June 2014
Rev. May 2015

LOS ANGELES REGIONAL WATER QUALITY CONTROL BOARD

Revised Coordinated Integrated Monitoring Program (CIMP)

Prepared for:

Upper San Gabriel River Enhanced Watershed Management Program Group
(County of Los Angeles, Los Angeles County Flood Control District, Cities of Baldwin Park, Covina, Glendora, Industry, La Puente, and South El Monte)

REVISED COORDINATED INTEGRATED MONITORING PROGRAM (CIMP)

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County of Los Angeles
Los Angeles County Flood Control District
City of Baldwin Park
City of Covina
City of Glendora
City of Industry
City of La Puente
City of South El Monte

Prepared By:

MWH

300 N. Lake Avenue, Suite 400
Pasadena, CA 91101

In Conjunction with Larry Walker Associates, Paradigm Environmental, and Tetra Tech

Executive Summary

The Upper San Gabriel River Enhanced Watershed Management Program Group (EWMP Group) is comprised of the County of Los Angeles, Los Angeles County Flood Control District (LACFCD), and the Cities of Baldwin Park, Covina, Glendora, Industry, and La Puente (Group Members). Group Members started meeting in early 2013 to establish the EWMP Group and collaboratively develop a Coordinated Integrated Monitoring Program (CIMP) and an Enhanced Watershed Management Program (EWMP) for the Upper San Gabriel River Watershed. The EWMP Group formalized their collaboration and commitment to completing the program development in a Memorandum of Understanding on October 24, 2013.

The EWMP Group submitted the Draft CIMP in June 2014, and revised the CIMP in May 2015 to address comments from the Los Angeles Regional Water Quality Control Board (Regional Board), dated February 6, 2015. Subsequently, the City of South El Monte indicated in a letter to the Regional Board, dated February 26, 2015 of its intention to join the CIMP. As a result, the EWMP Group agreed to include South El Monte in the Revised CIMP.

This document presents the CIMP, which is the EWMP Group's approach to an effective and well-thought-out monitoring program. Existing water quality data in the San Gabriel River Watershed Management Area is sparse, and a goal of the CIMP is to provide a more complete picture of the receiving water conditions in the EWMP area. The geology of the San Gabriel River Valley provides rapid infiltration of water, and the EWMP area is likely hydraulically disconnected from the downstream water bodies during the dry weather. Another goal of the CIMP is to determine when and where the discontinuity occurs. Additionally, the EWMP Group has also been working closely with other watershed management groups and reached out to individual cities to ensure our monitoring programs are truly coordinated and integrated across the watershed. The collaborating groups and individual cities are all each contributing data and/or cost sharing with all groups in the watershed, avoiding duplicative monitoring efforts. As a result of the unprecedented collaboration among the groups, our CIMPs together provide a comprehensive and consistent long-term monitoring plan for the watershed.

The CIMP fulfills the Monitoring and Reporting Program (MRP) requirements of the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit Order No. R4-2012-0175 (Permit). The Permit was adopted by the Regional Board November 8, 2012, and became effective December 28, 2012. The EWMP, containing customized strategies, control measures, and best management practices (BMPs) for the EWMP Group, is currently under development and will be presented in a separate document according to the Permit schedule.

RECEIVING WATER MONITORING

Receiving water monitoring is designed to assess whether water quality objectives (WQOs) are being met in water bodies and if beneficial uses are being supported. The EWMP Group proposes two types of receiving water monitoring:

- **Long-Term Assessment** – Long-Term Assessment (LTA) monitoring is intended to determine if receiving water limitations (RWL) are achieved, assess trends in pollutant

concentrations over time, and to determine whether designated uses are supported. LTA sites include:

- Existing San Gabriel River Mass Emission Station (S14)
- Existing Coyote Creek Mass Emission Station (S13)

- **Total Maximum Daily Load (TMDL)** – TMDL monitoring is conducted to evaluate attainment of or progress in attaining the waste load allocations (WLAs). New TMDL monitoring stations will be installed at the following locations:
  - San Jose Creek Reach 1 at the Los Angeles County Sanitation Districts (LACSD) R10 site upstream from the San Jose Creek Water Reclamation Plant (WRP) discharge.
  - Walnut Creek near the confluence with San Gabriel River
  - San Gabriel River Reach 4 at Ramona Boulevard

TMDL monitoring also will be performed in the following location:

- Puddingstone Reservoir

In addition, the EWMP Group will be coordinating on the receiving water monitoring with other watershed management program groups and the LACSD to share monitoring data in the San Gabriel River Watershed Management Area. The EWMP Group may use the data in evaluating its progress in meeting the goals and requirements of the Permit.

STORMWATER OUTFALL MONITORING

Stormwater outfall monitoring is intended for determining if a Group Member's MS4 system is causing or contributing to water quality issues observed in the receiving water. The EWMP Group proposes six stormwater outfall monitoring sites, one per Group Member. The sites were selected to be representative of the land uses within each Group Member's jurisdiction. Parameters to be monitored during the three events at each stormwater outfall monitoring site are based on the monitoring requirements of the water body to which they discharge, as well as downstream water bodies, where applicable. Monitoring at these outfalls will be used to assess compliance with water quality based effluent limitations (WQBELs), TMDL WLAs, and whether the MS4 may be causing or contributing to observed exceedances of RWLs.

NON-STORMWATER OUTFALL SCREENING AND MONITORING

The non-stormwater outfall screening and monitoring program is focused on dry weather discharges from major outfalls to receiving waters. The program serves to provide an assessment on whether non-stormwater discharges are potentially impacting the receiving water and whether significant non-stormwater discharges are allowable. Three screening events will be conducted within the EWMP area beginning in summer 2014. Visual observations gathered from the screening events, such as size, estimated flow, flow characteristics, and receiving water conditions, will be used to determine and prioritize significant non-stormwater discharges. In the order of prioritization, sources will be investigated, and monitoring sites will be determined. Monitored parameters will depend upon the receiving water on which the non-stormwater outfall site is located.

NEW DEVELOPMENT/RE-DEVELOPMENT EFFECTIVENESS TRACKING

Group Members have developed mechanisms for tracking information related to new and redevelopment projects that are subject to post-construction BMP requirements in Part VI.D.7 of the Permit. The data will be used to assess the effectiveness of the low-impact development (LID) requirements for land development and to fulfill reporting requirements. Although the data requirements are clear, the procedures for reviewing projects, tracking data, and reporting are different for each jurisdiction and may even be different across departments within the same jurisdiction. As such, this CIMP provides general details on the requirements and approaches related to the new and redevelopment tracking requirements. Each Group Member may modify the general requirements as appropriate to reflect their own jurisdictional specific practices.

REGIONAL STUDIES

Only one regional study is identified in the MRP: Southern California Stormwater Monitoring Coalition (SMC). The MRP states that each Permittee shall be responsible for supporting the monitoring described at the sites within the watershed(s) that overlap with the Permittee's jurisdictional area. The LACFCD will continue its participation in the SMC Regional Bioassessment Monitoring Program on behalf of the Group Members.

ADAPTIVE MANAGEMENT

The monitoring specified in the CIMP is, in part, dynamic. An adaptive management process will be utilized on an annual basis to evaluate this CIMP and update the monitoring requirements as necessary. Monitoring data from the CIMP will tie into the EWMP by providing feedback on water quality changes resulting from control measures implemented by the Group Members.

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LIST OF ACRONYMS AND ABBREVIATIONS

Ag/Nur	Agricultural and nursery
Bioassessment Program	Regionally Consistent and Integrated Freshwater Stream Bioassessment Monitoring Program
BMP	Best Management Practice
BPA	Basin Plan Amendment
C. dubia	Ceriodaphnia dubia
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CIMP	Coordinated Integrated Monitoring Program
Com/Ind	Commercial and industrial
County	County of Los Angeles
DDT	Dichloro-diphenyl-trichloroethane
DO	Dissolved Oxygen
EC	Electrical Conductivity
E. coli	Escherichia coli
ESGV	East San Gabriel Valley
EWMP	Enhanced Watershed Management Program
EWMP Group	Upper San Gabriel River EWMP Group
GIS	Geographic Information System
Group Members	County of Los Angeles, LACFCD, and Cities of Baldwin Park, Covina, Glendora, Industry, and La Puente
Hg	Mercury
HUC	Hydrologic Unit Code
IC/ID	Illicit Connection/Illicit Discharge
LACDPW	Los Angeles County Department of Public Works
LACFCD	Los Angeles County Flood Control District
LACSD	Los Angeles County Sanitation District
LID	Low Impact Development
LSGR	Lower San Gabriel River
LTA	Long Term Assessment
MAL	Municipal Action Level
MCM	Minimum Control Measure
MRP	Monitoring and Reporting Program
MS4	Municipal Separate Storm Sewer System
NAL	Non-Stormwater Action Level
NPDES	National Pollutant Discharge Elimination System
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
QAPP	Quality Assurance Project Plan (p. 2-1)
Permit	NPDES MS4 Permit Order No. R4-2010-0175
Regional Board	Los Angeles Regional Water Quality Control Board
Res	Residential
RWL	Receiving Water Limitation
S13	Coyote Creek Mass Emission Station
S14	San Gabriel River Mass Emission Station

SGR	San Gabriel River
SJC	San Jose Creek
SMC	Stormwater Monitoring Coalition
SQO	Sediment Quality Objectives
SUSMP	Standard Urban Stormwater Mitigation Program
TDS	Total Dissolved Solids
TIE	Toxicity Identification Evaluation
TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids
USGR	Upper San Gabriel River
USEPA	United States Environmental Protection Agency
WBPC	Water Body-Pollutant Combination
WLA	Waste Load Allocation
WMP	Watershed Management Program
WQBEL	Water Quality Based Effluent Limitation
WQO	Water Quality Objective
WRP	Water Reclamation Plant

1 Introduction

The National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit No. R4-2012-0175 (Permit) was adopted November 8, 2012 by the Los Angeles Regional Water Quality Control Board (Regional Board) and became effective December 28, 2012. The purpose of the Permit is to ensure the MS4s in Los Angeles County are not causing or contributing to exceedances of water quality objectives set to protect the beneficial uses in the receiving waters. Included as **Attachment E** to the Permit are requirements for a Monitoring and Reporting Program (MRP). The stated primary objectives for the MRP, listed in Part II.A.1 of the MRP, are as follows:

1. Assess the chemical, physical, and biological impacts of discharges from the MS4 on receiving waters.
2. Assess compliance with receiving water limitations (RWLs) and water quality-based effluent limitations (WQBELs) established to implement Total Maximum Daily Load (TMDL) wet weather and dry weather waste load allocations (WLAs).
3. Characterize pollutant loads in MS4 discharges.
4. Identify sources of pollutants in MS4 discharges.
5. Measure and improve the effectiveness of pollutant controls implemented under the Permit.

Permittees of the MS4 Permit have the option to develop a Coordinated Integrated Monitoring Program (CIMP) that may be used to specify alternative approaches for meeting the primary objectives. Additionally, the CIMP is the vehicle to modify TMDL monitoring requirements and other historical monitoring program requirements, to collaborate on a watershed scale, and provide consistent and comparable water quality observations throughout the watershed. The attachments and appendices to this CIMP describe additional background information and detail specific analytical and monitoring procedures that will be used to implement this CIMP. This CIMP meets the requirements of the MS4 Permit, including TMDL monitoring requirements.

1.1 UPPER SAN GABRIEL RIVER ENHANCED WATERSHED MANAGEMENT PLAN AREA

The San Gabriel River receives drainage from a 682-square mile area of eastern Los Angeles County and has a main channel length of approximately 58 miles. Its headwaters originate in the San Gabriel Mountains with the East, West, and North Forks. The river flows through residential, commercial and industrial areas before reaching the Pacific Ocean in Long Beach. The main tributaries of the river are Walnut Creek Wash, San Jose Creek, and Coyote Creek. The Enhanced Watershed Management Program (EWMP) area is located in the upper portion of the San Gabriel River Valley. Water bodies within the EWMP area include:

- Thompsons Wash
- Little Dalton Wash
- Big Dalton Wash
- San Dimas Wash
- Walnut Creek Wash

- Puente Creek
- San Jose Creek Reaches 1 and 2
- San Gabriel River Reaches 2, 3, 4, and 5
- North Fork of Coyote Creek
- Coyote Creek

Flowing receiving waters downstream of the EWMP area include:

- San Gabriel River Reach 1San Gabriel River Estuary

Additionally, there are unnamed tributaries draining unincorporated County areas that discharge into Puddingstone Reservoir.

The geology of the San Gabriel River Valley provides rapid infiltration of water. During dry weather, the upper watershed is likely to be disconnected from the lower watershed. A goal of the monitoring in the CIMP will be to establish when the EWMP area is hydraulically connected to the downstream water bodies. If there is no flow to the downstream areas, the discharges in the EWMP area cannot possibly be causing or contributing to the downstream water quality impairments. Water quality data for the receiving waters in the EWMP area are sparse. Future monitoring results will allow the evaluation of whether MS4 discharges are causing or contributing to water quality objective exceedances in receiving waters downstream of or within the EWMP area.

The County of Los Angeles (County), Los Angeles County Flood Control District (LACFCD), and the Cities of Baldwin Park, Covina, Glendora, Industry, and La Puente (Group Members) comprise the Upper San Gabriel River Enhanced Watershed Management Program Group (EWMP Group).

Subsequent to the formation of the EWMP Group, the City of South El Monte indicated in a letter to the Los Angeles Regional Water Quality Control Board (Regional Board), dated February 26, 2015 of its intention to join the EWMP Group for the implementation of the CIMP. As a result, the EWMP Group agreed to include South El Monte in this Revised CIMP. Information regarding South El Monte is included in **Attachment G**.

The EWMP area is shown on **Figure 1-1** along with the named water bodies. Size and land uses for the Group Members jurisdictional boundaries are provided in **Table 1-1**. Note that the LACFCD service area underlies the EWMP area, however, does not include any land area contributing to the facilities they operate and maintain. The LACFCD service area is included as **Attachment A**. For purposes of the CIMP, the areas like the Angeles National Forest and vacant land parcels are excluded from consideration, as they do not contain a MS4. The areas serviced by the MS4 system for the Group Members and the land use breakdowns are presented as **Table 1-2**.

Subsequent to the submittal of the Draft CIMP, the City of South El Monte indicated in a letter to the Regional Board, dated February 26, 2015 of its intention to join the CIMP. As a result, the EWMP Group agreed to include South El Monte in this Revised CIMP. Additional information specific to South El Monte is contained in **Attachment G**.

Figure 1-1
Water Bodies and Geographic Boundary of the USGR EWMP Group

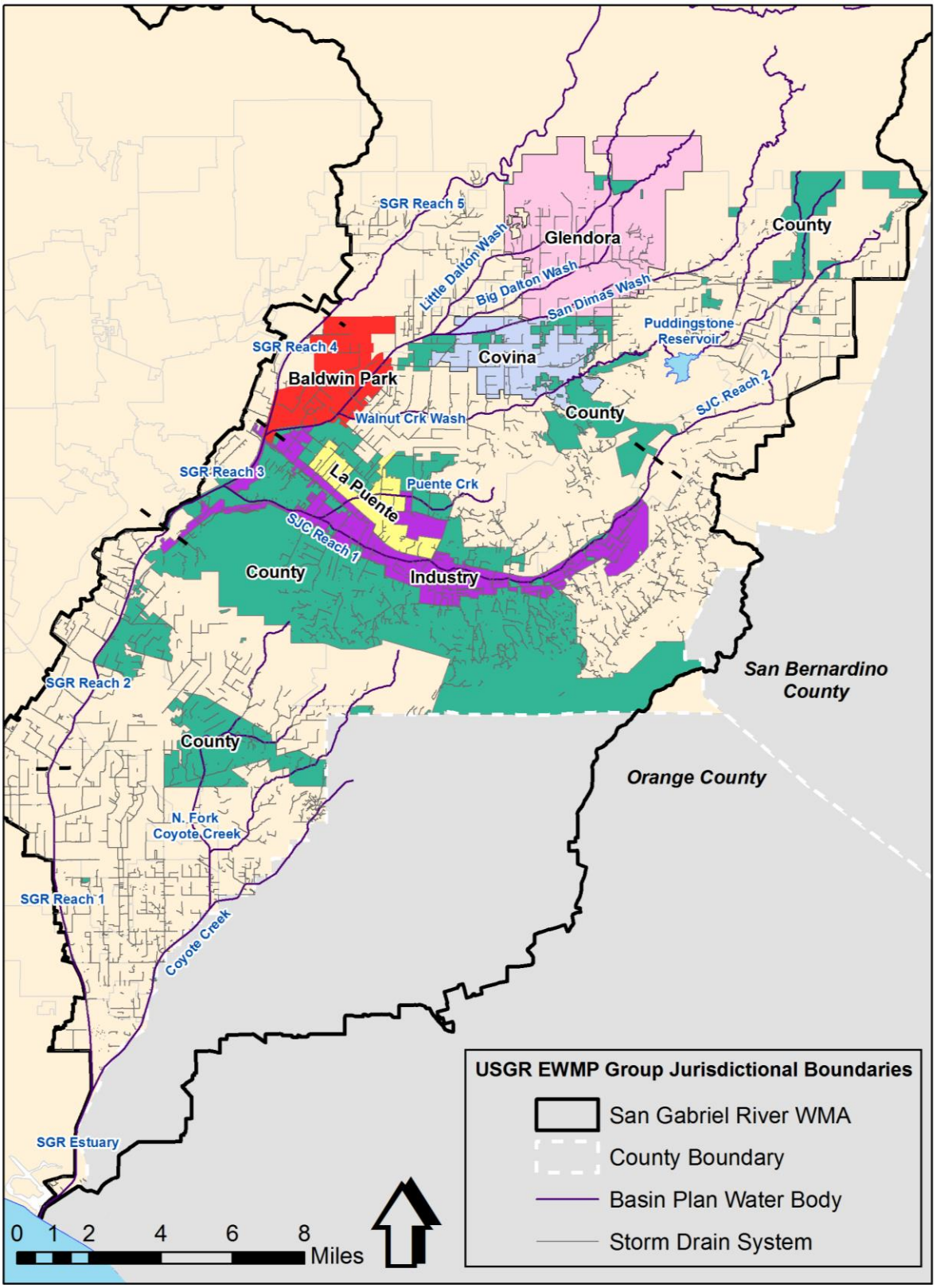


Table 1-1
List of Group Members with land use summaries within jurisdictional boundaries

Group Member	Area (square miles)	Percent of Land Area[1]			
		Res	Com/Ind	Ag/Nur	Open
Baldwin Park	6	66	31	2	1
Covina	7	65	32	<1	3
Glendora	15	48	13	1	38
Industry	11	<1	75	3	22
La Puente	4	71	24	<1	5
County of Los Angeles	62	50	14	1	35
LACFCD	N/A	N/A	N/A	N/A	N/A
All Members	104	47	23	1	29

1 Land use classifications include: residential (res), commercial and industrial (com/ind), agriculture and nursery (ag/nur), and open space (open). Totals correspond to the percent of the total area considered in the CIMP.

