

Marina del Rey Enhanced Watershed Management Program Plan

Prepared For:

Marina del Rey Enhanced Watershed Management Program Agencies

County of Los Angeles

Los Angeles County Flood Control District

City of Los Angeles

City of Culver City



June 25, 2015

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Prepared By:



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ES.0 EXECUTIVE SUMMARY

ES.1 Introduction

The Marina del Rey (MdR) watershed is a small sub-watershed located in the larger, Santa Monica Bay watershed. The Marina del Rey Harbor (MdRH) was officially opened in 1965 and is the world's largest man-made small craft harbor. The tributary area served by a municipal separate storm sewer system (MS4) that drains to MdRH is approximately 1,409 acres and consists of portions of the cities of Culver City, Los Angeles, as well as portions of the unincorporated County of Los Angeles (County). The MdR Watershed Management Area (WMA) is one of the smallest WMAs in the County of Los Angeles, but it is also one of the most important and active watersheds.

The MdR watershed has one of the most aggressive Total Maximum Daily Load (TMDL) schedules for both Toxics and Bacteria and often leads the way in TMDL implementation for the rest of the County. The MdR watershed is subject to three TMDLs; the Santa Monica Bay Nearshore Debris TMDL (Debris TMDL), the Marina del Rey Harbor Mother's Beach and Back Basin Bacteria TMDL (Bacteria TMDL), and the Toxic Pollutants in Marina del Rey Harbor (MdRH) TMDL (Toxics TMDL). A fourth TMDL, the Santa Monica Bay DDTs and PCBs TMDL was established by the EPA and provides general implementation guidelines to calculate load allocations through applicable permits and TMDLs for the various watersheds in the Santa Monica Bay. For the MdR watershed, these loads were defined as part of the MdR Toxics TMDL. The interim and final compliance schedules differ for each of the applicable TMDLs.

The extensive ongoing efforts of the County, Los Angeles County Flood Control District (LACFCD), and the cities of Culver City and Los Angeles to improve water quality in the MdR watershed include conducting activities and implementing best management practices (BMPs) to help reduce pollutants from stormwater runoff from the watershed to the harbor. Over the past 10 years, the responsible agencies in the MdR watershed have spent tens of millions of dollars in special studies, low-flow diversions, non-structural BMPs, structural BMPs, and monitoring efforts.

The water quality in the harbor has significantly improved due to the cooperative efforts of the County, the LACFCD, and the cities of Culver City and Los Angeles (collectively known as the MdR Enhanced Watershed Management Program [EWMP] agencies). The MdR EWMP agencies look forward to working with interested stakeholders and the Los Angeles Regional Water Quality Control Board (LARWQCB) to further improve water quality in the watershed.

On December 28, 2012, National Pollution Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System Permit (MS4 Permit) became effective upon adoption by the Los Angeles Regional Water Quality Control Board (LARWQCB). This new MS4 Permit establishes the waste discharge requirement for stormwater and non-stormwater discharges within the watersheds of Los Angeles County. The MS4 Permit includes provisions that allow Permittees to voluntarily choose to implement an Enhanced Watershed Management Program (EWMP).

ES.2 Water Quality Characterization and Priorities

One of the initial steps prescribed by the Permit in developing an EWMP is to characterize existing water quality conditions using data from relevant studies and monitoring completed within the past 10 years. In accordance with Section VI.C.5.a of the MS4 Permit, water-body pollutant combinations were classified into one of the following three categories (Table ES-1):

1. Category 1 (Highest Priority) – Pollutants with receiving water limitation or water-quality-based effluent limits (WQBEL) as established in Part VI.E and Attachments L through R of the MS4 Permit.
2. Category 2 (High Priority) – Pollutants in the receiving water that are listed as §303(d) and for which MS4 discharges may be causing or contributing to the impairment.
3. Category 3 (Medium Priority) – Pollutants with insufficient data to list as §303(d) but which exceed receiving water limitations contained in the MS4 Permit and for which MS4 discharges may be causing or contributing to the exceedance.

