SECTION A–1
INTRODUCTION

LOCAL IMPLEMENTATION PLAN

FOR THE COUNTY OF ORANGE
AND
THE ORANGE COUNTY FLOOD CONTROL DISTRICT

A-1.0 INTRODUCTION

This document constitutes the stormwater program Local Implementation Plan (LIP) for the County of Orange as well as the Orange County Flood Control District (hereinafter referred to as the *County*). It has been prepared as part of a compliance program pursuant to the California Regional Water Quality Control Board municipal separate storm sewer system (MS4) permits adopted for Orange County. Currently, those MS4 Permits are as follows:

1. Santa Ana Region of Orange County: Order No. R8-2009-0030, NPDES Permit No. CAS618030 (termed *Fourth Term Santa Ana Region MS4 Permit*); and,

2. San Diego Region of Orange County: Order No. R9-2009-0002, NPDES Permit No. CAS0108740 (termed *Fourth Term San Diego Region MS4 Permit*).

This LIP contains all the information specified in the Fourth Term San Diego Region MS4 Permit for the Jurisdictional Runoff Management Plan (JRMP) and should, for purposes of compliance be considered to be a JRMP.

This plan describes the activities that the County is undertaking to meet the requirements of the Fourth Term MS4 Permits and to make meaningful improvements in urban stormwater runoff quality. Although the LIP is intended to serve as the basis for County compliance during the five-year period of the Fourth Term MS4 Permits, the LIP is subject to modifications and updates as the County determines necessary, or as directed by the Regional Boards.

A-1.1 BACKGROUND

The stormwater pollution control effort, of which this LIP is a part, is the result of three decades of legislative effort beginning with the 1972 Federal Water Pollution Control Act, subsequently known as the Clean Water Act (CWA). In 1987 the Water Quality Act brought stormwater discharges into the NPDES program and USEPA subsequently issued implementing regulations on November 16, 1990.

In response to these regulations the County and the other incorporated cities of Orange County (collectively referred to as Permittees) have obtained, renewed and complied with MS4 Permits from the Santa Ana and San Diego Regional Water Quality Control Boards. Each permit renewal has required the Permittees to continue to implement ongoing stormwater quality management programs and update and develop additional programs in order to control pollutants in stormwater discharges.

A-1.2 REGULATORY REQUIREMENTS

Section 402(p) of the CWA, as amended by the Water Quality Act of 1987, requires that MS4 Permits include:

1. A requirement to effectively prohibit non-storm water discharges into municipal storm sewers; and
2. Controls to reduce the discharge of pollutants from municipal storm drains to the maximum extent practicable, including management practices, control techniques and system, design

and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants.

Regulations promulgated by EPA on November 16, 1990 (40 CFR 122.26 (d)(2)(iv)) require municipal NPDES permit applicants to develop a management program to effectively address these requirements. These also indicate that the proposed management program, such as the DAMP, "*shall include a comprehensive planning process which involves public participation and where necessary intergovernmental coordination, to reduce the discharge of pollutants to the maximum extent practicable using management practices, control techniques and system, design and engineering methods, and such other provisions which are appropriate.*"

A-1.3 OBJECTIVES OF THE LOCAL IMPLEMENTATION PLAN

The main objectives of this LIP are to fulfill the County's commitment to present a plan that satisfies the requirements of its MS4 Permits and to evaluate and reduce the impacts of urban stormwater runoff on the beneficial uses of receiving waters. This LIP, in conjunction with the countywide programmatic document referred to as the Drainage Area Management Plan (DAMP), which is discussed in detail in **Section A-1.7**, is the principal policy and guidance document for the County's NPDES stormwater program. The LIP is structured using the same organization, by section, as the DAMP and includes the following programs in subsequent sections:

1. Framework for program management activities and future plan development (**Section A-2.0** and **Section A-3.0**);

2. Legal authority for prohibiting unpermitted discharges to the storm drain system and for requiring BMPs in new development and significant redevelopment (**Section A-4.0**);

