CITY OF LA VERNE
CITY HALL
3660 "D" Street, La Verne, California 91750

January 28, 2014

VIA Regional Website

Regional Water Quality Control Board
Los Angeles Region
Attention: Ivar K. Ridgeway, Senior Environmental Scientist
320 West 4th Street, Suite 200
Los Angeles, CA 90013

Dear Mr. Ridgeway,

The East San Gabriel Valley Watershed Management Group (ESGVWMG) comprises the Cities of Claremont, La Verne, Pomona, and San Dimas. Pursuant to the Los Angeles County Municipal Separate Storm Sewer System (MS4) Permit (NPDES Permit No. CAS004001; Order No. R4-2012-0175), ESGVWMG hereby submits the revised final Watershed Management Program (WMP) Plan.

The Group would like to re-emphasize that while it is committed to carrying out the components of the WMP and CIMP, funding for projects and monitoring will be an obstacle for our agencies until a long term solution is realized.

The ESGVWMG looks forward to working with Regional Board staff during the CIMP and WMP implementation and adaptive management process. If there are any questions, please contact the respective City Staff as listed below:

- Lisa O'Brien - City of La Verne at (909) 596-8741
- Loretta Mustafa – City of Claremont at (909) 399-5474
- Julie Carver – City of Pomona at (909) 620-3628
- Latoya Cyrus – City of San Dimas at (909) 394-6244

Sincerely,

Lisa O'Brien
Management Analyst

Cc: Loretta Mustafa, City of Claremont
Julie Carver, City of Pomona
Latoya Cyrus, City of San Dimas

Attachments:
Table 1. Response to Comment Log
Final ESGVWMG Watershed Management Program (WMP) Plan

January 2015

LOS ANGELES REGIONAL WATER QUALITY CONTROL BOARD

Final Watershed Management Program (WMP) Plan

Prepared by

East San Gabriel Valley Watershed Management Group
(Cities of Claremont, La Verne, Pomona, and San Dimas)

MWH

Executive Summary

The Cities of Claremont, La Verne, Pomona, and San Dimas, collectively referred to as the East San Gabriel Valley Watershed Management Group (ESGV Group or Group), submitted a Notice of Intent (NOI) to develop a Watershed Management Program (WMP) to fulfill the requirements of the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit No. R4-2012-0175 (Permit) for Los Angeles County (County), as adopted by the Los Angeles Regional Water Quality Control Board (Regional Board) and became effective on December 28, 2012. This WMP is a requirement of the Permit and presents an approach for compliance with the Permit.

The level of effort and funding needed to implement the best management practices (BMPs) identified in this WMP will represent a monumental challenge in stormwater management by the Group. Throughout the Los Angeles region, communities will need to support funding measures for stormwater capital improvements. The projected levels of expenditure to implement the WMP represent factor of 20 fold increases in annual budgets for stormwater management. Additional funding sources will be needed to maintain required budget levels now and decades into the future. Without widespread political and public support, these required budget increases will not be possible.

IDENTIFICATION OF WATER QUALITY PRIORITIES

The water quality prioritization determines which pollutants are of concern for the waterbodies in the WMP area and the water body-pollutant combinations (WBPCs) which will be addressed within the Group's area. The Permit defines three categories of WBPCs to be used:

- **Category 1** are those subject to an established Total Maximum Daily Load (TMDL);
- **Category 2** are those on the 303(d) list or those that have sufficient exceedances to be listed; and
- **Category 3** for those with observed exceedances but too infrequent to be listed.

Subcategories of the WBPCs were identified to refine the prioritization process based on the frequency, timing, and magnitude of exceedances.

WATERSHED CONTROL MEASURES

The focus of the WMP is on the identification of sufficient amount and types of BMPs to meet receiving water and effluent limitations set forth in the Permit. BMPs vary in function and type, with each BMP providing unique design characteristics and benefits from implementation. The overarching goal of BMP selection is to reduce the impact of stormwater and non-stormwater on receiving water quality.

To support WMP development, a nomenclature for BMPs was established based on two main categories of structural BMPs: regional BMPs and distributed BMPs. Multiple regional and distributed BMPs were identified by the Group for consideration in the WMP. The Group will continue to implement minimum control measures (MCMs) as required by the Permit.

REASONABLE ASSURANCE ANALYSIS

The Reasonable Assurance Analysis (RAA) was conducted with the Watershed Management Modeling System (WMMS). The RAA is a key element of the WMP, used to provide confidence in the effectiveness of BMPs, and support BMP scheduling.

WMP compliance will be determined on a subwatershed-by-subwatershed basis, based on the BMP capacity implemented. If the design storm volume is retained prior to discharge from a subwatershed to receiving waters, then that subwatershed area is in compliance with receiving water limitations (RWLs) and water quality based effluent limitations (WQBELs) of the Permit. The WMP includes an initial scenario of BMPs to achieve the design storm retention goals. However, the cities are provided flexibility to modify the suite of BMPs during adaptive management if either [1] the preferences for BMPs change as lessons are learned during WMP implementation or [2] water quality monitoring data, collected as part of the Coordinated Integrated Monitoring Program (CIMP), indicate that less extensive BMP implementation is needed to achieve Permit limitations.

To establish an initial scenario for BMP implementation to retain the 85th percentile storm volumes, a BMP opportunity analysis was conducted, including a capacity analysis for green streets in the right-of-way (ROW), public parcels, and private parcels. Several different types of distributed BMPs are incorporated into the WMP including green streets, low impact development (LID) for new development and redevelopment, and downspout disconnection programs. Excess volume that is unable to be captured by distributed BMPs may be retained with regional BMPs.

Based on RAA modeling, the BMP capacity necessary to retain the 85th percentile design storm volume for the WMP area is approximately 544 acre-feet. During WMP implementation, ROW BMPs other than green streets may be selected, such as dry wells. As part of the adaptive management process, the capacity of non-ROW BMPs may be shifted from regional BMPs to LID on parcels or incentive programs that reduce runoff from residential and commercial properties.

SCHEDULING OF CONTROL MEASURES

The San Gabriel River Metals TMDL is used as the primary schedule for BMP implementation for the ESGV Group. The San Gabriel River Metals TMDL milestones are expressed in terms of a percentage of the MS4 area meeting WQBELs, and the equivalent WMP milestones are expressed as the percentage of the design storm retention volume achieved for each jurisdiction. For the 10% milestone, a suite of control measures are identified that will be implemented by 2017 including non-structural BMPs, a Rooftop Runoff Reduction Program, and recently constructed and planned structural BMPs. Each of the control measures identified for the 10% milestone are enhanced compared to implementation levels that existed prior to the new Permit. Attainment of the design storm volumes to address the final limits of the San Gabriel River Metals TMDL will also address all other TMDLs in the WMP area.

ADAPTIVE MANAGEMENT PROCESS

The WMP is intended to be implemented as an adaptive program as new program elements are implemented and information is gathered over time. The WMP will undergo modifications to reflect the most current understanding of the watershed and present a sound approach to addressing changing conditions and maintaining effectiveness going forward. This process is repeated every two years following the final approval of the WMP.

IMPLEMENTATION PROCESS

With sufficient time, the BMP networks identified in the WMP could be implemented and the neighborhoods of the ESGV Group could be enhanced with green infrastructure to effectively manage stormwater. Over the course of WMP implementation, and through BMP pilot programs, many lessons will be learned and used to increase the efficiency of BMP implementation. Through adaptive management, it may be possible to achieve the RWLs and WQBELs of the Permit with BMP networks that are not as extensive as prescribed in this WMP. The ultimate goal is appropriate protection of beneficial uses.

An early step for WMP implementation is the evaluation of city-wide stormwater retention strategies that identify standard BMP designs, select capital improvement projects that may be coupled to stormwater retrofits and target specific parcels and neighborhoods for BMP implementation.

The Cities of Claremont, La Verne, Pomona, and San Dimas plan to work closely with the Regional Board staff to identify the best course of action for achieving successes early in the WMP schedule and starting the process on a positive note. This WMP may provide the technical information needed to motivate regulatory efforts to increase the practicability of the stormwater regulations, including extensions to TMDL implementation schedules and amendments to applicable water quality standards.

Table of Contents

APPENDICES

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS AND ABBREVATIONS

BMP	Best Management Practice
CALTRANS	California Department of Transportation
CEDEN	California Environmental Data Exchange Network
CFS	Cubic Feet per Second
CIMP	Coordinated Integrated Monitoring Program
County	County of Los Angeles
CWH	Council for Watershed Health
ESCP	Erosion and Sediment Control Plan
ESGV	East San Gabriel Valley
ESGV Group	East San Gabriel Valley Watershed Management Group
GIS	Geographic Information System
Group	East San Gabriel Valley Watershed Management Group
IC/ID	Illicit Connection/Illicit Discharge
L-SWPPP	Local Stormwater Pollution Prevention Plan
LACDPW	Los Angeles County Department of Public Works
LACFCD	Los Angeles County Flood Control District
LID	Low Impact Development
LSPC	Loading Simulation Program in C++
MCM	Minimum Control Measure
MS4	Municipal Separate Storm Sewer System
NIMS	Nonlinearity-Interval Mapping Scheme
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
PCB	Polychlorinated Biphenyl
Permit	Order No. R4-2012-0175, NPDES Permit No. CAS004001
RAA	Reasonable Assurance Analysis
Regional Board	Los Angeles Regional Water Quality Control Board
ROW	Right-of-Way
RWL	Receiving Water Limitation
SUSMP	Standard Urban Stormwater Mitigation Program
SUSTAIN	System for Urban Stormwater Treatment and Analysis Integration
SWPPP	Stormwater Pollution Prevention Plan
TMDL	Total Maximum Daily Load
USEPA	United States Environmental Protection Agency
WBPC	Water Body-Pollutant Combination
WCM	Watershed Control Measure
WMMS	Watershed Management Modeling System
WMP	Watershed Management Program
WQBEL	Water Quality Based Effluent Limitation
WQO	Water Quality Objectives

1 Introduction

1.1 BACKGROUND AND REGULATORY FRAMEWORK

The National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Order 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 (County) are not causing or contributing to exceedances of water quality objectives (WQOs) set to protect the beneficial uses in the receiving waters in the Los Angeles region.

The Cities of La Verne, Claremont, Pomona, and San Dimas, collectively referred to as the East San Gabriel Valley Watershed Management Group (ESGV Group or Group), submitted a notice of intent (NOI) to develop a Watershed Management Program (WMP) to fulfill the requirements of the Permit. This WMP complies with Part VI.C.5-C.8 of the Permit as listed below:

(i) Prioritizes water quality issues resulting from storm water and non-storm water discharges from the MS4 to receiving waters within the Group's area;
(ii) Identifies and implements strategies, control measures, and best management practices (BMPs) to achieve the outcomes specified in Part VI.C.1.d of the Permit;
(iii) Modifies strategies, control measures, and BMPs as necessary based on analysis of monitoring data to ensure that applicable water quality-based effluent limitations (WQBELs) and receiving water limitations (RWLs) and other milestones set forth in this WMP are achieved in the required timeframes;
(iv) Provides appropriate opportunity for meaningful stakeholder input.

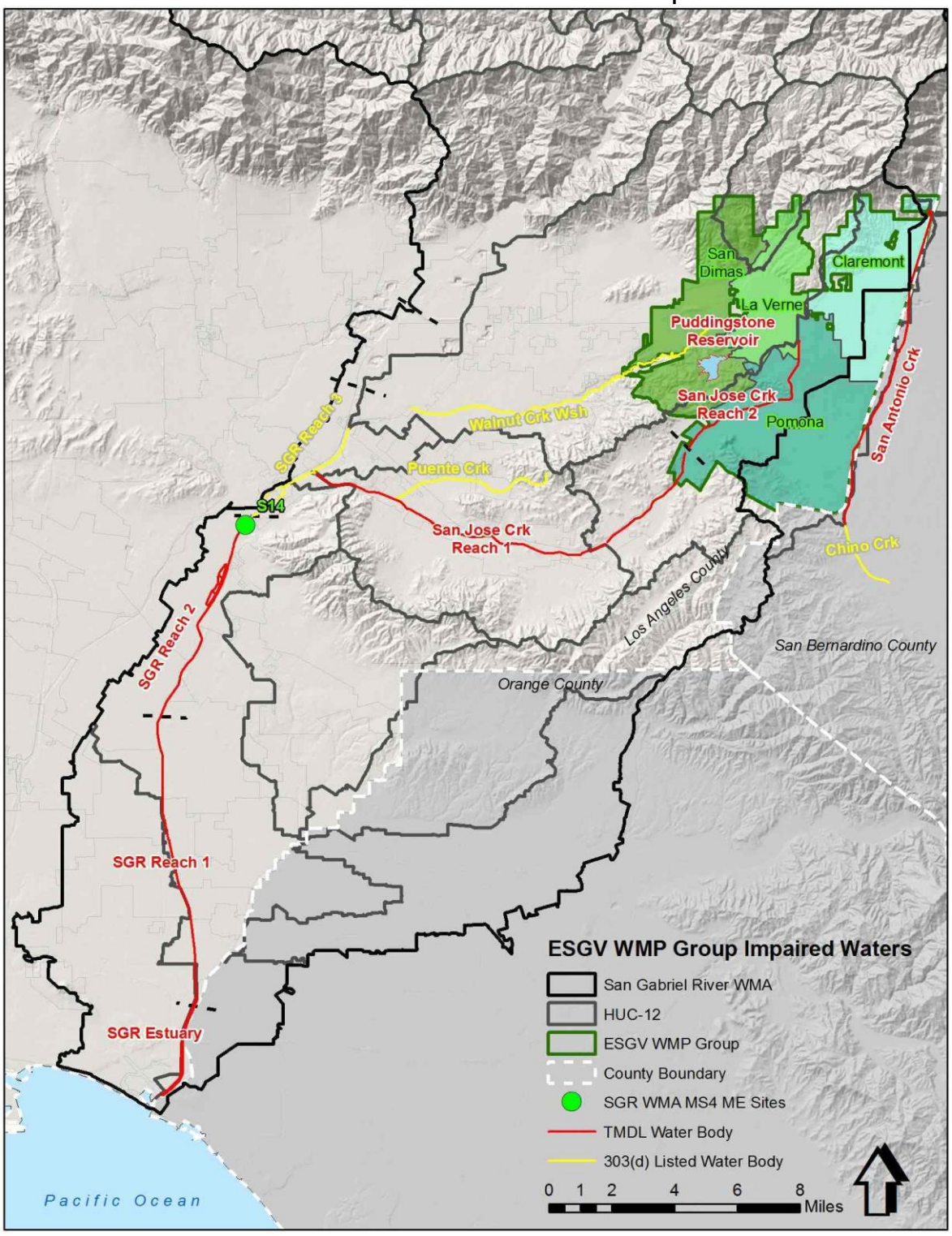
1.2 EAST SAN GABRIEL VALLEY WATERSHED MANAGEMENT GROUP

The San Gabriel River Watershed encompasses 682 square miles of eastern Los Angeles County, northwest Orange County, and southwest San Bernardino County. The San Gabriel River has a main channel length of approximately 58 miles, and the main tributaries of the San Gabriel River are Walnut Creek, San Jose Creek, and Coyote Creek. Areas of Claremont and Pomona also drain to San Antonio Creek in the Santa Ana River Watershed. The Group's area is located in the Northeastern part of the San Gabriel River Watershed. **Figure 1-1** depicts the geographical scope covered by the ESGV Group. **Table 1-1** shows the land area distribution by each jurisdiction for the ESGV Group, not including the Angeles National Forest.

Table 1-1
East San Gabriel Valley Watershed Management Group Area by Permittee

Jurisdiction	Land Area (Acres)	Percent
City of Claremont	8,619	22.3%
City of La Verne	5,454	14.1%
City of Pomona	14,701	38.0%
City of San Dimas	9,865	25.5%
TOTAL	**38,639**	**100%**

Figure 1-1
Map of Los Angeles County Showing the Locations of the San Gabriel River Watershed and the ESGV Group Area



1.3 STAKEHOLDER PARTICIPATION

The ESGV Group is committed to providing the opportunity for meaningful stakeholder input throughout the development of the WMP. The ESGV Group has participated in working groups that were developed to facilitate collaboration among stakeholders and the technical team, including the Technical Advisory Committee. Informational flyers have been developed for distribution in City Halls, during community events, and posted online to solicit community input. Additional presentations have been provided at City Council meetings and on city websites that are televised to distribute information regarding Permit compliance to stakeholders.

2 Watershed Characterization

2.1 GEOGRAPHICAL DESCRIPTION

The San Gabriel River encompasses 682-square mile area of eastern Los Angeles County and has a main channel length of approximately 58 miles. Its headwaters originate in the San Gabriel Mountains with the East, West, and North Forks of the river. The river flows through residential, commercial and industrial areas before reaching the Pacific Ocean in Long Beach. The main tributaries of the river are Walnut Creek Wash, San Jose Creek, and Coyote Creek. Areas of Claremont and Pomona also drain to San Antonio Creek and Chino Creek in the Santa Ana River Watershed. The WMP area is located in the upper portion of the San Gabriel River Valley. **Figure 1-1** shows the jurisdictional boundaries and nearby water bodies.

2.1.1 Geology

The geology underlying the area of the San Gabriel River Watershed in the ESGV Group can be subdivided into three general types of geologic materials:

- Bedrock materials in the steep upper portion of the watershed in the Angeles National Forest in the San Gabriel Mountains
- Sedimentary materials comprising valley fill emanating from alluvial fans from the San Gabriel Mountains
- Marine sedimentary deposits which comprise the San Jose and Puente Hills

The bedrock materials of the San Gabriel Mountains consist of igneous and metamorphic rocks which have been uplifted by faulting to form steep ridges and valleys in the upper portion of the watershed. These rocks are generally impermeable and transmit only small quantities of water through fractures.

The sedimentary materials which comprise the flatter areas of the valley are comprised of alluvial fan and fluvial deposits. These deposits tend to be very permeable, especially near the northern portions of the valley adjacent to the San Gabriel Mountains. The valley fill materials consist of interbedded silt, sand and gravels. The numerous gravel pits in the valley are located in these deposits. The deposits represent the most promising areas for regional infiltration facilities. During dry weather, surface water from the San Gabriel Mountains infiltrates rapidly into these deposits, providing a hydraulic separation between the lower portions of the watershed.

The sedimentary deposits which form the upland areas of the San Jose Hills adjacent to Puddingstone Reservoir consist of marine sandstone, siltstone, and shale. Because these deposits are fine-grained and consolidated, they have relatively low permeability. Aside from the disadvantages of higher elevation and relatively steep slopes, they represent poor areas for infiltration because of their expected low permeability.

2.1.2 Groundwater Basins

The alluvial and fluvial valley-fill deposits in the flatter areas of the watershed from several groundwater basins which underlie the WMP area. The western portion of San Dimas underlies

the Main San Gabriel Groundwater Basin. This groundwater basin is an important source of water supply, with a typical production of 250,000 acre-feet of water per year. The basin is adjudicated and actively managed by the Main San Gabriel Watermaster. Groundwater flow is generally from east to west across the basin, then southward into the Central Basin through the Montebello Forebay. There are numerous existing facilities for capture of stormwater in the Main San Gabriel Basin operated by the Los Angeles County Department of Public Works and Los Angeles County Flood Control District (LACDPW and LACFCD). The groundwater basin contains a number of contaminant plumes stemming from past agricultural an industrial practices, including nitrate, volatile organic compounds, and perchlorate. These plumes could be significant in terms of planning regional BMPs if the volume a water infiltrated has the potential to adversely affect on-going remediation efforts.

The western portion of Pomona overlies the Chino Groundwater Basin, one of the larger groundwater basins in Southern California. Historical production in the Chino Basin averages approximately 150,000 acre-feet per year. In between these two relatively large groundwater basins are the Six Basins comprised of the Canyon, Upper and Lower Claremont Heights, Pomona, Live Oak, and Ganesha Basins. These basins underlie portions of La Verne, Claremont, and Pomona. Groundwater production from these basins has typically averaged approximately 18,000 acre-feet per year. These smaller basins are separated by generally northeast-trending faults which in some cases act as barriers to groundwater flow. South of the Six Basins is the Spadra Basin underlying the southern portion of Pomona. All of the nine groundwater basins underlying the area are adjudicated and actively managed by a watermaster except the Spadra Basin. The smaller basins also contain contaminant plumes stemming from past agricultural and industrial practices including nitrates, volatile organic compounds, and perchlorate.

A potentially important aspect of the groundwater basins that may have an impact on infiltration of large volumes of water are the presence of rising groundwater (cienegas) present in various locations in the Pomona Basin which are a concern for management of the basin. Basin water levels must be closely managed to avoid rising water and property damage. The Canyon Basin, cienegas of San Dimas, and Upper Claremont Heights Basin each experienced rising groundwater in the past. These areas of high groundwater should be avoided for large-scale infiltration facilities.

2.2 RAINFALL CONDITIONS

The semi-arid climate of the Los Angeles region creates distinct hydrology differences between the dry and wet seasons. The amount of rainfall is a key variable for water quality conditions and pollutant loadings from MS4 areas. To support WMP development, a rainfall analysis was performed by aggregating data from available rain gages across the San Gabriel River watershed. For comparison, other watersheds were also analyzed. The following key metrics were evaluated for comparison for the Group. These consist of: (1) total annual rainfall, and (2) average rainfall per wet day[1]. Average rainfall per wet day serves as a coarse indicator of rainfall intensity. The

[1] Wet days defined as days having greater than 0.1 inches of rainfall.

analysis covered 25 water years from 1987 through 2011—the total rainfall for each precipitation gage was aggregated into annual totals based on water year (i.e. October through September).

For WMP development, the last 10 years of available data is used to develop the Reasonable Assurance Analysis (RAA) (Section 5). As shown in **Table 2-1**, the most recent 10 years were compared to the overall 25 years of record. Both the average and 90th percentile values were compared across the 10- and 25-year records. For the San Gabriel River Watershed, water year 2008 was a representative average year based on both rainfall metrics (19.4 inches per year and 0.76 inches per wet day compared to the average 20.7 and 0.72, respectively). Water year 2003 was approximately the 90th percentile rainfall per wet day and not greatly below the 90th percentile total rainfall (23 inches per year and 0.92 inches per wet day compared to the 90th percentile 37.8 and 0.92, respectively). As such, water year 2008 is a representative year for average conditions and water year 2003 is a representative year for critical wet conditions, which are important boundary conditions for the RAA (Section 5).

Table 2-1
Annual Rainfall in the San Gabriel River Watershed (Water Years 2002–2011 vs. 25-year Average)

Water Year	Average Rainfall Totals (inches/year)	Average Rainfall Per Wet Day (inches/wet day)
2002	30.6	0.42
2003	23	0.92
2004	13.7	0.66
2005	49.6	1.07
2006	17.9	0.64
2007	6.4	0.41
2008	19.4	0.76
2009	14.6	0.65
2010	24.1	0.82
2011	28.5	0.76
Average (1987-2011)	20.7	0.72
90th Percentile (1987-2011)	37.8	0.97

Yellow highlighted cells are the two years in each basin with the smallest difference from the 25-year average. Green cells have the smallest difference from 90th percentile of the 25-year record.

3 Identification of Water Quality Priorities

Water quality priorities establish which constituents are addressed by the WMP, and support prioritization and scheduling of WMP control measures. The Permit outlines a specific set of priorities based on Total Maximum Daily Loads (TMDLs), State Water Resources Control Board 2010 Clean Water Act Section 303(d) list, and evaluation of monitoring data. Data was obtained from numerous sources and analyzed to evaluate exceedances of WQOs. A summary of applicable WQOs is provided in **Appendix D**. Based on the analysis, water-body pollutant combinations (WBPCs) were identified and then were classified in one of the three categories as defined in the Permit. Category 1 applies if the WBPC is subject to an established TMDL; Category 2 applies if the WBPC is on the 3030(d) list, or has sufficient exceedances to be listed; and, Category 3 if observed exceedances, but not at a frequency to be listed.

3.1 WATER BODY-POLLUTANT RECEIVING WATER LIMITATION EXCEEDANCES

Monitoring data for sites within the San Gabriel River Watershed Management Area was obtained from the following sources:

- LACDPW long-term monitoring data from the San Gabriel River Mass Emission Stations S14 and S13.
- The Council for Watershed Health (CWH) monitoring data from monitoring activities throughout the San Gabriel River watershed.
- The California Environmental Data Exchange Network (CEDEN).
- The Los Angeles County Sanitation District long-term receiving water monitoring data.

Monitoring data site locations are depicted in **Figure 3-1**. The number of available data from all data sources, the number of data found above the minimum detection level, and the total number of constituents measured in a reach are summarized in **Table 3-1**. Data received from the CWH and CEDEN largely consisted of short-term monitoring activities and many sites from these programs were only used for a single sampling event or had a limited number of constituents tested at the sites. All data were screened to identify potential WQO exceedances. A large number of monitoring sites were located in receiving waters downstream from the WMP area. To identify the potential water quality priorities in the WMP area, data reflective of receiving waters downstream from the WMP area were considered. It is not known at this time if the MS4 discharges from the WMP area are contributing to water quality issues observed in the downstream receiving water. Water quality priorities based on downstream conditions identified for consideration in the RAA is appropriate based on the available data. Through implementation of the Coordinated Integrated Monitoring Program (CIMP), the ESGV Group will establish receiving water monitoring sites at the WMP boundary and MS4 outfall monitoring sites within the WMP area. Evaluation of the data collected through the ESGV CIMP will provide a determination if the area is contributing to downstream exceedances of WQOs. The CIMP and WMP will be modified in two-year cycles to maintain the appropriate list of WQPs through adaptive management based on monitoring results.

