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June 24, 2014

Mr. Samuel Unger, Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 West Fourth Street, Suite 200
Los Angeles, CA 90013

Dear Mr. Unger:

SUBMITTAL OF COORDINATED INTEGRATED MONITORING PROGRAM FOR THE UPPER LOS ANGELES RIVER WATERSHED GROUP

Please find attached the Coordinated Integrated Monitoring Program (CIMP) for the Upper Los Angeles River Watershed Group. The City of Los Angeles, as lead agency for the Upper Los Angeles River Watershed Group, has prepared this CIMP on behalf of itself – the City of Los Angeles, the County of Los Angeles, Los Angeles County Flood Control District, and the City of Alhambra, the City of Burbank, the City of Calabasas, the City of Glendale, the City of Hidden Hills, the City of La Canada Flintridge, the City of Montebello, the City of Monterey Park, the City of Pasadena, the City of Rosemead, the City of San Fernando, the City of San Gabriel, the City of San Marino, the City of South Pasadena, the City of Temple City. All agencies have reviewed the CIMP for submission to the Regional Water Board, and we appreciate the collaboration by all partner agencies in the preparation of the document.

The CIMP for the Upper Los Angeles River Watershed Group satisfies the requirements provided by Attachment E, the Monitoring and Reporting Program (MRP), of the new MS4 Permit (Order No. R4-2012-0175). The CIMP provides a discussion of the monitoring locations, constituents, and monitoring frequencies, details of analytical and monitoring procedures, and an approach for implementation of the CIMP. Concurrently with this CIMP, we are submitting a GIS database to satisfy the requirements of Part VII.A of the MRP.

We appreciate the discussions with and the input received from Regional Water Board staff during the development of this CIMP. The Upper Los Angeles River Watershed Group looks forward to the review of the CIMP by your staff and finalization of this document.

2014 JUN 26 PM 1 29
CALIFORNIA REGIONAL WATER
QUALITY CONTROL BOARD
LOS ANGELES REGION



Should you have any questions about this submittal, please contact Shahram Kharaghani at Shahram.Kharaghani@lacity.org or phone (213) 485-0587, or your staff may contact Donna Chen at Donna.Chen@lacity.org or phone (213) 485-3928.

Sincerely,



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25 JUNE 2014

DRAFT

COORDINATED INTEGRATED MONITORING PROGRAM

for the Upper Los Angeles River Watershed



SUBMITTED BY:

Upper Los Angeles River
Watershed Management Group

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Attachment B: Monitoring Location Fact Sheets

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- Appendix 1: Example Field, Calibration and Chain-of-Custody Forms
- Appendix 2: Trash Monitoring & Reporting Plan: Legg Lake Trash TMDL
- Appendix 3: Calculations for Data Quality Assessment
- Appendix 4: Chapter 13 QA/QC Data Evaluation from Caltrans Guidance Manual: Stormwater Monitoring Protocols, 2nd Edition

List of Acronyms

BMP	Best Management Practice
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CIMP	Coordinated Integrated Monitoring Program
CMP	Coordinated Monitoring Program
CVRWQCB	Central Valley Regional Water Quality Control Board
DAP	Discharge Assessment Plan
DCT	Donald C. Tillman
DDT	Dichloro-diphenyl-trichloroethane
DO	Dissolved Oxygen
EWMP	Enhanced Watershed Management Program
GIS	Geographic Information System
HUC	Hydrologic Unit Code
IC/ID	Illicit Connection/Illicit Discharge
LA	Los Angeles
LACDPW	Los Angeles County Department of Public Works
LACFCD	Los Angeles County Flood Control District
LAG	Los Angeles-Glendale
LAR	Los Angeles River
LRS	Load Reduction Strategy
LTA	Long Term Assessment
MRP	Monitoring and Reporting Program
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
NSW	Non-Stormwater
OC	Organochlorine
PCB	Polychlorinated Biphenyl

RWL	Receiving Water Limitation
SCCWRP	Southern California Coastal Water Research Project
SMC	Stormwater Monitoring Coalition
SSC	Suspended Sediment Concentration
SW	Stormwater
TDS	Total Dissolved Solids
TIE	Toxicity Identification Evaluation
TKN	Total Kjeldahl Nitrogen
TMDL	Total Maximum Daily Load
TOC	Total Organic Carbon
TRE	Toxicity Reduction Evaluation
TSS	Total Suspended Solids
ULARWMAG	Upper Los Angeles River Watershed Management Area Group
USEPA	United States Environmental Protection Agency
WBPC	Waterbody-Pollutant Combination
WLA	Waste Load Allocation
WMA	Watershed Management Area
WPD	Watershed Protection Division
WQBEL	Water Quality Based Effluent Limitation
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 wasteload 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 have the option to develop a Coordinated Integrated Monitoring Program (CIMP) to specify approaches for meeting the Primary Objectives of the MRP. The Upper Los Angeles River Watershed Management Area (WMA) Group (ULARWMAG) has selected to develop and implement a CIMP that is tailored to address the specific needs of the ULARWMAG Enhanced Watershed Management Program (EWMP) area. This CIMP provides a discussion of the monitoring locations, constituents, monitoring frequency, and general monitoring approach. 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. The ULARWMAG CIMP meets the requirements of the MS4 Permit, including all TMDL monitoring requirements.

1.1 ENHANCED WATERSHED MANAGEMENT PROGRAM AREA

The Los Angeles River (LAR or LA River) receives drainage from an 834-square mile area of central and eastern Los Angeles County and extends 55 miles across urbanized areas of the San Fernando and west San Gabriel Valleys. The LAR flows through residential, commercial, and industrial areas before becoming the LAR estuary, which empties into San Pedro Bay. **Figure 1** displays the ULARWMAG EWMP area which is comprised of 481 square miles¹, five of the six LA River reaches, numerous tributaries and the participating jurisdictions, which include the Cities of Alhambra, Burbank, Calabasas, Glendale, Hidden Hills, La Cañada Flintridge, Los Angeles, Montebello, Monterey Park, Pasadena, Rosemead, San Fernando, San Gabriel, San Marino, South Pasadena, and Temple City as well as unincorporated areas of the County of Los

¹ Corresponds to total area of the ULARWMAG EWMP area (including non-urban open space). The total area considered in the EWMP (i.e., only using open space characterized as golf courses, local parks, and regional parks) is 375 square miles.

Angeles and the Los Angeles County Flood Control District (LACFCD). A description of the LACFCD can be found in **Attachment A. Table 1** presents the major water bodies within the ULARWMAG EWMP area. Approximate land area and land use summaries for the participating jurisdictions are listed in **Table 3**, with the most prevalent land use being residential.

Table 1. Waterbodies Associated with the Upper Los Angeles River Watershed Management Area Group EWMP

Mainstem	Associated Tributaries	Downstream Waters
LA River Reach 6	Dry Canyon Creek McCoy Creek Bell Creek Aliso Canyon Wash	
LA River Reach 5	Bull Creek	
LA River Reach 4	Pacoima Wash Tujunga Wash	
LA River Reach 3	Burbank West Channel Verdugo Wash Arroyo Seco	
LA River Reach 2	Rio Hondo Reach 2 Compton Creek	Rio Hondo Reach 1 LA River Reach 1 LA River Estuary San Pedro Bay
Lakes		
Echo Park Lake	Legg Lake	Lake Calabasas

The TMDLs addressing water body-pollutant combinations (WBPCs) within or downstream of the EWMP area are presented in **Table 2**. Part XIX.B of the MRP, the TMDL Basin Plan Amendments (BPAs), and United States Environmental Protection Agency (USEPA)-established TMDL documents include TMDL monitoring requirements and recommendations, which are summarized in **Attachment A**.

Table 2. TMDLs Applicable to the Upper Los Angeles River Watershed EWMP

TMDL	Regional Board Resolution Number(s)	Effective Date and/or EPA Approval Date
LA River Nitrogen Compounds and Related Effects (LAR Nitrogen TMDL)	2003-009	03/23/2004
	2012-010	Not Yet Effective
Legg Lake Trash TMDL	2007-010	03/06/2008
Los Angeles River Trash TMDL	2007-012	09/23/2008
Los Angeles River and Tributaries Metals TMDL (LAR Metals TMDL)	2007-014	10/29/2008
	2010-003	11/03/2011
Los Angeles River Bacteria TMDL (LAR Bacteria TMDL)	2010-007	03/23/2012
Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters Toxic Pollutants TMDL (Harbors Toxics TMDL)	2011-008	03/23/2012
Los Angeles Area Lakes TMDLs for Lake Calabasas, Echo Park Lake, and Legg Lake (Lakes TMDLs)	NA (USEPA TMDL)	03/26/2012

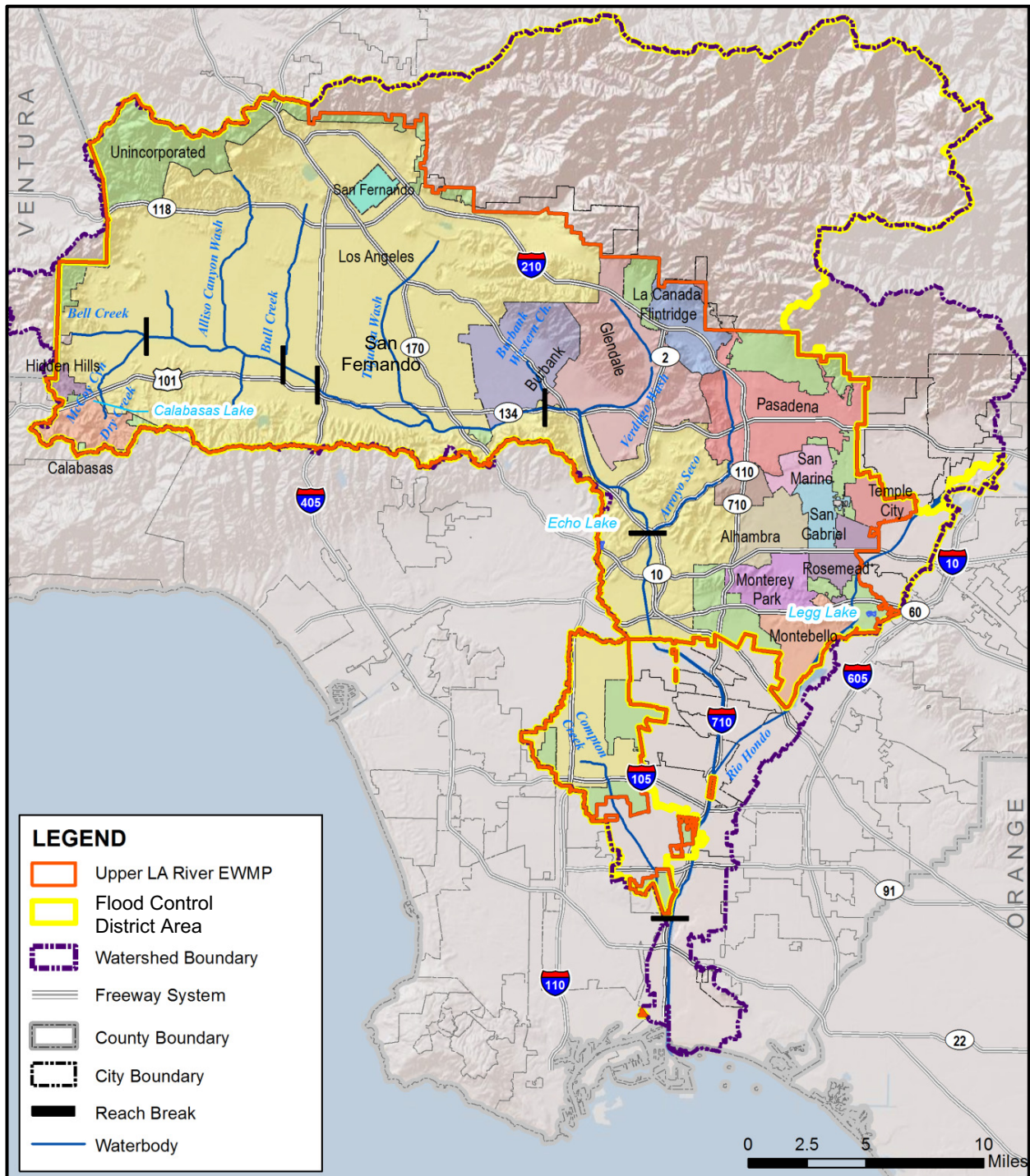


Figure 1. Upper Los Angeles River Watershed Management Area Group

Table 3. List of Jurisdictions Participating in the ULARWMAG with Land Use Summaries

Jurisdiction	Area (sq. mi.)	Percent of Jurisdiction ⁽¹⁾			
		Res	Com/Ind	Ag/Nur	Open
Alhambra	7.6	68.1%	28.0%	0.1%	3.8%
Burbank	12.7	63.3%	33.2%	0.1%	3.4%
Calabasas	3.3	73.4%	18.4%	0.5%	7.7%
County of Los Angeles	38.7	63.4%	26.5%	1.5%	8.6%
Glendale	18.4	69.0%	27.3%	0%	3.7%
Hidden Hills	1.3	98.9%	0%	1.1%	0%
La Canada Flintridge	6.4	77.8%	15.2%	0.9%	6.1%
Los Angeles	229.9	67.0%	27.9%	1.1%	4.0%
Montebello	7.9	48.9%	45.1%	1.5%	4.5%
Monterey Park	6.8	68.0%	27.3%	2.0%	2.7%
Pasadena	19.6	66.9%	27.0%	0.5%	5.6%
Rosemead	5.1	64.9%	29.5%	2.4%	3.2%
San Fernando	2.3	60.2%	38.2%	0.0%	1.6%
San Gabriel	4.1	70.2%	23.7%	1.7%	4.4%
San Marino	3.7	82.0%	10.4%	0.0%	7.6%
South Pasadena	3.2	80.7%	14.9%	0.3%	4.1%
Temple City	4.0	85.5%	13.6%	0.1%	0.8%
All Cities	375.0 ⁽²⁾	67.0%	27.4%	1.0%	4.6%

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 EWMP (i.e., only using open space characterized as golf courses, local parks, and regional parks).
2. Only corresponds to the total area considered in the EWMP (i.e., only using open space characterized as golf courses, local parks, and regional parks). The total ULARWMAG EWMP area (including non-urban open space) is 481 square miles.

1.2 WATER QUALITY PRIORITIES

As part of the EWMP, the ULARWMAG analyzed data to determine water quality priorities for the watershed. While the water quality priorities analysis will be finalized as part of the EWMP development, an initial characterization of the water quality priorities has been developed and is briefly summarized in **Attachment A**. The three Permit categories are defined as:

- **Category 1:** WBPCs for which TMDL WQBELs and/or RWLs are established in Part VI.E and Attachments L and O of the MS4 Permit.
- **Category 2:** WBPCs for which data indicate water quality impairment in the receiving water according to the State's Listing Policy, regardless of whether the pollutant is currently on the 303(d) List and for which the MS4 discharges may be causing or contributing.
- **Category 3:** WBPCs for which there are insufficient data to indicate impairment in the receiving water according to the State's Listing Policy, but which exceed applicable receiving water limitations contained in the MS4 Permit and for which MS4 discharges may be causing or contributing to the exceedance.

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 waterbody specific, different parameters may be monitored at different monitoring sites. **Attachment A** contains a detailed discussion regarding the decision-making process for identifying parameters that will be monitored at each receiving water and outfall monitoring site.