3. Municipal activities for pollution prevention and treatment to further reduce the amount of pollutants entering the storm drain system (**Section A-5.0**);

4. Educational program to communicate with the public about urban stormwater and non-stormwater pollution and obtain their support in implementing pollution prevention BMPs (**Section A-6.0**);

5. New development and significant redevelopment controls to incorporate appropriate and required post construction nonstructural and structural BMPs into the environmental planning and development review process (**Section A-7.0**);

6. Construction site controls that address appropriate and required practices for erosion and sediment control and on-site hazardous materials and waste management (**Section A-8.0**);

7. Existing development programs to prioritize, inspect and implement programs for commercial and industrial facilities (**Section A-9.0**);

8. Illegal discharges/illicit connections (ID/IC) program to detect and eliminate unpermitted discharges and unauthorized connections to the municipal storm drain system (**Section A-10.0**);

9. Monitoring programs for wet and dry weather to identify areas with water quality problems, to assist in the prioritization of watersheds for analysis and planning, and to assist in the prioritization of pollutants to facilitate the development of specific controls to address these problems (**Section A-11.0**); and,

10. Watershed scale initiatives will be developed further through the completion of watershed specific chapters (**DAMP Appendix D**) and programs that will be developed during the Fourth Term Permit (**Section A-12.0**).

A-1.4 PERMITTEE COMMITMENTS

The Permittees are also committed to maintaining the integrity of the receiving waters and their ability to sustain beneficial uses. As such, the Permittees have designed and implemented a countywide baseline stormwater management program in order to be able to continually re-assess the conditions of the waters within Orange County and help determine the impact, if any, of urban stormwater discharges to the beneficial uses of those waters.

This baseline effort is complimented by the water quality planning process, which focuses resources on the impacts of urban stormwater discharges on beneficial uses, to assure that problems receive the available resources and attention. The Permittees have begun to prioritize these initiatives (Section A-3) and will continue to analyze and evaluate the existing and future baseline monitoring program data to identify those watersheds exhibiting the most urgent need for attention.

A-1.5 DAMP/LIP COVERAGE

This LIP is applicable to areas/facilities within the jurisdiction of the County of Orange and the Orange County Flood Control District (OCFCD). The non-topographic boundary between Orange County and adjoining counties could result in certain Permittees being subjected to flows originating from or discharging to areas that are subject to separate NPDES municipal stormwater permits issued by the Regional Boards. The common drainage issues with Orange, Riverside and San Bernardino counties are being addressed through joint participation in integrated monitoring and research and program development initiatives.

A-1.6 DESCRIPTION OF DRAINAGE AREA AND CLIMATE

A-1.6.1 Geography and Climate

Orange County has an area of 500,000 acres, beginning on a coastal plain and rising to an elevation of more than 5,000 feet in the Puente Hills and Santa Ana Mountains to the north and east. Of the 500,000 acres, the unincorporated areas of the County constitute a total of 86 square miles, with a population of 119,000 as of January 1, 2001, and an average of 541 people per square mile. Before urbanization, which began in the early 1950s, Orange County was drained by ephemeral streams and agricultural drainage ditches which were dry most of the year and carried measurable flow primarily during short duration flash floods and longer duration general winter storms.

Orange County's climate has hot, dry summers and mild winters. Nearly all the annual precipitation falls in only a few storm events between October and April. During times of drought, it is not unusual for years to pass between major rainfalls. Precipitation results from three distinct mechanisms – convergence, orographic lifting, and convective thunderstorms.

The most important mechanism is the convergence mechanism which is associated with general winter storms originating in Alaska that pick up moisture as they travel south and east. The second major precipitation mechanism is orographic lifting, where moist air masses are deflected upward by local mountains, resulting in the release of rain. Orographic rainfall is also associated with winter rainfall. The third precipitation mechanism, which can cause extremely intense local precipitation, is the convective thunderstorm. On occasion, unstable tropical air masses move in from the south and produce rainfall. These tropical air masses combine convergence mechanisms with convective mechanisms to produce intense thunderstorms. One of the most intense convective rainfall events of record in Southern California dropped 11 inches of rainfall in about 80 minutes.