Table ES-1: Waterbody Pollutant Categorization

Waterbody	Pollutant	Classification
Marina del Rey Harbor	Dissolved Copper	Category 1
	Copper	Category 1
	Lead	Category 1
	Zinc	Category 1
	Total PCBs	Category 1
	Total DDTs	Category 1
	p,p'-DDE	Category 1
	Chlordane	Category 1
	Fecal coliform	Category 1
	<i>Enterococcus</i>	Category 1
	Total coliform	Category 1
Ballona Lagoon/ Venice Canal	None known	None

Based on the source assessment, priorities within the Mdr watershed were assessed and sequenced in accordance with section VI.C.5.a.iv of the MS4 Permit (Table ES-2). As specified in the MS4 Permit, the highest priority (1) is assigned to those pollutants with TMDLs according to the following criteria:

- a. Controlling pollutants for which there are established WQBELS, or receiving water limitation with interim or final compliance deadlines within the current MS4 Permit term, or whose TMDL deadlines have passed without achieving the limitations,
- b. Controlling pollutants for which there are established WQBELS or receiving water limitations with compliance deadlines (interim or final) between September 6, 2012 and October 25, 2017.

The second highest (2) priorities are established for pollutants for which receiving water limitations are exceeded, or impairment is implicated as a result of discharges from the MS4. For purposes of the

prioritization, third priority (3) will be attributed to controlling pollutants with TMDL compliance dates beyond the term of the MS4 Permit.

Table ES-2: Marina del Rey Watershed Priorities

Priority	Waterbody	Pollutant
1a	MdRH Back Basins	Bacteria (summer and winter dry weather)
1b	MdRH Back Basins	Copper
		Lead
		Zinc
		PCBs
		DDTs
		p,p'-DDE
		Chlordane
3	MdRH Back Basins	Bacteria (wet weather)
	MdRH Front Basins	Copper
		Lead
		Zinc
		PCBs
		DDTs
		p,p'-DDE
		Chlordane

ES.3 Compliance Strategy

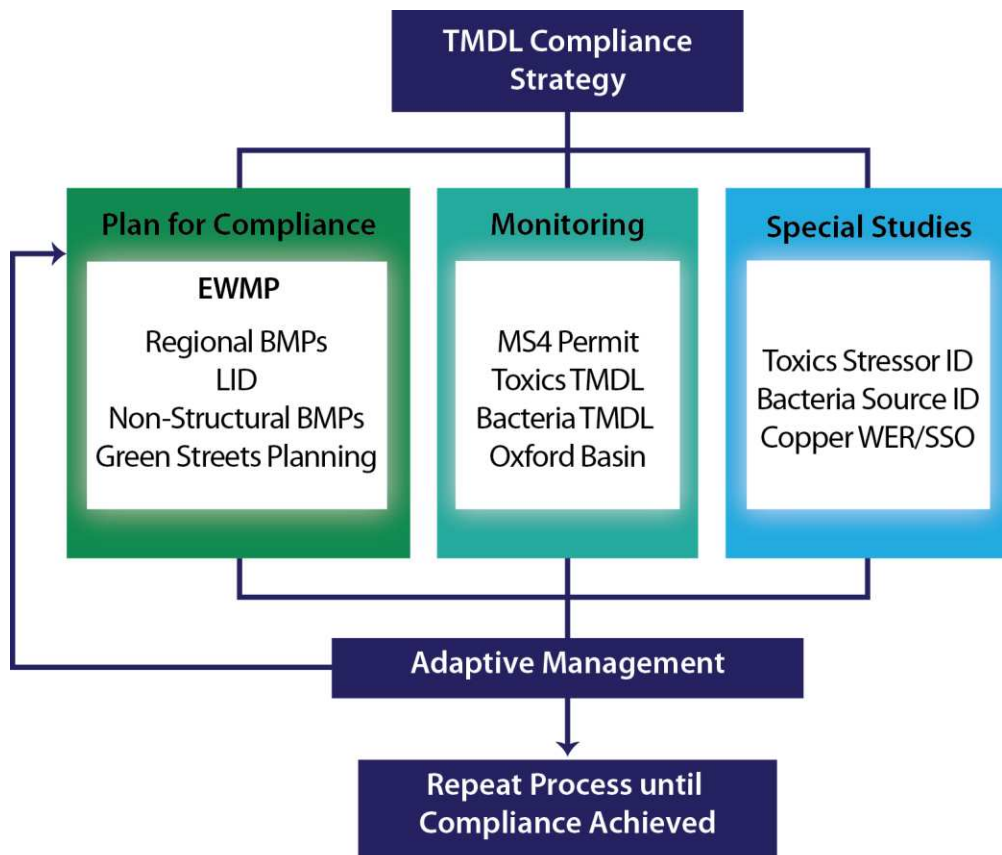
Section VI.C.5.b of the MS4 Permit requires the identification of control measures, strategies and BMPs within the watershed with the goal of creating an efficient program to focus resources on the watershed priorities identified above.

