and reporting performance.

ID.9 Facilitation of Proper Household Hazardous Waste Disposal

ID.9.1 Maintain operation of the County's household hazardous waste drop-off centers and curbside used motor oil collection program

2008 PERMIT REFERENCE NA	PERFORMANCE STANDARD Sustained quantities of household hazardous waste and used motor oil collected from the public over the course of the current permit term				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

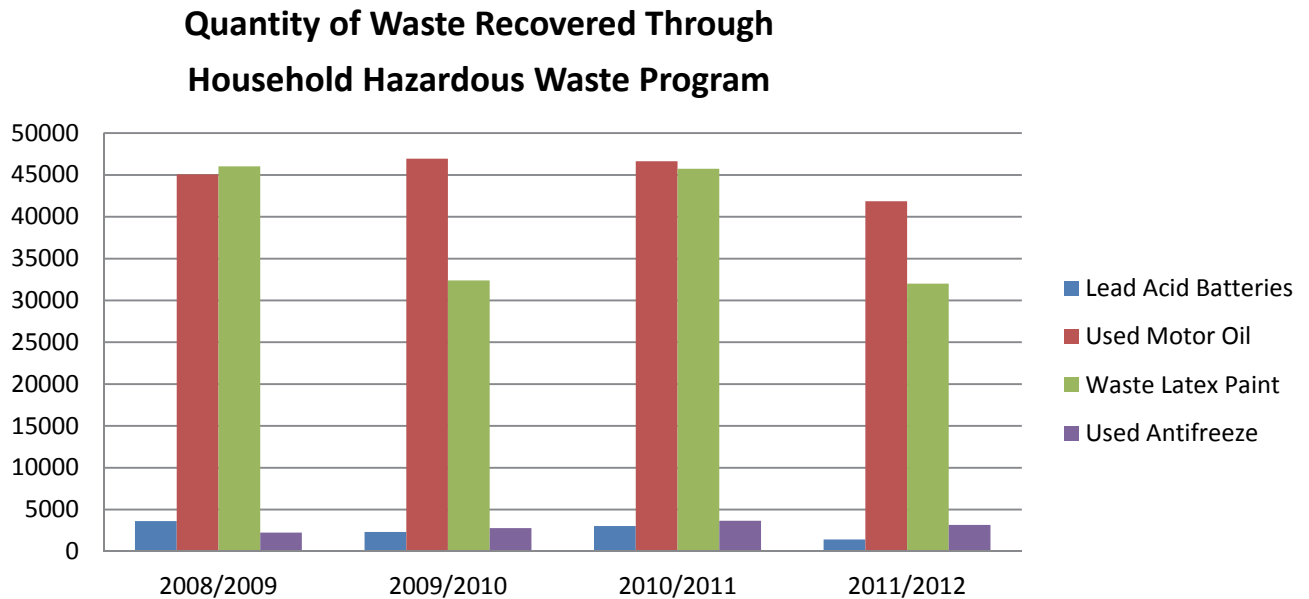
The performance standard for this task was developed to track the quantities of Household Hazardous Waste (HHW) collected by Sacramento County Department of Waste Management and Recycling. The amount of waste collected through the HHW programs correlates directly to the amount of waste recycled or disposed of properly and not illegally dumped. The sustained quantities of waste recovered over the course of the permit term is way to measure the public's behavior (Effectiveness Outcome Level 3) and awareness of proper disposal practices.

Assessment Results

The quantity of waste recovered through the County's HHW Program sustained a high recovery amount over the course of the 2008 permit term. Table A-5.2-5 summarizes the quantities of waste recovered during the 2008 permit term. The 2012/2013 fiscal year data will not be available until July of 2013. Figure A-5.2-2 shows the amounts recovered over the years and visually demonstrates the sustained recovery amounts. The performance standard and outcome level was achieved for this task. This is an approximate measurement of the amount of waste prevented from entering the municipal storm drain system and/or dumped in the public right-of-way due to the public's choice to properly dispose of their household hazardous waste.

Table A-5.2-5 Quantities of Waste Recovered Through the County Household Hazardous Waste Program

Material	Unit	08/09 Quantities	09/10 Quantities	10/11 Quantities	11/12 Quantities	12/13 Quantities	Total Quantities
Lead Acid Batteries	Each	3637	2336	3046	1425	NA	10444
Used Motor Oil	Gallons	45060	46940	46630	41860	NA	180490
Waste Latex Paint	Gallons	46018	32383	45741	32000	NA	156142
Used Antifreeze	Gallons	2258	2790	3673	3165	NA	11866

Figure A-5.2-2 Quantity of Waste Recovered Through County Household Hazardous Waste Program***Recommended Changes***

Recommend continuation of tracking quantities of waste recovered through the County's HHW Program. Recommend changing the assessment outcome from Effectiveness Outcome Level 3 to an Effectiveness Outcome of Level 1 with an Effectiveness Outcome Level 4 (Load Reduction) analysis performed once each permit term. This activity can be justified as a load reduction activity performed by the County to prevent illicit discharges and illegal dumping.

A-5.3 City of Sacramento Summary

Element Goal

The goal of the Illicit Discharge Element is to abate, contain and/or clean up reported illicit discharges and connections to the storm drainage system from non-commercial sources. Illicit discharges can result from the dumping of liquid or of solid waste into the storm drainage system, or from allowing pollutants to come into contact with urban runoff and then be discharged into the storm drainage system.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ID.1 Legal Authority

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ID.2 Reporting of Illicit Connections and Discharges Response and Enforcement

ID.2.2 Continue providing illicit discharge response and clean-up

2008 PERMIT REFERENCE D.11.a.ii.iv, 11.b.ii.iv	PERFORMANCE STANDARD Prevent discharges to receiving bodies to the MEP and quantify types of material prevented from entering receiving waters				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 4	FY 09/10 4	FY 10/11 4	FY 11/12 4	FY 12/13 4

Assessment Methodology, Results and Recommendations

Sacramento City (City) staff responds to reported complaints of illicit discharges 24-hours a day, 365 days a year. It is important that City staff responds quickly and effectively to complaints and ensure that discharges or potential discharges are abated, contained and/or cleaned up. Table A-5.3.1 below provides a summary of all the reported illicit discharge calls that City staff responded to from 2008/2009 through 2011/2012 fiscal years.

Table A-5.3-1. Summary of Illicit Discharge Complaints

	Number of Illicit Discharge Calls			
	FY 08/09	FY 09/10	FY 10/11	FY 11/12
Total Number of Reported Illicit Discharge Calls Attended to	119	190	87	132
Actual Discharges Abated or Potential Discharges Prevented from Discharging to a Receiving Water	68	119	80	124
Reported Illicit Discharge Calls with No Potential or Actual Discharges to a Receiving Water	51	71	7	8

Stormwater Program Staff was able to identify the types of pollutants prevented from entering the receiving waters; however, it was not possible to accurately quantify the amounts of materials discharged or at risk of potentially being discharged. Table A-5.3-2 provides a summary of the calls and associated pollutants prevented from discharging to a receiving water during the 2008/2009 through 2011/2012 fiscal years.

Table A-5.3-2. Summary of Calls and Associated Pollutants Prevented from Discharging to Receiving Waters**Number of Discharge Calls involving this Pollutant**

Pollutant	FY 08/09*	FY 09/10*	FY 10/11	FY 11/12
Paint	4	None	6	5
Diesel/Gasoline	11	None	10	6
Cooking Oil/Grease	8	4	10	1
Pesticides	None	None	None	1
Sewage	5	1	None	3
Other Automotive Fluids	10	4	2	10
Sediment	7	29	16	60
Concrete/Cement	7	6	None	15
Others**	16	25	36	23

*This data represents a portion of the calls that were responded to in 2008/2009 and 2009/2010 fiscal years. Not all data included detailed information on the type of pollutants. Staff changed tracking procedures in the 2010/2011 fiscal year.

** Others include discharges associated with soapy water, washing pool filters, and dirty water from pressure washing discharges.

The data presented in Tables A-5.3-1 and A-5.3.2 shows that City staff was successful in preventing or minimizing discharges of pollutants from entering receiving waters. This discharge prevention qualifies as an Outcome Level 4 - Reducing Loads. This task met the performance standard for each fiscal year.

ID.2.3 Investigate reports of illicit discharge (non-hazardous)

2008 PERMIT REFERENCE D.11.a.ii-iv, 11.b.ii.iv	PERFORMANCE STANDARD Initiate investigation within five (5) days of initial report				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 1

Assessment Methodology, Results and Recommendations

The City's response time to investigate and address actual and potential illicit discharges is an important part of ensuring that the City effectively prevents or minimizes the discharge of pollutants to receiving waters. The performance standard is to respond to incidences with five (5) business days of the initial report.

During the 2008/2009 fiscal year, three (3) reported incidences out of 74 were not investigated within the five business day standard. One incidence was investigated on the sixth business day and it was clear no illicit discharge occurred. One incidence was investigated on the 14th business day and the last one was investigated on the 15th business day. These last two incidences were delayed during program management transitioning between staff, and it is unknown if any illicit discharge occurred or not.

During the 2009/2010 fiscal year, one (1) of the reported incidents out of 71 was not investigated within the maximum five (5) business days after receiving the initial report. This was due to inter-office miscommunication regarding which Stormwater Program staff member was to investigate that report. When the incident was investigated, the same conditions that prompted the initial report still existed and Stormwater Program staff determined no possible discharge existed.

During the 2009/2010 fiscal year, Stormwater Program management and staff implemented a new set of inspection and follow-up protocols and as a result of that 100% of all reported calls from 2010/2011 (58 of 58 calls) and 2011/2012 (92 of 92 calls) fiscal years were investigated within five (5) business days of the initial report. This performance standard was met for the 2010/2011 and 2011/2012 fiscal years. In addition to

meeting the performance standard, improvements were made to data tracking and protocols that provided better assessment results.

Quick response times are critical to effectively preventing or minimizing illicit discharges; however, documenting data for non-hazardous and hazardous discharges and quantities of materials discharged does not provide any added benefits to the protection of receiving waters. Stormwater Program Staff recommends responding to all illicit discharges within three (3) business days without differentiating between non-hazardous and hazardous and continuing to evaluate this task with a performance standard to assess Element effectiveness.

ID.2.4 Investigate reports of illicit discharges (hazardous)

2008 PERMIT REFERENCE D.11.a.ii.iv, 11.b.ii.iv	PERFORMANCE STANDARD Initiate investigation within one (1) day of initial report				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 1

Assessment Methodology, Results and Recommendations

As discussed in the assessment above, the City’s response time to investigate and address potential illicit discharges is an important part of effectively preventing or minimizing any discharge of pollutants from entering receiving waters.

During the 2008/2009 fiscal year, all reported hazardous discharge calls were investigated within one (1) business day of the reported call.

During the 2009/2010 fiscal year, one (1) out of seven (7) of the reported incidents was not investigated within the one (1) business day after receiving the initial report. Response took two (2) business days due to inter-office miscommunication regarding which Stormwater Program staff member was to investigate that report. When the incident was investigated, the potential discharge was abated prior to entering the drainage system.

During the 2009/2010 fiscal year, Stormwater Program management and staff implemented a new set of inspection and follow-up protocols and as a result of that 100% of all reported calls from 2010/2011 (29 of 29 calls) and 2011/2012 (40 of 40 calls) fiscal years were investigated within one day of the initial report. This performance standard was met for the 2008/2009, 2010/2011 and 2011/2012 fiscal years

Quick response times are critical to effectively preventing or minimizing illicit discharges; however, documenting data for non-hazardous and hazardous discharges and quantities of materials discharged does not provide any added benefits to protection of the receiving waters. Stormwater Program Staff recommends responding to all illicit discharges within three (3) business days without differentiating between non-hazardous and hazardous and continuing to evaluate this task with a performance standard to assess Element effectiveness.

ID.3 Public Outreach and Reporting

ID.3.2 Promote used oil curbside pickup program and use of Household Hazardous Waste (HHW) Collection Centers and Certified Collection Centers

2008 PERMIT REFERENCE D.11.b.v	PERFORMANCE STANDARD Quantify amount of oil collected and amounts of other HHW Collection Centers				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 4	FY 09/10 4	FY 10/11 4	FY 11/12 4	FY 12/13 4

Assessment Methodology, Results and Recommendations

The goal of this task is to reduce the discharge of pollutants to receiving waters from different sources by promoting proper disposal of materials and the use of hazardous waste collection centers and curbside pickup programs. A summary of the materials collected through the City's program during this permit term are provided in Table A-5.3-3.

Table A-5.3-3. Summary of Materials Collected

Quantity Collected (based on calendar year)

Pollutant	2008	2009	2010	2011
Used Motor Oil	46,935 gal.	35,290 gal.	39,624 gal.	55,952 gal.
Used Motor Oil Filters	No Data	No data	14,686 Units	17,411 Units
Fluorescent Lights	12,782 lbs.	9,144 lbs.	12,052 lbs.	12,794 lbs.
Household Batteries	31,909 lbs.	51,480 lbs.	66,858 lbs.	48,689 lbs.
CRT/E-Waste	121 tons	162 tons	152 tons	143 tons
Waste Exchange Program for HHW	No data	No Data	89,079 lbs.	86,075 lbs.
Illegal Dumping (Trash and other Pollutants)	1,303 tons	1,920 tons	1,642 tons	557 tons*

*The illegal dumping (Trash and other Pollutants) data provided for calendar year 2011 is for a portion of the year. During this time the City re-organized/consolidated some of its departments and contracted out illegal dumping pickup. This contract work was for a lump sum and quantities of waste removed from the public right-of-way were not tracked.

The City's waste collection programs continue to remove significant amounts of pollutants that could potentially be discharged into the drainage system and polluting receiving waters. The results of these collection programs qualify as an Outcome Level 4 assessment – Reducing Loads. This task meets the performance standard.

ID.4 Training

ID.4.1 Train City staff annually in proper methods for receiving and responding to illicit discharge reports to ensure minimum response time and maximum response effectiveness

2008 PERMIT REFERENCE D.11.b.vi	PERFORMANCE STANDARD Increase awareness of illicit responses procedures through training surveys				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 2

Assessment Methodology, Results and Recommendations

Stormwater Program Staff trains or holds annual coordination meetings with the Department of Utilities' Drainage First Responders, the "311" center managers and the Stormwater Program inspector to ensure that each group understand the illicit discharge response procedures and their role. The SQIP and Annual Work plan originally scheduled surveys to be conducted as a part of the training in the 2010/2011 and 2012/2012 fiscal years to evaluate the awareness of illicit discharge response procedures. However, surveys were not conducted during the 2010/2011 fiscal year because Stormwater Program staff determined that, due to the small size of each of the three (3) groups trained, surveys would not be an effective tool for measuring their awareness of the procedures. The annual training is more of a coordination meeting than a formal workshop.

Even though, the performance standard was not technically met for this task due to the fact that training surveys were not administered to these groups, the constant communication between Stormwater Program Staff and Field staff in combination with informal field trainings resulted in effective response times to each reported illicit discharge call, better assessment and containment of said identified discharges, and an overall understanding of the programs goals. Stormwater Program Staff recommends discontinuing surveys after the

training to assess staffs' understanding of the requirements and recommends focusing on implementation assessments to evaluate the understanding of the requirements.

A-5.4 City of Citrus Heights Summary

Element Goal

The goal of the Illicit Discharge Element is to reduce the discharge of stormwater pollutants to the maximum extent practicable and to effectively eliminate prohibited non-stormwater (illicit) discharges. Any material dumped or discharged into the City's storm drain system eventually makes its way to a local creek and rivers, where it can impair beneficial uses. This is true whether the material is classified as hazardous or not. Water quality, habitat, recreation and aesthetics are all examples of benefits that can be impacted.

The storm drain system consists of a network of drain inlets, manholes and piping, as well as streets, sidewalks, gutters and roadside ditches, which discharge to local creeks and rivers. Stormwater runoff from driveways, parking lots, roof drains and other surfaces typically discharge into this system.

Two kinds of discharges are addressed by this element:

- *Illegal dumping* – Dumping of liquid or solid wastes into the storm drain system. Examples include mobile carpet cleaning companies discharging dirty rinse water into a storm drain manhole, a homeowner dumping used motor oil into a storm drain inlet, or a person dumping garbage or other wastes into drainage channels and creeks.
- *Illicit connection* – A piped connection allowing sanitary sewage to flow into the storm drain system. For example, a washing machine plumbed into the storm drain system rather than the sanitary sewer.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ID.1 Legal Authority

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ID.2 Reporting of Illicit Discharges and Connections

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Outcome Level 2 or above as described below.

ID.2.2 City and Sacramento Local Conservation Corps crews will refer illicit discharges and connections to Public Works for response

2008 PERMIT REFERENCE 11.a.ii	PERFORMANCE STANDARD Decrease in number of reports of illicit discharges and connections				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology, Results and Recommendations

Over the current permit term the City has maintained a phone number and point of contact for the Sacramento Local Conservation Corps to refer any identified illegal discharges for response. The reported discharges are logged into the City's GIS database system. The performance standard for this task has been met for this task. The data shows that in the current fiscal year 4 cases have been reported and responded to (Refer to the annual reports for full details). The recommendation shall be to continue reporting all illicit discharges and/or connections with the goal of eliminating all verified illicit discharges and connections.

ID.3 Screening for Illicit Connections

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Outcome Level 2 or above as described below.

ID.3.1 The City and Sacramento Local Conservation Corps crews will conduct ongoing field screening for illicit connections through routine maintenance activities being conducted by field crews

2008 PERMIT REFERENCE 11.a.ii ; 11.b.ii	PERFORMANCE STANDARD Decrease in number of illicit connections detected by field screening activities since last permit term				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology, Results and Recommendations

The Sacramento Local Conservation Corps and City maintenance crews report all detected illicit connections during field screening activities. During the permit term from FY 08/09 to 11/12 there were no sightings or reports of illicit connections. The recommendation for the next permit term shall be to continue to field screen for illicit connections with the goal of eliminating all verified illicit connections.

ID.4 Investigations of Illicit Discharges and Connections

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ID.5 Illicit Discharge and Connection Response, Containment and Cleanup

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Outcome Level 2 or above as described below.

ID.5.2 Respond to, contain and clean up illicit discharges

2008 PERMIT REFERENCE 11.a.iv ; 11.b.iii	PERFORMANCE STANDARD Decrease in number of responses, containment and cleanup of illicit discharges since last permit term				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology, Results and Recommendations

The City of Citrus Heights Stormwater program was a part of the Sacramento County program during the 2003/2004 fiscal year to the 2007/2008 fiscal year permit term, and the 2008/2009 and 2009/2010 fiscal years of the current permit term (refer to Annual reports for information during this period). During the last permit term the City’s tracking system for illicit discharge response, containment, and clean up has improved significantly. Since these improvements were made, the number of illicit discharge response, containment and clean up incidents has decreased. The number of responses has decreases from 71 in the 2009/2010 fiscal year to 13 in the 2010/2011 fiscal year to in the 2011/2012 fiscal year to 4 on the current fiscal year. Performance standard has been met. The recommendation shall be to continue to respond, contain and cleanup and report appropriately within three days of a report. It is recommended to revise the performance standard to say "Continue illicit discharge response, containment and clean-up."

ID.6 Enforcement

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Outcome Level 2 or above as described below.

ID.6.2 Conduct enforcement (e.g., warnings, NOVs, Cease and Desist Orders, ACPs, and Cost Recoveries)

2008 PERMIT REFERENCE 11.b.iv	PERFORMANCE STANDARD Decrease in number of enforcement actions since last permit term				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology, Results and Recommendations

The City of Citrus Heights Stormwater program was a part of the Sacramento County program during the FY03/04 to FY07/08 permit term, and FY08/09 and FY09/10 of the current permit term (refer to Annual reports for information during this period). Enforcement actions are reported in each annual report. For the current permit term FY 08/09 to FY 11/12 the total numbers of enforcement actions conducted were 6. The City considers that the performance standard has been met because all reported illicit discharges were responded to appropriately. The recommendation shall be to revise the performance standard to continue conducting progressive enforcement actions when a responsible party is identified.

ID.7 Data Management

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ID.8 Outreach/Training

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Outcome Level 2 or above as described below.

ID.8.2 Conduct annual training Re: field screening and illicit discharge response for crews

2008 PERMIT REFERENCE 11.b.vi	PERFORMANCE STANDARD Sustained/Increased employee awareness as measured by quizzes during annual training				
<input type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 2	FY 11/12 2	FY 12/13 2

Assessment Methodology, Results and Recommendations

The City of Citrus Heights Stormwater program was a part of the Sacramento County program during the FY03/04 to FY07/08 permit term, and FY08/09 and FY09/10 of the current permit term (refer to Annual reports for information during this period). Starting FY10/11, the City of Citrus Heights General Services and Building departments conduct ongoing informal meetings to discuss stormwater quality BMP's. In addition, annual refresher courses have been presented to key City. The number of trainings and staff involved are recorded and a report is produced at the end of each fiscal year. In years, that the City wasn't able to host training events, the City promoted workshops and classes conducted by other Permittees, the State Water Quality Board or by for profit training organizations. For profit training events were evident around the time the Board adopted the new Construction General Permit. In average the City has train 6 staff members yearly during this permit term. In addition the City provided extensive training to all inspection staff in compliance with the Construction General Permit.

ID.9 Facilitation of Proper Household Hazardous Waste Disposal

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Outcome Level 2 or above as described below.

ID.9.2 County’s household hazardous waste drop-off centers

2008 PERMIT REFERENCE	PERFORMANCE STANDARD Sustained quantities of household hazardous waste collected from public since previous permit term				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology, Results and Recommendations

The City of Citrus Heights Stormwater program was a part of the Sacramento County program during the 2003/2004–2007/2008 fiscal year permit term, and the 2008/2009–2009/2010 fiscal years of the current permit term (refer to Annual reports for information during this period). Quantities of household hazardous waste collected are reported in each annual report per permit term as they area available. During this permit term the performance standard has been met. The recommendation shall be to continue to promote and operate municipal hazardous waste programs and remove waste from the public right of way.

A-5.5 City of Elk Grove Summary

Element Goal

The goal of the Illicit Discharges Element is to comply with requirements of Provision 11 of the Stormwater Permit by reducing the discharge of stormwater pollutants to the maximum extent practicable and to effectively eliminate illicit non-stormwater discharges from non-commercial sources.

The storm drain system in the City of Elk Grove consists of a network of drain inlets, manholes and pipes, as well as streets, sidewalks, gutters and roadside ditches, which discharges to local creeks and rivers. Stormwater runoff from driveways, parking lots, roof drains and other surfaces typically discharge into this system.

Two kinds of discharges are addressed by this element:

- Illegal dumping – Dumping of liquid or solid wastes into the storm drain system. Examples include mobile carpet cleaning companies discharging dirty rinse water into a storm drain manhole, a homeowner dumping used motor oil into a storm drain inlet, or a person dumping garbage or other wastes into drainage channels and creeks.
- Illicit connection – A piped connection allowing sanitary sewage to flow into the storm drain system. For example, a washing machine plumbed into the storm drain system rather than the sanitary sewer.

Any material dumped or discharged into the City's storm drain system eventually makes its way to a local creek and/or river, where it can impair beneficial uses. This is true whether the material is classified as hazardous or not. Water quality, habitat, and aesthetics are all examples of benefits that can be impacted.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ID.1 Legal Authority

In addition, selected tasks were assessed at Outcome Level 2 or above as described below.

ID.2 Reporting of Illicit Discharges and Connections

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Outcome Level 2 or above as described below.

ID.2.2 The City will continue to maintain a hotline for City crews to report illicit discharges and connections within the City

2008 PERMIT REFERENCE 11.a.ii	PERFORMANCE STANDARD Decrease in number of reports of illicit discharges and connections reported by City crews.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology, Results and Recommendations

Over the current permit term the City has operated a hotline for City crews to call in if they have identified an illicit discharge or connection. Reports are logged into the City's database system and a report is produced at the end of each fiscal year. The performance standard for this task has been met for this task. The Data shows that there were 46 cases in FY 08/09, 23 in FY 09/10, 23 in FY 10/11 and only 9 in FY 11/12. (Refer to

Annual Reports for full details.) The recommendation shall be to continue reporting of all illicit discharges and/or connections with the goal of eliminating all verified illicit discharges and connections.