It is common for successive storms of varying durations and intensities to compound their effects, with the heavy rainfall of the second or third storm creating the most severe flood conditions. Regardless of the source of precipitation, Orange County only receives an average of 12 to 13 inches of rain per year. The present urban and former agricultural lifestyles are made possible only by large quantities of water imported from the Colorado River and Northern California.

A-1.6.2 Watersheds

There are a total of eleven watersheds within the County, as described in **Table A-1.1** and shown in **Figure A-1.2** on the following page. Watersheds are generally areas that drain to a single point or receiving water. Each watershed consists of multiple land uses. Residential, commercial and industrial uses, as well as a mixture of rural open space, combine to form Orange County's watersheds. For detailed information on each watershed, please refer to **Appendix D** of the DAMP, **Watershed Action Plans**.

Figure A-1.1. City & Watershed Boundaries – County of Orange

Table A-1.1 Watersheds – Orange County

REGIONAL BOARD	WATERSHED
Santa Ana Region	San Gabriel River/Coyote Creek
	Anaheim Bay/Huntington Harbour
	Santa Ana River
	Newport Bay
	Newport Coastal Streams
San Diego Region	Aliso Creek
	Laguna Coastal Streams
	Dana Point Coastal Streams
	San Juan Creek
	San Clemente Coastal Streams
	San Mateo Creek

A-1.6.3 Environmentally Sensitive Areas (ESAs)/Impaired Waters

Environmentally Sensitive Areas (ESAs)

ESAs are defined in the Fourth Term San Diego Region MS4 Permit as those areas that include, but are not limited to:

- All CWA Section 303(d) impaired waters;
- Areas designated as Areas of Special Biological Significance by the SWRCB in the Water Quality Control Plan for the San Diego Basin Plan;
- Water bodies designated with the RARE Beneficial Use category by the SWRCB in the Basin Plan (RARE);
- Areas designated as preserves or their equivalent under the Natural Communities Conservation Planning Program (NCCP); and
- Any other ESAs identified by the city.

Although the Fourth Term Santa Ana Region MS4 Permit does not include a definition of ESAs, for the purposes of this LIP, the following categories have been included as ESAs when it pertains to how new development and construction projects are prioritized:

- CWA Section 303(d) impaired waters; and,
- Areas designated in the Ocean Plan as Areas of Special Biological Significance.

The ESAs identified in the County are listed in **Table A-1.2.**

Table A-1.2 Environmentally Sensitive Areas within Orange County

ESA Name	Water Body Type	Watershed	2006 CWA 303 (d) List	ASBS	RARE Beneficial Use	High Priority Critical Aquatic Resource	NCCP
Santa Ana Regional Water Quality Control Board Jurisdiction of Orange County							
Anaheim Bay	Bay/Harbor	Anaheim Bay/Huntington Harbour	X				
Balboa Beach	Coastal Shoreline/Beach	Newport Bay	X				
Bolsa Chica State Beach	Coastal Shoreline/Beach	Santa Ana River	X				
Buck Gully Creek	River/Stream	Newport Coastal Streams	X				
Huntington Beach State Park	Coastal Shoreline/Beach	Santa Ana River	X				
Huntington Harbour	Bay/Harbor	Anaheim Bay/Huntington Harbour	X				
Irvine Coast Marine Life Refuge	Marine Protected Area	Newport Coastal Streams		X			
Lost Trancos Creek (Crystal Cove Creek)	River/Stream	Los Trancos/ Muddy Creek					
Newport Bay, Lower	Bay/Harbor	Newport Bay	X				
Newport Bay, Upper (Ecological Reserve)	Bay/Harbor	Newport Bay	X				
Newport Beach Marine Life Refuge	Marine Protected Area	Newport Bay		X			
Peters Canyon Channel	River/Stream	Newport Bay	X				
Rhine Channel	Bay/Harbor	Newport Bay	X				
San Diego Creek Reach 1	River/Stream	Newport Bay	X				
San Diego Creek Reach 2	River/Stream	Newport Bay	X				
Santiago Creek, Reach 4	River/Stream	Santa Ana River	X				
Seal Beach	Coastal Shoreline/Beach	Anaheim Bay/Huntington Harbour	X				
Silverado Creek	River/Stream	Santa Ana River	X				
San Diego Regional Water Quality Control Board Jurisdiction of Orange County							
Aliso Creek	River/Stream	Aliso Creek	X				
Aliso Creek (Mouth)	Estuary	Aliso Creek	X		X	X	
Dana Point Harbor	Bay/Harbor	Dana Point Coastal Streams	X		X	X	
Heisler Park Ecological Reserve	Marine Protected Area	Laguna Coastal Streams		X			

