SECTION C-2

PROGRAM MANAGEMENT

PROGRAM EFFECTIVENESS ASSESSMENT
2011-12

C-2.0 PROGRAM MANAGEMENT

C-2.1 Introduction (LIP Section A-2.1)

Program management activities conducted by the County on an annual basis to implement the Stormwater Program involve the following:

- Coordination with the other Permittees on program development through the DAMP; common program implementation (such as monitoring, public education and watershed programs); and a commitment of funding shared budgets under the Implementation Agreement;
- Coordination with internal County departments;
- Preparing, approving and tracking shared and County cost budgets; and,
- Effectiveness assessment of program elements following the *Municipal Stormwater Program Effectiveness Assessment Guidance* document developed by CASQA.

This section describes the County's implementation of the program management elements of its LIP and the approach taken on effectiveness assessment. The County utilizes the CASQA method of effectiveness assessment in order to demonstrate if program elements, activities, BMPs, etc., are resulting in desired outcomes. CASQA identifies six Outcome Levels and for each measure the County reports, the associated Outcome Level (more than one level may apply) is indicated by a colored triangle with a number (See **Section C-2.5** below for detailed discussion on this approach).

C-2.2 Countywide Coordination (LIP Section A-2.2)

Due to its role as Principal Permittee, each General Permittee Committee meeting is attended by several County representatives. For the purpose of coordination as a Permittee, the following contacts represent the County's Stormwater Program:

Primary Contacts	**County of Orange OC Public Works**	
Name	Grant Sharp, County Stormwater Program Manager	J.T. Yean Civil Engineer
Division	OC Watersheds	OC Planning/Advance Planning & Sustainable Development
Address	2301 N. Glassell St., Orange92865	300 N. Flower St., Santa Ana 92703
E-mail Address	grant.sharp@ocpw.ocgov.com	jung-tsun.yean@ocpw.ocgov.com
Alternate Contacts	**County of Orange OC Public Works**	
Name	Chris Crompton	Greg Yi
Division	OC Watersheds	OC Flood
Address	2301 N. Glassell St., Orange92865	300 N. Flower St., Santa Ana 92703
E-mail Address	chris.crompton@ocpw.ocgov.com	greg.yi@ocpw.ocgov.com

For the purpose of coordination as the Principal Permittee, the following contacts represent the County:

Primary Contacts	County of Orange OC Public Works	
Name	Richard Boon	Chris Crompton
Division	OC Watersheds	OC Watersheds
Address	2301 N. Glassell St., Orange92865	2301 N. Glassell St., Orange92865
E-mail Address	richard.boon@ocpw.ocgov.com	chris.crompton@ocpw.ocgov.com

The General Permittee Committee met 11times during the reporting period. The County had representatives at the following meetings:

Meeting Date	Attended
July 28, 2011	X
August 25, 2011	X
September 22, 2011	X
October 27, 2011	X
December 15, 2011	X
January 26, 2012	X
February 23, 2012	X
March 22, 2012	X
April 26, 2012	X
May 24, 2012	X
June 28, 2012	X

In addition, County representatives coordinated and participated in the following committees/task forces and watershed committees:

Committee/Task Force	Attended
LIP/PEA	All Meetings
Inspection	All Meetings
Trash & Debris	All Meetings
Legal/Regulatory Authority	All Meetings
Public Education	All Meetings
Water Quality	All Meetings

Watershed Committee	Attended
Aliso Creek*	All Meetings
San Juan Creek/San Clemente Coastal Streams**	All Meetings

* Laguna Coastal Streams watershed Permittees are also part of the Aliso Creek watershed and meet concurrently with that group.
* Dana Point Coastal Streams watershed Permittees are also part of the San Juan Creek watershed and meet concurrently with that group.

C-2.3 County Internal Coordination (LIP Section A-2.3)

The NPDES Internal Committee, comprised of designated representatives from County departments having NPDES responsibilities, was formed in August 2003. The committee typically holds annual meetings, however during this reporting period, managers of the County Stormwater program identified the need to conduct department-specific meetings with several of the Committee members in order to more effectively convey the many and varied components of the current 4th Term permits. Information is also routinely distributed to Committee members via email throughout the year. The annual meeting of the NPDES Internal Committee meeting for the2011-12 reporting period was held on March 14, 2012. County Stormwater Program managers also conducted department specific update meetings with the following departments during the reporting period:

- OC Waste & Recycling April 3, 2012
- OC Sheriff's Department April 4, 2012
- OC Dana Point Harbor Department April 16, 2012
- Orange County Community Resources (OCCR)/OC Parks May 3, 2012

Section A-2 of the LIP, **Table A- 2.2**details the roles and responsibilities of individual County departments with respect to implementation of the County's Stormwater Program.