Table 1-2
List of Group Members with land use summaries within MS4 service area

Group Member	Area (square miles)	Percent of Land Area[1]			
		Res	Com/Ind	Ag/Nur	Open
Baldwin Park	6	66	31	2	1
Covina	7	65	32	<1	2
Glendora	10	70	20	1	8
Industry	10	<1	91	3	6
La Puente	3	72	25	<1	3
County of Los Angeles	45	68	20	2	11
LACFCD	N/A	N/A	N/A	N/A	N/A
All Members	81	60	30	2	8

1 Land use classifications include: residential (res), commercial and industrial (com/ind), agriculture and nursery (ag/nur), and open space (open). Totals correspond to the percent of the MS4 area considered in the CIMP. The area of National Forest and vacant land parcels within individual jurisdictions is excluded from the land use calculation.

1.2 APPLICABLE TMDL AND 303(D) LISTINGS

The TMDLs applicable to the EWMP area are listed in **Table 1-3.** The Metals TMDL lists grouped wet-weather WLAs for lead at San Gabriel River Reach 2 and all upstream tributaries. Additionally, the grouped dry-weather selenium WLAs apply to San Jose Creek Reaches 1 and 2. Because both allocations are applied as grouped allocations, the combined loading from all upstream tributaries must meet the allocations at the listed reaches. Monitoring will be necessary to identify the contribution to the loads from the EWMP area. The Regional Board adopted a

Basin Plan Amendment (BPA) incorporating an implementation plan and schedule on June 6, 2013. The adopted BPA contains general requirements for ambient monitoring and TMDL effectiveness monitoring. However, very specific requirements were incorporated into the MRP.

The Lakes TMDL was promulgated by United States Environmental Protection Agency (USEPA), and implementation provisions, including monitoring, were not explicitly required in the TMDL. Rather, the TMDL proposed monitoring recommendations for the Puddingstone Reservoir. Specific monitoring requirements to address the TMDL constituents were incorporated into the MRP and are considered for developing a monitoring plan at Puddingstone Reservoir.

While the Harbors Toxics TMDL was developed to address impairments in (among other water bodies) San Pedro Bay, the Permit links the Harbors Toxics TMDL to the San Gabriel River watershed requiring monitoring by all responsible parties subject to the Metals TMDL. Monitoring is intended to identify the contribution to the loads from the San Gabriel River Watershed Management Area. As recognized by the footnote in Attachment K-4 of the Permit, the Group Members have entered into an Amended Consent Decree with the United States and the State of California, including the Regional Board, pursuant to which the Regional Board has released the Group Members from responsibility for toxic pollutants in the Dominguez Channel and the Greater Los Angeles and Long Beach Harbors. Accordingly, no inference should be drawn from the submission of this CIMP or from any action or implementation taken pursuant to it that the Group Members are obligated to implement the Harbors Toxics TMDL, including this CIMP or any of the Harbors Toxics TMDL's other obligations or plans, or that the Group Members have waived any rights under the Amended Consent Decree.

Table 1-3
TMDLs Applicable to the EWMP Area

TMDL	Effective Date or EPA Approval Date	Regional Board Resolution Number
Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters Toxic Pollutants TMDL (Harbors Toxics TMDL)	03/23/2012	2011-008
Los Angeles Area Lakes Toxics and Nutrients TMDL for Puddingstone Reservoir (Lakes TMDL)	03/26/2012	None (USEPA TMDL)
San Gabriel River Metals TMDL (Metals TMDL)	03/26/2007	None[(1)] (USEPA TMDL)

1 Regional Board adopted an implementation Plan for the San Gabriel River Metals TMDL as BPA through resolution R13-004 on June 6, 2013.

Water body-pollutant combinations (WBPCs) on the 303(d) List that are not already addressed by a TMDL or other action are included as Category 2. All listings within or downstream of the EWMP area were identified and included to acknowledge that discharges from upstream reaches could impact the listed area, particularly during wet weather. However, a constituent included in the table does not infer MS4 discharges from the EWMP area contribute to the downstream

impairment. The 303(d) listed water bodies are presented in **Table 1-4**.

Table 1-4
Category 2 Water Body-Pollutants

Constituent	Coyote Creek	San Gabriel River Reach:			San Jose Creek Reach:		Walnut Creek Wash	San Gabriel Estuary	Puente Creek
		1	2	3	1	2			
Ammonia	L				L				
Coliform/ Indicator Bacteria	L	L	L	L	L	L	L		L
Cyanide			L						
Total Dissolved Solids (TDS)					L				
Benthic-Macroinvertebrates							L		
Diazinon	L								
Dioxin[(1)]								L	
Dissolved Oxygen (DO)								L	
Nickel								L	
pH	L	L			L		L		
Selenium	L[(2)]								L
Toxicity	L				L				

1 Dioxin measured and assessed as 2,3,7,8-TCDD
2 Listing is for North Fork of Coyote Creek
L Listed on 2010 303(d) List.

1.3 WATER QUALITY PRIORITIES

As part of the EWMP development, the available data were analyzed to determine water quality priorities for the watershed. While the water quality priorities analysis will be finalized as part of the EWMP, an initial characterization of the water quality priorities has been developed. Water quality priorities are based on TMDLs, State Water Resources Control Board 2010 303(d) List of Impaired Water Bodies (303(d) List), and monitoring data. Based on available information and data analysis, WBPCs were classified in one of the three Permit categories, as described in **Table 1-5**. The Permit categories are utilized in this CIMP to identify parameters that will be monitored at each receiving water and outfall monitoring site. Since the analysis is water body specific, different parameters may be monitored at different monitoring sites.

Table 1-5
Details for Water Body-Pollutant Combination Subcategories

Category	Water Body-Pollutant Combinations (WBPCs)	Description
1	**Category 1A:** WBPCs with past due or current Permit term TMDL deadlines with exceedances in the past 5 years.	WBPCs with TMDLs with past due or current Permit term interim and/or final limits. These pollutants are the highest priority for the current Permit term.
	Category 1B: WBPCs with TMDL deadlines beyond the Permit term with exceedances in the past 5 years.	The Permit does not require the prioritization of TMDL interim and/or final deadlines outside of the Permit term or USEPA TMDLs, which do not have implementation schedules. To ensure EWMPs consider long term planning requirements and utilize the available compliance mechanisms these WBPCs should be considered during BMP planning and scheduling, and during CIMP development.
	Category 1C: WBPCs addressed in USEPA TMDL without a Regional Board Adopted Implementation Plan.	
	Category 1D: WBPCs with past due or current Permit term TMDL deadlines but have not exceeded in past 5 years.	WBPCs where specific actions may end up not being identified because recent exceedances have not been observed and specific actions may not be necessary. The CIMP should address these WBPCs to support future re-prioritization.
	Category 1E: WBPCs with future Permit term TMDL deadlines but have not exceeded in past 5 years.	
2	**Category 2A:** 303(d) Listed WBPCs or WBPCs that meet 303(d) Listing requirements with exceedances in the past 5 years.	WBPCs with confirmed impairment or exceedances of RWLs. WBPCs in a similar class[(1)] as those with TMDLs are identified. WBPCs currently on the 303(d) List are differentiated from those that are not to support utilization of EWMP compliance mechanisms.
	Category 2B: 303(d) Listed WBPCs or WBPCs that meet 303(d) Listing requirements that are not a "pollutant"[(2)] (i.e., toxicity).	WBPCs where specific actions may not be identifiable because the cause of the impairment or exceedances is not resolved. Either routine monitoring or special studies identified in the CIMP should support identification of a "pollutant" linked to the impairment and re-prioritization in the future.
	Category 2C: 303(d) Listed WBPCs or WBPCs that meet 303(d) Listing requirements but have not exceeded in past 5 years.	WBPCs where specific actions for implementation may not be identified because recent exceedances have not been observed. Pollutants that are in a similar class[(1)] as those with TMDLs are identified. Routine monitoring identified in the CIMP should ensure these WBPCs are addressed to support re-prioritization in the future.
3	**Category 3A:** All other WBPCs with exceedances in the past 5 years.	Pollutants that are in a similar class[(1)] as those with TMDLs are identified.
	Category 3B: All other WBPCs that are not a "pollutant"[(2)] (i.e., toxicity).	WBPCs where specific actions may not be identifiable because the cause of the impairment is not resolved. Routine monitoring identified in the CIMP should support identification of a "pollutant" linked to the impairment and re-prioritization in the future.
	Category 3C: All other WBPCs but have not exceeded in past 5 years.	Pollutants that are in a similar class[(1)] as those with TMDLs are identified.
	Category 3D: WBPCs identified by the EWMP Group.	The EWMP Group may identify other WBPCs for consideration in EWMP planning.

1 Pollutants are considered in a similar class if they have similar fate and transport mechanisms, can be addressed via the same types of control measures, and within the same timeline already contemplated as part of the EWMP for the TMDL. (Permit pg. 49).

2 While pollutants may be contributing to the impairment, it currently is not possible to identify the *specific* pollutant/stressor.

Where available, the most recent 10 years of data were analyzed to identify WBPCs. Additionally, the last 5 years of data were analyzed to determine if historical issues were abated and refine the categorization of WBPCs. Subcategories were identified and created to refine the prioritization process. Those pollutants with measurements exceeding water quality objectives are further evaluated and categorized based on the frequency, timing, and magnitude of exceedances. The WBPCs are placed in the respective subcategories in **Table 1-6**.

Table 1-6
Summary of San Gabriel River Watershed Water Body-Pollutant Categories

		Within EMWP Area								Downstream of EWMP Area		
		San Gabriel River Reach[3]		San Jose Creek Reach								
Class[1]	Constituent[2]	2	3	1	2	Puente Creek	Walnut Creek Wash	North Fork of Coyote Creek	Pudding-stone Reservoir	Coyote Creek	San Gabriel River Reach 1	San Gabriel Estuary
Category 1A: WBPCs with past due or current term TMDL deadlines with exceedances in the past 5 years.												
Metals	Copper (Dry)									I	I	I
	Copper (Wet)[4]							I		I		
	Zinc (Wet)[4]							I		I		
	Selenium (Dry)			I	I							
Category 1B: WBPCs with TMDL deadlines beyond the current Permit term and with exceedances in the past 5 years.												
Metals	Copper (Dry)									F	F	F
	Copper (Wet)[4]							F		F		
	Zinc (Wet)[4]							F		F		
	Selenium (Dry)			F	F							
Category 1C: WBPCs addressed in USEPA TMDL without an Implementation Plan												
Nutrients	Total Nitrogen								X			
	Total Phosphorus								X			
Metals	Total Mercury								X			
Legacy	Polychlorinated Biphenyl (PCB) (Sediment)								X			
	PCB (Water)								X			
	Chlordane (Sediment)								X			
	Chlordane (Water)								X			
	Dieldrin (Sediment)								X			
	Dieldrin (Water)								X			
	DDT (Sediment)								X			
	DDT (Water)								X			

Continued

Table 1-6
Continued

Class[1]	Constituent[2]	Within EMWP Area								Downstream of EWMP Area		
		San Gabriel River Reach[3]		San Jose Creek Reach		Puente Creek	Walnut Creek Wash	North Fork of Coyote Creek	Pudding-stone Reservoir	Coyote Creek	San Gabriel River Reach 1	San Gabriel Estuary
		2	3	1	2							
Category 1D: WBPCs with past due or current term deadlines without exceedances in the past 5 years.												
Metals	Copper (Dry)[4]							I				
	Lead (Wet)[5]	I	I	I	I	I	I	I		I		
Category 1E: WBPCs with TMDL deadlines beyond the current Permit term without exceedances in the past 5 years.												
Metals	Copper (Dry)[4]							F				
	Lead (Wet)[5]	F	F	F	F	F	F	F		F		
Category 2A: 303(d) Listed WBPCs with exceedances in the past 5 years.												
Bacteria	Indicator Organisms	303(d)	303(d)	303(d)	303(d)	303(d)	303(d)	303(d)		303(d)	303(d)	
Metals	Zinc		Wet							Dry		
	Lead				Dry					Dry		
	Selenium					303(d)		303(d)				
	Copper		X									
Legacy	Polycyclic Aromatic Hydrocarbon (PAH)	X	X	X	X							
Other	Cyanide	303(d)	X							X		
Category 2B: 303(d) Listed WBPCs that are not a "pollutant"[6] (i.e., toxicity).												
Other	Benthic-Macroinvertebrates						303(d)					
Other	DO											303(d)
Other	pH			303(d)			303(d)			303(d)	303(d)	
Other	Toxicity			303(d)						303(d)		

Continued

Table 1-6
Continued

Class[1]	Constituent[2]	Within EMWP Area								Downstream of EMWP Area		
		San Gabriel River Reach[3]		San Jose Creek Reach		Puente Creek	Walnut Creek Wash	North Fork of Coyote Creek	Pudding-stone Reservoir	Coyote Creek	San Gabriel River Reach 1	San Gabriel Estuary
		2	3	1	2							
Category 2C: 303(d) Listed WBPCs without exceedances in past 5 years.												
Nutrients	Ammonia			303(d)						303(d)		
Other	Diazinon									303(d)		
Other	2,3,7,8-TCDD (Dioxin)											303(d)
Metal	Cadmium					Wet						
	Copper			X								
	Lead					Dry	Dry					
	Zinc			X		X	X					
	Nickel									Dry		303(d)
	Mercury (Total)							X				
Salts	TDS			303(d) Dry								
Category 3A: WBPCs with exceedances in the past 5 years.												
Other	MBAS		Wet							Wet		
Salts	Sulfate		Dry	Dry	Dry							
	Chloride		Dry	Dry	Dry					Dry		
	TDS		Dry									
Legacy	Alpha-Endosulfan									Dry		
Other	Cyanide							X				
Category 3B: WBPCs that are not a “pollutant” [6] (i.e., toxicity).												
Other	DO		X	X	X					Wet	Dry	
	pH					X		Dry				

Continued

Table 1-6
Continued

Class[1]	Constituent[2]	Within EMWP Area								Downstream of EMWP Area		
		San Gabriel River Reach[3]		San Jose Creek Reach		Puente Creek	Walnut Creek Wash	North Fork of Coyote Creek	Coyote Creek	Pudding-stone Reservoir	San Gabriel River Reach 1	San Gabriel Estuary
		2	3	1	2							
Category 3C: WBPCs with historical exceedances but none in the past 5 years.												
Other	Cyanide			X								
Metals	Selenium						X				X	X
	Lead											X
	Copper					Dry						
	Zinc											X
	Mercury (Total)						X					
Other	Lindane		X									

1 Pollutants are considered in a similar class if they have similar fate and transport mechanisms, can be addressed via the same types of control measures, and within the same timeline already contemplated as part of the EWMP for the TMDL.
2 WBPC listed as Wet or Dry where issue is restricted to a condition. Otherwise, WBPC is both an issue for both Wet and Dry and donated with an X
3 Data from Mass Emission Station S14 are included under San Gabriel River Reach 3 because the station is located just downstream of the reach break. TMDL and 303(d) listings historically applied to Reach 2.
4 Grouped allocation. Compliance in Coyote Creek, as measured at the Coyote Creek LTA station, is compliance for all tributaries.
5 Grouped allocation. Compliance in San Gabriel River Reach 2, as measured at the San Gabriel LTA station, is compliance for all tributaries.
6 While pollutants may be contributing to the impairment, it currently is not possible to identify the specific pollutant/stressor.
I/F Denotes where the Permit includes interim (I) and/or final (F) effluent and/or RWLs.
303(d) WBPC on the 2010 303(d) List where the listing was confirmed during data analysis.