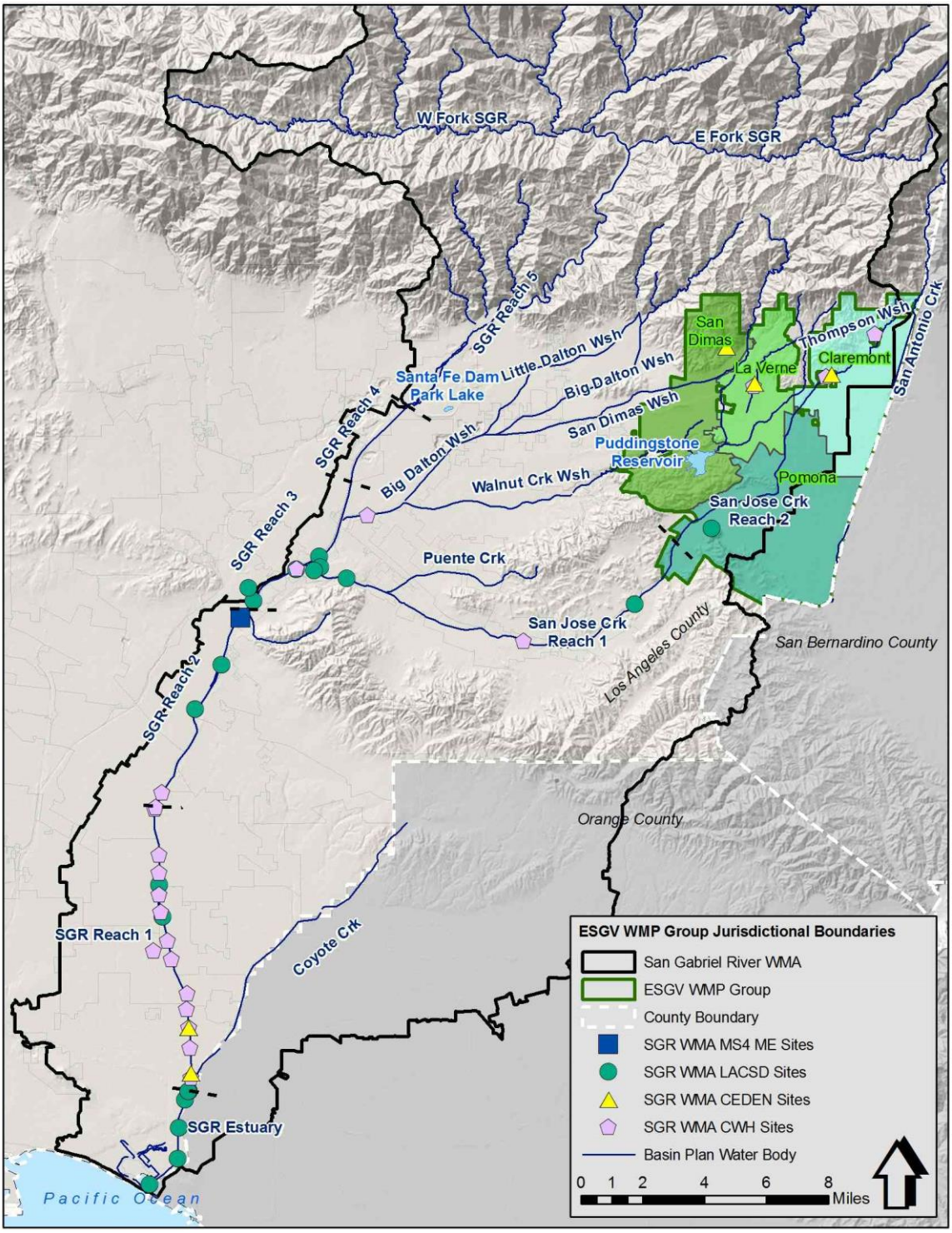


Figure 3-1

San Gabriel River Watershed water bodies, Regional Board reaches, and site locations with available water quality data. Monitoring programs with available data include: LACFCD MS4 Mass Emission (ME), Los Angeles County Sanitation District (LACSD), California Environmental Data Exchange Network (CEDEN), and Council for Watershed Health (CWH)

Table 3-1. Summary of Available Data for the San Gabriel River WMA

Reach	All Data (2002-2012)			Previous 5 Years (2007-2012)		
	Number of Analyses[1]	Number Detected[2]	Number of Constituents[3]	Number of Analyses[1]	Number Detected[2]	Number of Constituents[3]
San Gabriel River Estuary	30,598	16,026	318	12,127	4,991	177
San Gabriel River Reach 1	39,078	23,946	250	14,853	8,593	202
San Gabriel River Reach 2	10,692	3,222	251	4,732	1,513	195
San Gabriel River Reach 3	31,332	16,218	254	11,748	6,505	225
San Jose Creek Reach 1	27,439	12,348	245	12,354	6,536	203
San Jose Creek Reach 2	16,816	8,569	238	7,968	4,437	203
Walnut Creek	248	248	39	145	145	38
Thompson wash	67	65	40	0	0	0
San Dimas Wash	28	26	17	0	0	0
Big Dalton Wash	31	29	17	0	0	0
Puddingstone Reservoir[4]	28	28	17	0	0	0
Totals	156,357	80,725	419	63,927	32,720	249

1 Total number of analyses performed.
2 Number of analyses where the constituent was present in the sample above the minimum detection level.
3 Number of distinct constituents. Total copper and dissolved copper are counted as distinct constituents.
4 Including tributaries to the named water body

During dry-weather, the water bodies in the WMP area may be hydraulically disconnected from the lower sections of the watershed due to the rapid infiltration over soft bottom channels. Additionally, the CIMP contains a non-stormwater outfall program to address significant dry-weather flows from the MS4 system. Monitoring performed under the CIMP will provide information to support a determination of whether the discharges are affecting the water quality downstream of the WMP area.

The water quality data was compared to WQBELs or WQOs, to determine if the constituent exceeds the limitations. The analysis was performed with both the past ten years and the past five years of data. The two time periods were analyzed to determine if exceedances are current issues, or if they were historic problems rectified through implementation of the SUSMP. Constituents that had no observed exceedances in the past five years or those that would not meet the 303(d) listing criteria for impairment could be considered for removal from the WBPC list.

3.2 ESGV GROUP WATER QUALITY PRIORITIES

Subcategories of the three Permit defined categories were created to refine the prioritization process. Those pollutants with measurements exceeding WQOs were further evaluated and categorized based on the frequency and timing of exceedances. Category 1 constituents are divided in subclasses based on whether the TMDL is from USEPA, has effective final limitations, and if there are observed exceedances in last five years of data. Category 2 and 3 are

each divided based on whether the constituent is a pollutant, and if there are observed exceedances in last five years of data. The subcategories are listed and described in detail in **Table 3-2**. As determined by the data analysis, the WBPCs are placed in the respective subcategories and listed in **Table 3-3**. Constituents may change subcategories based on future monitoring in the WMP area, source investigations occur, and BMP implementation.

Table 3-2
Details for Water Body-Pollutant Combination Subcategories

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

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

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

Table 3-3
Summary of San Gabriel River Watershed Water Body-Pollutant Combination Categories

Class[1]	Constituent	Walnut Creek Wash	San Gabriel River Reach		San Jose Creek Reach		Pudding-stone Reservoir	San Gabriel River Reach 1	San Gabriel Estuary	Santa Ana River
			2	3	1	2				
Category 1A: WBPCs with past due or current term TMDL deadlines with exceedances in the past 5 years.										
Metals	Copper (Dry)							I	I	
	Selenium (Dry)				I	I				
Bacteria	Fecal Coliform and E. coli (Dry)									F
Category 1B: WBPCs with TMDL deadlines beyond the current Permit term and with exceedances in the past 5 years.										
Metals	Copper (Dry)							F	F	
	Selenium (Dry)				F	F				
Bacteria	Fecal Coliform and E. coli (Wet)									F
Category 1C: WBPCs addressed in USEPA TMDL without an Implementation Plan.										
Nutrients	Total Nitrogen						X			
	Total Phosphorus						X			
Metals	Total Mercury						X			
Legacy	PCB (Sediment)						X			
	PCB (Water)						X			
	Chlordane (Sediment)						X			
	Chlordane (Water)						X			
	Dieldrin (Sediment)						X			
	Dieldrin (Water)						X			
	DDT (Sediment)						X			
	DDT (Water)						X			

Continued

Table 3-3
Summary of San Gabriel River Watershed Water Body-Pollutant Combination Categories (continued)

Class[1]	Constituent	Walnut Creek Wash	San Gabriel River Reach		San Jose Creek Reach		Pudding-stone Reservoir	San Gabriel River Reach 1	San Gabriel Estuary	Santa Ana River
			2	3	1	2				
Category 1D: WBPCs with past due or current term deadlines without exceedances in the past 5 years.										
Metals	Lead (Wet)[2]	I	I	I	I	I				
Category 1E: WBPCs with TMDL deadlines beyond the current Permit term without exceedances in the past 5 years.										
Metals	Lead (Wet)[2]	F	F	F	F	F				
Category 2A: 303(d) Listed WBPCs with exceedances in the past 5 years.										
Bacteria	Indicator Organisms	303(d)	303(d)	303(d)	303(d)	303(d)		303(d)		
Metals	Lead (Dry)					X				
	Zinc			X						
	Copper	X		X						
Legacy	Polycyclic Aromatic Hydrocarbon (PAH)		X	X	X	X				
Other	Cyanide		303(d)	X						
Category 2B: 303(d) Listed WBPCs that are not a "pollutant"[3] (i.e., toxicity).										
Other	Benthic-Macroinvertebrates	303(d)								
Other	Dissolved Oxygen								303(d)	
Other	pH	303(d)			303(d)			303(d)		
Other	Toxicity				303(d)					
Category 2C: 303(d) Listed WBPCs without exceedances in past 5 years.										
Nutrients	Ammonia				303(d)					
Other	2,3,7,8-TCDD (Dioxin)								303(d)	
Metal	Nickel								303(d)	
	Copper				X					
	Lead (Dry)	X								
	Zinc	X			X					

Continued

Table 3-3
Summary of San Gabriel River Watershed Water Body-Pollutant Combination Categories (continued)

Class[1]	Constituent	Walnut Creek Wash	San Gabriel River Reach		San Jose Creek Reach		Pudding-stone Reservoir	San Gabriel River Reach 1	San Gabriel Estuary	Santa Ana River
			2	3	1	2				
Salts	Total Dissolved Solids (Dry)				303(d)					
Category 3A: WBPCs with exceedances in the past 5 years.										
Other	MBAS			X						
Salts	Sulfate (Dry)			X	X	X				
	Chloride (Dry)			X	X	X				
	Total Dissolved Solids (Dry)			X						
Category 3B: WBPCs that are not a "pollutant"[3] (i.e., toxicity).										
Other	Dissolved Oxygen			X	X	X		X(Dry)		
Category 3C: WBPCs without exceedances in past 5 years.										
Other	Cyanide				X					
Metals	Selenium	X						X	X	
	Lead								X	
	Zinc								X	
	Mercury	X								
Other	Lindane			X						

1 Pollutants are considered in a similar class if they have similar fate and transport mechanisms, can be addressed via the same types of control measures, and within the same timeline already contemplated as part of the WMP for the TMDL. (Permit pg. 49).
2 Grouped wet weather waste load allocation, expressed as total recoverable metals discharged to all upstream reaches and tributaries of the San Gabriel River Reach 2.
3 While pollutants may be contributing to the impairment, it currently is not possible to identify the *specific* pollutant/stressor. Note that unless explicitly stated as sediment, constituents are associated with the water column.
I/F Denotes where the Permit includes interim (I) and/or final (F) effluent and/or receiving water limitations.
303(d) WBPC on the 2010 303(d) List where the listing was confirmed during data analysis.

4 Watershed Control Measures

This section describes structural and non-structural control measures existing or planned in the ESGV Group area.

4.1 STRUCTURAL BMP DATA COMPILATION

Development of the WMP requires identification of watershed control measures, also referred to as BMPs, that are expected to be sufficient to meet receiving water and effluent limitations set forth in the Permit. The overarching goal of BMPs in the WMP is to reduce the impact of stormwater and non-stormwater on receiving water quality. This subsection describes efforts to develop consistent nomenclature for structural BMPs, and efforts to compile data regarding existing and planned regional BMPs.

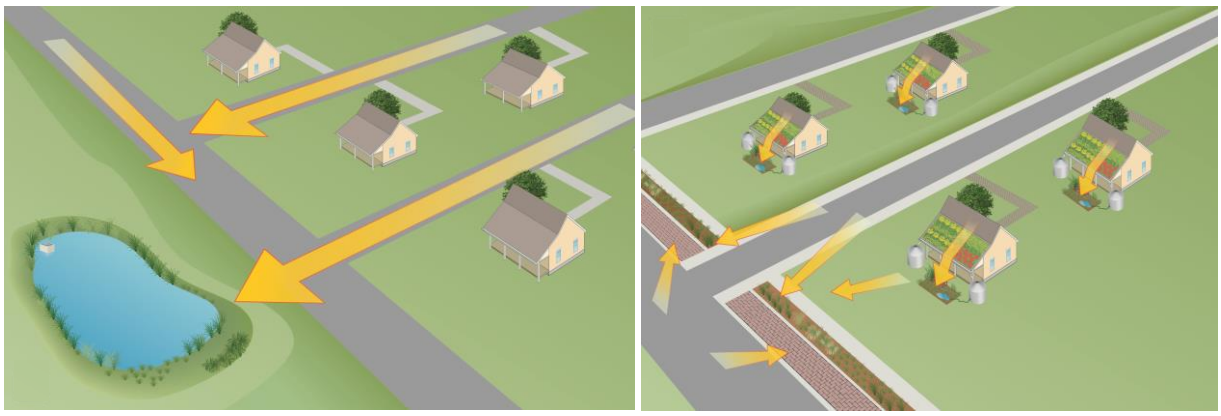
The two main categories of structural BMPs to be implemented by the WMP include regional and distributed (**Figure 4-1)**, as follows:

- **Regional BMPs:** Constructed structural practices intended to treat runoff from a contributing area of multiple parcels (normally on the order of 10s or 100s of acres or larger). Regional BMPs may be constructed within a single jurisdiction or across multiple jurisdictions.

- **Distributed BMPs:** Constructed structural practices intended to treat runoff relatively close to the source and typically implemented at a single- or few-parcel level (normally less than one acre).

Note that regional BMPs are not necessarily able to capture the 85th percentile, 24-hour storm. The subset of regional BMPs that capture the 85th percentile, 24-hour storm, are referred to as "Regional WMP Projects". Drainage areas that are captured with a Regional WMP Project are expected to be considered in compliance with interim and final TMDL limits.

Figure 4-1
Conceptual Schematic of Regional (left) and Distributed (right) BMP Implementation Approaches



4.1.1 Structural BMP Subcategories

Regional and distributed BMPs were separated into subcategories as shown in **Table 4-1**. This nomenclature is used herein to compile and describe information on existing, planned, and potential BMPs.

Table 4-1
Summary of Structural BMP Categories and Major Functions

Category	Subcategory	Example BMP Types
Regional	Infiltration	Surface infiltration basin, subsurface infiltration gallery
	Detention	Surface detention basin, subsurface detention gallery
	Constructed Wetland	Constructed wetland, flow-through/linear wetland
	Treatment Facility	Facilities designed to treat runoff from and return it to the receiving water or divert to the sanitary sewer.
Distributed	Site-Scale Detention	Dry detention basin, wet detention pond, detention chambers, etc.
	Green Infrastructure	**Bioretention** and **biofiltration** (vegetated practices with a soil filter media, and the latter with an underdrain)
		Permeable pavement
		Green streets (often an aggregate of bioretention/biofiltration and/or permeable pavement)
		Infiltration BMPs (non-vegetated infiltration trenches, dry wells, rock wells, etc.)
		Bioswales (vegetative filter strips and vegetated swales)
		Rainfall harvest (cisterns, rain barrels)
	Flow-Through Treatment BMP	Media/cartridge filters, high-flow biotreatment filters, etc.
	Source Control Treatment BMPs	Catch basin inserts, screens, hydrodynamic separators, trash enclosures, etc.

4.1.2 Existing BMPs in the WMP Area

Regional BMPs will be a critical component of the WMP. Individual Group Members provided summaries of existing and planned BMPs. In addition, a literature review was performed to identify further structural BMP projects that were not encompassed by the data provided. The literature review included Integrated Regional Watershed Management Plan documents, and the Notice of Intent (NOI). A summary of recently-constructed and planned BMPs, by jurisdiction, is presented in **Table 4-2**. Calculated Capacities are included, if available.

Table 4-2
Recently Constructed and Planned BMPs in the WMP Area

Jurisdiction	BMP Type	Project Name	Project Size	Location	Capacity
San Dimas	Catch Basin #1&2 (piped to underground retention system constructed in Phase II)	Bonita Cyn Gateway-Shops Phase I	2.25 Acres	N/W Corner of Bonita and San Dimas Canyon Rd	Capacity calculated as 69.4 cubic feet per second (cfs)
San Dimas	Underground Retention System	Bonita Cyn Gateway-Residential Phase II	6.27 Acres	N/W Corner of Bonita and San Dimas Canyon Rd	Treatment area = 6.27 acres
San Dimas	Continuous Deflection Separator (CDS) System	Bonita Cyn Gateway-Residential Phase II	6.27 Acres	N/W Corner of Bonita and San Dimas Canyon Rd	Pretreatment of stormwater runoff
San Dimas	Catch Basins with (2) Hydrodynamic Separators (CDS2015-4)	Grove Station Development (Village Walk) - Tract 66251 Phase II	2.3 Acres	N/E Corner San Dimas Avenue and Arrow Highway	0.14 cfs (0.7 cfs each x 2)
San Dimas	Thirteen (13) Kristar Fossil Filters (off site)	Grove Station Development (Village Walk) - Tract 66251 Phase II	2.3 Acres	N/E Corner San Dimas Avenue and Arrow Highway	
San Dimas	Biofilter - Vegetated Swale	Grigolla, Raymond	0.63 Acres	627 W Allen	Tributary Area: 0.18 acres.
San Dimas	Bio-skirt, Manufactured Devices (e.g., proprietary underground devices, hydrodynamic devices, etc.)		N/A	627 W Allen	1.32 cfs
San Dimas	Infiltration (Percolation) Trench	San Dimas High - Performing Arts Center	3.04 Acres	800 West Covina Blvd	3/4" 2 yr. storm event and up to 25 yr. storm conveyed through perforated pipe and allowed to infiltrate in 72hr period

Table 4-2
Recently Constructed and Planned BMPs in the WMP Area (continued)

Jurisdiction	BMP Type	Project Name	Project Size	Location	Capacity
San Dimas	Catch Basin Filter inserts	San Dimas High - Performing Arts Center	3.04 Acres	800 West Covina Blvd	(6) Catch basin filter inserts, (FloGard Plus) - location of one of six catch basins
San Dimas	Roof drain boxes	San Dimas High - Performing Arts Center	3.04 Acres	800 West Covina Blvd	(7) Roof drain boxes with filter inserts, (FloGard Plus) - location of one of seven roof drain boxes
San Dimas	Double Modular EcoRainTank System	San Dimas High - Parking Lot	0.6 Acres	800 West Covina Blvd	Total volume = 27'W x 57.62'L x 2.89' H
San Dimas	Underground Detention Trench	Proposed Warehouse/Office Building	1.874 Acres	328 W Arrow Hwy	100% peaked mitigated flow: 0.93 Acres
San Dimas	Vegetated Swale	Proposed Warehouse/Office Building	1.874 Acres	328 W Arrow Hwy	
San Dimas	Infiltration Basin with continuous deflective separation pre treatment	Costco	22.6 Acres	520 N Lone Hill (southeast corner of Gladstone/Lone Hill)	Sized to store the 1st 0.75" runoff (0.193"/hr.). Treat sediments, nutrients, organic compounds, debris, hydrocarbons, and metals
San Dimas	Infiltration Chamber	Southern California Edison - Parking Lot	5.1 Acres	South of Cienega, 800 West Cienega Avenue	3/4" 24-hr storm runoff volume (0.27 ac/ft.)
San Dimas	Infiltration (Percolation) Trench	San Dimas Surgical Medical Center	0.56 Acres	1359 W Arrow Hwy	Subarea: 0.293 acres. Peak Mitigation Flow Rate: Qpm=0.08 cfs; Max Volume: 711 ft^3
San Dimas	Biofilter - Grass Swale	San Dimas Surgical Medical Center	0.56 Acres	1359 W Arrow Hwy	Subarea: 0.181 acres. Qpm=0.05 cfs
San Dimas	water quality inlet - FloGard	San Dimas Surgical Medical Center	0.56 Acres	1359 W Arrow Hwy	

Table 4-2
Recently Constructed and Planned BMPs in the WMP Area (continued)

Jurisdiction	BMP Type	Project Name	Project Size	Location	Capacity
San Dimas	Stormtech infiltration basin	City Ventures - Tract 72590	3.70 Acres	155 N. Eucla Street	Measuring at 110 feet x 10 feet
San Dimas	Infiltration Basin	Olsen	6.0 Acres	North of Foothill Blvd	Measuring 16' x 76' x 4'
San Dimas	Bioswale Retention Basin	Care Meridian: Via Verde Rehab Center	1.8 Acres	1136 & 1148 Puente Street	Measuring 126 feet x 68 feet
San Dimas	Perforated Pipe - Retention	Tract 71259:	1.03 Acres	301 S San Dimas Avenue	Measuring length= 147 L.F. and diameter = 48"
San Dimas	Basin 7 Bioretention	Brasada NJD Development	270 Acres	North of Foothill Blvd	6,082 square feet (Anticipated to treat 20.12 acres)
San Dimas	Basin 8 Bioretention	Brasada NJD Development	270 Acres	North of Foothill Blvd	6,600 square feet (Anticipated to treat 39.32 acres)
San Dimas	Modular Wetland Systems (MWS) 1-13	Brasada NJD Development	270 Acres	North of Foothill Blvd	3.37 CFS
San Dimas	Bioswale (biofilter)	Lone Hill / Las Colinas Tract 60865	7.06 Acres	Lone Hill Avenue south of Gladstone and north of Saint George	0.204 CFS
La Verne	Bioretention	Oak Grove Walk		End of Dover at Valentine & Canopy	
La Verne	Infiltration (Dry) Well	Oak Grove Walk		End of Dover at Valentine & Canopy	
La Verne	Detention Basin (Dry) - Surface Grass-Lined Basin	La Verne Tech Center (planned)		Wheeler Avenue and Puddingstone Drive	
La Verne	Vegetated Swale	University of La Verne Campus West (completed 3/2014)		Wheeler Avenue and Puddingstone Drive	Swale is 327' by 4' (1,308 square feet)

Table 4-2
Recently Constructed and Planned BMPs in the WMP Area (continued)

Jurisdiction	BMP Type	Project Name	Project Size	Location	Capacity
La Verne	Filter - Geotextile Fabric Membrane (Vertical)	University of La Verne Campus West (completed 3/2014)		Wheeler Avenue and Puddingstone Drive	
La Verne	Infiltration (Dry) Well	Jack in the Box (completed 12/2013)		Damien Avenue and Foothill Boulevard	System capacity 1,067 cubic feet
La Verne	Filter - Geotextile Fabric Membrane (Vertical)	Jack in the Box (completed 12/2013)		Damien Avenue and Foothill Boulevard	
La Verne	Infiltration (Dry) Well	University of La Verne Parking Lot S (completed 8/2013)		A Street and Walnut Avenue	Retain 3/4 inch of 25 year storm, system capacity 9,424 cubic feet.
La Verne	Filter - Geotextile Fabric Membrane (Vertical)	University of La Verne Parking Lot S (completed 8/2013)		A Street and Walnut Avenue	
La Verne	Detention Basin (Dry) - Surface Grass-Lined Basin That Empties to Stromdrain	Village La Verne		Foothill Boulevard and Bradford	
La Verne	Infiltration (Dry) Well	1300 Palomares Industrial (planned)		1300 Palomares Ave. (Palomares Ave East of Damien Ave)	
La Verne	Filter - Geotextile Fabric Membrane (Vertical)	1300 Palomares Industrial (planned)		1300 Palomares Ave. (Palomares Ave East of Damien Ave)	
Pomona	Cultech Retention System, Cultech Filter	San Jose Elementary Parking Lot	0.38 Acres	2015 Cadillac Dr.	1146 cubic feet
Pomona	Infiltration Trench	The Southern California Dream Center	1.23 Acres	1024 Phillips Blvd.	501 cubic feet
Pomona	Infiltration Basins, Drain Inserts	Fremont Middle School Modernization	1.84 Acres	725 W. Franklin Ave.	2601 cubic feet
Pomona	Pervious Pavement, Vegetated Buffer Strip, Drain Inserts	Chase E Bank	0.09 Acres	110 E. Foothill Blvd.	1064 cubic feet