C-2.4 Fiscal Analysis (LIP Section A-2.4)

The Fiscal Analysis includes the following:

- The County's expenditures for the previous fiscal year;
- The County's projected costs for the current fiscal year; and
- A description of the source of funds.

The Fiscal Analysis is intended to depict all NPDES compliance related costs for the County. The tables on the following pages report costs that include both County operations and contracted services and are broken down into the following categories:

Capital Costs

Capital costs include any capital expenditure for each one of the LIP elements. This would consist of the purchase of any land, large equipment or structures; installation of public project BMPs; and construction BMPs for public projects (see table below). The County's capital costs totaled $176,609 for the 2011-2012 reporting period.

CAPITAL COSTS
(Land, Large Equipment and Structures)

LIP Program Elements		FY 2011-12 Costs	Projected FY 2012-13 Costs
Public Project - BMPs	BMPs, retrofits, facilities constructed as a component of some other facility	$109,719	$2,460,900
Construction BMPs for Public Construction Projects	Cost for water quality BMPs used during construction	$50,000	$975,900
Other Capital Projects/Major Equipment Purchases	Capital improvements related to the program that are not strictly BMPs and costs for purchase of major equipment	$16,890	$59,530
	Totals	**$176,609**	$3,496,330

Capital costs may vary greatly from year-to-year due to availability of funding and/or changes in project planning.

Operations and Maintenance Costs

Operations and maintenance costs refer to normal costs of operation to implement the County's stormwater program including the cost of keeping equipment and facilities in working order (see table below). The County's operations and maintenance costs totaled $31,596,161 for the 2011-12 reporting period.

OPERATION AND MAINTENANCE COSTS

LIP Program Elements			FY2011-12Costs	Projected FY 2012-2013 Costs
Supportive of Program Administration (LIP Section A-2.0)	Meetings/Committees/Training/Reporting		$882,219.73	$1,242,500.00
Plan Development (LIP Section A-3.0)	New Program Development/BMP Effectiveness Studies		$793,636.71	$817,445.81
Municipal Activities (LIP Section A- 5.0)	Trash & Debris Control(OC Public Works O&M) Litter Ordinance, Clean-up Programs, Specialty/bulky Pickups, Public Trash Receptacles		$15,565,551.00	$16,005,000.00
	Household Hazardous Waste Collection		$4,244,012.00	$5,600,000.00
	Drainage Facility Maintenance(OC Public Works O&M) Includes Catch basin Stenciling		$944,381.00	$945,000.00
	Street Sweeping(OC Public Works O&M)		$499,567.10	$500,000.00
	Environmental Performance Reporting Program	Litter/Trash Control	$3,578,502.08	$3,589,370.02
		Parking Lot Sweeping	$663,458.53	$679,335.00
		Facility Drain Maintenance	$520,765.27	$525,888.00
		Inspections	$185,933.25	$192,505.56
		BMP Maintenance	$707,446.44	$750,373.00
	Pesticide & Fertilizer Management		$364,064.00	$302,765.10
Public Information (LIP Section A-6.0)	Non-Point Source Pollution Awareness		$597.00	$597.00
	Household Hazardous Waste Collection		$77,876.00	$76,000.00
New Development/Significant Redevelopment (LIP Section A-7.0)	Requiring New Development BMPs (Supportive of Planning, etc.)		$151,457.58	$213,524.58
Construction (LIP Section A-8.0)	Requiring Construction BMPs (Supportive of Plan Check & Inspection) – Private Projects		$373,700.58	$392,380.58
	Requiring Construction BMPs (Supportive of Plan Check & Inspection) – Public Projects		$534,796.58	$586,496.58
Existing Development (LIP Section A-9.0)	Industrial/Commercial/HOA Facility Inspections		$12,070.88	$12,433.01
Illegal Discharge/Illicit	Illicit Connection Inspections		$2,138	$3,000

LIP Program Elements		FY2011-12Costs	Projected FY 2012-2013 Costs
Connection (LIP Section A-10.0)	Illegal Discharge Investigations, Spill Response	$197,155.28	$203,322.56
County Contribution to Countywide NPDES Program		$1,296,832.08	$1,335,737.04
Totals		**$31,596,161.09**	**$33,973,673.85**

Funding Sources

The funding sources describe the origin of the combined capital and operations and maintenance expenditures.