1.3 CIMP OVERVIEW

The primary purpose of this CIMP is to outline the process for collecting data to meet the goals and requirements of the MRP. This CIMP is designed to provide the ULARWMAG the information necessary to guide water quality program management decisions. This CIMP provides information on sample collection and analysis methodologies. Additionally, the monitoring will provide a means to measure compliance with the Permit. The MRP, as outlined in the Permit, is composed of five elements, including:

1. Receiving Water Monitoring
2. Stormwater Outfall Monitoring
3. Non-Stormwater (NSW) Outfall Monitoring
4. New Development/Redevelopment Effectiveness Tracking
5. Regional Studies

In addition to the five elements, which are presented as sections in this CIMP, a specific trash monitoring section is included. An overview of each of the monitoring types and their monitoring objectives are described in the following subsections.

1.3.1 Receiving Water Monitoring

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 receiving water monitoring will provide data to determine whether the RWLs and water quality objectives are being achieved in the ULARWMAG EWMP area and support management decisions related to EWMP implementation. Over time, the monitoring will allow the assessment of trends in pollutant concentrations. Receiving water monitoring consists of two long term assessment (LTA) monitoring stations designed to meet all receiving water permit requirements and additional TMDL monitoring locations necessary to evaluate TMDL requirements, 303(d) listings, and other exceedances of RWLs. Implementation of the ULARWMAG CIMP will replace existing TMDL monitoring programs.

1.3.2 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.
- 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.

The stormwater outfall monitoring is designed to characterize stormwater discharges from MS4s at representative outfall locations within the EWMP area and support management decisions related to EWMP implementation. Additionally, implementation of the ULARWMAG CIMP will meet TMDL outfall monitoring requirements.

1.3.3 Non-Stormwater Outfall Program

The objectives of the NSW outfall monitoring include the following:

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

The NSW Outfall Screening and Monitoring Program (NSW Outfall Program) is focused on dry weather discharges to receiving waters from major outfalls. The NSW Outfall Program provides monitoring to evaluate whether the NSW constituent load is adversely impacting the receiving water, serves to assess the Permit requirement to effectively prohibit NSW discharges, and serves to integrate with TMDL outfall monitoring efforts. These in turn support management decisions related to EWMP implementation.

1.3.4 New Development and Redevelopment Effectiveness Tracking

Permittees are required to maintain a database to track specific information related to new and redevelopment projects subject to the minimum control measure (MCM) requirements in Part VI.D.7. The Permit contains data tracking requirements in Part X.A of the MRP and in Part VI.D.7.d.iv. The objective of the New Development/Redevelopment effectiveness tracking is to track whether the conditions in the building permit issued by the Permittee are implemented to ensure the volume of stormwater associated with the design storm is retained on-site as required Part VI.D.7.c.i. of the Permit.

1.3.5 Trash Monitoring

The objective of the trash monitoring is to satisfy the monitoring requirements of the trash TMDLs for the LA River watershed, Echo Park Lake, and Legg Lake, in accordance with the requirement in Part III of the MRP.

1.3.6 Regional Studies

Only one regional study is identified in the MRP: Southern California Stormwater Monitoring Coalition (SMC). The Southern California SMC is a collaborative effort between all of the Phase I MS4 NPDES Permittees and NPDES regulatory agencies in Southern California. The Southern California Coastal Water Research Project (SCCWRP) oversees the SMC and the SMC is implemented by the Council for Watershed Health. The LACFCD and City of Los Angeles will continue their participation in the SMC Regional Bioassessment Monitoring Program on behalf of the ULARWMAG to meet this MRP requirement.

2 Receiving Water Monitoring Program

The objectives of the receiving water monitoring (Part II.E.1 of the MRP) include the following:

- a. Determine whether the receiving water limitations are being achieved;
- b. Assess trends in pollutant concentrations over time, or during specified conditions; and
- c. 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, as well as a discussion on monitoring coordination and summary of how the receiving water monitoring program meets the objectives of the MRP. The approach builds off the MRP requirements, the TMDL monitoring requirements (detailed in **Attachment A**), as well as existing monitoring programs in the watershed (detailed in **Attachment A**). Implementation of the ULARWMAG CIMP will replace existing TMDL monitoring programs and meet the monitoring requirements for TMDLs that had not yet developed monitoring programs (e.g., LA River Bacteria TMDL, Harbors Toxics 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 once implementation of the CIMP begins.

2.1 RECEIVING WATER MONITORING SITES

The MRP specifies that receiving water monitoring shall be performed at previously designated mass emission stations (unless justification of why monitoring at the mass emission stations will be discontinued is provided), TMDL receiving water compliance points (as designated in TMDL Monitoring Plans approved by the Regional Board Executive Officer), and additional receiving water locations representative of the impacts from MS4 discharges. To address the different monitoring objectives, two types of monitoring sites are included in this CIMP.

- **LTA Receiving Water** – LTA receiving water monitoring is intended to determine if RWLs are achieved, assess trends in pollutant concentrations over time, and determine whether designated uses are supported.
- **TMDL Receiving Water** – TMDL receiving water monitoring is intended to evaluate attainment of, or progress in attaining TMDLs, and support evaluating the status of 303(d) listings and other RWL exceedances in the watershed.

LTA monitoring provides a long-term record to understand conditions within the EWMP area, for the full suite of parameters, including TMDL parameters. TMDL monitoring addresses TMDL related constituents and provides monitoring locations to assess other identified exceedances of RWLs determined through an analysis of existing and future data.

Monitoring similar to LTA monitoring was required on the mainstem of the Los Angeles River by the previous MS4 Permit, but this monitoring was conducted downstream of the ULARWMAG area. TMDL monitoring has been ongoing for some time in the ULARWMAG area. Within the ULARWMG area, TMDL monitoring sites were required on the following

waterbodies: Los Angeles River Reaches 2 through 6, Compton Creek, Rio Hondo, Arroyo Seco, Verdugo Wash, Burbank Western Channel, Tujunga Wash, Bull Creek, Aliso Canyon Wash, McCoy Canyon Creek, Dry Canyon Creek, Bell Creek, Legg Lake, Echo Park Lake, and Lake Calabasas. To meet the TMDL requirements, four Coordinated Monitoring Programs (CMPs) were developed and were considered during CIMP site selection:

- *Los Angeles River Metals TMDL Coordinated Monitoring Plan* (Metals TMDL CMP)
- *DRAFT Coordinated Monitoring Plan for Los Angeles River Watershed Bacteria TMDL – Compliance Monitoring* (Bacteria TMDL CMP)
- *Monitoring Work Plan to Assess Nutrients Loading from the Municipal Separate Storm Sewer System in Los Angeles River Watershed* (Nitrogen TMDL CMP)
- *Trash Monitoring & Reporting Plan: Legg Lake Trash TMDL*

The receiving water monitoring sites in the ULARWMAG EWMP area and the type of monitoring (e.g., LTA or TMDL) that will be conducted at each site are summarized in **Table 4**. The locations of the monitoring sites are shown in **Figure 2**. Each constituent required for monitoring by the MRP is addressed by at least one of the two types of receiving water monitoring. A summary of constituents which will be monitored at each of the receiving water monitoring sites is presented in **Section 2.2**.

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 (Part II.E.1), receiving water sites are intended to assess receiving water conditions. An exceedance of a RWL at a receiving water site does not on its own 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, the exceedance of a RWL 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 should be made using data collected through outfall monitoring.

Table 4. Receiving Water Monitoring Sites

Site ID	Waterbody/Location	Previous Site Name Used in TMDL Monitoring Programs	Coordinates		Monitoring Type	
			Latitude	Longitude	LTA	TMDL
LAR_02_WAS	LA River Reach 2 upstream of Washington Blvd	LAR1-8	34.018436	-118.223499	X	X
LAR_03_FIG	LA River Reach 3 at Figueroa St	LAR1-7; LARB-03	34.081249	-118.227546		X
LAR_03_ZOO ⁽¹⁾	LA River Reach 3 at Zoo Dr	LAR1-6	34.155683	-118.281270		X
LAR_04_TUJ	LA River Reach 4 at Tujunga Ave	LAR1-4; LARB-04	34.140977	-118.379127	X	X
LAR_05_SEP ⁽²⁾	LA River Reach 5 at Sepulveda Blvd	LAR1-2	34.161559	-118.465969		X
LAR_06_WHI	LA River Reach 6 at White Oak Ave	LAR1-1	34.185076	-118.518735		X
CC_ELS	Compton Creek upstream of El Segundo Blvd	N/A	33.917332	-118.249956		X
RH_SLA	Rio Hondo at Slauson Ave	N/A	33.975272	-118.118805		X
AS_SAN	Arroyo Seco at San Fernando Rd	LAR2-3; LARB-08	34.080470	-118.224970		X
VW_CON	Verdugo Wash at Concord St	LAR2-2; LARB-09	34.156724	-118.271240		X
BWC_RIV ⁽³⁾	Burbank Western Channel at Riverside Dr	LAR1-5; LARB-10	34.160714	-118.305020		X
TW_MOO	Tujunga Wash at Moorpark St	LAR1-3; LARB-11	34.151206	-118.395564		X
BUL_VIC ⁽⁴⁾	Bull Creek at Victory Blvd	LARB-12	34.186770	-118.497780		X
ACW_VAN	Aliso Canyon Wash at Vanowen St	LARB-13	34.193615	-118.543966		X
MCC_VAL	McCoy Canyon Creek at Valley Circle Blvd	LARB-14	34.163094	-118.637946		X
DCC_VEN	Dry Canyon Creek at Ventura Blvd	LARB-15	34.161533	-118.634355		X
BEL_FAL	Bell Creek at Fallbrook Ave	LARB-16	34.197489	-118.623553		X
EPL_1	Echo Park Lake	N/A	34.073056	-118.260783		X
EPL_2			34.071242	-118.260734		X
LEG_LAK	Legg Lake	N/A	Varies	Varies		X
CAL_LAK	Lake Calabasas	N/A	Varies	Varies		X

1. For improved coordination, this site could be moved to Colorado Blvd co-located with a site currently monitored by the LA-Glendale (LAG) Water Reclamation Plant (WRP).

2. For improved coordination, this site could be moved to be co-located with a site currently being monitored by the Donald C. Tillman (DCT) WRP.

3. For improved coordination, this site could be moved to be co-located with a site currently being monitored by the Burbank WRP.

4. For improved coordination, this site is co-located with a receiving water site currently being monitored by the DCT WRP.

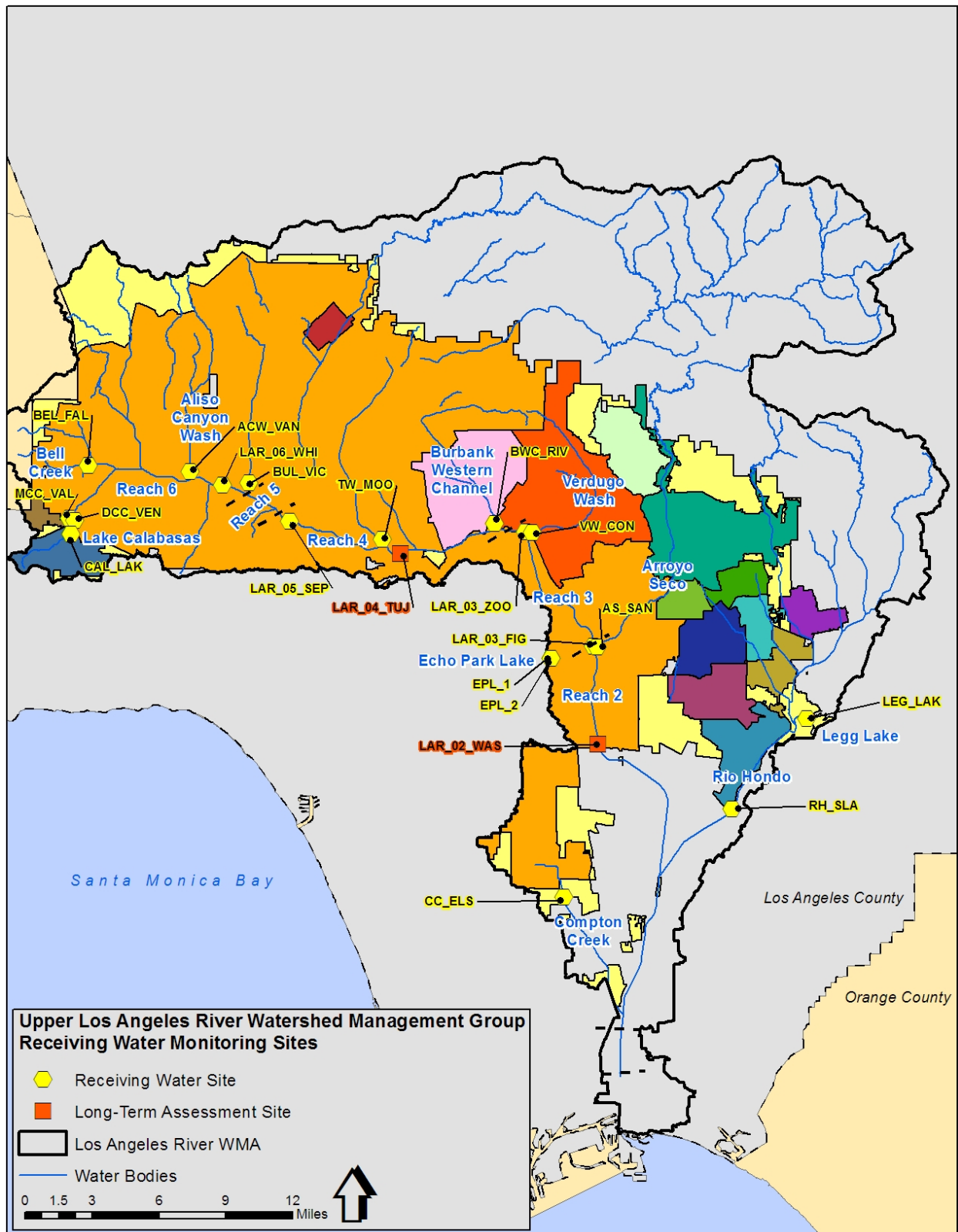


Figure 2. Overview of Receiving Water Monitoring Sites

2.1.1 Long Term Assessment Monitoring 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 receiving water assessment 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. Such a site does not exist within the ULARWMAG area. Therefore, two new LTA sites are proposed to support an understanding of potential impacts associated with MS4 discharges from the ULARWMAG.

The LAR at Washington Blvd is the location of a site for the Metals TMDL CMP and the intersection of the Los Angeles River with the downstream boundary of the ULARWMAG area. Locating a site at Washington Blvd will provide a long historical record by which to assess trends over time and evaluate the long-term attainment of RWLs and beneficial uses within the downstream portion of the EWMP area. The LAR at Tujunga Ave is the location of a site for the Metals TMDL CMP and the Bacteria TMDL CMP. Locating a site at Tujunga Ave will also provide a long historical record by which to assess trends over time and evaluate the long-term attainment of RWLs and beneficial uses within the upstream portion of the EWMP area. These sites will also be utilized to support TMDL monitoring. The location of the LTA monitoring sites can be seen on **Figure 2. Attachment B** provides a summary of the monitoring sites, associated attributes, and photographs.

Another primary role of the LTA sites is to identify additional constituents for monitoring at other locations within the watershed. If exceedances are observed at the LTA sites as described in **Section 2.2** monitoring for those constituents will be added to upstream TMDL sites.