ID.3 Screening for Illicit Connections

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Outcome Level 2 or above as described below.

ID.3.1 Conduct ongoing field screening for illicit connections through routine maintenance activities being conducted by field crews

2008 PERMIT REFERENCE 11.a.ii ; 11.b.ii	PERFORMANCE STANDARD Decrease in number of illicit connections detected by field screening activities since last permit term				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology, Results and Recommendations

City maintenance crews are trained on how to detect illicit connections during field screening activities. During the permit term from FY 08/09 to 11/12 there were no sightings or reports of illicit connections. The recommendation for the next permit term shall be to continue to field screen for illicit connections with the goal of eliminating all verified illicit connections.

ID.4 Investigations of Illicit Discharges and Connections

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Outcome Level 2 or above as described below.

ID.4.1 The City will continue to conduct investigations of illicit discharges (hazardous and nonhazardous).

2008 PERMIT REFERENCE	PERFORMANCE STANDARD Decrease in number of illicit discharges investigated since last permit term.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology, Results and Recommendations

Illicit discharges are reported in each annual report and for the assessment methodology, the illicit discharges were summed up per permit term and compared to one another. For permit term starting on FY 03/04 and ending on FY 07/08 there were 212 illicit discharges investigated. For permit term beginning on FY 08/09 to FY 11/12 the number of illicit discharges investigated were 166. The performance standard has been met. The recommendation shall be to revise the performance standard to maintain a public and City hotline to report illicit discharges, respond and report appropriately within three days of a report and ensure elimination of all verified illicit discharges.

ID. 4.2 The City will continue to conduct investigations of illicit connections

2008 PERMIT REFERENCE	PERFORMANCE STANDARD				
	Decrease in number of illicit connections investigated since last permit term.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09	FY 09/10	FY 10/11	FY 11/12	FY 12/13
	1	1	1	1	3

Assessment Methodology, Results and Recommendations

Investigations are conducted to locate illicit connections. Any illicit connections are reported in each annual report and for the assessment methodology, the illicit connections were summed up per permit term and compared to one another. There were no illicit connections in the current and previous permit term. Performance standard calls for a decrease in illicit connection however no connections have been found; therefore standard has been met. The recommendation shall be to continue to conduct investigations for illicit connections, respond and report appropriately within three days of a report and ensure elimination of all verified illicit connections. It is recommended to revise the performance standard to say "Continue illicit connection investigations."

ID.5 Illicit Discharge and Connection Response, Containment and Cleanup

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Outcome Level 2 or above as described below.

ID.5.2 Respond to, contain and clean up illicit discharges

2008 PERMIT REFERENCE	PERFORMANCE STANDARD				
11.a.iv ; 11.b.iii	Decrease in number of responses, containment and cleanup of illicit discharges since last permit term				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09	FY 09/10	FY 10/11	FY 11/12	FY 12/13
	1	1	1	1	3

Assessment Methodology, Results and Recommendations

Illicit discharge response containment and clean-up incidents decreased from last permit to current permit term (refer to Spill Response Attachments per each Annual Report). Illicit discharge response, containment and cleanup were summed up per permit term and compared to one another. For permit term starting on FY 03/04 and ending on FY 07/08 there were 212 illicit discharges investigated. For permit term beginning on FY 08/09 to FY 11/12 the number of illicit discharges investigated were 166. Performance standard has been met. The recommendation shall be to continue to respond, contain and cleanup and report appropriately within three days of a report. It is recommended to revise the performance standard to say "Continue illicit discharge response, containment and clean-up."

ID. 5.3 The City will continue to respond to and abate illicit connections

2008 PERMIT REFERENCE 11.a.iii ; 11.b.ii	PERFORMANCE STANDARD Decrease in number of responses and abatements of illicit connections since last permit term.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology, Results and Recommendations

No illicit connections were found during this and previous permit term. Performance standard calls for a decrease in responses and abatements however no connections have been found; therefore standard has been met. The recommendation shall be to continue to conduct investigations for illicit connections, respond and report appropriately within three days of a report and ensure elimination of all verified illicit connections. It is recommended to revise the performance standard to say "Continue illicit connection investigations."

ID.6 Enforcement

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Outcome Level 2 or above as described below.

ID.6.2 The City will continue to conduct enforcement (e.g., warnings, NOVs, Cease and Desist Orders, ACPs, and Cost Recoveries)

2008 PERMIT REFERENCE 11.b.iv	PERFORMANCE STANDARD Decrease in number of enforcement actions since last permit term.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology, Results and Recommendations

Enforcement action are reported in each annual report and for the assessment methodology, the enforcement actions were summed up per permit term and compared to one another. For permit term starting on FY 03/04 and ending on FY 07/08 a total of 3,376 enforcement actions were conducted. For permit term FY 08/09 to FY 11/12 the total number of enforcement actions conducted were 469. Performance standard has been met. The recommendation shall be to revise the performance standard to continue conducting progressive enforcement actions when a responsible party is identified.

ID.7 Data Management

In addition, selected tasks were assessed at Outcome Level 2 or above as described below.

ID.8 Outreach/Training

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Outcome Level 2 or above as described below.

ID.8.2 Conduct annual training regarding field screening and illicit discharge response for crews.

2008 PERMIT REFERENCE	PERFORMANCE STANDARD				
	Increase in awareness among employees regarding illicit discharges and connections since previous permit term.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology, Results and Recommendations

During the current permit term, the City of Elk Grove Drainage Resources, Construction Services and Operation and Maintenance departments have conducted monthly meetings to discuss stormwater quality BMP's. In addition, annual refresher courses have been presented to key and general City wishing to learn more about protecting water quality. The number of trainings and staff involved are recorded and a report is produced at the end of each fiscal year. In years, that the City of Elk Grove wasn't able to host training events, the City promoted workshops and classes conducted by other Permittees, the State Water Quality Board or by for profit training organizations. For profit training events were evident around the time the Board adopted the new Construction General Permit. Here is a summary of the training events per Fiscal Year as identified in each Annual Report: FY 08/09, two training events; FY 09/10, three training events; FY 10/11 several QSP/QSD training events throughout the region; and in FY 11/12, one training event. In 2012, City staff conducted a survey to find out how staff at key positions addressed water quality issues. It was found that even though awareness generally increased, the message had to be constantly delivered to keep the understanding of stormwater requirements fresh. In addition, the survey found that key personnel must be assigned and accountable to promptly deliver the message on a regular basis to both staff and management. As an initial response to the findings of the survey, management has drafted a notification procedure to address any storm drainage and illicit discharge concerns and also created a Role and Responsibility document for each of the Drainage Engineering staff. NPDES coordination is a key element of these documents.

ID.9 Facilitation of Proper Household Hazardous Waste Disposal

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Outcome Level 2 or above as described below.

ID.9.1 Continue to provide pickup services for used motor oil with solid waste vendor, and maintain satellite facilities for universal waste disposal

2008 PERMIT REFERENCE	PERFORMANCE STANDARD				
	Increase in the quantities of household hazardous waste collected from residents and businesses.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology, Results and Recommendations

Quantities of household hazardous waste collected are reported in each annual report per permit term. The hazardous waste totals were summed up per permit term and compared to one another. For permit term starting on FY 03/04 and ending on FY07/08 a total of 311 lbs of lead acid battery and 8,776 gals of liquid household hazardous waste were collected. For permit term FY 08/09 to FY 11/12 a total of 1,276 lbs of lead acid battery and 681 gals of liquid household hazardous waste were collected. Even though more lead acid batteries were collected in the current term, the volume of liquid household hazardous waste collected had dramatically decreased. The recommendation shall be to continue to promote and operate municipal hazardous waste programs and remove waste from the public right of way. In addition, the City of Elk Grove is currently constructing their own household hazardous waste collection facility to allow residents and nearby jurisdictions a local option in disposing of their wastes.

A-5.6 City of Folsom Summary

Element Goal and Introduction

The goal of the Illicit Discharge Element is to comply with the requirements of Provision 11 of the 2008 Stormwater Permit by reducing the discharge of stormwater pollutants to the maximum extent practicable and effectively eliminating illicit (non-stormwater) discharges from non-commercial sources (commercial sources are addressed in the Commercial/Industrial section). Illicit discharges can result from dumping of liquid or solid wastes into the storm drain system (illegal dumping), from piped connections that allow sanitary sewage to flow into the storm drain system (illicit connections), or from allowing pollutants to come into contact with stormwater (or stormwater runoff) where they are then transported into the storm drain system.

The storm drain system in Folsom consists of a network of drain inlets, manholes and piping, as well as streets, sidewalks, gutters and roadside ditches, and many detention/water quality basins which discharge to local creeks and rivers. Urban runoff from driveways, parking lots, roof drains and other surfaces typically discharge directly into this system.

The City works toward eliminating illicit discharges to its storm drain system and receiving waters through the following major activities, which are discussed in more detail in the Stormwater Quality Improvement Plan (SQIP):

- Maintain adequate legal authority to prohibit illicit discharges.
- Respond to, investigate, contain and/or cleanup illicit discharges.
- Implement a convenient household hazardous waste (HHW) collection program.
- Conduct educational activities for City staff, contractors and the public about how to identify and report illicit discharge problems.

Permit compliance for this element depends on the collective work of staff in various City departments/groups, including: Public Works/Utilities (Stormwater Inspector, Hazmat, City maintenance crews), Fire, and Community Development (Code Enforcement). The City's Stormwater Inspector in the Public Works Department is the primary point of contact for most illicit discharge incidents, except those involving hazardous materials, which before FY 2011/12 were routed to Hazmat, and starting that year to the Fire Department. The City's Stormwater inspector coordinates with City crews as necessary to contain and cleanup the incident when a responsible party cannot be confirmed/made accountable. Maintenance crews also conduct ongoing field screening for illicit discharges as part of their routine maintenance work and in turn, coordinate with the responsible divisions or the Fire Department to clean up and dispose of any polluted or hazardous wastewater. If progressive enforcement action against the discharger does not eliminate the problem, the staff will then escalate the situation up to City Code Enforcement.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ID.1 Legal Authority

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ID.2 Reporting of Illicit Discharges and Connections

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ID.3 Ongoing Field Screening for Illicit Discharges and Connections

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Outcome Level 2 or above as described below.

ID.3.1 Continue to conduct ongoing field screening for illicit connections through routine maintenance activities being conducted by field crews

2008 PERMIT REFERENCE 11.a.ii; 11.b.v	PERFORMANCE STANDARD Decrease in number of illicit connections detected by field screening activities since last permit term				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> TASK MODIFIED PER WORK PLAN/ANNUAL REPORT		<input type="checkbox"/> PERFORMANCE STANDARD MODIFIED PER WORK PLAN/ANNUAL REPORT		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

Before and at the start of the 2008 permit term (FY 2008/09 and previous years), this activity was assessed at Outcome Level 1 by simply reporting the numbers of illicit connections detected and eliminated each year. Starting in FY 2009/10, a new performance standard was created for this task. The intent was to track a decrease in the number of illicit connections over time, as an indication of changed behavior by the public due to increased awareness and understanding of the regulations (Outcome level 3).

Assessment Results and Recommendations

City crews performed field screening for illicit connections as part of their routine maintenance activities during the 2008 permit term; however, no illicit connections were detected. This is a positive finding, but not necessarily an indication of the effectiveness of the City or Partnership's program. Therefore, the City does not recommend use of this performance standard as a key indicator for the next permit term. This is consistent with the proposed Partnership Illicit Discharges 5-Year Work Plan.

ID.4 Investigations of Illicit Discharges and Connections

ID.4.1 Investigate illicit discharges

2008 PERMIT REFERENCE 11.a.vi; 11.b.vii	PERFORMANCE STANDARD Increase in number of illicit discharges investigated over the course of the permit term. Collect data annually and assess data FY 12/13				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

Before and at the start of the 2008 permit term (FY 2008/09 and previous years), this activity was assessed at Outcome Level 1 by simply reporting the numbers of illicit discharges reported and eliminated each year. Starting in FY 2009/10, a new performance standard was created for this task, to track increases in illicit discharge investigations from one permit term to another. This was further modified in FY 2010/11 to track increases in investigations conducted over the course of the 2008 permit term, as an indication of changes in behavior of the public, maintenance crews and others to call and report illicit discharges (Outcome level 3).

Assessment Results

As shown in the following table, the total number of illicit discharges investigated over the course of the permit term *decreased overall*, rather than increased as originally anticipated. There are several possible reasons for this finding:

- Through the City’s public outreach efforts and the Partnership’s regional outreach campaign, the public is becoming more aware of the fact that only rain and certain non-stormwater discharges (e.g., landscaping irrigation runoff) is permitted in the storm drain system and local waterways. Therefore, illicit discharges are reduced from previous years.
- Through the City’s and EMD’s commercial/industrial program, persons and businesses (e.g., mobile washers, carpet cleaners, restaurants, car dealerships) are no longer dumping or otherwise allowing wastewater to enter the storm drain system.
- Through the City’s construction outreach and inspection efforts, contractors are no longer discharging pollutants to the storm drain systems in newly developing and redeveloping areas.
- Due to a few budget reductions and staff reorganizations, as responsibilities shifted from the Hazmat Division to the Fire Department data wasn’t consistently tracked and therefore the incidents investigated by the Fire Department are not reflected in the table below.
- The recession has reduced the amount of activity taking place; such as construction activity, home and landscape improvements and business startup (i.e. remodels, tenant improvements). Because there has been less activity, there have been fewer incidents.

Source of Information	2008/2009 No. Incidents Investigated	2009/2010 No. Incidents Investigated	2010/2011 No. Incidents Investigated	2011/2012 No. Incidents Investigated	2012/2013 No. Incidents Investigated
Hazmat Incident Response	31	38	26	7	N/A
Code Enforcement	28	2	5	9	N/A
PW Stormwater Inspector	34	65	46	52	N/A
Fire Department*	N/A	N/A	N/A	N/A	N/A
Total	93	105	77	68	N/A

N/A: Not available

**Starting in 2011/12 FY, calls about incidents involving spills were automatically routed to the City of Folsom Fire Department instead of the Hazmat Incident Response team. For cleanup services, the City Fire Department defers to contract services or the City Streets Division, depending on the severity of the incident and availability of Streets Division staff. The Fire Department tracking system does not have the ability to tease out incidents related to a stormwater illicit discharges therefore that data is unavailable.*

Assessment Recommendations

There are several factors which can influence a result of increases or decreases in illicit discharge reports or investigations over time, and as described in the results section above, an increase or decrease is not necessarily bad. For this reason, the City does not recommend use of this performance standard as a key indicator for the next permit term. This is consistent with the proposed Partnership Illicit Discharges 5-Year Work Plan.

ID.5 Illicit Discharge Response, Containment and Cleanup

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Outcome Level 2 or above as described below.

ID.5.2 Respond to, contain and clean up illicit discharges and connections

2008 PERMIT REFERENCE 11.a.iv; 11.b.ii; 11.b.iii	PERFORMANCE STANDARD Increase in number of responses, containment and cleanup of illicit discharges since last permit term				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

Before and at the start of the 2008 permit term (FY 2008/09 and previous years), this activity was assessed at Outcome Level 1 by simply reporting the numbers of illicit discharges investigated and eliminated each year. Starting in FY 2009/10, a new performance standard was created for this task, to track increases in illicit discharge investigations from one permit term to another, as an indication of changes in behavior of the public, maintenance crews and others to call and report illicit discharges (Outcome level 3).

Assessment Results and Recommendations

As shown in the following table, the total number of illicit discharges investigated from one permit term to another decreased, rather than increased as originally anticipated. There are several possible reasons for this finding, as described in the section above, ID.4.1. There are several factors which can influence a result of increases or decreases in illicit discharge reports or investigations over time, and as described in the results section above, an increase or decrease is not necessarily bad. For this reason, the City does not recommend use of this performance standard as a key indicator for the next permit term. This is consistent with the proposed Partnership Illicit Discharges 5-Year Work Plan.

Source of Information	No. Incidents Investigated During the 2002-2008 Permit Term					No. Incidents Investigated During the 2008-2013 Permit Term				
	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
Hazmat Incident Response	180	144	108	96	54	31	38	26	7	N/A*
Code Enforcement	3	40	2	4	11	28	2	5	9	N/A*
PW Stormwater Inspector	7	7	26	9	39	34	65	46	52	N/A*
Fire Department	N/A*	N/A*	N/A*	N/A*	N/A*	N/A*	N/A*	N/A*	N/A*	N/A*
Total	190	191	136	109	104	93	105	77	68	N/A*
				Total	730			Total	343	

* Not available

ID.6 Enforcement

ID.6.1 Conduct enforcement (e.g., warnings, NOVs, Cease and Desist Orders, Administrative Violations, and Cost Recoveries)

2008 PERMIT REFERENCE 11.b.iv	PERFORMANCE STANDARD Decrease in number of enforcement actions over the course of the permit term. Collect data annually and assess data FY 12/13				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

Before and at the start of the 2008 permit term (FY 2008/09 and previous years), this activity was assessed at Outcome Level 1 by simply reporting the number and type of enforcement actions issued each year. Starting in FY 2009/10, a new performance standard was created for this task, to track decreases in enforcement actions, as an indication of changed behavior on the part of the public and regulated business/construction community (Outcome Level 3).

Assessment Results and Recommendations

The following table shows the number of enforcement actions issued or actions taken (e.g., clean-up) to eliminate illicit discharges over the course of the permit term, organized by City Dept/group and type of action. Overall, there was an *increase* in enforcement actions issued by the City, rather than a decrease, however there is variability in the data depending on which department/group was conducting the investigation.

City Responder	Summary of Incidents Investigated & Enforcement Action Taken				
	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
Stormwater Inspector					
Investigations	34	65	46	52	N/A
Verbal Warning	20	64	41	50	N/A
Notice of Non Compliance (NONC)	0*	0*	1	0	N/A
Code Enforcement					
Investigations	28	2	5	9	N/A
Notice to Correct (NTC)	4	2	5	9	N/A
Hazmat					
Investigations/Clean up	31	38	26	7	N/A
Cost Recovery	N/A*	\$0	Approx. \$2,000	\$0	N/A
Fire Dept.					
	N/A	N/A	N/A	N/A	N/A
Total Enforcement Actions	24	66	47	59	N/A

N/A: Not Available

*Data does not differentiate verbal warning vs. NONC

The possible reasons for the changes in numbers from one year to the next are as follows:

- Stormwater Inspector –Employee training has increased its emphasis about reporting incidents to the SW inspector, additionally as the SW Inspector has gained more experience he has become more effective with enforcement thereby reducing the involvement of other staff such as code enforcement and haz mat.
- Code Enforcement – the number of enforcement actions taken by this group decreased significantly after the City was forced to eliminate a position due to budget cuts required by the down economy, additionally the SW Inspector has increased his effectiveness with enforcement reducing code enforcements involvement.
- Hazmat – The number of actions taken by Hazmat dropped off significantly in FY 2011/12 because the reports of incidents involving hazardous materials began to be routed to the Folsom Fire Department.
- Fire Dept – Starting in 2011/12 FY, calls about incidents involving spills were automatically routed to the City of Folsom Fire Department instead of the Hazmat Incident Response team. The Fire Department tracking system does not have the ability to tease out incidents related to a stormwater illicit discharges therefor that data is unavailable.

Assessment Recommendations

As described above, there are several factors that contribute to increases or decreases in enforcement actions over time that are not related to the effectiveness of the stormwater program and some are outside of the Stormwater Program Manager’s control. For this reason, the City does not recommend use of this performance standard as a key indicator for the next permit term. This is consistent with the proposed Partnership Illicit Discharges 5-Year Work Plan.

ID.7 Data Management

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ID.8 Outreach/Training

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Outcome Level 2 or above as described below.

ID.8.2 Provide training to storm drain system maintenance crews and illicit discharge response crews annually

2008 PERMIT REFERENCE 11.b.vi	PERFORMANCE STANDARD Maintained/Increased employee awareness as measured by quizzes during annual training				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 2	FY 11/12 2	FY 12/13 2

Assessment Methodology

Before and at the start of the 2008 permit term (FY 2008/09 and previous years), the effectiveness of employee training was made at Outcome Level 1 by simply reporting the numbers of staff trained in various departments and on various topics each year. Starting in FY 2009/10, a new performance standard was created for this task and the original intent was to track trends in employee awareness over the course of the permit term. Then in June that year a pilot quiz was conducted during the annual refresher training provided to 75 employees, to provide baseline data for the permit term assessment. However, it quickly became clear that the performance standard was problematic. For example, the control group of employees was not the same from year to year. Budget cuts due to economic conditions caused reorganization and there were significant changes/ turnover in staffing from one year to the next. Recognizing this, in FY 2010/11, the City moved to an assessment strategy of using quizzes to gage the attendees’ increased awareness as a result of each individual training session.

Assessment Results and Recommendations

See Folsom’s Municipal Operations Element for results and recommendations of all employee training activities.

ID.9 Facilitation of Proper Household Hazardous Waste Disposal

ID.9.1 Maintain operation of the City's household hazardous waste pickup program

2008 PERMIT REFERENCE	PERFORMANCE STANDARD				
	Sustained quantities of household hazardous waste collected from public over the course of the permit term. Collected data annually and assess data FY 12/13				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

Before and at the start of the 2008 permit term (FY 2008/09 and previous years), this activity was assessed at Outcome Level 1 by simply reporting the quantity of HHW collected and properly disposed of each year. Starting in FY 2009/10, a new performance standard was created for this task, to assess whether the City could sustain the quantities of HHW collected as compared to the previous 2002 permit term. In FY 2010/11, the performance standard was modified to track sustained HHW quantities collected over the course of the permit term, as an indication of increased awareness and changed behavior on the part of the public to use the City's convenient appointment-based home HHW pickup program (Outcome Level 3).

Assessment Results

As shown in the table below, the amounts of HHW collected through the City's HHW program increased by 30,000 lb (15 tons) between FY 2008/09 and FY 2009/10, and then held fairly steady after that, with minor/negligible changes from year to year. The performance standard for this task was met. This is an approximate measure of the amount of waste prevented from entering the municipal storm drain system through illegal dumping and other means.

Material	Unit	2008/2009 Quantity	2009/2010 Quantity	2010/2011 Quantity	2011/2012 Quantity	2012/2013 Quantity
Lead Acid Batteries	lbs	22,890	23,315	19,548	15,687	N/A
Used Motor Oil	lbs	36,763	37,613	33,750	36,750	N/A
Latex Paint	lbs	86,250	98,140	102,415	104,900	N/A
Antifreeze	lbs	1,275	7,082.50	6,552	6,660	N/A
Other HHW*	lbs	315,430	327,819	339,835	331,492	N/A
Total Material recovered		462,608	493,970	502,100	495,489	N/A

N/A: Not available

*Includes pesticides, household cleaners, poisons, acids, universal waste-containing products, etc.

Assessment Recommendations

The City recommends that use of this performance standard be continued in the next permit term.

A-5.7 City of Galt Summary

Element Goal and Introduction

The goal of the Illicit Discharges Element is to reduce the discharge of stormwater pollutants to the maximum extent practicable and to effectively eliminate illicit non-stormwater discharges.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ID.1 Legal Authority

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ID.2 Reporting of Illicit Discharges and Connections

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

Assessment Methodology, Results and Recommendations

No reports of illicit discharges and connections in the City of Galt during the permit term came from the Partnership public hotline (808-4H20). Despite efforts to advertise the Partnership public hotline, city constituents know which local numbers or persons to contact to report such information due to the small size of the City.

ID.3 Screening for Illicit Connections

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

Assessment Methodology, Results and Recommendations

No reports of illicit connections during the permit term have been found by field crews performing routine maintenance activities. This is most likely due to the small size of the city.

ID.4 Investigations of Illicit Discharges and Connections

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Outcome Level 2 or above as described below.

ID.4.1 The City of Galt will continue to conduct investigations of illicit discharges (hazardous and non-hazardous).