Table 4-2
Recently Constructed and Planned BMPs in the WMP Area (continued)

Jurisdiction	BMP Type	Project Name	Project Size	Location	Capacity
Pomona	Infiltration Basins, Vortex Separator	Rio Rancho Town Center	21.1 Acres	Rio Rancho Road	118,085 cubic feet
Pomona	Infiltration Trench	Charisma Life Church	0.35 Acres	305 E. Arrow Highway	2400 cubic feet
Pomona	Infiltration Trench, Vortex Separator, Drain Inserts	Mission 71 Business - Building O	11.1 Acres	Tract Map No. 61428	
Pomona	Vegetated Swale, Filtera Units	Pomona Valley Hospital Medical Center	9.1 Acres	1798 N. Garey Ave.	
Pomona	Infiltration Basin, Drain Inserts	Metrolink	3.25 Acres	2704 N. Garey Ave.	
Pomona	Bio-retention planters (3)	Home Depot Outparcel (Meridian Pomona)	0.61 Acres	2703 S Towne Ave	1779 cubic feet
Pomona	CDS Unit	Monterey Station	6.71 Acres	100 E Monterey Ave.	15834 cubic feet
Pomona	Bio-retention facilities (2), vegetated swales	Pomona Ranch Plaza, Lot 7	10.78 Acres	75 Rancho Camino Dr	
Pomona	Infiltration Basins, Drain Inserts, Vortex separator	Mission 71 Business - Building LMN	10.12 Acres	1585 W. Mission Blvd.	23376 cubic feet
Pomona	vegetated swales, infiltration trenches, clarifier, grate inlet/media filtration devices	Pomona Valley Transfer Station	10.2 Acres	1371 E Ninth Street	3817 cubic feet
Pomona	Vortex separator, infiltration trenches	Mission 71 Bldgs P, Q, R, S	23.4 Acres	1875 Mission Blvd	36106 cubic feet
Pomona	swales, infiltration	Jefferson Park (Phil & Nell Soto Park) (Planned)	2 Acres	Orange Grove Ave at Park Ave and Jefferson Ave	
Claremont	Drywell/Filter	Citrus Glen @ Pitzer Ranch	3.31 acres	926 W. Baseline Road	
Claremont	Detention Basin/Vegetated Swale/Maxwell IV Drywell	Pomona College - 4th Street Walk	1.5 acres	101 N. College Avenue	

Table 4-2
Recently Constructed and Planned BMPs in the WMP Area (continued)

Jurisdiction	BMP Type	Project Name	Project Size	Location	Capacity
Claremont	Underground Infiltration Basin	TR 72078	4.22 acres	Baseline Road & Mountain Avenue	
Claremont	Vegetated Swale	Claremont Toyota Service Building	0.2 acres	601 Auto Center Drive	
Claremont	Rain Gardens/Underground Infiltration Basins/Infiltration Trench	Millikan Laboratory & Andrew Science Hall		610 North College Avenue	
Claremont	Infiltration System (drywell)	Indian Hill Blvd and Vista	1.7 acres	Indian Hill Blvd. & Vista Dr.	3,920 cubic feet per acre
Claremont	Maxwell Deep well Drywell, Underground Detention pipes, Kristar Lo Pro Media	Gable Crossing	4.06 acres	506 and 618 w Baseline Rd.	10,017 cubic feet per acre
Claremont	2- gravel drywells, 20 vegetated swales, and 3,301 square feet pervious pavers	Neptune Apartments	0.71 acres	365 W San Jose Ave	1,307 cubic feet per acre, 436 cubic feet per acre
Claremont	3 Vegetated Swales	Roberts Pavilion	3.55 acres	690 N. Mills	8,956 cubic feet per acre
Claremont	Detention/Infiltration Tank, Trench Drain	Claremont Village Lofts	1.66 acres	127 Oberlin	4,815 cubic feet per acre
Claremont	Maxwell Drywell Infiltration System	E. Baseline and Towne	5.88 acres	E. Baseline and N. Towne Ave	13,705 cubic feet per acre
Claremont	Bio-Swale	Western Christian School	4.8 acres	3105 Padua Avenue	
Claremont	Vegetated Grass Strips, Vegetated Grass Swale, Proprietary Control Measures, Infiltration Basin	Harvey Mudd College	1.87 acres	301 Platt Blvd.	3,490 cubic feet per acre

4.2 MCMS/INSTITUTIONAL BMPS

The Permit requires the implementation of minimum control measures (MCMs) in Parts VI.D.4 through VI.D.10. Although the previous permit (Order No. 01-182) required implementation of MCMs, some of the enhancements introduced by the current Permit include:

- Additional outreach and education as part of the Public Information and Participation Program is required. For example, each Group member will be required to maintain a website with stormwater-related educational materials.
- Each jurisdiction is expected to record more information on industrial and commercial facilities within their jurisdiction as part of their Industrial/Commercial Facilities Program.
- The Permit provides more detailed information on BMP criteria for use in the Group's Planning and Land Development Program, formerly the Development Planning Program, and calls for annual reporting of implemented mitigation projects.
- An Erosion and Sediment Control Plan (ESCP), which includes elements of a Storm Water Pollution Prevention Plan (SWPPP), replaces the Local SWPPP as a required document for construction activities meeting certain criteria as a prerequisite to building/grading permit issuance.
- The Permit also requires an electronic tracking system for construction activities within their jurisdiction and mandates more aggressive inspection schedules.
- The Public Agency Activities Program remains largely unchanged with the exception of requiring an inventory of existing developments for BMP retrofitting opportunities.

A comparison between program requirements of the previous and current Permit is summarized in **Table 4-3**.

4.2.1 Customization of MCMs

The Permit allows for customizing MCMs if the effectiveness on an MCM activity can reasonably show that customization would result in equal or improved water quality effects. As an institutional preference, the City of San Dimas is proposing to align their construction site inspections with the City's building permit inspections. Inspection of construction sites one (1) acre or greater would occur bi-weekly during the wet weather season and monthly during the dry weather season. This modification will maintain adequate inspection frequencies while eliminating wet weather uncertainties. During implementation of the WMP, additional modifications may be considered as part of the adaptive management process.

Table 4-3
Comparison of Storm Water Management Program MCMs

Program Element	Activity	Old Permit (Order No. 01-182)	New Permit (Order No. R4-2012-0175)
Public Information and Participation Program	Public Education Program - Advisory committee meeting (once per year)	x	
	"No Dumping" message on storm drain inlets (by 2/2/2004)	x	
	Reporting hotline for the public (e.g., 888-CLEAN-LA)	x	x
	Outreach and Education	x	
	Make reporting info available to public	x	x
	Public service announcements, advertising, and media relations	x (4.B.1.c.1)	x
	Public education materials - Proper handling	x (4.B.1.c.3)	x
	Public education materials - Activity specific	x	x
	Educational activities and countywide events	x	x
	Quarterly public outreach strategy meetings (by 5/1/2002)	x	
	Constituent-specific outreach information made available to public	x	x
	Business Assistance Program	x	
	Educate and inform corporate managers about stormwater regulations	x	
	Maintain storm water websites		x
	Provide education materials to schools (50 percent of all K-12 children every two years)	x	x
	Provide principle permittee with contact information for staff responsible for storm water public educational activities (by 4/1/2002)	x	x
	Principle permittee shall develop a strategy to measure the effectiveness of in-school education programs	x	
	Principle permittee shall develop a behavioral change assessment strategy (by 5/1/2002)	x	
	Educate and involve ethnic communities and businesses (by 2/3/2003)	x (4.B.1.c.2)	x
	Reporting hotline for the public (e.g., 888-CLEAN-LA)	x	x
Industrial/Commercial Facilities Program Industrial/Commercial Facilities Program	Track critical sources – Restaurants	x	x
	Track critical sources - Automotive service facilities	x	x
	Track critical sources - RGOs	x	x
	Track critical sources - Nurseries and nursery centers		x
	Track critical sources - USEPA Phase I facilities	x	x
	Track critical sources - Other federally-mandated facilities [40 CFR 122.26(d)(2)(iv)(C)]	x	x
	Track critical sources - Other commercial/industrial facilities that Permittee determines may contribute substantial constituent load to MS4		x
	Facility information - Name of facility	x	x
	Facility information - Contact information of owner/operator	name only	x
	Facility information - Address	x	x
	Facility information - NAICS code		x
	Facility information - SIC code	x	x
	Facility information - Narrative description of the activities performed and/or principal products produced	x	x
	Facility information - Status of exposure of materials to storm water		x
	Facility information - Name of receiving water		x
	Facility information - ID whether tributary to 303(d) listed water and generates constituents for which water is impaired		x
	Facility information - NPDES/general industrial permit status	x	x
	Facility information - No Exposure Certification status		x
	Update inventory of critical sources annually	x	x
	Business Assistance Program	optional	x
	Notify inventoried industrial/commercial sites on BMP requirement		once in 5 years
	Inspect critical commercial sources (restaurants, automotive service facilities, retail gasoline outlets and automotive dealerships)	twice in 5 years	twice in 5 years
	Inspect critical industrial sources (phase 1 facilities and federally-mandated facilities)	twice in 5 years[1]	twice in 5 years[2]
	Verify No Exposure Certifications of applicable facilities		x
	Verify Waste Discharge Identification number of applicable facilities	x	x
	Source Control BMPs	x	x
	Provisions for Significant Ecological Areas (Environmentally Sensitive Areas)	x[3]	x
	Progressive enforcement of compliance with stormwater requirements	x	x
	Interagency coordination	x	

Table 4-3
Comparison of Storm Water Management Program MCMs (continued)

Program Element	Activity	Old Permit (Order No. 01-182)	New Permit (Order No. R4-2012-0175)
Planning and Land Development Program	Peak flow control (post-development stormwater runoff rates, velocities, and duration)	x	x[4]
	Hydromodification Control Plan	in lieu of countywide peak flow control	
	Standard Urban Stormwater Mitigation Program (SUSMP) (by 3/3/03)	x	
	Volumetric Treatment Control (SWQDv) BMPs	x	x
	Flow-based Treatment Control BMPs	x	x
	Require implementation of post-construction Planning Priority Projects as treatment controls to mitigate storm water pollution (by 3/10/2003)	x	x
	Require verification of maintenance provisions for BMPs	x	x
	California Environmental Quality Act process update to include consideration of potential stormwater quality impacts	x	
	General Plan Update to include stormwater quality and quantity management considerations and policies	x	
	Targeted Employee training of Development planning employees	x	
	Bioretention and biofiltration systems		x
	SUSMP guidance document	x	
	Annual reporting of mitigation project descriptions		x
Development Construction Program	Erosion control BMPs	x	x
	Sediment control BMPs	x	x
	Non-storm water containment on project site	x	x
	Waste containment on project site	x	x
	Require preparation of a Local SWPPP for approval of permitted sites	x	x
	Inspect construction sites on as-needed basis		x
	Inspect construction sites equal to or greater than one acre	once during wet season	once every two weeks[5], monthly
	Electronic tracking system (database and/or Geographic Information System (GIS))		x
	Required documents prior to issuance of building/grading permit	L-SWPPP	ESCP/SWPPP
	Implement technical BMP standards		x
	Progressive enforcement	x	x
	Permittee staff training	x	x
Public Agency Activities Program	Public construction activities management	x	x
	Public facility inventory		x
	Inventory of existing development for retrofitting opportunities		x
	Public facility and activity management	x	x
	Vehicle maintenance, material storage facilities, corporation yard management	x	x
	Landscape, park, and recreational facilities management	x	x
	Storm drain operation and maintenance	x	x
	Streets, roads, and parking facilities maintenance	x	x
	Parking Facilities Management	x	x
	Emergency procedures	x	x
	Alternative treatment control BMPs feasibility study	x	
	Municipal employee and contractor training		x
	Sewage system maintenance, overflow, and spill prevention	x	
IC/ID Elimination Program	Implementation program	x	x
	MS4 Tracking (mapping) of permitted connections and illicit connections and discharges	x	x
	Procedures for conducting source investigations for Illicit Connections/Illicit Discharges (IC/IDs)	x	x
	Procedures for eliminating IC/IDs	x	x
	Procedures for public reporting of ID		x
	IC/ID response plan	x	x
	IC/IDs education and training for staff	x	x

[1] Tier 2 facilities may be inspected less frequently if they meet certain criteria
[2] Subject to change based on approved WMP strategy
[3] For environmentally sensitive areas and impaired waters
[4] Maintain pre-project runoff flow rates via hydrologic control measures
[5] Sites of threat to water quality or discharging to impaired water; frequency dependent on chance of rainfall

4.3 PROCESS FOR IDENTIFYING ADDITIONAL BMPS

As part of adaptive management, additional projects will be identified and considered for further evaluation during the WMP process. The extent of BMP implementation required to achieve WMP objectives will be determined through the CIMP monitoring and is intended to adapt to new data and information.

An evaluation of projects will begin with identification of specific parcels which are publically owned, such as parks, schools, flood control facilities, or other publicly-owned open spaces which may meet the area requirements identified in the evaluation of capture potential. A preliminary list of parks and schools has been identified, including their proximity to major storm drain infrastructure, as shown in **Figure 4-3**. If the number of publicly owned parcels is not sufficient to meet anticipated capture potential, privately owned parcels with large open spaces such as parking lots will be considered.

Based on this analysis of specific project locations, a list of projects will be generated to meet the objectives of the WMP, including the potential to capture the 85th percentile, 24-hour storm event. Analysis of the projects will include the parcel location, parcel size, current ownership, and necessary infiltration capacity. The list of projects generated as a result of this process will then be evaluated based on criteria developed by the ESGV Group, as described in the following section.

The process to identify and evaluate additional projects is illustrated schematically in **Figure 4-2** and further described in the following subsections.

Figure 4-2
Process for Identification and Evaluation of Additional Projects

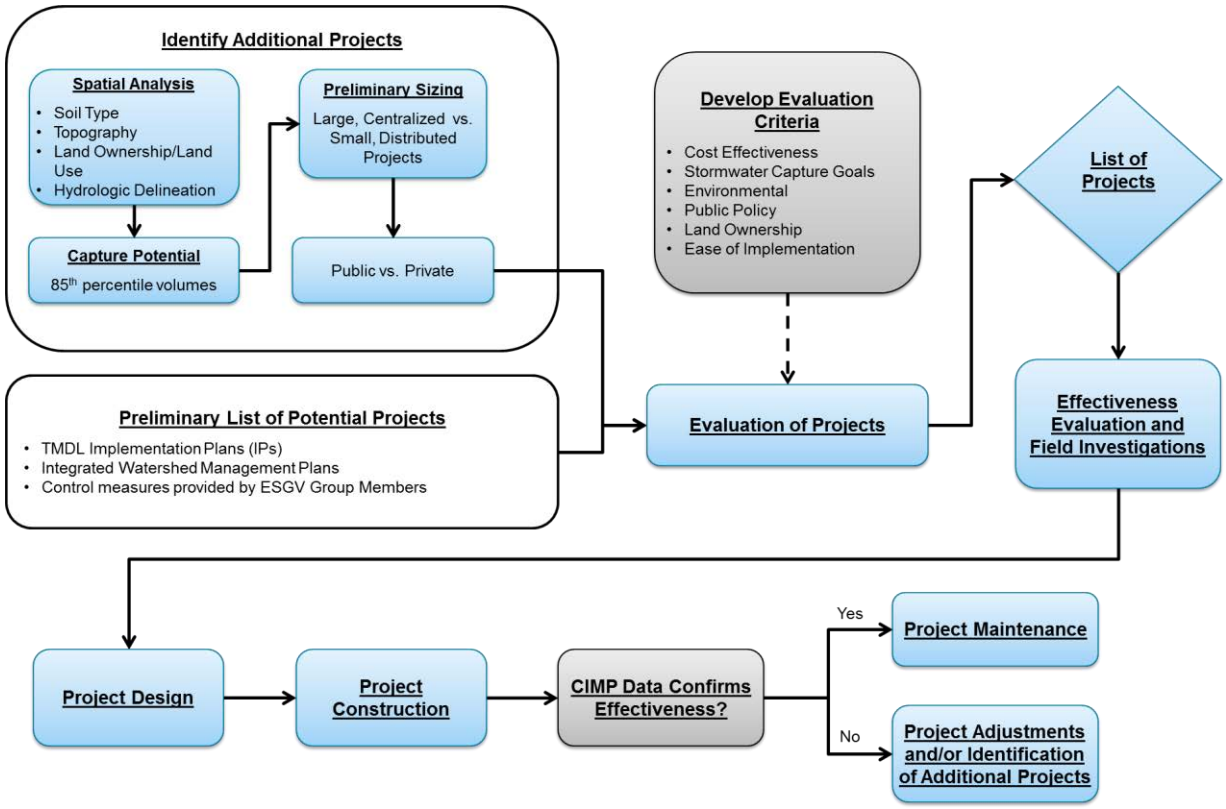
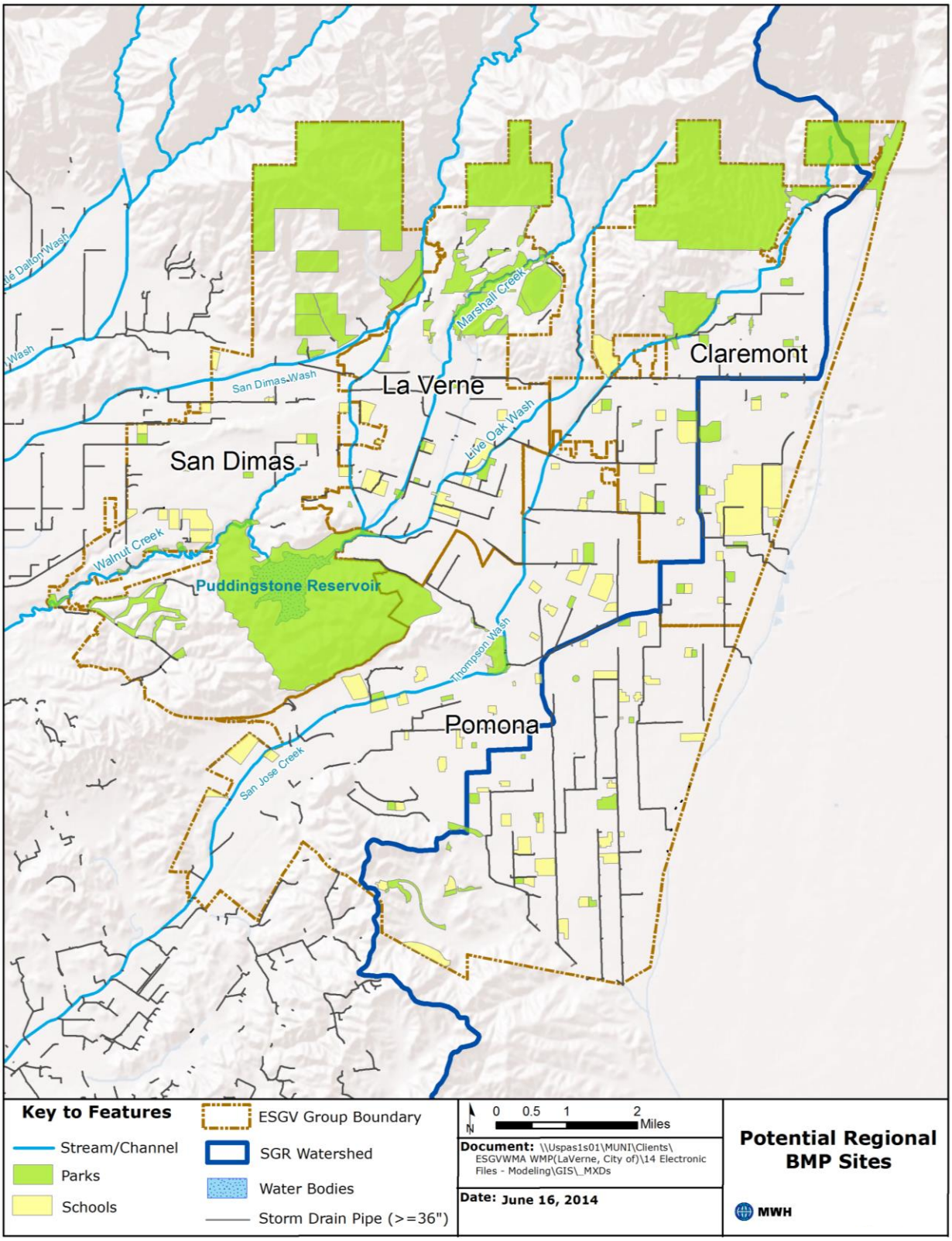


Figure 4-3
Potential Regional BMP Sites



4.3.1 Identification of Additional Projects

Additional BMPs will be identified using a detailed spatial analysis, beginning with an initial spatial analysis of fatal flaws, and culminating with an identification of potentially suitable locations.

4.3.1.1 Initial Spatial Analysis

Initially, a preliminary screening will identify locations within ESGV Group's jurisdictions that can be eliminated from consideration because they are clearly unsuitable for the siting of projects. Potential fatal flaws include adverse conditions related to:

- **Soil Type.** Surface soils such as bedrock materials, clay, or other relatively impermeable substrate will prohibit the infiltration of stormwater. Locations where these conditions exist will be considered less preferable during the initial screening.

- **Topography.** Locations with slopes greater than 25 percent will be eliminated from further consideration because of the difficulty in constructing facilities in terrain with high relief. Additionally, areas in the headwaters of the watershed will be considered less preferable because of the paucity of stormwater runoff in these areas.

- **Unsuitable Land Ownership and/or Land Use Designations.** Land ownership and/or prior designation of land use of areas within the ESGV Group's jurisdictional areas that would prohibit regional projects will be considered less preferable. Areas that are owned by the federal or state government will be considered less preferable because of the difficulty of permitting maintaining projects in these areas. Other considerations will include protected open spaces or wildernesses that are less suitable for regional projects.

- **Environmental Constraints.** Environmentally restricted areas, such as superfund sites and landfills will be deemed unsuitable during the initial screening. Areas of contaminated groundwater will need to be further evaluated to determine if recharge of stormwater causes mobilization of contaminants in the aquifer.

This initial spatial screening will result in identification of areas that may have the potential to meet the 85th percentile, 24-hour storm event capture volume requirement. These areas may be considered for further evaluation as potential Regional WMP Project locations.

4.3.1.2 Capture Potential and Preliminary Sizing

Projects are sited to capture the required volume of water at selected locations along stormwater flow paths within the jurisdictional areas. A few centralized locations at lower elevations in the watershed will require larger acreage and greater infiltration capacity than numerous distributed regional facilities located higher in the watershed. The intent of the capture potential analysis is to assess the practicality of a few centralized projects and evaluate the practical requirement for a larger number of distributed projects. Using typical infiltration rates, the size of a potential project can be evaluated if the volume of water to be captured is known. The next step in the progressive spatial analysis is to perform preliminary sizing of required facilities at key locations in the watershed. This will provide information as to the practicality of larger centralized projects and distributed projects.

4.3.2 Evaluation Criteria Development

The list of potential projects will be evaluated based on criteria developed by the ESGV Group, in order to determine the projects best suited for achieving the multi-benefit objectives of the WMP. **Table 4-4** identifies potential categories for evaluation criteria to prioritize projects and their ability to meet MS4

Permit requirements and the ESGV Group's goals. The following potential categories and considerations will be refined by the ESGV Group.

Table 4-4
Project Evaluation Criteria

Criteria Category	Considerations
Cost Effectiveness	Life Cycle Cost Capital Cost Operations and Maintenance Cost Funding Options (Grants, State Revolving Funds, other funding)
Stormwater Capture Goals	Capacity or Volume of Water Captured Water Quality Groundwater Recharge/Infiltration Capacity Geographical Location
Environmental	Environmental Constraints Reduced Energy Consumption Consumption of Other Resources Multi-use benefits Impact on habitat or species
Public Policy Institutional Issues	Political Constraints Education/Outreach Political Support Partnerships
Land Ownership	Public vs. Private Land Acquisition Impediments
Ease of Implementation	Permitting Schedules (short term vs. long term) Constructability Site Accessibility

4.3.3 Ranking Potential Projects

The list of potential projects will be ranked in accordance with the evaluation criteria described above and refined. Initially, ranking by category will be relatively simple, using qualitative weighting descriptions such as "favorable", "moderately favorable", and "not favorable". More quantitative criteria and weighting factors will be developed if necessary and if more quantitative data becomes available. Projects will be further evaluated through effectiveness evaluations and field investigations as necessary.

5 Reasonable Assurance Analysis and Watershed Control Measures

This section describes the RAA and presents the capacities of watershed control measures (WCMs) required to address the water quality priorities for the ESGV WMP. In this section, the terms WCMs and BMPs are used interchangeably. While the Permit prescribes the RAA as a quantitative demonstration that WCMs will be effective, the RAA for the ESGV WMP was also designed to identify and prioritize control measures to be implemented by the Group. In other words, the RAA for the ESGVWMP also supported the selection of WCMs. Furthermore, the RAA was used to schedule/sequence the implementation of BMPs to assure attainment of the interim WQBELs and RWLs.