Under the MS4 Permit, compliance with the sediment waste load allocations (WLAs) for copper, lead, zinc, chlordane, p’p-DDE and total DDT in the Toxics TMDL may be demonstrated via any one of three different means: (a) qualitative sediment condition of unimpacted or likely unimpacted based on the interpretation and integration of multiple lines of evidence being met, (b) sediment numeric targets are met in bed sediments, or (c) *final sediment WLAs are met*.

A Time Schedule Order (TSO) was recently adopted for the Bacteria TMDL, which allows for achievement of the WLAs for *Enterococcus*, fecal coliform, and total coliform by December 28, 2017 for the dry weather WLAs. The final compliance point for wet weather and geometric mean WLAs is July 15th, 2021.

This EWMP focuses on demonstrating that compliance may be achieved through meeting final sediment WLAs for the contaminants in the MdR Toxics TMDL through the implementation of structural and non-structural control measures. However, compliance based on implementation of control measures is one part of a three-pronged compliance strategy. Special studies carried out in support of TMDL implementation will be used to update compliance strategies through the adaptive management approach.

A Stressor ID Study is required under the Toxics TMDL and is planned to be conducted in the MdR Harbor in the year 2016. This study will identify stressors causing toxicity to biological organisms in the harbor. Results from this study, and others, may impact compliance strategies and BMPs specified in this EWMP. Special studies related to dissolved copper are also planned in the Harbor, as well as a bacteria source identification study as part of the Bacteria TMDL TSO. Outcomes of the special studies, Permit-required and TMDL-required monitoring will be assessed as part of the Adaptive Management Process and the EWMP will be adapted, if necessary, to enable compliance through the most efficient means possible. Figure ES-1 illustrates this multi-pronged compliance strategy.



ISP-0172-1

Figure ES-1: Compliance Strategy

In accordance with the MS4 Permit the objectives of the Watershed Control Measures shall include:

1. Prevent or eliminate non-stormwater discharges to the MS4 that are a source of pollutants conveyed by the MS4 to the receiving waters.
2. Implement pollutant controls necessary to achieve all applicable interim and final water quality-based effluent limitations and/or receiving water limitations pursuant to corresponding compliance schedules.
3. Ensure that discharges from the MS4 do not cause or contribute to exceedances of receiving water limitations.”

The EWMP Agencies have previously implemented numerous structural and non-structural BMPs to improve water quality in the MDR watershed. However, based on the reasonable assurance analysis results, in order to address attainment of the stormwater volume and pollutant loading reductions necessary for compliance a combination of regional BMPs, green streets, LID, and non-structural BMPs will be necessary to achieve WQBELs.

Proposed priority projects include a public-private partnership regional project with Costco in the City of Culver City; and the Venice Boulevard Neighborhood Regional Distributed Green Streets Project (Venice Neighborhood Project) located in Subwatershed 4. Other projects include regional BMPs at four parks in the watershed (Triangle, Canal, Via Dolce, and Venice of America Centennial Parks) and green streets throughout the watershed. Figure ES-2 below shows the proportion of expected load reductions achieved through implementation of each category of BMP. Table ES-3 lists the expected volumes of stormwater mitigated. Figure ES-3 shows the locations of the proposed BMPs.