2.1.2 TMDL Sites

Within the ULARWMAG EWMP area, TMDL monitoring sites are required in Los Angeles River Reaches 2 through 6, Compton Creek, Rio Hondo, Arroyo Seco, Verdugo Wash, Burbank Western Channel, Tujunga Wash, Bull Creek, Aliso Canyon Wash, McCoy Canyon Creek, Dry Canyon Creek, Bell Creek, Legg Lake, Echo Park Lake, and Lake Calabasas. Twenty-one TMDL sites will be monitored under this CIMP. The following briefly describes how existing TMDL monitoring sites are incorporated into this CIMP. Note that upon approval by the Regional Board Executive Officer, the CIMP will effectively replace the existing CMPs.

The eight Tier I water quality monitoring sites currently monitored as part of the Metals TMDL CMP (LAR1-X sites in **Table 4**) which are located within the ULARWMAG EWMP area will be used as TMDL monitoring sites. In addition, two Tier II water quality monitoring sites included in the Metals TMDL CMP (Arroyo Seco and Verdugo Wash designated as LAR2-X sites in **Table 4**) will be used as TMDL monitoring sites. The one Tier II water quality monitoring site included in the Metals TMDL CMP which is not a TMDL monitoring site is located in Reach 6 and is excluded to eliminate redundancy with another site located on Reach 6.

The 12 sites included in the Bacteria TMDL CMP (LARB-XX sites in **Table 4**) located within the ULARWMAG EWMP area will also be TMDL monitoring sites, with one exception for improved coordination. The LARB-05 monitoring site has been moved to the location of the Metals TMDL CMP monitoring site located in LAR Reach 6 (LAR1-1). In addition to these 12

sites, the LARB-02 (LAR Reach 2), LARB-06 (Compton Creek), and LARB-07 (Rio Hondo) monitoring sites have been moved to locations within the ULARWMAG EWMP area. Additionally, bacteria monitoring will also occur in LAR Reach 5 for a total of 16 monitoring sites utilized to meet the Bacteria TMDL monitoring requirements.

The site included in the Nitrogen TMDL CMP is not included because it is located downstream of the ULARWMAG EWMP area, but nutrient related monitoring will occur at the downstream boundary of the ULARWMAG EWMP area (the LAR_02_WAS LTA site) as part of this CIMP.

TMDL monitoring sites are also located in Legg Lake, Echo Park Lake, and Lake Calabasas based on existing programs, where available. The TMDL monitoring sites are listed in **Table 4** and shown on **Figure 2. Attachment B** provides a summary of the monitoring sites, associated attributes, and photographs.

2.2 MONITORED PARAMETERS AND FREQUENCY OF MONITORING

Each constituent required for monitoring by the MRP is addressed by at least one of the two types of receiving water monitoring (LTA or TMDL). Constituents for monitoring were based on the water quality priorities. A summary of constituents which will be monitored at each of the LA River mainstem receiving water monitoring sites is presented in **Table 5**. A summary of constituents which will be monitored at each of the LA River tributary receiving water monitoring sites is presented in **Table 6**. A summary of constituents which will be monitored at each lake receiving water monitoring site is presented in **Table 7**. Analytical methods, detection limits, sampling methods, and sample handling procedures are detailed in **Attachment C**. In addition, details regarding the collection of quality assurance/quality control (QA/QC) samples are outlined in **Attachment C**.

As described in **Section 11**, data collected as part of the ULARWMAG CIMP will be reviewed and changes to the constituents and frequencies listed in **Table 5**, **Table 6**, and **Table 7** will be discussed in the annual report and implemented starting no later than the first CIMP event of the next monitoring year (i.e., the first event after July 1 of the year following the annual report submittal). Data collected at the LTA sites will be used to identify additional constituents for monitoring at other locations within the watershed. The LAR_02_WAS LTA site will be used to identify additional constituents for monitoring at LAR Reach 3 monitoring sites. The LAR_04_TUJ LTA site will be used to identify additional constituents for monitoring at LAR Reaches 5 and 6 monitoring sites. Except for constituents for which a TMDL has been established and interim compliance milestone dates have not passed or are currently being attained, monitoring for a new constituent would be initiated at upstream receiving water monitoring sites if there are two consecutive exceedances observed during the same condition (i.e., wet or dry weather) at the associated downstream LTA site and would continue until the deactivation criterion is triggered. The deactivation criterion is two consecutive samples that do not exceed RWLs during the same condition (i.e., wet or dry weather). The same activation/deactivation criteria were utilized in the LA River Metals CMP. The two consecutive exceedance/non-exceedance activation/deactivation criteria are used to avoid the possibility of performing additional sampling to compensate for one-time events that may be a result of sampling and/or analytical error.

Table 5. Summary of Parameters to be Monitored at Receiving Water Monitoring Sites and Annual Frequency (wet/dry)⁽¹⁾

Parameters	Los Angeles River Reaches					
	2	3 (below LAG WRP)	3 (above LAG WRP)	4	5	6
Site ID	LAR_02_WAS	LAR_03_FIG	LAR_03_ZOO	LAR_04_TUJ	LAR_05_SEP	LAR_06_WHI
Flow and field parameters ⁽²⁾	Frequency is equal to the number of times a site is visited for monitoring					
Pollutants identified in Table E-2 of the MRP ⁽³⁾ and not otherwise addressed below	1 ⁽⁴⁾ /1 ⁽⁴⁾			1 ⁽⁴⁾ /1 ⁽⁴⁾		
Aquatic Toxicity and Toxicity Identification Evaluation (TIE), if necessary	2/1			2/1		
<i>E. Coli</i>	3/12	(5)		(5)	(6)	(6)
Hardness	3/9	3/9	0/9	3/9	0/9	3/9
Total Suspended Sediment (TSS)	Frequency is equal to the number of times a site is visited for monitoring					
Cadmium (total and dissolved)	3/0					
Copper (total and dissolved)	3/9	3/9	0/9	3/9	0/9	3/9
Lead (total and dissolved)	3/9	3/9	0/9	3/9	0/9	3/9
Selenium (total)						0/9
Zinc (total and dissolved)	3/9	3/9	0/9	3/9	0/9	3/9
Mercury (total)	3/2	(5)	(5)	(5)	(5)	3/2
Suspended Sediment: Copper, Lead, Zinc, Chlordane ⁽⁶⁾ , DDT ⁽⁷⁾ , PCBs ⁽⁸⁾ , PAHs ⁽⁹⁾ , and Suspended Sediment Concentration (SSC)	(5)					
Ammonia as N, Nitrate as N, Nitrite as N, Nitrate+Nitrite, Nitrogen (NO3-N+NO2-N)	3/2	(5)	(5)	(5)	(5)	(5)
2,3,7,8-TCDD (Dioxin)		(5)				(5)
Diazinon				(5)	(5)	
DDT ⁽⁷⁾					(5)	
Chloride					(5)	(5)
Sulfate				(5)	(5)	(5)
TDS					(5)	(5)

1. Annual frequency listed as number of wet/dry-weather events per year, respectively (e.g., 3/2 signifies three wet and two dry weather events per year).
2. Field parameters are defined as DO, pH, temperature, and specific conductivity.
3. All pollutants identified in Table E-2 of the MRP not already explicitly addressed by monitoring at this site.

4. Monitoring frequency only applies during the first year of monitoring. For constituents identified in Table E-2 of the MRP that are not detected at the Method Detection Limit (MDL) or the result is below the lowest applicable water quality objective, additional monitoring will not be conducted (i.e., the monitoring frequency will become 0/0). For constituents detected above the lowest applicable water quality objective, future monitoring will be conducted at the frequency specified in the MRP (i.e., the monitoring frequency will become 3/2).
5. Data to be obtained through non-direct measurements as described in **Section 10**.
6. As outlined in **Attachment D**, chlordanes includes analyses for the following species: alpha-chlordane, gamma-chlordane, oxychlordane, cis-Nonachlor, and trans-Nonachlor.
7. DDT includes analyses for the following species: 2,4'-DDD, 2,4'-DDE, 2,4'-DDT, 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT.
8. As outlined in **Attachment D**, PCBs includes analyses for all aroclor species when analyzed in water and the following 54 PCB congeners when analyzed in water or suspended solids: 8, 18, 28, 31, 33, 37, 44, 49, 52, 56, 60, 66, 70, 74, 77, 81, 87, 95, 97, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 132, 138, 141, 149, 151, 153, 156, 157, 158, 167, 168, 169, 170, 174, 177, 180, 183, 187, 189, 194, 195, 201, 203, 206, and 209.
9. As outlined in **Attachment D**, PAHs includes analyses for the following species: acenaphthene, anthracene, biphenyl, naphthalene, 2,6-dimethylnaphthalene, fluorene, 1-methylnaphthalene, 2-methylnaphthalene, 1-methylphenanthrene, phenanthrene, benzo(a)anthracene, benzo(a)pyrene, benzo(e)pyrene, chrysene, dibenz(a,h)anthracene, fluoranthene, perylene, and pyrene.

Table 6. Summary of Constituents to be Monitored at ULARWMAG Los Angeles River Tributary Receiving Water Monitoring Sites and Annual Frequency (wet/dry)⁽¹⁾

Constituents	Compton Creek	Rio Hondo	Arroyo Seco	Verdugo Wash	Burbank Western Channel	Tujunga Wash	Bell Creek	Bull Creek	Aliso Canyon Wash	McCoy Canyon Creek	Dry Canyon Creek
Site ID	CC_ELS	RH_SLA	AS_SAN	VW_CON	BWC_RIV	TW_MOO	BEL_FAL	BUL_VIC	ACW_HAR	MCC_VAL	DCC_VEN
Flow and field parameters ⁽²⁾											
TSS											
Aquatic Toxicity and TIE, if necessary		2/1									
<i>E. Coli</i>	0/12	0/12	0/12	0/12	0/12	0/12	0/12	0/12	0/12	0/12	0/12
Hardness	0/9	0/9			0/9	0/9					
Copper (total and dissolved)	0/9	0/9			0/9	0/9					
Lead (total and dissolved)	0/9	0/9			0/9	0/9					
Zinc (total and dissolved)	0/9	0/9			0/9	0/9					
Bis(2-ethylhexyl) Phthalate		(3)	0/2		0/2			0/2	0/2		
2,3,7,8-TCDD (Dioxin)					(3)						
Chlorpyrifos	0/2										
Diazinon		(3)							0/2		
Chloride	0/2	(3)			(3)	0/2					
Sulfate									0/2		
TDS					(3)	0/2			0/2		
Cyanide (total)		(3)									
Chrysene		(3)									
Dibenzo(a,h) Anthracene		(3)									
Indeno (1,2,3-cd)Pyrene		(3)									
Benzo(a)Pyrene		(3)			(3)						
Benzo(b) Fluoranthene		(3)			(3)						

1. Annual frequency listed as number of wet-weather/dry-weather events per year, respectively (e.g., 3/2 signifies three wet weather and two dry weather events per year).

- Field parameters are defined as DO, pH, temperature, and specific conductivity. Flow and field parameters will not be monitored when *E. coli* is the only constituent monitored at a site.
- Data to be obtained through non-direct measurements as described in **Section 10**.

Table 7. Annual Frequency of Receiving Water Monitoring for ULARWMAG Area Lakes

Constituent	Calabasas Nutrient TMDL	Echo Park Lake Nutrient, Trash, PCBs, and OC Pesticide TMDLs	Legg Lake Nutrient TMDL & Legg Lake Trash TMDL
In-lake Water Quality Monitoring			
TSS, TDS, Temperature, Dissolved Oxygen, pH, Electrical Conductivity, and Secchi Depth	2/summer 1/winter	2/summer 1/winter	2/summer 1/winter
Ammonia, TKN or Organic N, Nitrate+Nitrite, Orthophosphate, Total Phosphorus, Chlorophyll a	2/summer 1/winter	2/summer 1/winter	2/summer 1/winter
Total PCBs ⁽¹⁾ , Total Chlordane ⁽²⁾ , Dieldrin		1/winter	
Sediment Quality Monitoring			
Total Organic Carbon, Total PCB ⁽¹⁾ , Total Chlordane ⁽²⁾ , Dieldrin		1/winter	
Fish Tissue Monitoring⁽³⁾			
Total PCB ⁽¹⁾ , Total Chlordane ⁽²⁾ , Dieldrin		Once every three years	
Trash Monitoring			
Trash Quantity			Monthly

- As outlined in **Attachment D**, PCBs includes analyses for the following 19 congeners when analyzed in sediment: 8, 18, 28, 44, 52, 66, 101, 105, 118, 128, 138, 153, 170, 180, 187, 189, 195, 206, and 209.
- As outlined in **Attachment D**, chlordane includes analyses for the following species: alpha-chlordane, gamma-chlordane, oxychlordane, cis-Nonachlor, and trans-Nonachlor.
- Composite sample of skin-off filets from at least five common carp > 350 mm in length.

2.3 WEATHER CONDITIONS

Monitoring will occur during dry and wet conditions. Dry weather is defined in the MRP as when the flow of the receiving waterbody 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. Wet weather conditions are defined in the MRP as when the receiving waterbody has flow that is at least 20 percent greater than its base flow or, in the case of an estuary, during a storm event of greater than or equal to 0.1 inch of precipitation. The LA River Metals TMDL defines wet weather as when the maximum daily flow rate is equal to or greater than 500 cubic feet per second (cfs) and dry weather as below 500 cfs at LACDPW Wardlow Road flow gauge and the LAR Bacteria TMDL defines wet weather as days with 0.1 inch of rain or greater and the three days following the rain event. As such, for the purposes of this CIMP, weather conditions will be defined as follows:

- **Dry Weather:** When the flow of the receiving water body is less than 500 cfs at LACDPW Wardlow Road flow gauge or an equivalent flow rate at the monitoring site² **and** there is less than 0.1 inch of rain on that day and in the previous three days.
- **Wet Weather:** When the flow of the receiving water body is equal to or greater than 500 cfs at LACDPW Wardlow Road flow gauge or an equivalent flow rate at the monitoring site³ **and** there is at least 0.1 inch of rain during the targeted storm event.

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 because the composition of the receiving water will change less over time; and thus, the grab sample can sufficiently characterize the receiving water. Grab samples during dry weather are consistent with similar programs within the region. However, to sufficiently characterize the receiving water during wet weather, composite samples will generally be used for wet weather sampling events. 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* and oil and grease), situations where it is 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. For safety purposes, when wet weather grab sampling is conducted, samples may be taken from slightly upstream or downstream of the designated monitoring location.

The MRP includes specific criteria for the time of monitoring events. With the exception of bacteria and metals monitoring, most constituents will be monitored during two dry weather monitoring events. For dry weather toxicity monitoring, sampling must take place during the historically driest month. As a result, the dry weather monitoring event that includes toxicity

² The wet weather flow trigger for an individual receiving water monitoring location will be set at an appropriate value given where the monitoring location is situated within the watershed.

³ *Ibid.*

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 LAR mainstem over at least 12 hours; however, it may be necessary to target smaller storms in some instances. 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 (QPF) has been determined. All efforts will be made to collect wet weather samples from all sites during a single targeted storm event. 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**.

2.4 MONITORING COORDINATION

This CIMP is written to outline the monitoring requirements to assess the MS4 Permit requirements. As part of implementation of this CIMP, the ULARWMAG has identified opportunities to coordinate monitoring efforts with other monitoring programs (e.g., WRPs and downstream CIMPs) within the watershed and will continue to seek additional opportunities to coordinate monitoring efforts. Known instances where data from other programs may be used to support the ULARWMAG meet monitoring requirements are identified in **Section 10**.

2.5 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 8**. The schedule for implementing receiving water monitoring is presented in **Section 13**.