For this WMP, the RAA process led to a decision by the Group to base the WMP around networks of BMPs that are able to collectively retain the volume associated with the 85th percentile storm, as depicted in **Figure 5-1** and described below. By using design storm retention as the basis for the RAA, it comprehensively addresses all Water Quality Priorities, as follows:

- Retention of the design storm addresses all Category 1, 2 and 3 pollutants
- Retention of the design storm addresses any additional pollutants that may arise as Water Quality Priorities during EWMP implementation
- Retention of the design storm addresses both wet and dry weather issues
- The schedule for implementing BMPs to retain the design storm (Section 5.3) is the schedule for addressing all current and future Water Quality Priorities, including Puddingstone Reservoir.

5.1 REASONABLE ASSURANCE ANALYSIS

A key element of each WMP is the RAA, which is used to demonstrate "that the activities and control measures…will achieve applicable WQBELs and/or RWLs with compliance deadlines during the Permit term". The WMP has closely followed the RAA Guidelines issued by the Regional Board on March 25, 2014 (Los Angeles Regional Water Quality Control Board, 2014). The RAA is a predictive quantitative process that includes the following components:

Step 1: Incorporates Water Quality Priorities and identifies numeric goals to address them: Numeric Goals, which represent RAA drivers, include TMDL targets, WQBELs, RWLs and the 85th percentile design storm volume. The estimated baseline/existing loading or design storm volumes provides a reference point of comparison for measuring BMP performance and cost-effectiveness (i.e. the difference between the current loading or design storm volumes and predicted loading or volumes after BMPs are implemented, and the cost of those BMPs).

Step 2: Identifies opportunities for BMP implementation in the WMP area: the RAA inherently includes an exploratory element for evaluating BMP opportunities. The

opportunities of most interest are right-of-way (ROW) and public parcels, as land acquisition can be prohibitively expensive.

Step 3: Evaluates effectiveness of potential BMPs on receiving water quality, jurisdictional loading and/or design storm runoff volume: this WMP will serve as a "recipe for compliance" for each jurisdiction. As such, assessment of the effectiveness of BMP scenarios requires consideration of averaging/simulation periods and determination of points where load or volume reductions will be assessed. In general, load reductions are assessed in-stream while design storm volume reductions are assessed at end-of-pipe.

Step 4: Identifies the combination of BMPs expected to attain Numeric Goals: the RAA is an iterative process that evaluates different combinations of BMPs and quantify their effectiveness. It is through the iterative modeling process that certain practices have been prioritized for inclusion in the WMP based on cost and feasibility.

Step 5: Supports scheduling to implement the BMPs over a timeline that addresses milestones cost-effectively: the pace at which BMPs are implemented is dictated by applicable TMDL and WMP milestones. Areas where BMP implementation offers the greatest immediate benefit for the lowest cost have been highlighted and recommended for the early implementation phases.

Step 6: Supports the future adaptive management process to incorporate new data and experience gained during BMP implementation: the BMP capacities identified in this WMP will be achieved over decades of implementation, and the adaptive management process will take place over two-year cycles to incorporate new data and regulatory modifications. Future data/outcomes that could affect the level of BMP implementation include new monitoring data collected through implementation of the CIMP, experience gained from BMP implementation, and changes to the water quality standards (i.e., beneficial uses or WQOs).

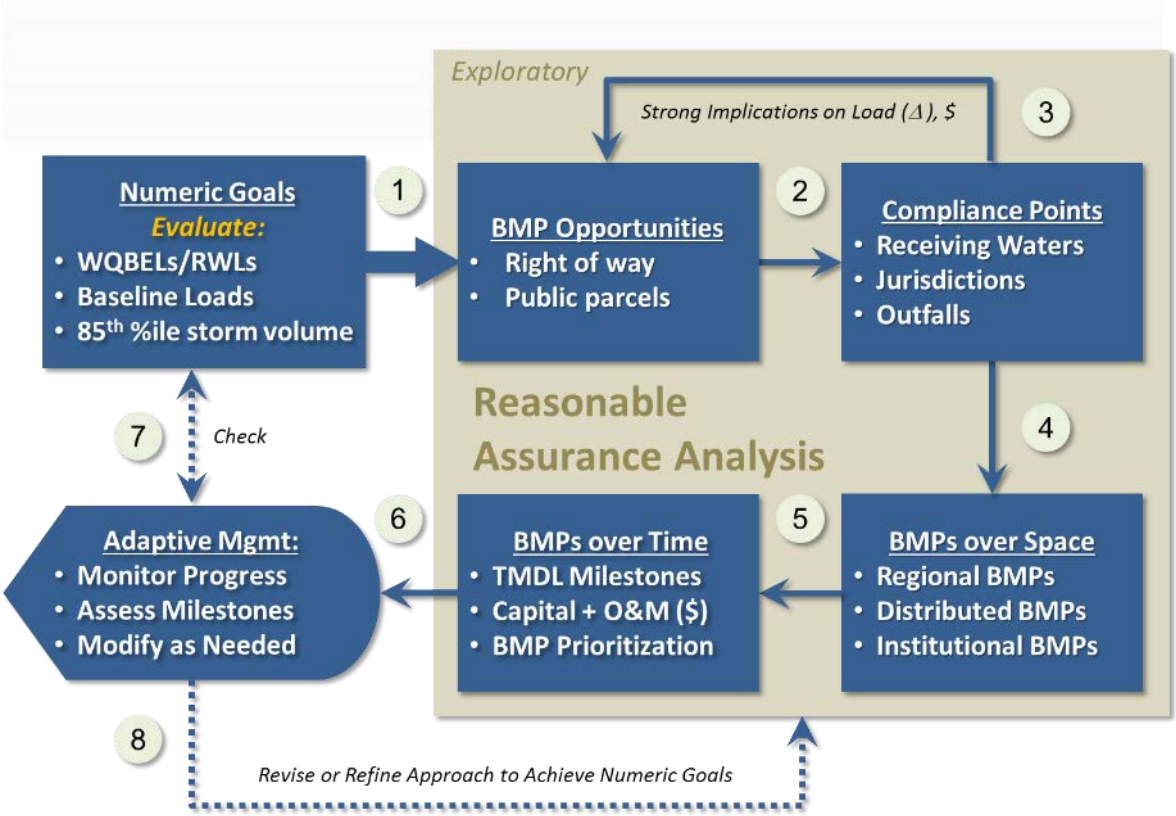
The RAA effort presented herein has evolved over the course of WMP development, and has been refined as new insights have come to light. The RAA will certainly be revisited and further refined with future adaptive management cycles as the WMP is implemented and performance validated.

Determination of compliance with this WMP will be on a subwatershed-by-subwatershed basis, based on the BMP capacity implemented by each jurisdiction. If the design storm volume is retained prior to discharge from a subwatershed to receiving waters, then that subwatershed area is in compliance with RWLs and WQBELs of the Permit. The WMP includes an initial scenario of BMPs to achieve the design storm retention goals across the planning area, but the cities are provided flexibility to modify the BMPs during adaptive management if either [1] the preferences for BMPs change as lessons are learned during WMP implementation or [2] water quality monitoring data, collected as part of the CIMP, indicate that less extensive BMP implementation is needed to achieve Permit limitations.

In order to establish an initial scenario for BMP implementation to retain the 85th percentile storm volumes, a BMP opportunity analysis was conducted, including a capacity analysis for green streets in the Right-of-Way (ROW), and BMPs on public and private parcels. Several different types of distributed BMPs are incorporated into the WMP including green streets, low

impact development (LID) due to new and redevelopment, and downspout disconnection programs. Excess volume that is unable to be captured by distributed BMPs (due to overflow) may be retained with regional BMPs. During WMP implementation, ROW BMPs other than green streets may be selected, including dry wells. As part of the adaptive management process, the capacity of non-ROW BMPs may be shifted from regional BMPs to LID on parcels or incentive programs that reduce runoff from residential and commercial properties.

Figure 5-1
Conceptual Diagram of RAA Components



5.1.1 Description of RAA Modeling System

The WMMS was used to support this RAA. WMMS is specified in the Permit as a potential tool to conduct the RAA. LACFCD, through a joint effort with United States Environmental Protection Agency (USEPA), developed WMMS specifically to support informed decisions associated with managing stormwater. The ultimate goal of WMMS is to identify cost-effective water quality improvement projects through an integrated, watershed-based approach. The WMMS is a modeling system that incorporates three tools: (1) the watershed model for prediction of long-term hydrology and pollutant loading (Loading Simulation Program in C++ (LSPC)), (2) a BMP model (System for Urban Stormwater Treatment and Analysis Integration (SUSTAIN)), and (3) a BMP optimization tool to support regional, cost-effective planning efforts (Nonlinearity-Interval Mapping Scheme (NIMS)). The WMMS encompasses the County's coastal watersheds of approximately 3,100 square miles, representing 2,566 subwatersheds (**Figure 5-2**).

For the ESGV Group, the 67 subwatersheds in the WMP area that are represented by WMMS were spatially refined by intersecting with jurisdictional/city boundaries of the Group, resulting in 98 unique subwatershed-city areas. Out of these 98 areas, 78 were hydrologically connected to at least one "RAA assessment point" used to evaluate the waterbodies of concern for this analysis.

Figure 5-3 shows the model spatial domain for the WMP with the jurisdictional and hydrological boundaries associated with the four RAA assessment points. The RAA assessment points are described in more detail below.

WMMS is available for public download from LACFCD. The version of WMMS used for the WMP has been enhanced/modified in several ways, consisting of:

- Updates to meteorological records to represent the last 10 years and to allow for simulation of the design storm;
- Calibration adjustments to incorporate the most recent 10 years of water quality data collected at the nearby San Gabriel River mass emission station;
- Enhancements to LSPC to allow for simulation of non-structural BMPs;
- Enhancements to SUSTAIN to allow for representation of an expanded/modified BMP network;
- Application of a second-tier of BMP optimization using SUSTAIN, which replaces the NIMS component of WMMS.
- Optimization of BMP effectiveness for removal of bacteria pollutants (rather than metals only); and
- Updates to GIS layers, as available.

5.1.1.1 Overview of Watershed Model - LSPC

The watershed model included within WMMS is the LSPC (Tetra Tech and USEPA 2002; USEPA 2003; Shen et al. 2004). LSPC is a watershed modeling system for simulating watershed hydrology, erosion, and water quality processes, as well as in-stream transport processes. LSPC also integrates a geographic information system (GIS), comprehensive data storage and management capabilities, and a data analysis/post-processing system into a convenient PC-based Windows environment. The algorithms of LSPC are identical to a subset of those in the Hydrologic Simulation Program–FORTRAN model with selected additions, such as algorithms to dynamically address land use change over time. Another advantage of LSPC is that there is no inherent limit to the size and resolution of the model than can be developed, making it an attractive option for modeling the Los Angeles region watersheds. USEPA's Office of Research and Development first made LSPC available as a component of USEPA's National TMDL Toolbox (http://www.epa.gov/athens/wwqtsc/index.html). LSPC has been further enhanced with expanded capabilities since its original public release.

The WMMS development effort culminated in a comprehensive watershed model of the entire Los Angeles County area that includes the unique hydrology and hydraulics of the system and characterization of water quality loading, fate, and transport for all the key TMDL constituents (Tetra Tech 2010a, 2010b). Since the original development of the WMMS LSPC model, Los Angeles County personnel have independently updated the model with meteorological data through 2012, and refined the physical representation of the spreading grounds with higher resolution information.

Figure 5-2
WMMS Model Domain, Land Uses, and Slopes by Subwatershed

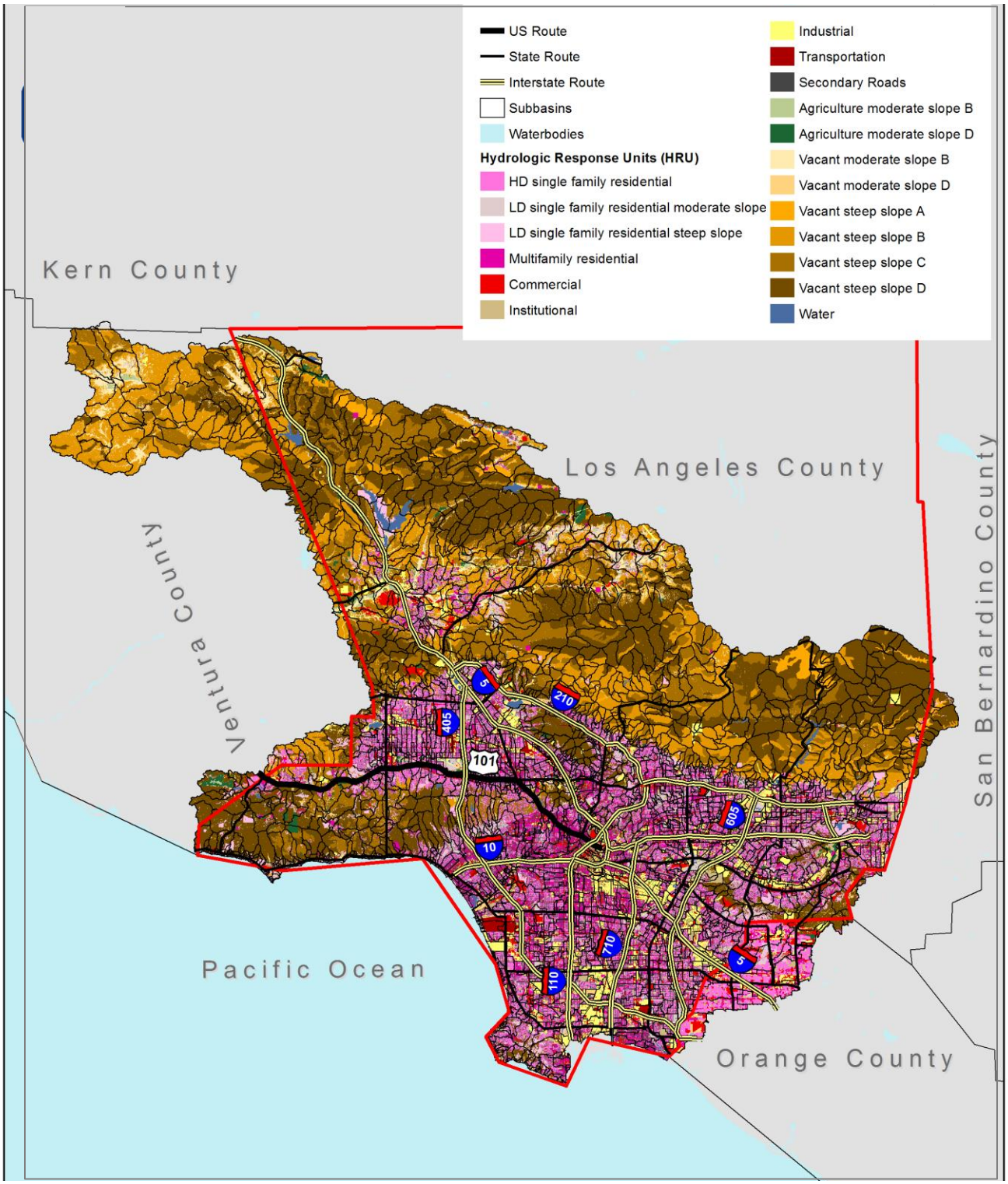
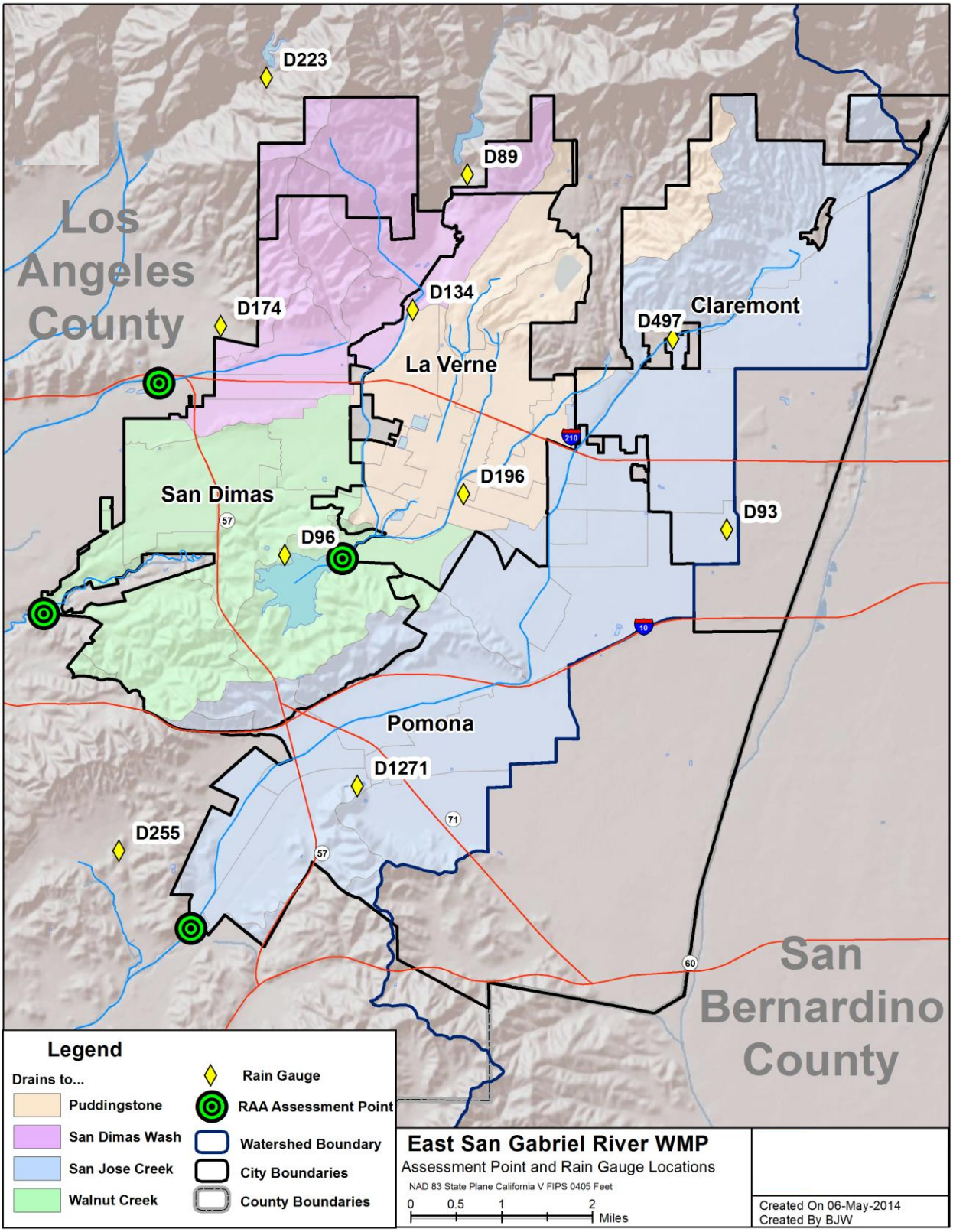


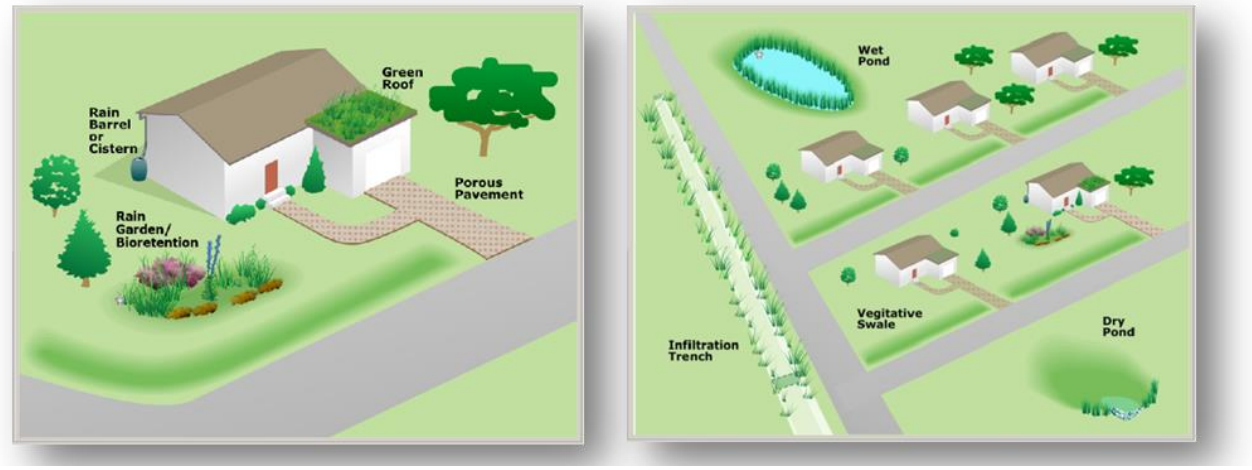
Figure 5-3
ESGV WMP Area Spatial Domain as Represented in WMMS



5.1.1.2 Overview of Small-Scale BMP Model – SUSTAIN

SUSTAIN was developed by USEPA to support practitioners in developing cost-effective management plans for municipal storm water programs and evaluating and selecting BMPs to achieve water resource goals (USEPA, 2009). It was specifically developed as a decision-support system for selection and placement of BMPs at strategic locations in urban watersheds. It includes a process-based continuous simulation BMP module for representing flow and pollutant transport routing through various types of structural BMPs. Users are given the option to select from various algorithms for certain processes (e.g., flow routing, infiltration, etc.) depending on available data, consistency with coupled modeling assumptions, and the level of detail required. **Figure 5-4** shows images from the SUSTAIN model user interface and documentation depicting some of the available BMP simulation options in a watershed context.

Figure 5-4
SUSTAIN Model Interface Illustrating Some Available BMPs in Watershed Settings



SUSTAIN extends the capabilities and functionality of traditionally available models by providing integrated analysis of water quantity, quality, and cost factors. The SUSTAIN model in WMMS includes a cost database comprised of typical BMP component cost data from a number of published sources including BMPs constructed and maintained in Los Angeles County. SUSTAIN considers certain BMP properties as "decision variables," meaning that they are permitted to change within a given range during model simulation to support BMP selection and placement optimization. As BMP size changes, so do cost and performance. SUSTAIN runs iteratively to generate a cost-effectiveness curve comprised of optimized BMP combinations within the modeled study area (e.g., the model evaluates the optimal width and depth of certain BMPs to determine the most cost-effective configurations for planning purposes).

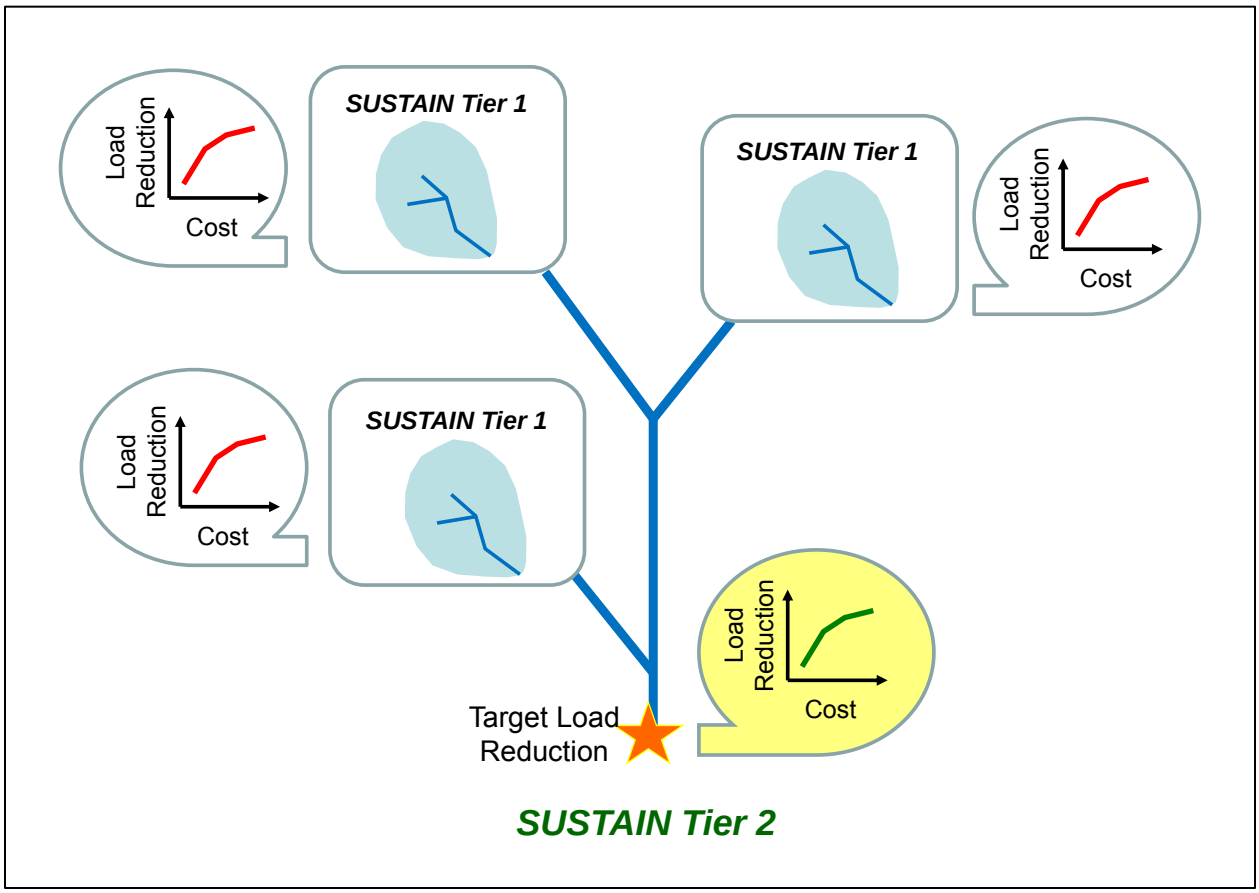
5.1.1.3 Overview of Large-Scale BMP Model

WMMS was specifically designed to dynamically evaluate effectiveness of BMPs implemented in subwatersheds for meeting downstream RWLs while maximizing cost-benefit. The structural BMP strategies included in WMMS primarily focus on (1) distributed green infrastructure BMPs and (2) regional BMPs. With the number of alternative combinations of BMPs possible in a watershed, the ability to evaluate and compare the benefits and costs of each scenario

(representing a combination of multiple BMPs) is highly desirable. WMMS includes a sophisticated optimization routine that does this in the context of the large-scale routing network using an algorithm named NIMS (Zou et al. 2010).