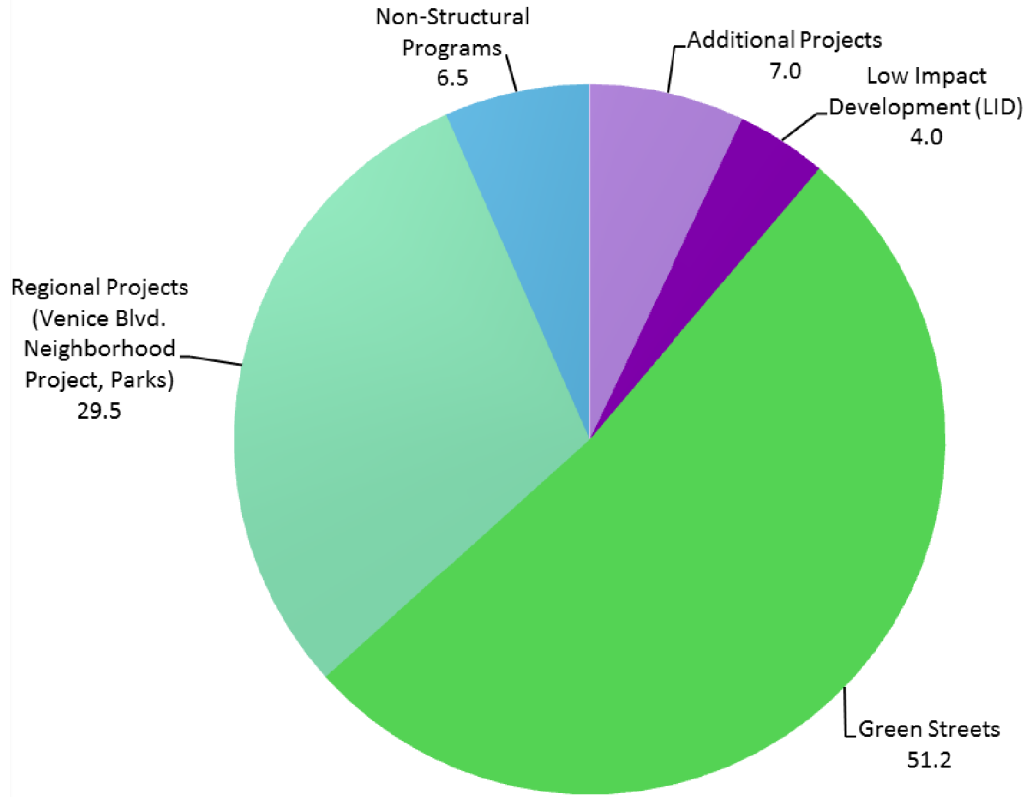


Figure ES-2: Percent Load Reduction by BMP Category

Table ES-3: Volume of Stormwater Captured/Treated by BMP Type for all Subwatersheds in the Marina del Rey Watershed

Project Type	Volume Stormwater (acre feet/wet year)
Regional Projects (Costco, Parks, Venice Neighborhood Project)	144.2
Green Streets	313.5
Low Impact Development (LID)	137.6
Additional BMPs*	8.2
Non-Structural Programs	0
Total	603.5

*Includes existing low flow diversions, does not include potential diversions that may be implemented based on the adaptive management approach



Figure ES-3: Proposed Regional BMPs

ES.4 Reasonable Assurance Analysis

The Mdr EWMP Agencies have selected the Los Angeles County Watershed Management Modeling System (WMMS) as the model to be used for the development of the Reasonable Assurance Analysis (RAA) in support of the Mdr EWMP. WMMS is one of the models described in the MS4 Permit and conforms to the modeling system selection criteria set by the LARWQCB-led RAA committee and is based on a regional modeling approach that was developed to simulate the hydrology and transport of sediment and metals. Based on available data and modeling results, zinc loading requires the largest load reduction and is thus the compliance driver for the Toxics TMDL (i.e., based on available data, if BMPs are implemented to achieve zinc WLA, then other pollutant loads would also be below WLAs). An analysis was also conducted to determine the required bacteria load reduction, and the findings indicate that a smaller volume and load reduction is necessary to achieve Bacteria TMDL compliance when compared to the Toxics TMDL. Therefore, achieving the required load reductions by the interim and final Toxic TMDL compliance dates will result in achieving compliance with the Bacteria TMDL as well.

The RAA delivers a quantitative demonstration that proposed BMPs will achieve interim and final WLAs through stormwater capture, filtration, and diversion, and associated TSS loading reductions.