2008 REFERENCE 11.a.iv; 11.b.iii	PERMIT	PERFORMANCE STANDARD Decrease in number of illicit discharges investigated since last permit term				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report	<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report				
ASSESSMENTS AND SCHEDULE	LEVEL	FY 08/09	FY 09/10	FY 10/11	FY 11/12	FY 12/13
		1	1	1	1	3

ID.4.2 The City of Galt will continue to conduct investigations of illicit connections

2008 REFERENCE 11.a.iii; 11.b.iii	PERMIT	PERFORMANCE STANDARD Decrease in number of illicit connections investigated since last permit term				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report	<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report				
ASSESSMENTS AND SCHEDULE	LEVEL	FY 08/09	FY 09/10	FY 10/11	FY 11/12	FY 12/13
		1	1	1	1	3

Assessment Methodology

Before and at the start of the 2008 permit term (the fiscal year 2008/09 and previous years), these activities were assessed at Outcome Level 1 by simply reporting the numbers of illicit discharges and connections detected and eliminated each year. Starting in the fiscal year 2009/2010, a new performance standard was created for these tasks. The intent was to track a decrease in the number of illicit discharges and connections over time, as an indication of changed behavior by the public due to increased awareness and understanding of the regulations (Outcome level 3).

Assessment Results and Recommendations

City crews performed field screening for illicit discharges and connections as part of their routine maintenance activities during the 2008 permit term; however, no illicit discharges or connections were detected. This is a positive finding, but not necessarily an indication of the effectiveness of the City or Partnership’s program. Therefore, the City does not recommend use of this performance standard as a key indicator for the next permit term. This is consistent with the proposed Partnership Illicit Discharges 5-Year Work Plan.

ID.5 Illicit Discharge and Connection Response, Containment and Cleanup

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Outcome Level 2 or above as described below.

ID.5.2 The City of Galt will continue to respond to and abate illicit discharges

2008 PERMIT REFERENCE 11.a.iv ; 11.b.iii	PERFORMANCE STANDARD Decrease in number of responses and abatements of illicit discharges since last permit term				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report <input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report				
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09	FY 09/10	FY 10/11	FY 11/12	FY 12/13
	1	1	1	1	3

Assessment Methodology

Before and at the start of the 2008 permit term (the fiscal year 2008/09 and previous years), this activity was assessed at Outcome Level 1 by simply reporting the numbers of illicit discharges reported and eliminated each year. Starting in the fiscal year 2009/10, a new performance standard was created for this task, to track increases in illicit discharge investigations from one permit term to another. This was further modified in the

fiscal year 2010/11 to track increases in investigations conducted over the course of the 2008 permit term, as an indication of changes in behavior of the public, maintenance crews and others to call and report illicit discharges (Outcome level 3).

Assessment Results

As shown in the following table, the total number of illicit discharges investigated over the course of the permit term stayed relatively static, rather than increasing as originally anticipated. There are several possible reasons for this finding:

- Through the City’s public outreach efforts and the Partnership’s regional outreach campaign, the public is becoming more aware of the fact that only rain and certain non-stormwater discharges (e.g., landscaping irrigation runoff) is permitted in the storm drain system and local waterways. Therefore, illicit discharges are reduced from previous years.
- Through the City’s and EMD’s commercial/industrial program, persons and businesses (e.g., mobile washers, carpet cleaners, restaurants, car dealerships) are no longer dumping or otherwise allowing wastewater to enter the storm drain system.
- Through the City’s construction outreach and inspection efforts, contractors are no longer discharging pollutants to the storm drain systems in newly developing and redeveloping areas.
- The recession has reduced the amount of activity taking place; such as construction activity, home and landscape improvements and business startup (i.e. remodels, tenant improvements).

Source of Information	No. Incidents Investigated				
	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
Reports by City Staff and/or Public	2	1	0	0	2

Assessment Recommendations

There are several factors which can influence a result of increases or decreases in illicit discharge reports or investigations over time, and as described in the results section above, an increase or decrease is not necessarily bad. For this reason, the City does not recommend use of this performance standard as a key indicator for the next permit term. This is consistent with the proposed Partnership Illicit Discharges 5-Year Work Plan.

ID.6 Enforcement

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Outcome Level 2 or above as described below.

ID.6.2 The City of Galt will continue to conduct enforcement (e.g., warnings, NOVs, Cease and Desist Orders, ACPs, and Cost Recoveries)

2008 PERMIT REFERENCE 11.b.iv	PERFORMANCE STANDARD Decrease in number of enforcement actions since last permit term				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology, Results and Recommendations

Before and at the start of the 2008 permit term (the fiscal year 2008/09 and previous years), this activity was assessed at Outcome Level 1 by simply reporting the number and type of enforcement actions issued each year. Starting in the fiscal year 2009/2010, a new performance standard was created for this task, to track decreases in enforcement actions, as an indication of changed behavior on the part of the public and regulated business/construction community (Outcome Level 3).

There are several factors that contribute to increases or decreases in enforcement actions over time that are not related to the effectiveness of the stormwater program and some are outside of the Stormwater Program Manager’s control. For this reason, the City does not recommend use of this performance standard as a key indicator for the next permit term. This is consistent with the proposed Partnership Illicit Discharges 5-Year Work Plan.

ID.7 Data Management

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ID.8 Outreach/Training

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ID.9 Facilitation of Proper Household Hazardous Waste Disposal

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Outcome Level 2 or above as described below.

ID.9.2 The City of Galt will continue to maintain operation of household hazardous waste pick-up program

2008 PERMIT REFERENCE	PERFORMANCE STANDARD				
	Sustained quantities of household hazardous waste collected from public since previous permit term				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09	FY 09/10	FY 10/11	FY 11/12	FY 12/13
	1	1	1	1	3

Assessment Methodology

Before and at the start of the 2008 permit term (the fiscal year 2008/09 and previous years), this activity was assessed at Outcome Level 1 by simply reporting the quantity of HHW collected and properly disposed of each year. Starting in the fiscal year 2009/2010, a new performance standard was created for this task, to assess whether the City could sustain the quantities of HHW collected as compared to the previous 2002 permit term. In the fiscal year 2010/2011, the performance standard was modified to track sustained HHW quantities collected over the course of the permit term, as an indication of increased awareness and changed behavior on the part of the public to use the City’s annual HHW drop-off program (Outcome Level 3).

Assessment Results

As shown in the table below, the amounts of HHW collected through the City’s HHW program increased by 30,000 lb (15 tons) between the fiscal year 2008/09 and the fiscal year 2009/10, and then held fairly steady after that, with minor/negligible changes from year to year. The performance standard for this task was met. This is an approximate measure of the amount of waste prevented from entering the municipal storm drain system through illegal dumping and other means.

Material	Unit	2008/2009 Quantity	2009/2010 Quantity	2010/2011 Quantity	2011/2012 Quantity	2012/2013 Quantity
Lead Acid Batteries	lbs	1,406	1,500	0	3,000	N/A
Used Motor Oil	lbs	2,489	2,815	1,200	3,000	N/A
Latex Paint	lbs	5,767	8,250	6,400	16,000	N/A
Antifreeze	lbs	396	0	0	450	N/A
Other HHW*	lbs	N/A	11,057	7,574	20,432	N/A
Total Material recovered		10,058	23,622	15,924	42,882	N/A

N/A: Not available

**Includes pesticides, household cleaners, poisons, acids, universal waste-containing products, etc.*

Assessment Recommendations

The City recommends that use of this performance standard be continued in the next permit term.

A-5.8 City of Rancho Cordova Summary

Element Goal and Introduction

The goal of the Illicit Discharge Element is to comply with the requirements of Provision 11 of the 2008 Stormwater Permit by reducing the discharge of stormwater pollutants to the City's storm drain system to the maximum extent practicable and effectively eliminating illicit non-stormwater discharges from non-commercial sources (commercial sources are addressed in the Commercial/Industrial Element chapter) to the City's storm drain system. Illicit discharges can result from dumping of liquid or solid wastes into the storm drain system, or from allowing pollutants to come into contact with stormwater (or stormwater runoff) where they can then be transported into the storm drain system.

During the 2008 permit term, the City of Rancho Cordova maintained arrangements with the County of Sacramento Department of Water Resources to conduct the majority of the work related to this element on their behalf. Some activities were performed by other City contractors, for example: the City's waste management contractor collected used motor oil, a household hazardous waste, during weekly curbside solid waste pickup. Providing a convenient means for disposal of the waste oil likely deters illegal dumping of the waste. Here is another example: for contractors who encounter illicit discharges/connections during their field activities (e.g., maintenance transportation right of ways), City inspectors and field crews are trained to identify the illicit discharge connections & take necessary actions such as to whom to contact during their site inspections.

Section 5.3 of this chapter describes the County's illicit discharge activities conducted on behalf of Rancho Cordova, including these 3 major components:

- Maintain an effective Stormwater Ordinance and other local regulation to prohibit illicit discharges
- Educate County staff and the public about how to identify and report illicit discharge problems; develop outreach materials and maintain a hotline for public reporting of problems (calls received on the 808-4H2O reporting hotline about incidents in Rancho Cordova are referred to County staff for investigation)
- Sacramento County Stormwater Water Quality Section (Stormwater staff) performs investigations and conducts enforcement of the Stormwater Ordinance to eliminate illicit discharges/connections reported by the public, County maintenance crews and others.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ID.1 Legal Authority

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ID.2 Reporting of Illicit Discharges and Connections

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ID.3 Screening for Illicit Connections

ID.3.1 The County will continue to conduct ongoing field screening for illicit connections through routine maintenance activities being conducted by field crews

2008 PERMIT REFERENCE 11.a.iv ; 11.b.iii	PERFORMANCE STANDARD Decrease in number of illicit connections detected by field screening activities since last permit term				
<input type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

The County of Sacramento implemented an illicit connection and reporting program in 2006 by developing procedures for conducting on-going screening for illicit connections. Field crews have received annual training for illicit connection identification and reporting since 2006. All reported illicit connections are investigated and storm water staff enforce on the responsible party to immediately remove the illicit connection.

Assessment methodology is to annually track the number of illicit connections reported by field crews and verified by stormwater staff. The performance standard was created to track and show a decrease in the number of illicit connections over time, as an indication of changed behavior by the public due to increased awareness and understanding of stormwater regulations (Effectiveness Outcome Level 3).

Assessment Results

Field crews conducted on-going field screening during the 2008 permit term and reported two illicit connections over the past five years. The 2008 permit term showed a decrease in reported illicit connections over the course of the permit term, yet an increase by one confirmed illicit connection is observed when compared to the previous permit term. Table A-5.8.1 summarizes the number of illicit connections reported over both permit terms.

Table A-5.8.1 Illicit Connections Reported During 2002 and 2008 permit terms

Previous (2002) permit term		2008 permit term	
Fiscal Year	# Illicit Connections*	Fiscal Year	# Illicit Connections*
03/04	NA**	08/09	2
04/05	1	09/10	0
05/06	0	10/11	0
06/07	0	11/12	0
07/08	0	12/13	NA
Total		Total	2

**Note: The number of illicit connections identified in these tables include only illicit connections identified at residential and commercial facilities inspected by the County's complaint-based program. These numbers do not include illicit connections identified by the EMD CISCIP inspection program.*

***Data not available for the fiscal year 03/04; Rancho Cordova incorporated in 2004.*

A decrease in illicit connections was observed in the 2008 permit term. The cause for the decrease cannot be directly tied to a change in public behavior (Effectiveness Outcome Level 3) without further data collection (public survey, staff survey, etc.).

Recommendations

Recommendations for the next permit term are to continue with the task of on-going field screening for illicit connection and to adjust the performance standard to measure the County’s effectiveness at responding to and eliminating illicit connections. The assessment level will remain at Effectiveness Outcome Level 3.

ID.4 Investigations of Illicit Discharges and Connections

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ID.5 Illicit Discharge and Connection Response, Containment and Cleanup

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Effectiveness Outcome Level 2 or above as described below.

ID.5.2 The County will continue to respond to, contain and clean up illicit discharges

2008 PERMIT REFERENCE 11.b.iii	PERFORMANCE STANDARD Decrease in number of responses, containment and cleanup of illicit discharges over the course of the current permit term				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input checked="" type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

The performance standard for this task was developed to track the number of illicit discharges and connections reported that required cleanup to be performed by Sacramento County. The objective was to show a decrease in cleanup activities over time due to a change in public behavior that minimized illicit discharges and connection.

Assessment Results

The number of responses conducted as well as the situations resulting in cleanup activity performed by Sacramento County decrease over the permit term. Table A-5.8.2 summarizes the number of illicit discharge and connection responses that resulted in cleanup performed by Sacramento County. The decrease in number of responses over the 2008 permit term could be attributed to a change in public behavior and awareness of preventing non-stormwater discharges and illicit connections (Effectiveness Outcome Level 3). Yet, the responses to illicit discharges are primarily generated through public complaints, and the decrease in responses could also be attributed to the public choosing to not report observed discharges. Without further data (i.e. public survey asking if they report all observed violations) a strong conclusive statement about a change in public’s behavior cannot be made.

Table A-5.8.2 Number of Responses Resulting in Cleanup

Fiscal Year	Number of Responses/Investigations Conducted by County Crews for Rancho Cordova	Number of Responses Requiring Containment/Cleanup by County Crews on behalf of Rancho Cordova
08/09	18	16
09/10	9	1
10/11	10	3
11/12	6	1
12/13	NA	NA

Recommendations

Recommendations for the next permit term would be to continue with tracking County responses and cleanup activities. Proposed changes will be to adjust the performance standard to track County effectiveness at

responding to or referring complaints to the appropriate entities to show change in County staff awareness and behavior (Effectiveness Outcome Level 3). Current performance standard of tracking a decrease in responses and clean-up as way of showing an increase in public awareness and behavior cannot yield strong conclusive statements without further data that measures the public's awareness. Changing the performance standard to one that evaluates the County's awareness and performance will allow for a more controlled study group that will yielding stronger conclusive statements.

2008 PERMIT REFERENCE 11.a.iv ; 11.b.iii	PERFORMANCE STANDARD Track amount of waste removed from right-of-way				
<input type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> TASK MODIFIED PER WORK PLAN/AR		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 4	FY 10/11 4	FY 11/12 4	FY 12/13 4

Refer to County Effectiveness Assessment for amount of waste removed from right-of-way areas within Rancho Cordova. It was not possible for Sacramento County Department of Transportation cannot break out Rancho Cordova-specific information.

ID.5.3 The County will continue to respond to and abate illicit connections

2008 PERMIT REFERENCE 11.a.iii ; 11.b.ii	PERFORMANCE STANDARD Decrease in no. of responses and abatements of illicit connections over the course of the current permit term				
<input type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

The performance standard for this task was developed to track the number of reported and/or observed illicit connections that required abatement performed by Sacramento County. The objective was to show a decrease in cleanup activities over time due to a change in public behavior that minimized illicit discharges and connection.

Assessment Results

Two illicit connections within the City of Rancho Cordova were reported to Sacramento County during the 2008/2009 fiscal year. Since the first full year of the 2008 permit term, no illicit connections have been reported or identified within the City of Rancho Cordova at residential properties. The decrease in reported illicit connections over the course of the permit term meets the performance standard established for this task.

Recommendations

Recommendations for the next permit term would be to continue tracking illicit discharge complaint and enforcement/abatement activities. Recommended changes would be to adjust performance standard to County's effectiveness at responding to and eliminating illicit connections. Assessment level will remain at Effectiveness Outcome Level 3.

ID.6 Enforcement

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Effectiveness Outcome Level 2 or above as described below.

ID.6.2 The County will continue to conduct enforcement (e.g., warnings, NOVs, Cease and Desist Orders, ACPs, and Cost Recoveries)

2008 PERMIT REFERENCE 11.a.iv ; 11.b.iii	PERFORMANCE STANDARD Decrease in no. of enforcement actions over the course of the current permit term				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

The performance standard for this task was developed to track the number of enforcement actions taken by stormwater staff over the course of the permit and to show a decrease in the number of enforcement actions due less violations as a result of a change in public awareness and behavior (Effectiveness Outcome Level 3).

Assessment Results

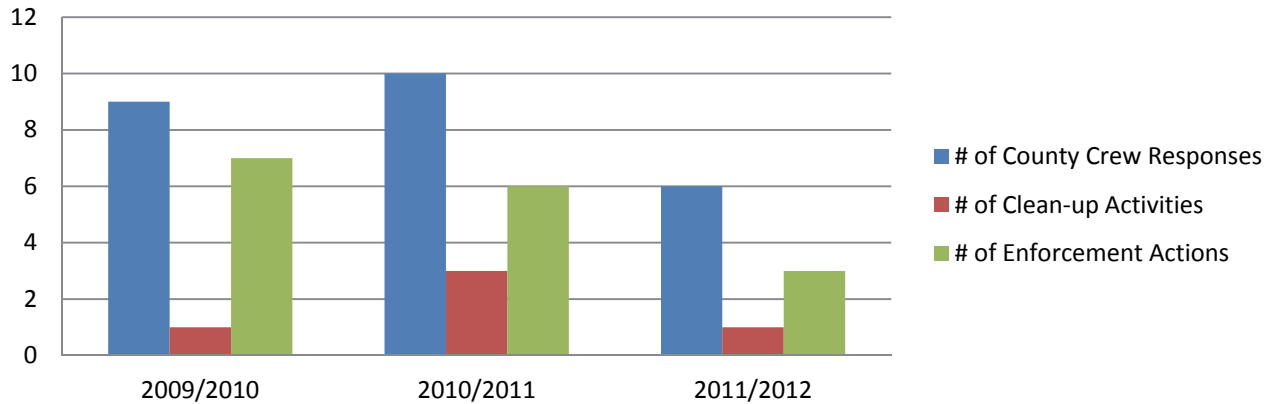
As shown in Table A-5.8.3, a decrease in the number of enforcement actions did occur over the course of the 2008 permit term. The enforcement data in 2008/2009 did not record residential enforcement separate from industrial enforcement actions and were recorded together. Residential and industrial enforcement actions were recorded separately starting in 2009/2010 fiscal year, which is why the data reported below reduces in 2009/2010 fiscal year. The observed decrease in enforcement actions directly correlates with the observed decrease in the number of complaints reported and responded to by County crews. As stated before in section ID.5.2, the number of enforcement actions conducted does not equal the number of cleanup activities performed by County since the responsible party cannot always be identified. As shown in Figure A-5.8.1, a decrease in cleanup activities and situations resulting in enforcement actions occurred over the course of the permit term, and could be directly correlated to an increase in public awareness and a change in public behavior. Yet, the decrease could also not be associated with public awareness and more data or public surveys would be needed to directly link this decrease to a change in public behavior. Furthermore, the decrease could be associated with the decrease in County staff during the 2008 Permit term.

Table A-5.8.3, Progressive Enforcement Conducted over 2008 permit term

Fiscal Year	Progressive Enforcement Conducted			Total
	Verbal Warning	Written Warning	NOV	
08/09	3	4	11	18
09/10	1	4	2	7
10/11	1	3	2	6
11/12	0	3	0	3
12/13	NA	NA	NA	NA

Figure A-5.8.1 Number of County Illegal Discharge Responses, Cleanup and Enforcement Actions

County Response, Clean-up and Enforcement Actions



Note: The number of responses requiring cleanup by County crews does not match the number of enforcement actions taken by the County since the responsible party cannot always be identified.

ID.7 Data Management

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ID.8 Outreach/Training

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Effectiveness Outcome Level 2 or above as described below.

ID.8.2 Conduct annual training Re: field screening and illicit discharge response for crews

2008 PERMIT REFERENCE	PERFORMANCE STANDARD				
	Maintained/Increased employee awareness as measured by surveys during annual training. First survey to be conducted in the fiscal year 10/11				
<input type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 2	FY 11/12 2	FY 12/13 2

Assessment Methodology, Results and Recommendations

The County conducted annual refresher training for County crews doing maintenance work in Rancho Cordova. See section A-5.2 of this chapter for results and recommendations.

ID.9 Facilitation of Proper Household Hazardous Waste Disposal

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Effectiveness Outcome Level 2 or above as described below.

ID.9.2 The County will continue to maintain operation of the County’s household hazardous waste drop-off centers

2008 PERMIT REFERENCE 11.a.iv ; 11.b.iii	PERFORMANCE STANDARD Sustained quantities of household hazardous waste and used motor oil collected from public over the course of the current permit term				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

The performance standard for this task was developed to track the quantities of Household Hazardous Waste (HHW) collected by Sacramento County Department of Waste Management. The amount of waste collected through the HHW programs correlates directly to the amount of waste recycled or disposed of properly and not illegally dumped. The sustained quantities of waste recovered over the course of the permit term is way to measure the public’s behavior (Effectiveness Outcome Level 3) and awareness of proper disposal practices.

Assessment Results

The County continued to provide HHW drop off locations within the County boundaries for residence of Rancho Cordova. Quantities of waste collected by the County HHW program are reported within the County Illicit Discharge Element. Refer to section A-5.2 for reported HHW quantities and assessment results.

The City of Rancho Cordova’s solid waste management contractor collected waste motor oil at the curb during weekly solid waste collection services. Table A-5.8.4 tabulates the amount of waste recovered each year and the total for the first 4 years of the 2008 permit term. Rancho Cordova residents are encouraged to also bring their HHW to two regional collection facilities operated by the City and County of Sacramento.

The performance standard and Effectiveness Outcome Level was achieved for this task. This is an approximate measurement of the amount of waste prevented from entering the municipal storm drain system and/or dumped in the public right-of way due to the public’s choice to properly dispose of their household hazardous waste.

Table A-5.8.4 Waste Oil Curbside Pickup Quantities

Fiscal Year	Quantity of Waste Oil Removed from Residential Areas via Curbside Pickup (gallons)
08/09	2578
09/10	7000
10/11	10
11/12	6
12/13	NA

Recommendations

Recommend continuation of curbside pickup for City of Rancho Cordova residences.

Refer to section A-5.2 of this chapter for Sacramento County HHW recommendations.

A-6. Public Outreach Program

A-6.1 Partnership Activities

Element Goal and Introduction

The Sacramento Stormwater Quality Partnership (Partnership) conducts regional public outreach programs to educate the public about the harmful effects of stormwater pollution and to motivate people to prevent pollution; it also creates and promotes opportunities for public participation in creek and river stewardship projects. The ultimate purpose is to improve the quality of urban runoff and protect local creeks and rivers.

The 2008 Stormwater Permit requires the Permittees to use “*appropriate media to (1) measurably increase the knowledge of target communities regarding MS4s [storm drain systems], impacts of urban runoff on receiving waters, and potential BMP [best management practice] solutions for the target audience; and (2) to change the behavior of target communities and thereby reduce pollutant releases to MS4s and the environment.*” (Permit Provision 12a) Public outreach activities are coordinated with those of the other program elements to ensure consistent and integrated messages throughout all program activities. The Partnership maintains relationships with other groups and agencies to share ideas and experiences, and outreach activities are implemented jointly where mutually beneficial opportunities exist. Many of the Partnership’s outreach activities are conducted regionally, as a collaborative effort among the Permittees to prevent duplication, share resources and reach a broader segment of the population. In general, collaborative, county-wide efforts can be more cost-effective; however, in some cases, localized public outreach by individual Permittees is more appropriate or cost-effective.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

PO.1 Public Participation

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at outcome Level 2 or above as described below.

PO.1.1 Participate in clean up events

2008 PERMIT REFERENCE 12.ai.,bi.c.	PERFORMANCE STANDARD Remove trash from waterways				
<input checked="" type="checkbox"/> KEY INDICATOR	<input checked="" type="checkbox"/> Task modified per Work Plan/Annual Report		<input checked="" type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09	FY 09/10	FY 10/11	FY 11/12	FY 12/13
	1	4	4	4	4

Assessment Methodology

Starting in the 2009/2010 fiscal year, the Permittees began evaluating this task using the performance standard “remove trash and debris from waterways” as a measure of reduction of pollutant loads (in this case, waste materials in general) from sources (urban areas) into local receiving waters (Effectiveness Outcome Level 4.) In the 2010/2011 Work Plan, the word “debris” was dropped from the performance standard to simplify reporting for volunteer groups.