ESA Name	Water Body Type	Watershed	2006 CWA 303 (d) List	ASBS	RARE Beneficial Use	High Priority Critical Aquatic Resource	NCCP
Laguna Canyon Channel	River/Stream	Laguna Coastal Streams	X				
NCCP Coastal 1	Non-Water Bodies	Laguna Coastal Streams					X
NCCP Coastal 2		Laguna Coastal Streams					X
NCCP Coastal 3		Laguna Coastal Streams/Aliso Creek					X
NCCP Coastal 4		Dana Point Coastal Streams					X
NCCP Coastal 5		Dana Point Coastal Streams					X
NCCP Coastal 6		San Juan Creek					X
NCCP Central 1		Aliso Creek					X
NCCP Central 2		Aliso Creek					X
NCCP Central 3		Aliso Creek					X
Oso Creek (at Mission Viejo Golf Course)	River/Stream	San Juan Creek	X				
Pacific Ocean	Coastal Shoreline/Beach	All Watersheds			X		
Pacific Ocean Shoreline, Aliso HSA	Coastal Shoreline/Beach	Aliso Creek	X			X	
Pacific Ocean Shoreline, Dana Point HSA	Coastal Shoreline/Beach	Dana Point Coastal Streams	X				
Pacific Ocean Shoreline, Laguna Beach HSA	Coastal Shoreline/Beach	Laguna Coastal Streams	X				
Pacific Ocean Shoreline, Lower San Juan HSA	Coastal Shoreline/Beach	San Juan Creek	X			X	
Pacific Ocean Shoreline, San Clemente HA	Coastal Shoreline/Beach	San Clemente Coastal Streams	X				
Pacific Ocean Shoreline, San Joaquin Hills HSA	Coastal Shoreline/Beach	Laguna Coastal Streams	X				
Prima Deshecha Creek	River/Stream	San Clemente Coastal Streams	X				
San Juan Creek	River/Stream	San Juan Creek	X				
San Juan Creek (mouth)	Estuary	San Juan Creek	X		X		
Segunda Deshecha Creek	River/Stream	San Clemente Coastal Streams	X				

CWA Section 303(d) Water Quality Limited Segments of Receiving Waters

Under Section 303(d) of the CWA, states are required to develop lists of water quality limited segments of receiving waters (impaired waters). These impaired waters do not meet water quality standards or support designated water uses. The 2010 303(d) list of water quality

limited segments (**Table A-1.1)** has been sent to USEPA Region IX and is now awaiting final approval. Once the list is formally approved by EPA, **Table A-1.3** and **A-1.4** will be amended as necessary. Until that time, these tables are based on the 2006 303(d) list of impaired waters approved by the US EPA on June 28, 2007. These tables have been updated to reflect TMDLs which have been adopted since approval of the list.