Constituents may change subcategories with new information as the monitoring progresses, source investigations occur, and BMP implementation begins. Constituents for which exceedances decrease over time will be removed from the priority list and moved to the monitoring priority categories; or, dropped from the priority list. If the frequency of constituent exceedances increases to a consistent level, for a constituent that is currently not a priority, then the constituent would be reevaluated using the prioritization procedure, likely increasing the priority of the constituent. Due to the natural rate of infiltration, the San Gabriel River and some of the tributaries are dry with the exception of storm flows. Future monitoring will be assessed to determine where discontinuity occurs between the upper and lower watershed during dry and minor storm events. Upon establishing the discontinuity, the corresponding WBPCs flagged due to downstream water quality issues will be adjusted or removed from the categorization.

2 Receiving Water Monitoring Program

Receiving water monitoring is designed to provide data to determine whether the RWLs and WQOs are being achieved and if beneficial uses are being supported. Over time, the monitoring will allow the assessment of trends in pollutant concentrations. The following subsections describe how the MRP requirements for receiving water monitoring will be met within the EWMP area.

2.1 RECEIVING WATER MONITORING OBJECTIVES

The objectives of the receiving water monitoring include the following:

- Determine whether the RWLs are being achieved;
- Assess trends in pollutant concentrations over time, or during specified conditions; and
- Determine whether the designated beneficial uses are fully supported as determined by water chemistry, as well as aquatic toxicity and bioassessment monitoring.

The following presents the receiving water monitoring sites, monitoring parameters and frequency, and a discussion on monitoring coordination. A summary of how the receiving water monitoring program meets the objectives of the MRP concludes the section. The approach builds off the MRP requirements, the TMDL monitoring requirements, as well as existing monitoring programs in the watershed. Implementation of the CIMP will meet the monitoring requirements for TMDLs that had not yet developed monitoring programs (e.g., Harbors Toxics TMDL, San Gabriel River Metals TMDL, etc.). Note that the Harbors Toxics TMDL required the development of a monitoring program and quality assurance project plan (QAPP). This CIMP addresses those requirements. While not all aspects of a QAPP are explicitly addressed herein the primary requirements that are not included relate to the implementation of the CIMP (e.g., definition of project manager, lines of communication, and standard operating procedures). These requirements will be addressed prior to the implementation of the CIMP.

2.2 DESCRIPTION OF RECEIVING WATER MONITORING

Prioritizations of WBPCs were utilized to support the development of the monitoring approach as identified in the EWMP Work Plan to address the different monitoring objectives and priorities. Two types of monitoring are proposed:

- **Long-Term Assessment** – LTA monitoring is intended to determine if RWLs are achieved, assess trends in pollutant concentrations over time, and to determine whether designated uses are supported.
- **TMDL** – TMDL monitoring is conducted to evaluate attainment of or progress in attaining the TMDL.

While not explicitly established in the MRP, the monitoring types proposed distinguish between the different end goals of monitoring for specific constituents within specific water bodies in the EWMP area. LTA monitoring provides a long-term record to understand conditions within the EWMP area, for a robust suite of parameters. TMDL monitoring addresses TMDL related

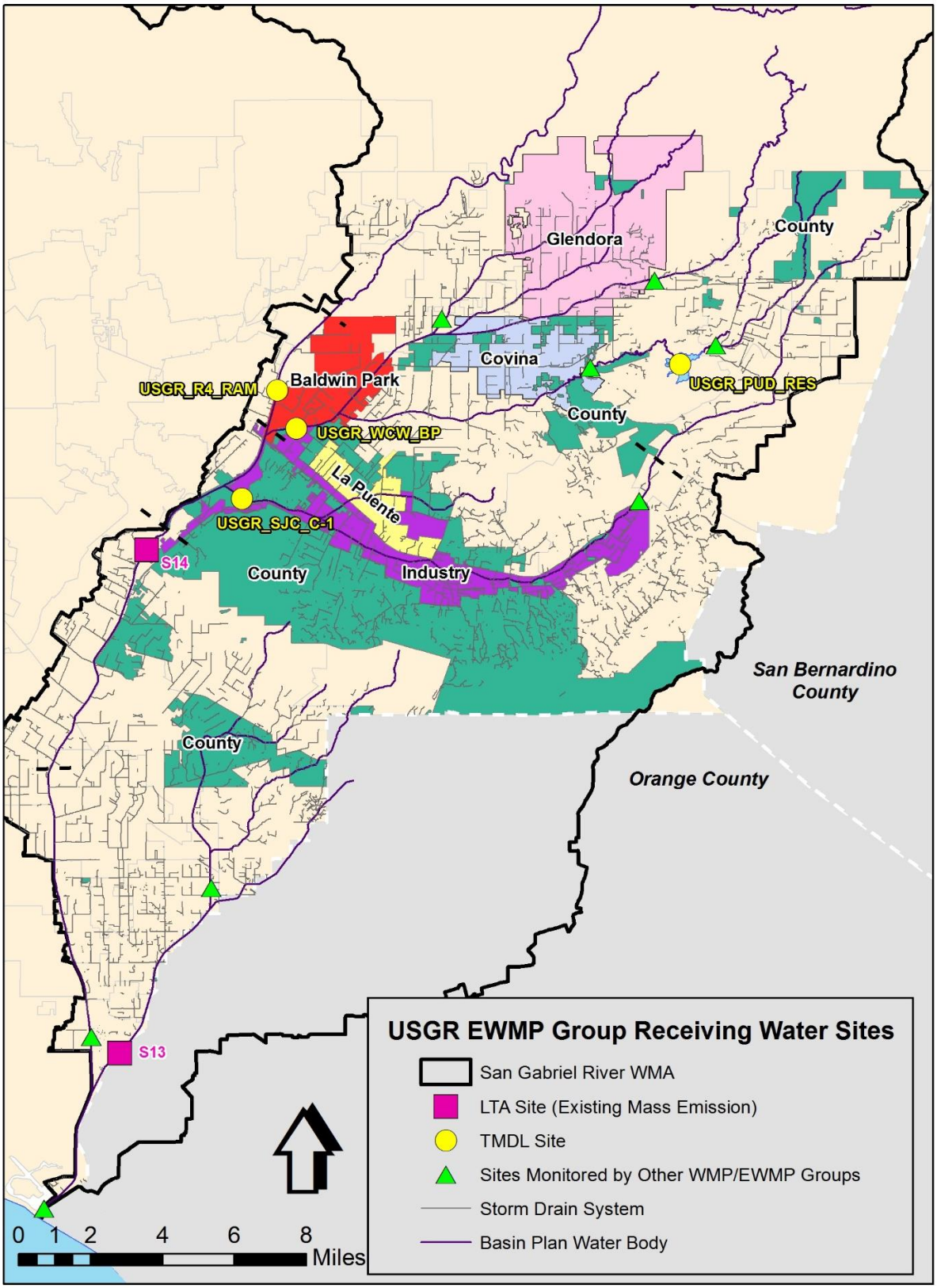
constituents. WBPCs on the 303(d) list, those meeting the listing requirements, or those exceeding receiving water objectives will be monitored at LTA sites and applicable TMDL sites.

The receiving water monitoring sites meet the MRP objectives and support an understanding of potential impacts associated with MS4 discharges. However, as described in the MRP, receiving water sites are intended to assess receiving water conditions. An exceedance of a RWL at a receiving water site does not indicate MS4 discharges caused or contributed to the RWL exceedance, as the receiving water sites also receive runoff from non-MS4 sources, including open space and other permitted discharges that may have been caused or contributed to by a non-MS4 source. A determination regarding whether MS4 discharges caused or contributed to a RWL exceedance will be made using data collected through outfall monitoring.

2.3 RECEIVING WATER MONITOTING SITES

The requirements in the MRP include receiving water monitoring sites at previously designated LACFCD's mass emission stations, TMDL receiving water compliance points, and additional receiving water locations representative of the impacts from MS4 discharges. Receiving water sites selected by the Group Members are shown in **Figure 2-1**. The following subsections integrate the TMDL and MS4 monitoring requirements and describe the sites, frequency, parameters, and duration of receiving water monitoring.

Figure 2-1
Overview of Receiving Water Monitoring Sites



2.3.1 Long Term Assessment Sites

One of the primary objectives of receiving water monitoring is to assess trends in pollutant concentrations over time, or during specified conditions. As a result, the primary characteristic of an ideal monitoring site is a robust dataset of previously collected monitoring results so that trends in pollutant concentrations over time, or during specified conditions, can be assessed.

The LTA monitoring meets the receiving water objectives and supports an understanding of potential impacts associated with MS4 discharges. However, receiving water sites are intended to assess receiving water conditions.

Two LTA monitoring sites are proposed at the existing mass emission stations S14 and S13. Note that station S14 is physically located on Reach 2, however, it is located just downstream from Reach 3, therefore, data collected at S14 is reflective of the Reach 3 water quality. These sites provide a long historical record by which trends can be assessed over time and long-term attainment of RWLs and beneficial uses within the EWMP area to be evaluated. The sites are shown on **Figure 2-1**.

The LTA monitoring sites will also be utilized to support monitoring of prioritized WBPCs. It is anticipated that the LACFCD will continue to conduct monitoring at the mass emissions. The EWMP Group will coordinate with the LACFCD for monitoring at S14 and if necessary, using the mass emissions to conduct monitoring of any additional parameter or frequency beyond LACFCD's program. The Lower San Gabriel River (LSGR) WMP Group will coordinate with the LACFCD for monitoring at S13 and, therefore, monitoring details for S13 are not included in this CIMP. Photographs of the LTA sites and flow monitoring locations are included in **Attachment B.**

2.3.2 TMDL Sites

Within the EWMP area, Metals TMDL monitoring sites are required in San Gabriel River Reaches 2, 3, 4, and 5, San Jose Creek Reaches 1 and 2, Walnut Creek Wash, and Coyote Creek. The LTA stations S13 and S14 will be used to monitor Metals TMDL requirements for Coyote Creek and San Gabriel River Reach 3, respectively. The LSGR WMP Group will monitor the North Fork of Coyote Creek for Metals TMDL Sites are presented in **Figure 2-1** with symbol shape corresponding to Watershed Group. The sites will be located and monitored as follows:

Sites to be monitored by the EWMP Group:

- San Gabriel River Reach 4 TMDL site will be downstream of Ramona Boulevard at flow control structure.
- San Jose Creek Reach 1 TMDL site will be at the LACSD R-10 monitoring site located upstream of the Discharge Serial No. 002 discharge point for LACSDs' San Jose Creek Water Reclamation Plant (WRP).
- Walnut Creek Wash TMDL site will be located in the transition between lined and unlined portion of Walnut Creek Wash, upstream of the confluence with the San Gabriel River.
- Puddingstone Reservoir TMDL monitoring at approximately the center of the lake.

Sites to be monitored by other WMP/EWMP Groups and the LACSD, and their relevant data will be shared with USGR EWMP Group for assessment:

- Live Oak Wash LTA site upstream of the discharge into Puddingstone Reservoir to be monitored by the East San Gabriel Valley (ESGV) WMP Group.
- Potential Walnut Creek Wash TMDL site upstream of the ESGV boundary to be monitored by the ESGV WMP Group.
- San Dimas Wash TMDL site upstream of the ESGV boundary to be monitored by the ESGV WMP Group.
- San Jose Creek Reach 2 TMDL site will be located at the upstream intersection of San Jose Creek and the Group Members' jurisdictional boundary, approximately one mile downstream of the terminus of San Jose Creek Reach 2. Monitoring will be conducted by the ESGV WMP Group.
- Little Dalton LTA site will be located upstream of the confluence with San Dimas Wash, which is tributary to Walnut Creek and eventually San Gabriel River Reach 3. Monitoring will be conducted by the Rio Hondo/San Gabriel River EWMP Group.
- North Fork of Coyote Creek TMDL site located upstream of the confluence with Coyote Creek. Monitoring will be performed by the LSGR WMP Group.
- Potential San Gabriel River Reach 2 TMDL site located in the vicinity of the downstream reach break. Monitoring will be performed by the LSGR WMP Group.
- San Gabriel River Reach 1 TMDL site located upstream of the confluence with Coyote Creek. Monitoring will be performed by the LSGR WMP Group.
- San Gabriel River Estuary TMDL site located at the LACSD R-8 site. Monitoring will be performed by the LACSD.

Monitoring for the Metals TMDL is also required in San Gabriel River Reach 1 and the Estuary. Given that jurisdictions outside of the EWMP area primarily surround these water bodies, TMDL monitoring sites for these water bodies are not discussed within this CIMP. However, monitoring sites within the EWMP area will be utilized to assess the Group Members' contribution to downstream water bodies.

A Lakes TMDL monitoring site is required at the Puddingstone Reservoir. A location at the center of the reservoir will be used to monitor water column and lake bed sediment. Fish tissue samples will be collected as necessary depending on the behavioral patterns of the targeted fish species (largemouth bass for mercury assessments and common carp for OC pesticide and PCB assessments.) Within this EWMP Group, the County and LACFCD are the only Group Members contributing to the monitoring in Puddingstone Reservoir. Monitoring of stormwater discharge to the reservoir for OC pesticides and PCBs on suspended sediment will be performed by the ESGV Group at the Live Oak Wash LTA site. The proposed sites are located on **Figure 2-1**.

Additionally, one Harbors Toxics TMDL monitoring site is also required at the mouth of the San Gabriel River to determine the River's contribution to the impairments in the Greater Harbor waters. All responsible parties to the Metals TMDL are responsible for performing the specified monitoring. The dry weather and benthic sediment Harbors Toxics TMDL site will be located at LACSD's R-8 monitoring site in the San Gabriel River Estuary at Marina Drive. The dry weather and benthic sediment monitoring will be performed by the LACSD. Wet weather monitoring will occur at San Gabriel River Reach 1 and existing Coyote Creek mass emission S13, allowing the relative proportions of the respective areas be determined as well as the total contribution to the estuary. The Lower San Gabriel River WMP Group will coordinate with LACFCD to conduct wet weather Harbors Toxics TMDL monitoring.

2.4 MONITORED PARAMETERS AND FREQUENCY OF MONITORING

Receiving water sites will be monitored for the constituents listed in **Table 2-1**. The program will operate three wet weather events per year, including the first significant rain event of the storm year, and during two dry weather events per year, conducted in January and July. In the first year of monitoring, the full list of constituents on Table E-2 of the MRP will be monitored at the LTA sites for the first large storm and the July dry event. The constituents listed in **Table 2-1**, will be monitored for the remaining events during the first year. Any constituents listed in Table E-2 of the MRP found to exceed water quality objectives will be added to **Table 2-1** and included in monitoring events beginning the second year of monitoring. Where constituents on Table E-2 of the MRP were not detected above WQOs, they will not be included for monitoring as part of the CIMP. The list of WQOs used for the analysis is presented in **Attachment D.** Historic precipitation data for the EWMP Group area was analyzed from the National Oceanic and Atmospheric Administration National Climate Data Center precipitation gage USC00043452, located in the City of Glendora. Data from 1895 to 2011 was analyzed to determine that July is the historically driest month for the EWMP Group, receiving on average approximately 0.08 inches of precipitation. Stream flow rates were not used to determine the critical dry month, because wastewater flows and water transfers may influence the results. The frequency of monitoring for wet and dry events is specified by site in **Table 2-1**

For toxicity, monitoring will be conducted during two wet weather events per year and during the one dry weather event that takes place coincident with the summer dry weather sampling event.

Monitoring details for Puddingstone Reservoir are listed in **Table 2-2**. Analytical methods, detection limits, sampling methods, sample handling procedures, and details regarding the collection of quality assurance/quality control samples are outlined in **Attachment C**.

Metals TMDL ambient monitoring will be conducted at a frequency consistent with the default LTA monitoring of three wet and two dry events. The Metals TMDL specifies four wet weather events annually for effectiveness monitoring. For the receiving water sites used for Metals TMDL compliance, a fourth storm will be targeted for monitoring metals and associated constituents. After the first year of monitoring, the metals data will be evaluated to determine if three storms provide sufficient information. If three storms are found to provide sufficient information, a reduction in monitoring to three storms per year will be requested from the Regional Board. If a reduction in sampling is appropriate, the frequency of supporting parameters will likewise be reduced. The supporting parameters include: flow and field parameters, TSS, and hardness. Dry weather metals TMDL sampling will be conducted by the LSGR WMP Group for North Fork of Coyote Creek, and the ESGV WMP Group will monitor San Jose Creek Reach 2. Once implementation has occurred and TMDL monitoring data is available, effectiveness monitoring will be included as part of the adaptive management process.

Water column, bed sediment, and fish tissue will be monitored in Puddingstone Reservoir as per the MRP with the exception of the bed sediment frequency. The sedimentation rate identified in the TMDL ranges between two to four centimeters per year, equivalent to the depth typically sampled for surface sediments. Collection of sediment samples for multiple times throughout year would essentially represent a duplicate sample rather than produce data indicative of a changing condition associated with new sediment deposited over the course of a year. The bed

sediment will be collected and analyzed every other year to allow the long-term tracking of sediment quality.