However, given the relatively small spatial scale of the WMP area, NIMS was not applied for this study. Instead, a two-tiered approach was applied using the NSGA-II solution technique available in SUSTAIN (**Figure 5-5**). For Tier 1, treatment capacities were optimized for each contributing segment, which resulted in unique cost-effectiveness curves for each segment based on available opportunities therein. For Tier 2, the search space was composed of Tier 1 solutions, thereby streamlining the search process. The resulting Tier 2 curve represents the optimal large scale solution because it is comprised of optimized Tier 1 solutions. This approach is especially useful for prioritizing areas for management for scheduling implementation milestones.

Figure 5-5
Conceptual Illustration of the Two-Tiered Optimization Approach



5.1.2 Model Calibration

The LSPC watershed model within WMMS was originally calibrated for hydrology using a regional approach relying on USGS observed daily streamflow datasets through Water Year (WY) 2006 (LACDPW 2010a). The calibration period for the original WMMS LSPC model began in 1996 and ended in 2006. For the RAA, an analysis was performed to evaluate

performance of the LSPC model as it relates to the ESGV watershed to understand and benchmark its applicability for use as a baseline condition. The evaluation of monitoring data was extended beyond the original WMMS-LSPC calibration to include the period from 10/1/2001 through 9/30/2011.

For the San Gabriel River, hydrology was re-assessed at the Whittier Narrows Dam on the San Gabriel River (USGS 11087020) monitoring location using available data from WYs 2001-2011. The USGS gage was selected for continuity with the development and calibration of the original WMMS LSPC modeling system. At this location the upstream tributary area is 450 square miles (LACDPW 2013). Hydrograph summaries and flow regime analysis of the monitoring datasets from the San Gabriel River are presented in **Figure 5-6** to **Figure 5-10**.

To demonstrate the ability to predict the effect of watershed processes and management actions, model calibration and validation are necessary and critical steps in any model application. Acceptable model calibration criteria for benchmarking an RAA were developed by the Regional Board and are listed below in **Table 5-1** (LARWQCB 2014). The objectives of establishing model assessment criteria are to ensure the calibrated model reflects all the model conditions and properly utilizes the available modeling parameters, thus yielding meaningful results. The lower bound of "Fair" level of agreement listed in **Table 5-1** is considered a target tolerance for the model calibration process.

Table 5-1
Model assessment criteria from the RAA Guidelines

Constituent Group	Percent Difference Between Modeled and Observed		
	Very Good	Good	Fair
Hydrology / Flow	0 – 10	>10 – 15	>15 – 25
Sediment	0 – 20	>20 – 30	>30 – 40
Water Quality	0 – 15	>15 – 25	>25 – 35
Pesticides / Toxics	0 – 20	>20 – 30	>30 – 40

Table 5-2 presents the hydrology calibration assessment for the San Gabriel River gage. Nash-Sutcliffle efficiency is a correlation coefficient commonly used in hydrological modeling to measure how well a model predicts temporal variation. A value of 1.0 means a perfect match between modeled and observed. A value of 0 means that the computed mean of observed data is as good a predictor as the model. A negative value means that the data-mean is a better predictor than the model. Because the Regional Board guidance only required annual average flow volume metric, evaluating Nash-Sutcliffe helped to demonstrate that the model also performed well at predicting *intra-annual* flow variablilty. Hydrograph summaries and flow regime analysis of the monitoring datasets from the San Gabriel River are presented in **Figure 5-6** to **Figure 5-10**.

Table 5-2
Summary of model hydrology calibration performance for the San Gabriel River

Water Quality Parameter	Model Period	Hydrology Parameter	Modeled vs. Observed Volume (% Error)	Regional Board Guidance Assessment
In-stream flow at SAN GABRIEL R AB WHITTIER NARROW DAM CA (USGS 11087020)	10/1/2001 – 9/30/2011	Flow Volume	-3.31	Very Good
		Nash-Sutcliffe	0.64	n/a

Figure 5-6
Monthly Hydrograph for USGS 11087020 SAN GABRIEL R AB WHITTIER NARROWS DAM CA (10/1/2002 – 9/30/2011)

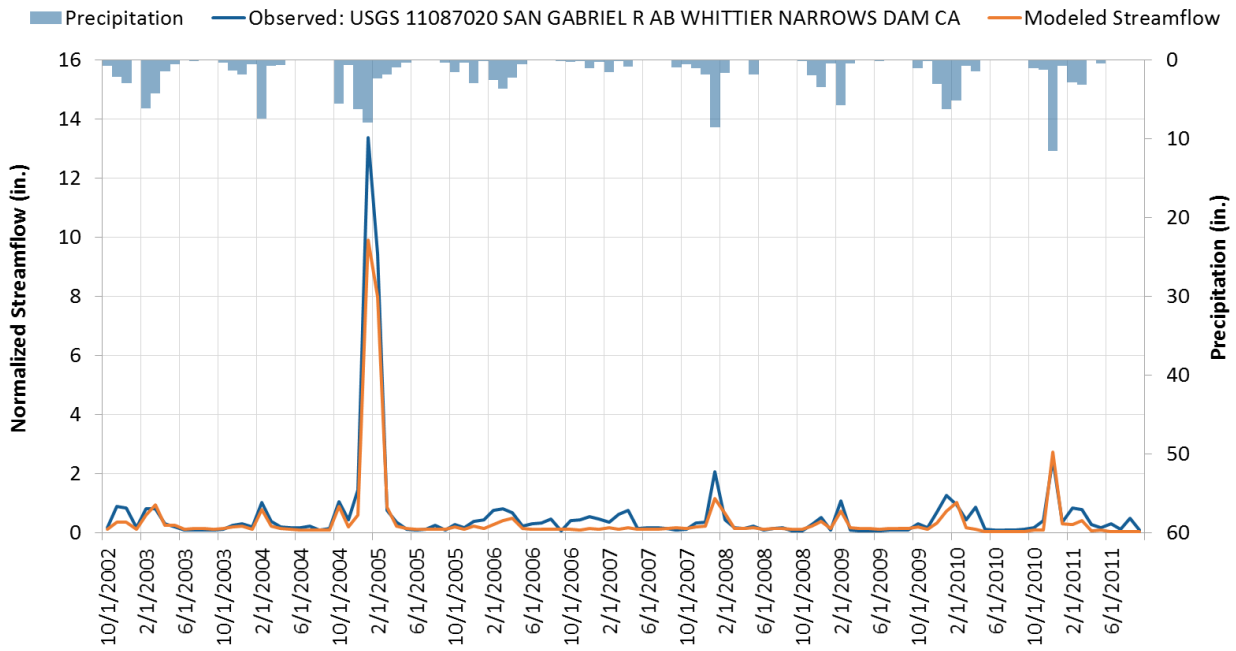


Figure 5-7
Aggregated Monthly Hydrograph for USGS 11087020 SAN GABRIEL R AB WHITTIER NARROWS DAM CA (10/1/2002 – 9/30/2011)

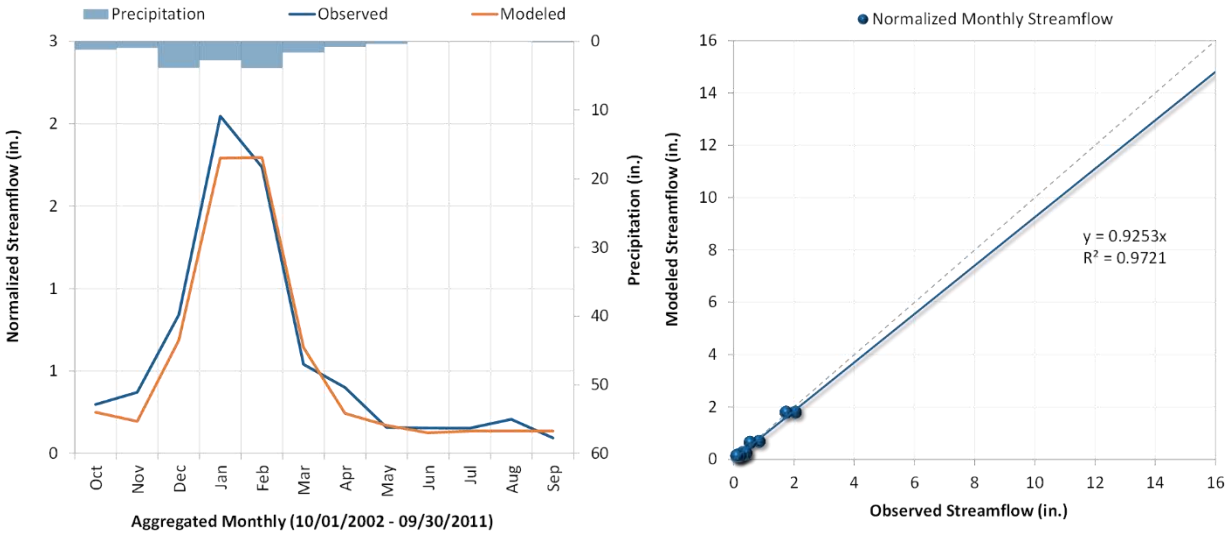


Figure 5-8
Mean daily flow for USGS 11087020 SAN GABRIEL R AB WHITTIER NARROWS DAM CA (10/1/2002 – 9/30/2011)

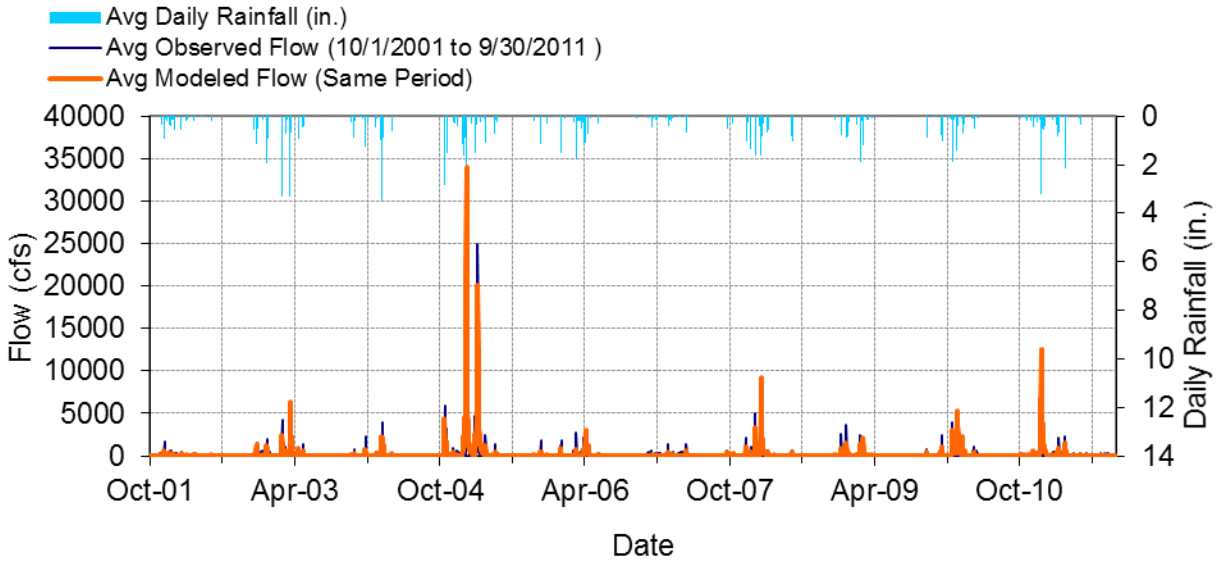


Figure 5-9
Daily Flow Exceedance for USGS 11087020 SAN GABRIEL R AB WHITTIER NARROWS DAM CA (10/1/2002 – 9/30/2011)

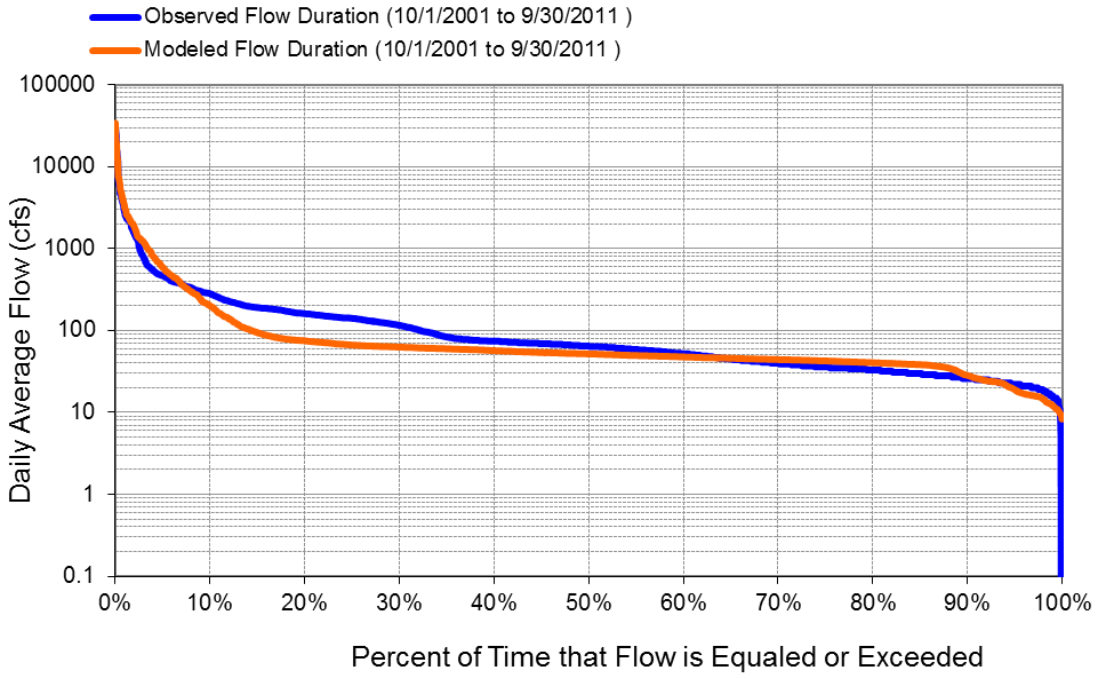
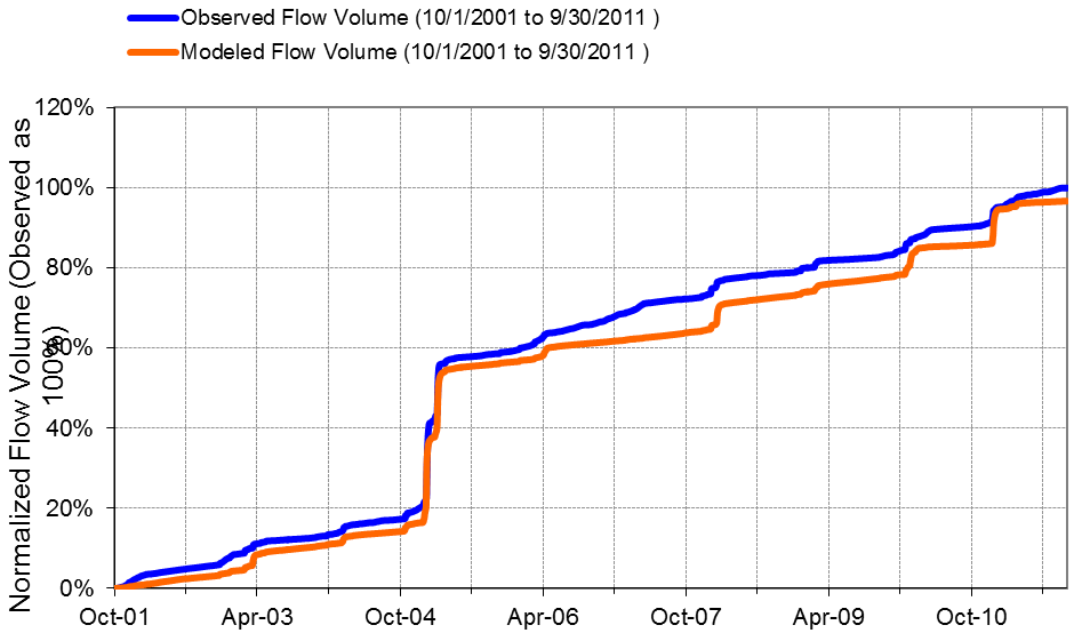


Figure 5-10
Flow Accumulation for USGS 11087020 SAN GABRIEL R AB WHITTIER NARROWS DAM CA (10/1/2002 – 9/30/2011)



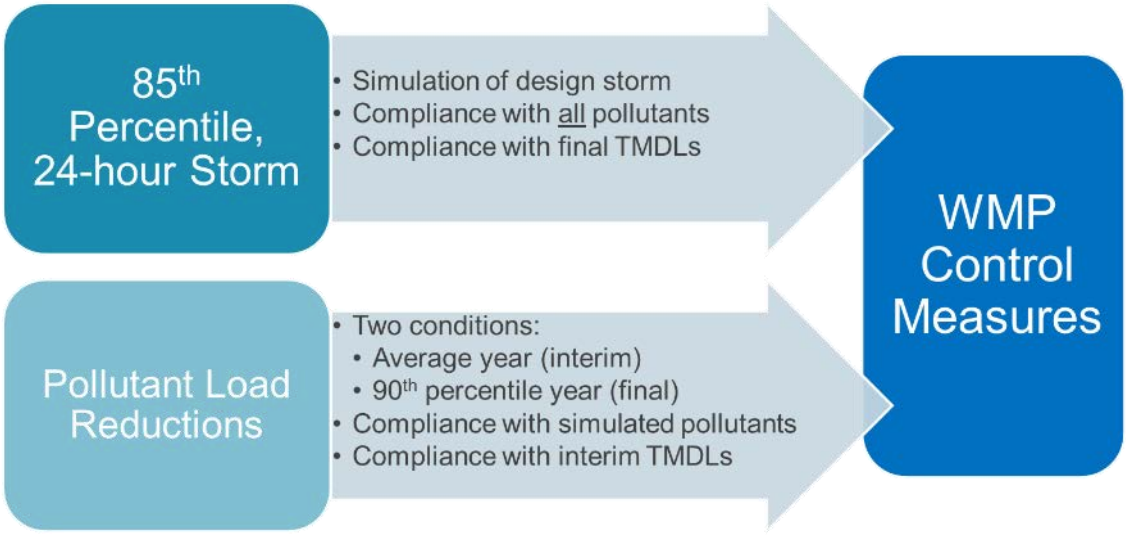
5.1.3 Water Quality Priorities and Compliance Pathways

The water quality priorities are the primary driver of the WMP and its BMPs. As shown in **Figure 5-11**, the Permit provides two pathways of numeric goals for addressing water quality priorities:

- Volume-based: Retain the standard runoff volume from the 85th percentile, 24-hour storm
- Load-based: Achieve the necessary pollutant load reductions to attain RWLs and/or WQBELs

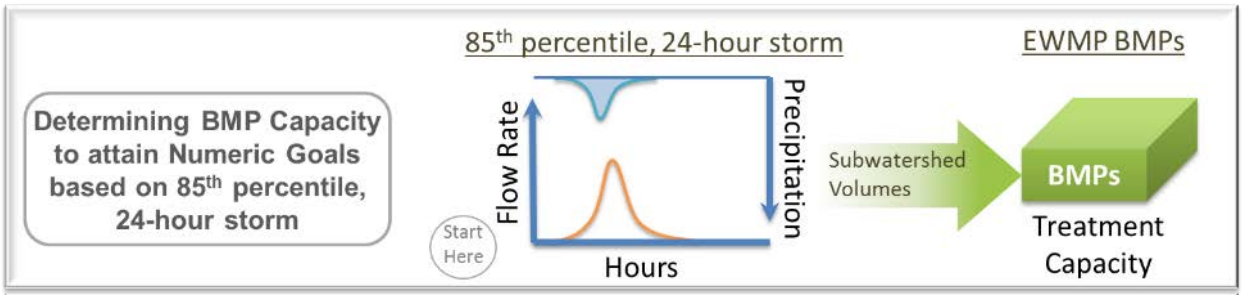
Both types of numeric goals were evaluated as part of this RAA to assess potential management implications associated with each pathway. It was decided by the Group that in the case that the level of BMP implementation effort for the numeric goal based on the 85th percentile storm is similar to the pollutant-based numeric goal , the volume-based goal would be selected because it offers increased compliance coverage (applies to all final TMDL limits).

Figure 5-11
Two Types of Numeric Goals and WMP Compliance Paths



The process for determining the necessary cumulative BMP capacity for both distributed and regional BMPs in each segment in the WMP area depends on the type of numeric goal being addressed. For the volume-based (85th percentile storm) approach, the necessary BMP capacity was determined through a design storm analysis, as illustrated in **Figure 5-12** and described in more detail below.

Figure 5-12
Illustration of Process for Determining Required BMP Capacities for the WMP using Volume-Based Numeric Goals through Simulation of the Design Storm



5.1.4 Determination of Wet Weather Critical Conditions for the RAA

This section describes the selection of the design storm as the critical condition for the RAA and WMP.

5.1.4.1 Selection of Design Storm as the Critical Condition and WMP Compliance Path

An initial step in the WMP RAA was a comparison of the volume reductions required by the load-based and volume-based numeric goals. The design storm pathway was selected as the critical condition and used to determine BMP capacities for WMP implementation.

5.1.4.2 Rainfall-Runoff Analysis for the 85th Percentile Design Storm

The volume associated with the 85th percentile, 24-hour storm varies by subwatershed. Each of the 67 subwatersheds (and corresponding 98 city-subwatershed areas) in the WMP area has a unique 85th percentile runoff volume, due to varying rainfall amounts and land characteristics (i.e. imperviousness, soils, slope, etc.). Shown in **Figure 5-13** are the rainfall depths associated with the 85th percentile, 24-hour storm for the County and ESGVWMA using rolling 24-hour periods between October 1, 1996 and September 30, 2011.

The 85th percentile rainfall values range between 0.84 and 1.09 inches within the WMP area, as summarized in **Figure 5-14**. At each location the storm distribution shown in **Figure 5-15** was used to temporally distribute the 24-hour rainfall volumes.