ES.5 Implementation Plan and Schedule

Given that the compliance schedule for the Toxics TMDL is the most aggressive TMDL schedule applicable to the Mdr watershed, the Toxics WLAs were used as the primary scheduling driver for BMP implementation. As previously mentioned, the Mdr EWMP agencies have elected to demonstrate Toxics TMDL compliance through meeting final sediment WLAs for the contaminants in the TMDL.

Figure ES-4 illustrates the load reduction schedule based on the RAA that will be necessary to achieve Toxics TMDL interim and final milestones. The required bacteria load reductions are less than the reductions required for the Toxics TMDL, and therefore the structural and non-structural proposed BMPs and RAA schedule will also lead to achievement of the required Bacteria TMDL load reductions.

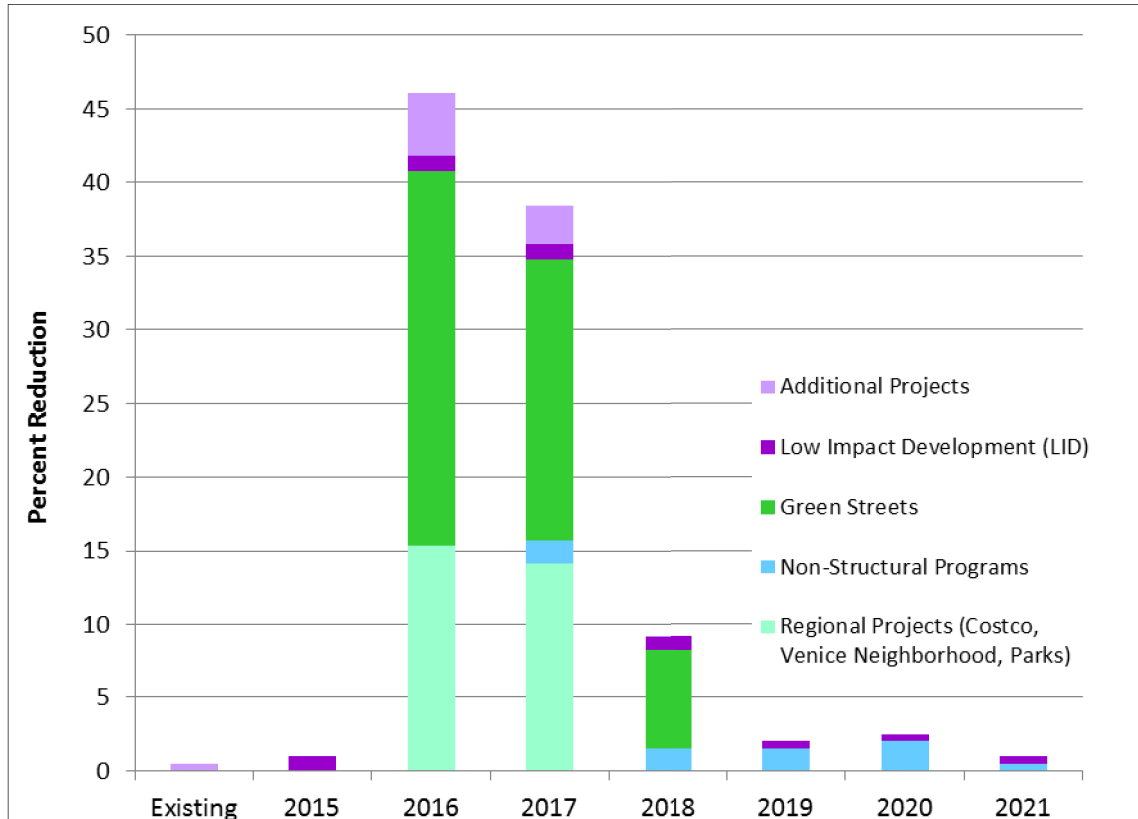


Figure ES-4: RAA Load Reduction Schedule

The schedule strategy proposed by this EWMP is illustrated in Figure ES-5. This schedule uses a phased implementation approach using a combination of structural and nonstructural strategies designed specifically to reduce toxic pollutant and bacterial loading to MdR while also allowing for consideration of special studies to determine the most efficient means of compliance. In parallel to implementation of the proposed BMPs, the MdR EWMP agencies will continue to conduct TMDL-required studies, including a stressor identification study, a site specific objective dissolved copper study, and a bacteria source identification study. These studies are expected to provide additional information, and may lead to TMDL compliance through alternative means of compliance, as previously discussed, which would significantly impact the implementation of BMPs proposed in this EWMP.