Table 2-1
Annual Frequency of Receiving Water Monitoring during Wet and Dry Weather Conditions

	Annual Frequency (number wet events/number dry events)			
	LTA	TMDL		
	San Gabriel River Reach		San Jose Creek Reach 1	Walnut Creek Wash
Constituent	3[1]	4		
Flow and field parameters[2]	3/2	3/2	3/2	3/2
TSS and Hardness	3/2	3/2	3/2	3/2
Table E-2 of the MRP[3,4]	1/1			
Toxicity[4]	2/1			
TIE Identified Pollutants	(5)	(5)	(5)	(5)
Total and Dissolved Copper[6]	4/2	4/2	4/2	4/2
Total and Dissolved Lead[6]	4/0	4/0	4/2	4/2
Total and Dissolved Zinc[6]	4/2	4/2	4/2	4/2
Total and Dissolved Cadmium[6]			4/0	
Selenium[6]			4/2	4/2
PAHs[7]	3/2		3/2	
E. coli	3/2	3/2	3/2	3/2
Ammonia			3/2	
MBAS	3/0			
Cyanide	3/2		3/2	
Mercury				3/2
Lindane	3/2			
Chloride	0/2		0/2	
Sulfate	0/2		0/2	
Total Dissolved Solids	0/2		0/2	

1 LACFCD will continue to operate existing mass emission station.
2 Field parameters are dissolved oxygen, pH, temperature, and electrical conductivity.
3 Constituents listed in Table E-2 of the MRP will be analyzed in the first year of monitoring under the CIMP. Constituents found to exceed the respective water quality objectives will be added to **Table 2-1.** Two or more exceedances in the receiving water during wet weather will result in the constituents being added to the outfall monitoring list of constituents, **Table 4-9**. Two or more exceedances in the receiving water during dry weather will result in the constituents being added to the non-stormwater monitoring list, **Table 5-4**.
4 For wet weather, the first large storm event of the year is targeted. For dry weather, one sample will occur in the month with historically lowest flow, which is July for this EWMP Group.
5 Where wet weather monitoring of the San Gabriel River at the mass emission site S14 observes toxicity and a subsequent TIE identifies a pollutant(s), the pollutant(s) will be added to the wet weather monitoring list at 3/year. Where dry weather monitoring observes toxicity and a subsequent TIE identifies a pollutant(s), the pollutant(s) will be added to the dry weather monitoring list at 2/year. The monitoring for the additional pollutant(s) will commence at the scheduled event following notification of TIE results.
6 Sampling reflective of TMDL condition. After the first year of monitoring, the metals data will be evaluated to determine if three storms provide sufficient information. If three storms are found to provide sufficient information, a reduction in monitoring to three storms per year will be requested from the Regional Board. If a reduction in sampling is appropriate, the frequency of supporting parameters will likewise be reduced. The supporting parameters include: flow and field parameters, TSS, and hardness.
7 PAHs include: Benzo(a)pyrene, 3,4 Benzofluoranthene, Benzo(k)flouranthene, Chrysene, Dibenzo(a,h)anthracene, and Indeno(1,2,3-cd)pyrene.

Table 2-2
Summary of Puddingstone Reservoir TMDLs Monitoring

TMDL	Frequency	Monitoring Requirements
Nutrient TMDL	Two summer and One winter	• Ammonia, Total Kjeldahl Nitrogen or organic nitrogen, nitrate plus nitrite, orthophosphate, total P, TSS, TDS, and chlorophyll *a*. Sampled at half Secchi depth. • Temperature, DO, pH, specific electrical conductivity, and Secchi depth taken throughout the water column
Mercury TMDL	Once in three years	• Monitoring largemouth bass 325-375 mm length mercury fish tissue
	Once in two years	• In-lake sediment mercury, methylmercury, sulfate
	Twice per year	• Total Mercury, methylmercury, chloride, sulfate, total organic carbon, alkalinity, TSS, TDS sampled at half Secchi depth. • Temperature, DO, pH, electrical conductivity (EC), and Secchi depth should be taken throughout the water column
Organochlorine Pesticides and PCBs TMDLs	Once in three years	• Monitoring of skin off fillets from at least five common carp with length at least 350 mm: total PCBs, total chlordane, dieldrin, and total DDTs
	Once in two years	• In-lake sediment parameters: total PCBs, total chlordane, dieldrin, and total DDTs
	Once per year	• In-lake water quality parameters: TSS, total PCBs, total chlordane, dieldrin, and total DDTs sampled at half Secchi depth. • Temperature, DO, pH, EC, and Secchi depth should be taken throughout the water column

2.5 RECEIVING WATER MONITORING SITE SUMMARY

Six sites are selected in the EWMP area to address the receiving water monitoring program objectives. Altogether with other watershed management groups, there will be 14 receiving water sites in the San Gabriel River Watershed Management Area. The receiving water sites are summarized in **Table 2-3**, and located on **Figure 2-1**. A summary of the monitoring data, which the Group Members are responsible for collecting at the receiving water sites, is presented as **Table 2-1**. Monitoring requirements for Puddingstone Reservoir are listed in **Table 2-2**, which will be fulfilled by the County and LACFCD.

Table 2-3
Summary of Receiving Water Monitoring

Site ID	Water Body Represented	Coordinates		Monitoring Type	
		Latitude	Longitude	LTA	TMDL
S14[(1)]	SGR Reach 3	34.01277	-118.06381	X	X
S13[(2)]	Coyote Creek	33.80982	-118.07671	X	X
USGR_SJC_C-1	SJC Reach 1	34.03339	-118.01700		X
USGR_WCW_BP	Walnut Creek Wash	34.06272	-117.98600		X
USGR_R4_RAM	SGR Reach 4	34.07296	-118.00200		X
USGR_PUD_RES	Puddingstone Reservoir	34.08789[(2)]	-117.80445[(3)]		X

1 Existing mass emission station operated by LACFCD. Monitoring will be coordinated with EWMP Group.
2 Existing mass emission station operated by LACFCD. Monitoring will be coordinated with LSGR WMP Group.
3 Approximate location.

Monitoring sites utilized by collaboration partners are listed in **Table 2-4.**

Table 2-4
Summary of Other Receiving Water Monitoring in San Gabriel River Watershed Management Area

Coordination Partner	Water Body Represented	Coordinates		Monitoring Type	
		Latitude	Longitude	LTA	TMDL
LACSD	SGR Estuary	33.74705	-118.11313		X
LSGR WMP	SGR Reach 2	33.97053	-118.08765		X
LSGR WMP	SGR Reach 1	33.8041	-118.0906	X	X
LSGR WMP	North Fork Coyote Creek	33.91722	-118.03811		X
ESGV WMP	SJC Reach 2	34.03223	-117.82489		X
ESGV WMP	Live Oak Wash	34.094064	-117.792934	X	X
ESGV WMP	Walnut Creek Wash	34.086672	-117.845592		X
ESGV WMP	San Dimas Wash	34.121341	-117.820088		X
RH/SGR EWMP	Little Dalton Wash	34.099445	-117.926766	X	X

2.6 RECEIVING WATER MONITORING SUMMARY

A summary of how the receiving water monitoring program meets the intended objectives of the receiving water monitoring program outlined in Part II.E.1 of the MRP is presented in **Table 2-5**.

Table 2-5
Summary of Receiving Water Monitoring Program Objectives

MRP Objective	CIMP Component Meeting Objective
Determine whether the RWLs are being achieved.	• Six total receiving water monitoring sites. • Receiving water monitoring sites located as required by TMDLs. • Constituents added for monitoring based on the water quality priorities (i.e., the constituents at the highest risk of exceeding RWLs).
Assess trends in pollutant concentrations over time, or during specified conditions.	• LTA station existing within the EWMP area. • Three wet and two dry events of metals monitoring at all receiving water monitoring sites. • Monitoring of other constituents during dry weather and wet weather at frequency specified in the MRP. • Constituents added for monitoring based on the water quality priorities.
Determine whether the designated beneficial uses are fully supported as determined by water chemistry, as well as aquatic toxicity and bioassessment monitoring.	• At least one monitoring site located in the majority of water bodies specified in the Basin Plan. • Aquatic Toxicity monitoring to be conducted during dry and wet weather • Constituents added for monitoring based on the water quality priorities.

3 MS4 Outfall Database

The objective of the MS4 outfall database is to geographically link the characteristics of the outfalls within the EWMP area with watershed characteristics including: subwatershed, water body, land use, and effective impervious area. The information will be compiled into geographic information system (GIS) layers. The MS4 database is discussed below.

3.1 PROGRAM OBJECTIVES

A GIS based database of the MS4 storm drains and outfalls is required as part of the CIMP. The database structure must accommodate the following data fields:

1. Surface water bodies within the Group Member jurisdictions.
2. Sub-watershed Hydrologic Unit Code (HUC) - 12 boundaries.
3. Land use overlay.
4. Effective Impervious Area overlay (if available).
5. Jurisdictional boundaries.
6. The location and length of all open channel and underground pipes 18 inches in diameter or greater (with the exception of catch basin connector pipes).
7. The location of all dry weather diversions.
8. The location of all major MS4 outfalls within the Group Members' jurisdictional boundary. Each major outfall shall be assigned an alphanumeric identifier, which must be noted on the map.
9. Notation of outfalls with significant non-stormwater discharges (to be updated annually).
10. Storm drain outfall catchment areas for each major outfall within the Group Members' jurisdiction.
11. Each mapped MS4 outfall shall be linked to a database containing descriptive and monitoring data associated with the outfall. The data shall include:
    a. Ownership
    b. Coordinates
    c. Physical description
    d. Photographs of the outfall, where possible, to provide baseline information to track operation and maintenance needs over time
    e. Determination of whether the outfall conveys significant non-stormwater discharges.
    f. Stormwater and non-stormwater monitoring data

Available GIS data were reviewed to determine which components were available to populate the database for submittal with the CIMP. Information currently available includes components 1, 2, 3, 5, 6, 7, and 11.b. For the remaining components 8, 9, 10, 11.a, 11.c, 11.d, 11.e, and 11.f, the Group Members has begun the efforts to gather the information. All outstanding data will be collected upon completion of the non-stormwater outfall screening by the end of 2014. Based on the review of the GIS data, the components were divided into two categories: (1) available information being submitted with the CIMP, and (2) pending information that will be submitted after completion of the non-stormwater outfall and screening program.

3.2 AVAILABLE INFORMATION

The following data are being submitted in a database concurrently with the CIMP (note, the numbering corresponds to the item number in the Permit list):

1 Surface water bodies within the Group Members' jurisdiction.
2. Sub-watershed (HUC-12) boundaries.
3. Land use overlay.
5. Jurisdictional boundaries.
6. The location and length of all open channel and underground pipes 18 inches in diameter or greater (with the exception of catch basin connector pipes).
7. The location of all dry weather diversions.
11. Each mapped MS4 outfall shall be linked to a database containing descriptive and monitoring data associated with the outfall. The data shall include:
    b. Coordinates

3.3 PENDING INFORMATION

An ongoing effort is collecting the data that are not currently available for submittal with the CIMP. The MS4 database will be populated as the data are collected. Annual reports will include the most recent updated database. The fields that will be updated through implementation of the CIMP include:

4. Effective impervious area overlay (if available).
8. The location of all major MS4 outfalls within the Group Members' jurisdictional boundary.
9. Notation of outfalls with significant non-stormwater discharges (to be updated annually).
10. Storm drain outfall catchment areas for each major outfall within the Group Member's jurisdiction.
11. Each mapped MS4 outfall shall be linked to a database containing descriptive and monitoring data associated with the outfall. The data shall include:
    a. Ownership
    c. Physical description
    d. Photographs of the outfall, where possible, to provide baseline information to track operation and maintenance needs over time
    e. Determination of whether the outfall conveys significant non-stormwater discharges.
    f. Stormwater and non-stormwater monitoring data.

The EWMP Group anticipates implementing the non-stormwater outfall program beginning in summer 2014 and the information necessary to determine pending elements is expected to be generated, as seen in **Table 3-1**. A schedule for completing each of the elements is provided. As the data become available, they will be entered into the GIS and water quality databases.

Table 3-1
MS4 Database Elements to Be Developed

Database Element	To Be Developed	Date of First Submission
Effective Impervious Area overlay (if available).		As Available
Notation of outfalls with significant non-stormwater discharges (to be updated annually).	X[1]	December 2014 and ongoing
Detailed analysis of storm drain outfall catchment areas for any new outfall monitoring locations, outfalls identified as having significant non-stormwater discharges, and outfalls addressed by structural best management practices (BMPs).	X[2]	Ongoing
Photographs of the outfall, where possible, to provide baseline information to track operation and maintenance needs over time	X[3]	December 2014 and ongoing
Determination of whether the outfall conveys significant non-stormwater discharges.	X[1]	Ongoing
Stormwater and non-stormwater monitoring data	X[4]	Ongoing

1. The determination of significant will be made after the initial screening process outlined in this CIMP is completed.
2. Storm drain outfalls were linked in the database to the modeling subwatersheds to provide information on the contributing areas. Detailed analysis of storm drain outfall catchment areas for the stormwater outfall monitoring sites have been developed and additional detailed analysis for any new outfall monitoring locations, outfalls identified as having significant non-stormwater discharges, and outfalls addressed by structural BMPs will be conducted as needed.
3. These data will be gathered as part of the screening and monitoring program and will be added to the database as they are gathered.
4. These data will be gathered as part of the screening and monitoring program and will be added to a separate water quality database as they are gathered.

4 Stormwater Outfall Monitoring

Stormwater outfall monitoring of discharges from the MS4 support meeting three objectives including:

- Determine the quality of stormwater discharge relative to municipal action levels (MALs).
- Determine whether stormwater discharge is in compliance with applicable stormwater WQBELs derived from TMDL WLAs.
- Determine whether the discharge causes or contributes to an exceedance of RWLs.

Stormwater outfall selection and monitoring requirements are discussed below.

4.1 PROGRAM OBJECTIVES

Stormwater outfall monitoring of discharges from the MS4 support meeting three objectives including:

- Determine the quality of stormwater discharge relative to MALs.
- Determine whether stormwater discharge is in compliance with applicable stormwater WQBELs derived from TMDL WLAs.
- Determine whether the discharge causes or contributes to an exceedance of RWLs.

4.2 STORMWATER OUTFALL MONITORING SITES

The primary criteria for the stormwater outfall monitoring program is selecting monitoring sites that are representative of the range of land uses in the EWMP area and provide accurate data for measuring flows and characterizing pollutant loads. The Permit provides default requirements for one outfall site per jurisdiction per HUC-12. The default procedure was modified to select one outfall per jurisdiction. The Permit allows an alternative approach to increase the cost efficiency and effectiveness of the monitoring program. To facilitate the approval of the outfall selection process, the proposed process is demonstrated to achieve equivalent monitoring in **Attachment E**. The following subsections outline the approach to meet the MS4 Permit requirements related to stormwater outfall monitoring.

The stormwater outfall monitoring sites for the Group Members have been identified. Prior to the field investigations, a desktop analysis was performed to determine potential locations and ensure consideration of representative monitoring sites. The field investigations were then used to evaluate safety, accessibility, and suitability of the potential sites. Field investigations were performed January 17, 2013, February 7, 2014 and February 8, 2014 to evaluate potential monitoring sites.

Six stormwater outfall monitoring sites are presented in **Figure 4-1**. The selected sites are most representative of the land uses within each respective Group Member's jurisdiction based on site constraints. Potential outfalls were identified if they the minimum size requirement in the Permit and have the majority of the drainage within a particular jurisdiction were identified. Site visits of the potential outfalls were then conducted to evaluate site accessibility, available physical space for equipment installation and sampling crews, and safety of sampling crews. While land

use within an outfall catchment was used as a guide, the final selection of the most suitable outfalls was determined based on site constraints.

The data collected at the monitored outfalls will be considered representative of the MS4 discharges within each respective Group Member's jurisdiction. The stormwater outfall monitoring sites in the EWMP area are summarized in **Table 4-1**. The land uses within the outfall catchment area for the selected drains are incorporated in **Table 4-2**. For the outfalls meeting the minimum size constraint in the Permit and the drainage mostly within a particular jurisdiction, the land use within an outfall catchment was determined. While the land use within an outfall catchment was used as a guide for selecting potential outfalls, site visits were used to determine the most suitable outfalls for monitoring. Of the potential outfalls, the selection was determined considering the site accessibility, installation space, and safety. The safety of sampling crews and physical space availability were used to make the final selections to maximize the likelihood of obtaining the stormwater samples.