Table 8. Summary of Receiving Water Monitoring Program Objectives

MRP Objective	CIMP Component Meeting Objective
Determine whether the RWLs are being achieved.	<ul style="list-style-type: none"> • Twenty-One (21) 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.	<ul style="list-style-type: none"> • Two LTA monitoring sites established within the ULARWMAG EWMP area. • Monitoring at all but two previously monitored water quality TMDL receiving water monitoring sites within the ULARWMAG EWMP area to be continued. • Monthly bacteria monitoring at sixteen (16) receiving water monitoring sites. • Monthly (approximately) metals monitoring at ten (10) receiving water monitoring sites. • Monitoring 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.	<ul style="list-style-type: none"> • At least one monitoring site located in the majority of waterbodies 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 Infrastructure Database

To meet the requirements of Part VII.A of the MRP, a map(s) and/or database of the MS4's storm drains, channels, and outfalls must be submitted with this CIMP and include detailed information (as described in the Permit, page E20-21). Each year, the map and associated database are required to be updated to incorporate the most recent characterization data for outfalls with significant NSW discharge.

The NSW Outfall Program requires the development of an MS4 outfall database by the time that this CIMP is submitted. The objective of the MS4 database is to geographically link the characteristics of the outfalls within the ULARWMAG EWMP area with watershed characteristics including: subwatershed, waterbody, land use, and effective impervious area. To meet this requirement, the information was compiled into geographic information systems (GIS) layers as described in the following subsections.

3.1 AVAILABLE INFORMATION

A GIS database was submitted concurrently with this CIMP and contains the elements described in **Table 9**. Given that the ULARWMAG is continually gathering information and that the information being gathered is continually being imported into the ULARWMAG's GIS layers, **Table 9** represents a snapshot of the elements that are available at the date of submittal of this CIMP.

Table 9. MS4 Database Elements Submitted with CIMP

Permit Requirement	Database Element	Submitted
VII.A.1	Surface water bodies within the ULARWMAG jurisdictions.	X
VII.A.2	Watershed (HUC-12) boundary.	X
VII.A.3	Land use overlay.	X
VII.A.5	Jurisdictional boundaries.	X
VII.A.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).	X
VII.A.7	The location of all dry weather diversions.	X
VII.A.8	The location of all major MS4 outfalls within the Permittee's jurisdictional boundary with each major outfall assigned an alphanumeric identifier.	X ⁽¹⁾
VII.A.10	Storm drain outfall catchment areas for each major outfall within the Permittee(s) jurisdiction.	X ⁽²⁾
Each mapped MS4 outfall shall be linked to a database containing descriptive and monitoring data associated with the outfall. The data shall include:		
VII.A.11.a	Ownership	X
VII.A.11.b	Coordinates	X
VII.A.11.c	Physical description	X

1. All outfalls greater than 36 inches have been identified and are considered major. Outfalls that are considered "major" for other reasons as identified in the Permit (see Permit Attachment A page A-11 for complete definition of major outfalls) have not been defined at this time. The database will be updated as information is developed.

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 will be conducted as described in **Table 10**.

3.2 PENDING INFORMATION AND SCHEDULE FOR COMPLETION

The elements described in **Table 10** represent pending information that is primarily expected to be an outcome of implementing the NSW Outfall Program as noted in the **Table 10** footnotes. As such, 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. Each year, the storm drains, channels, outfalls, and associated databases will be updated to incorporate the most recent characterization data for outfalls with significant NSW discharge. The updates will be included as part of the annual reporting to the Regional Board.

Table 10. MS4 Database Elements to Be Developed

Permit Requirement	Database Element	To Be Developed	Date of Submission
VII.A.4	Effective Impervious Area (EIA) overlay (if available).		As Available
VII.A.9	Notation of outfalls with significant NSW discharges (to be updated annually).	X ¹	December 2015
VII.A.10	Detailed analysis of storm drain outfall catchment areas for any new outfall monitoring locations, outfalls identified as having significant NSW discharges, and outfalls addressed by structural BMPs.	X ²	Ongoing
Each mapped MS4 outfall shall be linked to a database containing descriptive and monitoring data associated with the outfall. The data shall include:			
VII.A.11.d	Photographs of the outfall, where possible, to provide baseline information to track operation and maintenance needs over time	X ³	December 2015
VII.A.11.e	Determination of whether the outfall conveys significant NSW discharges.	X ¹	December 2015
VII.A.11.f	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 using the criteria presented in **Section 5.2**.
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 NSW 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

As outlined in the MRP (Part VIII.A of the MRP), stormwater discharges from the MS4 shall be monitored at outfalls and/or alternative access points such as manholes or in channels representative of the land uses within the Permittee's jurisdiction to support meeting the three objectives of the stormwater outfall based monitoring program:

- a. Determine the quality of a Permittee's discharge relative to municipal action levels, as described in Attachment G of MS4 Permit;
- b. Determine whether a Permittee's discharge is in compliance with applicable WQBELs derived from TMDL WLAs; and
- c. Determine whether a Permittee's discharge causes or contributes to an exceedance of RWLs.

4.1 STORMWATER OUTFALL MONITORING SITES

Eleven sites were selected based on an evaluation of the land uses draining to the outfall location, the jurisdictions draining to the outfall location (with an emphasis placed on receiving drainage from as many jurisdictions as possible), the safety and accessibility of the site, and the ability to use autosampler equipment at the location. As described in **Attachment B**, the ULARWMAG reviewed the HUC-12 Equivalent boundaries (as per a memorandum issued by the Regional Board on March 24, 2014) and found that placing sites solely based on those boundaries would result in stormwater outfall sites that were not directly tied to receiving water monitoring. In addition, areas where the HUC-12 Equivalents spanned multiple tributaries and reaches of interest would be underrepresented. As such, the one outfall per HUC-12 Equivalent coordinated approach was slightly modified to a one outfall per major subwatershed approach. The primary criterion for selecting the monitoring sites was the representativeness of the land uses within the outfall catchment area as compared to the subwatershed area as a whole. The selected sites are representative of the land uses within each respective watershed area as shown in **Table 13**. The data collected at the monitored outfalls will be considered representative of all MS4 discharges within the subwatershed area. The resulting data will be applied to all ULARWMAG members represented by the site, regardless of whether a site is located within a particular jurisdiction. Because of this approach, evaluation of whether ULARWMAG members caused or contributed to exceedances of WQBELs and/or RWLs may be based on comingled discharges or data not collected within a given jurisdiction.

A "representative" approach to characterizing stormwater discharges is used rather than selecting individual sites for each jurisdiction. The "representative" approach provides the level of information necessary to support management decisions and evaluate whether MS4 discharges cause or contribute to exceedances. The "representative" approach also allows for a coordinated approach aimed at assessing inter-event variability (e.g., for different storm events) in stormwater discharge quality which is much greater than the variability between individual outfall drainages or major land uses. Based on stormwater monitoring results from other programs in California, discharge quality from drainages with similar mixed land uses is not substantially different. Furthermore, due to the high variability in discharge quality at any given site during wet weather, it will be impossible to distinguish statistically between drainages. As such, given the high variability typical of stormwater pollutant levels, and with only a few storm

events that can be collected per year given climatic conditions, it will not be possible to make *meaningful* distinctions between drainages, either within land use types, across land use types, or between jurisdictions. Management implementation by the Permittees is also expected to be relatively consistent throughout the subwatersheds, so additional focus on geographic differences is not necessary. This means that only a few sites are needed to adequately characterize residential land use discharge quality within the ULARWMAG EWMP area. Realistically achievable changes in stormwater runoff quality or loads (e.g., 20–50% reductions) are statistically demonstrable only over relatively long periods of time (≥ 10 years). The approach to generally monitor one outfall for each subwatershed will provide the representative data needed to meet the specific MRP objectives for stormwater outfall monitoring and support management decisions of the ULARWMAG. Additional monitoring sites will not provide significant improvements in representation or characterization of discharge quality, or additional information for discharge quality management. For additional details on the analysis to support the approach to generally monitoring one outfall per subwatershed, please see **Attachment B**.

The size and composition of the LAR Reach 6 subwatershed is unique when compared with the other subwatershed areas. The LAR Reach 6 subwatershed contains the largest portion of the ULARWMAG area. In addition, it is primarily composed of the City of Los Angeles and unincorporated Los Angeles County, with a small portion of the subwatershed consisting of the cities of Calabasas and Hidden Hills. Furthermore, the LAR Reach 6 subwatershed lies adjacent to the LAR Reach 5 subwatershed, which is entirely composed of the City of Los Angeles and unincorporated County of Los Angeles, and has a similar land use breakdown to the City of Los Angeles and unincorporated County of Los Angeles portion of Reach 6. Thus, to distinguish between the differences between areas of the LAR Reach 6 subwatershed and to capitalize on the similarities between areas of the LAR Reach 6 and Reach 5 subwatersheds, two outfall monitoring sites were selected for the LAR Reach 6 subwatershed. One outfall monitoring site will represent the cities of Calabasas and Hidden Hills and the other outfall monitoring site will represent the areas of the City of Los Angeles and County of Los Angeles located within the LAR Reach 6 and Reach 5 subwatersheds. One outfall monitoring site was selected for all other subwatersheds yielding a total of eleven outfall monitoring sites.

Summary information for the 11 stormwater outfall monitoring sites is presented in **Table 11** and the locations are shown on **Figure 3**. **Table 12** identifies the outfalls which would be considered representative of each of the ULARWMAG members. Additionally, **Table 12** identifies the receiving waters to which the outfall sites may be considered applicable. That is, if an exceedance was observed in a receiving water, the outfall data would be reviewed to determine if a ULARWMAG member had the potential to cause or contribute to the exceedance.

Attachment B presents additional details of the sites. Additionally, alternate sites are identified in **Attachment B** in the event the primary sites are not accessible, are determined to backflow during high flow conditions to the extent that a representative sample cannot be obtained, or are unsafe for sampling. For all 11 stormwater outfall monitoring sites, if determined to be preferable, sampling may occur at a manhole located upstream of each of the location where the outfall discharges to a receiving water.

Table 11. Stormwater Outfall Monitoring Sites

Subwatershed	Site Name	Drain Name	Jurisdiction Where Site is Located	Jurisdictions Draining to the Site	Size	Shape	Latitude	Longitude
LA River Reach 2	LAR_02_SW_MAI	BI 0062 – Line A	City of LA	City of LA	147"	Rectangular	34.06720	-118.22424
LA River Reach 3	LAR_03_SW_COL	BI 9506 U01	City of LA	City of LA, Glendale	144"	Rectangular	34.13668	-118.27477
LA River Reach 4	LAR_04_SW_BUE	BI 0168 – Frederick St Drain	Burbank	Burbank	72"	Round	34.15319	-118.32545
LA River Reach 6	LAR_06_SW_WIN	BI 0477	City of LA	City of LA	108"	Rectangular	34.19097	-118.57072
LA River Reach 6	LAR_06_SW_OLD	PD 0778	Calabasas	Calabasas	45"	Round	34.14422	-118.63045
Compton Creek	CC_SW_LAN	BI 0073 – U1 Line C	City of LA	City of LA, County of LA	108"	Rectangular	33.93540	-118.25479
Rio Hondo	RH_SW_ROB	Rubio Drain	San Marino	County of LA, Pasadena, San Marino	234"	Rectangular	34.12867	-118.10036
Arroyo Seco	AS_SW_SEC	Seco St Drain	Pasadena	Pasadena, County of LA	81"	Rectangular	34.15511	-118.16757
Verdugo Wash	VW_SW_CAN	BI 0434 Northeast Glendale	Glendale	County of LA, Glendale, La Cañada Flintridge	126"	Rectangular	34.18991	-118.22734
Burbank Western Channel	BWC_SW_MAI	BI 0169	Burbank	Burbank	72"	Rectangular	34.16096	-118.30999
Tujunga Wash	TW_SW_BUR	BI 0091 (F1046)	City of LA	City of LA	81"	Round	34.17019	-118.41335

Table 12. ULARWMAG Member Represented by Each Stormwater Outfall Monitoring Site⁽¹⁾⁽²⁾

Jurisdiction	Site	LA River						Tributaries ⁽³⁾						Lakes ⁽⁴⁾						
		2	3	4	5	6	TW	BWC	VW	AS	RH	CC	BuC	ACW	MC	DC	BeC	LEG	EP	CAL
Alhambra	LAR_02_SW_MAI	D																		
	RH_SW_ROB									D										
Burbank	LAR_03_SW_COL	I	D																	
	LAR_04_SW_BUE	I	I	D																
	BWC_SW_MAI	I	I					D												
	LAR_06_SW_OLD	I	I	I	I	I								D	D	D				D
City of Los Angeles	LAR_02_SW_MAI	D																		D
	LAR_03_SW_COL	I	D																	
	LAR_04_SW_BUE	I	I	D																
	LAR_06_SW_WIN	I	I	I	D	D							D	D	D	D	D			
	CC_SW_LAN																			D
	AS_SW_SEC	I									D									
County of Los Angeles	VW_SW_CAN	I	I											D						
	BWC_SW_MAI	I	I												D					
	TW_SW_BUR	I	I	I																
	LAR_02_SW_MAI	D																		
	LAR_04_SW_BUE	I	I	D																
	LAR_06_SW_WIN	I	I	I	D	D								D	D	D	D			
Glendale	CC_SW_LAN																			D
	RH_SW_ROB																			
	AS_SW_SEC	I																		
	VW_SW_CAN	I	I																	
	TW_SW_BUR	I	I	I																
Glendale	LAR_03_SW_COL	I	D																	
	VW_SW_CAN	I	I																	
	BWC_SW_MAI	I	I																	

Jurisdiction	Site	LA River						Tributaries ⁽³⁾										Lakes ⁽⁴⁾		
		2	3	4	5	6	TW	BWC	VW	AS	RH	CC	BuC	ACW	MC	DC	BeC	LEG	EP	CAL
Hidden Hills	LAR_06_SW_OLD	I	I	I	I	I											D			
	LAR_03_SW_COL	I	D																	
La Cañada Flintridge	VW_SW_CAN	I	I					D												
	AS_SW_SEC	I							D											
Montebello	RH_SW_ROB									D										
Monterey Park	LAR_02_SW_MAI	D																		
	RH_SW_ROB									D										
Pasadena	LAR_02_SW_MAI	D																		
	LAR_03_SW_COL	I	D																	
	RH_SW_ROB									D										
	AS_SW_SEC	I									D									
Rosemead	VW_SW_CAN	I	I										D							
	RH_SW_ROB																			
San Fernando	TW_SW_BUR	I	I	I			D													
San Gabriel	RH_SW_ROB																			
San Marino	RH_SW_ROB																			
	LAR_02_SW_MAI	D																		
South Pasadena	RH_SW_ROB																			
	AS_SW_SEC	I															D			
Temple City	RH_SW_ROB																		D	

1. D = Jurisdiction discharges directly; I = Jurisdiction discharges indirectly (i.e., upstream)
2. If an exceedance is observed in a waterbody, the paired data collected from the drains discharging directly and/or indirectly to the waterbody will be used to assess whether the ULARWMAG member caused or contributed to the exceedance.
3. TW(Tujuana Wash), BWC (Burbank Western Channel), VW (Verdugo Wash), AS (Arroyo Seco), RH (Rio Hondo), CC (Compton Creek), BuC (Bull Creek), ACW (Aliso Canyon Wash), MC (McCoy Canyon Creek), DC (Dry Canyon Creek), and BeC (Bell Creek)
4. LEG (Legg Lake), EP (Echo Park Lake), CAL (Lake Calabasas)

Table 13. Land Use Summaries of Jurisdictions Participating in the ULARWMAG

Subwatershed and Site	Percent of Jurisdiction ⁽¹⁾			
	Res	Com/Ind	Ag/Nur	Open
LA River Reach 2	54%	40%	<1%	6%
LAR_02_SW_MAI	70%	25%	<1%	5%
LA River Reach 3	64%	26%	<1%	10%
LAR_03_SW_COL	69%	23%	1%	7%
LA River Reach 4	70%	25%	1%	4%
LAR_04_SW_BUE	76%	24%	<1%	<1%
LA River Reaches 5 and 6 ⁽²⁾	71%	23%	2%	4%
LAR_06_SW_WIN	67%	31%	<1%	2%
LA River Reach 6 ⁽³⁾	79%	13%	1%	7%
LAR_06_SW_OLD	99%	1%	<1%	<1%
Compton Creek	68%	30%	<1%	2%
CC_SW_LAN	63%	35%	<1%	1%
Rio Hondo	68%	23%	1%	8%
RH_SW_ROB	82%	16%	<1%	2%
Arroyo Seco	79%	12%	0%	9%
AS_SW_SEC	69%	25%	<1%	6%
Verdugo Wash	84%	12%	<1%	4%
VW_SW_CAN	69%	29%	<1%	2%
Burbank Western Channel	61%	34%	1%	4%
BWC_SW_MAI	71%	28%	<1%	1%
Tujunga Wash	70%	23%	2%	5%
TW_SW_BUR	86%	14%	<1%	<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 total area considered in the EWMP (i.e., only using open space characterized as golf courses, local parks, and regional parks).
2. Areas of subwatersheds within the jurisdiction of the City of Los Angeles and County of Los Angeles.
3. Area of subwatershed within the jurisdiction of the Cities of Calabasas and Hidden Hills.