Assessment Results

Each year during the 2008 permit term, the Sacramento Area Creeks Council (SACC) tracked and reported to the Partnership the amount of trash and invasive plants removed from local waterways by volunteers during the April Creek Week events.



Volunteers at Creek Week Celebration

Table A-6.1-1 summarizes the data for the 2008 permit term, which shows a fairly consistent amount of trash was removed from waterways throughout the county from year to year by the approximately 2,000 volunteers each year, for a total of 75 tons of trash removed for the 2008 permit term to date. This is in addition to trash/waste materials removed by Permittee crews/contractors as reported in the Municipal Operations Element (Section 2.5; Appendix A-4) and any other trash and invasive that may have been removed by other volunteer groups (e.g., California Native Plant Society and Sacramento Weed Warriors) not associated with the formal Creek Week activities. The performance standard for this task was therefore met.

Table A-6.1-1. Amount of Trash and Invasive Plants Removed during Annual Creek Week Events*

Fiscal Year	Number of Volunteers	Amount of Trash (tons)	Amount of Invasive Weeds
08-09	NA	20	NA
09-10	2200	19	10,000 sf
10-11	2000+	21	75 cy
11-12	2000+	15	115 cy
Total Trash Removed:		75 tons	

**All numbers are approximate based on reports received from the SACC.*

Recommendations

For the next permit term, the Permittees will continue to support watershed clean-up events with in-kind and/or financial resources. However, this task should not continue to serve as a key indicator assessment for the Public Outreach Program. While the activity is meaningful and helps remove/reduce pollution in area waterways, it is not a good indicator of the effectiveness of the overall Public Outreach Program.

PO.2 Hotline

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

PO.3 Public Outreach Implementation

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at outcome Level 2 or above as described below.

PO.3.4 Implement a program that addresses fundraiser carwash discharges

2008 PERMIT REFERENCE 12.ai.,aiv., bi., biv., c.	PERFORMANCE STANDARD Increase awareness on the impact of fundraiser carwash discharges in waterways				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 2	FY 10/11 2	FY 11/12 2	FY 12/13 2

Assessment Methodology

In the 2008/2009 fiscal year, the Partnership launched the River-Friendly Fundraiser Carwash Program and the associated web page to increase awareness about the impact of fundraiser carwash discharges to local waterways. The Partnership contracted with the Business Environmental Resource Center (BERC) to maintain the web page (www.riverfriendlycarwash.org). Starting in the 2009/2010 fiscal year, the Partnership began assessing the effectiveness of the River Friendly Fundraiser Carwash Program and web page to raise awareness (Effectiveness Outcome Level 2) by tracking the number of visitors to the web page. The baseline data for this assessment was the number of visitors to the site in the 2008/2009 fiscal year vs. subsequent years.

Results

During the 2008 permit term, BERC provided monthly reports that showed the number of web site visitors each month (see Table A-6.1-2). There was a spike in visitors at the start of the program, which indicates an interest and desire to learn more, but in the years since, the number of visitors has dropped off measurably.

Table A-6.1-2 Number of Visits to the River-Friendly Fundraiser Carwash Program Website

Fiscal Year	Visitors
08/09*	207
09/10	820
10/11	645
11/12	500

*The program was launched during 2008/2009 fiscal year

Recommendations

The performance standard for this task was not fully met due to limited tractable data as to the increased awareness. The number of hits to the website is not a good indicator of the effectiveness of the overall Public Outreach Program or the Fundraiser Car Wash Program. For the next permit term, this task should not continue to serve as a key indicator for the Public Outreach Program. This activity will now tie into proposed task PO.1.5.

2008 PERMIT REFERENCE 12.ai.,aiv., bi., biv., c.	PERFORMANCE STANDARD Increase number of River-Friendly Carwash host facilities				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 3	FY 11/12 3	FY 12/13 3

Assessment Methodology

In the 2008/2009 fiscal year, the Partnership launched its River-Friendly Fundraiser Carwash Program and invited commercial carwashes in the permit area to participate as a carwash host for the program. In the

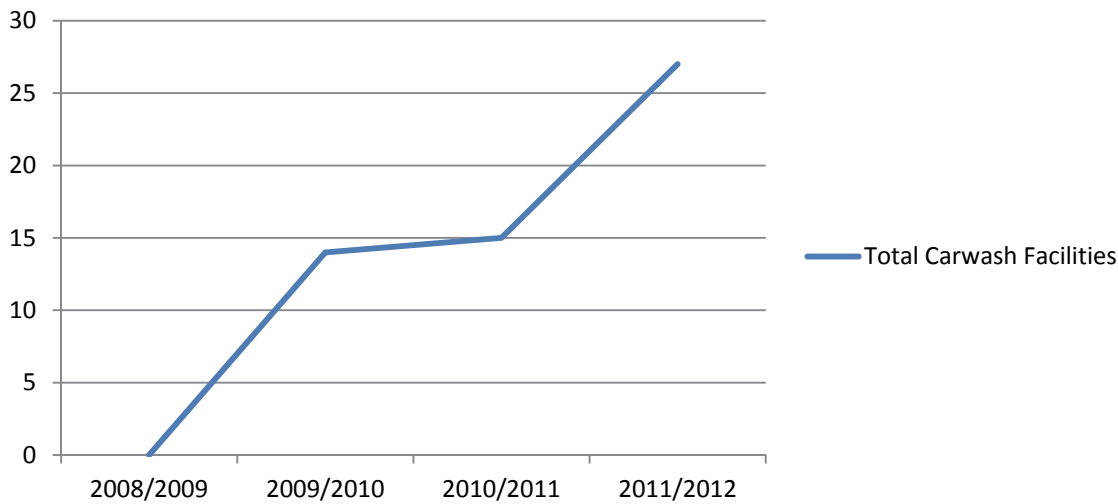
2011/2012 fiscal year, a second letter inviting new and existing commercial carwashes (about 143 businesses) to participate in the program was sent. The number of participating carwashes was tracked annually, with the goal of increasing the number of participants each year over the permit term.

Results

Figure A-6.1-1 shows the increasing trend of participating carwash facilities for the 2008 permit term; 27 partners have registered for the program to date. Although the performance standard for this task has been met, it's possible that additional outreach may have resulted in greater participation. Also, a more robust marketing campaign focusing on advertising the host facilities to schools or local youth groups may have generated more interest from other non-participating facilities.

Figure A-6.1-1 Commercial Carwash Participants in River Friendly Fundraising Carwash Program

Total Carwash Facilities Participating in River-Friendly Fundraising Carwash Program



Recommendations

For the next permit term, this task should not continue to serve as a key indicator for the Public Outreach Program. This task does not serve as a good key indicator of the overall public outreach program as Permittees have localized individual programs that are not reflected in this effort. The Partnership will continue to maintain the website, promote existing carwash partners and will tie messaging into existing public outreach efforts in task PO.1.5.

PO.3.5 Implement home and garden care programs, including the distribution of educational materials (e.g., Our Water Our World, Waterwise, and River-Friendly Landscaping)

2008 PERMIT REFERENCE 12.iiii., biii.	PERFORMANCE STANDARD Reduction in pesticide use and increase public's use of alternative home and garden care				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 3	FY 12/13 1

Assessment Methodology

The Partnership utilized public service messages and partnerships through programs like Our Water, Our World (OWOW) to educate residents about proper pesticide and fertilizer usage and the Integrated Pest Management practices in an effort to reduce pesticide use. In 2009, the Partnership contracted with California State University, Sacramento (CSUS) to evaluate public opinions and understanding of stormwater and stormwater pollution prevention, including the adverse impact of pesticide use on water quality (Effectiveness Outcome Level 2). CSUS conducted two statistically-valid phone surveys of residents within the permit area during the 2008 permit term.

Results

CSUS conducted statistically valid telephone surveys in 2009 and 2011 which demonstrated that residents within the permit area apply pesticides around their home and that they make their pesticide purchase choices based on cost and the chemical's potential risk to the environment, kids and family pets. Respondents also ranked eradication speed as a deciding factor in which pesticide to purchase.

Feedback from store locations implementing the OWOW program demonstrate increased sales of less-toxic pesticide options in their stores. Additional information about the OWOW training, stores, and surveys of employees can be found in task PO.5.4.

While the feedback from OWOW locations demonstrate an increased preference for less-toxic pesticide alternatives, the performance standard was not fully met as the survey data did not demonstrate a reduction in overall pesticide use.

Recommendations

For the next permit term, this task should no longer continue to serve as a key indicator for the program. It is difficult to obtain an accurate picture of residential pesticide usage and reduction in pesticide use from a phone survey. As reflected in proposed task PO.1.8, the Partnership will continue programs, such as OWOW to encourage residents to implement less-toxic pesticide control measures in and around their homes.

PO.3.10 Conduct Public Opinion Surveys to identify changes in awareness and behavior

2008 PERMIT REFERENCE 12.iiii., biii.	PERFORMANCE STANDARD Increase in awareness and behavior changes through mixed media campaigns and outreach materials				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 NA	FY 09/10 3	FY 10/11 NA	FY 11/12 3	FY 12/13 NA

Assessment Methodology

The Partnership evaluates effectiveness of its mixed-media outreach program by conducting phone surveys every other year. During the 2008 permit term, statistically-valid phone surveys of residents within the permit area were conducted in 2009 and 2011. Survey questions were intended to assess knowledge about direct connection of the storm drain system to local waterway, public service announcement (PSA) message retention and behaviors related to pollution prevention. It is difficult to obtain an accurate measurement of behavior changes through phone surveys.

Results

The 2009 survey results showed that there was very little retention of the messages that the Partnership was using in their communications. This was likely due to the fact that the Partnership was promoting too many different messages during the course of the preceding year, such as: pet waste disposal, proper car washing methods, proper disposal of household hazardous wastes, and proper use of pesticides and fertilizers. As a result of the 2009 survey, the Partnership re-focused its main media message to the simple and general "Be River-Friendly" statement, and repeated and reinforced this message in all outreach conducted from late 2009

through 2011. The new message, designed to help make the connection between the public’s actions and the health of the rivers, was also reflected in the Partnership’s new web site address: www.beriverfriendly.org.

In 2011, a second statistically valid survey was conducted which demonstrated some success, with a 77 percent increase in public retention of the message “Be River-Friendly” (see Figure A-6.1-2).

However, one aspect of public awareness did not change between 2009 and 2011: 69 percent (about two out of three) respondents were still unaware that stormwater runs directly (untreated) into local creeks, streams and rivers (see Figure A-6.1-3).

Figure A-6.1-2 Public Stormwater Message Recall (2011 Survey Results)

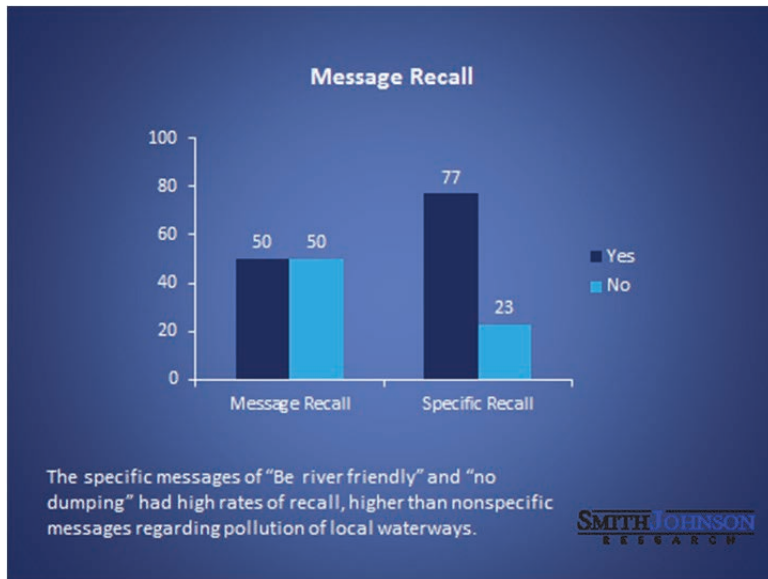
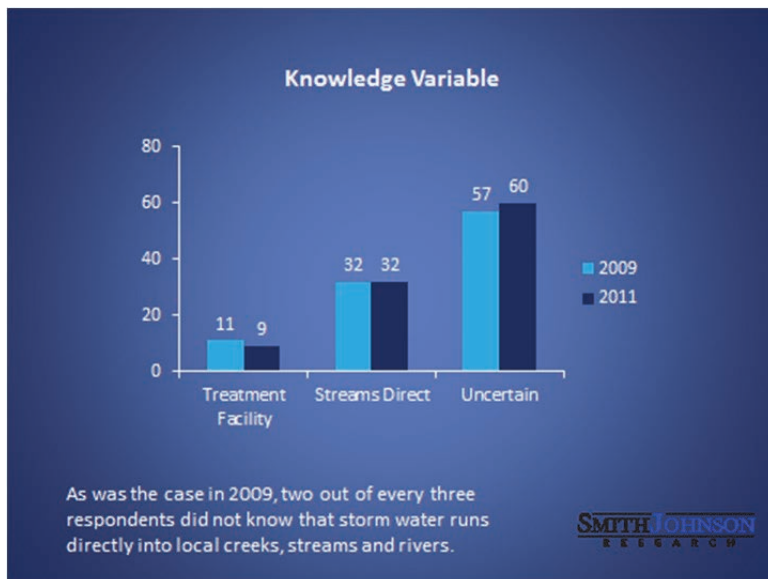


Figure A-6.1-3. Public Knowledge About Where Stormwater Goes]



Recommendations

By utilizing the results of the 2009 survey to refocus its message and re-program its mixed media efforts from late 2009-2011, the Partnership partially met its performance standard for increasing public awareness and retention of the “Be River Friendly” message (Effectiveness Outcome Level 2) during the 2008 permit term.

The Partnership continues to see slow, but steady progress on understanding that stormwater flows directly to local waterways and will continue to focus its education on this message in the future.

For the next permit term, this task should continue to serve as a key indicator for the program, with the performance standard measurement regarding measurement of behavior change removed as that is difficult to assess. The Partnership will continue to utilize public opinion surveys to gauge awareness, measure the effectiveness of its mixed-media communications efforts, and to inform continuous improvement of the public outreach strategy.

PO.4 Public School Education

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at outcome Level 2 or above as described below.

PO.4.1 Continue to support Splash

2008 PERMIT REFERENCE 12.aiv., biv.	PERFORMANCE STANDARD Continue to financially support Splash and increase awareness of stormwater issues among students				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 2	FY 10/11 2	FY 11/12 2	FY 12/13 2

Assessment Methodology

For many years, Sacramento County and the City of Sacramento have supported Sacramento Splash, an outdoor and hands-on environmental education program for local schools located adjacent to the Mather vernal pool preserve area in unincorporated Sacramento County. The support of this program was listed as a Permittee-specific activity for the City and County of Sacramento in the 2008/2009 work plan and/or 2008/2009 Annual Report and then as a Partnership activity in the 2009/2010 and 2011/2012 work plans.

At the end of their time participating in the Splash program, students are assessed to determine their knowledge of water quality principles and awareness of stormwater issues. The assessment method assumes that an average score of 80% is an indication that students' awareness has been raised; in other words, they have learned something new (Effectiveness Outcome Level 2).

Results

The performance standard for this task was met. The County and City of Sacramento continued to support the Splash program during the permit term, and the program increased the participating students' awareness of stormwater issues. Table A-6.1-3 provides the average assessment scores for the 2008 permit term to date. Each year, students scored an average of 87%, demonstrating that students participating in the program have a high level of understanding about the importance of preventing stormwater pollution, thus achieving Effectiveness Outcome Level 2.

Table A-6.1-3 Average Annual Splash Assessment Scores for 2008 Permit Term

Fiscal Year	Number of Students attending Splash	Average Assessment Score
FY 2009/2010	3,261	87%
FY 2010/2011	3,132	88%
FY 2011/2012	3,719	86.6%
3-YEAR AVERAGE	3,371	87.2%

Recommendations

It is recommended that the City and County of Sacramento continue to support this program if funding is available, include the activity as part of the school education program (proposed task PO.2.1), and evaluate the program annually to demonstrate its continued effectiveness.

PO.4.2 Conduct classroom presentations

2008 PERMIT REFERENCE 12.aiv., biv.	PERFORMANCE STANDARD Document number of school presentations conducted and increased awareness of stormwater issues among students				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report	<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report			
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 2	FY 11/12 2	FY 12/13 2

Assessment Methodology

In the first year of the 2008 permit term (2008/2009 fiscal year), the Partnership contracted with the South Yuba River Citizens League (SYRCL) to bring fun, interactive large group assemblies to various schools in the permit area. These efforts educated almost 2,500 students and their teachers in 3rd-6th grades about stormwater quality, watersheds and water conservation. Starting in the 2009/2010 fiscal year, the Partnership began funding the Splash in the Class (SITC) program to conduct more focused, smaller-group interactive presentations to individual 3rd-6th grade classrooms at various schools in the permit area. The Partnership conducted surveys of the affected teachers to determine the change in student awareness levels and potential for behavior change after the presentations.

Results

The Partnership has met its performance standard by documenting the number of classroom presentations offered and by noting an increase in student awareness reported by teachers whose students received the SITC presentations. The number of presentations, schools and students receiving the presentations during the 2008 permit term are summarized in Table A-6.1-4.

Table A-6.1-4 Number Students That Received Classroom Presentations

FY	Number of Students
08/09 (SYRCL)	2,493
09/10 (SITC)	2,023
10/11 (SITC)	4,690
11012 (SITC)	2,463
Totals	11,669

In the 2009/2010 fiscal year, teachers that participated in the SITC program were asked about the quality of the content and presentation using an anonymous mail-in survey. In the survey, teachers were asked whether the presentation made their students more environmentally aware. Almost 100% of teachers who responded to the survey in the 2009/2010 fiscal year agreed or strongly agreed with this statement. For the subsequent fiscal years, the average results were essentially the same or higher. See Figure A-6.1-4.

Furthermore, an average of 97% of teachers who responded to the survey in the 2009/2010 fiscal year agreed or strongly agreed that their students were likely to practice pollution prevention as a result of the presentation. For the subsequent fiscal years, the average results were essentially the same or higher. See Figure A-6.1-5.

The results from each year demonstrate the program was consistently effective in increasing awareness among students, thus achieving Effectiveness Outcome Level 2.

Figure A-6.1-4 Splash in the Class Teacher Evaluation Results: Increased Student Awareness

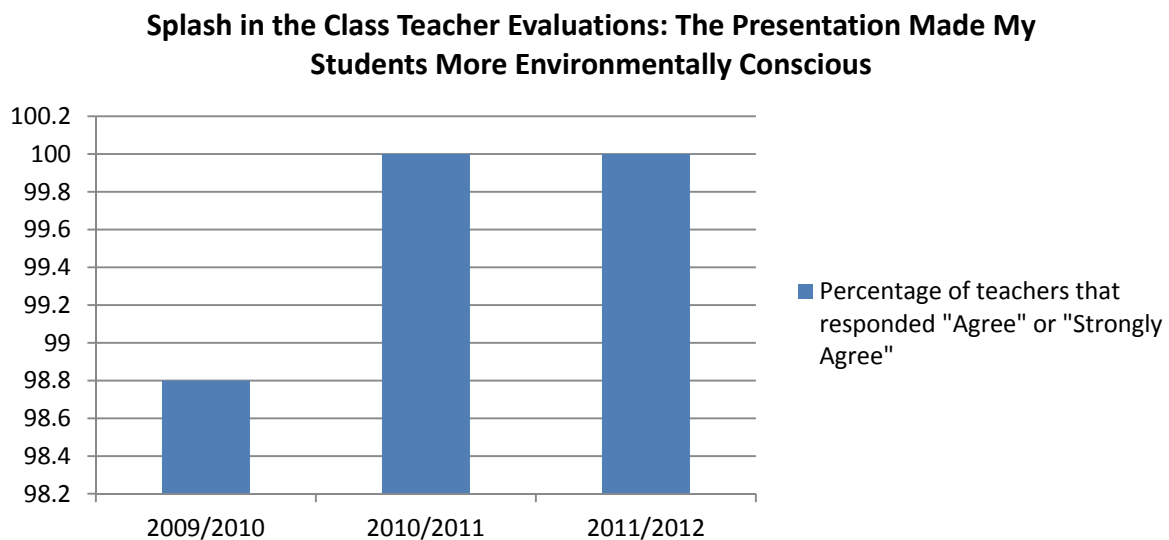
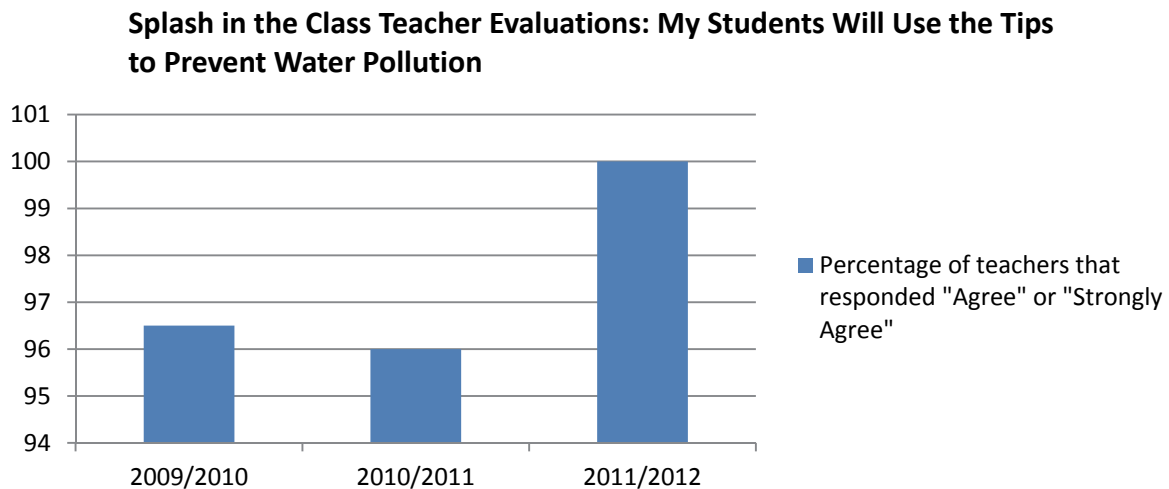


Figure A-6.1-5 Splash in the Class Teacher Evaluation Results: Potential for Changed Student Behavior



Recommendations

For the next permit term, this task should continue to serve as a key indicator for the Public Outreach Program. The Partnership will continue to utilize its classroom presentations to inform students about stormwater pollution prevention and will continue to survey teachers regarding the program's impact on their students.

PO.5 Business Outreach

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Effectiveness Outcome Level 2 or above as described below.

PO.5.1 Identify and prioritize strategies to partner with sustainable business programs to encourage stormwater pollution prevention in businesses, targeting mobile businesses

2008 PERMIT REFERENCE 12av., bv	PERFORMANCE STANDARD Work with an existing green business program to establish stormwater practices for businesses, specifically mobile businesses				
<input type="checkbox"/> KEY INDICATOR	<input checked="" type="checkbox"/> Task modified per Work Plan/Annual Report		<input checked="" type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

At the start of the 2008 permit term, the Partnership assessed the task's effectiveness by tracking the number of participating businesses in the Clean Water Business Partnership (CWBP) program. As described in the 2009 SQIP, the original goals of the CWBP were to establish a list of businesses that practiced Best Management Practices to limit stormwater pollution and to promote those businesses to the public. After a lack of interest from businesses in participating in the CWBP program, the Partnership decided to refocus its efforts towards collaborating with an existing regional green business program conducted by the Sacramento Business Environmental Resource Center (BERC), called the Sacramento Area Sustainable Business (SASB) program. Subsequently, this task and the associated performance standard were modified in the 2011/2012 Work Plan. This SASB program promotes businesses that take voluntary actions to prevent pollution and conserve resources. This was seen as a more effective way to leverage Partnership resources in encouraging more widespread use of stormwater pollution prevention practices (Effectiveness Outcome Level 3, changed behavior) by businesses (particularly mobile businesses) across the region.