The proposed schedule strategy for 2016 includes completion of the Oxford Basin Multi-Use Enhancement Project (begun in 2015), sediment monitoring in Oxford Basin per the Toxics TMDL, and completion of the TMDL Stressor ID Special Study. After incorporation of results of the special studies and monitoring into the Adaptive Management Process, building of additional structural BMPs determined necessary for compliance will commence in 2018.

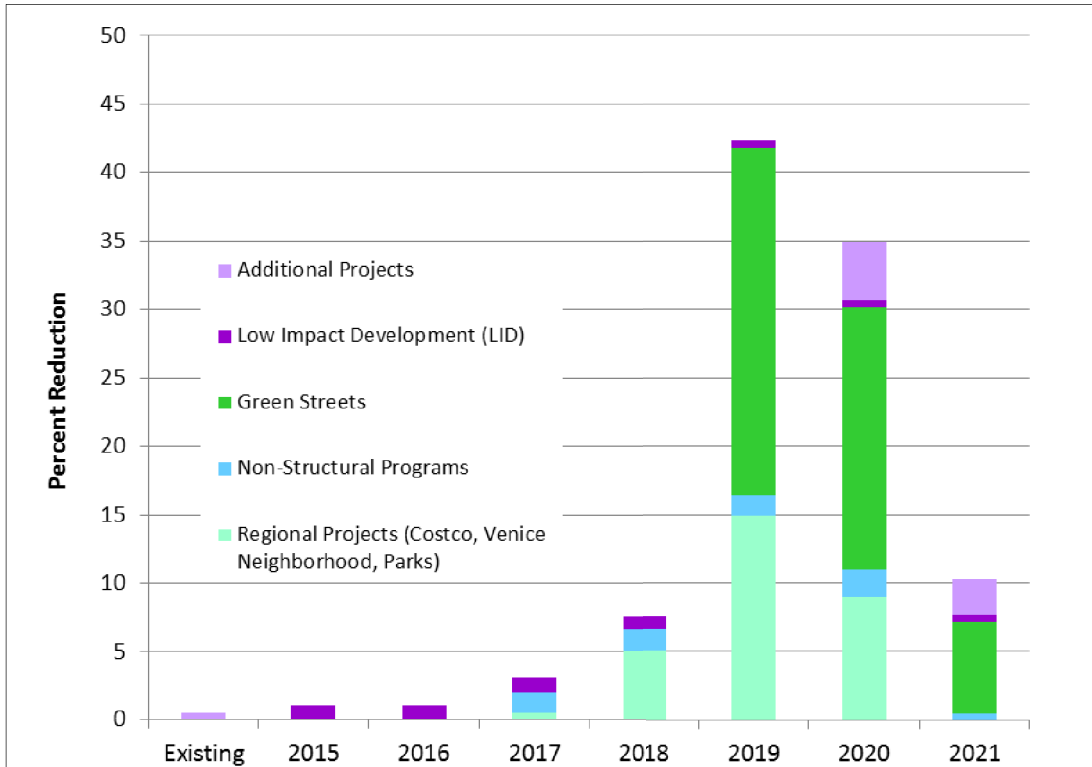


Figure ES-5: EWMP Compliance Strategy Schedule

ES.6 Financial Strategy

Estimated costs for compliance with the 2012 MS4 Permit through the implementation of the Marina del Rey Watershed EWMP are approximated at \$392 million (

Table ES-4), including costs associated with Subwatershed 2 (a non-TMDL area). If costs associated with Subwatershed 2 are not included in the calculation, the total costs for BMP implementation based on the RAA are estimated at \$363 million. All costs are presented in 2015 dollars using the net present worth analysis and an average inflation rate of 3 percent. The costs associated with compliance may be much different than those projected in the table below and could be significantly lower based on the results of ongoing and future studies that will be incorporated into the adaptive management process.