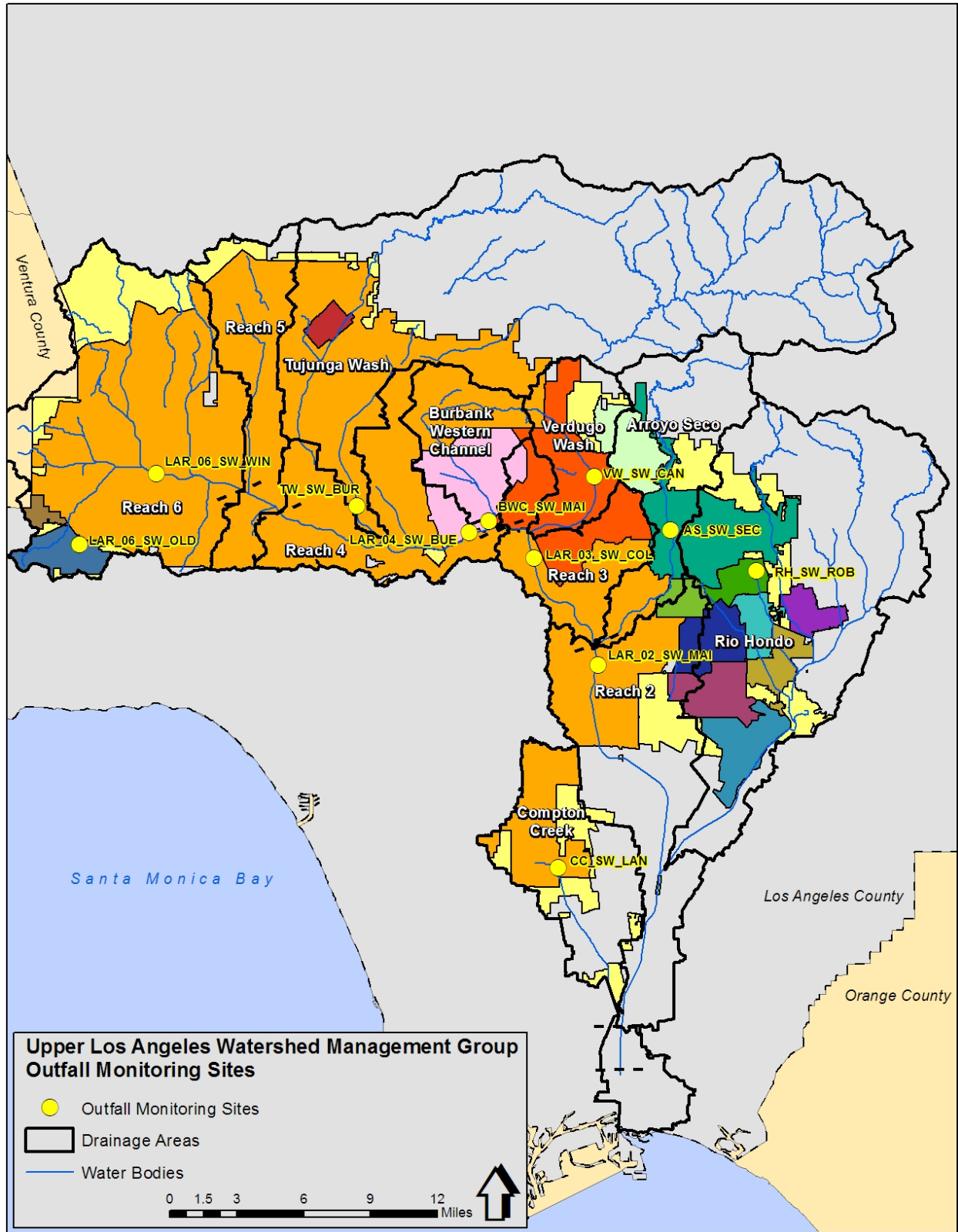


Figure 3. Stormwater Outfall Monitoring Locations Overview

4.2 MONITORED PARAMETERS AND FREQUENCY

The requirements for parameters to be monitored are outlined in the Part VIII.B.1.c of the MRP. Parameters that will be monitored during three events at each stormwater outfall monitoring site are presented in **Table 14** and are based on the monitoring requirements of the waterbody to which they discharge, as well as downstream waterbodies. This list was generated from the current list of constituents monitored during wet weather in the receiving waters and will be updated as the constituents monitored during wet weather in the waterbody to which they discharge, as well as downstream waterbodies, are updated and/or changed based upon the data collected at the individual outfall site. Outfalls will be monitored for all required constituents except toxicity. Toxicity monitoring will occur when triggered by receiving water toxicity monitoring and TIE results. Wet weather events for stormwater outfall monitoring will occur simultaneously with receiving water monitoring to the extent possible. To be consistent with receiving water monitoring, stormwater outfall monitoring will consist of collecting composite samples (except in certain situations as described in **Section 2.3**). Wet weather conditions for targeted storm events are described in **Section 2.3** and **Attachment C**. Analytical methods, detection limits, sampling methods, and sample handling procedures are detailed in **Attachment C**. In addition, details regarding the collection of QA/QC samples are outlined in **Attachment C**.

Table 14. List of Parameters for Stormwater Outfall Monitoring⁽¹⁾

Parameters	Subwatershed ⁽²⁾											
	Reach 2	Reach 3	Reach 4	Reach 6	Reach 6	Reach 6	CC	RH	AS	VW	BWC	TW
Site ID	LAR_02_SW_MAI	LAR_03_SW_COL	LAR_04_SW_BUE	LAR_06_SW_WIN	LAR_06_SW_OLD	CC_SW_LAN	RH_SW_ROB	AS_SW_SEC	VW_SW_CAN	BWC_SW_MAI	TW_SW_BUR	
Flow, hardness, pH, dissolved oxygen, temperature, and specific conductivity	X	X	X	X	X	X	X	X	X	X	X	X
TSS	X	X	X	X	X	X	X	X	X	X	X	X
Table E-2 pollutants of the MRP detected above relevant objectives and not otherwise addressed below	X	X	X	X	X	X	X	X	X	X	X	X
Cadmium (total and dissolved)	X	X	X	X	X	X	X	X	X	X	X	X
Copper (total and dissolved)	X	X	X	X	X	X	X	X	X	X	X	X
Lead (total and dissolved)	X	X	X	X	X	X	X	X	X	X	X	X
Zinc (total and dissolved)	X	X	X	X	X	X	X	X	X	X	X	X
Mercury (total)	X	X	X	X	X	X	X	X	X	X	X	X
Suspended Sediment: Chloridane ⁽³⁾ , PCBs ⁽³⁾ , and Dieldrin	X ⁽⁴⁾											
Ammonia as N, Nitrate as N, Nitrite as N, and Nitrate+Nitrite Nitrogen (NO3-N+NO2-N), TKN or Organic Nitrogen, Orthophosphate, Total Phosphorus, and TDS	X ⁽⁴⁾				X ⁽⁴⁾		X ⁽⁴⁾					

1. As described in **Section 11**, data collected as part of the ULARMMAG CIMP will be reviewed and changes to the constituents and frequencies as a result of exceedances in the receiving waters or as a result of toxicity testing will be discussed in the annual report and implemented starting no later than the first CIMP event of the next monitoring year (i.e., the first event after July 1 of the year following the annual report submittal).
2. CC (Compton Creek), RH (Rio Hondo), AS (Arroyo Seco), VW (Verdugo Wash), BWC (Burbank Western Channel), and TW (Tujunga Wash)
3. See **Table 5** for a summary of the constituents that comprise chlordane and PCBs.
4. Nutrients and TDS to be monitored twice per year and suspended sediment to be monitored once per year to satisfy the Los Angeles Area Lakes TMDLs monitoring requirements specified in Part XIX.D of the MRP.

4.3 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 15**. The schedule for implementing stormwater outfall monitoring is presented in **Section 13**.

Table 15. 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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • Stormwater outfall monitoring sites located in waterbodies 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.	<ul style="list-style-type: none"> • 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 waterbody to which they discharge, as well as downstream waterbodies.

5 Non-Stormwater Outfall Program

The objectives of the NSW Outfall Program include the following (Part II.E.3 of the MRP):

- a. Determine whether a Permittee's discharge is in compliance with applicable NSW QBELs derived from TMDL WLAs;
- b. Determine whether a Permittee's discharge exceeds NSW action levels, as described in Attachment G of the MS4 Permit;
- c. Determine whether a Permittee's discharge contributes to or causes an exceedance of RWLs; and
- d. Assist a Permittee in identifying illicit discharges as described in Part VI.D.10 of the MS4 Permit.

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 NSW discharges are identified and assessed during the Permit term.
2. For outfalls determined to have significant NSW flow, determine whether flows are the result of illicit connections/illicit discharges (IC/IDs), authorized or conditionally exempt NSW 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 NSW 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 NSW discharges on the receiving water.
7. Conduct monitoring or other investigations to identify the source of pollutants in NSW discharges.
8. Use results of the screening process to evaluate the conditionally exempt NSW 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 Permittee resources by integrating the screening and monitoring process into existing or planned CIMP efforts.

5.1 NON-STORMWATER OUTFALL SCREENING AND MONITORING PROGRAM

The NSW Outfall Program is focused on NSW discharges to receiving waters from major outfalls (i.e., discharges occurring during dry weather). The NSW Outfall Program is designed to

be complimentary to the individual ULARWMAG members IC/ID programs, established under Part VI.D.10 of the Permit.

In summary, the intent of the NSW Outfall Program is to demonstrate that the Permittees are effectively prohibiting NSW discharges that are not exempt or conditionally exempt discharges to receiving waters and to assess whether NSW discharges are causing or contributing to exceedances of RWLs. By detecting, identifying, and eliminating illicit discharges, the NSW Outfall Program will demonstrate Permittees' efforts to effectively prohibit NSW discharges to and from the MS4. Where NSW discharges are deemed "significant", the program will discern whether they are illicit, exempt, or conditionally exempt, and demonstrate whether the discharges may be causing or contributing to exceedances of RWLs.

For the receiving water and stormwater outfall 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 NSW Outfall Program, the MRP specifies a process for screening, investigating, and ultimately monitoring. The outfall screening and investigation is intended to 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 NSW Outfall Program is presented in **Table 16**. **Figure 4** presents a NSW Outfall Program flow diagram. Detailed discussion of each element is provided in the following subsections.

The water quality priorities and corresponding receiving water conditions were used to establish an approach for the NSW Outfall Program to ensure that, if actions must be taken at a storm drain, there is a corresponding water quality issue in the receiving water. Based on a review of the available information, *E. coli* was identified as the water quality priority that appears to be most appropriate for use when determining the significance of a NSW discharge for the following reasons:

1. Of the constituents addressed by TMDLs for which WQBELs and RWLs were incorporated into the Permit, *E. coli* consistently exceeds RWLs. Metals and nutrients appear to consistently meet the dry weather RWLs. All other TMDL-related WQBELs and RWLs are primarily associated with wet weather discharges.
2. Based on the Los Angeles River Bacteria Source Identification (BSI) Study (CREST 2008) conducted in Reaches 2 and 4, concentrations of *E. coli* in storm drain discharges ranged from non-detect to ~73 million MPN/100mL, with median concentrations around 1000 MPN/mL (an order of magnitude higher than the LAR Bacteria TMDL WQBELs and RWLs of 235 MPN/mL and 126 MPN/mL, respectively).
3. The Permit requires Permittees to conduct outfall monitoring to support implementation and/or compliance determination.
4. The LAR Bacteria TMDL provides a phased approach to implementation that can form the basis of phasing the implementation of the NSW Outfall Program, which appears appropriate given the size of the ULARWMAG EWMP area. The phasing of the approach would follow the prioritization of LA River segments and tributaries utilized in the TMDL and incorporated into the Permit.

5. The LAR Bacteria TMDL requires outfall monitoring, and combining those efforts with the NSW Outfall Program will allow Permittees to maximize their resources.

Although the initial focus of the NSW Outfall Program will be on supporting and integrating the requirements with the LAR Bacteria TMDL, this approach will consider the broader requirements of the Permit. Additionally, the NSW Outfall Program will likely be modified over time to reflect changing priorities within the ULARWMAG EWMP area.

Table 16. Summary of the NSW Outfall Program Elements

Element	Description	Timing of Completion
1. Outfall Screening	Because data required to implement the NSW Outfall Program are not available, the Permittees will implement a screening process to determine which outfalls exhibit significant NSW discharges and those that do not require further investigation.	Outfall Screening process to commence as outlined in Section 13 and all elements will be completed prior to initiating source investigations.
2. Identification of outfalls with significant NSW discharge (Part IX.C of the MRP)	Based on data collected during the Outfall Screening process, Permittees will identify MS4 outfalls with significant NSW discharges.	
3. Inventory of Outfalls with NSW discharge (Part IX.D of the MRP)	Permittees will develop an inventory of major MS4 outfalls with known significant NSW discharges and those requiring no further assessment.	
4. Prioritized source investigation (Part IX.E of the MRP)	The Permittees will use the data collected as part of the Outfall Screening process to prioritize outfalls for source investigations.	
5. Identify sources of significant NSW discharges (Part IX.F of the MRP)	For outfalls exhibiting significant NSW discharges, the Permittees will perform source investigations per the established prioritization.	Source investigations will be conducted for 25% of the outfalls with significant NSW discharges by one year after a new set is identified and 100% by three years after the new set is identified.
6. Monitoring NSW discharges exceeding criteria (Part IX.G of the MRP)	Using the information collected during screening and source investigation efforts, the Permittees will monitor outfalls that have been determined to convey significant NSW discharges comprised of either unknown or non-essential conditionally exempt NSW discharges, or continuing discharges attributed to illicit discharges.	Monitoring will commence as outlined in Section 13 .