Figure 5-13
Rainfall Depths Associated with the 85th Percentile, 24-hour Storm

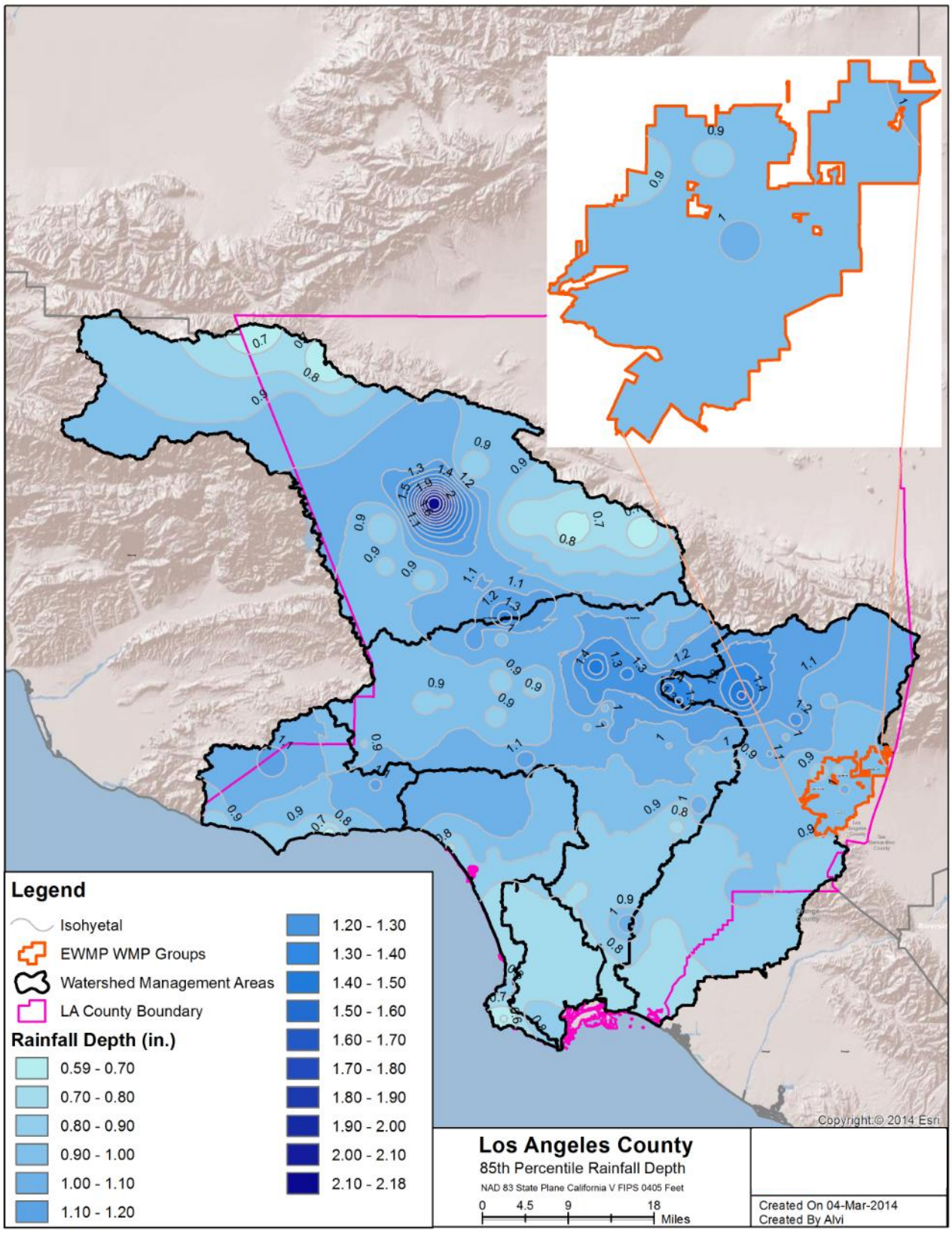


Figure 5-14
Areal Distribution Summary of 85th Percentile Rainfall in the ESGV Group Area

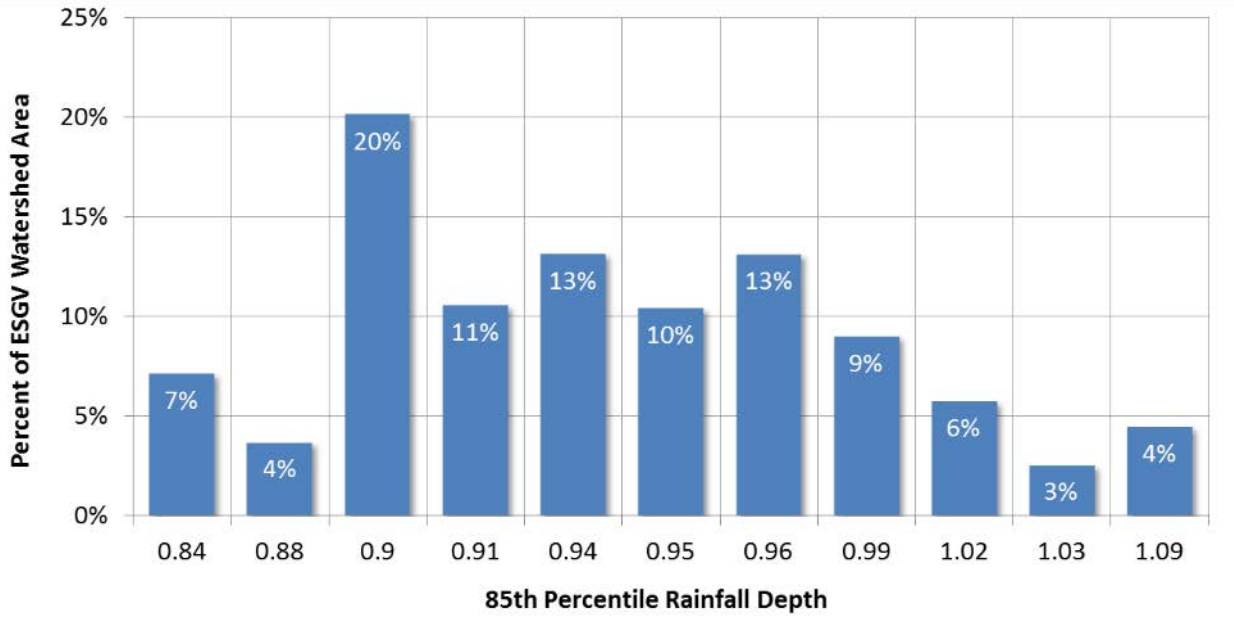
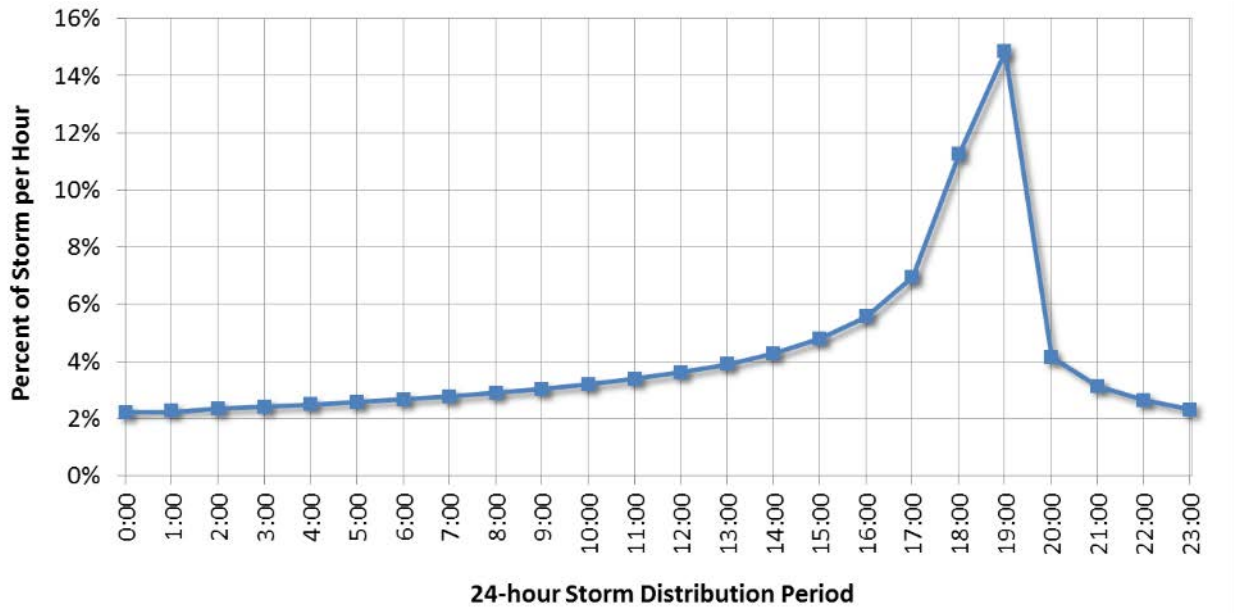


Figure 5-15
Temporal Distribution for 85th Percentile 24-hour Storm



Assuming saturated initial conditions and regionally-derived infiltration rates, the 85th percentile rainfall depths amounts were used as boundary conditions in the LSPC watershed model, to predict the associated runoff volumes for each of the 67 subwatersheds in the WMP area. Those runoff volumes represent the volumes that would need to be retained in order to attain the numeric goals associated with the 85th percentile, 24-hour storm.

Figure 5-16 shows area-based runoff exceedance associated with 85th percentile rainfall in the East San Gabriel Valley (ESGV) watershed (the amount of rainfall that is ultimately discharged from each subwatershed during the design storm). About 50 percent of the ESGV subwatershed areas experiences 0.2 inches or more of runoff under the 85th percentile, 24-hour storm. About 10 percent of the area experiences about 0.5 inches or more of runoff. **Figure 5-17** and **Table 5-3** summarize the treatment capacities required to retain the 85th percentile, 24-hour rainfall by assessment point and jurisdiction.

In Section 5.2, these volumes are (1) separated by subwatershed and jurisdiction [for a total of 90 city-subwatershed areas], (2) separated between MS4 and non-MS4 sources, and (3) used to determine the capacities of BMPs needed to retain the design storm. The required MS4 treatment capacity equals the design storm volume minus the volume of non-MS4 sources (i.e. CALTRANS and industrial permittees).

Figure 5-16
Area-Based Runoff Associated with 85th Percentile Runoff in the ESGV Watershed

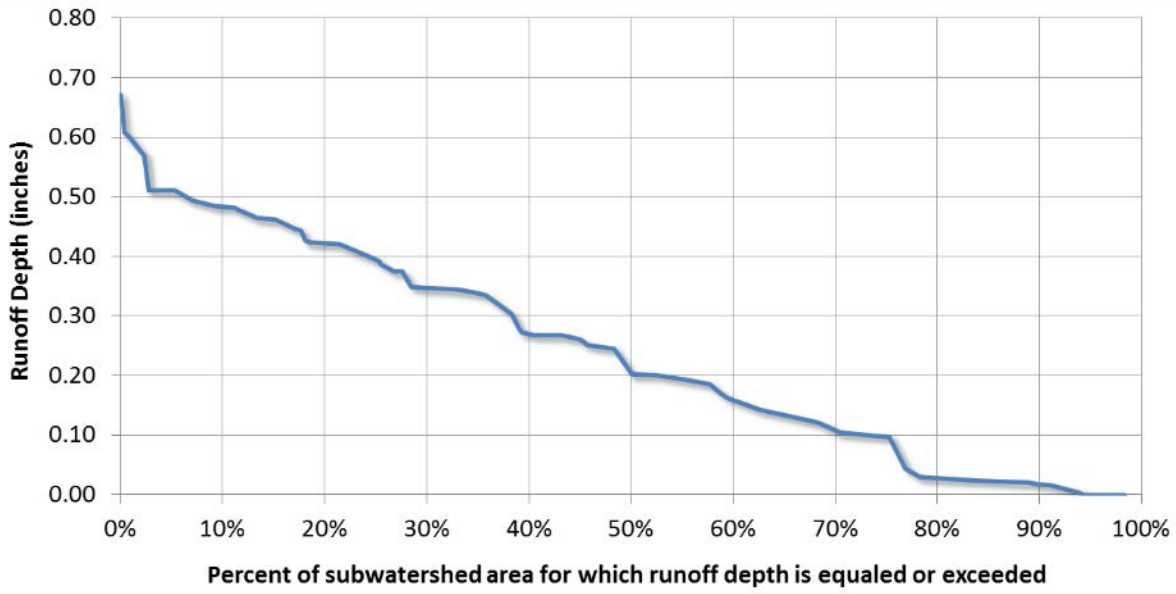


Figure 5-17
Treatment Capacity Required to Retain Runoff Associated with the 85th Percentile, 24-hour Storm (by assessment point and jurisdiction)

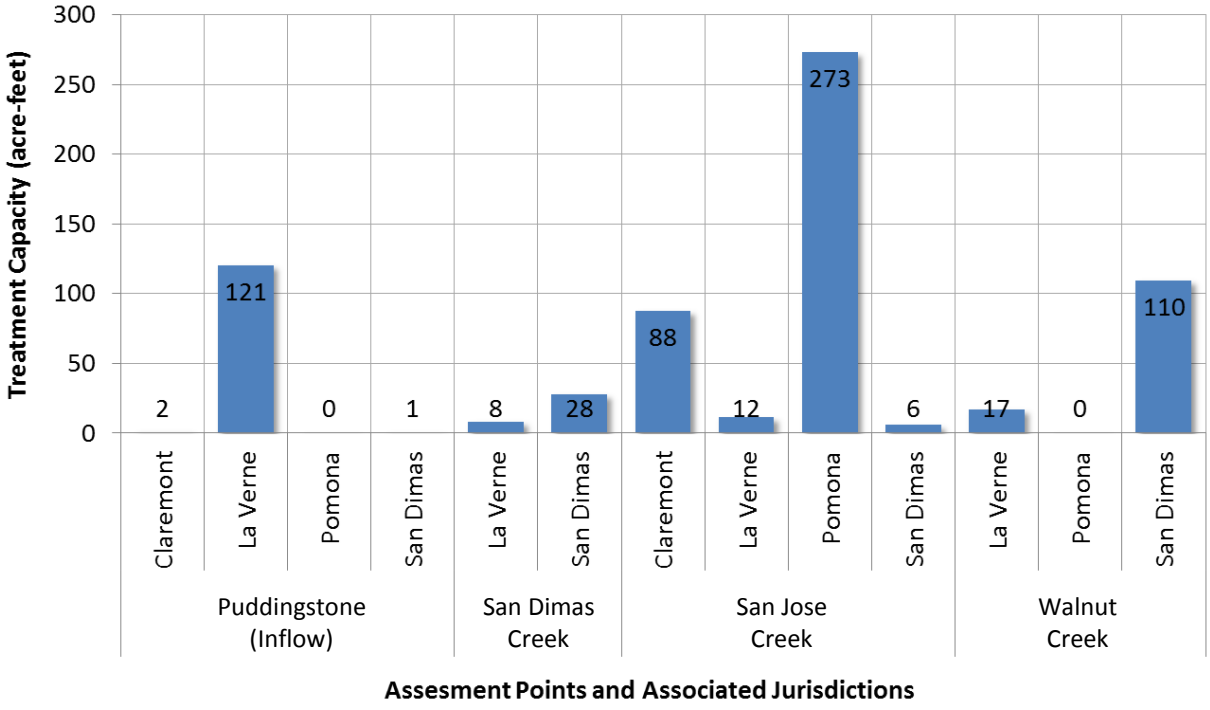


Table 5-3
Design Storm Runoff Volume per Jurisdiction

Jurisdiction	Required MS4 Treatment Capacity, acre-ft
Claremont	85.2
La Verne	126.9
Pomona	204.9
San Dimas	126.9
Total	**543.9**

5.1.5 Calculation of Required Reductions for Dry Weather

The fact that the WMP conservatively establishes control measures based on the design storm means that full attainment of all non-stormwater (dry weather) and stormwater (wet weather) limitations will be achieved by wet weather control measures implemented for the final compliance date. As such, the RAA for dry weather simply needs to demonstrate that wet weather control measures will also achieve the required dry weather reductions for interim milestones.

To calculate required reductions for dry weather, the data compiled for assessment of water quality priorities were analyzed. The water quality data are compared to the WQBELs where available or the water quality objectives to determine if the constituent exceeds the limitations in the past five years are presented in **Table 5-4**.

Table 5-4 Recent Exceedance of Water Quality Objectives

Constituent[1]	Within WMP Boundary[2] (Freshwater)	Downstream of WMP	
		Freshwater	San Gabriel River Estuary
Copper	NA	Yes[3]	Yes[3]
Lead	NA	No[3]	Yes
Selenium	NA	Yes[3]	No
Zinc	NA	Yes[3]	Yes
Nickel	NA	No	Yes
Total Mercury	NA	Yes	No
Cyanide	NA	Yes	Yes
Diazinon	NA	Yes	N/A
Nitrite-N	NA	Yes	N/A
PAHs	NA	Yes	No

1. For some constituents, individual reaches may have higher or lower exceedance frequencies than shown in this table. Evaluation of the ability to list or delist a waterbody would need to be made on a reach-by-reach basis.
2. No data are available within the WMP area within the last 5-years
3. Frequency of exceedance is based on comparison to WQBELs.

The constituents in Category 1 and the location where the WQBELs apply are summarized in **Table 5-5**. Existing concentrations were compared to applicable WQBELs, as shown in **Table 5-6**. A summary of the applicable WQOs is presented in **Appendix D**. The required reductions were calculated based on the median existing concentrations (applicable to milestones) and 90th percentile existing concentrations (selected as a critical condition for application to final limits). In general, rates of exceedances for non-bacteria pollutants were very low for dry weather conditions, such that comparison of 90th percentile concentrations to the targets results in 0% required reduction. For bacteria, the median concentration of *E. coli* was below the single sample maximum, but the 90th percentile value corresponds to a required dry weather reduction of 70% for attainment of final limits. In other words, for dry weather, the limiting pollutant is *E. coli*. Available data suggest that metals are attaining during dry weather conditions, though this will be re-evaluated during CIMP implementation.

Table 5-5 Category 1 Water Body-Pollutants with WQBELs

Constituent	San Gabriel River Reach 1	San Gabriel River Reach 2	San Gabriel River Reach 3	San Jose Creek Reach 1	San Jose Creek Reach 2	San Gabriel Estuary	Puddingstone Reservoir	Santa Ana River
Copper (Dry)	E					E		
Lead (Wet)		E						
Selenium (Dry)				E	E			
Chlordane (Sediment & Water Column)							E	
DDT (Sediment & Water Column)							E	
Dieldrin (Sediment & Water Column)							E	
Mercury (tissue and water column)							E	
PCBs (Sediment and Water Column)							E	
Total Nitrogen							E	
Total Phosphorus							E	
E. Coli								E/R
Fecal Coliform								E/R

R - Receiving water limit established by a TMDL

E - Effluent limit established based on a TMDL. The wording of the permit suggests that for copper and lead WQBELs apply to all upstream reaches and tributaries for wet weather WLAs, but only to the listed reaches during dry weather.

Table 5-6
Calculated Required Reductions for Dry Weather Components of the ESGV WMP

Waterbody	Pollutant	WQBEL/ Target	Required Reduction for Assessment of Milestones (based on median concentrations)		Required Reduction for Assessment of Final Limits (based on 90th percentile concentrations)	
			50th Percentile Existing Concentration	Percent Reduction based on Mean 50th Percentile Load	90th Percentile Existing Concentration	Percent Reduction based on Mean 90th Percentile Load
Thompson Creek	Pb ug/L	3.2	0.78	**0%**	2.47	0%
	Zn ug/L	121.7	30.47	**0%**	74.68	0%
	Se ug/L	5	1.07	**0%**	2.67	0%
	E. coli MPN/100ml	235	130	**0%**	794.78	70%
San Dimas Wash	Cu ug/L	18.7	4.56	**0%**	10.54	0%
	Pb ug/L	3.2	0.78	**0%**	2.47	0%
	Zn ug/L	121.7	30.47	**0%**	74.68	0%
	E. coli MPN/100ml	235	130	**0%**	794.78	70%
Puddingstone Inflow	Cu ug/L	18.7	4.56	**0%**	10.54	0%
	Pb ug/L	3.2	0.78	**0%**	2.47	0%
	Zn ug/L	121.7	30.47	**0%**	74.68	0%
	E. coli MPN/100ml	235	130	**0%**	794.78	70%

5.2 BMP CAPACITIES TO RETAIN THE 85TH PERCENTILE STORM FOR FINAL COMPLIANCE

The required design storm retention volumes for each subwatershed were calculated using the WMMS model. For each jurisdiction, the design storm runoff volume serves as the compliance target for each of its subwatersheds. As long as the volume associated with the 85th percentile storm is retained within a subwatershed (prior to interim dates for interim volumes and prior to final dates for final volumes), then that subwatershed is in compliance with the receiving water limitations and WQBELs of the Permit (see Section E.2.e).

In order to provide the initial BMP scenario for WMP implementation, categories of BMPs and their capacities that could be used to retain the 85th percentile storm were analyzed. Two broad categories of BMPs – BMPs inside the right of way (ROW BMPs) and BMPs outside the ROW (non-ROW BMPs) – were used to describe the networks of BMPs needed to retain the 85th percentile storm, as shown in **Figure 5-18**. By focusing the BMP analysis on ROW versus non-ROW, the analysis emphasizes location/opportunities to capture stormwater, as the ROW and public parcels are where MS4 BMPs can be implemented most cost-effectively.[2] Runoff from

[2] A significant portion of runoff does not drain to the streets/ROW and so capture of that runoff in the ROW [e.g., with green streets] is not feasible – non-ROW BMPs are the only option [e.g., regional BMPs prior to discharge to receiving water].

non-MS4 facilities was also estimated such that the WMP does not commit the Group to retain runoff that is the responsibility of non-MS4 sources.

The overall approach for conducting the capacity analysis described below is represented in **Figure 5-19**, which cumulatively adds the volume reductions from these different BMP categories to retain the design storm volumes. The baseline "runoff balance" between ROW and non-ROW areas is summarized in **Figure 5-18** and detailed in **Table 5-8** for the four RAA assessment points – Thompson Creek, San Dimas Wash, Puddingstone Reservoir and Walnut Creek. See **Figure 5-20** for an index of subwatersheds in the WMP area (the index numbers are used in detailed tables including **Table 5-8**).

Figure 5-18
Representation of Right of Way and non-Right of Way BMPs and Stormwater Routing

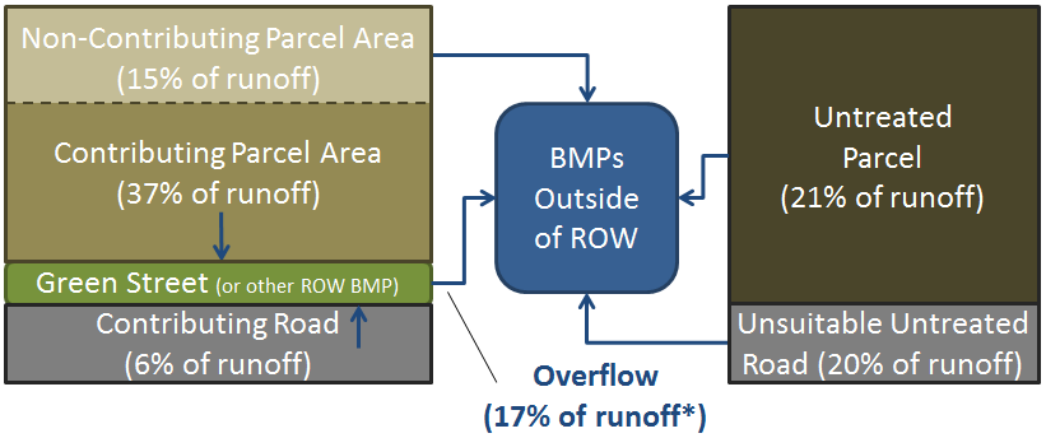


Figure 5-19
Representation of the Capacity Analysis to Achieve Volume Reductions for the 85th Percentile Storm