Results

In the 2010/2011 fiscal year, the Partnership began working with BERC to develop a pilot outreach program for mobile businesses regarding stormwater pollution. The pressure washer industry was identified as the subject of the pilot program due to problems noted with this industry by Permittee field staff. Partnership staff reviewed the Best Management Practices (BMPs) previously created for this industry and developed a BMP checklist list that would be appropriate for the SASB program to provide certifications to businesses that practiced these methods. In the 2011/2012 fiscal year, the Partnership continued to work with BERC toward the inclusion of the pressure washer industry into the SASB.

The performance standard for this task has been met. A checklist of suggested stormwater BMPs for pressure washers is now included in the SASB program's application (see http://www.sacberc.org/SASB/Program/Documents/Combined_Checklist-PressureWash_Nov_2012.pdf).

Recommendations

The Partnership has met the performance standard and will continue to utilize its partnership with BERC and its Sustainable Business Program to provide certifications to businesses that employ BMPs. It is recommended that this program continue as a Effectiveness Outcome Level 1 performance standard as proposed task PO.3.1. The Partnership will continued to work with BERC to recruit and document the progress of the SASB partnership

PO.5.4 Maintain partner participation of nurseries and retail outlets and training of their staff to promote pesticide reduction programs (e.g. OWOW)

2008 PERMIT REFERENCE 12av., bv.	PERFORMANCE STANDARD Increase awareness of stormwater issues among staff				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 2	FY 10/11 2	FY 11/12 2	FY 12/13 2

Assessment Methodology

To increase the awareness level of staff at nursery and retail outlets in the permit area of less toxic alternatives and pesticide reduction programs, the Partnership leveraged the existing and successful Our Water, Our World (OWOW) program.

Between the 2008/2009 and 2011/2012 fiscal years, 474 staff from 18 local nurseries and hardware stores participated in the OWOW training program. At each store location, an OWOW training consultant provided on-site training for staff multiple times a year. The consultant helped to ensure accurate displays of OWOW educational materials and offered additional in-store educational opportunities for customers. In addition, the OWOW training consultant surveyed the employees who participated in the training as well as their store managers to assess if the training program was effective at increasing their awareness of stormwater issues (Effectiveness Outcome Level 2). Among the questions asked on the survey was whether the OWOW training has helped them respond to customer questions about less toxic pest management methods and products.

Results

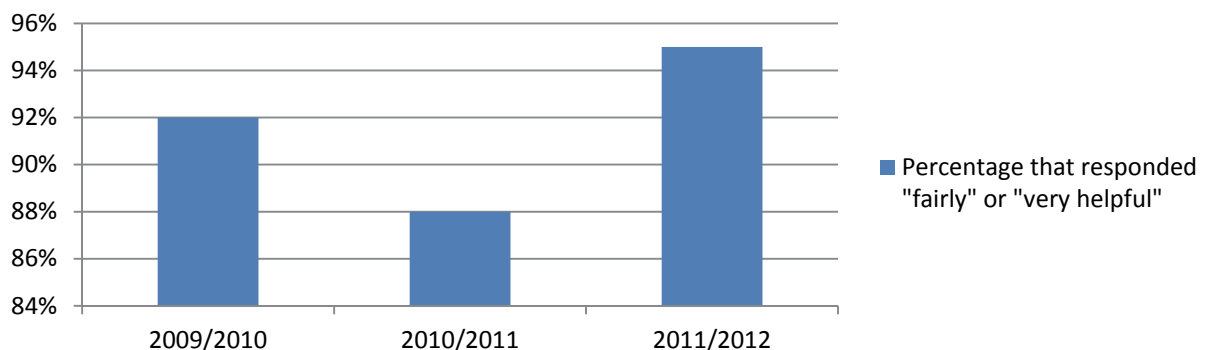
The performance standard for this task was met. The 2009/2010 fiscal year survey results indicated that 92% of the respondents ranked the training as "fairly helpful" or "very helpful" in providing them with the necessary information and knowledge they needed to respond to customer questions about pesticides and alternatives. This appears to indicate that the training sessions were successful in increasing awareness among staff (Effectiveness Outcome Level 2). The survey results for the following two fiscal years were similar: 88 and 95 percent of respondents, respectively, found the training to be helpful, also indicating a high level of awareness. Table A-6.1-5 and Figure A-6.1-6 present survey results for the 2008 permit term.

Table A-6.1-5. Number of Stores and Employees Trained

Fiscal Year	Total Number of Participating Store Locations	Total Number of Employees who Participated in Trainings
08/09	8	92
09/10	10	96
10/11	17	155
11/12	18	131
Totals	18	474

Figure A-6.1-6 OWOW Staff Survey- Effectiveness of OWOW Training in Pest Management Methods and Products

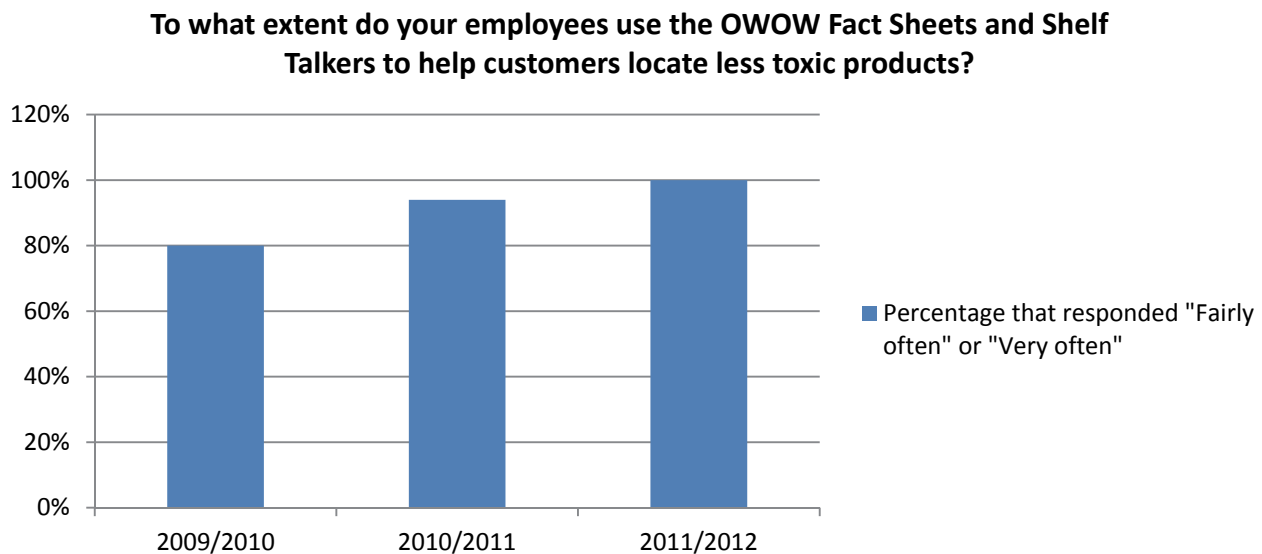
Staff Survey: How Well Did the OWOW Training Help You Respond to Customer Questions About Less Toxic Pest Management Methods and Products?



In addition, store managers were asked to complete surveys for the training program. As with the staff surveys, the manager survey results demonstrated the positive impact the training had on store staff. In the 2009/2010 fiscal year, 80 percent of managers who responded to the survey indicated that their staff used the OWOW fact sheets and shelf talkers “fairly often” or “very often” to help customers locate less toxic products. The results for the next two (2) fiscal years showed even higher results; 94 percent of managers responding in the 2010/2011 fiscal year reported their staff used the tools, increasing to 100 percent in the 2011/2012 fiscal year (see Figure A-6.1-7).

In conclusion, the results demonstrate that the OWOW program continues to effectively educate staff about the importance of using less-toxic products (Effectiveness Outcome Level 2) and assists them in helping customers locate less-toxic products in the store.

Figure A-6.1-7 Manager Survey: Employees’ Use of OWOW Materials



Recommendations

For the next permit term, this task should continue to serve as a key indicator for the program. The Partnership will continue to utilize training consultants to inform employees and managers about less toxic pesticide alternatives and pesticide reduction methods. The Partnership will continue to deploy surveys after trainings to employees and managers to determine program effectiveness.

A-6.2 County of Sacramento

Element Goal and Introduction

The goal of the Public Outreach Element is to raise awareness and foster community stewardship to help prevent pollution and protect local creeks and rivers in compliance with Provision 12 of the Stormwater Permit. There are three main target audience categories (general public, schools, and businesses); and sub-groups for each target audience category (e.g., general public includes homeowners and community groups, among others). The County coordinates its public outreach activities with those related to other program elements to ensure consistent and integrated messages.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

PO.1 Sacramento County Agency-specific Activities

PO.1.2 Continue to identify new potential sites that can benefit from creek/river awareness signage

2008 PERMIT REFERENCE 12.a.iii., b.iii.	PERFORMANCE STANDARD Decrease in illegal dumping				
<input type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 3	FY 12/13 3

Assessment Methodology

In the 2010/2011 fiscal year, the County installed 55 “No Dumping” signs in selected areas with a history of illegal dumping (see Figure A-6.2-1). The County identified 12 areas along public rights-of-way adjacent to creeks in the unincorporated County. The County also partnered with nine Recreation and Park Districts to install a total of 43 signs in 17 parks in the unincorporated area. Table A-6.2-1 summarizes locations and partnering agencies. The assessment goal was to observe and track decreases in illegal dumping at representative sites where the signs were installed, as an indication of the effectiveness of the new signs to deter illegal dumping and therefore change public behavior (Effectiveness Outcome Level 3).

Figure A-6.2-1 Example of “No Dumping” Signs Installed in Unincorporated Sacramento County



Table A-6.2-1. Summary of Sign Installations to Discourage Illegal Dumping

Location	# of Signs
Unincorporated Sacramento County; selected ROW creekside areas	12
Arcade Creek Recreation & Park District	3
Sunrise Recreation & Park District	3
Southgate Recreation & Park District	6
Orangevale Recreation & Park District	4
Mission Oaks Recreation & Park District	3
Rio Linda Elverta Recreation & Park District	3
Fulton-El Camino Recreation & Park District	3
American River Parkway/Del Norte Recreation & Park District	18
Total	55

The County used two methods to obtain data during the 2011/2012 fiscal year that could be used to assess the effectiveness of the signs in deterring dumping:

Photo Monitoring

Based on information supplied by field crews, the County selected three representative problematic sites (Rio Linda Creek, Morrison Creek, and Elder Creek) with new “No Dumping” signs to visit and photograph monthly, to assess if the signs were effective. Baseline data (e.g., field notes re: observations, photos) were collected from the three sites during the 2010/2011 fiscal year to use as a point of comparison over time.

Maintenance Crew Surveys

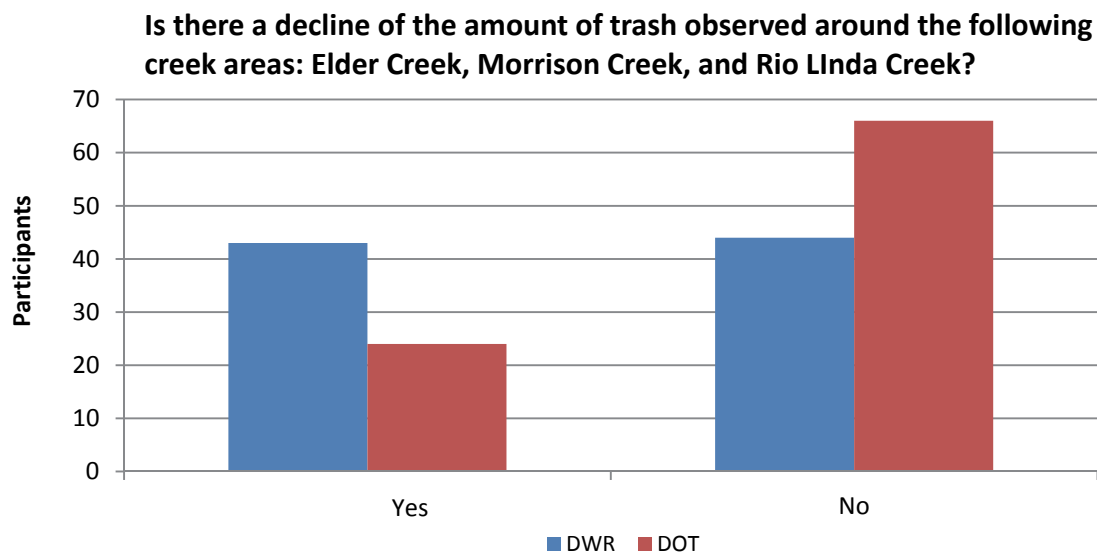
County Stormwater Program staff conducted surveys of Department of Water Resources (DWR) and Department of Transportation (DOT) maintenance crews to get feedback about observed/presumed effectiveness of the new signs installed during the previous year.

Results

The County was unable to meet its performance standard for this task. Neither assessment method provided evidence to show the effectiveness of the new signs at deterring illegal dumping at the three (3) representative sites. It appears that the signs alone may not be enough to deter illegal dumping. The photos compiled by County staff showed variable data and did not indicate a decrease in the amount of materials dumped at the sites over the course of the year. In addition, the maintenance staff surveyed were split as to whether or not the signs were effective (half thought they were, the other half thought not) and when asked if

they observed a decline in dumping at three representative sites, the water resources crews were split and the transportation crews responded “no” (see Figure A-6.2-2).

Figure A-6.2-2 Post-Sign Installation Maintenance Staff Survey Results



Recommendations

For the next permit term, the County will explore alternative methods, such as tracking and recording the amount of trash removed by field crews over time at every site with a “No Dumping” sign. In addition, based on feedback received during the maintenance crew survey, the County will look for ways to leverage resources and build off existing programs by others. For example, the County plans to study the concept of partnering with the waste management/collection programs in the unincorporated County, to support and promote existing outreach campaigns that are aimed at reducing illegal dumping. Rather than addressing this work as a separate task in the next permit, the County recommends that this activity be addressed under Task PO 1.4.

PO.1.5 Continue to promote educational programs: Provide watershed education grants

2008 PERMIT REFERENCE NA	PERFORMANCE STANDARD Demonstrate an increase in student awareness levels using surveys/quizzes required as part of the final grant report				
<input type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 08/09 2	FY 09/10 2	FY 12/13 2

Assessment Methodology

Each year during the 2008 permit term, the County solicited applications for watershed education grants from schools in the unincorporated county. A total of 33 grants were awarded during the 2008 permit term, corresponding to over \$65,000 in total financial support. Projects ranged from River-Friendly Landscaping school gardens to water quality monitoring activities. To assess the effectiveness of this activity in raising students’ awareness of stormwater pollution prevention (Effectiveness Outcome Level 2), participating teachers were required to develop and conduct a pre and post-project quiz. The goal was to measure their students’ level of understanding and awareness before and after the project, and discuss results in the final project report.

Results

The performance standard for this task was met. Of those teachers who submitted final reports, all reported that their students showed a significant increase in awareness about stormwater quality, watershed ecosystems, and how a person's actions affect the water quality of creeks and rivers. Details about the results can be found in the County's Annual Reports for the permit term.

Recommendations

For the next permit term, the County recommends continuing the successful grant program, as long as resources allow. In addition, the County will develop and distribute a standard survey for the teachers so that the same type of data is reported from project to project and year to year; this would reduce the burden on the busy teachers and allow grant projects' effectiveness to be measured more objectively. The County will also consider the idea of re-surveying teachers/schools who participated in the past (say five years ago) to determine if anything was changed in their curriculum as a result of having received a grant and completed a stormwater project in the past

PO-2. Other Public Outreach Activities not included in Work Plan

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

A-6.3 City of Sacramento

Element Goal and Introduction

The goal of the Public Outreach Program is to educate the public about the harmful effects of stormwater pollution and to motivate people to prevent stormwater pollution by changing their behavior. Additionally, the Public Outreach Program creates and promotes opportunities for public participation in creek and river stewardship projects. All of these activities aim to improve the quality of urban runoff and protect local creeks and rivers.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

PO.1 Sacramento City Agency-specific Activities

PO.1.3 Implement Splash in the Class – classroom presentation program

2008 PERMIT REFERENCE D.12.a.iii., D.12.b.iii	PERFORMANCE STANDARD Increased level of awareness and stated behavior				
<input checked="" type="checkbox"/> KEY INDICATOR	<input checked="" type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09	FY 09/10	FY 08/09	FY 09/10	FY 12/13
	3	3	3	3	3

Assessment Methodology

In the first year of the permit term (2008/2009 fiscal year), the Partnership contracted with the South Yuba River Citizens League (SYRCL) to bring fun, interactive large group assemblies to various schools in the permit area. In addition, the City also funded the Splash in the Class (SITC) program in City classrooms which reached an additional 2,165 students. Starting in the 2009/2010 fiscal year, the Partnership also began funding the Splash in the Class (SITC) program to conduct more focused, smaller-group interactive presentations to individual 3rd-6th grade classrooms at various schools in the permit area. The City continued to fund additional presentations in addition to the Partnership's funded classroom presentation in the 2009/2010 and 2010/2011 fiscal years to enhance its classroom education efforts. Due to time constraints, the City did not fund additional presentations in the 2011/2012 fiscal year, but returned to funding the additional presentations in the 2012/2013 fiscal year.

The Partnership conducted surveys of the affected teachers to determine the change in student awareness levels and potential for behavior change after the presentations.

Results

The number of schools and students in the City receiving the presentations during the 2008 permit term are summarized in Table A-6.3-1.

Table A-6.3-1 Number of Students in Sacramento City Schools That Received Splash In The Class Presentations

FY	Number of Classes	Number of Students
2008/2009	84	2,165
2009/2010	89	2,480
2010/2011	100	2,905
2011/2012	-	-
Totals	273	7,550

As with the Partnership sponsored classroom presentations, teachers were surveyed about the quality of the content and presentation and whether they felt it impacted their students. The results of those surveys, including the surveys collected from teachers who received extra City presentations can be found in Section A-6.1 of this report. The City met its performance standard by noting an increase in student awareness reported by teachers whose students received the SITC presentations.

Recommendations

For the next permit term, this task should continue to serve as a key indicator for the City's Public Outreach Program. The City will continue to utilize classroom presentations to inform students about stormwater pollution prevention and will continue to survey teachers regarding the program's impact on their students.

A-6.4 City of Citrus Heights Summary

Element Goal and Introduction

The goal of the Public Outreach Element is to raise awareness and foster community stewardship to help prevent pollution and protect local creeks and rivers as described in the Stormwater Quality Improvement Plan (SQIP), there are three main target audiences: general public, schools and businesses. There are subgroups within the 3 broad categories (e.g., general public includes homeowners and community groups, among others). The Public Outreach Element provides educational and informational resources to the other program elements, each of which has particular target audience(s).

Effectiveness Assessment for Key Indicator Tasks

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at outcome Level 2 or above as described below.

PO.1 Public Outreach

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at outcome Level 2 or above as described below.

PO.1.4 Continue to sponsor annual Urban Creeks Council Creek Week events to address clean up of local creeks in Citrus Heights

2008 PERMIT REFERENCE 12.a.vi, 12.b.vi	PERFORMANCE STANDARD Document increases in number of volunteers engaged in the cleanup activities from year to year				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 3	FY 10/11 3	FY 11/12 3	FY 12/13 3

Assessment Methodology, Results and Recommendations

The City of Citrus Heights sponsors Creek Week annually by providing \$1,000 plastic bags for removal of debris, the SRCC City crews for hauling away the debris collected within the City and staff actively participates supporting the event. During this permit term, volunteer participation in Citrus Heights has increase, reaching a event high on the 2011/2012 fiscal year of approximately 360 volunteers. The assessment for this task has been met and the recommendation shall be to continue to sponsor Creek Week events and document the number of volunteers participating in creek cleaning activities.

PO.2 Watershed Stewardship

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

A-6.5 City of Elk Grove Summary

Element Goal and Introduction

The goal of the Public Outreach Element is to comply with Provision 12 of the Stormwater Permit and raise awareness and foster community stewardship to help prevent pollution and protect local creeks and rivers. The City conducts its own outreach and education activities within its jurisdiction in addition to collaborating with other Permittees in the SSQP to conduct regional activities outlined in the Regional Public Outreach section of each Annual Report. The City coordinates with the Sacramento Stormwater Quality Partnership to implement a wide range of activities to increase the knowledge of the community regarding the City' storm drain system, impacts of urban runoff on local creeks and rivers, and potential pollution prevention solutions for the targeted audiences.

The City also attends and sponsors many local events and participates by managing an education booth where members of the public can learn about the storm drain system and the importance of stormwater quality.

Effectiveness Assessment for Key Indicator Tasks

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at outcome Level 2 or above as described below.

PO.1 Public Outreach Implementation

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at outcome Level 2 or above as described below.

PO.1.3 Continue to sponsor annual Creek Week events hosted by CCSD.

2008 PERMIT REFERENCE 12.a.vi, 12.b.vi	PERFORMANCE STANDARD Document increases in number of volunteers engaged in the cleanup activities from year to year				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 3	FY 12/13 3

Assessment Methodology, Results and Recommendations

The City of Elk Grove sponsors a booth at CCSD's annual Creek Week clean-up events and maintains a tracking system to log the number of volunteers engaged in cleanup activities. The number of volunteers is reported in each Annual Report. The performance standard has been met for this task. The reports shows that 200 volunteers helped clean the creek in the 2008/2009 fiscal year, 300 in the 2009/2010, 250 in the 2010/2011 fiscal year and 300 the 2011/2012 fiscal year. (Refer to Annual Reports for full details.) The recommendation shall be to continue to sponsor Creek Week events and document the number of volunteers participating in creek cleaning activities.

PO.2 Public School Education

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

PO.3 Business Outreach

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

PO.4 Watershed Stewardship

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

A-6.6 City of Folsom Summary

Element Goal and Introduction

The goal of the Public Outreach element is to comply with Provision 12 of the 2008 Stormwater Permit and raise awareness by the general public and targeted audiences about pollution prevention, encourage behavioral change, and foster community stewardship to protect the creeks and watersheds within the city. In compliance with the stormwater permit, the ultimate goal is to reduce pollutants discharged in urban runoff to the storm drain system and local waterways to the maximum extent practicable.

The City contributes to the multi-faceted regional public outreach efforts described in Chapter 2.7 and in Partnership Activities (A-6.1 above) according to the Partnership's cost-share agreement. Joint funding for projects with a regional benefit provides an economy of scale which is important in times of diminishing resources, particularly given the fact that regional outreach (e.g., media campaign) is typically very expensive. Regional collaboration ensures that consistent messages can be conveyed to a wider audience, touching residents, schools and businesses across the county. Folsom is in the same radio and television markets as the other permittees and is in the distribution area for the *Sacramento Bee* newspaper. In addition, with combined resources, the permittees can afford to hire experts to conduct surveys and analyze effectiveness data which can be used to refine the program over time. In addition to contributing funds, the City provides in kind services to support regional outreach. For example, Folsom provides staff for the Partnership's stormwater booth at various public events each year.

In addition to supporting regional activities, the City independently provides local, targeted outreach to Folsom residents, schools, community groups and businesses, and involves the public in meaningful community stewardship projects, as described in this section. The key target audiences in Folsom include:

- Residential households (about 20,000)
- Schools: 11 elementary, 2 middle, 2 high schools and 1 community college
- Businesses and industrial facilities (see Section 7.4 for profile; almost 300 businesses are inspected by the County EMD every 3 years on behalf of the City and there are many more retail/commercial businesses)
- Community groups such as the Boy/Girl/Cub Scouts
- Environmental and recreational advocates such as the Friends of the Folsom Parkway and the Folsom Adopt a Creek/Trail (ACT) group
- Development community (developers, contractors, engineers and design professionals)
- Local elected officials, City managers and employees

Internally, the work is managed by the City's Stormwater Program Manager in the Public Works/Community Development Department, who coordinates efforts within that department, and with the City's Public Information Officer in the City Manager's Office and the Parks and Recreation Department.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

PO.1 Public Outreach Implementation

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at outcome Level 2 or above as described below.