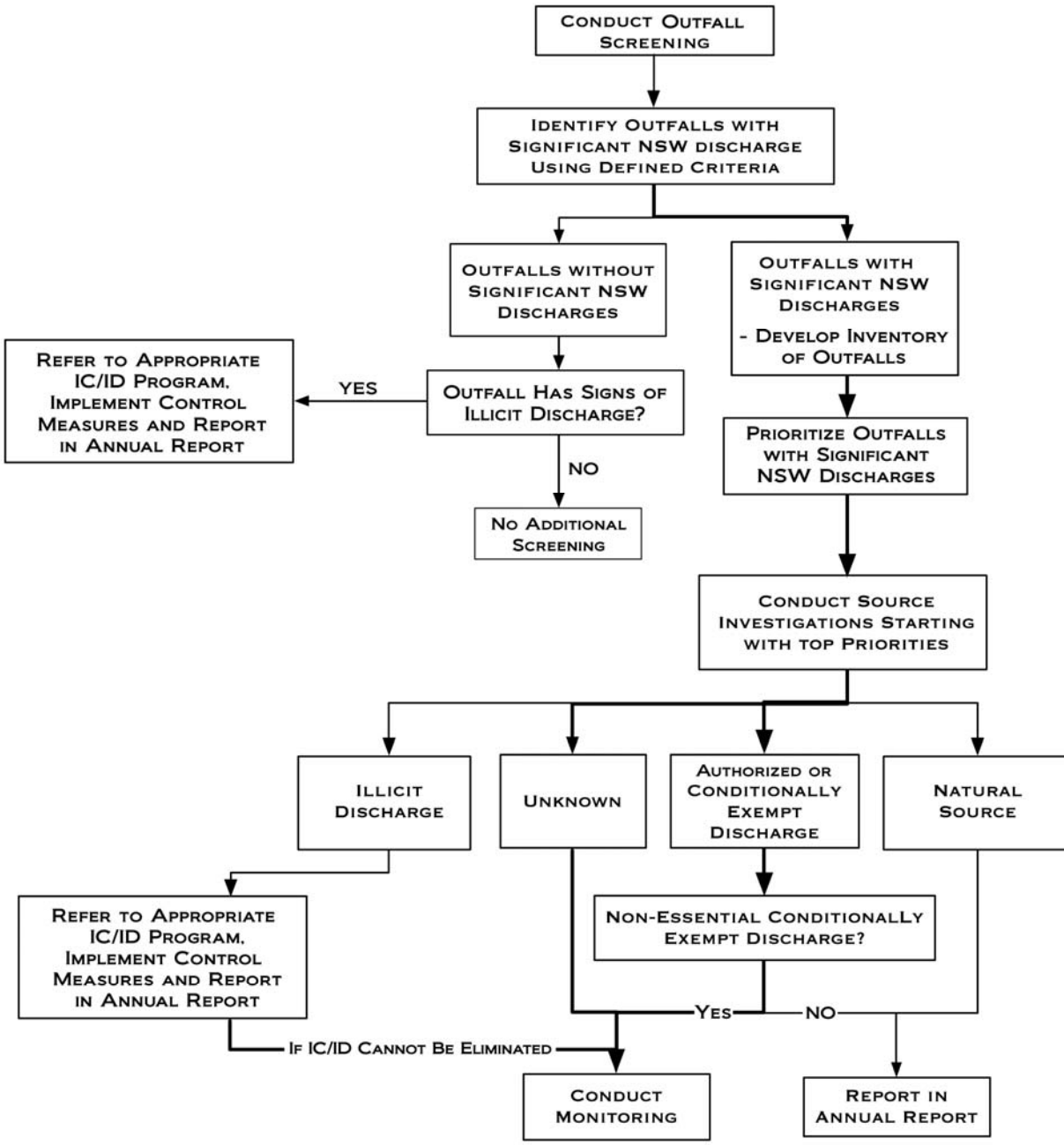


Figure 4. NSW Outfall Program Flow Diagram

5.2 IDENTIFICATION OF OUTFALLS WITH SIGNIFICANT NON-STORMWATER DISCHARGES

The data necessary to identify significant NSW discharges are not available at this time. Thus, outfall screening is necessary to collect the information to identify major outfalls exhibiting significant NSW discharges and develop the information needed for the inventory of outfalls with significant NSW discharges. The MRP (Part IX.C.1) states that other characteristics, as determined by the Permittee and incorporated within the screening program, may be used to determine significant NSW discharges. Data will be collected during the Outfall Screening

process to focus efforts on discharges that have, or the potential to have, an impact on receiving waters. For the reasons stated above, *E. coli* loading will serve as the primary characteristic for determining significant NSW discharges. **Table 17** presents the components of the Outfall Screening process and the characteristics that will be utilized to determine the outfalls with significant NSW discharges.

Table 17. Approach for Establishing an Outfall Screening Process Utilizing *E. coli* Loading as the Key Characteristic for Determining Significant Non-Stormwater Discharges

Component	Description
Characteristics for Defining Significant NSW Discharges	<p>Outfalls will be determined to be significant NSW discharges based on the Load Reduction Strategy (LRS)⁽¹⁾ approach outlined in the LA River Bacteria TMDL. The approach considers the first two aspects of the discharge described immediately below and the determination of significant NSW is described as the criteria in bold:</p> <ul style="list-style-type: none"> ○ Does the non-stormwater discharge reach the receiving water during dry weather? If yes, continue through the ranking criteria. ○ Is the <i>E. coli</i> <u>concentration</u> in the NSW discharge above receiving water limits? If yes, continue through the ranking criteria. <p><i>E. coli</i> loading rate: the identification of outfalls with significant NSW discharge is based on conducting a quantitative analysis (i.e., Monte Carlo modeling) to: (1) evaluate both the individual and cumulative <i>E. coli</i> loading rates from outfalls along a LA River segment or tributary before and after implementation actions, and (2) prioritize implementation actions based on these <i>E. coli</i> loading rates. The LRS process described by the TMDL, which will be used for the NSW Program, is based around identification of, two categories of outfalls, as follows:</p> <ul style="list-style-type: none"> ○ Priority Outfalls –The LRS prioritization process highlights the Priority Outfalls because they have the highest loading rates of <i>E. coli</i>. Overall, Priority Outfalls have relatively consistent, problematic discharges that both drive storm drain loading rates above the WLA. As such, Priority Outfalls are the highest priority for specific implementation actions in the LRS. ○ Outlier Outfalls are outfalls identified by retrospectively comparing the results of the Monte Carlo simulations to the “raw” monitoring data.
Data Collection	<p>Data that will be collected include accurate flow measurements and <i>E. coli</i> concentration. Additionally, the information needed to complete the inventory as described in Section 5.3 will be collected.</p>
Frequency	<p>Three times as part of the initial screening process, unless monitoring has already been conducted. The remaining three monitoring events to meet the requirements of the LA River Bacteria TMDL LRS process would be completed as part of the NSW outfall monitoring described in Section 5.6. Screening in subsequent Permit terms would be identified prior to the completion current of the Permit term.</p>

1. See the LA River Bacteria TMDL Staff Report for additional details on the Load Reduction Strategy process for identifying significant and outlier outfalls.

5.3 INVENTORY OF MS4 OUTFALLS WITH NON-STORMWATER DISCHARGES

An inventory of MS4 outfalls will be developed identifying those outfalls with known significant NSW discharges and those requiring no further assessment (Part IX.D of the MRP). If the MS4 outfall requires no further assessment, the inventory will include the rationale for the determination of no further action required. Potential rationale for a determination of no further action could include: 1) the outfall does not have flow; 2) the outfall does not have a known significant NSW discharge; or 3) discharges observed were determined to be exempted. The

inventory will be recorded in the database required in Part VII.A of the MRP. Each year, the inventory will be updated to incorporate the most recent characterization data for outfalls with significant NSW discharges.

The following physical attributes of outfalls with significant NSW discharges will be included in the inventory and will be collected as part of the Outfall Screening process:

- 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 NSW discharge (or indicators of discharge) unless safety considerations preclude obtaining photographs
- j. Estimation of discharge rate
- k. All diversions either upstream or downstream of the outfall
- l. Observations regarding discharge characteristics such as turbidity, odor, color, presence of debris, floatables, or characteristics that could aid in pollutant source identification.

5.4 PRIORITIZED SOURCE IDENTIFICATION

Once the major outfalls exhibiting significant NSW discharges have been identified through the Outfall Screening process and incorporated into the inventory, Part IX.E of the MRP requires that the Permittees prioritize the outfalls for further source investigations. Once the prioritization is completed, a source identification schedule will be developed. As described in **Section 13**, the Outfall Screening process will be conducted in phases. Because the phased process is based on the prioritized waterbody approach in the LA River Bacteria TMDL, a schedule is essentially captured in the multiple phases conducted over the current and future Permit terms. As additional screening events are conducted, a new set of outfalls with significant NSW discharges may be identified. As such, it is recommended that the following schedule be used for conducting source investigations on each new set of outfalls with significant NSW discharges that are identified: 25% of the outfalls with significant NSW discharges by one year after a new set is identified and 100% by three years after the new set is identified.

As the approach for identifying significant NSW discharges already focuses on addressing outfalls based upon each outfall's potential effect on attaining the requirements of the LA River Bacteria TMDL, the following prioritization criteria will be utilized initially and may be revised as priorities in the EWMP area change:

1. Priority Outfalls identified through the Monte Carlo analysis⁴.

⁴ Mathematical method identified in the Los Angeles River Bacteria TMDL Staff Report used to conduct the analysis of outfall data and identify priority and outlier outfalls.

2. Outlier Outfalls identified through the Monte Carlo analysis.

Both the source identification prioritization criteria and scheduling may be revised upon completion of the first phase of implementation of the NSW Screening and Outfall Program.

5.5 SIGNIFICANT NON-STORMWATER DISCHARGE SOURCE IDENTIFICATION

As described in the Fact Sheet for the Permit, the screening and source identification components of the program are used to identify the source(s) and point(s) of origin of the NSW discharge. Based on the prioritized list of major outfalls with significant NSW discharges, investigations must be conducted to identify the source(s) or potential source(s) of non-stormwater flows.

Part IX.A.2 of the MRP requires Permittees to classify the source investigation results into one of four endpoints outlined as follows and summarized in **Table 18**:

- A. Illicit connections or illicit discharges: If the source is determined to be an illicit discharge, the Permittee must implement procedures to eliminate the discharge consistent with IC/ID requirements (Permit Part VI.D.10) and document actions.
- B. Authorized or conditionally exempt NSW discharges: If the source is determined to be an NPDES permitted discharge, a discharge subject to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), or a conditionally exempt essential discharge, the Permittee must document the source. For non-essential conditionally exempt discharges, the Permittee must conduct monitoring consistent with Part IX.G of 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 Permittee must document the source.
- D. Unknown sources: If the source is unknown, the Permittee must conduct monitoring consistent with Part IX.G of the MRP.

Table 18. 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 United States Environmental Protection Agency (USEPA) pursuant to section 121 of CERCLA, or is a conditionally exempt NSW discharge addressed by other requirements. Conditionally exempt NSW discharge addressed by other requirements are described in detail in Part III.A. Prohibitions – Non-Stormwater Discharges of the Permit.

Source investigations will be conducted using site-specific procedures based on the characteristics of the NSW discharge and the techniques utilized by the individual Permittee's IC/ID program conducting the investigation. Investigations could include:

- Gathering additional 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.

Where investigations determine the NSW source to be authorized, natural, or essential conditionally exempt flows, the investigation will be concluded and the next highest priority outfall will then be investigated. Where investigations determine that the source of the discharge is non-essential conditionally exempt, an illicit discharge, or is unknown – further investigation will be considered to eliminate the discharge or demonstrate that it is not causing or contributing to receiving water impairments. In some cases, source investigations may ultimately lead to prioritized programmatic or structural BMPs. Where Permittees determine that the NSW discharge will be addressed through modifications to programs or by structural BMP implementation, the Permittee will incorporate the approach into the implementation schedule developed in the EWMP, and the outfall will be lowered in priority for investigation, such that the next highest priority outfall is addressed.

5.6 NON-STORMWATER DISCHARGE MONITORING

As outlined in the MRP (Part II.E.3), outfalls with significant NSW 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 NSW WQBELs derived from TMDL WLAs;
- b. Determine whether the quality of a Permittee's discharge exceeds NSW 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.

Thus, outfalls that are determined to convey significant NSW discharges where the source investigations conclude that the source is attributable to a continued illicit discharge (Endpoint A from **Table 18**), non-essential conditionally exempt (Endpoint B from **Table 18**), or unknown (Endpoint D from **Table 18**), must be monitored. Monitoring will begin within 90 days of completing source investigations or after the Executive Officer approves this CIMP, whichever is later.

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, non-stormwater action levels, or water quality standards for pollutants identified on the 303(d) list, monitoring will cease at an outfall after the first year or specific pollutants will be

no longer be analyzed. Thus, the number and location of outfalls monitored as well as the pollutants monitored has the potential to change on an annual basis. The process for adapting monitoring locations and frequency is presented in **Section 11**.

5.6.1 Non-Stormwater Outfall-Based Monitoring Sites

The Outfall Screening and prioritization processes will result in an inventory of outfalls that are required to be monitored per the Permit requirements. 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

Part IX.G.2-4 of the MRP specifies the following monitoring frequency for NSW outfall monitoring:

1. 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.
2. For outfalls not subject to dry weather TMDLs, four times per year approximately quarterly for first year.
3. 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, NSW Action Levels, or water quality standards for pollutants identified on the 303(d) List.

An alternative frequency is proposed to integrate the approach to screening and identification of significant NSW discharges with the LAR Bacteria TMDL outfall monitoring requirements. The frequency of the LAR Bacteria TMDL outfall monitoring is six times prior to implementation of actions. As such, the frequency of sample collection for the screening and monitoring events are as follows:

- **Screening:** Sample collection will be conducted **three** times at all flowing storm drains to meet the LA River Bacteria TMDL LRS monitoring requirements and establish the outfalls with significant NSW discharges.
- **Monitoring:** Sample collection will be conducted **three** times as follows:
 - *E. coli* will be monitored at all flowing storm drains to meet the LA River Bacteria TMDL LRS monitoring requirements.
 - Constituents required to meet the MRP requirements will be monitored at the subset of outfalls determined to be significant NSW discharges.

After the completion of the three monitoring events, *E. coli* monitoring at all flowing storm drains will be considered completed and will not be initiated again until implementation associated with that waterbody has been completed consistent with the LA River Bacteria TMDL schedule. Monitoring at outfalls with significant NSW discharges will be re-evaluated consistent with the Permit requirements on page E-28 of the MRP. **Section 13** summarizes the timing of initiating the screening and monitoring events for each LA River segment and tributary.

The requirements for constituents to be monitored are outlined in the Part IX.G.1.a-e of the MRP. Outfalls will initially be monitored for all required constituents except toxicity. Toxicity monitoring will occur when triggered by receiving water toxicity monitoring and TIE results. An overview of the constituents required in the MRP for NSW monitoring is listed in **Table 19**. This list was generated from the current list of constituents monitored during dry weather in the receiving waters and will be updated as the constituents monitored during dry weather in the waterbody to which they discharge, as well as downstream waterbodies, are updated and/or based upon the data collected at the individual outfall site. To be consistent with receiving water monitoring, NSW monitoring will consist of collecting grab samples. Note that constituents associated with suspended sediments transported during wet weather (i.e., PCBs, DDTs, dieldrin, chlordane, and PAHs) are not included in the list of constituents presented in **Table 19** and should not be monitored during NSW outfall monitoring.

Analytical methods, detection limits, sampling methods, and sample handling procedures are detailed in **Attachment C**. In addition, details regarding the collection of QA/QC samples are outlined in **Attachment C**.