1

FUNDING SOURCES

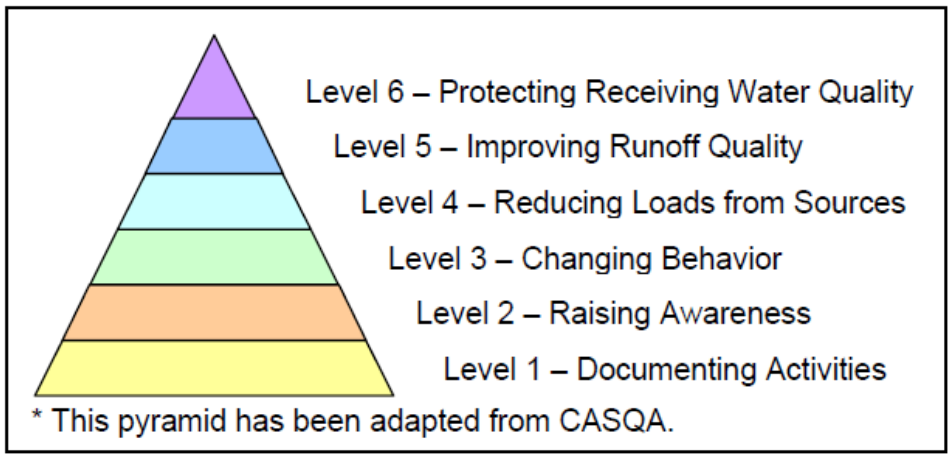
LIP FUNDING SOURCES	FY2011-12Costs	Projected FY 2012-13Costs
GENERAL FUND	0.80%	0.74%
UTILITY TAX/CHARGES	0.00%	0.00%
SEPARATE UTILITY BILLING ITEM	0.21%	0.19%
GAS TAX	10.71%	12.37%
SPECIAL DISTRICT FUND	12.9%	19.61%
• **Sanitation Fee**	0.18%	0.16%
• **Fleet Maintenance Fund**	0.04%	0.00%
• **Prop 172**	0.00%	0.00%
• **Grants**	1.55%	2.33%
• **Time & Materials**	0.00%	0.00%
• **Pollution Response Cost Recovery**	0.59%	0.55%
• **Service Fees & Fines**	24.54%	26.71%
• **Other**	50.65%	37.34%
TOTALS	100 %	100%

C-2.5 Program Effectiveness Assessment Approach

Beginning with the 2004-05 reporting period, the Orange County Stormwater Program Permittees adopted the CASQA approach to program effectiveness assessment first articulated in a white paper. In April 2008, the Orange County Stormwater Program became the first municipal stormwater program in the State to receive training directly from CASQA on program effectiveness assessment. The approach is based on outcomes and outcome levels depicted in the figure below and defined in CASQA's *Municipal Stormwater Program Effectiveness Assessment Guidance Manual* (May, 2007), as follows:

"Outcomes are the results of implementing a stormwater control measure, program element, or overall program. Outcomes are characterized in terms of six Outcome Levels, which can have implementation or water quality endpoints. Outcome Levels help to categorize and describe the desired results or goals of programs and control measures."

CASQA Classification of Outcome Levels



The six CASQA Outcome Levels are defined as follows:

Level 1 – Documenting Activities

Level 1 Outcomes provide direct feedback to Orange County Stormwater Program management on whether measures are being implemented as planned and on schedule. They include numbers and percentages reported throughout the various sections of this PEA documenting budget costs, inspections, trainings, meetings attended, etc. Level 1 Outcomes are assumed to be beneficial to water quality and reflect general program implementation and compliance. They are not direct indicators of the impact of implementation on the environment.

Level 1 Outcomes reported within this PEA will be identified by the following symbol: 1

Level 2 – Raising Awareness

The County recognizes that an important goal of its Stormwater Program is to increase the level of knowledge and awareness among residents, businesses, and its own municipal staff. Level 2

Outcomes provide excellent feedback on how effective implementation of the public education program (see Section **C-6, Public Education** for details) has been. For example, during the reporting period, the County developed and implemented an iPhone application to assist smartphone users in reporting water pollution issues as well as other public works maintenance problems (http://itunes.apple.com/us/app/oc-works/id506793584?mt=8). For more information on this newly developed tool, please see **Section C-6.3.7** of this PEA.

Additionally, the County continues to document an increase in the number of calls to its 24 Hr. Water Pollution Problem Hotline from the public over prior years (See Section **C-10, Illegal Discharges/Illicit Connections** for details). The Hotline number is also included on the OC Watersheds website and all public education material, providing an increased level of awareness among residents as a result. Similar to Level 1, raising awareness is generally assumed to be beneficial to water quality.