PO.1.7 Sponsor and support the Adopt a Creek/Trail (ACT) program to engage local residents, scout troops and the Friends of Folsom Parkway volunteers

2008 PERMIT REFERENCE 13.i	PERFORMANCE STANDARD Support adoption of 25% of Folsom creeks/trail system over the course of the permit				
<input checked="" type="checkbox"/> KEY INDICATOR	<input checked="" type="checkbox"/> Task modified per Work Plan/Annual Report		<input checked="" type="checkbox"/> PERFORMANCE STANDARD MODIFIED PER WORK PLAN/ANNUAL REPORT		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

Upon approval of the City's 2009 SQIP, this task and performance standard was added to the City's public outreach program. Since 2008 the effectiveness of this task was assessed at Outcome Level 1 by simply reporting the annual activities and number of volunteers, with an ultimate goal (performance standard) of achieving adoption of 25% of Folsom creeks/trails by 2013. This is presumed to be an indicator of a change in awareness and associated behavior related to stewardship of the natural resources.

Assessment Results

Since 2008, Folsom ACT has encouraged and facilitated adoption by over 250 local volunteers of 31 adopted segments of Folsom creeks and trails. This represents about 11 miles and 70% of the 42 adoptable segments of creeks and trails within the Humbug/Willow Creek corridor. City-wide, this represents more than 30% of the Folsom creeks/trail system.

The performance standard for this task was exceeded.

Recommendations

The City recommends continuing this task but eliminating it as performance standard/key indicator for the next permit term. For the new permit term, all key indicator tasks will be Partnership tasks conducted on a regional basis, as shown in the proposed 5-year work plan.

PO.2 Public School Education

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at outcome Level 2 or above as described below.

PO.2.2 Conduct classroom presentations for Folsom High School and Middle School classes

2008 PERMIT REFERENCE 13.i	PERFORMANCE STANDARD Increased awareness of stormwater/watershed issues with students and teachers				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> TASK MODIFIED PER WORK PLAN/ANNUAL REPORT		<input type="checkbox"/> PERFORMANCE STANDARD MODIFIED PER WORK PLAN/ANNUAL REPORT		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 2

Assessment Methodology

Before and at the start of the 2008 permit term (the 2008/2009 fiscal and previous years), the effectiveness of classroom presentations were made at Outcome Level 1 by simply reporting the numbers of students who

attended the various presentations. Starting in the 2009/2010 fiscal year, a new performance standard was created for this task and the intent was to track trends in student awareness over the course of the permit term. We later experienced difficulty in getting the teachers' to agree to add a quiz to the program because of the already limited amount of time available for each presentation. Eventually, in September 2011, a quiz was conducted during two classroom presentations with approximately 30 students in each class (60 students total).

Assessment Results

During the 2008 permit term the City Household Hazardous Waste Program conducted classroom presentations at two middle schools about household hazardous waste, stormwater pollution prevention and water conservation. The City reached approximately 700 students through classroom presentations each year. During the September 2011 presentations, 60 students were quizzed by completing the same quiz before and after the presentation. The results were tabulated to assess the percentage of questions answered correctly before and after the presentation. Prior to the presentation, 68% of the questions were answered correctly. Following the presentation, 76% of the questions were answered correctly. The performance standard for the task was met, but the quiz results also showed that a significant number of students already were aware of the information to some degree before the City's presentation was conducted.

Recommendations

The quizzes could be repeated in additional years in order to have a more robust database, however, the results appear to indicate that most students already have a good level of awareness due to the regional media campaign and other activities. Therefore, this would not be a good key indicator task for the new permit term.

For the new permit term, all key indicator tasks will be Partnership tasks conducted on a regional basis, as shown in the proposed 5-year work plan.

PO.2.3 Sponsor interactive stormwater booth at City of Folsom Public Works Day event

2008 PERMIT REFERENCE 13.i	PERFORMANCE STANDARD Increased awareness of stormwater/watershed issues with students and teachers				
<input checked="" type="checkbox"/> KEY INDICATOR	<input checked="" type="checkbox"/> TASK MODIFIED PER WORK PLAN/ANNUAL REPORT		<input checked="" type="checkbox"/> PERFORMANCE STANDARD MODIFIED PER WORK PLAN/ANNUAL REPORT		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 2

Assessment Methodology

Before and at the start of the 2008 permit term (the 2008/2009 fiscal year and previous years), the City reported effectiveness at Outcome Level 1 by simply reporting the numbers of students who attended the annual event. In the 2010/2011 fiscal year, a new performance standard was created for this task and the intent was to track trends in student awareness over the course of the permit term as a result of what they learned at the Public Works Day event.

Assessment Results

The City held its Public Works Day event annually during the permit term, except one year (2011) when it was rained out. The City Stormwater Quality Program Manager and field Inspector hosted an educational booth for its Stormwater Quality Program at each event. The event is open to the general public but the targeted audience is elementary students and families. An estimated 400+ children and chaperoning adults attended Public Works Day each year and visited the stormwater/watershed booth during the event. Typically, the same local elementary schools attended the event each year, and therefore, a lot of the same students and teachers attended each year. During the permit term the same two City staff demonstrated the watershed model at each event, conducted the demonstrations consistently each year and engaged and asked the students similar questions each year. Staffs observation is that the students and teachers awareness and interest of stormwater quality has increased. Students and teachers remember the watershed model

demonstration from previous years and are excited to participate again and eager to share what they remember.

Recommendations

Due to the large number of students and teachers visiting the stormwater/watershed booth at the event each year, there was no way to use a quiz or survey to gauge increased awareness. Instead, the effectiveness was determined subjectively. Since key indicator tasks should involve assessment of quantifiable data, this would not be a good key indicator task for the new permit term.

For the new permit term, all key indicator tasks will be Partnership tasks conducted on a regional basis, as shown in the proposed 5-year work plan.

PO.3 Business Outreach

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

PO.4 Watershed Stewardship

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

A-6.7 City of Galt Summary

Element Goal and Introduction

The goal of the Public Outreach Element is to raise awareness and foster community stewardship to help prevent pollution and protect local creeks and rivers in compliance with Provision 12 of the Stormwater Permit. As described in the Stormwater Quality Improvement Plan (SQIP), there are three main target audiences: general public, schools, and businesses. There are sub-groups within the three broad categories (e.g., general public includes homeowners and community groups, among others). Public outreach activities are coordinated with activities related to other program elements to ensure consistent and integrated messages.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

PO.1 Public Outreach

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at outcome Level 2 or above as described below.

PO.1.4 Continue to target neighborhoods for Spring Neighborhood Cleanup and Annual Urban Creeks Council Creek Week events through the Strong Neighborhoods Initiative Program.

2008 PERMIT REFERENCE 12.a.vi, 12.b.vi	PERFORMANCE STANDARD Document increases in number of volunteers engaged in the cleanup activities from year to year				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09	FY 09/10	FY 10/11	FY 11/12	FY 12/13
	1	1	1	1	3

Assessment Methodology, Results and Recommendations

Upon approval of the City's 2009 SQIP, this task and performance standard was added to the City's public outreach program. Since 2008 the effectiveness of this task was assessed at Outcome Level 1 by simply reporting the annual activities and number of volunteers. This is presumed to be an indicator of a change in awareness and associated behavior related to stewardship of the natural resources.

Participation of volunteers in Annual Urban Creeks Council Creek Week appears to be static over the course of the permit term. The City recommends continuing this task but eliminating it as performance standard/key indicator for the next permit term. For the new permit term, all key indicator tasks will be Partnership tasks conducted on a regional basis, as shown in the proposed 5-year work plan.

PO.2 Watershed Stewardship

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

A-6.8 City of Rancho Cordova Summary

Element Goal and Introduction

The goal of the Public Outreach Element is to raise awareness and foster community stewardship to help prevent pollution and protect local creeks and rivers in compliance with Provision 12 of the 2008 Stormwater Permit.

External Outreach. Outreach in Rancho Cordova is conducted with three main target audiences: residents, businesses and schools. There are almost 70,000 residents in the City of Rancho Cordova and a wide range of commercial and industrial businesses. The City is served by two school districts: Folsom-Cordova and Elk Grove Unified. Together, these districts operate 12 elementary, three middle and two high school within the city, serving a student population of almost 9,000.

During the 2008 permit term, the City conducted outreach and education activities itself, but mainly relied on the more effective collaborative arrangements with the other Permittees in the Partnership to conduct the regional activities outlined previously in Appendix A-6.1. The City provides funding to the regional activities according to the Permittee Memorandum of Understanding.

Internal Outreach. Managers in the City’s Public Works Department are responsible for administering the Stormwater Program and overseeing stormwater permit compliance. This group coordinated with City Council, the City Manager’s office and other departments throughout the 2008 permit term to educate and share information as needed.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

PO.1 Public Outreach

PO.1.4 Continue to target neighborhoods for Spring Neighborhood Cleanup and Annual Creek Week events through the Strong Neighborhoods Initiative Program.

2008 PERMIT REFERENCE 12.a.i and iii, b.i and iii	PERFORMANCE STANDARD Describe activities conducted during the year and quantify level of effort to the extent possible.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input checked="" type="checkbox"/> Performance Standard modified per FY 11/12 Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09	FY 09/10	FY 10/11	FY 11/12	FY 12/13
	1	1	3	3	3

Assessment Methodology, Results and Recommendations

In the 2009 SQIP, the City selected a performance standard to track increases in volunteers participating in cleanup activities in the city over the years, as an approximate measure of the effectiveness of its outreach activities to influence public behavior. However, the performance standard proved to be problematic because it was difficult to track the number of volunteers, and a minor modification was requested in the fiscal year 11-12 annual report to the standard, as shown above. The following is a recap of the events reported in each of the annual reports during the 2008 permit term to date:

Annual Report Year	Event	Discussion
FY 08-09	Annual Creek Week cleanup activities were conducted along portions of Laguna and Morrison Creeks in Rancho Cordova.	The work was organized and coordinated by the Sacramento Area Creeks Council (formerly Urban Creeks Council) and the number of Rancho Cordova participants was not tracked separately.
FY 09-10	The City supported the local Volunteers in Neighborhood Services (VINS) program which conducted a spring cleanup project. Due to the hard economic times, the City was not able to financially support the annual Creek Week activities but helped with publicity. The City continued to provide supplies to volunteers conducting cleanup.	The VINS program did not track the numbers of Rancho Cordova residents participating in the event.
FY 10-11	The City continued to support the VINS program which conducted several activities: Blight Busters (monthly neighborhood sweeps with Code Enforcement), spring neighborhood cleanup and community forums. Due to the hard economic times, the City was not able to financially support the annual Creek Week activities but helped with publicity. The City continued to provide supplies to volunteers conducting cleanup.	The number of residents participating in these programs was not tracked separately.
FY 11-12	Same as previous year.	The number of residents participating in these programs was not tracked separately.

For the next permit term, the City recommends that key indicator assessments be made related to regional public outreach tasks only, using periodic regional public awareness surveys and other tools to gauge changes in public awareness and behavior. The City believes this will be a more effective and meaningful assessment of the collective permittee efforts and therefore, a better use of public resources (i.e., utility revenues).

A-7. New Development Element

A-7.1 Partnership Activities

There are no Partnership-specific activities for this element.

A-7.2 Sacramento County

Element Goal and Introduction

The goal of the New Development Element is to mitigate the impacts of urban stormwater (runoff) resulting from new development and redevelopment. The element addresses the quality and quantity of runoff and the resultant potential impacts on downstream water quality and habitat conditions in receiving waters (Waters of the state), in accordance with the 2008 Sacramento Areawide NPDES Municipal Stormwater Permit (2008 Stormwater Permit) and the County's stormwater and land grading and erosion control ordinances.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ND.1 Legal Authority

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ND.2 Policy and Standards

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ND.3 Conditions of Approval and Plan Review

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Effectiveness Outcome Level 2 (raising awareness) or above as described below.

ND.3.1 Condition projects to comply with stormwater quality development standards at various stages of the approval process.

2008 PERMIT REFERENCE D.14, D.22	PERFORMANCE STANDARD Assess designers' behavior and knowledge of the County's development standards by tracking the percentage of submitted priority projects found to incorporate stormwater quality treatment control measures upon initial project review.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input checked="" type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09	FY 09/10	FY 10/11	FY 11/12	FY 12/13
	3	3	3	3	3

Assessment Results and Recommendations

At the end of each fiscal year, County staff reviews the improvement plans for priority development projects that were submitted during the fiscal year and check if the initial plan submittal included appropriate stormwater quality measures. The check does not necessarily mean that the measures have to be sized and designed correctly, since that is typically handled by plan review comments, but it’s a check to verify the incorporation of appropriate measures. Table A-7.2-1 below shows the number of development projects that were submitted this permit term (includes Rancho Cordova data).

Table A-7.2-1

Fiscal Year	Number of submitted Private Projects	Number of submitted Municipal Projects	Number of constructed Projects with on-site treatment controls	Number of constructed Projects discharging to a regional facility
2008/2009	69	4	9	2
2009/2010	64	6	5	1
2010/2011	69	7	3	3
2011/2012	69	6	5	0

81% of the submitted priority projects were found to incorporate stormwater quality treatment control measures upon initial project review. The remaining 19% of priority projects were conditioned to incorporate stormwater quality treatment control measures through the plan review and revision process. 83% of projects including appropriate stormwater quality treatment measures upon initial review exceeds our minimum acceptable level of compliance of 80 percent, and demonstrates acceptable behavior related to this requirement.

For the next permit term, County staff will pick a representative number of approved priority projects to review each year (for example, 30% of submitted projects) and ensure that 100% of these representative projects incorporate appropriate stormwater quality measures.

ND.3.5 Condition priority development projects through CEQA to include stormwater quality control on their own

2008 PERMIT REFERENCE D.14, D.22	PERFORMANCE STANDARD Track the incorporation of stormwater quality measures from the planning phase until completion of project.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input checked="" type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 3	FY 12/13 3

Assessment Results and Recommendations

Stormwater Program staff review the conditions of approval for priority development projects that are submitted within the fiscal year. Staff also review applicable CEQA documents for these projects for inclusion of adequate stormwater quality impacts and mitigation discussion.

In the 2009/2010 Annual Report, the County revised the third performance standard for this task from “Increase in the number of priority projects that correctly incorporated treatment measures” to “Assess designers’ behavior and knowledge of the County’s development standards by tracking the percentage of submitted priority projects found to incorporate stormwater quality treatment control measures upon initial project review” because staff realized that using the percentage of projects correctly incorporating treatment measures is a better measure of effectiveness than using the total number of projects. The target percentage was set to be 80%.

During the five-year permit term, 100% of regulated development projects incorporated the required stormwater quality conditions during the Planning and CEQA review phase. This task met its target performance standard of 80% or more.

The 2011/2012 fiscal year Annual Report Revision: Due to the state of the economy, none of the projects that were conditioned to incorporate stormwater quality measures in the planning phase have been built or completed.

Because of the redundancy between this task and task 3.1, County staff will consolidate their efforts and ensure compliance with stormwater quality development standards at each level of the review process; including planning, CEQA, improvement plans review, and proper construction of the stormwater quality measures.

ND.4 Maintenance Verification for Treatment Control Measures

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Effectiveness Outcome Level 2 (raising awareness) or above as described below.

ND.4.2 Require property owners to self-certify the maintenance of the treatment measures on their sites annually

2008 PERMIT REFERENCE D.22	PERFORMANCE STANDARD Assess property owners' behavior and their knowledge of proper maintenance procedures by tracking the percentage of owners submitting acceptable maintenance documentation.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input checked="" type="checkbox"/> Task modified per Work Plan/Annual Report		<input checked="" type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Results and Recommendations (includes City of Rancho Cordova Data)

A maintenance covenant is usually requested for post construction measures for priority project sites. The maintenance covenant is thoroughly checked and recorded at the Sacramento County Clerk Recorders Office. A copy of the recorded document is returned to the Declarant. After the project is built, Stormwater staff annually requests self-certification of maintenance from property owners. After receiving the self-certification letter, Stormwater staff makes a cursory inspection of the device (i.e. swales, pervious concrete, storm vaults/storm filter, and basins). Photos are taken and notes are recorded onto the County's database.

If a project is approved without a maintenance agreement, a "FINAL HOLD" is placed on the project in the Building Department Database. This HOLD is released once the maintenance covenant is recorded at the Sacramento County Clerk Recorders Office.

The County started sending out the self-certification letters to property owners in 2007. A copy of the recorded maintenance covenant which includes a description of required maintenance activities was attached to the first letter. At first, the majority of property owners did not know the purpose of the treatment measures on their sites or that there was a maintenance covenant. That's due to the fact that the covenant is typically signed by the site's developer at the time of improvement plans submittal but that site is subsequently sold to other property owners. After the extensive outreach and educational communication with property owners in 2007, we reported an acceptable level of self-certification responses. Table A-7.2-2 below is the summary of the response rates to date:

Table A-7.2-2

Fiscal Year	Total Letters sent	Response Rate within 45 days	Response Rate within an additional 30 days
07/08	51	55%	75%
08/09	58	86%	100%
09/10	97	60%	98%
10/11*	0	NA	NA
11/2	121	12%	75%

*Letters were not sent in the 2010/2011 fiscal year due to budget cuts and limited resources

In the 2011/2012 fiscal year, the first set of letters was sent to property owners and the second set of reminder/ follow up letters has been sent in the 2012/2013 fiscal year.

In the 2009/2010 annual report, the County revised the performance standard for this task from “Increase awareness of proper maintenance procedures.” to “Assess property owners’ behavior and their knowledge of proper maintenance procedures by tracking the percentage of owners submitting acceptable maintenance documentation” because using a percentage of compliance is a more reliable measure of effectiveness. The County assessed property owners’ knowledge of proper maintenance procedures by comparing the number of responses with acceptable maintenance documentation with the minimum acceptable level of compliance of 80 percent. According to our latest records, 98% of the property owners contacted are in compliance with the County’s maintenance self-certification requirement, exceeding our minimum acceptable level of compliance of 80 percent, and demonstrating acceptable behavior related to this requirement.

From previous years’ data, it became clear that the number of responses received relied more on the number of letters/ reminders sent by staff, and less on the property owners’ knowledge of proper maintenance activities. Therefore, to improve the efficiency of performing the self-certification tasks, the County will revise the maintenance covenants to require owners to send the maintenance documentation on their own annually. If responses are not received by a certain date, the County will send out reminder letters as needed. This will put the responsibility on the property owners to submit adequate documentation annually or be subject to enforcement as specified in the revised maintenance covenants.

ND.4.2 Require property owners to self-certify the maintenance of the treatment measures on their sites annually

2008 PERMIT REFERENCE D.22	PERFORMANCE STANDARD Ensure proper maintenance of manufactured devices by tracking amount of waste collected.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input checked="" type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 4	FY 10/11 4	FY 11/12 4	FY 12/13 4

Assessment Results and Recommendations (includes City of Rancho Cordova Data)

Stormwater Program staff estimated the amount of pollutants removed from the stormwater treatment devices covered by maintenance covenants in the County using a combination of literature review data and maintenance information available from the previous fiscal year.

Currently, the total of all drainage areas in the unincorporated County and City of Rancho Cordova associated with New Development treatment measures with maintenance covenants is 1285 acres. To calculate the volume treated by the flow through these treatment measures, the assumption is that they treat 85% of the annual runoff volume based on the following relationship:

$$\text{Load of suspended solids removed} = 85\% \times \text{Annual Runoff Volume} \times (\text{influent} - \text{effluent})$$

If 100% of these treatment measures are maintained properly, annually a load reduction of 60,386 lbs. (30.2 tons) of sediments (calculated as TSS) will be achieved, which equates to 0.0235 tons/acre. This load reduction is comparable with the estimation in the Discharge Characterization (2005 Report, Pg 31) for TSS reduction (0.0233 tons/acre at 50% removal).

Based on the maintenance records, an average of 87% sites maintain these treatment facilities properly. Therefore, annual load reduction associated with new development sites with maintenance records will be 52,536 lbs. (26.3 tons) of sediments (calculated as TSS).

ND.5 Training and Outreach

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Effectiveness Outcome Level 2 (raising awareness) or above as described below.

ND.5.2 Provide annual training to employees in targeted positions.

2008 PERMIT REFERENCE D.25	PERFORMANCE STANDARD Conduct annual refresher training to affected staff.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 2	FY 11/12 2	FY 12/13 2

Assessment Results and Recommendations

In the 2012/2013 fiscal year, County Stormwater staff conducted a survey of targeted employees to assess their level of understanding of stormwater quality principles in this permit term.

County Stormwater staff continues to keep planners and plan reviewers up to date on the latest stormwater quality requirements and program changes through regularly-scheduled plan review meetings. The County considers this type of continuous training and education to be more effective and practical than once-a-year training sessions. As a result, in the 2010/2011 Annual Report, the County deleted the performance standard related to conducting quizzes annually. This method was also supported by 87% of surveyed staff who agreed that project specific meetings are the most useful way for them to learn about stormwater principles.

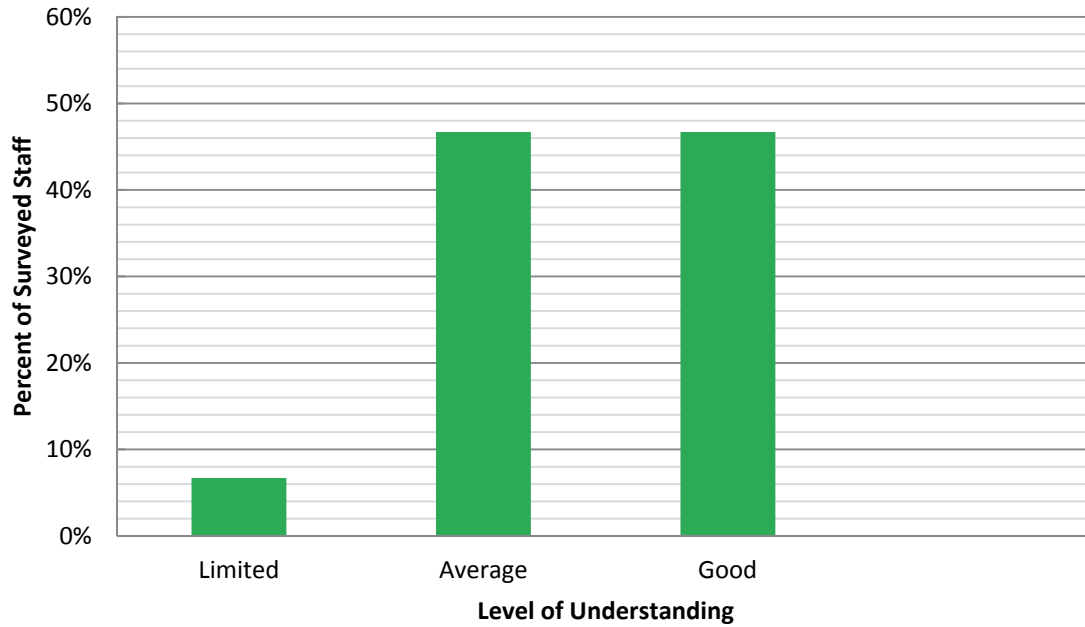
Additionally, the County Stormwater staff supports and sponsors local regional workshops. For example, at least 10 employees including plan reviewers and staff from planning, DERA participated in regional Low Impact Development (LID) conferences in October of 2008, 2010 and 2012. Also, at least 10 employees from these same groups attended a workshop organized by the Partnership in November of 2010 discussing the requirements contained in the draft Hydromodification Plan (HMP) that was submitted to the Regional Water Board on 01/29/2011 (subsequently revised). The Partnership also recognizes that it's more effective to conduct outreach on specific standards updates; such as the HMP approval, on a regional basis. This includes attending workshops sponsored by the State Water Board (e.g. Hydromodification Workshops) and reporting back to agency staff and the other Permittees.

Furthermore, County Stormwater staff trained construction inspectors to ensure proper installation of stormwater quality measures. Two major training sessions were held in 2008 and 2010 in conjunction with County and City of Rancho Cordova staff.