Table 19. List of NSW Outfall Monitoring Parameters⁽¹⁾

Parameters	Subwatershed ⁽²⁾										
	Reach 2	Reach 3	Reach 4	Reach 5	Reach 6	CC	RH	AS	VW	BWC	TW
Flow, hardness, pH, dissolved oxygen, temperature, and specific conductivity	X	X	X	X	X	X	X	X	X	X	X
TSS	X	X	X	X	X	X	X	X	X	X	X
Table E-2 pollutants detected above relevant objectives	X	X	X	X	X	X	X	X	X	X	X
<i>E. Coli</i>	X	X	X	X	X	X	X	X	X	X	X
Copper (total and dissolved)	X	X	X	X	X	X	X	X	X	X	X
Lead (total and dissolved)	X	X	X	X	X	X	X	X	X	X	X
Zinc (total and dissolved)	X	X	X	X	X	X	X	X	X	X	X
Selenium (total)					X						
Mercury (total)	X	X	X	X	X	X	X	X	X	X	X
Bis(2-ethylhexyl)Phthalate					X					X	
2,3,7,8-TCDD (Dioxin)		X	X	X	X				X	X	X
Diazinon			X	X	X		X				X
Cyanide (total)							X				
Chloride				X	X	X	X			X	X
Sulfate			X	X	X						X
TDS				X	X					X	X
Chlorpyrifos						X					

1. As described in Section 11, data collected as part of the ULARMMAG CIMP will be reviewed and changes to the constituents and frequencies as a result of exceedances in the receiving waters or as a result of toxicity testing will be discussed in the annual report and implemented starting no later than the first CIMP event of the next monitoring year (i.e., the first event after July 1 of the year following the annual report submittal).

2. CC (Compton Creek), RH (Rio Hondo), AS (Arroyo Seco), VW (Verdugo Wash), BWC (Burbank Western Channel), and TW(Tujunga Wash)

5.7 NON-STORMWATER OUTFALL MONITORING SUMMARY

A summary of how the NSW outfall monitoring program meets the intended objectives of the NSW outfall monitoring program outlined in Part II.E.3 of the MRP is presented in **Table 20**. The schedule for implementing the NSW Outfall Monitoring Program is presented in **Section 13**.

Table 20. Summary of NSW Outfall Monitoring Program Objectives

MRP Objective	CIMP Component Meeting Objective
Determine whether a Permittee's discharge is in compliance with applicable NSW WQBELs derived from TMDL WLAs	<ul style="list-style-type: none"> • 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. • When implementing the NSW Outfall Program, <i>E. coli</i> is used when determining the significance of a NSW discharge because, of the constituents addressed by TMDLs for which WQBELs and RWLs were incorporated into the Permit, <i>E. coli</i> consistently exceeds RWLs and all other TMDL-related WQBELs and RWLs either consistently meet the dry weather RWLs or are primarily associated with wet weather discharges.
Determine whether a Permittee's discharge exceeds NSW action levels, as described in Attachment G of the MS4 Permit.	<ul style="list-style-type: none"> • Extensive list of constituents being collectively monitored at NSW outfall monitoring sites.
Determine whether a Permittee's discharge causes or contributes to an exceedance of RWLs.	<ul style="list-style-type: none"> • List of constituents based on the monitoring requirements of the waterbody to which they discharge, as well as downstream waterbodies.
Assist a Permittee in identifying illicit discharges as described in Part VI.D.10 of the MS4 Permit.	<ul style="list-style-type: none"> • NSW Outfall Program is designed to be complimentary to IC/ID program. • NSW Outfall Program provides a mechanism for the detection, identification, and elimination of illicit discharges. • Where NSW discharges are deemed "significant", the NSW Outfall Program will discern whether the discharges are illicit, exempt, or conditionally exempt. • If the source identification component of the NSW Outfall Program determines a discharge to be an illicit discharge, the discharge will be referred to the IC/ID program.

6 Trash Monitoring

The monitoring and reporting requirements of the LAR Trash TMDL are unique when compared with other components of this CIMP. Compliance with the LAR Trash TMDL is being met by the following ULARWMAG members through the installation of full capture devices: County of Los Angeles and cities of Burbank, Calabasas, Glendale, La Cañada Flintridge, Los Angeles, Montebello, Pasadena, Rosemead, San Fernando, and San Gabriel. As such, no specific monitoring is required or will be conducted for the LAR Trash TMDL by these ULARWMAG members.

Compliance with the LAR Trash TMDL is being met by the following ULARWMAG members through a combination of full capture, partial capture, and/or institutional controls: cities of Alhambra, Hidden Hills, Monterey Park, Rosemead, San Marino, South Pasadena, and Temple City. As such, these ULARWMAG members are required to conduct monitoring necessary to estimate a storm event discharge through use of a daily generation rate (DGR). Details on how these ULARWMAG members will conduct the necessary monitoring are presented in **Attachment C**.

The full capture approach is also being implemented within the drainage area of Echo Park Lake, thereby addressing the requirements of the Echo Park Lake Trash TMDL, including the monitoring requirements.

The County of Los Angeles and LACFCD are monitoring Legg Lake under an approved Minimum Frequency of Collection and Assessment (MFAC) Program, which will continue as part of this CIMP, with the modification of reducing the frequency of photographic documentation and forms to a monthly frequency consistent with a letter dated April 16, 2014 from the Regional Board Executive Officer to the County of Los Angeles Parks and Recreation. Additional details regarding the necessary monitoring are presented in **Attachment C**.

7 New Development/Re-Development Effectiveness Tracking

ULARWMAG members are required to maintain databases to track specific information related to new and redevelopment projects subject to the MCM in Part VI.D.7. The specific data to be tracked is listed in Part X.A of the MRP (**Table 21**). The data will be used to assess the effectiveness of the 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. As such, the following subsections generally detail the requirements and approaches related to the new and redevelopment tracking requirements. Specifics are available from each ULARWMAG member.

Table 21. 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)
✓ 85 th 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
✓ 95 th 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 Permittees will build on the existing procedures for land development to ensure that all required project data is captured.

To meet the requirements of the Permit, 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 22**.

Table 22. 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	

8 Regional Studies

Only one regional study is identified in the MRP: Southern California SMC. The Southern California SMC is a collaborative effort between all of the Phase I MS4 NPDES Permittees and NPDES regulatory agencies in Southern California. SCCWRP oversees the management and implementation of the SMC.

The goal of the SMC is to develop technical information necessary to better understand stormwater mechanisms and impacts, and develop tools to effectively and efficiently improve stormwater decision-making. One program initiated under the SMC is a Regionally Consistent and Integrated Freshwater Stream Bioassessment Monitoring Program (Bioassessment Program). The SMC initiated the Bioassessment Program in 2009. The bioassessments are structured to occur in cycles of five years. Sampling under the first cycle concluded in 2013. The next five-year cycle is scheduled to begin in 2015, with additional special study monitoring scheduled to occur in 2014.

The MRP states that each Permittee shall be responsible for supporting the monitoring described at the sites within the watershed management area(s) that overlap with the Permittee's jurisdictional area. Specifically, for the Bioassessment Program of the SMC, the LACFCD and City of Los Angeles will continue their participation in the SMC Regional Bioassessment Monitoring Program on behalf of the ULARWMAG during the current Permit term. LACFCD and City of Los Angeles's participation will address the MRP requirements as well as monitoring related to macrobenthic invertebrate 303(d) listings in the ULAR EWMP area. SMC, including LACFCD and the City of Los Angeles, are currently working on designing the bioassessment monitoring program for the next five-year cycle, which is scheduled to run from 2015 to 2019.

9 Special Studies

The MRP states that each Permittee is responsible for conducting special studies required in an effective TMDL or an approved TMDL Monitoring Plan. The effective TMDLs, revised TMDLs, and approved Monitoring Plans relevant to the ULARWMAG EWMP area do not require the completion of special studies. Special studies may be identified in the future and may either rely upon data collected through this CIMP or may be developed through a separate process.

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10 Non-Direct Measurements

Environmental data (water, sediment, and tissue data) collected through other monitoring programs (e.g., WRPs, downstream CIMPs, Council for Watershed Health) in the LAR watershed will be incorporated 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 this CIMP to compile and analyze all available data. Environmental data reported by other entities will be evaluated for suitability for inclusion in this CIMP database and will be accepted if the data meet the following requirements:

- Conducted and documented consistent with the sampling procedures outlined in this CIMP.
- Sample 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.

As described in **Section 2**, receiving water monitoring sites may be moved to allow for improved coordination between this CIMP and WRP receiving water monitoring programs. If the specified sites are moved and the suitability requirements are met, environmental data collected by the WRPs may be directly used in place of the monitoring described in this CIMP.

Regardless of whether monitoring sites are moved, several instances have been identified where environmental data collected by the WRPs will be directly used by the ULARWMAG. These instances are denoted in **Table 5** and **Table 6**. Receiving water monitoring data collected by the applicable WRP will be obtained from each agency responsible for conducting such monitoring and reported as described in **Attachment D**. If WRP monitoring frequency is reduced below the frequency needed to meet the requirements of the MRP, this CIMP will be revised to conduct the monitoring.

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 are 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 Los Angeles River WMA will be collected downstream of the ULARWMAG EWMP area and directly used for suspended sediment monitoring associated with meeting the requirements of the Harbor Toxics TMDL. The Lower Los Angeles River (LLAR) WMP Group will conduct suspended sediment monitoring associated with meeting the requirements of the Harbor Toxics TMDL. The suspended sediment monitoring data associated with meeting the requirements of the Harbor Toxics TMDL will be obtained from the LLAR WMP Group and reported as described in **Attachment D**. As further described in **Section 11.2**, after a better understanding has been obtained of the extent to which pollutants associated with suspended sediment being discharged from the MS4 are causing or contributing to the impairments identified in the Harbor Toxics TMDL, the ULARWMAG may elect to also conduct suspended sediment monitoring associated with meeting the requirements of the Harbor Toxics TMDL at the LAR_02_WAS LTA site to assess the ULARWMAG's load to downstream waterbodies.

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

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11 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 and may require modifications to the monitoring sites, schedule, frequency or parameters. In particular, the NSW 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.

11.1 INTEGRATED MONITORING AND ASSESSMENT PROGRAM

This CIMP is based on the MRP requirements and analysis of existing data. As monitoring occurs, additional information will be gathered that will require modifications to this CIMP. 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.
- NSW 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 ULARWMAG. As a result, additional changes may be considered during the evaluation based on the control measure implementation needs.

11.2 CIMP REVISION PROCESS

This CIMP identifies a range of sampling that will likely result in data that will require changes to ensure monitoring meets the requirements and intent of the MRP and supports EWMP implementation. However, since many of those potential changes are identified in this CIMP, it should not be necessary to obtain Regional Board approval of modifications already considered in this CIMP to ensure timely implementation of appropriate modifications to monitoring. These changes are outlined in this section. 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 (including but not limited to those which meet the activation criteria described in **Section 2.2**) 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.

2. Discontinuing monitoring for Table E-2 constituents that are not identified as a water quality priority and are not detected at levels above relevant water quality objectives in the first year of monitoring.
3. Discontinuing monitoring of any non-TMDL constituent at a specified site if there are two consecutive monitoring events for the same condition (i.e., wet or dry weather) with no exceedances observed (i.e., constituents which meet the deactivation criteria described in **Section 2.2**).
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 ULARWMAG 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 NSW Outfall Program during the Permit term.
8. Modifications to sampling protocols resulting from coordination with other watershed monitoring programs. In particular, as described in **Section 10**, suspended sediment monitoring associated with meeting the requirements of the Harbor Toxics TMDL will be conducted downstream of the ULARWMAG EWMP area. If consistent exceedances of interim WQBELs are observed and the ULARWMAG determines that control measures will need to be implemented to meet the final WQBELs by March 23, 2032, the ULARWMAG will commence monitoring at the LAR_02_WAS LTA site to assess the degree to which discharges from the ULARWMAG EWMP area are causing or contributing to those exceedances. After March 23, 2032, if there are two consecutive monitoring events with exceedances observed (i.e. one or more constituents meet the activation criteria described in **Section 2.2**), the ULARWMAG will commence monitoring at the stormwater outfall monitoring sites to assess the degree to which discharges from each ULARWMAG member may be causing or contributing to those exceedances.

Should additional modifications be identified that are not specified in this section that would be major changes to the approach, the modifications will be proposed in the annual report and in a separate letter to the Regional Board requesting Executive Officer approval of the change. Upon receipt of written approval from the Executive Officer, this CIMP will be updated and a revised CIMP will be provided to the Regional Board.

12 Data Management and Reporting

Attachment D details the procedures for managing and reporting data to meet the goals and objectives of this CIMP and the Permit. The details contained in **Attachment D** serve as a guide for ensuring that consistent protocols and procedures are in place for successful data management and reporting. Data management procedures include data review, verification, and validation.

Annual monitoring reports are required to 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.

Additionally, 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 with the annual report and six months prior to the annual report (June of each year). The mid-year data reports will cover the monitoring period of July 1 through December 31.

Furthermore, if any of the authorized or conditionally exempt essential NSW discharges are determined to be a source of pollutants that causes or contributes to an exceedance of applicable RWLs and/or WQBELs, Part III.A.4.e of the Permit requires that the Regional Board be notified within 30 days if the NSW discharge is an authorized discharge with coverage under a separate NPDES permit or authorized by USEPA under CERCLA, or a conditionally exempt essential NSW discharge or emergency NSW discharge.

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 D**. In addition to the requirements from the MRP, a discussion of how the reported data are to be used is included in **Attachment D**.

13 Schedule for CIMP Implementation

Per the MRP, monitoring shall commence within 90 days after approval of this CIMP by the Executive Officer of the Regional Board. Implementation of all components of this CIMP will commence prior to or within 90 days of approval, except for new and redevelopment effectiveness tracking which will begin no later than the submittal of the Draft EWMP (June 28, 2015).

The status of implementation of the various components will vary based on the current status of implementation and the feasibility of collecting a sample within 90 days after approval of this CIMP (e.g., stormwater outfall monitoring). During the CIMP approval process all existing monitoring will continue. Within 90 days of CIMP approval, sample collection for all constituents at all dry weather receiving water sites and all constituents at all existing wet weather receiving water sites will commence. The remaining monitoring will be affected by the feasibility of collecting a sample within 90 days of CIMP approval. The two primary factors affecting the feasibility of sample collection upon approval of this CIMP relate to (1) autosampler installation and (2) monitoring that is dependent upon prerequisite information (e.g., monitoring of significant NSW discharges).

Autosamplers are used to characterize the water quality of a storm event. Receiving water wet weather samples and stormwater outfall samples will generally be collected as composite samples. As such, the installation of an autosampler is necessary before monitoring can commence. Given the continued use of previously monitored receiving water sites in LAR Reach 3 at Figueroa St, LAR Reach 4 at Tujunga Ave, and LAR Reach 6 at White Oak Avenue, existing autosampling equipment can be utilized to conduct receiving water monitoring at these sites within 90 days of approval of this CIMP for constituents that were monitored prior to development of this CIMP and those newly identified for monitoring during CIMP development. However, given the addition of a receiving water wet weather monitoring site in LAR Reach 2 at Washington Blvd, an autosampler will likely need to be installed at the LAR_02_WAS receiving water site before wet weather monitoring can commence. Similarly, an autosampler will likely be installed at each of the 11 stormwater outfall monitoring sites before stormwater outfall monitoring can commence.