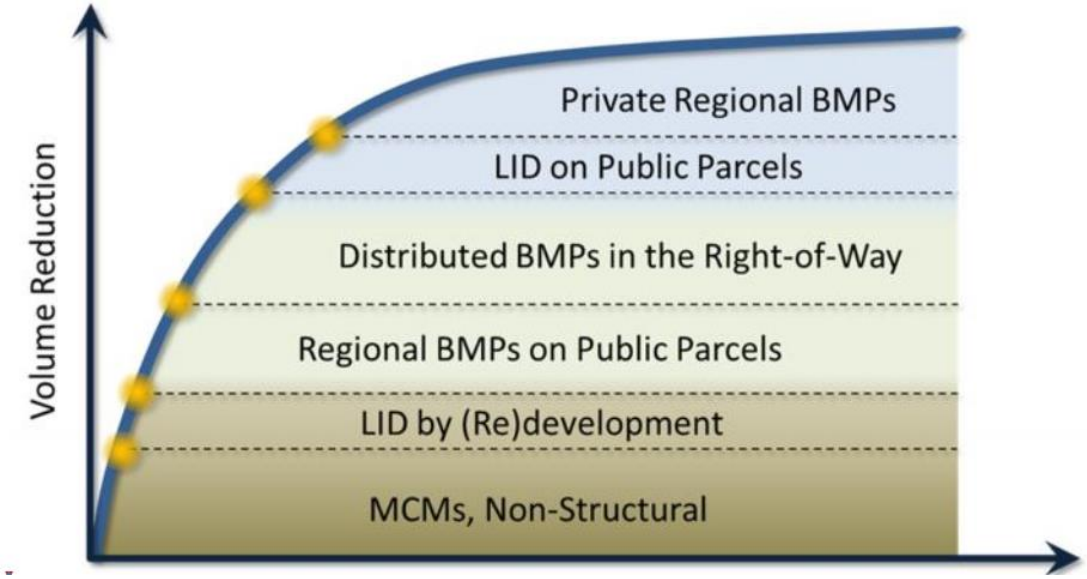


Figure 5-20
Index of Subwatersheds in the ESGV WMP Area

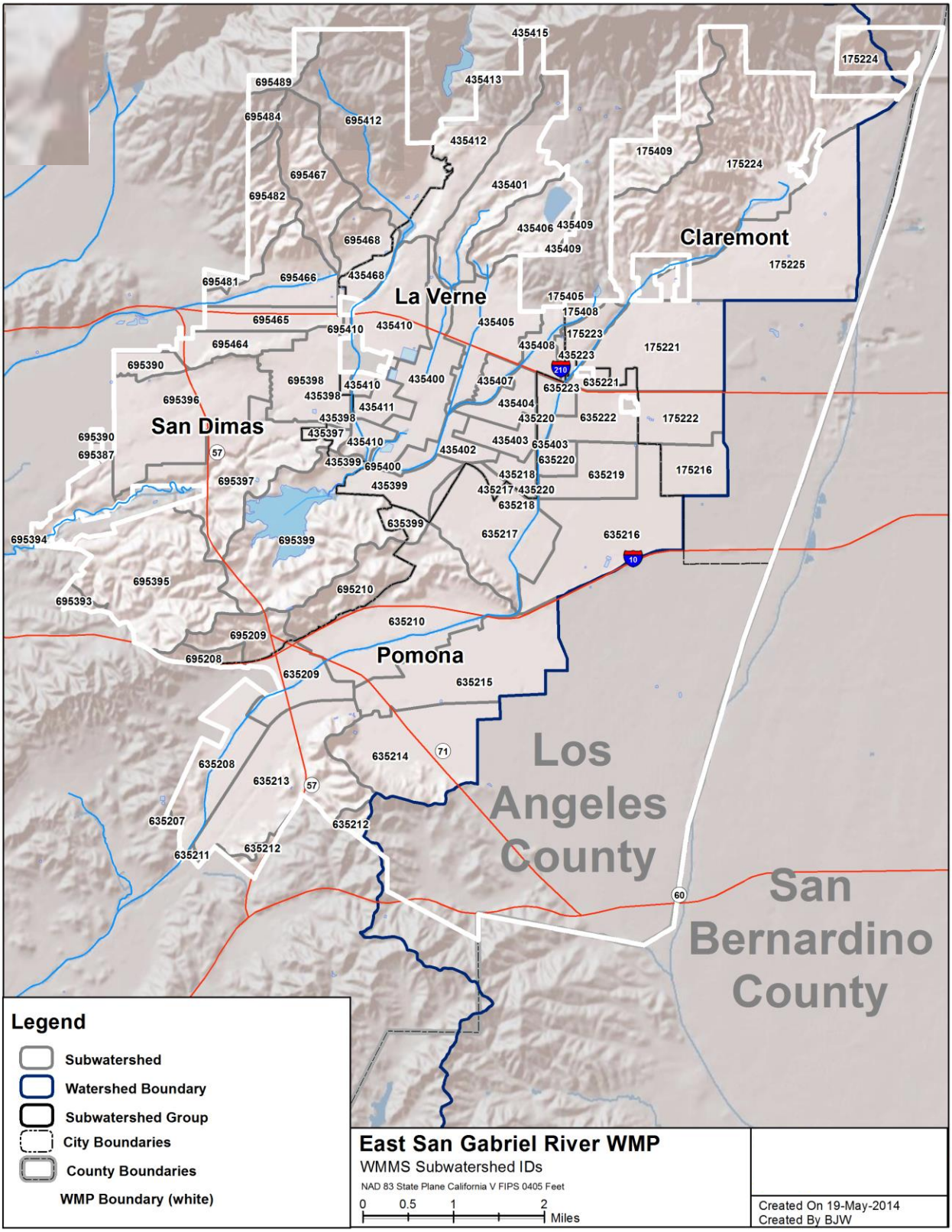


Table 5-8
Overall Watershed-specific Design Storm Volumes and Balance of ROW and non-ROW Runoff Volumes

Watershed	Grouped SWS ID	Individual SWS ID	Total Design Storm Volume (acre-ft)	Volume from Parcel Areas Draining to Rights-of-Way of Suitable Roads (acre-ft)	Volume from Suitable Roads Draining to Rights-of-Way (acre-ft)	Volume from Parcel Areas Adjacent to Suitable Roads but not Draining to Rights-of-Way (acre-ft)	Volume from Parcels Adjacent to Unsuitable Roads (both Draining to and Draining Away from Rights-of-Way; acre-ft)	Volume from Unsuitable Roads Draining to Rights-of-Way (acre-ft)
Puddingstone	5400*	5400*	22.20	9.28	1.23	5.96	2.18	3.56
	5402	5402	7.80	2.48	0.34	1.75	1.01	2.23
	5405*	5405*	19.28	9.35	1.06	2.34	3.55	2.98
	5407	5407	5.97	4.17	0.65	1.04	0.08	0.03
	5408*	5408*	8.24	2.40	0.21	0.93	3.45	1.24
	5410*	5410*	21.77	7.44	0.87	3.07	6.00	4.39
	to 5401	to 5401	11.06	4.73	1.03	1.44	2.87	0.99
	to 5403*	to 5403*	5.93	3.22	0.67	0.80	0.01	1.23
	to 5404	to 5404	6.98	3.88	0.59	0.97	0.25	1.29
	to 5406	to 5406	7.26	2.10	0.28	1.53	3.36	-
	to 5409*	to 5409*	0.22	0.10	0.00	0.02	0.09	-
	to 5411*	to 5411*	6.62	3.89	0.55	1.56	0.01	0.60
Puddingstone Total			123.34	53.03	7.48	21.43	22.88	18.53
San Dimas Wash	5412*	5412*	5.59	1.60	0.45	0.83	1.97	0.75
	5464	5464	4.59	1.51	0.24	0.48	0.82	1.54
	5465	5465	9.11	1.73	0.12	1.21	1.82	4.23
	5466	5466	6.10	2.83	0.71	0.72	0.89	0.96
	5468*	5468*	7.95	3.56	0.80	1.96	0.81	0.82

Table 5-8 (continued)

Watershed	Grouped SWS ID	Individual SWS ID	Total Design Storm Volume (acre-ft)	Volume from Parcel Areas Draining to Rights-of-Way of Suitable Roads (acre-ft)	Volume from Suitable Roads Draining to Rights-of-Way (acre-ft)	Volume from Parcel Areas Adjacent to Suitable Roads but not Draining to Rights-of-Way (acre-ft)	Volume from Parcels Adjacent to Unsuitable Roads (both Draining to and Draining Away from Rights-of-Way; acre-ft)	Volume from Unsuitable Roads Draining to Rights-of-Way (acre-ft)
	5481	5481	1.42	0.97	0.13	0.24	0.00	0.07
	5482	5482	0.50	0.09	0.02	0.02	0.28	0.09
	5484	5484	0.00	-	-	-	0.00	-
	5489	5489	0.00	-	-	-	0.00	-
	to 5413	5413	0.00	-	-	-	0.00	-
		5415	0.00	-	-	-	0.00	-
		to 5413 Total	0.00	-	-	-	0.00	-
	to 5467	to 5467	0.95	0.05	0.00	0.03	0.82	0.06
San Dimas Wash Total			36.21	12.33	2.47	5.48	7.41	8.52
Thompson Wash/ San Jose Creek	5207	5207	0.04	-	-	-	0.04	-
	5211	5211	0.02	-	-	-	0.02	-
	5212	5212	1.98	0.02	0.00	0.01	0.57	1.38
	5213	5213	31.32	6.41	0.50	4.57	14.66	5.18
	5214	5214	26.09	10.64	1.40	4.13	4.27	5.64
	5215	5215	42.55	14.42	2.06	8.48	7.55	10.05
	5217*	5217*	42.36	17.63	3.15	4.96	13.99	2.63
	5220*	5220*	11.89	5.10	0.68	3.27	0.99	1.86
	5223*	5223*	4.39	1.96	0.36	0.50	0.87	0.69
	to 5208*	5208	12.88	3.84	0.24	2.50	3.67	2.63
		5209	18.51	2.53	0.15	0.98	4.40	10.46

Table 5-8 (continued)

Watershed	Grouped SWS ID	Individual SWS ID	Total Design Storm Volume (acre-ft)	Volume from Parcel Areas Draining to Rights-of-Way of Suitable Roads (acre-ft)	Volume from Suitable Roads Draining to Rights-of-Way (acre-ft)	Volume from Parcel Areas Adjacent to Suitable Roads but not Draining to Rights-of-Way (acre-ft)	Volume from Parcels Adjacent to Unsuitable Roads (both Draining to and Draining Away from Rights-of-Way; acre-ft)	Volume from Unsuitable Roads Draining to Rights-of-Way (acre-ft)
	to 5208*	5210	32.11	9.64	0.95	2.84	8.21	10.46
		to 5208* Total	63.51	16.01	1.34	6.32	16.29	23.55
	to 5216*	to 5216*	48.63	25.43	3.80	9.23	2.16	8.01
	to 5218*	to 5218*	6.09	2.51	0.21	1.39	0.72	1.25
	to 5219	to 5219	14.09	5.04	0.84	3.99	2.00	2.22
	to 5221*	to 5221*	33.84	16.00	2.39	4.33	3.74	7.39
	to 5222*	to 5222*	21.81	12.22	2.11	3.62	1.01	2.84
	to 5224	to 5224	7.32	1.49	0.16	0.79	4.12	0.76
	to 5225	to 5225	22.69	10.00	1.83	3.65	2.56	4.64
Thompson Wash/ San Jose Creek Total			378.62	144.89	20.82	59.25	75.58	78.08
Walnut Creek	5387	5387	0.81	0.55	0.04	0.14	0.00	0.08
	5390	5390	3.69	2.04	0.30	0.70	0.23	0.42
	5393	5393	0.01	-	-	-	0.01	0.00
	5394	5394	0.00	-	-	-	-	-
	5395	5395	21.11	2.71	0.55	0.69	12.84	4.32
	5397*	5397*	19.15	4.10	0.33	2.18	7.63	4.91
	5399*	5399*	18.62	0.95	0.01	1.33	2.21	14.11
	to 5396	to 5396	42.99	20.49	3.07	7.58	4.89	6.95
	to 5398*	to 5398*	20.58	10.82	1.71	4.13	1.01	2.91
Walnut Creek Total			126.96	41.66	6.01	16.74	28.83	33.71
Grand Total			665.13	251.90	36.78	102.90	134.70	138.84

5.2.1 Modeling of Individual BMP Types to Achieve Design Storm Retention

The runoff balance for ROW and non-ROW areas (**Figure 5-18** and **Table 5-8**) provides the foundation for BMP modeling to develop the initial BMP scenario for the ESGV WMP. Six types of BMPs were represented using LSPC and SUSTAIN as described in **Table 5-8**. The BMP modeling provides a robust initial strategy for retaining the 85th percentile storm volume in each subwatershed. The resulting capacities provide reasonable assurance for attaining Permit limitations, though adaptive management will be used to refine these strategies over time.

The details of the BMP modeling are provided in **Appendix A**. In general, modeling analyses were used to determine the capacity of green streets, LID and rooftop runoff reduction to retain the design storm. It was common for maximum implementation of these control measures to be insufficient for retaining the design storm runoff from a subwatershed. In this case, the remaining capacity was assigned to regional BMPs, which will be identified in the future (likely on a combination of public and private parcels). The summary of required BMP capacities by jurisdiction for ROW and non-ROW BMPs is provided in **Table 5-9**.

Table 5-8
Types of BMPs Simulated for Design Storm Retention

BMP Type	Category	Type	Description
Green streets	ROW	Distributed	Green streets typically consist of bioretention areas between the curb and sidewalk (herein referred to as the parkway) and/or permeable pavement within the parking lane.
LID due to new/ redevelopment	Non-ROW	Distributed	Retention of runoff from new and redeveloped private parcels subject to LID ordinances.
LID on public parcels	Non-ROW	Distributed	Low impact development retrofit projects to retain runoff from public parcels (e.g., permeable pavement in parking lots of municipal buildings, bioretention areas or green roofs to prevent runoff from municipal facilities, dry wells, etc.)
Rooftop Runoff Reduction	Non-ROW	Distributed	Programs on private parcels to promote infiltration or retention of rooftop runoff, including downspout disconnection or rain barrel incentive programs.
Regional BMPs	Non-ROW	Regional	Regional BMPs to capture and retain runoff from relatively large upstream areas prior to discharge to receiving waters. In general, the remaining runoff after implementation of the previous BMP categories was assigned to regional BMPs.

Table 5-9
Overall Jurisdictional Requirements to Retain the Design Storm Volume

Jurisdiction	Required MS4 Treatment Capacity, acre-ft*	Potential Non-ROW BMP Capacity, acre-ft	Potential Capacity of Distributed ROW BMPs, acre-ft	Remaining Reduction assigned to Regional BMPs, acre-ft
Claremont	85.2	12.66 (15%)	32.5 (38%)	40.0 (47%)
La Verne	126.9	13.34 (11%)	39.2 (31%)	74.4 (59%)
Pomona	204.9	53.18 (26%)	55.9 (27%)	95.8 (47%)
San Dimas	126.9	14.72 (12%)	33.4 (26%)	78.7 (62%)
Total	**543.9**	**93.91 (17%)**	**161.0 (30%)**	**289.0 (53%)**

*Excludes design storm runoff from non-MS4 permitted facilities and California Department of Transportation (Caltrans) and County of Los Angeles islands

5.2.2 Final MS4 Compliance Targets and BMP Capacities by Subwatershed

The culmination of the analyses for this WMP is two key metrics, one for Permit compliance and one for WMP implementation, as follows (**Table 5-11** thru **Table 5-14**):

1. **Final MS4 Compliance Targets based on design storm runoff volume:** the runoff volume from the simulated design storm for each subwatershed, minus contributions from Caltrans and industrial permittees, is the ultimate final compliance metric for the Claremont, La Verne, Pomona and San Dimas. See column with orange font labeled "Compliance Target" in **Table 5-11** thru **Table 5-14**. Note: the Group will continue to inspect industrial facilities under the Permit inspection programs. In addition, the Group will work with Caltrans on potential options for collaborating during WMP implementation.

2. **Initial scenario of BMPs to retain design storm runoff volume:** the specific BMPs used to retain the design storm volume are not, per se, a component of compliance determination. Instead, over time each agency will report and demonstrate that the *cumulative* effect of projects implemented over time add up to the required design storm retention volumes for interim milestones and final targets. However, the initial scenario of BMPs for WMP implementation and their costs may be the most beneficial outcome of the WMP. See columns with orange font labeled "Implementation Plan" in **Table 5-11** thru **Table 5-14**, which represent the initial WMP implementation scenario. Over time, through adaptive management, the cities will likely "shift" from among different types of BMPs (e.g., increase implementation of green streets and reduce implementation of regional BMPs) or substitute alterative BMPs altogether (e.g., implement dry wells instead of green streets). These shifts will be supported by analyses to show the substituted BMPs provide an equivalent volume reduction as the replaced BMPs. Initial analyses to support adaptive management are provided in **Appendix A**.

The final compliance targets in **Table 5-11** thru **Table 5-14** are used to develop compliance targets for interim milestones in the next subsection. Recall the index of subwatersheds[3] in presented in **Figure 5-20**. The ROW and non-ROW BMP capacities for the initial WMP scenario are also shown graphically in **Figure 5-21** and **Figure 5-22**.

[3] The 67 LSPC subwatersheds within the WMP boundary were overlaid with the jurisdictional boundaries to create 98 city-subwatersheds. The city-subwatershed ID is composed of the jurisdictional identifier (the first two digits) and the original LSPC subwatershed ID (the last four digits). To identify the geographical relationship between the LSPC model subwatersheds and the city-subwatersheds shown in Figure 5-20, the last four digits of the city-subwatershed correspond to the LSPC Subwatershed IDs.

Table 5-11– La Verne Final Compliance Targets and Initial WMP Implementation Scenario

Receiving Water	Grouped SWS ID*	Individual SWS ID	COMPLIANCE TARGET: 85th Percentile, 24-hour Storm Volume to be Retained by MS4 (acre-ft)	IMPLEMENTATION PLAN: APPROACH TO ACHIEVE COMPLIANCE TARGETS, SUBJECT TO ADAPTIVE MANAGEMENT								
				DESIGN STORM RUNOFF TO BE RETAINED IN RIGHTS-OF-WAY		DESIGN STORM RUNOFF TO BE RETAINED OUTSIDE OF RIGHTS-OF-WAY BUT PRIOR TO DISCHARGE FROM MS4 COLLECTION SYSTEM					NON-MS4 RUNOFF	
				Total Estimated Design Storm Volume to be Retained in Right-of-Way (acre-ft)	Estimated Equivalent Length of Green Street BMPs (ft)	Estimated Potential Volume to be Retained by LID on Public Parcels (acre-ft)	Estimated Potential Volume to be Retained by Downspout Disconnection Program (acre-ft)	Estimated Potential Volume to be Retained by LID Ordinance of New/ Redevelopment (acre-ft)	Remaining Capacity to the Retained by Other BMPs, Potentially Including Regional BMPs (acre-ft)	Total Design Storm Volume that will not be Retained (acre-ft)	Estimated Potential Volume to be Retained by CALTRANS and other Transportation Entities (acre-ft)	Estimated Potential Volume to be Retained by Industrial Permittees (acre-ft)
San Dimas Wash	5412*	5412*	5.10	1.90	10,043	0.07	0.14	0.00	3.00	-	-	-
	5468*	5468*	3.20	2.03	9,313	0.02	0.12	0.00	1.03	-	-	-
		5413	0.00	-	-	-	-	-	-	0.00	-	-
		5415	0.00	-	-	-	-	-	-	0.00	-	-
	to 5413	to 5413 Total	0.00	-	-	-	-	-	-	0.00	-	-
San Dimas Wash Total			8.30	3.93	19,356	0.09	0.26	0.00	4.02	0.00	-	-
Thompson Wash/ San Jose Creek	5217*	5217*	1.02	0.18	137	0.02	0.00	0.02	0.80	-	-	3.17
	5220*	5220*	0.29	0.05	232	0.00	0.01	0.00	0.23	-	0.02	-
	5223*	5223*	1.07	0.13	596	0.00	0.09	0.02	0.83	-	-	-
	5218*	5218*	4.98	1.02	3,873	0.22	0.30	0.05	3.39	-	0.66	0.35
	5221*	5221*	0.00	-	-	-	-	-	0.00	-	-	-
San Jose Creek Total			7.34	1.37	4,838	0.25	0.39	0.09	5.25	-	0.68	3.51
Walnut Creek	5397*	5397*	1.25	0.36	2,726	0.02	0.05	0.00	0.83	-	-	-
	5399*	5399*	2.59	0.50	422	0.00	0.00	0.01	2.08	-	-	11.66
	5398*	5398*	1.34	0.35	1,316	0.03	0.05	0.01	0.90	-	0.29	-
Walnut Creek Total			5.19	1.21	4,464	0.05	0.10	0.01	3.81	-	0.29	11.66
Puddingstone	5400*	5400*	13.88	4.09	20,170	1.01	0.52	0.16	8.09	-	1.00	7.32
	5402	5402	6.87	1.19	4,688	0.19	0.15	0.06	5.29	-	0.77	0.17
	5405*	5405*	19.27	5.69	25,206	0.20	1.02	0.28	12.09	-	-	-
	5407	5407	5.97	1.62	6,897	2.26	0.14	0.06	1.89	-	-	-
	5408*	5408*	6.39	1.12	5,003	0.12	0.45	0.10	4.60	-	-	-
	5410*	5410*	16.67	4.90	22,611	1.78	0.83	0.11	9.04	-	1.91	2.30
	5401	5401	11.06	5.20	25,679	0.28	0.42	-	5.16	-	-	-
	5403*	5403*	5.93	2.38	12,133	0.07	0.21	0.04	3.22	-	-	-
	5404	5404	6.98	2.28	10,126	0.46	0.36	0.08	3.80	-	-	-
	5406	5406	7.26	2.27	11,373	0.13	0.18	0.00	4.68	-	-	-
	5409*	5409*	0.22	0.11	1,027	0.00	0.01	-	0.09	-	-	-
	5411*	5411*	5.54	1.80	8,344	0.01	0.32	0.09	3.32	-	-	1.08
Puddingstone Total			106.05	32.65	153,256	6.53	4.60	0.98	61.29	-	3.68	10.86
Grand Total			126.88	39.16	181,915	6.91	5.35	1.08	74.37	0.00	4.64	26.03

* asterisk indicates SWS group is divided between one or more jurisdictions – opportunities for regional collaboration should be pursued.

Table 5-12– San Dimas Design Final Compliance Targets and Initial WMP Implementation Scenario

Receiving Water	Grouped SWS ID*	Individual SWS ID	COMPLIANCE TARGET: 85th Percentile, 24-hour Storm Volume to be Retained by MS4 (acre-ft)	IMPLEMENTATION PLAN: APPROACH TO ACHIEVE COMPLIANCE TARGETS, SUBJECT TO ADAPTIVE MANAGEMENT								
				DESIGN STORM RUNOFF TO BE RETAINED IN RIGHTS-OF-WAY		DESIGN STORM RUNOFF TO BE RETAINED OUTSIDE OF RIGHTS-OF-WAY BUT PRIOR TO DISCHARGE FROM MS4 COLLECTION SYSTEM					NON-MS4 RUNOFF	
				Total Estimated Design Storm Volume to be Retained in Right-of-Way (acre-ft)	Estimated Equivalent Length of Green Street BMPs (ft)	Estimated Potential Volume to be Retained by LID on Public Parcels (acre-ft)	Estimated Potential Volume to be Retained by Downspout Disconnection Program (acre-ft)	Estimated Potential Volume to be Retained by LID Ordinance of New/ Redevelopment (acre-ft)	Remaining Capacity to the Retained by Other BMPs, Potentially Including Regional BMPs (acre-ft)	Total Design Storm Volume that will not be Retained (acre-ft)	Estimated Potential Volume to be Retained by CALTRANS and other Transportation Entities (acre-ft)	Estimated Potential Volume to be Retained by Industrial Permittees (acre-ft)
San Dimas Wash	5412*	5412*	0.49	0.06	574	0.13	0.01	-	-	0.29	-	-
	5464	5464	3.76	1.50	9,025	0.23	0.13	0.03	1.86	-	0.83	-
	5465	5465	5.30	1.32	5,325	-	0.16	0.04	3.79	-	3.19	0.61
	5466	5466	6.10	2.50	15,331	0.22	0.23	0.12	3.04	-	-	-
	5468*	5468*	4.46	1.75	8,319	0.06	0.09	0.00	2.57	-	0.05	0.24
	5467	5467	0.95	0.02	116	0.39	0.01	0.00	-	0.54	-	-
San Dimas Wash Total			21.07	7.15	38,691	1.03	0.62	0.19	11.26	0.83	4.07	0.86
Thompson Wash/ San Jose Creek	to 5208*	5208	0.13	0.00	13	0.00	0.00	0.00	-	0.12	0.88	-
		5209	1.53	0.02	123	0.01	0.09	0.02	1.39	-	3.06	-
		5210	0.26	0.00	-	0.17	-	-	-	0.10	0.11	-
		to 5208* Total	1.92	0.03	136	0.18	0.09	0.02	1.39	0.22	4.04	-
San Jose Creek Total			1.92	0.03	136	0.18	0.09	0.02	1.39	0.22	4.04	-
Walnut Creek	5387	5387	0.81	0.26	1,182	-	0.07	0.02	0.46	-	-	-
	5390	5390	3.56	1.66	7,505	0.32	0.15	0.04	1.39	-	0.13	-
	5393	5393	0.01	-	-	-	0.00	-	-	0.01	-	-
	5394	5394	0.00	-	-	-	-	-	0.00	-	-	-
	5395	5395	20.98	3.07	15,544	0.08	0.76	0.08	16.98	-	0.13	-
	5397*	5397*	14.58	1.99	8,140	1.45	0.42	0.26	10.45	-	2.86	0.46
	5399*	5399*	2.54	0.12	539	0.66	0.04	0.04	-	1.70	1.71	0.00
	5396	5396	39.92	11.77	50,697	2.73	1.42	0.83	23.18	-	2.75	0.32
	5398*	5398*	18.68	6.52	27,599	1.29	0.81	0.28	9.77	-	0.27	-
Walnut Creek Total			101.08	25.39	111,206	6.53	3.67	1.55	62.23	1.71	7.85	0.77
Puddingstone	5400*	5400*	0.00	-	-	0.00	-	-	0.00	-	-	-
	5410*	5410*	0.89	0.27	1,246	0.38	0.03	0.00	0.22	-	0.00	-
	5411*	5411*	0.00	-	-	0.00	0.00	0.00	0.00	-	-	-
Puddingstone Total			0.89	0.27	1,246	0.38	0.03	0.00	0.22	-	0.00	-
Big Dalton Wash	5481	5481	1.42	0.54	2,986	0.32	0.06	0.01	0.49	-	-	-
	5482	5482	0.50	0.07	451	0.00	0.03	0.01	-	0.39	-	-
	5484	5484	0.00	-	-	-	-	-	-	0.00	-	-
	5489	5489	0.00	-	-	-	-	-	-	0.00	-	-
Big Dalton Wash Total			1.92	0.61	3,437	0.32	0.09	0.02	0.49	0.39	-	-
Grand Total			126.89	33.44	154,716	8.44	4.50	1.78	75.58	3.15	15.97	1.63

* asterisk indicates SWS group is divided between one or more jurisdictions – opportunities for regional collaboration should be pursued.