Table 4-1
Summary of Stormwater Outfall Monitoring Sites in the EWMP Group Area

Water Body	Group Member	Drain Name	Size	Shape	Material	Latitude	Longitude
Walnut Creek Wash	Baldwin Park	BI 1701 - Line A	126 inches	Square or Rectangle	Reinforced Conc. Box	34.062694	-117.988920
Big Dalton Wash(1,2)	Covina	BI 1123	81 inches	Round	Reinforced Conc. Pipe	34.086451	-117.915529
Big Dalton Wash	Glendora	BI 3701 - Line C	60 inches	Round	Reinforced Conc. Pipe	34.128306	-117.846414
San Jose Creek Reach(1)	Industry	BI 4301 - Industry	72 inches	Round	Reinforced Conc. Pipe	34.020765	-117.971385
Puente Creek(1,2)	La Puente	BI 4801 – Line B	66 inches	Round	Reinforced Conc. Pipe	34.033704	-117.950301
North Fork Coyote Creek	County	PD 2425 – Sorenson Ave Drain	36 inches	Square or Rectangle	Reinforced Conc. Box	33.936115	-118.036951

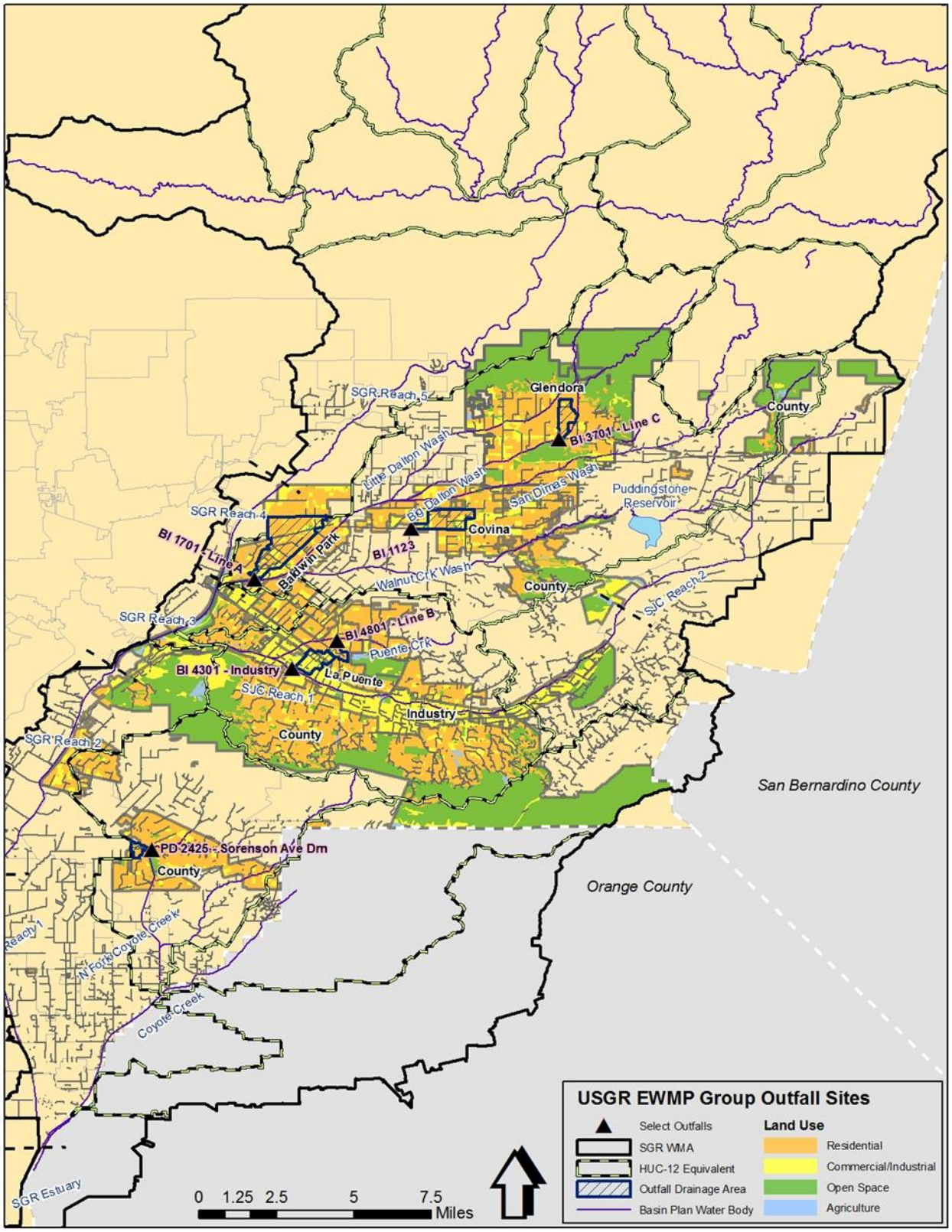
1 Drain eventually discharges to water body.
2 Manhole location.

Table 4-2
Relative Land Use Area within Drain Area to Stormwater Outfall Sites

Group Member	Area	Percent of Land Area[1]			
		Res	Com/Ind	Ag/Nur	Open
Baldwin Park	Jurisdiction	66	31	2	1
	BI 1701-Line A	75	24	0	1
Covina	Jurisdiction	65	32	<1	2
	BI 1123	66	31	0	3
Glendora	Jurisdiction	70	20	1	8
	BI 3701-Line C	90	8	1	1
Industry	Jurisdiction	<1	91	3	6
	BI 4301-Industry	5	92	0	3
La Puente	Jurisdiction	72	25	<1	3
	BI 4801-Line B	64	26	0	10
County of Los Angeles	Jurisdiction	68	20	2	11
	PD 2425	71	28	0	1

1 Land use classifications include: residential (res), commercial and industrial (com/ind), agriculture and nursery (ag/nur), and open space (open). Totals correspond to the percent of the MS4 area considered in the EWMP.

Figure 4-1
Stormwater Outfall Monitoring Sites



The stormwater outfall monitoring sites for the six jurisdictions of the EWMP Group are presented in the following subsections. Photographs of each of the stormwater outfall monitoring sites are included in **Attachment B**. If the outfall locations are found to be unsuitable due to safety concerns or other factors, the Group Members will choose an alternate outfall site from **Attachment F**. If alternate sites in **Attachment F** are not suitable, the Group Members would investigate and propose new sites to the Regional Board for approval.

4.2.1 City of Baldwin Park

The selected site for Baldwin Park is an outfall to Walnut Creek Wash, downstream of Baldwin Park Boulevard. The primary land use types for the City of Baldwin Park include: 66% residential, 31% commercial/industrial, and 1% open space. In the outfall catchment area the land use breakdowns include: 75% residential, 24% commercial/industrial, and 1% open space. The catchment area is entirely in the city limits. **Table 4-3** details relevant information for the stormwater outfall monitoring site in the City of Baldwin Park.

Table 4-3
Stormwater Outfall Monitoring Site – City of Baldwin Park

Water Body	Drain Name	Size	Shape	Material	Latitude	Longitude
Walnut Creek Wash	BI 1701 - Line A	126 inches	Square or Rectangle	Reinforced Conc. Box	34.062694	-117.988920

The primary factor contributing to the selection of the BI 1701-Line A site is its representativeness within its drainage area with respect to the primary land uses of the City of Baldwin Park. Other factors that contributed to the selection of the BI 1701-Line A site include available space for the placement of a sampling station, a drainage area which is larger than the other sites which were evaluated, and safe and easy access for set-up and tear-down of autosampling equipment.

4.2.2 City of Covina

The selected site is a manhole located on West Badillo Street and North Lark Ellen Avenue upstream from the city boundary. The drain discharges to Big Dalton Wash approximately 2 miles downstream from the selected site. The primary land use types for the City of Covina include: 65% residential, 32% commercial/industrial, and 2% open space. Land uses in the catchment area include: 66% residential, 31% commercial/industrial, and 3% open space. The catchment area is 7% County of Los Angeles, with the balance within the City of Covina. **Table 4-4** details relevant information for the stormwater outfall monitoring site in the City of Covina.

Table 4-4
Stormwater Outfall Monitoring Site – Covina

Water Body	Drain Name	Size	Shape	Material	Latitude	Longitude
Big Dalton Wash[1,2]	BI 1123	81 inches	Round	Reinforced Conc. Pipe	34.086451	-117.915529

1 Drain eventually discharges to Big Dalton Wash.
2 Manhole location.

The primary factor contributing to the selection of the BI 1123 site is its representativeness within its apparent drainage area with respect to the primary land uses of the City of Covina. Because the outfall is located outside of the City of Covina, sampling will occur at the nearest upstream manhole within the EWMP area. Other factors that contributed to the selection of the BI 1123 site include easy access to the manhole, much safer access than the other sites which were evaluated, a drainage area which is larger than the other sites which were evaluated, and being located on a wide median which allows an adequate amount of space for autosampler placement, set-up, and tear-down.

4.2.3 City of Glendora

The selected site is an outfall to Big Dalton Wash downstream from East Route 66. The primary land use types for the City of Glendora include: 70% residential, 20% commercial/ industrial, and 8% open space. The land use in the catchment area for the drain includes: 90% residential, 8% commercial/industrial, and 1% open space. The catchment area is entirely within the city limits. **Table 4-5** details relevant information for the stormwater outfall monitoring site in the City of Glendora.

Table 4-5
Stormwater Outfall Monitoring Site – Glendora

Water Body	Drain Name	Size	Shape	Material	Latitude	Longitude
Big Dalton Wash	BI 3701 - Line C	60 inches	Round	Reinforced Conc. Pipe	34.128306	-117.846414

The primary factor contributing to the selection of the BI 3701-Line C site is its representativeness within its apparent drainage area with respect to the primary land uses of the City of Glendora. Other factors that contributed to the selection of the BI 3701-Line C site include available space for the placement of a sampling station, a drainage area which is larger than the other sites which were evaluated, and safe and easy access for set-up and tear-down of autosampling equipment.

4.2.4 City of Industry

The selected site is an outfall to San Jose Creek Reach 1, located downstream of Turnbull Canyon Road. The primary land use types for the City of Industry include: 1% residential, 91% commercial/industrial, and 6% open space. The land use composition of the catchment area includes: 5% residential, 92% commercial/industrial, and 3% open space. The catchment area is 21% City of La Puente with the balance within the City of Industry. **Table 4-6** details relevant information for the stormwater outfall monitoring site in the City of Industry.

Table 4-6
Stormwater Outfall Monitoring Site – Industry

Water Body	Drain Name	Size	Shape	Material	Latitude	Longitude
San Jose Creek Reach 1	BI 4301 - Industry	72 inches	Round	Reinforced Conc. Pipe	34.020765	-117.971385

The primary factor contributing to the selection of the BI 4301-Industry site is its representativeness within its apparent drainage area with respect to the primary land uses of the City of Industry. Other factors that contributed to the selection of the BI 4301-Industry site

include available space for the placement of a sampling station, and safe and easy access for set-up and tear-down of autosampling equipment.

4.2.5 City of La Puente

The site selected for La Puente is a manhole in N Hacienda Boulevard north of the intersection with Glendora Avenue. The site is the nearest manhole upstream of the discharge to Puente Creek. The primary land use types for the City of La Puente include: 72% residential, 25% commercial/industrial, and 3% open space. Land use in the catchment area includes: 64% residential, 26% commercial/industrial, and 10% open space. The catchment area is within the city limits. **Table 4-7** details relevant information for the stormwater outfall monitoring site in the City of La Puente.

Table 4-7
Stormwater Outfall Monitoring Site – La Puente

Water Body	Drain Name	Size	Shape	Material	Latitude	Longitude
Puente Creek[1,2]	BI 4801 - Line B	66 inches	Round	Reinforced Conc. Pipe	34.033704	-117.950301

1 Drain eventually discharges to Puente Creek.
2 Manhole location.

The primary factor contributing to the selection of the BI 4801-Line B site is its representativeness within its apparent drainage area with respect to the primary land uses of the City of La Puente. Because the outfall is located at a point where Puente Creek is underground, sampling will occur at the nearest upstream manhole. Other factors that contributed to the selection of the BI 4801-Line B site include easy access to the manhole, a drainage area which is larger than the other sites which were evaluated, and being located in a location where traffic can easily be diverted around the site during set-up and tear-down of autosampling equipment.

4.2.6 County of Los Angeles

The selected site for the County of Los Angeles is an outfall to the North Fork of Coyote Creek upstream from Telegraph Road. The primary land use types for Los Angeles County unincorporated areas in the EWMP area include: 68% residential, 20% commercial/industrial, and 11% open space. Land used in the catchment area draining to the selected outfall include: 71% residential, 28% commercial/industrial, and 1% open space. The catchment area is entirely within the County island. Relevant information for the stormwater outfall monitoring site in the Los Angeles County unincorporated areas in the EWMP area is detailed in **Table 4-8**.

Table 4-8
Stormwater Outfall Monitoring Site – County of Los Angeles

Water Body	Drain Name	Size	Shape	Material	Latitude	Longitude
North Fork Coyote Creek	PD 2425 – Sorenson Ave Drain	36 inches	Square or Rectangle	Reinforced Conc. Box	33.936115	-118.036951

The primary factor contributing to the selection of the PD 2425 – Sorenson Ave Drain site is its representativeness within its apparent drainage area with respect to the primary land uses of the Los Angeles County unincorporated areas in the EWMP area. Other factors that contributed to the selection of the PD 2425 – Sorenson Ave Drain site include available space for the placement

of a sampling station, safe and easy access for set-up and tear-down of autosampling equipment, and concerns regarding possible theft or tampering with sampling equipment at the other sites which were evaluated.

4.3 PARAMETERS AND FREQUENCY FOR STORMWATER OUTFALL MONITORING

Outfalls discharging to flowing water bodies will be monitored for all required constituents during three storm events per year concurrently with receiving water monitoring, with the exception of toxicity. Toxicity monitoring is only required when triggered by recent receiving water toxicity monitoring where a toxicity identification evaluation (TIE) on the observed receiving water toxicity test was inconclusive as described further in **Section 10** of this document. The requirements for monitored constituents at each outfall are outlined in the MRP. Parameters that will be monitored at each stormwater outfall monitoring site are dependent on the receiving water to which they discharge. Parameters and frequency of stormwater monitoring are presented in **Table 4-9**. At the discretion of the EMWP Group, the data from other CIMP monitoring sites in the San Gabriel River Watershed Management Area may be used to modify the monitored constituent list. For example, the RHSGR LTA site on Little Dalton Wash may be used to evaluate the monitoring of upstream outfalls in the City of Glendora. The process for adapting monitoring parameters and locations is presented in **Sections 9** and **10**.

Table 4-9
Parameters and Frequency for Stormwater Outfall Monitoring

Constituents	Subwatershed (number of wet events per year)					
	North Fork of Coyote Creek[1]	San Gabriel River Reach		San Jose Creek Reach		Walnut Creek Wash
		3	4	1	2	
Flow, pH, DO, temperature, electrical conductivity, hardness, and TSS	3	3	3	3	3	3
Table E-2 of the MRP	(2)	(2)	(2)	(2)	(2)	(2)
Toxicity	(3)	(3)	(3)	(3)	(3)	(3)
TIE Identified Pollutants	(4)	(4)	(4)	(4)	(4)	(4)
Total and Dissolved Copper	3	3	3	3		3
Total and Dissolved Lead	3	3	3	3	3	3
Total and Dissolved Cadmium				3		
Total and Dissolved Zinc	3	3	3	3		3
PAHs[6]		3		3	3	
E. coli	3	3	3	3	3	3
Ammonia				3		
MBAS		3				
Cyanide	3	3		3		
Lindane		3				
Selenium	3			3		3
Mercury	3					3

1 The EWMP Group may consider monitoring data collected at ME Station S-13 as part of future updates to the list of constituents being monitored.

2 Two or more exceedances in the immediate downstream receiving water of Table E-2 of the MRP constituent(s) will result in the constituent(s) being added to the outfall monitoring list of constituents at 3/year.

3 Where immediate downstream receiving water wet weather monitoring observes toxicity and a subsequent TIE is inconclusive, toxicity monitoring will be added to the monitoring list at 2/year. Outfall and downstream receiving water toxicity monitoring will occur on the same event.

4 Where immediate downstream receiving water wet weather monitoring observes toxicity and a subsequent TIE identifies a constituent(s), the constituent(s) will be added to the monitoring list at 3/year. The monitoring for the additional constituent (s) will commence at the scheduled event following notification of TIE results.

5 PAHs include: Benzo(a)pyrene, 3,4 Benzofluoranthene, Benzo(k)flouranthene, Chrysene, Dibenzo(a,h)anthracene, and Indeno(1,2,3-cd)pyrene

4.4 STORMWATER OUTFALL MONITORING SUMMARY

A summary of how the stormwater outfall monitoring program meets the intended objectives of the stormwater outfall monitoring program outlined in Part VIII.A of the MRP is presented in **Table 4-10**.

Table 4-10
Summary of Stormwater Outfall Monitoring Program Objectives

MRP Objective	CIMP Component Meeting Objective
Determine the quality of a Permittee's discharge relative to municipal action levels, as described in Attachment G of MS4 Permit.	• Stormwater outfall monitoring sites chosen using a representative land use approach. • Extensive list of constituents being collectively monitored at stormwater outfall monitoring sites.
Determine whether a Permittee's discharge is in compliance with applicable WQBELs derived from TMDL WLAs.	• Stormwater outfall monitoring sites located in water bodies with applicable WQBELs. • Stormwater outfall monitoring sites chosen using a representative land use approach. • List of constituents based on the water quality priorities which includes constituents with WQBELs derived from TMDL WLAs and considers current and historical exceedances in receiving waters.
Determine whether a Permittee's discharge causes or contributes to an exceedance of RWLs.	• Stormwater outfall monitoring sites chosen to be representative of each subwatershed. • Monitoring frequency equal to receiving water monitoring frequency to enable determination of whether the Permittee's discharge is causing or contributing to any observed exceedances of water quality objectives in the receiving water. • Stormwater outfall monitoring sites chosen using a representative land use approach. • List of constituents based on the monitoring requirements of the water body to which they discharge, as well as downstream water bodies.

5 Non-Stormwater Outfall Program

Objectives of the non-stormwater outfall monitoring include the following:

- Determine whether a discharge is in compliance with applicable non-stormwater WQBELs derived from TMDL WLAs.
- Determine whether a discharge exceeds non-stormwater action levels (NALs).
- Determine whether a discharge contributes to or causes an exceedance of RWLs.
- Assist in identifying illicit discharges.

Additionally, the outfall screening and monitoring process is intended to prioritize outfalls for assessment and, where appropriate, scheduling of BMPs to address the non-stormwater flows.