Table A-1.3
2006 List of Water Quality Limited Segments Requiring TMDLs (CWA Section 303d)
San Diego Regional Water Quality Control Board Jurisdiction of Orange County

Name	Pollutant/Stressor								Proposed TMDL Completion	Estimated Size Affected
	Indicator Bacteria	Phosphorous	Sediment Toxicity	Chloride	Sulfates	Total Dissolved Solids	Turbidity	DDE		
San Diego Regional Water Quality Control Board Jurisdiction of Orange County										
Aliso Creek	X	X							Indicator Bacteria – completed Phosphorous - 2019	19 Miles
Aliso Creek (Mouth)	X								Completed	0.29 Acres
Dana Point Harbor (At Baby Beach)	X								Completed	119 Acres
Laguna Canyon Channel			X						2019	1.6 Miles
Oso Creek (At Mission Viejo Golf Course)				X	X	X			2019	1 Miles
Pacific Ocean Shoreline, Aliso HSA	X								Completed	0.65 Miles
Pacific Ocean Shoreline, Dana Point HSA	X								Completed	2 Miles
Pacific Ocean Shoreline, Laguna Beach HSA	X								Completed	1.8 Miles
Pacific Ocean Shoreline, Lower San Juan HSA	X								Completed	1.2 Miles
Pacific Ocean Shoreline, San Clemente HA	X								Completed	3.7 Miles
Pacific Ocean Shoreline, San Joaquin Hills HSA	X								Completed	0.63 Miles
Prima Deshecha Creek		X					X		2019	1.2 Miles

Name	Pollutant/Stressor								Proposed TMDL Completion	Estimated Size Affected
	Indicator Bacteria	Phosphorous	Sediment Toxicity	Chloride	Sulfates	Total Dissolved Solids	Turbidity	DDE		
San Diego Regional Water Quality Control Board Jurisdiction of Orange County										
San Juan Creek	X							X	Indicator Bacteria – completed DDE - 2019	1 Miles
San Juan Creek (Mouth)	X								Completed	6.3 Acres
Segunda Deshecha Creek		X					X		2019	0.92 Miles

Source: State Water Resources Control Board. 2006 CWA Section 303(d) List of Water Quality Limited Segments

Table A-1.4
2006 List of Water Quality Limited Segments Requiring TMDLs (CWA Section 303d)
Santa Ana Regional Water Quality Control Board Jurisdiction of Orange County

Name	Pollutant/Stressor																		Proposed TMDL Completion	Estimated Size Affected
	Indicator Bacteria	Pathogens	Total Coliform	Fecal Coliform	Enterococcus	Metals	Copper	Lead	Mercury	Nickel	Selenium	Zinc	Chlordane	DDT	Dieldrin	Toxaphene	PCBs	Salinity/TDS/Chlorides	Sediment Toxicity		
Santa Ana Regional Water Quality Control Board Jurisdiction of Orange County																				
Anaheim Bay										X					X		X		X	2019	402 Acres
Balboa Beach														X	X		X			2019	1.8 Miles
Bolsa Chica State Beach							X			X										2019	2.6 Miles
Buck Gully Creek			X	X																2019	0.3 Miles
Huntington Beach State Park	X				X												X			2019	5.8 Miles
Huntington Harbor		X					X	X		X			X				X		X	2019	221 Acres
Los Trancos Creek (Crystal Cove Creek)			X	X																2019	0.19 Miles
Newport Bay, Lower							X						X	X			X		X	Copper – 2007 All Others - 2019	767 Acres

Name	Pollutant/Stressor																			Proposed TMDL Completion	Estimated Size Affected
	Indicator Bacteria	Pathogens	Total Coliform	Fecal Coliform	Enterococcus	Metals	Copper	Lead	Mercury	Nickel	Selenium	Zinc	Chlordane	DDT	Dieldrin	Toxaphene	PCBs	Salinity/TDS/Chlorides	Sediment Toxicity		
Santa Ana Regional Water Quality Control Board Jurisdiction of Orange County																					
Newport Bay, Upper (Ecological Reserve)						X	X						X	X			X		X	Copper – 2007 All Others - 2019	653 Acres
Peters Canyon Channel														X		X				2019	3 miles
Rhine Channel							X	X	X			X					X		X	2019	20 Acres
San Diego Creek Reach 1				X							X					X				Selenium – 2007 All Others - 2019	7.8 Miles
San Diego Creek Reach 2						X														2007	6.3 Miles
Santiago Creek, Reach 4																		X		2019	9.8 Miles
Seal Beach					X												X			2019	0.53 Miles
Silverado Creek		X																X		2019	11 Miles