Overall, the 47% of staff surveyed during the 2012/2013 fiscal year showed average understanding and 47% of the stormwater quality principles of staff showed good understanding (see **Figure A-7.2-1**).

Stormwater Program Staff recommends discontinuing surveys during training to assess staff's understanding of the requirements, and recommends focusing on implementation assessments to evaluate the understanding of the requirements.

Figure A-7.2-1. 2012 Stormwater Quality Survey Summary (Planning, DERA, DOT, Plan Review)



A-7.3 City of Sacramento Summary

Element Goal and Introduction

The goal of the New Development Element is to protect local creeks and rivers by reducing the discharge of pollutants found in stormwater resulting from new developments to the Maximum Extent Practicable (MEP) and by mitigating increased flows that can cause erosion and degrade habitat. New developments may result in an increase in the total urbanized area, with a corresponding increase in the overall load of pollutants discharged into local creeks and rivers; and result in an increased impervious area, with a corresponding increase in the volume of stormwater runoff flows.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ND.1 Legal Authority

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ND.2 Policy and Standards

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ND.3 Development Standards Implementation

ND.3.1 Require source control, runoff reduction and/or treatment control measures for regulated development projects

2008 PERMIT REFERENCE D.14, D.22	PERFORMANCE STANDARD All regulated development projects incorporate required stormwater treatment control measures per development standards				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 3	FY 11/12 3	FY 12/13 3

Assessment Methodology, Results and Recommendations

During the 2008 Permit term, the City Stormwater Program staff reviewed a total of 571 development projects for their entitlement conditioning. For the 2010/2011 and 2011/2012 assessment years, 100% of regulated private development projects in the City of Sacramento incorporated the required stormwater treatment control conditions. A total of 238 projects in the City have approved stormwater treatment devices.

This task met its target performance standard which qualifies as an Effectiveness Outcome Level 3 Assessment – Changing Behavior.

Stormwater Program staff recommends continuing to use this assessment to measure the effectiveness of the New Development Element.

ND.3.6 Incorporate proper source control, runoff reduction and/or treatment control measures for regulated municipal CIP projects

2008 PERMIT REFERENCE D.14, D.22	PERFORMANCE STANDARD All regulated CIP projects include adequate stormwater control measures				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 3	FY 11/12 3	FY 12/13 3

Assessment Methodology, Results and Recommendations

For the 2009/2010, 2010/2011 and 2011/2012 fiscal years, a total of 54 municipal projects were reviewed to verify if applicable stormwater control measures were incorporated into the improvement plans for regulated municipal CIP projects.

For the 2010/2011 fiscal year, the City had 15 CIP projects that were under construction or were scheduled for construction at the time of the audit. All 15 City CIP projects were audited to ensure City projects incorporate adequate stormwater control measures. Stormwater treatment requirements (per the Stormwater Quality Design Manual) were applicable to only one (1) of the 15 projects, and this project did incorporate adequate stormwater treatment control measures.

During the 2011/2012 fiscal year, the City had a total of 13 CIP projects that were under construction or were scheduled for construction. All 13 City CIP projects were audited to ensure City projects incorporate adequate stormwater control measures. Only one project required stormwater treatment controls, and this project incorporated adequate stormwater treatment control measures.

This task met its target performance standard which qualifies as an Effectiveness Outcome Level 3 Assessment – Changing Behavior. Stormwater Program staff recommends continuing to use this assessment to measure the effectiveness of the New Development Element.

ND.4 Maintenance Verification for Treatment Control Measures

ND.4.3 Develop inspection checklist for verification of construction of the stormwater control measures per design and develop a policy to implement inspection verification

2008 PERMIT REFERENCE D.22	PERFORMANCE STANDARD All treatment control measures are constructed per design as being verified through inspection				
<input checked="" type="checkbox"/> KEY INDICATOR	<input checked="" type="checkbox"/> Task modified per Work Plan/Annual Report		<input checked="" type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 1

Assessment Methodology, Results and Recommendations

The original task and performance standard in the 2009 SQIP was to obtain the design engineer’s certification after construction of the stormwater treatment control measure verifying the measure was constructed properly and per the design plan. The following self-inspection note was developed and required to be included on the site plan if the project incorporated stormwater treatment facilities:

“City requires Engineer inspection and certification upon completion of the Stormwater Facility to ensure the facility is built per plans. Certification letter should be mailed to City of Sacramento Department of Utilities Water Quality (1395 35th Ave, Sacramento, CA 95822) for City records.”

However, the design engineer is not typically involved during the construction phase of a project and the City is not receiving these certifications after construction is completed. The City reviewed this requirement and determined that involving the inspectors in this process is critical to ensure treatment measures are constructed per design. An inspection checklist for all stormwater quality measures or devices will be developed during the Design Manual update which will start upon approval of HMP. Upon completion of the

inspection checklist for construction, staff will continue to discuss implementation of inspection verification with City Building officials.

In the meantime, the self-inspection note will be used as a way to implement inspection verification. The assessment is scheduled to be conducted the year after the policy is implemented.

ND.4.5 Annually review maintenance reports

2008 PERMIT REFERENCE D.22	PERFORMANCE STANDARD All treatment control measures on private property are properly maintained				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report	<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report			
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 3	FY 12/13 3

Assessment Methodology, Results and Recommendations

As of June 30, 2012, maintenance agreements have been recorded between the City and property owners for stormwater quality treatment devices and measures on 96 private properties with an associated total drainage area of 393 acres. Maintenance request letters and self-verification of maintenance forms were sent each year during the permit term to the owners of properties with on-site stormwater treatment measures or devices and with recorded maintenance agreements. Below is a summary of the responses and response rates for four consecutive years:

Fiscal Year	Total Letters	Records Received	Response Rate (%)	Underground Device No Reply (% total)
2008/2009	51	33	64.7 %	12 (23.5%)
2009/2010	68	44	64.7 %	16 (23.5%)
2010/2011	59	45	76.3 %	9 (15.3%)
2011/2012	62	38	61.3 %	14 (22.6%)

On average, 67% of the sites provided maintenance reports showing satisfactory maintenance of the units or treatment measures. This task did not meet its targeted performance standard that all measures are maintained. See assessment ND.4.7 below for more information on the activities being conducted to address the sites that did not respond to the City's request for maintenance records.

ND.4.6 Annually estimate pollutant removal from treatment devices

2008 PERMIT REFERENCE D.22	PERFORMANCE STANDARD Quantify the amount of pollutants removed from the stormwater treatment devices				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report	<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report			
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 4	FY 10/11 4	FY 11/12 4	FY 12/13 4

Assessment Methodology, Results and Recommendations

Stormwater Program staff estimated the amount of pollutants removed from the stormwater treatment devices using a combination of literature review data and maintenance information available from the previous fiscal year.

Total estimated pollutant removal in FY08/09 = 2,387 lb = 1.2 tons

Total estimated total suspended sediment (TSS) load reduction in FY08/09 = 0.015 tons/acre

Total estimated pollutant removal in FY09/10 = 5,287.3 lb = 2.6 tons, and

Total estimated TSS load reduction in FY09/10 = 0.026 tons/acre

As mentioned previously, as of June 30, 2012, the total drainage area associated with new development (and redevelopment) stormwater quality measures or devices on private property with maintenance agreements is 393 acres. To calculate the volume treated by the flow through BMPs, the assumption is that these BMPs treat 85% of the annual runoff volume and on average remove 53% of the TSS load.

If 100% of these BMPs were maintained properly, an annual load reduction of 21,109 lb (10.55 tons) of sediment (calculated as TSS) could be achieved for the 2011/2012 fiscal year, which equates to 0.027 tons/acre. This load reduction is comparable with the estimation in the Partnership’s 2005 Discharge Characterization (Sacramento Urban Runoff Discharge Characterization, August 2005, page 31) for TSS reduction (0.0233 tons/acre at 50% removal).

Based on the maintenance records received by the City, an average of 67% of sites maintained their on-site stormwater treatment facilities properly. Therefore, the estimated annual load reduction associated with these properties was 14,100.8 lb (7.05 tons) of sediment (calculated as TSS).

In the City, there are 151 properties with stormwater quality treatment measures or devices (swales, treatment devices, basins) that were approved prior to 2006 when the maintenance agreement requirements were put in place. Those facilities also remove urban runoff pollutants and may also be maintained. The load reduction associated with those properties is not included in this estimation.

Incorporation of stormwater treatment measures and devices into new development and redevelopment projects proves to be effective in controlling sediment-related pollutants. Maintenance of the BMPs will be important to ensure adequate performance of these BMPs.

ND.4.7 Follow-up with sites that send insufficient maintenance verification or do not respond to the annual maintenance request

2008 PERMIT REFERENCE D.22	PERFORMANCE STANDARD Increase awareness of proper maintenance of stormwater treatment control measures and reduce % of inadequate and/or non-response				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 3	FY 11/12 3	FY 12/13 3

Assessment Methodology, Results and Recommendations

An investigation of the non-responsive sites in the past showed that the reasons the sites did not respond are: change of ownership, change of property management, or change of staff which caused misplacement of the letter and lack of knowledge regarding the stormwater treatment facilities on their property and the associated need for maintenance.

Stormwater Program Staff will continue to update contact information for these sites when letters are returned or maintenance reports identify a change of ownership from previous records. In addition to updating contact information, Stormwater Program Staff conducted site inspections during the 2010/2011 and 2011/2012 fiscal years at sites that did not provide maintenance data in order to ensure the property owners are properly maintaining their devices and providing annual maintenance reports. See task ND.4.8 below for information on sites that were identified as having maintenance problems. This task increases the site’s maintenance or management personnel’s knowledge of the devices and the required maintenance and decreases the non-response rate. This task met its targeted performance standard.

Staff is also investigating enforcement actions that the City can take to ensure devices are maintained. Stormwater Program staff recommends that the City consider setting a goal for the next permit term of maintaining a minimum response rate of 70%.

ND.4.8 Follow-up with sites that are identified through inspection as having maintenance problems

2008 PERMIT REFERENCE D.18	PERFORMANCE STANDARD Reduce sites with improper maintenance of stormwater treatment control measures				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 3	FY 11/12 3	FY 12/13 3

Assessment Methodology, Results and Recommendations

The City found that the property owners/managers that provided maintenance reports as requested during the permit term were typically in compliance with maintenance requirements. Maintenance issues were identified for a few sites, and the issues were addressed through communication with the property manager or owner and a follow-up inspection. The task met its performance standard.

This task will be continued in the 2012/2013 fiscal year, however, it is not necessary to have four different key indicators to assess proper maintenance and not all key indicators provided useful information. A target percent response rate to the annual maintenance verification request is believed to be a good indicator of maintenance compliance, and Stormwater Program staff recommends that the City consider setting a goal for the next permit term of maintaining a minimum response rate of 70%.

ND.5 Training and Outreach

ND.5.1 Conduct annual training for planners and development review staff on stormwater quality requirements for private development projects

2008 PERMIT REFERENCE D.25	PERFORMANCE STANDARD All trained staff understand stormwater quality requirements for development projects				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 2	FY 11/12 2	FY 12/13 1

Assessment Methodology, Results and Recommendations

2009/2010 Fiscal Year:

During the 2009/2010 fiscal year, two (2) training groups were asked to take a quiz with 6 questions related to new development stormwater requirements at the end of the training sessions to evaluate staffs understanding of the stormwater quality requirements presented. The groups were staff from the Department of Utilities' Development Review section and Planning. Overall the results showed that staff had an average or good understanding of the requirements presented. Results of the quizzes are shown below in Figure A-7.3-1 and A-7.3-2.

Figure A-7.3-1. FY 09/10 NPDES Training Quiz Summary (Development Review), Total questions = 6

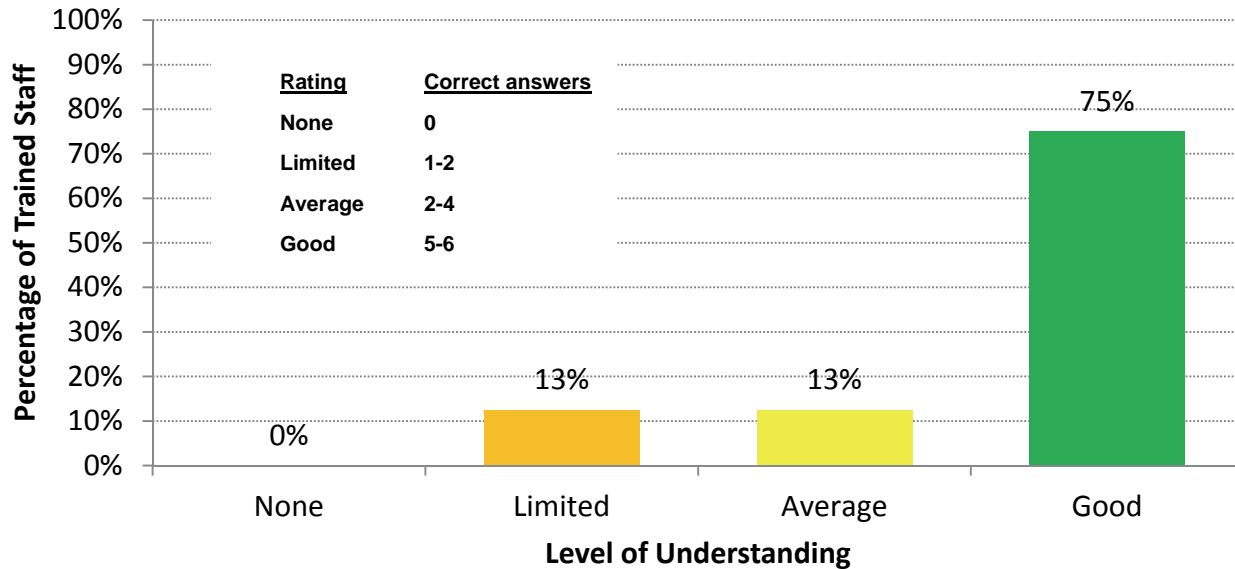
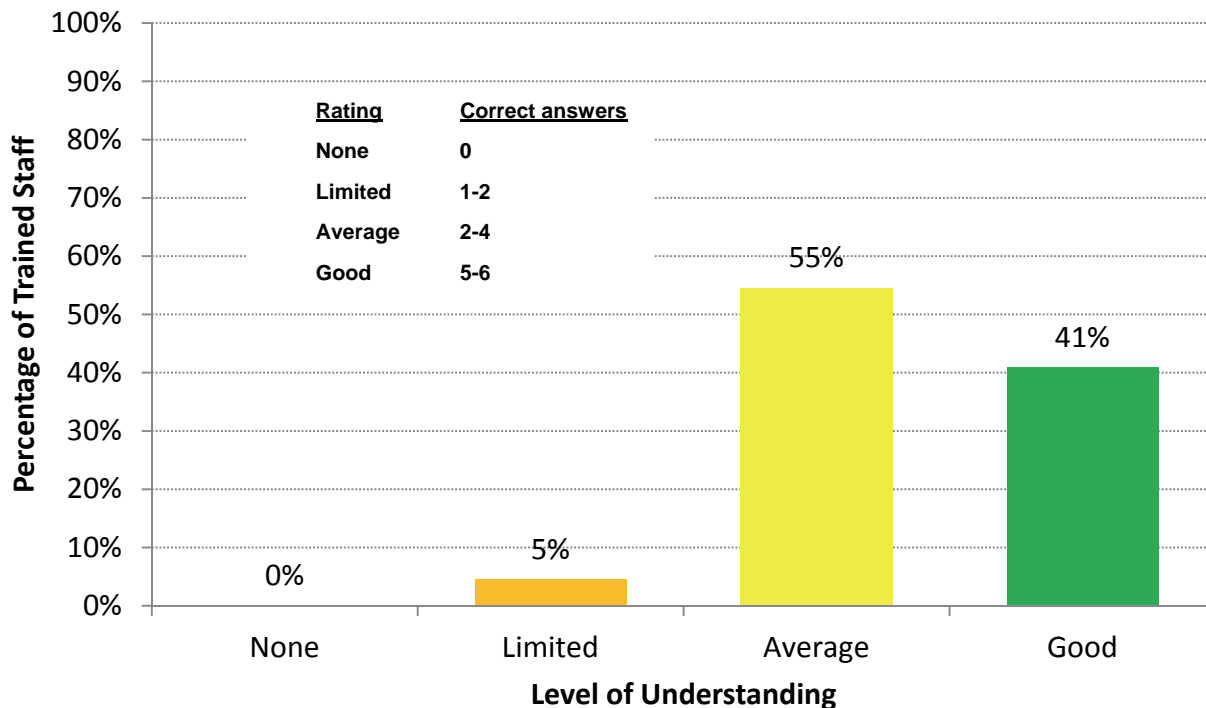


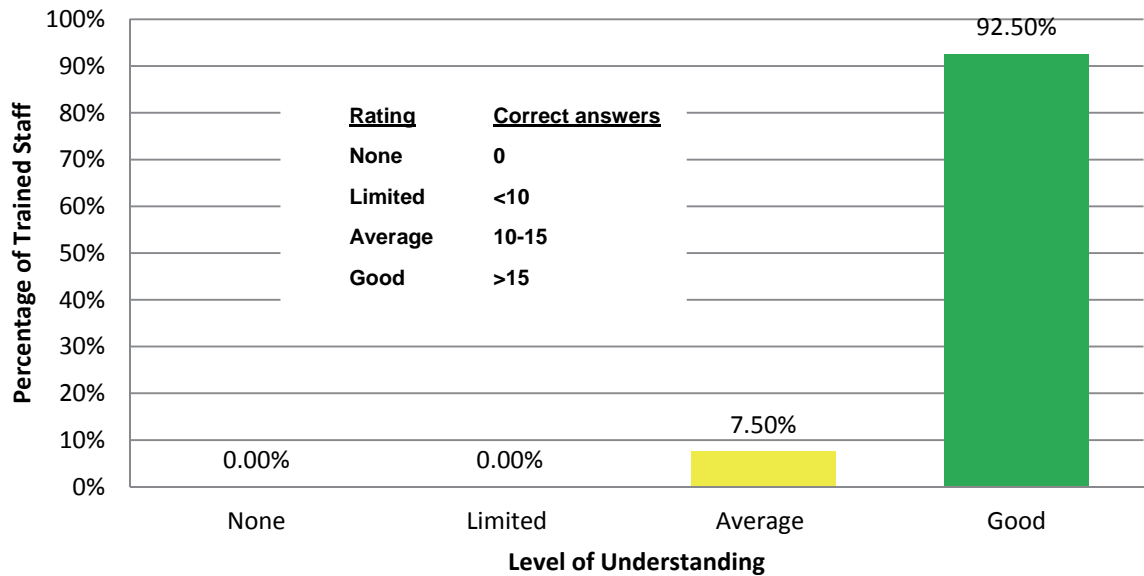
Figure A-7.3-2. FY 09/10 NPDES Training Quiz Summary (Planning), Total questions = 6



2010/2011 Fiscal Year:

During the 2010/2011 fiscal year, four (4) training groups were asked to take a quiz with 20 questions related to new development stormwater requirements at the end of the training session. The groups were staff from the Departments of General Services, Utilities (Development Review), Transportation, and Utilities (Project Managers). A total of 40 people submitted answers to the quiz and the results are summarized in Figure A-7.3-3 below. Overall, the groups tested during the 2010/2011 fiscal year showed good understanding of the NPDES New Development stormwater quality requirements.

Figure A-7.3-3. FY 10/11 NPDES Training Quiz Summary, Total questions = 20



The training quiz was not used during the 2011/2012 fiscal year annual training because little value was obtained from the previous data analysis on the quizzes for the 2009/2010 and 2010/2011 fiscal years. The increased communication between the Stormwater Program staff and the Planners, Development Review staff, and CIP project managers showed that staff in these groups continue to have a good understanding of the stormwater requirements during the 2011/2012 fiscal year.

Stormwater Program Staff recommends discontinuing quizzes after the training to assess staffs' understanding of the requirements and recommends focusing on implementation assessments to evaluate the understanding of the requirements.

ND.5.2 Conduct annual training for City staff (Project Managers from departments of General Services, Parks, Transportation and Utilities) on stormwater quality requirements for municipal projects

2008 PERMIT REFERENCE D.25	PERFORMANCE STANDARD All trained staff understand the stormwater quality requirements for regulated municipal projects				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 2	FY 11/12 2	FY 12/13 1

Assessment Methodology, Results and Recommendations

During the 2010/2011 fiscal year, four (4) training groups were asked to take a quiz with 20 questions related to the New Development stormwater requirements. The groups were staff from the Departments of General Services, Utilities (Development Review), Transportation and Utilities (Project Managers). The quiz was not given in the training to the Parks and Recreation Department project managers since their training was based on project-specific requirements. A total of 40 people submitted answers to the quiz and the results are summarized in Figure A-7.3-3 above. Overall, the groups tested during the 2010/2011 fiscal year showed good understanding of the NPDES New Development stormwater quality requirements.

The training quiz was not used during the 2011/2012 annual training because the data provided little value to Stormwater Program staff. See the discussion above for ND.5.1 for more information and future recommendations.

ND.5.3 Conduct annual training for City inspectors on the procedures to inspect stormwater treatment control measures

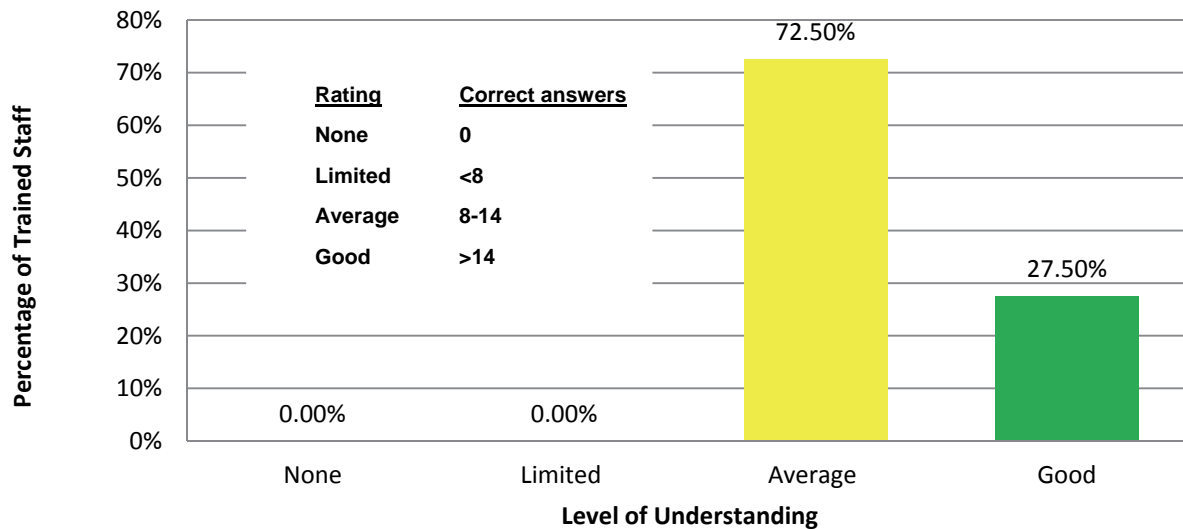
2008 PERMIT REFERENCE D.25	PERFORMANCE STANDARD All trained field inspectors know how to identify potential problems of the stormwater treatment control measures				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 2	FY 11/12 2	FY 12/13 1

Assessment Methodology, Results and Recommendations

During the 2010/2011 fiscal year, annual trainings were provided to City inspectors from various City Departments (Building, Transportation, Utilities, Parks and Recreation, and General Services). Except for the inspectors from the Building Department, all other inspectors attended training with the project managers in their department and the results of the quizzes are shown in Figure A-7.3-3 above. Overall, the groups tested during the 2010/2011 fiscal year showed good understanding of the NPDES New Development stormwater quality requirements.

During the 2010/2011 fiscal year, a quiz was conducted with inspectors for the Building Department and the results showed 72.5% with an average understanding and 27.5% with a good understanding. See Figure A-7.3-4 below for quiz results.