The process for installing autosamplers includes numerous tasks that require multiple agency coordination and permitting. 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 **Figure 6** presents a graphical representation of 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, US Fish and Wildlife Service, CA Department of Fish and Game, CA 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**

To account for the time required for autosampler installation, a phased approach to sampling will be conducted for the wet weather receiving water and stormwater outfall elements of this CIMP (**Figure 5**). Phasing in the receiving water and stormwater outfall elements of this CIMP will allow evaluation of the sites to determine if any need to be changed due to significant contributions from non-MS4 sources or other reasons that sampling is not feasible at a site and one of the alternate or a new site must be utilized.

- Phase I of CIMP implementation will commence within 90 days after approval of this CIMP. Phase I receiving water monitoring will consist of **all** monitoring other than wet weather monitoring conducted at the LAR_02_WAS monitoring site due to the need to install an autosampler. Phase I stormwater outfall monitoring will consist of commencement of the autosampler installation process displayed in **Figure 6** for all 11 stormwater outfall monitoring sites. The primary challenges experienced during previous autosampler installation processes are permitting by non-ULARWMAG members (i.e., US Army Corps of Engineers) and establishment of power connections. In extreme cases, these challenges have caused the installation of equipment to take 36 months. However, the typical installation timeframe for conditions similar to the ULAR EWMP area is 18 to 24 months.
- Phase II will commence 18 months from the approval of this CIMP to allow sufficient time for autosampler installation to be completed as detailed in **Figure 6**. Phase II (and all subsequent phases) receiving water monitoring will consist of the monitoring conducted during Phase I and the addition of wet weather monitoring conducted at the newly installed LAR_02_WAS monitoring site. Phase II stormwater outfall monitoring will consist of 1) monitoring conducted at three newly installed monitoring sites which discharge to receiving waters with exceedances of RWLs and are the most construction-ready and 2) the continuation of the autosampler installation process at the remaining monitoring sites.
- Phase III will commence 30 months from the approval of this CIMP to allow sufficient time for the installation of an additional four autosamplers. Phase III (and all subsequent phases) stormwater outfall monitoring will consist of the monitoring conducted during Phase II and the addition of 1) stormwater outfall monitoring at the four newly installed monitoring sites which discharge to receiving waters with exceedances of RWLs and are the most construction-ready amongst the remaining monitoring sites and 2) the continuation of the autosampler installation process at the remaining monitoring sites.
- Phase IV will commence 42 months from the approval of this CIMP to allow sufficient time for the installation of the final four autosamplers. Phase IV stormwater outfall

monitoring will consist of the monitoring conducted previously and the final four newly installed monitoring sites.

As described in **Section 5**, the NSW Outfall Program consists of a process which consists of six elements which occur sequentially:

1. Outfall Screening
2. Identification of outfalls with significant NSW discharge
3. Inventory of outfalls with significant NSW discharge
4. Prioritized source investigation
5. Identify sources of significant NSW discharge
6. Monitoring significant NSW discharges exceeding criteria

To account for the time required to complete all six steps of the NSW Outfall Program, a phased approach to sampling as outlined in the MRP will be conducted for the NSW outfall elements of this CIMP. Phasing in the NSW outfall elements of this CIMP will provide the time necessary to complete each element of the NSW Outfall Program. As described in **Section 5.1**, the LAR Bacteria TMDL provides a phased approach to implementation that forms the basis of phasing the implementation of the NSW Outfall Program in this CIMP, which is appropriate given the size of the ULARWMAG EWMP area. The phasing of the approach follows the prioritization of LA River segments and tributaries utilized in the TMDL and incorporated into the Permit. Furthermore, as described in **Section 5.6.2**, the frequency of the LAR Bacteria TMDL outfall monitoring is six times prior to implementation of actions. As such, the first three LAR Bacteria TMDL monitoring events will be used to complete the Outfall Screening process and the final three LAR Bacteria TMDL monitoring events will be used to monitor significant NSW discharges exceeding criteria. **Figure 7** summarizes the timing of initiating the screening and monitoring events for each LA River segment and tributary.

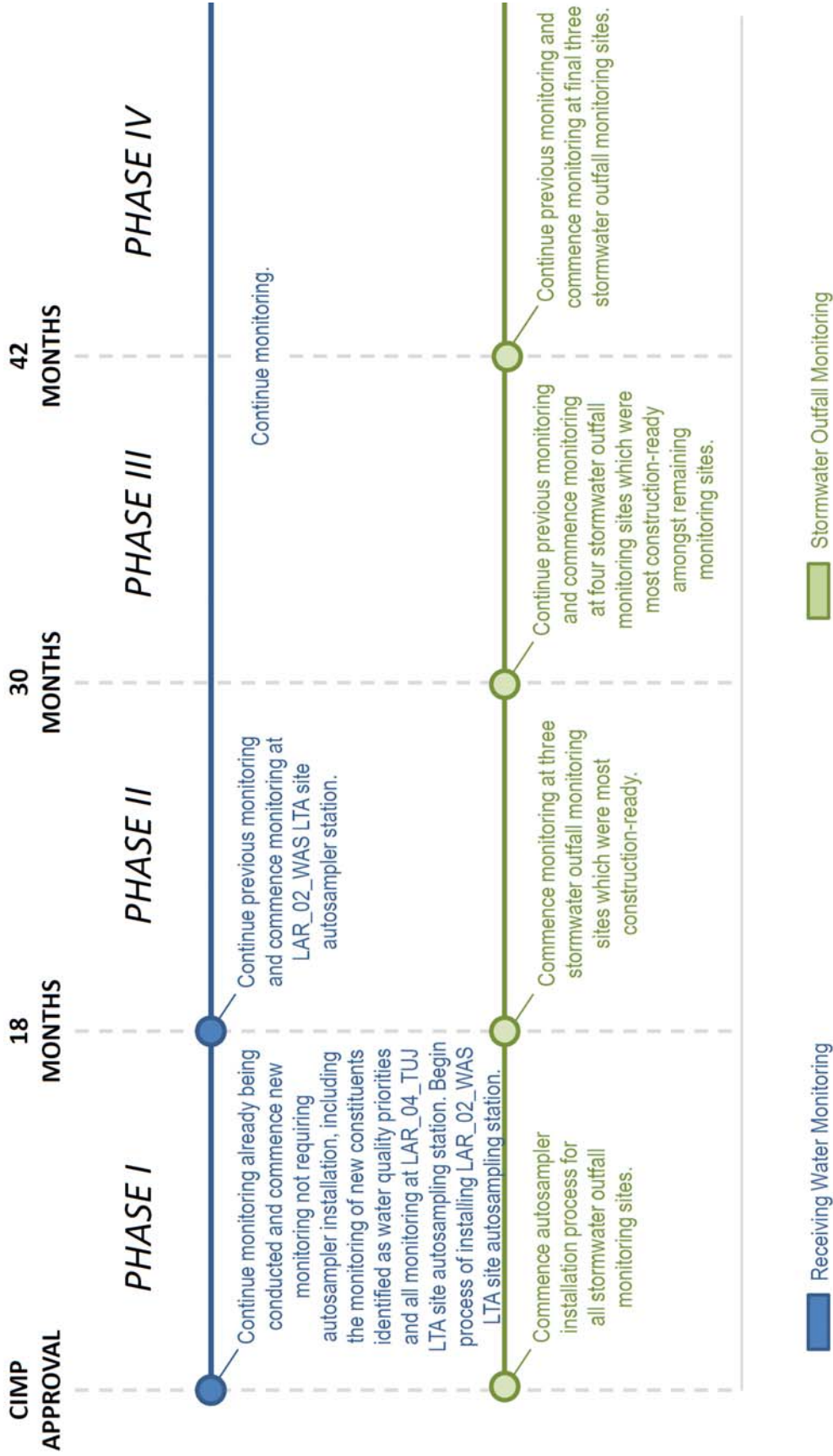


Figure 5. Implementation Schedule for Major CIMP Elements

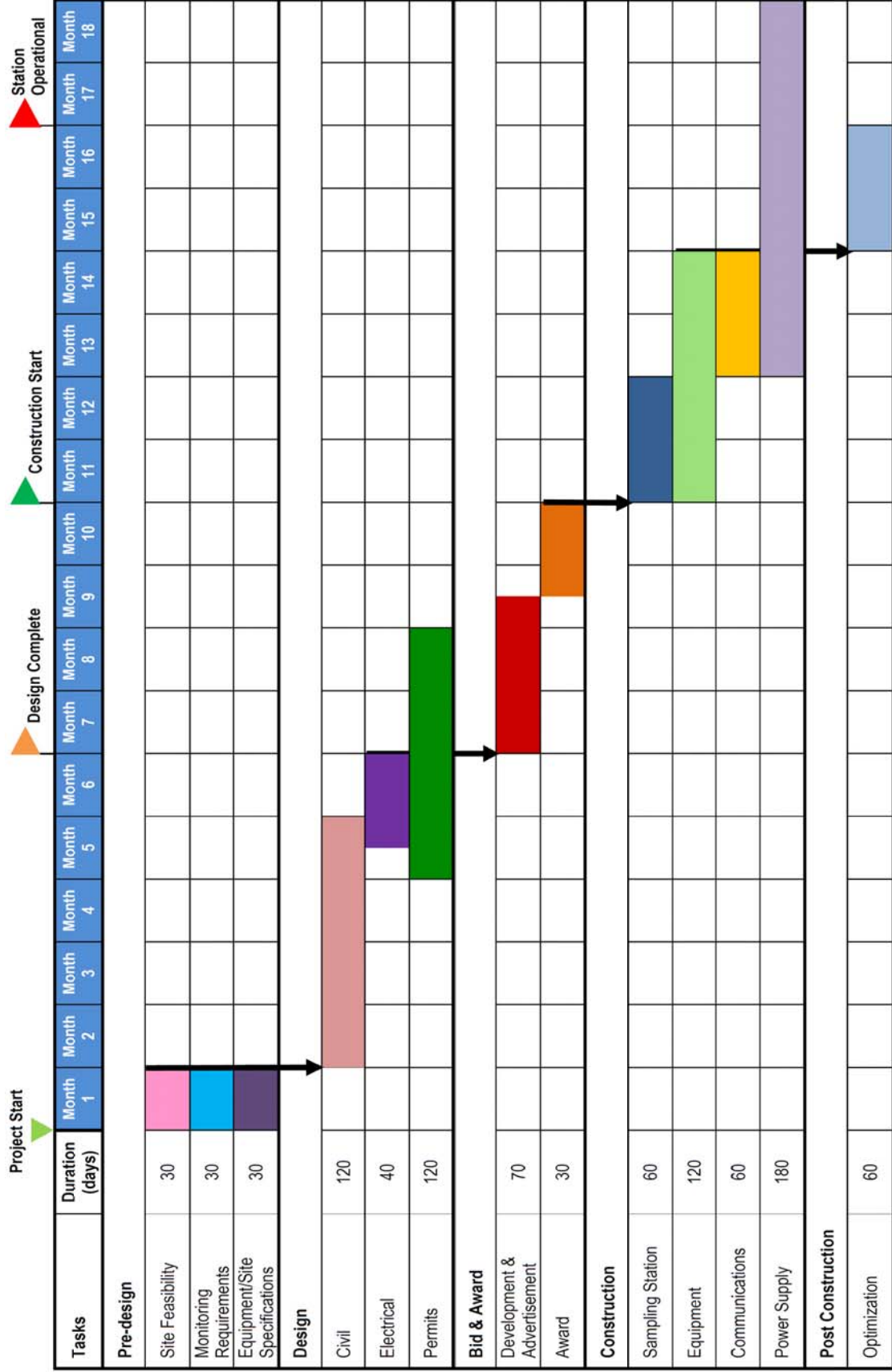


Figure 6. Typical Duration for the Establishment of a New Sampling Station Assuming a Streamlined Process

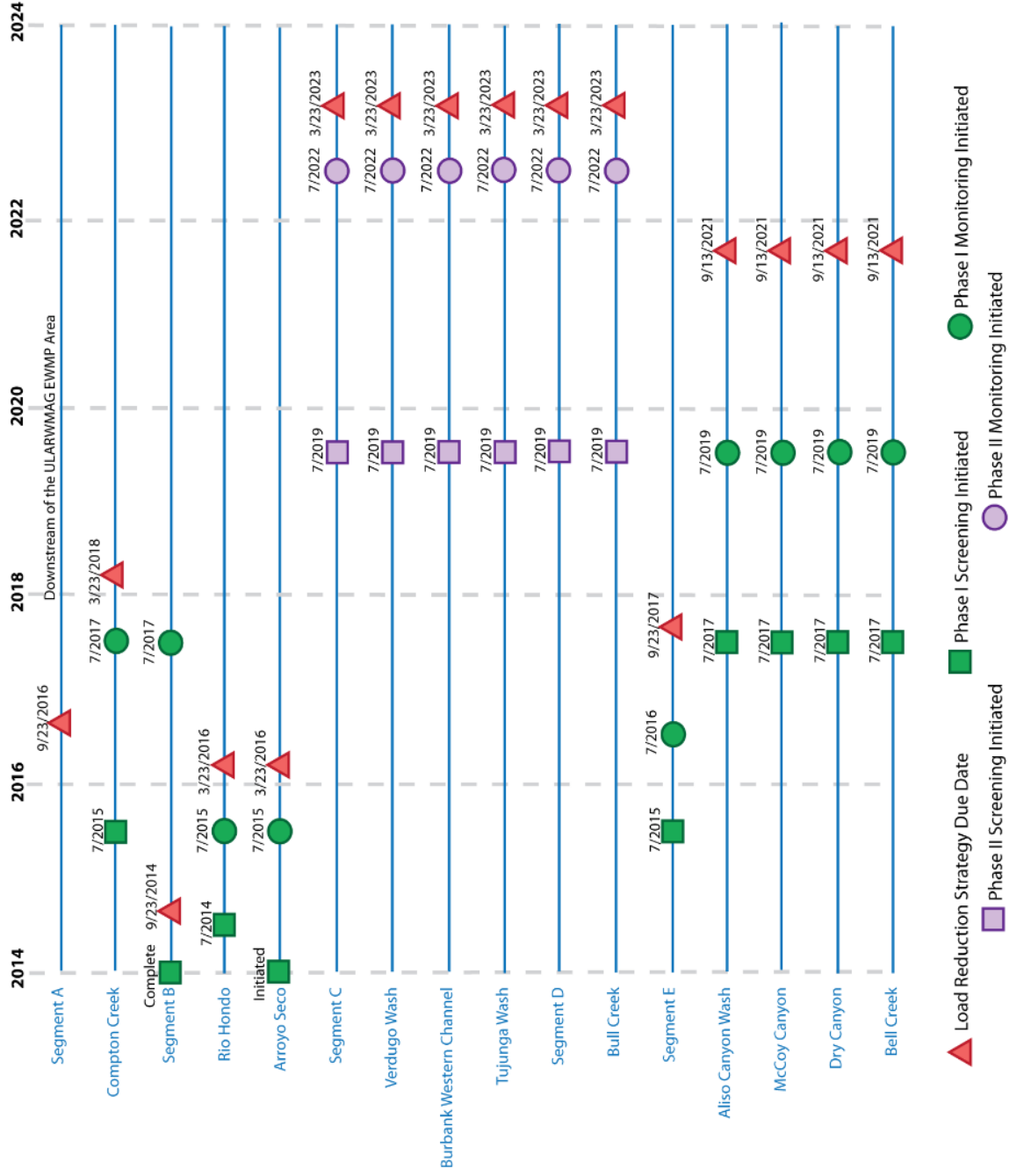


Figure 7. Summary of Phased Screening and Monitoring Initiation Dates Consistent with the LAR Bacteria TMDL Load Reduction Strategy (LRS) Requirements

14 References

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