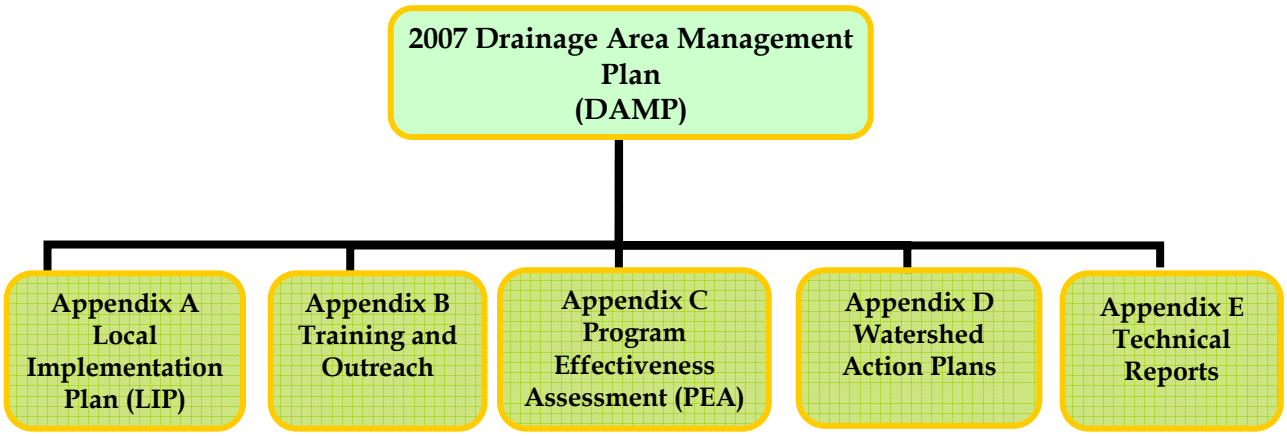
Source: State Water Resources Control Board. 2006 CWA Section 303(d) List of Water Quality Limited Segments

A-1.7 MODEL PROGRAMS

Since 1990, the County has coordination with the other cities in Orange County (the Permittees) in complying with the MS4 Permits issued by the Santa Ana and San Diego Regional Water Quality Control Boards. The result of this coordination effort has been the iterative development of the eleven model stormwater program elements (see **Section A-1.6**) that comprise the area-wide Drainage Area Management Plan (DAMP).

The DAMP was first completed in 1992 and approved by the Santa Ana Regional Board in 1994 and the San Diego Regional Board in 1996. As a result of the Third Term MS4 Permits issued in 2002, the DAMP underwent a significant change and restructuring and was termed the 2003 DAMP. In 2007, as part of the Report of Waste Discharge (ROWD), the Orange County Stormwater Permittees submitted a proposed 2007 DAMP which is structured as follows:

Figure A-1.2. 2007 DAMP Structure



In developing this LIP, the County has utilized the 2007 DAMP as the foundation for its program development. The LIP, as a result, contains numerous references to the 2007 DAMP and the two documents, in effect, act as companion parts of the County's compliance program.

A-1.8 PROGRAM ASSESSMENT AND MODIFICATION

The Program Effectiveness Assessment (PEA) is the foundation for the annual progress report that is submitted each year to the Regional Boards. This report presents an evaluation of this LIP which is used to determine where modifications within the program may be necessary. It also ensures that the iterative evaluation and improvement process is applied to each of the program components and is used as an effective management tool (See **Section A-3.0**).