The EWMP Agencies will follow a multi-pronged financial strategy to maximize potential funding opportunities in support of EWMP implementation. This approach includes, but is not limited to the pursuit of grants (including Prop 1 funding), the investigation of potential fees and other charges, as well as legislative strategies.

Table ES-4: Estimated Implementation Costs by Jurisdiction

MdR Watershed	Structural BMPs	Nonstructural BMPs	Operations & Maintenance	Total Cost
City of Los Angeles	\$249,052,873	\$2,923,268	\$32,499,182	\$284,475,323
County of Los Angeles	\$87,412,319	\$1,190,913	\$12,001,036	\$100,604,268
City of Culver City	\$6,669,040	\$127,009	\$38,556	\$6,834,605
Total Cost (2015 dollars)	\$343,134,232	\$4,241,190	\$44,538,774	\$391,914,197

The LACFCD will work with the WMG in their efforts to address source controls; assess, develop, and pursue funding for structural BMPs, and promote the use of water reuse and infiltration. As regional project scopes are further refined, the LACFCD will determine on a case-by-case basis their contribution to the projects.

Estimated costs for implementation according to the RAA schedule to meet the interim and final compliance milestones are identified in Figure ES-6 below.

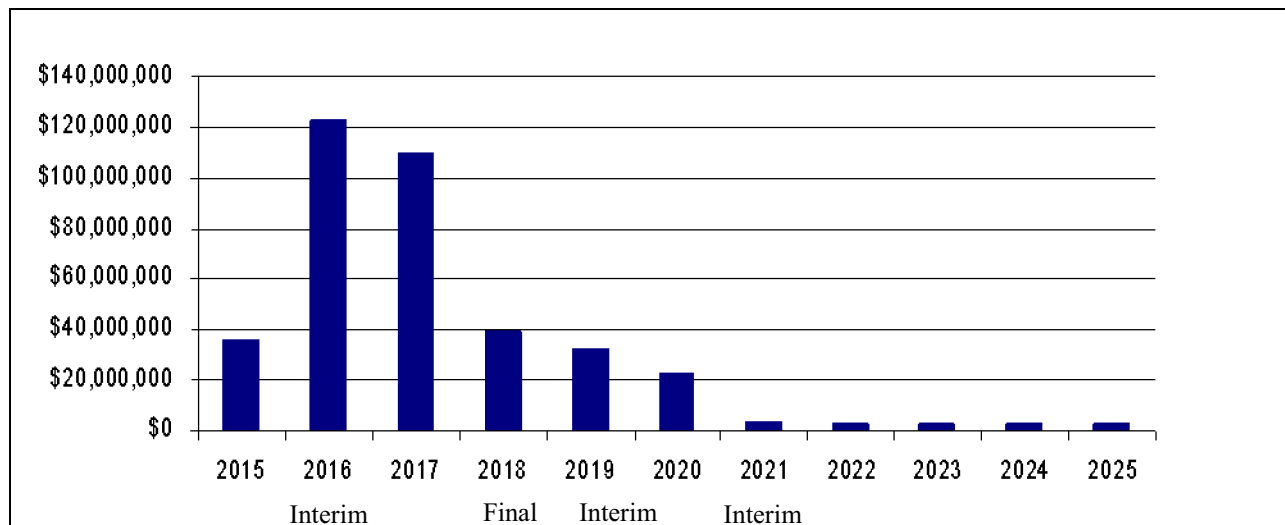


Figure ES-6: Cost Schedule based on RAA to Meet Interim and Final TMDL Schedule

ES.7 Adaptive Management

Adaptive management is a key component to the successful implementation, assessment and refinement of the MdR EWMP. Adaptive management is the process by which data are continually assessed in the context of improving and adapting programs to ensure the most effective strategies are implemented. In accordance with the MS4 Permit, every two years as data become available through Coordinated Integrated Monitoring Program (CIMP) monitoring, BMP effectiveness studies, special studies such as the Toxics TMDL required Stressor ID Study, Oxford Basin monitoring, and other scientific studies, it will be integrated and assessed to determine if programs in the EWMP should be altered to enable

compliance in the most efficient manner. Additionally, public participation and LARWQCB recommendations will also be included in the adaptive management process. The adaptive management framework will allow the EWMP Agencies to develop an overall program consisting of efficient solutions based on evolving watershed priorities.