The non-stormwater outfall screening and monitoring program is focused on dry weather discharges to receiving waters from major outfalls. The program serves two roles: The first is to assess whether the non-stormwater discharge is allowable, and the second is to provide monitoring to determine whether the non-stormwater constituent load is adversely impacting the receiving water. The non-stormwater outfall program is designed to be complimentary to the illicit connection/illicit discharge (IC/ID) minimum control measures (MCMs).

Additionally, the outfall screening and monitoring process is intended to meet the following objectives (Part IX.A of the MRP):

1. Develop criteria or other means to ensure that all outfalls with significant non-stormwater discharges are identified and assessed during the term of the Permit.
2. For outfalls determined to have significant non-stormwater flow, determine whether flows are the result of IC/IDs, authorized or conditionally exempt non-stormwater flows, natural flows, or from unknown sources.
3. Refer information related to identified IC/IDs to the IC/ID Elimination Program (Part VI.D.10 of the Permit) for appropriate action.
4. Based on existing screening or monitoring data or other institutional knowledge, assess the impact of non-stormwater discharges (other than identified IC/IDs) on the receiving water.
5. Prioritize monitoring of outfalls considering the potential threat to the receiving water and applicable TMDL compliance schedules.
6. Conduct monitoring or assess existing monitoring data to determine the impact of non-stormwater discharges on the receiving water.
7. Conduct monitoring or other investigations to identify the source of pollutants in non-stormwater discharges.
8. Use results of the screening process to evaluate the conditionally exempt non-stormwater discharges identified in Parts III.A.2 and III.A.3 of the Permit and take appropriate actions pursuant to Part III.A.4.d of the Permit for those discharges that have been found to be a source of pollutants. Any future reclassification shall occur per the conditions in Parts III.A.2 or III.A.6 of the Permit.
9. Maximize the use of resources by integrating the screening and monitoring process into existing or planned Integrated Monitoring Plan and/or CIMP efforts.

In summary, the intent of the non-stormwater outfall program is to demonstrate that the Group Members are effectively prohibiting non-exempt or conditionally non-exempt discharges to receiving waters and to assess whether non-stormwater discharges are causing or contributing to exceedances of RWLs. Where the discharges are deemed "significant", the program will discern whether they are illicit, exempt, or conditionally exempt. Furthermore, following the program procedures will allow determination of whether the discharges may be causing or contributing to exceedances of RWLs.

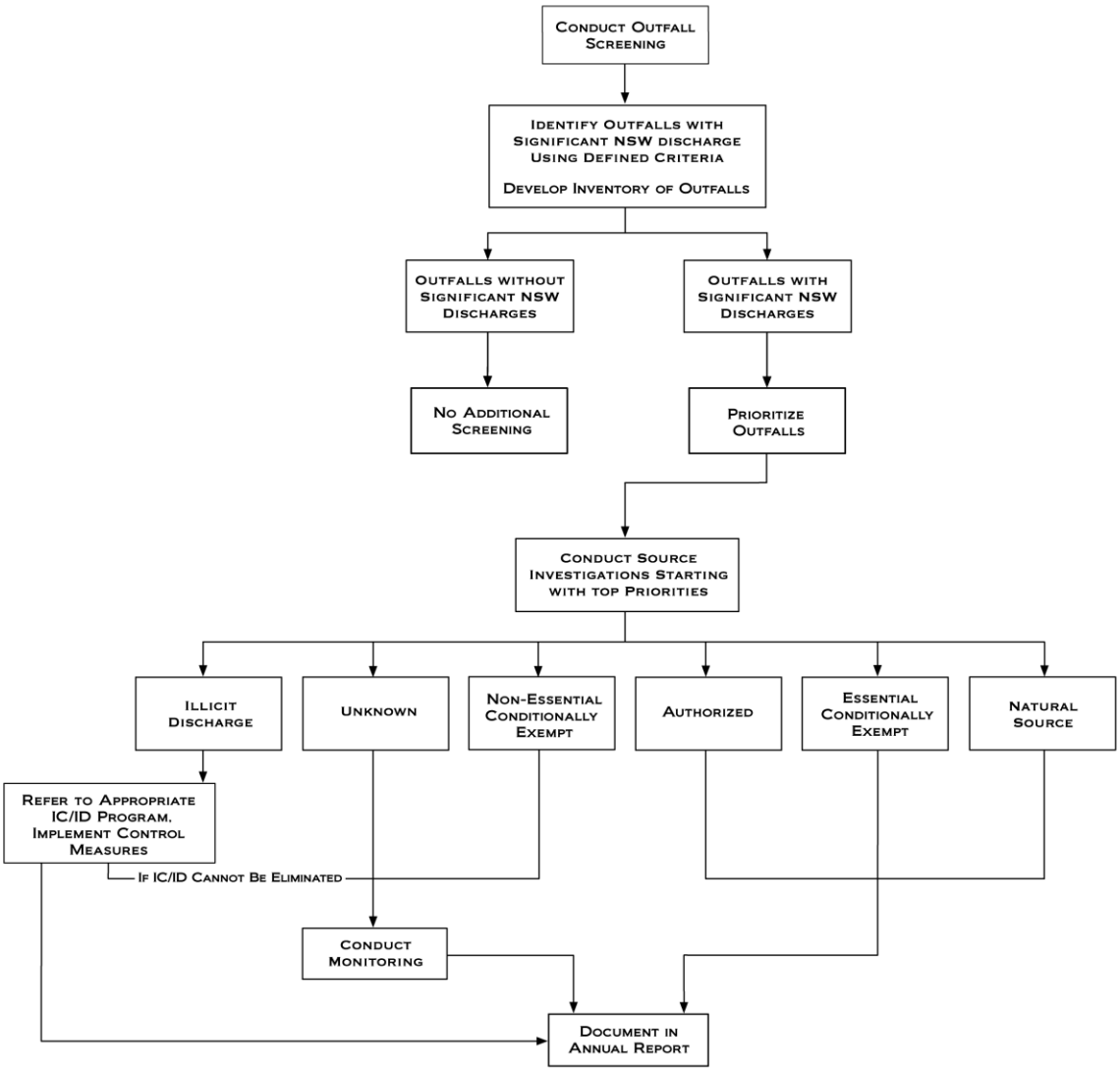
5.1 NON-STORMWATER OUTFALL SCREENING AND MONITORING PROGRAM

The Permit specifies a process for screening, investigating, and ultimately monitoring of outfalls with non-stormwater discharges. For the receiving water and stormwater monitoring programs, sufficient information is available, including guidance from the MRP, to support the identification of sites and begin the process of initiating water quality monitoring upon approval of this CIMP. For the non-stormwater outfall program, the MRP specifies a process for screening, investigating, and ultimately monitoring. The outfall screening and investigation must be completed prior to initiating monitoring for all constituents of interest at an individual outfall. A summary of the approach to address the required elements of the non-stormwater outfall program is presented in **Table 5-1**. A flowchart of the program is presented as **Figure 5-1**. Detailed discussion of each element is provided in the following subsections.

Table 5-1
Non-Stormwater Outfall Screening and Monitoring Program Summary

Element	Description	Implementation Dates
Outfall Screening	A screening process will be implemented to collect data for determining which outfalls exhibit significant non-stormwater discharges.	The screening process will begin summer 2014
Inventory and Identification of outfalls with non-stormwater discharge	Based on data collected during the Outfall Screening process, identify non-stormwater discharges.	
Inventory of outfalls with non-stormwater discharge	Develop an inventory of major MS4 outfalls with known significant non-stormwater discharges and those requiring no further assessment.	
Prioritized source investigation	Use the data collected during the screening process to determine significant discharges and prioritize outfalls for source investigations.	
Identify sources of significant non-stormwater discharges	Perform source investigations per the prioritization schedule. If not exempt or unknown, determine abatement process.	Source investigations will be conducted for at least 25% of the significant non-stormwater discharges by the end of December 28, 2015, and 100% by December 28, 2017.
Monitoring non-stormwater discharges exceeding criteria	Monitor outfalls that have been determined to convey significant non-stormwater discharges comprised of either unknown or non-essential conditionally exempt non-stormwater discharges, or continuing discharges attributed to illicit discharges.	First regularly scheduled dry weather monitoring event after completing source investigation or after the CIMP has been approved by the Executive Officer, whichever is later.

Figure 5-1
Non-Stormwater Outfall Program Flow Diagram



5.2 IDENTIFICATION OF OUTFALLS WITH SIGNIFICANT NON-STORMWATER DISCHARGES

The Group Members will begin developing an outfall inventory and anticipates conducting outfall screening events in summer 2014. Information to identify major outfalls exhibiting significant non-stormwater discharges will be collected during the screening events. The Group Members propose using one or more of the following characteristics to determine significant non-stormwater discharges:

- Discharges from major outfalls subject to dry weather TMDLs.
- Discharges for which monitoring data exceeds NALs.

- Major outfalls observed to have Greater Than Garden Hose flows at two or more screening events
- Inaccessible major outfalls observed to have Greater Than Garden Hose Flows at the nearest downstream receiving water or nearest upstream manhole at two or more screening events
- Discharges into receiving waters with flows at the point of discharge

To collect data for determining the significant non-stormwater outfalls, the Group Members will perform three dry-weather screening events for outfalls within the EWMP area. The initial screening provides the dual purpose of data collection for completing the outfall database and initial evaluation of outfalls. Outfalls greater than 12 inches in diameter will be visited during the first screening event. The second and third screening events will collect visual information on outfalls greater than 36 inches in diameter and outfalls between 12 inches and 36 inches in diameter if they are near industrial areas. A standard form will be used to collect characteristic data, consisting of:

- Receiving water channel bottom
- Presence of water in channel
- Visual estimate of discharge flow rate
    - No Flow/Wet (0 gallons per minute (gpm))
    - Trickle (< 2 gpm)
    - Garden Hose (2-10 gpm)
    - Greater than Garden Hose (>10 gpm)
- Whether discharge ponds in the channel or reaches a flowing receiving water
- Clarity
- Presence of odors or foam.

Data collected through the screening process are the characteristics that will be utilized to determine which outfalls should be targeted for the next steps in the non-stormwater outfall program. The characteristics utilized will support a focus on discharges that have, or the potential to have, an impact on receiving waters. The receiving waters within the EWMP area discharge to various downstream water bodies. The components of the outfall screening process are presented in **Table 5-2**. The determination of significance will be made after the three screenings have been completed and the characteristics have been reviewed.

Table 5-2
Approach for Establishing a Non-Stormwater Outfall Screening Process

Component	Description
Data Collection	Data include qualitative flow size, channel bottom, ponding of discharge, clarity, color, and odor. Any additional information needed to complete the inventory will be collected. Land use and permitted dischargers will be considered in the evaluation with field data to determine significant non-stormwater discharge.
Frequency	Three field screening events will be conducted for outfalls within the EWMP area. The first event will collect visual information on outfalls greater than 12 inches in diameter. The second and third events will collect visual information on outfalls greater than 36 inches in diameter and outfalls between 12 inches and 36 inches in diameter if they are near industrial areas.
Defining Significant Discharges	Will be determined after screening events are completed. Visual information from the screening, such as flow size persistent flow, flow condition in receiving water, may be considered to determine significant discharges.
Timeline	The non-stormwater outfall screening process will begin in the Summer of 2014.

5.3 INVENTORY OF MS4 OUTFALLS WITH NON-STORMWATER DISCHARGES

An inventory of MS4 outfalls greater than 12 inches in diameter will be developed in a GIS format from the first screening. After three screening events, those outfalls with observed significant non-stormwater discharges and those requiring no further assessment will be identified and the database will be updated. If the MS4 outfall requires no further assessment, the database will include a data field to retain the rationale for no further action required. Rationale for a determination of no future action would be expected to include, but not limited to, 1) the outfall does not have flow; 2) the outfall does not have a known significant non-stormwater discharge; 3) discharges observed were determined to be exempt; and 4) the immediate downstream receiving water has no flow. Each year, the database will be updated to incorporate the most recent characterization data for outfalls with significant non-stormwater discharges.

Physical attributes of outfalls with significant non-stormwater discharges will be collected as part of the MS4 outfall database process described in **Section 3** include the following:

a. Date and time of last visual observation or inspection
b. Outfall alpha-numeric identifier
c. Description of outfall structure including size (e.g., diameter and shape)
d. Description of receiving water at the point of discharge (e.g., natural, soft-bottom with armored sides, trapezoidal, concrete channel)
e. Latitude/longitude coordinates
f. Nearest street address
g. Parking, access, and safety considerations
h. Photographs of outfall condition
i. Photographs of significant non-stormwater discharge or indicators of discharge unless safety considerations preclude obtaining photographs
j. Visual estimation of discharge rate
k. All diversions either upstream or downstream of the outfall

l. Observations regarding discharge characteristics such as odor, color, presence of debris, floatables, or characteristics that could aid in pollutant source identification.
m. Flow condition in the receiving water at the point of discharge (dry, ponding, flowing, or tidal influence).

5.4 PRIORITIZED SOURCES IDENTIFICATION

Once the major outfalls exhibiting significant non-stormwater discharges have been identified through the screening process, the Group Members will prioritize the outfalls for further source investigations. The MRP identifies the following prioritization criteria for outfalls with significant non-stormwater discharges:

- Outfalls discharging directly to receiving waters with WQBELs or RWLs in the TMDL provisions for which final compliance deadlines have passed.
- All major outfalls and other outfalls that discharge to a receiving water subject to a TMDL shall be prioritized according to TMDL compliance schedules.
- Outfalls for which monitoring data exist and indicate recurring exceedances of one or more of the Action Levels identified in Attachment G of the Permit.
- All other major outfalls identified to have significant non-stormwater discharges.

Data collected during the three screenings may be used to refine the determination of significance. Once the prioritization is complete, a source identification schedule will be developed. The scheduling will focus on the outfalls with the highest ranking first. Unless the results of the field screening justify a modification to the schedule in the MRP, the schedule will ensure that source investigations are completed on no less than 25% of the outfalls with significant non-stormwater discharges by December 28, 2015 and 100% by December 28, 2017.

5.5 SIGNIFICANT NON-STORMWATER DISCHARGE SOURCE IDENTIFICATION

The screening and source identification component of the program is used to identify the source(s) and point(s) of origin of the non-stormwater discharge. Based on the prioritized list of major outfalls with significant non-stormwater discharges, investigations will be conducted to identify the sources of non-stormwater flows.

Source investigations will be conducted using site-specific procedures based on the characteristics of the non-stormwater discharge. Investigations could include:

- Gathering field measurements to characterize the discharge.
- Following dry weather flows from the location where they are first observed in an upstream direction along the conveyance system.
- Compiling and reviewing available resources including past monitoring and investigation data, land use/MS4 maps, aerial photography, and property ownership information.

Part IX.A.2 of the MRP requires each Group Member to classify the source investigation results into one of four endpoints outlined as follows and summarized in **Table 5-3**:

A. IC/IDs: If the source is determined to be an illicit discharge, the Group Member must implement procedures to eliminate the discharge consistent with IC/ID requirements and document actions.

B. Authorized or conditionally exempt non-stormwater discharges: If the source is determined to be an NPDES permitted discharge, a discharge subject to Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), or a conditionally exempt essential discharge, the Group Member must document the source. For non-essential conditionally exempt discharges, the Group Member must conduct monitoring consistent with the MRP to determine whether the discharge should remain conditionally exempt or be prohibited.

C. Natural flows: If the source is determined to be natural flows, the Group Member must document the source.

D. Unknown sources: If the source is unknown, the Group Member must conduct monitoring consistent with the MRP.

Table 5-3
Summary of Endpoints for Source Identification

Endpoint	Follow-up	Action Required by Permit
A. Illicit Discharge or Connection	Refer to IC/ID program	Implement control measures and report in annual report. Monitor if cannot be eliminated.
B. Authorized or Conditionally Exempt Discharges[1]	Document and identify if essential or non-essential	Monitor non-essential discharges
C. Natural Flows	End investigation	Document and report in annual report
D. Unknown	Refer to IC/ID program	Monitor

1 Discharges authorized by a separate NPDES permit, a discharge subject to a Record of Decision approved by USEPA pursuant to section 121 of CERCLA, or is a conditionally exempt non-stormwater discharge addressed by other requirements. Conditionally exempt non-stormwater discharges addressed by other requirements are described in detail in Part III.A. Prohibitions – non-stormwater Discharges of the Permit.

Where investigations determine the non-stormwater source to be authorized, natural, or essential conditionally exempt flows, the Group Member's will conclude the investigation and move to next highest priority outfall for investigation. Where investigations determine that the source of the discharge is non-essential conditionally exempt, an illicit discharge, or is unknown – further investigation may be conducted to eliminate the discharge or demonstrate that it is not causing or contributing to receiving water problems. In some cases, source investigations may ultimately lead to prioritized programmatic or structural BMPs to address the non-stormwater discharge. If required, modifications to programs or implementation of structural BMP implementation will be incorporated into the implementation schedule developed for the EWMP. Once addressed, the outfall will then be lowered in priority for investigation, such that the next highest priority outfall can be addressed.

5.6 NON-STORMWATER DISCHARGE MONITORING

As outlined in the MRP, outfalls with significant non-stormwater discharges that remain unaddressed after source investigation shall be monitored to meet the following objectives:

a. Determine whether a discharge is in compliance with applicable non-stormwater WQBELs derived from TMDL WLAs;
b. Determine the quality of a discharge exceeds NALs, as described in Attachment G of the Permit; and
c. Determine whether a discharge causes or contributes to an exceedance of RWLs.