Figure A-7.3-4. FY10/11 Annual NPDES Training Quiz Summary (Building), Total questions = 16



The training quiz was not used during the 2011/2012 annual training because the data provided little value to Stormwater Program staff. See the discussion above for ND.5.1 for more information and future recommendations.

A-7.4 City of Citrus Heights Summary

Element Goal and Introduction

The goal of the New Development Element is to mitigate urban runoff pollution and other water quality impacts associated with new development and redevelopment. New development within the City of Citrus Heights is generally associated with redevelopment as there is very little vacant developable land remaining in the City. Redevelopment projects with substantial tenant improvements will be required to re-work the site to capture the water on-site and improve runoff quality. Many older sites currently sheet-flow directly into the city streets.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ND.1 Incorporation of Water Quality Protection Principles into Plans, Policies and Procedures

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ND.2 Development of Standards and/or Guidance

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ND.3 Conditions of Approval and Plan Review

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at outcome Level 2 or above as described below.

ND.3.4 Track priority projects that have been approved to construct treatment control measures.

2008 PERMIT REFERENCE 13.i	PERFORMANCE STANDARD Increase in number of priority projects that incorporated treatment measures.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology, Results and Recommendations

The City tracks the number of priority projects that have incorporated treatment control measures and reports the number in each Annual Report. The performance standard has been met for this task. The City completed two demonstration projects that fully complied with the submitted HMP and current LID standards in the 2011/2012 fiscal year. The recommendation shall be to continue requiring and conditioning projects to comply with stormwater quality measures and to report the total per fiscal year.

ND.4 Stormwater Maintenance Agreement

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ND.5 Outreach and Training

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Effectiveness Outcome Level 2 or above as described below.

ND.5.2 Provide annual training to employees in targeted positions.

2008 PERMIT REFERENCE 13.i	PERFORMANCE STANDARD Maintained/increased awareness of targeted City staff as a result of training				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 2	FY 11/12 2	FY 12/13 2

Assessment Methodology, Results and Recommendations

The City of Citrus Heights General Services and Building departments conduct ongoing informal meetings to discuss stormwater quality BMP's. In addition, annual refresher courses have been presented to key City. The number of trainings and staff involved are recorded and a report is produced at the end of each fiscal year. In years, that the City wasn't able to host training events, the City promoted workshops and classes conducted by other Permittees, the State Water Quality Board or by for profit training organizations. The City provided the required training to 6 City Staff for the Construction General Permit. Yearly the City trains 100% of all field personnel, in the 2009/2010 fiscal year, the 2010/2011 fiscal year 8 staff, the 2011/2012 fiscal year 8 staff were trained. The performance standard was met for this task.

A-7.5 City of Elk Grove Summary

Element Goal and Introduction

The primary goal of the New Development Element is to mitigate urban runoff pollution and other water quality impacts associated with new development and redevelopment. The element addresses the quality and quantity of runoff and the resultant potential impacts on downstream water quality and habitat conditions in receiving waters in accordance with the Stormwater Permit and the City's stormwater and land grading and erosion control ordinances.

Project applicants learn about the stormwater quality development standards through the City's Public Works Department, project meetings between applicants and City staff, and via the SSQP website: www.sacramentostormwater.org. The Stormwater Quality Design Manual for Sacramento and South Placer Regions (Stormwater Quality Design Manual) and applicable City requirements are available to the development and design communities on the City's website and the SSQP website. The City's Planning Department holds project pre-application meetings with applicants to provide developers with stormwater quality compliance information to ensure that they incorporate the required stormwater measures as early as possible during design.

Figure 6.8-1 in the November 2009 SQIP illustrates the typical development review process for a project in the City and shows how stormwater quality and erosion and sediment control requirements are addressed. Within this process, engineers in the Public Works Department work collaboratively with planning and environmental staff, plan checking staff and later with staff in the Construction Management and Inspection Division.

During the planning phase, each project application is reviewed to verify that applicable stormwater quality measures have been incorporated in accordance with the City's development standards and Stormwater Quality Design Manual. If applicable, the project is conditioned to incorporate stormwater quality measures through written conditions of approval. Next, the environmental documents for priority projects are reviewed to ensure that potential environmental impacts are evaluated (including impacts to waters of the states) and appropriate mitigation measures are specified. In the plan review phase, the projects improvement plans are reviewed to ensure that the proper design and placement of the stormwater measures. This is the stage at which the City checks to make sure that the project is in compliance with the City's land grading and erosion control ordinance and has obtained coverage with the State's Construction General Permit if applicable. Prior to construction, depending on the type of stormwater quality facility involved, a maintenance agreement is executed with the property owner to ensure long term maintenance of proposed treatment devices. Once construction is complete, maintenance of the stormwater quality treatment devices is monitored via a self certification program. See Appendix 6.8 in each of the Annual Reports for a list of Stormwater Treatment Device Maintenance Agreements.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ND.1 Incorporation of Water Quality Protection Principles into Plans, Policies and Procedures

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ND.2 Development of Standards and/or Guidance

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ND.3 Conditions of Approval and Plan Review

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Effectiveness Outcome Level 2 or above as described below.

ND.3.4 Track priority projects that have been approved to construct treatment control measures.

2008 PERMIT REFERENCE 13.i	PERFORMANCE STANDARD Increase in number of priority projects that incorporated treatment measures.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 3	FY 10/11 3	FY 11/12 3	FY 12/13 3

Assessment Methodology, Results and Recommendations

The City tracks the number of priority projects that have incorporated treatment control measures and reports the number in each Annual Report. The performance standard has been met for this task. The data shows that 396 priority projects incorporated treatment control measures in the 2008/2009 fiscal year, 374 projects in the 2009/2010 fiscal year, 299 projects in the 2010/2011 fiscal year and 373 projects in the 2011/2012 fiscal year. (Refer to Annual Reports for full details). The recommendation shall be to continue requiring and conditioning projects to comply with stormwater quality measures and to report the total per fiscal year.

ND.4 Stormwater Maintenance Agreement

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ND.5 Outreach and Training

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Effectiveness Outcome Level 2 or above as described below.

ND.5.2 Provide annual training to employees in targeted positions.

2008 PERMIT REFERENCE 13.i	PERFORMANCE STANDARD Maintained/increased awareness of targeted City staff as a result of training.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 2	FY 11/12 1	FY 12/13 1

Assessment Methodology, Results and Recommendations

During the permit term, the City of Elk Grove's Drainage Resources and Construction Services departments have collaborated on bringing annual refresher training to targeted and general City staff. In fact, these refresher workshops have been open and free-of-charge to the to the general construction and development communities and anyone else in the greater community that wishes to learn about protecting stormwater quality. In years, that the City of Elk Grove wasn't able to host training events, the City promoted workshops and classes conducted by other Permittees, the State Water Quality Board or by for-profit training organizations. For-profit training events were evident around the time the Board adopted the new Construction General Permit. Here is a summary of the training events per Fiscal Year as identified in each Annual Report: 2008/2009 fiscal year, two training events; 2009/1010 fiscal year, three training events; 2010/2011 fiscal year several QSP/QSD training events throughout the region; and in the 2011/2012 fiscal year, one training event. Generally, awareness has increased among key City staff and partly due to the requirements of the new Construction General Permit, however, continuous training is a crucial element of a successful water quality program. Annual refresher courses must continue to provide guidance to City staff as well as the construction and development community. This proactive approach provides a forum for discussion and encourages project proponents to address stormwater quality measures during the beginning phases of design and construction and later through post-project maintenance.

A-7.6 City of Folsom Summary

Element Goal and Introduction

The primary goal of the New Development Element is to mitigate the impacts of urban stormwater (runoff) resulting from new development and redevelopment. The element addresses the quality and quantity of runoff and the resultant potential impacts on downstream water quality and habitat conditions in receiving waters (Waters of the state), in accordance with Provisions 13 - 25 of the 2008 Stormwater Permit and the City's stormwater and grading and hillside development ordinances.

The City regulates development within the city of Folsom and works closely with the other Permittees in the Sacramento Stormwater Quality Partnership (Partnership) and neighboring jurisdictions to achieve consistency in standards and approaches to the extent possible, for the mutual benefit of the government agencies and the development community.

The City's stormwater ordinance (FMC 8.70) provides the authority necessary for the City to require stormwater quality and hydromodification management control measures as conditions of approval for new and redevelopment projects. This legal authority, in combination with General Plan policies, development standards, the *Stormwater Quality Design Manual for Sacramento and South Placer Regions* (Stormwater Quality Design Manual), permit review process, inspections and long-term maintenance requirements, enables the City to ensure that new development and redevelopment projects in Folsom are designed and implemented to mitigate potential impacts to waters of the state.

During the 2008 Stormwater Permit term, economic conditions caused a sharp decline in the number of development projects submitted for permitting. This is reflected in the assessment results.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ND.1 Incorporation of Water Quality Protection Principles into Plans, Policies and Procedures

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ND.2 Development of Standards and/or Guidance

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ND.3 Conditions of Approval and Plan Review

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Effectiveness Outcome Level 2 or above as described below.

ND.3.5 Condition priority development projects through CEQA to include stormwater quality control measures as applicable.

2008 PERMIT REFERENCE 13.i	PERFORMANCE STANDARD Track the incorporation of stormwater quality measures from the planning phase until completion of project.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input checked="" type="checkbox"/> Task modified per Work Plan/Annual Report		<input checked="" type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology

This task and performance standard were added to the Folsom program in the 2009/2010 fiscal year to be consistent with Sacramento County and the other Permittees. The objective of this performance standard is to track and assess the City’s effectiveness in ensuring that priority development projects incorporate stormwater quality control measures in accordance with the Stormwater Quality Design Manual, as conditioned during the planning and review process and enforced through construction and completion of the project.

Assessment Results

Throughout the 2008 permit term, the City’s Stormwater Quality Program Manager tracked projects from the planning and review phase, through final approval of improvement plans and execution of maintenance agreements. As shown in Table A-7.6-1 below, all projects that required treatment controls either constructed on-site treatment, as conditioned, or discharged to an existing regional stormwater quality detention basin. 4 of the 6 projects that were conditioned to provide treatment during the 2011/2012 fiscal year have not been built out yet. As seen here, there was a significant decline in the number of projects built in Folsom during the permit term as compared to previous terms, due to the down economy.

Table A-7.6-1

Fiscal Year	No. of Projects Conditioned to Provide SWQ Treatment	No. of Completed (Constructed) Projects	No. of Completed Projects that Constructed a SWQ Treatment Facility	No. of Approved/Completed Projects that Discharge to an Existing Regional Detention Basin
2008/2009	10	10	9	1
2009/2010	4	4	3	1
2010/2011	2	2	2	0
2011/2012	6	2	0	4
2012/2013	NA	NA	NA	NA
Total	22	18	14	6

NA: Not available

Recommendations

The City recommends continuing this activity as a key indicator/performance standard which is consistent with the Permittees proposed 5-year work plan for the next permit term.

ND.4 Stormwater Maintenance Agreement

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ND.5 Outreach and Training

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Effectiveness Outcome Level 2 or above as described below.

ND.5.2 Provide annual training to employees in targeted positions

2008 PERMIT REFERENCE 13.i	PERFORMANCE STANDARD Increase awareness of targeted employees about stormwater quality requirements.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 2	FY 11/12 2	FY 12/13 3

Assessment Methodology

Before the 2008 permit term (2008/2009 fiscal and previous years), the effectiveness of employee training was made at Outcome Level 1 by simply reporting the numbers of staff trained in various departments and on various topics each year. Starting in the 2009/2010 fiscal year, a new performance standard was created for this task and the assessment strategy was to use quizzes to gage the attendees' increased awareness as a result of each individual training session (Outcome level 2).

Assessment Results

Since 2009 there have been several staff reductions and consequently plan review staff has diminished to 2 plan review engineers and 2 planners. Although staff has continued to participate in annual refresher training and additional ongoing communication/training at project review meetings, there have not been enough people to generate statistically significant survey/evaluation. The City's stormwater program manager works very closely with plan review staff therefor is very aware of their knowledge and understanding of requirements for new development. As shown above in ND.3.5, 100% of projects reviewed during the permit term incorporated stormwater quality controls as required; this is testament to staff's understanding of the requirements.

Recommendations

The City recommends continuing this activity but eliminating it as a key indicator/performance standard which is consistent with the Permittees proposed 5-year work plan for the next permit term.

A-7.7 City of Galt Summary

Element Goal and Introduction

The goal of the New Development Element is to mitigate urban runoff pollution and other water quality impacts associated with new development and redevelopment.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ND.1 Incorporation of Water Quality Protection Principles into Plans, Policies and Procedures

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ND.2 Development Standards and Technical Guidance

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ND.3 Conditions of Approval and Plan Review

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Effectiveness Outcome Level 2 or above as described below.

ND.3.5 Condition priority development project through CEQA to include stormwater quality control measures as applicable.

2008 PERMIT REFERENCE 13.i	PERFORMANCE STANDARD Track the incorporation of stormwater quality measures from the planning phase until completion of the project.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology, Results and Recommendations

The objective of this performance standard is to track and assess the City’s effectiveness in ensuring that priority development projects incorporate stormwater quality control measures in accordance with the Stormwater Quality Design Manual, as conditioned during the planning and review process and enforced through construction and completion of the project.

Throughout the 2008 permit term, the City’s Stormwater Quality Program Manager tracked projects from the planning and review phase, through final approval of improvement plans and execution of maintenance agreements. All projects that required treatment controls constructed on-site treatment as conditioned. As expected, there was a significant decline in the number of projects built in the City during the permit term as compared to previous terms, due to the down economy. As there is functionally one position dedicated to all facets of the stormwater quality program and development, there would be no “dropping the ball” as a development wound its way through the process from concept to construction.

The City recommends continuing this activity as a key indicator/performance standard which is consistent with the permittees proposed 5-year work plan for the next permit term.

2008 PERMIT REFERENCE 13.i	PERFORMANCE STANDARD Assess designer's behavior and knowledge of the City of Galt's development standards by tracking the percentage of submitted priority projects found to incorporate stormwater quality treatment measures upon initial project review.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology, Results and Recommendations

The objective of this performance standard is to track and assess the City's effectiveness in educating the development community to ensure that priority development projects incorporate stormwater quality control measures.

Throughout the 2008 permit term, the City tracked projects from the planning and review phase, through final approval of improvement plans and execution of maintenance agreements. Although there was significant outreach and education to project proponents regarding stormwater quality during the concept stage, very few if any projects successfully incorporated the same at the initial submittal. As expected, there was a significant decline in the number of projects built in the City during the permit term as compared to previous terms, due to the down economy. Also, as there is functionally one position dedicated to all facets of the stormwater quality program and development, there would be no "dropping the ball" as a development made it first submittal.

The City recommends continuing this activity but eliminating it as a key indicator/performance standard which is consistent with the permittees proposed 5-year work plan for the next permit term.

ND.4 Stormwater Maintenance Agreement

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Effectiveness Outcome Level 2 or above as described below.

ND.4.2 Require Property Owners to self-certify the maintenance of the treatment measures on their sites annually.

2008 PERMIT REFERENCE 13.i	PERFORMANCE STANDARD Assess property Owner's behavior and their knowledge of proper maintenance procedures by tracking the percentages of owners submitting acceptable maintenance documentation.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 2	FY 11/12 2	FY 12/13 2

Assessment Methodology, Results and Recommendations

Most Permittees verify maintenance by requiring the property owners to provide self-certification letters and/or maintenance documentation. For the 5 areas where treatment is provided by bio-vegetated swales, City staff took to reviewing the various sites annually to see if any problems appeared. For the 3 areas being treated with proprietary treatment control devices, due to limited staff resources, it was not possible to follow-up on all property owners/managers who did not respond to maintenance requests.

It is recommended that verification of maintenance for installed stormwater measures/devices be spread out to at least once every three years with a minimum 70% response rate (target set to account for changes in property ownership and management). These recommendations are reflected in the proposed 5-year work plans for the next Permit term.

2008 PERMIT REFERENCE 13.i	PERFORMANCE STANDARD Ensure proper maintenance of manufactured devices by tracking amount of waste collected.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 4	FY 11/12 4	FY 12/13 4

Assessment Methodology, Results and Recommendations

Most Permittees verify maintenance by requiring the property owners to provide self-certification letters and/or maintenance documentation. For the 5 areas where treatment is provided by bio-vegetated swales, City staff took to reviewing the various sites annually to see if any problems appeared. For the 3 areas being treated with proprietary treatment control devices, due to limited staff resources, it was not possible to follow-up on all property owners/managers who did not respond to maintenance requests.

It is recommended that verification of the amount of waste collected be dropped due to limited staff resources. Furthermore, some manufactured devices maintain their device elements off-site and may be difficult to get the data back.

ND.5 Outreach and Training

All tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results. In addition, selected tasks were assessed at Effectiveness Outcome Level 2 or above as described below.

ND.5.2 Provide annual training to employees in targeted positions.

2008 PERMIT REFERENCE 13.i	PERFORMANCE STANDARD Minimum average quiz score of 80%				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input type="checkbox"/> Performance Standard modified per Work Plan/Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 2	FY 11/12 2	FY 12/13 2

Assessment Methodology, Results and Recommendations

Before the 2008 permit term (2008/2009 fiscal year and previous years), the effectiveness of employee training was made at Outcome Level 1 by simply reporting the numbers of staff trained in various departments and on various topics each year. Starting in the 2009/2010 fiscal year, a new performance standard was created for this task and the assessment strategy was to use quizzes to gage the attendees’ increased awareness as a result of each individual training session (Outcome level 2).

For the City, there is functionally one position dedicated to all facets of the stormwater quality program. Quizzing one person is not a statistically valid basis for numerating the quality and success of the stormwater quality program. During the permit term, that one staff person has achieved CASQA certification as a QSD/QSP.

The City recommends continuing this activity but eliminating it as a key indicator/performance standard which is consistent with the permittees proposed 5-year work plan for the next permit term.

A-7.8 City of Rancho Cordova Summary

Element Goal and Introduction

The primary goal of the New Development Element is to mitigate the impacts of urban stormwater (runoff) resulting from new development and redevelopment. The element addresses the quality and quantity of runoff and the resultant potential impacts on downstream water quality and habitat conditions in receiving waters (waters of the state), in accordance with Provisions 13 - 25 of the 2008 Stormwater Permit and the City's stormwater and land grading and erosion control ordinances. Since 1990, the focus of the New Development Element has been on mitigating stormwater quality impacts. However, the 2008 Stormwater Permit contains requirements to also address impacts to runoff volume and rate (hydromodification impacts) where those impacts could cause creek erosion and degrade creek habitat.

The City regulates development within Rancho Cordova and works closely with the other Permittees in the Sacramento Stormwater Quality Partnership (Partnership) and neighboring jurisdictions to achieve consistency in standards and approaches, for the mutual benefit of the government agencies and the development community. The City contracts with Sacramento County (County) to review and condition projects in the City for compliance with the development standards established pursuant to the Stormwater Permit and the Stormwater Quality Improvement Plan (SQIP). The County also represents the City on regional projects, such as preparation of the *Stormwater Quality Design Manual for Sacramento and South Placer Regions* (Stormwater Quality Design Manual) in 2007 and the ongoing process to develop hydromodification and LID standards.

The City's stormwater ordinance provides the authority necessary for the City to require stormwater quality and hydromodification management control measures as conditions of approval for new and redevelopment projects. This legal authority, in combination with General Plan policies, development standards, the Stormwater Quality Design Manual, permit review process, inspections and long-term maintenance requirements, enables the City to ensure that new development and redevelopment projects in Rancho Cordova are designed and implemented to mitigate potential impacts to waters of the state. The Stormwater Quality Design Manual and all applicable requirements are available to the development and design community through the City's Planning Department.

Element Effectiveness Assessment

This section presents effectiveness assessments for the 2008 permit term of key indicators and other activities that were evaluated at Effectiveness Outcome Level 2 (raising awareness) and above. All other work plan tasks were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ND.1 Legal Authority

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ND.2 Policy and Standards

All tasks in this category were assessed at Effectiveness Outcome Level 1; see Annual Reports for the assessment results.

ND.3 Conditions of Approval and Plan Review

ND.3.5 Track priority projects that have been approved to construct treatment control measures

2008 PERMIT REFERENCE 13.i	PERFORMANCE STANDARD Assess designers' behavior and knowledge of the County's development standards by tracking the percentage of submitted priority projects that incorporate stormwater quality treatment control measures upon initial project review.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input checked="" type="checkbox"/> Performance Standard modified per FY 09-10 Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology, Results and Recommendations

The performance standard for this task was proposed in the fiscal year 09-10 Annual Report and the County began tracking data associated with this standard during the fiscal year 10-11. The City of Rancho Cordova's information was tracked by Sacramento County and the City-specific numbers are reported below

Annual Report Year	Total Development Projects Reviewed by Sac County	Number of constructed projects with on-site treatment controls
FY 08-09	17	NA
FY 09-10	10	NA
FY 10-11	6	
FY 11-12	4	

**The performance standard for this task was proposed in the fiscal year 09-10 Annual Report and the County (on behalf of Rancho Cordova) began tracking data associated with this standard during the fiscal year 10-11.*

ND.4 Stormwater Maintenance Agreement

ND.4.2 Require property owners to self-certify the maintenance of the treatment measures on their sites annually

2008 PERMIT REFERENCE 13.i	PERFORMANCE STANDARD Assess property owners' behavior and their knowledge of proper maintenance procedures by tracking the percentage of owners submitting acceptable maintenance documentation.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input checked="" type="checkbox"/> Performance Standard modified per FY 09-10 Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 3

Assessment Methodology, Results and Recommendations

The City of Rancho Cordova's information is tracked by Sacramento County and the numbers are reported with the County's information in Appendix A-7.3.

2008 PERMIT REFERENCE 13.i	PERFORMANCE STANDARD County will verify proper maintenance of manufactured devices by tracking amount of waste collected.				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input checked="" type="checkbox"/> Performance Standard modified per FY 09-10 Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 1	FY 11/12 1	FY 12/13 4

Assessment Methodology, Results and Recommendations

The City of Rancho Cordova projects are tracked by County staff and the amount of waste removed from the stormwater treatment devices covered by maintenance covenants is estimated using a combination of literature review data and maintenance information available from the previous fiscal year.

Currently, the total of all drainage areas in the City of Rancho Cordova associated with New Development treatment measures with maintenance covenants is **172 acres**. To calculate the volume treated by the flow through these treatment measures, the assumption is that they treat 85% of the annual runoff volume based on the following relationship:

Load of suspended solids removed = 85% X Annual Runoff Volume X (influent- effluent)

If 100% of these treatment measures are maintained properly, annually a load reduction of **7417 lbs. (3.7 tons)** of sediments (calculated as TSS) will be achieved, which equates to 0.0216 tons/acre. This load reduction is comparable with the estimation in the Discharge Characterization (2005 Report, Pg 31) for TSS reduction (0.0233 tons/acre at 50% removal).

Based on the maintenance records that are in the County database, an average of 87% sites maintain these treatment facilities properly. Therefore, annual load reduction associated with new development sites with maintenance records will be **6453 lbs. (3.2 tons)** of sediments (calculated as TSS).

ND.5 Outreach and Training

ND.5.2 Provide annual training to employees in targeted positions

2008 PERMIT REFERENCE 13.i	PERFORMANCE STANDARD Maintained/increased awareness of targeted staff as a result of training				
<input checked="" type="checkbox"/> KEY INDICATOR	<input type="checkbox"/> Task modified per Work Plan/Annual Report		<input checked="" type="checkbox"/> Performance Standard deleted per 10-11 Annual Report		
ASSESSMENTS LEVEL AND SCHEDULE	FY 08/09 1	FY 09/10 1	FY 10/11 2	FY 11/12 2	FY 12/13 2

Assessment Methodology, Results and Recommendations

This task was mistakenly identified as a key indicator task in the fiscal year 12-13 Work Plan. In the fiscal year 10-11 Annual Report, a minor modification was proposed to delete the performance standard "Maintained/increased awareness of targeted staff as a result of training". As reported in the fiscal year 10-11 Annual Report: "The dynamic, ever-changing nature of the new development element makes it impossible to develop standardized quiz questions by which to measure/track increased awareness of staff over time".