Level 2 Outcomes reported within this PEA will be identified by the following symbol: 

Level 3 – Changing Behavior

One of the goals of increasing knowledge and awareness (Level 2) is that by doing so, you begin to see changes in behavior. Level 3 Outcomes provide feedback on how effective program elements designed to increase knowledge and awareness have been in motivating change in behavior and implementation of best management practices (BMPs). Examples of this Outcome are documented within **Section C-8** (Construction) and **C-9** (Existing Development) of this PEA. As awareness has increased that BMPs are required (Level 2), it has in turn helped operators of construction sites and commercial/industrial businesses do a better job of implementing appropriate BMPs (Level 3). The result is that less corrective and enforcement actions need to be taken by County inspection staff. Both quantitative and qualitative methods are used by the County to measure changes in behavior.

Level 3 Outcomes reported within this PEA will be identified by the following symbol: 

Level 4 – Reducing Loads from Sources

Level 4 Outcomes provide feedback regarding reductions at the sources of pollutants resulting from the implementation of BMPs and activities designed to prevent the discharge of pollutants. Changes in behavior (Level 3 Outcomes) can reduce potential loads from pollutant sources, creating a Level 4 Outcome.

For example, in **Attachment C-5.1**(Traditional Municipal BMP Programs) of this PEA, data is reported on the amount of household hazardous waste items disposed of by residents at County collection centers. The total pounds have increased for the last several years, indicating a change in people's behavior (Level 3 Outcome). As more residents take the appropriate action with their household hazardous waste, there is less potential for material to be dumped illegally. This results in a reduction of pollutant loads to the stormdrain system (Level 4 Outcome).

Level 4 Outcomes reported within this PEA will be identified by the following symbol: 

Level 5 – Improving Runoff Quality

A primary goal of the County's Stormwater Program is to reduce pollutants in urban runoff to the maximum extent practicable (MEP) performance standard, and to ensure that discharges from the stormdrain system do not cause or contribute to exceedances of water quality standards in receiving waters. Level 5 Outcomes may reflect a reduction in one (or more) specific pollutant, and may demonstrate effectiveness on a variety of scales ranging from site-specific to programmatic.

A site-specific example of a Level 5 Outcome is the Clear Creek System installed at the County's J01P28 drain at Aliso Creek, which utilizes ultraviolet light to kill bacteria in runoff (See **Section C-3, Plan Development**, of this PEA for more details). Programmatic examples can be found in **Section C-10, Illegal Discharges/Illicit Connections**, where the efforts of the County to respond to pollutant discharges throughout the region are detailed.

Level 5 Outcomes may be difficult to distinguish from Outcomes at Level 4 (Reducing Loads from Sources). For example, the amount of solid debris that does not reach the stormdrain system due to BMPs implemented by the County such as catch-basin screens and street sweeping (level 4), may only be measured by a decrease in the total amount of debris collected at in-stream trash and debris barriers (See **Attachment C-5.1, Traditional Municipal BMP Programs** for details).

Level 5 Outcomes reported within this PEA will be identified by the following symbol: 

Level 6 – Protecting Receiving Water Quality

The ultimate goal of a stormwater management program is the protection of receiving water bodies and their designated beneficial uses. Level 6 Outcomes relate to compliance with water quality standards, protection of biological integrity, and beneficial use attainment. These are the most challenging Outcomes to document as measurable changes in receiving water quality sometimes may only be seen over long periods of time that allow the cumulative impacts of multiple program elements to take effect.

A good example of a Level 6 Outcome is the decrease in the number of beach closure days. When bacteria levels exceed the State's AB411 health standard for recreational contact, it can cause a beach to be posted, or in extreme conditions closed. Many of the BMPs and program elements implemented by the County through its Stormwater Program target bacteria. An example of this can be found in **Attachment C-5.1, Traditional Municipal BMP Programs**, of this PEA. The runoff diversions that the County has installed in several of its flood control channels have helped reduce the number of beach closure days significantly. Similarly, treatment systems, such as the UV system at Poche Beach have a direct impact on Receiving Waters. In its *2011-12Annual Beach Report Card*, Heal the Bay noted that "Water quality in Orange County was excellent this year with 94% A or B grades (89% were A grades)," and went on to indicate that twenty beaches between Corona del Mar and South Laguna Beach scored A+ and A grades in both wet and dry weather.

Level 6 Outcomes reported within this PEA will be identified by the following symbol: 

The CASQA *Municipal Stormwater Program Effectiveness Assessment Guidance Manual* differentiates between three types of assessment:

Implementation Assessment (Outcome Levels 1-4)

Implementation assessments typically focus on specific BMPs such as inspections, street sweeping, debris collection, or the development/implementation of BMPs.