As identified in **Table 5-3**, outfalls that have been determined to convey significant non-stormwater discharges where the source investigations concluded that the source is attributable to a continued illicit discharge (Endpoint A), non-essential conditionally exempt (Endpoint B), or unknown (Endpoint D) must be monitored. Monitoring will begin at the next regularly scheduled dry weather event after completing a source investigation or after the EO approves the CIMP, whichever is later in time. The non-stormwater outfall monitoring will be conducted coincidently with the dry weather receiving water monitoring.

5.6.1 Non-Stormwater Outfall-Based Monitoring Sites

The non-stormwater outfall monitoring sites will be determined after source investigation of significant non-stormwater discharges is concluded. The information to determine the number and location of outfalls requiring monitoring will be available after the screening is completed.

5.6.2 Monitored Parameters, and Frequency of Monitoring

Outfalls with significant non-stormwater discharges that remain unaddressed after source investigation shall be monitored to meet the following objectives:

a. Determine whether a Permittee's discharge is in compliance with applicable non-stormwater WQBELs derived from TMDL WLAs;
b. Determine whether the quality of a Permittee's discharge exceeds non-stormwater action levels, as described in Attachment G of the Permit; and,
c. Determine whether a Permittee's discharge causes or contributes to an exceedance of RWLs.

The requirements for constituents to be monitored are outlined in the Part VIII.G.1.a-e of the MRP. Outfalls will be monitored for all required constituents except toxicity. Toxicity monitoring is only required when triggered by recent receiving water toxicity monitoring where a TIE on the observed dry weather receiving water toxicity test was inconclusive. A list of parameters applicable to non-stormwater outfall monitoring, based on which receiving water the outfall discharges to, is presented in **Table 5-4**. The list of constituents is adjusted per the adaptive management process. Constituents are added or removed based on the triggers listed in **Section 10**.

Table 5-4
Parameters and Frequency for Non-Stormwater Outfall Monitoring

Constituents	Subwatershed (dry weather events per year)								
	Coyote Creek	North Fork of Coyote Creek	San Gabriel River Reach				San Jose Creek Reach		Walnut Creek Wash
			2	3	4	5	1	2	
Flow, pH, dissolved oxygen, temperature, EC, hardness, and TSS	2	2	2	2	2	2	2	2	2
Table E-2 of the MRP	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
TIE Identified Pollutants	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Toxicity	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Total and Dissolved Copper	2	2	2	2	2	2	2	2	2
Total and Dissolved Lead	2	2	2	2	2	2	2	2	2
Total and Dissolved Nickel	2								
Total and Dissolved Zinc	2	2	2	2	2	2	2	2	2
Total and Dissolved Cadmium							2		
Selenium		2					2	2	2
PAHs(1)			2	2			2	2	
E. coli	2	2	2	2	2	2	2	2	2
Ammonia	2						2		
Cyanide	2	2	2	2			2		
MBAS	2			2					
Diazinon	2								
Mercury		2							2
Lindane				2					
Alpha-Endosulfan	2								
Chloride	2			2			2	2	
Sulfate				2			2	2	
TDS				2			2		

1 Two or more exceedances in the immediate downstream receiving water of Table E-2 of the MRP constituent(s) will result in the constituent(s) being added to the non-stormwater monitoring list at 2/year.

2 Where immediate downstream receiving water dry weather monitoring observes toxicity and a subsequent TIE identifies a constituent(s), the constituent(s) will be added to the monitoring list at 2/year. The monitoring for the additional constituent(s) will commence at the scheduled event following notification of TIE results.

3 Where immediate downstream receiving water dry weather monitoring observes toxicity and a subsequent TIE is inconclusive, toxicity monitoring will be added to the monitoring list at 1/year. Outfall and downstream receiving water toxicity monitoring will occur on the same event.

4. PAHs include: Benzo(a)pyrene, 3,4 Benzofluoranthene, Benzo(k)flouranthene, Chrysene, Dibenzo(a,h)anthracene, and Indeno(1,2,3-cd)pyrene

The MRP specifies the following monitoring frequency for non-stormwater outfall monitoring as:

- For outfalls subject to a dry weather TMDL, the monitoring frequency shall be per the approved TMDL monitoring plan or as otherwise specified in the TMDL or as specified in an approved CIMP.
- For outfalls not subject to dry weather TMDLs, approximately quarterly for first year.
- Monitoring can be eliminated or reduced to twice per year, beginning in the second year of monitoring if pollutant concentrations measured during the first year do not exceed WQBELs, NALs or water quality standards for pollutants identified on the 303(d) List.

While a monitoring frequency of four times per year is specified in the Permit, it is inconsistent with the dry weather receiving water monitoring requirements. The receiving water monitoring requires two dry weather monitoring events per year. By coordinating the monitoring with the receiving water events the discharge can be compared to the watershed conditions. As a result, the Group Members intend to conduct non-stormwater outfall monitoring events twice per year. The non-stormwater outfall monitoring events will be coordinated with the dry weather receiving water monitoring events to allow for an evaluation of whether the non-stormwater discharges are causing or contributing to an observed exceedance of water quality objectives in the receiving water.

5.6.3 Adaptive Monitoring

Monitoring for non-stormwater discharges will be more dynamic than either the receiving water or stormwater outfall monitoring. As non-stormwater discharges are addressed, monitoring at the outfall will cease. Additionally, if monitoring demonstrates that discharges do not exceed any WQBELs, NALs, or water quality standards for pollutants identified on the 303(d) list, monitoring will cease at an outfall after the first year. Thus, the number and location of outfalls monitored has the potential to change on an annual basis. The process for adapting monitoring locations and frequency is presented in **Section 9 and 10**.

5.7 NON-STORMWATER OUTFALL MONITORING SUMMARY

Non-stormwater outfall monitoring sites will be determined after the screening events are completed and significant discharges are identified. Parameters that will be monitored at each non-stormwater outfall site will depend upon the receiving water to which the non-stormwater outfall monitoring site discharges. A summary of how the non-stormwater outfall monitoring program meets the intended objectives of the non-stormwater outfall monitoring program outlined in Part II.E.3 of the MRP is presented in **Table 5-5**.

Table 5-5
Summary of Non-Stormwater Outfall Monitoring Program Objectives

MRP Objective	CIMP Component Meeting Objective
Determine whether a Permittee's discharge is in compliance with applicable non-stormwater WQBELs derived from TMDL WLAs	• List of constituents based on the water quality priorities which incorporate constituents with WQBELs derived from TMDL WLAs and considers current and historical exceedances in receiving waters.
Determine whether a Permittee's discharge exceeds non-stormwater action levels, as described in Attachment G of the MS4 Permit.	• Extensive list of constituents being collectively monitored at non-stormwater outfall monitoring sites.
Determine whether a Permittee's discharge causes or contributes to an exceedance of RWLs.	• List of constituents based on the monitoring requirements of the water body to which they discharge, as well as downstream water bodies.
Assist a Permittee in identifying illicit discharges as described in Part VI.D.10 of the MS4 Permit.	• Non-stormwater outfall program is designed to be complimentary to IC/ID program. • Where non-stormwater discharges are deemed "significant", the non-stormwater outfall program will discern whether the discharges are illicit, exempt, or conditionally exempt. • If the source identification component of the non-stormwater outfall program determines a discharge to be an illicit discharge, the discharge will be referred to the IC/ID program.

6 New Development/Re-Development Effectiveness Tracking

Group Members have developed mechanisms for tracking information related to new and redevelopment projects that are subject to post-construction BMP requirements in Part VI.D.7 of the Permit. The specific data to be tracked is listed in Part X.A of the MRP are listed in **Table 6-1**. The data will be used to assess the effectiveness of the low-impact development (LID) requirements for land development and to fulfill reporting requirements. Although the data requirements are clear, the procedures for reviewing projects, tracking data, and reporting are different for each jurisdiction and may even be different across departments within the same jurisdiction. Due to the complexity of land development processes across jurisdictions, data management and tracking procedures will vary by jurisdiction.

Table 6-1
Required Data to Track for New and Redevelopment Projects per Part X.A of the MRP

✓ Name of the Project	✓ Project design storm volume (gallons or million gallons per day)
✓ Name of the Developer	✓ Percent of design storm volume to be retained onsite
✓ Project location and map[1]	✓ Design volume for water quality mitigation treatment BMPs (if any)
✓ Documentation of issuance of requirements to the developer	✓ One year, one hour storm intensity[2] (if flow through treatment BMPs are approved)
✓ 85th percentile storm event for the project design (inches per 24 hours)	✓ Percent of design storm volume to be infiltrated at an offsite mitigation or groundwater replenishment site
✓ 95th percentile storm event for projects draining to natural water bodies (inches per 24 hours)	✓ Percent of design storm volume to be retained or treated with biofiltration at an offsite retrofit project
✓ Other design criteria required to meet hydromodification requirements for drainages to natural water bodies	✓ Location and maps of offsite mitigation, groundwater replenishment, or retrofit sites[1]
✓ Project design storm (inches per 24 hours)	✓ Date of Certificate of Occupancy

1. Preferably linked to the GIS Storm Drain Map
2. As depicted on the most recently issued isohyetal map published by the Los Angeles County hydrologist

The Standard Urban Stormwater Mitigation Program (SUSMP) requirements implemented under the previous MS4 Permit (Order R4-01-182) laid the foundation for the MCMs contained in Part VI.D.7 of the current MS4 Permit. With implementation of the SUSMP, Permittees required post construction BMPs on applicable projects, developed standard requirements for project submittals, and began to track related data. The Group Members will build on the existing procedures for land development to ensure that all required project data is captured.

Internal procedures and data protocols that clearly define departmental roles and responsibilities pertaining to data collection, data management, and tracking will be utilized. These procedures will include points in the process where data are generated and tracked, who is responsible for tracking the data, and how the data will be managed. Data management protocols and internal

procedures, will also consider the land development data tracking requirements contained in Part VI.D.7.d.iv.(1)(a). These requirements are distinct from those listed in the MRP but will be addressed similarly. Data requirements under Part VI.D are contained in **Table 6-2**.

Table 6-2
Required Data to Track for New and Redevelopment Projects per Part VI.D.7.d.iv.(1)(a)

✓ Municipal Project ID	✓ Maintenance Records
✓ State Waste Discharge Identification Number	✓ Inspection Date(s)
✓ Project Acreage	✓ Inspection Summary(ies)
✓ BMP Type and Description	✓ Corrective Action(s)
✓ BMP Location (coordinates)	✓ Date Certificate of Occupancy Issued
✓ Date of Acceptance	✓ Replacement or Repair Date
✓ Date of Maintenance Agreement	

7 Regional Studies

The LACFCD will continue to participate in the Regional Watershed Monitoring Program (Bioassessment Program) being managed by the Southern California Stormwater Monitoring Coalition Regional Watershed Monitoring Program. The LACFCD will contribute necessary resources to implement the bioassessment monitoring requirements of the MS4 permit on behalf of all permitees in Los Angeles County during the current permit cycle. Initiated in 2008, the SMC's Regional Bioassessment Program is designed to run over a five-year cycle.. Monitoring under the first cycle concluded in 2013, with reporting of findings and additional special studies planned to occur in 2014. SMC, including LACFCD, is currently working on designing the bioassessment monitoring program for the next five-year cycle, which is scheduled to run from 2015 to 2019.

8 Non-Direct Measurements

Water quality data collected through other monitoring programs (e.g., WRPs receiving water monitoring) in the watershed will be evaluated to the extent practicable. The extent practicable will be dictated by the cost of gathering and compiling information from outside programs. It is not the intent or purpose of the CIMP to compile and analyze all available data. Data reported by these entities will be evaluated for suitability for inclusion in the CIMP database. If the data are deemed to be suitable they will be included in the database described in **Section 11**. Data from other programs will be used to supplement land use data to evaluate loading to the receiving water as well as to evaluate receiving water quality. Environmental data reported by other entities will be evaluated for suitability for inclusion in this CIMP database and will be accepted if it meets the following requirements:

- Conducted and documented consistent with the sampling procedures outlined in this CIMP.
- Sampling collection is performed and documented by a competent party consistent with applicable guidance and this CIMP.
- Sample analysis is conducted using approved analytical method by a certified analytical laboratory.

Receiving water monitoring sites were selected to allow coordination between this CIMP and LACSD receiving water monitoring programs. Currently, the San Gabriel River estuary site, R-8, will be used for dry weather Harbors Toxics TMDL monitoring requirements. The methods and analytical levels for the LACSD monitoring program are listed in **Attachment C**.

Currently, LACFCD operates the existing mass emission stations. Data collected by the LACFCD will be used to assess the LTA monitoring requirements. The methods and analytical levels for the LACFCD program are listed in **Attachment C**.

Due to the absence of previously collected monitoring results, an understanding has not been obtained of the extent to which pollutants associated with suspended sediment being discharged from the MS4 may be causing or contributing to the impairments identified in the Harbor Toxics TMDL. As such, to gain a clear understanding, environmental data representative of the entire San Gabriel River Watershed Management Area will be collected downstream of the EWMP area and directly used for suspended sediment monitoring associated with meeting the requirements of the Harbor Toxics TMDL. The downstream LSGR WMP Group will conduct wet weather suspended sediment monitoring associated with meeting the requirements of the Harbor Toxics TMDL.

Non-direct measurements of flow and rainfall information will be obtained from the LACFCD as described in **Attachment C**.

9 Monitoring Procedures

A general outline of the monitoring procedures is presented in this section. Detailed discussion of the procedures is included in **Attachment C**.

9.1 MONITORING PROCEDURES

Monitoring will occur during dry and wet conditions. The period of record from USGS 11085000 flow gage measuring discharge from the Santa Fe Dam contains approximately 60% of years there with zero discharge from the dam, due to the capacity available in Santa Fe Dam, two upstream dams, and the rapid infiltration rate of the riverbed. The SGR Metals TMDL specifies San Gabriel River wet conditions when flow is measures at 260 cfs or greater from the gage. The rational in the TMDL for specifying 260 cfs is the upper portion of the watershed would be hydrologically connected to the lower portion. Because there are years with zero discharge, defining wet weather conditions using the measured flowrate is problematic. Rather, the definitions for wet and dry weather for the USGR CIMP is as follows:

> Wet weather condition for triggering storm events will be defined as a 70% probable forecast of greater than 0.25 inches of precipitation of rain where the preceding 72 hours were dry weather with less than 0.1 inches of rain. To qualify the event as wet weather, the receiving water flow would need to be measured greater than 20% over the base flow.
>
> Dry weather is defined in the MRP as when the flow of the receiving water body is less than 20 percent greater than the base flow or, in the case of an estuary, on days with less than 0.1 inch of rain and those days not less than three days after a rain event of 0.1 inch or greater within the watershed, as measured from at least 50 percent of Los Angeles County Department of Public Works (LACDPW) controlled rain gauges within the watershed.

Note that if rainfall begins after dry weather monitoring has been initiated, then dry weather monitoring will be suspended and continued on a subsequent day when weather conditions meet the dry weather conditions. Generally, grab samples will be collected during dry weather and composite samples will be collected during wet weather. Grab samples will be used for dry weather sampling events as the composition of the receiving water will change less over time; and thus, the grab samples sufficiently characterize the receiving water. Additionally, grab samples for dry weather are consistent with similar programs throughout the region.

However, composite samples will be used for wet weather sampling events to sufficiently characterize the receiving water during wet weather. Grab samples may be utilized to collect wet weather sampling in certain situations, which may include, but are not limited to, when the constituent of interest requires the use of grab samples (e.g., *E. coli*; oil and grease), conditions are considered unsafe to collect composite samples, or to perform investigative monitoring where composite sampling or installation of an automatic sample compositor (autosampler) may not be warranted. Usually, autosamplers are used to capture the storm. The program will target the first 24 hours of the storm water discharge or for the entire storm water discharge if it is less than 24 hours. Additionally, if autosamplers fail during a rain event, or if the rain event is such that composite samples cannot be collected (e.g., very short in duration or volume), grab samples will be collected will be collected every 20 minutes for 3 hours or the duration of the storm, if it

is less than 3 hours, and submitted for analysis for all analytes. For those events and sites where aquatic toxicity testing is required, grab volumes will be adjusted such that enough water is collected to perform the required analyses. (Reference: EPA NPDES Storm Water Sampling Guidance Document EPA 833-B-92-001, 40 CFR 122.21 (g)(7)(ii).)

For dry weather toxicity monitoring, the sampling event must take place during the historically driest month. A review of the long-term precipitation record results in July being the driest month, on average. As a result, the dry weather monitoring event that includes toxicity monitoring will be conducted in July. The second dry weather monitoring event will take place during January unless sampling during another month is deemed to be necessary or preferable.