Water Quality Assessment (Outcome Levels 5-6)

Water quality assessments use environmental data and related information to characterize the quality of stormwater discharges and the water bodies that receive these discharges. This type of assessment can include a variety of chemical, biological, and physical parameters. Water quality assessments are typically used to draw conclusions about overall program effectiveness, and results are usually general and require extended periods of monitoring and analysis.

Integrated Assessment (Combines both Implementation and Water Quality Assessment)

Integrated assessment is the process of evaluating whether stormwater program implementation is resulting in the protection or improvement of water quality. In this process, relationships between program activities and water quality improvements are explored and refined.

The County's 2011-12 PEA reflects a continued effort toward performing a meaningful *Integrated Assessment* of its BMPs and program elements and resultant impacts on water quality.

C-2.6 Program Management Training

2

The County conducted and/or participated in the following trainings to assist responsible municipal staff in better understanding program management/effectiveness assessment responsibilities during the 2011-2012 reporting period:

- California Stormwater Quality Association (CASQA) annual conference and quarterly meetings;
- Watershed and Stormwater Management Series on Stormwater Retrofitting and Numeric Limits, provided by the Center for Watershed Protection ;
- Grant Writing Workshop, provided by AzusaPacificUniversity and Grant Writing USA;
- Model WQMP and Technical Guidance Document Training for Program Managers and Planners, provided by CDM and Geosyntec
- Pre-Wet Season Construction Site Inspection Training, provided by RBF
- CBI MS4 Software Training, provided by CBI

Additional training attended by stormwater program staff included the following:

1. **Title of Workshop or Training:** California Stormwater Quality Association (CASQA) Quarterly Meeting - Annual Federal and State Stormwater and Regulatory Programs Update
   Date Attended: January 12, 2012
   Training Conducted By: Various presenters

Name	Department
Richard Boon	OC Public Works/OC Watersheds
Chris Crompton	
Jennifer Shook	
Jian Peng	
Kimberly Buss	
Ruth Herrera	
Robin LaMont	OC Community Resources/OC Parks

In addition to the conference, County staff attended or viewed web casts of the following quarterly CASQA meetings:

- July 14, 2011, "Phase II MS4 Permit"
- May 10, 2012, "The State of BMPs"

2. **Title of Workshop or Training:** Watershed and Stormwater Management Series – Numeric Limits and Stormwater
   Date Attended: July 13, 2011
   Training Conducted By: Center for Watershed Protection

Name	Department
John Velarde	OC Public Works/OC Watersheds
Audra Bardsley	
Kimberlyn Way	
Lillian Burns	

3. **Title of Workshop or Training:** Watershed and Stormwater Management Series – Stormwater Retrofitting
   Date Attended: February 28, 2012
   Training Conducted By: Center for Watershed Protection

Name	Department
Jennifer Shook	OC Public Works/OC Watersheds
Christy Suppes	

4. **Title of Workshop or Training:** Watershed and Stormwater Management Series – Stormwater Retrofit Construction Issues
   Date Attended: April 12, 2012
   Training Conducted By: Center for Watershed Protection

Name	Department
Jenna Voss	OC Public Works/OC Watersheds
Ruth Herrera	
Jian Peng	

C-2.7 Program Management Modifications

In assessing effectiveness of the County's stormwater program management in the last reporting period, one area that was identified as needing improvement was data management. The complexity of the Fourth Term Permits and the amount of data that must be tracked, managed, and reported, has necessitated a shift to a GIS integrated, enterprise data management system. Last reporting period the County elected to use a web-based, GIS integrated proprietary software system known as CBI MS4 Web. The web-based GIS integrated database system has greatly increased efficiency while allowing broad access in real time to inventories, inspection data, etc. Deployment of the system occurred during the 2011-12 reporting period and County staff is now utilizing it to manage data associated with the following components of its stormwater program:

LIP Section	Data	GIS Layer?
A-5, Municipal Activities	MS4 (drainage facilities)/fixed facilities inventory	Yes
A-9, Existing Development	Industrial/commercial facility inventory and inspections	Yes
	Post-construction structural control inventory	Yes
A-10, Illegal Discharges/Illicit Connections	Pollution complaints/incidents/ investigations	Yes
A-11, Water Quality Monitoring	Wet and dry weather outfall monitoring	Yes

For the 2012-13 reporting period, the County will be working to input more data so that other program elements can be managed through this web-based system.