All reasonable efforts will be made to monitor the first significant rain event of the storm year (first flush). The targeted storm events for wet weather sampling will be selected based on a reasonable probability that the events will result in substantially increased flows in the San Gabriel River over at least 12 hours. Sufficient precipitation is needed to produce runoff and increase flow. The decision to sample a storm event will be made in consultation with weather forecasting information services after a quantitative precipitation forecast has been determined. All efforts will be made to collect wet weather samples from all sites during a single targeted storm event. Because a significant storm event is based on predicted rainfall, it is recognized that this monitoring may be triggered without 0.25 inches of rainfall actually occurring. In this case, the monitoring event will still qualify as meeting this requirement provided that sufficient sample volume is collected to do all required laboratory analysis. Documentation will be provided showing the predicted rainfall amount as part of the event summary in the annual report. However, safety or other factors may make it infeasible to collect some or all samples from a given storm event. For example, storm events that will require field crews to collect wet weather samples during holidays and/or weekends may not be sampled due to sample collection or laboratory staffing constraints.

Additional information to support evaluating weather conditions, collecting grab and composite samples, and targeting wet weather sampling events is provided in **Attachment C**.

9.2 ADAPTIVE MONITORING TRIGGERS

Monitoring of a specific constituent will be considered for elimination if:

- For a WBPC covered in a TMDL, no exceedances are observed over a five-year period.
- For a WBPC on the 303(d) list, data collected are sufficient to support delisting per State policy.
- WBPC being monitored due to downstream 303(d) listings, two years of monitoring of no exceedances are observed for the same condition as the listing (i.e., wet or dry weather).
- Category 3C WBPCs having no exceedances over two years.

If the nearest downstream LTA or TMDL receiving water site has observed two consecutive exceedances during the same condition, the constituent will be added to the upstream stormwater outfall or significant non-stormwater outfall site for wet or dry weather, respectively.

The monitoring data will be reviewed annually to determine if prioritized WBPCs or constituent lists for all types of monitoring sites require updating. When updates are made, the changes will be reported in the annual report and become effective for the subsequent monitoring year.

9.3 AQUATIC TOXICITY TESTING

Aquatic toxicity testing supports the identification of BMPs to address sources of toxicity in urban runoff. The following outlines the approach for conducting aquatic toxicity monitoring and evaluating results. Control measures and management actions to address confirmed toxicity caused by urban runoff are addressed by the EWMP, either via currently identified management actions or those that are identified via adaptive management of the EWMP. As *Ceriodaphnia dubia* (*C. dubia)* is identified as the most sensitive to known potential toxicant(s) typically found in receiving waters and urban runoff in the freshwater potions of the watershed, *C. dubia* is selected as the most sensitive species. The species also has the advantage of being easily maintained in house mass cultures. The simplicity of the test, the ease of interpreting results, and the smaller volume necessary to run the test, make the test a valuable screening tool.

Per the MRP, acute and chronic toxicity test endpoints will be analyzed using the Test of Significant Toxicity (TST) t-test approach specified by the USEPA (USEPA, 2010). The Permit specifies that the chronic in-stream waste concentration is set at 100% receiving water for receiving water samples and 100% effluent for outfall samples. Using the TST approach, a t-value is calculated for a test result and compared with a critical t-value from USEPA's TST Implementation Document (USEPA, 2010).

For acute *C. dubia* toxicity testing, if a statistically significant 50% difference in mortality is observed between the sample and laboratory control, a TIE will be performed. For chronic *C. dubia* toxicity testing, if a statistically significant 50% difference in mortality is observed between the sample and laboratory control, a TIE will be performed. If a statistically significant 50% difference in a sub-lethal endpoint is observed between the sample and laboratory control, a confirmatory sample will be collected from the receiving water within two weeks of obtaining the results of the initial sample. If a statistically significant 50% difference in mortality or sub-lethal endpoint is observed between the sample and laboratory control on the confirmatory sample, a TIE will be performed.

In cases where significant endpoint toxicity effects greater than 50% are observed in the original sample, but the follow-up TIE positive control "signal" is not statistically significant, the cause of toxicity will be considered non-persistent. No immediate follow-up testing is required on the sample. However, future test results should be evaluated to determine if parallel TIE treatments are necessary to provide an opportunity to identify the cause of toxicity.

The results of toxicity testing will be used to trigger further investigations to determine the cause of observed laboratory toxicity. The primary purpose of conducting TIEs is to support the identification of management actions that will result in the removal of pollutants causing toxicity in receiving waters. Successful TIEs will direct monitoring at outfall sampling sites to inform management actions. As such, the goal of conducting TIEs is to identify pollutant(s) that should be sampled during outfall monitoring so that management actions can be identified to address the pollutant(s). The Group Members will prepare a discharge assessment plan if TIEs conducted on consecutive sampling events are inconclusive. Discharge assessments will be conducted after

consecutive inconclusive TIEs, rather than after one, because of the inherit variability associated with the toxicity and TIE testing methods.

Monitoring for constituents identified based on the results of a TIE will occur as soon as feasible following the completion of a successful TIE (i.e., the next monitoring event that is at least 45 days following the toxicity laboratory's report transmitting the results of a successful TIE).

The intent of the approach is to identify the cause of toxicity observed in receiving water to the extent possible with the toxicity testing tools available, thereby directing outfall monitoring for the pollutants causing toxicity with the ultimate goal of supporting the development and implementation of management actions. Additional information for aquatic toxicity testing can be found in **Section C-1.7** in **Attachment C**.

10 Adaptive Management

The adaptive management process will be utilized on an annual basis to evaluate this CIMP and update the monitoring requirements as necessary. As noted in this CIMP, several monitoring elements are dynamic that will require modifications to the monitoring sites, schedule, frequency or parameters. In particular, the non-stormwater screening program and the toxicity monitoring will likely generate changes that need to be incorporated. This section lays out a range of possible modifications to this CIMP and the process for CIMP revision and update.

10.1 INTEGRATED MONITORING AND ASSESSMENT PROGRAM

Monitoring is based on water quality issues identified in downstream water bodies. As data are collected and currently identified constituents prove to not be an issue in the EWMP area water bodies, they will be removed from the monitoring program. Likewise, if new constituents are identified, they will be added to the ongoing monitoring program. Every year, an evaluation will be conducted to identify potential modifications resulting from the following:

- TIEs result in the identification of additional constituents that need to be monitored.
- Additional upstream receiving water monitoring is necessary to characterize the spatial extent of RWL exceedances.
- Additional outfall monitoring is needed in response to RWL exceedances.
- Non-stormwater outfall sites will change as discharges are addressed.
- Monitoring data demonstrates that water quality objectives are not being exceeded in the receiving waters.
- Source investigations determine that MS4 discharges are not a source of a constituent.

The results from the monitoring are meant to tie into the EWMP as feedback for the water quality changes resulting from control measures implemented by the Group Members. As a result, additional changes may be considered during the evaluation based on the control measure implementation needs.

10.2 CIMP REVISION PROCESS

A range of sampling specified in the CIMP may result in data that will require changes to ensure monitoring meets the requirements and intent of the MRP and supports EWMP implementation. Changes identified in this section will be discussed in the annual report and implemented starting no later than the first CIMP monitoring event of the next monitoring year (i.e., the first event after July 1 of the year following the annual report submittal), including:

1. Adding constituents at receiving water and/or outfall monitoring sites, increasing monitoring frequency, or adding sites as a result of requirements in the MRP (e.g., TIE results), procedures outlined in this CIMP or to further support meeting the monitoring objectives.
    a. Constituents identified through a TIE will be added to upstream receiving water monitoring sites. Where the constituents exceed water quality objectives in the receiving water twice, they will be added to the monitoring of outfall sites upstream of the receiving water site.

   b. Constituents found to exceed through Table E-2 of the MRP monitoring will be added to the upstream receiving water sites. Two exceedances of water quality objectives for the constituent(s) in the receiving water will trigger monitoring of the constituent at the outfall site(s) upstream of the receiving water site.
2. Discontinuing monitoring for Table E-2 constituents that are not identified as a water quality priority, i.e. not previously monitored, and are not detected at levels above relevant water quality objectives in the first year of monitoring.
3. Discontinuing monitoring of any Category 3 constituent at a specified site if there are two consecutive years of monitoring for the same condition (i.e., wet or dry weather) with no exceedances observed.
4. Modifying methods for consistency with USEPA method requirements or to achieve lower detection limits.
5. Changing analytical laboratories.
6. Relocating an outfall monitoring location determined to be not representative of MS4 discharges in the EWMP area, for reasons other than the observed water quality, or because monitoring at the site is not feasible.
7. Implementing the changes associated with conducting at least one re-assessment of the Non-stormwater Outfall Program during the Permit term.
8. Modifications to sampling protocols resulting from coordination with other watershed monitoring programs.

Modifications, such as reducing the sampling frequency, discontinuing moniotinrg of consituents, or moving or removing a stormwater outfall or receiving water location, will be proposed in a separate letter to the Regional Board requesting Executive Officer approval of the change.

11 Data Management and Reporting

The following sections provide an overview of the monitoring and reporting the Group Members will follow. Details of the data management and reporting are included in **Attachment C**.

11.1 DOCUMENTS AND RECORDS

The EWMP Group shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by the Permit, and records of all data used to completed the Report of Waste Discharge and application of this Permit, for a period of at least three years from the date of the sample, measurement, report, or application.

11.1.1 Event Summary Reports

Reports of monitoring activities will include, at a minimum, the following information:

- The date, time of sampling or measurements, exact place, weather conditions, and rain fall amount.
- The individual(s) who performed the sampling or measurements.
- The date(s) analyses were performed.
- The individual(s) who performed the analyses.
- The analytical techniques or methods used.
- The results of such analyses.
- The data sheets showing toxicity test results.

11.1.2 Semi-Annual Analytical Data Reports

Results from each of the receiving water or outfall based monitoring station conducted in accordance with the Standard Operating Procedure shall be sent electronically to the Regional Board's stormwater site at MS4stormwaterRB4@waterboards.ca.gov. Analytical data reports are required to be submitted on a semi-annual basis and will include the following:

- Exceedances applicable to WQBELs, RWLs, action levels, or aquatic toxicity thresholds
- Corresponding sample dates and monitoring locations.

Semi-annual data reports will be submitted on June 15, covering the monitoring period of July 1 through December 31, and on December 15, covering the monitoring period of January 1 through June 30.

11.2 MONITORING REPORTS

Annual monitoring reports will be submitted by December 15 of each year. The annual monitoring reports will cover the monitoring period of July 1 through June 30. The annual monitoring reports will include the following:

- Watershed Summary Information
  - Watershed Management Area
  - Subwatershed (HUC-12) Descriptions
  - Description of Permittee(s) Drainage Area within the Subwatershed
- Annual Assessment and Reporting

- Stormwater Control Measures
- Effectiveness Assessment of Stormwater Control Measures
- Non-stormwater Water Control Measures
- Effectiveness Assessment of Non-Stormwater Control Measures
- Integrated Monitoring Compliance Report
- Adaptive Management Strategies
- Supporting Data and Information.

Details on the reporting requirements from the MRP that will be submitted with the semi-annual analytical data reports and annual monitoring reports are presented in **Attachment C**. In addition to the requirements from the MRP, a discussion of how the reported data are to be used is included in **Attachment C**.

11.3 DATA MANAGEMENT

The acceptability of data is determined through data verification and data validation. In addition to the programmatic data quality objectives, the standard data validation procedures documented in the subcontracted laboratory's quality assurance (QA) manual will be used to accept, reject, or qualify the data generated by the laboratory. Each laboratory's QA Officer will be responsible for validating data generated by the laboratory.

Once analytical results are received from the analyzing laboratory, the EWMP Group will perform an independent review and validation of analytical results. Decisions to reject or qualify data will be made, based on the evaluation of field and laboratory quality control data. Data verification involves verifying that required methods and procedures have been followed at all stages of the data collection process, including sample collection, sample receipt, sample preparation, sample analysis, and documentation review for completeness. Data validation involves identifying project requirements, obtaining the documents and records produced during data verification, evaluating the quality of the data generated including that laboratory equipment to be free of analytes of interest below the reporting limit, to evaluate if any potential exists for cross-contamination or assigning a value to an otherwise chemical contaminant-free sample, and determining whether project requirements were met.

The field log and analytical data generated will be converted to a standard database format. After data entry or data transfer procedures are completed for each sample event, data will be validated. After the final quality assurance checks for errors are completed, the data will be added to the database.

Details of the data management protocols are provided in **Attachment C**.

12 Schedule for CIMP Implementation

Existing monitoring at LACFCD mass emission sites will continue to be conducted during the CIMP approval process. Beginning summer 2014, the dry weather screening of major outfalls will commence. Implementation of new monitoring programs and modifications to existing monitoring will commence on July 1, 2015 or 90 days after approval by the Executive Officer of the Regional Board, whichever is later.

The EWMP Group intends to phase in the receiving water and stormwater outfall elements of this CIMP to accommodate multiple agency coordination and permitting as well as processes for acquiring and installing autosamplers. Numerous autosampler stations have been installed throughout the County and provide significant experience in understanding the challenges and timelines for designing, permitting, and installing autosampler stations. The following provides an overview of the tasks and timelines associated with autosampler installation and what would be considered a relatively straightforward installation timeframe:

- Detailed autosampler site configuration/design, which includes data collection and review, identification of permit requirements, concept design, development of summary technical memos, and review by participating agencies and associated divisions: 12 months
- Obtaining permits from one or more of the following entities: Army Corps of Engineers, LACFCD, United States Fish and Wildlife Service, California Department of Fish and Game, California Coastal Commission, and the Regional Board: 3 to 10 months
- Purchase of equipment via contractor or via agency procurement process (can occur somewhat concurrently with permitting): 2 to 6 months
- Connecting to power via an upgrade to existing service or establishing new service: 1 to 6 months
- Construction of monitoring station assuming no bid/award process: 1 month
- Total time: 18 to 30 months

Phase I of the CIMP Implementation:

- Fiscal Year 14-15
- Non-stormwater screening
- Determination of significant non-stormwater outfalls
- Continued monitoring at the existing receiving water LTA site (S14)

Phase II of the CIMP Implementation (beginning July 1, 2015 or 90 days after CIMP approval; whichever is later):

- Fiscal Year 15-16
- Continued implementation of non-stormwater outfall program
- Modifications to monitoring at the existing receiving water LTA site
- Installation and monitoring of 3 new TMDL receiving water sites
- Monitoring of 1 new TMDL receiving water site at Puddingstone Reservoir

Phase III of the CIMP Implementation:

- Fiscal Year 16-17
- Continued implementation of non-stormwater outfall program
- Continued monitoring at all existing LTA and TMDL receiving water sites
- Installation and monitoring of 3 new stormwater outfall sites

Phase IV of the CIMP Implementation:

- Fiscal Year 17-18
- Continued implementation of non-stormwater outfall program
- Continued monitoring at all existing LTA, TMDL receiving water, and stormwater outfall sites
- Installation and monitoring of 3 new stormwater outfall sites

The below Table 12-1 summarizes the installation and monitoring schedule for LTA, TMDL receiving water and stormwater outfall sites.

Table 12-1
Receiving Water and Outfall Phasing

Site	Installation and Monitoring Schedule	Sampling Frequency Wet/Dry(1)
Receiving Water		
S14	Existing	4/2
San Gabriel River Reach 4	FY15-16(2)	4/2
Walnut Creek Wash	FY15-16(2)	4/2
San Jose Creek	FY15-16(2)	4/2
Puddingstone Reservoir	FY 15-16(3)	Varies(3)
Outfall		
County of Los Angeles	FY16-17(4)	3/0
Covina	FY16-17(4)	3/0
Industry	FY16-17(4)	3/0
Baldwin Park	FY17-18(4)	3/0
Glendora	FY17-18(4)	3/0
La Puente	FY17-18(4)	3/0

1. The sampling frequency per constituent per receiving water site is detailed in Table 2-1 for receiving water sites and Table 4-9 for outfall sites. Wet weather sampling for metals, TSS, hardness and field parameters will be conducted four times per year, other constituents will be collected three times per year. After the first year, data will be evaluated to determine if reducing monitoring frequency to three wet events per year will provide sufficient data. If three events of wet-weather data can provide sufficient data, the Group will submit a request to the Executive Officer to reduce the sampling frequency.
2. If an autosampler cannot be installed in time for wet season monitoring, grab samples will be collected every 20 minutes for 3 hours, or the duration of the storm if it is less than 3 hours.
3. No equipment will be installed since sampling will be taken at the center of the Lake. The sampling frequency is detailed in Table 2-2.
4. As installation of sites proceeds, the outfalls will be added to the wet weather monitoring schedule.

13 References

Los Angeles RWQCB, *Final Staff Report for the Implementation Plans and Schedules for the Los Cerritos Channel and San Gabriel River Metals TMDLs*, 2013

LARWQCB. 2011. Amendment to the Water Quality Control Plan – Los Angeles Region to Incorporate the Total Maximum Daily Load for Toxic Pollutants in Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters. Attachment A to Resolution No. R11-008. Adopted May 5, 2011. Effective March 23, 2012.

RWQCB (California Regional Water Quality Control Board Los Angeles Region). 2012. Water Discharge Requirements for Municipal Separate Storm Sewer Systems (MS4s) Discharges within the Coastal Watersheds of Los Angeles County, Except Those Discharges Originating from the City of Long Beach MS4. Order No. R4-2012-0175. NPDES No. CAS004001. December 6, 2012.

USEPA. 2007. Total Maximum Daily Loads for Metals and Selenium – San Gabriel River and Impaired Tributaries. USEPA Region 9. March 26, 2007.

USEPA. 2012. Los Angeles Area Lakes Total Maximum Daily Loads for Nitrogen, Phosphorus, Mercury, Trash, Organochlorine Pesticides and PCBs. USEPA Region 9. March 26, 2012.