Table 5-13– Pomona Final Compliance Targets and Initial WMP Implementation Scenario

Receiving Water	Grouped SWS ID*	Individual SWS ID	COMPLIANCE TARGET: 85th Percentile, 24-hour Storm Volume to be Retained by MS4 (acre-ft)	IMPLEMENTATION PLAN: APPROACH TO ACHIEVE COMPLIANCE TARGETS, SUBJECT TO ADAPTIVE MANAGEMENT								
				DESIGN STORM RUNOFF TO BE RETAINED IN RIGHTS-OF-WAY		DESIGN STORM RUNOFF TO BE RETAINED OUTSIDE OF RIGHTS-OF-WAY BUT PRIOR TO DISCHARGE FROM MS4 COLLECTION SYSTEM					NON-MS4 RUNOFF	
				Total Estimated Design Storm Volume to be Retained in Right-of-Way (acre-ft)	Estimated Equivalent Length of Green Street BMPs (ft)	Estimated Potential Volume to be Retained by LID on Public Parcels (acre-ft)	Estimated Potential Volume to be Retained by Downspout Disconnection Program (acre-ft)	Estimated Potential Volume to be Retained by LID Ordinance of New/ Redevelopment (acre-ft)	Remaining Capacity to the Retained by Other BMPs, Potentially Including Regional BMPs (acre-ft)	Total Design Storm Volume that will not be Retained (acre-ft)	Estimated Potential Volume to be Retained by CALTRANS and other Transportation Entities (acre-ft)	Estimated Potential Volume to be Retained by Industrial Permittees (acre-ft)
Thompson Wash/ San Jose Creek	5207	5207	0.00	-	-	0.00	-	-	-	0.00	-	0.04
	5211	5211	0.02	-	-	0.00	-	-	-	0.02	-	-
	5212	5212	0.87	0.03	166	0.11	0.02	0.01	0.70	-	1.12	-
	5213	5213	24.98	2.45	8,240	5.78	0.42	2.35	13.98	-	3.15	3.19
	5214	5214	22.61	8.44	35,542	1.48	0.73	3.06	8.90	-	2.71	0.76
	5215	5215	37.41	8.70	34,802	0.88	1.04	6.14	20.64	-	4.29	0.85
	5217*	5217*	8.22	2.42	48,744	0.71	0.26	0.40	4.43	-	0.11	29.85
	5220*	5220*	10.16	2.76	9,684	0.26	0.37	1.82	4.95	-	0.81	0.62
	5223*	5223*	0.39	0.11	710	0.02	0.03	0.15	0.07	-	-	-
	to 5208*	5208	5.49	0.99	4,452	0.87	0.47	1.76	1.40	-	1.29	5.09
		5209	7.78	1.90	7,949	0.56	0.19	0.97	4.17	-	5.64	0.51
		5210	25.09	7.52	38,068	2.86	1.10	3.22	10.39	-	6.54	0.12
		to 5208* Total	38.36	10.40	50,469	4.30	1.76	5.95	15.96	-	13.47	5.72
	5216*	5216*	34.15	12.19	56,820	3.14	1.31	4.67	12.83	-	1.01	-
	5218*	5218*	0.10	-	-	-	-	-	0.10	-	-	-
	5219	5219	13.12	3.43	10,638	0.17	0.21	1.40	7.92	-	0.96	-
	5221*	5221*	4.26	0.80	3,395	-	0.17	1.56	1.73	-	-	-
	5222*	5222*	9.99	4.15	19,490	0.48	0.39	1.53	3.44	-	-	-
San Jose Creek Total			204.64	55.88	278,700	17.33	6.71	29.04	95.66	0.02	27.63	41.03
Walnut Creek	5399*	5399*	0.11	-	-	0.08	-	-	-	0.03	0.00	-
Walnut Creek Total			0.11	-	-	0.08	-	-	-	0.03	0.00	-
Puddingstone	5408*	5408*	0.16	0.00	17	-	0.00	0.02	0.13	-	-	-
	5403*	5403*	0.00	0.00	0	-	-	0.00	0.00	-	-	-
Puddingstone Total			0.16	0.00	17	-	0.00	0.02	0.13	-	-	-
Grand Total			204.91	55.89	278,717	17.41	6.71	29.06	95.79	0.06	27.64	41.03

* asterisk indicates SWS group is divided between one or more jurisdictions – opportunities for regional collaboration should be pursued.

Table 5-14– Claremont Final Compliance Targets and Initial WMP Implementation Scenario

Receiving Water	Grouped SWS ID*	Individual SWS ID	COMPLIANCE TARGET: 85th Percentile, 24-hour Storm Volume to be Retained by MS4 (acre-ft)	IMPLEMENTATION PLAN: APPROACH TO ACHIEVE COMPLIANCE TARGETS, SUBJECT TO ADAPTIVE MANAGEMENT								
				DESIGN STORM RUNOFF TO BE RETAINED IN RIGHTS-OF-WAY		DESIGN STORM RUNOFF TO BE RETAINED OUTSIDE OF RIGHTS-OF-WAY BUT PRIOR TO DISCHARGE FROM MS4 COLLECTION SYSTEM					NON-MS4 RUNOFF	
				Total Estimated Design Storm Volume to be Retained in Right-of-Way (acre-ft)	Estimated Equivalent Length of Green Street BMPs (ft)	Estimated Potential Volume to be Retained by LID on Public Parcels (acre-ft)	Estimated Potential Volume to be Retained by Downspout Disconnection Program (acre-ft)	Estimated Potential Volume to be Retained by LID Ordinance of New/ Redevelopment (acre-ft)	Remaining Capacity to the Retained by Other BMPs, Potentially Including Regional BMPs (acre-ft)	Total Design Storm Volume that will not be Retained (acre-ft)	Estimated Potential Volume to be Retained by CALTRANS and other Transportation Entities (acre-ft)	Estimated Potential Volume to be Retained by Industrial Permittees (acre-ft)
Thompson Wash/ San Jose Creek	5223*	5223*	2.90	1.70	9,186	0.04	0.11	0.03	1.02	-	0.03	-
	5216*	5216*	12.69	3.10	10,684	0.17	0.62	1.60	7.20	-	0.78	-
	5221*	5221*	26.52	10.98	49,192	3.02	1.05	1.61	9.86	-	3.06	-
	5222*	5222*	11.82	4.76	20,932	0.83	0.50	0.54	5.19	-	-	-
	5224	5224	7.32	0.98	5,319	0.23	0.30	0.38	-	5.42	0.00	-
	5225	5225	22.23	10.81	53,058	0.75	0.71	0.13	9.82	-	0.46	-
San Jose Creek Total			83.48	32.34	148,371	5.04	3.29	4.30	33.09	5.42	4.34	-
Puddingstone	5405*	5405*	0.00	-	-	-	0.00	0.00	0.00	-	-	-
	5408*	5408*	1.69	0.16	302	0.01	0.01	0.01	1.51	-	-	-
	5409*	5409*	0.00	-	-	0.00	-	-	-	0.00	-	-
Puddingstone Total			1.70	0.16	302	0.01	0.01	0.01	1.51	0.00	-	-
Grand Total			**85.18**	32.49	**148,673**	**5.05**	**3.30**	**4.31**	34.60	5.42	**4.34**	**-**

* asterisk indicates SWS group is divided between one or more jurisdictions – opportunities for regional collaboration should be pursued.

Figure 5-21
ROW BMP Volume Reduction for Initial WMP Scenario to Achieve Final Compliance Targets

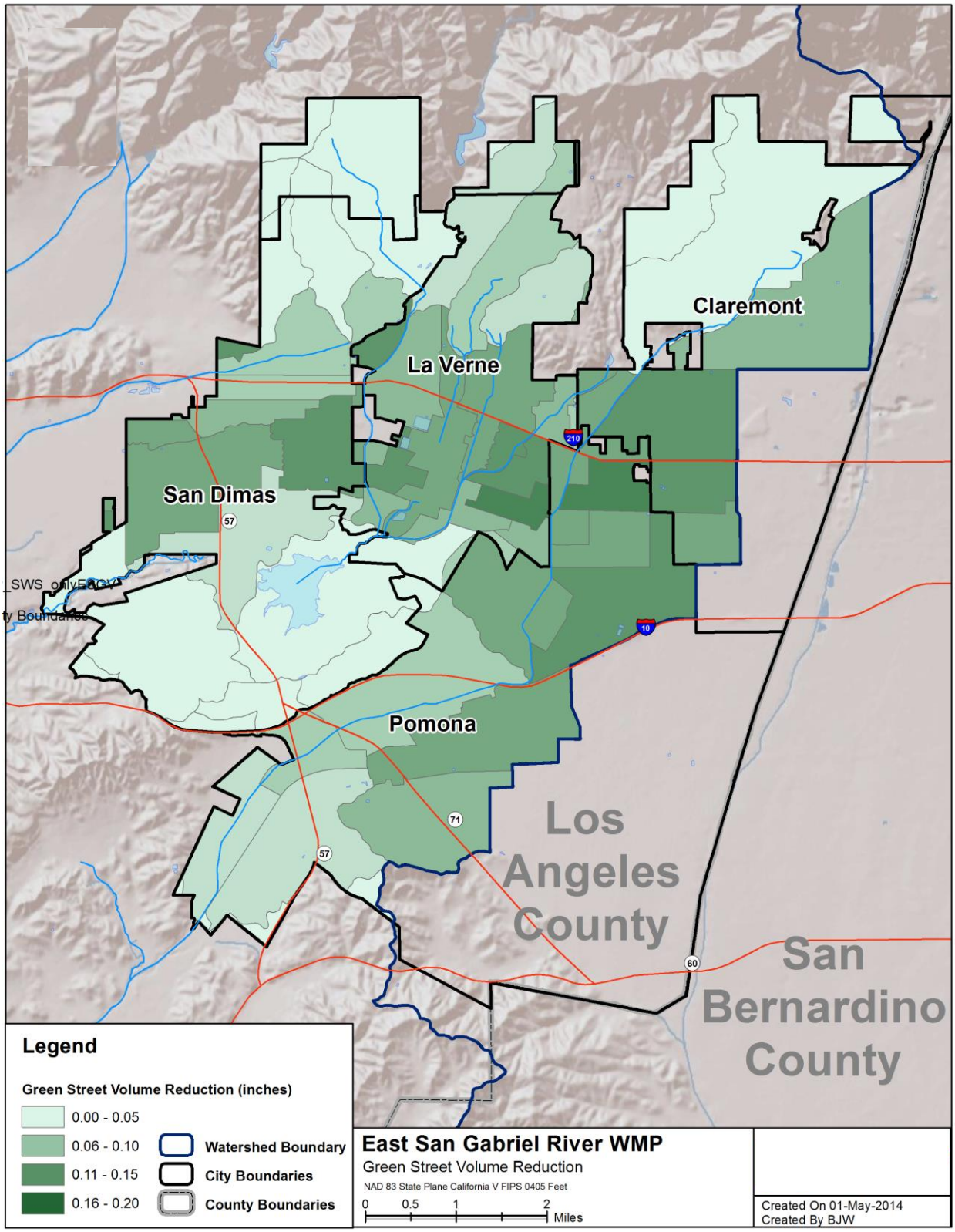
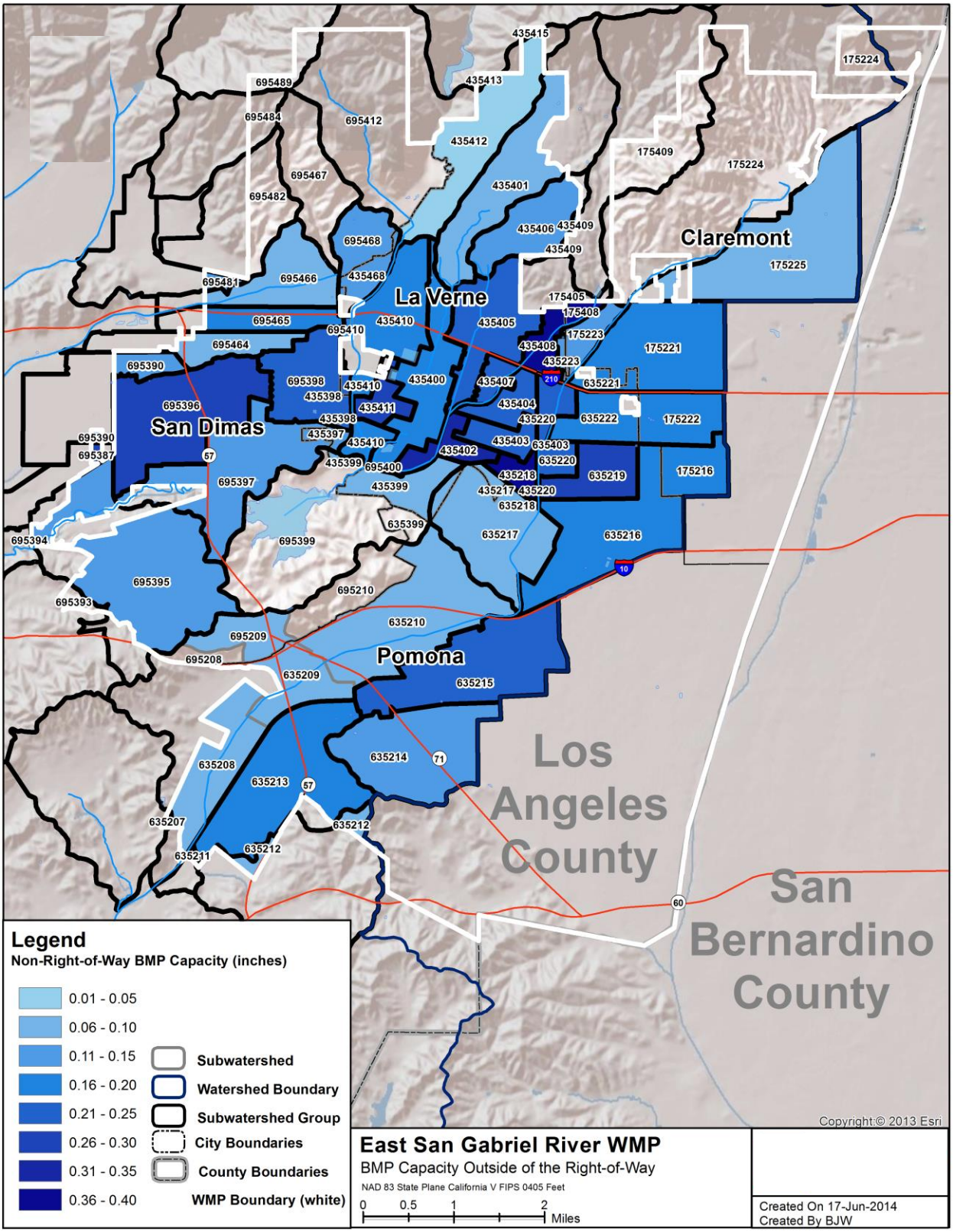


Figure 5-22
BMP Capacity Outside of the Right-of-Way for Initial WMP Scenario to Achieve Final Compliance Targets



5.3 COMPLIANCE TARGETS AND CONTROL MEASURES FOR ATTAINMENT OF INTERIM MILESTONES

The Permit prescribes that scheduling of multiple pollutants within the WMP should consider whether "class" of the non-TMDL pollutants are similar to TMDL pollutants, where class considers pollutant fate and transport, control measures, and BMP implementation timeline. For the design storm approach, achievement of the non-stormwater and stormwater retention goals represents compliance with all TMDL classes and pollutants. As such, attainment of the design storm volumes to address the San Gabriel River Metals TMDL will also address the other TMDLs in the watershed (Category 1 WQ Priorities), the 303(d) listings in the WMP area (Category 2 WQ Priorities) and Category 3 WQ Priorities in the WMP area.

To establish BMP scheduling for the WMP, the percent milestones of the San Gabriel River Metals TMDL were applied directly to the design storm volumes. The San Gabriel River Metals TMDL milestones are expressed in terms of a percentage of the MS4 area meeting WQBELs, and the equivalent WMP milestones are expressed as the percentage of the design storm retention volume achieved for each jurisdiction. Implementation of BMP capacities on the schedule listed in **Table 5-12** represents compliance with all RWLs and WQBELs of the Permit. As part of the adaptive management process, capacities will be modified based on monitoring through the CIMP for the WMP area. Annual reporting by each jurisdiction will detail the implemented BMPs and demonstrate the cumulative BMP capacities achieve the interim targets in **Table 5-13.** During adaptive management, these capacities may be reduced if monitoring data suggest that water quality conditions are better than assumed when the RAA herein was developed. Because the 10% milestone falls within the current Permit term, it is described in more detail below.

Note that the design storm target also addresses dry weather milestones because non-stormwater is also retained. As described in Section 5.1.4, required dry weather reductions for metals are very low and implementation of control measures to achieve wet weather milestones has reasonable assurance of also attaining dry weather milestones. For bacteria, the scheduling of implementation for the wet weather milestones of metals TMDL will be used as the schedule for dry weather bacteria compliance (10% milestone in 2017, 35% milestone in 2020, 65% milestone in 2023 and final compliance by 2026). Attainment of the dry weather bacteria TMDL by 2026, within 12 years, is well within the timeline provided for other bacteria TMDLs. The LA River Bacteria TMDL provided a 25-year dry weather compliance schedule.

Table 5-15
Schedule of Total Maximum Daily Loads and Milestones for the ESGV Group WMP

TMDL	Compliance Goal	Weather Condition	Compliance Dates and Compliance Milestone (Bolded numbers indicated milestone deadlines within the current Permit term) [1]													
			2012	**2013**	**2014**	**2015**	**2016**	2017	2020	2023	2024	2026	2028	2030	2032	2036
San Gabriel River Metals	% of MS4 area Meets WQBELs	Dry						30%	70%	100%						
		Wet						10%	35%	65%		100%				
Los Angeles/ Long Beach Harbors Toxics	Meet WQBELs	All	12/28												3/23	
			Interim												Final	
Puddingstone Reservoir Nutrients, Mercury, and Toxics	Meet WLAs	All	USEPA TMDLs, which do not contain interim milestones or implementation schedule. The Permit (Part VI.E.3.c, pg. 145) allows MS4 Permittees to propose a schedule in the WMP.													

[1] The Permit term is assumed to be five years from the Permit effective date or December 27, 2017.

Table 5-16
Schedule of Control Measures and BMP Capacities to Interim Milestones for the ESGV WMP

Jurisdiction	Major Watershed	10% Milestone, Year 2017 (acre-ft)	35% Milestone, Year 2020 (acre-ft)	65% Milestone, Year 2023 (acre-ft)	100% Milestone, Year 2026 (acre-ft)
Claremont	Puddingstone	**See description in Section 5.3** 1. Implementation of Rooftop Runoff Reduction Program 2. LID due to new and re-development 3. Increased construction site inspections 3. Verification of post-construction BMPs 4. Increased catch basin cleaning	0.6	1.1	1.7
	San Jose Creek		29.2	54.3	83.5
	Claremont Total		**29.8**	**55.4**	**85.2**
La Verne	Puddingstone		37.1	68.9	106.1
	San Dimas Wash		2.9	5.4	8.3
	San Jose Creek		2.6	4.8	7.3
	Walnut Creek		1.8	3.4	5.2
	La Verne Total		**44.4**	**82.5**	**126.9**
Pomona	Puddingstone		0.1	0.1	0.2
	San Jose Creek		71.6	133.0	204.6
	Walnut Creek		0.0	0.1	0.1
	Pomona Total		**71.7**	**133.2**	**204.9**
San Dimas	Big Dalton Wash		0.7	1.2	1.9
	Puddingstone		0.3	0.6	0.9
	San Dimas Wash		7.4	13.7	21.1
	San Jose Creek		0.7	1.2	1.9
	Walnut Creek		35.4	65.7	101.1
	San Dimas Total		**44.4**	**82.5**	**126.9**
Total			***190.3***	***353.5***	***543.9***

5.3.1 Attainment of the 10% Milestone for the ESGV WMP

The 10% milestone for the San Gabriel River Metals TMDL requires that 10% of the WMP area be in compliance with applicable final metals RWLs and WQBELs. For application of the milestone to the entire WMP area for all water quality priorities, the milestone is interpreted to mean that 10% of the *required load reductions* are achieved by each jurisdiction (this interpretation is also consistent with other metals TMDLs). This interpretation means the 10% milestone may equate to less than an actual 10% reduction. For example, if the final required load reduction of the limiting pollutant was 70%, then the 10% milestone represents a 7% reduction. For the ESGV WMP, the limiting pollutant is likely zinc, which has required reductions of 60-70% in other areas/reaches for the San Gabriel River Metals TMDL. As such, it is expected the 10% milestone for the ESGV WMP represents a 7% reduction or less.

A series of control measures have been identified by the Group to achieve compliance with the 10% milestone, as shown in **Table 5-14**. All of these control measures represent *enhanced BMP implementation* from the baseline condition that existed prior to the 2012 Permit. A highlight of the suite of control measures for the 10% milestone is a Rooftop Runoff Reduction Program (Program), which will seek to incentivize control measures on private property to capture rooftop runoff prior to discharge to the MS4. The Program will emphasize deployment of rain barrels, disconnection of downspouts that are directly plumbed into the MS4 collection system and, if necessary, consideration of other BMPs to address stormwater runoff at the source. While the program will provide an important vehicle for educating the public on the need to retain stormwater runoff, the program will also be designed such that volume reductions are quantifiable and trackable. A detailed schedule for implementation of the Program is shown in **Figure 5-19**. Additionally, other control measures identified for attainment of the 10% milestone are related to MCM requirements that increased in the current Permit (compared to previous Permit) including LID due to new/redevelopment, increased construction site inspections, verification of post-construction BMPs and increased catch basin cleaning. All of these measures have been shown to demonstrate load reduction in a watershed.

During adaptive management, if the 10% milestone is not attained in 2017, then the Group will develop alternate institutional controls or additional structural controls as necessary.

Table 5-17
Control Measures to be Implemented for Attainment of 10% Milestone

BMP Type	Description of Control Measure/ Enhancement from Baseline
Planned or Recently Constructed BMPs within Permit Term	See **Table 4-2** for list of planned or recently constructed projects within the ESGV Group area.
Rooftop Runoff Reduction	Implement an incentive program for private parcels to promote infiltration or retention of rooftop runoff, including downspout disconnection, rain barrel deployment and other BMPs as needed (see **Table 5-15**).
LID due to new/redevelopment	The ESGV jurisdictions have reported 2 to 3 parcels per year being subject to LID requirements in recent years. By 2017, this represents an estimated 32 to 48 additional parcels being subject to LID retention standards based on the 85th percentile storm.
Enhanced Construction Site Inspections	The previous permit (Part 4.E.2.b) required a minimum of one construction site inspection during the wet season. The new permit (Part VI.D.8.j) requires a minimum of three construction inspections for each construction project: prior to land disturbance, during active construction, during final landscaping/site stabilization. In addition, the new permit states that construction sites larger than 1 acre shall be inspected (1) when two or more consecutive days with greater than 50% chance of rainfall are predicted by NOAA, (2) within 48-hours of a ½-inch rain event, and (3) at least once every two weeks. If the construction site is not deemed a significant threat to water quality and does not discharge to a tributary listed by the state as an impaired water for sediment or turbidity under the CWA §303(d), the new permit states that inspection frequency shall be at least monthly.
Verification of Post Construction BMPs	The previous permit (Part 4.D.8**)** indicated that verification of post-construction (SUSMP) BMPs included, at a minimum, written conditions which assign responsibility to a developer, public entity, or Home Owners Association to conduct maintenance on post-construction BMPs at least once a year. The new permit (Part VI.D.7.d.iv) expands on these requirements by requiring each permittee to implement a tracking system and inspection and enforcement program for post-construction BMPs. The new permit requires the development of a post-construction BMP maintenance inspection checklist and requires inspection at least once every 2 years after project completion.
Enhanced Catch Basin Cleaning	The new permit (Part VI.D.9. h.vii) requires that the Permittee shall install trash excluders, or equivalent devices, on or in catch basins or outfalls to prevent the discharge of trash to the MS4 or receiving water no later than four years after the effective date of the new Permit.

Table 5-18
Schedule for Implementation of the Rooftop Runoff Reduction Program

Achievement	Completion Date
Develop draft Rooftop Runoff Program including the source control BMPs to be incentivized. The effort will collect estimates the proportion of current parcels (by land use type) with downspouts directly plumbed into MS4 collection system. The program will also evaluate the feasibility of implementation on municipally-owned parcels.	July 2015
Begin outreach program to incentivize deployment of rain barrels, disconnection of downspouts that are directly plumbed into the MS4 collection system and, if necessary, consideration of other BMPs to address stormwater runoff at the source.	December 2015
Revised draft Rooftop Runoff Program, if necessary, based on lessons learned during initial implementation period.	July 2016
Quantify and report estimate volume reduction from implemented downspout disconnects and rain barrel deployment.	January 2017

5.4 SPATIAL BMP SEQUENCING FOR EFFECIENT IMPLEMENTATION

The WMMS model is a powerful tool to support BMP implementation. The WMMS was used to support efficient *spatial* BMP sequencing (i.e., watershed areas to prioritize for early implementation actions), based on the cost-effectiveness of implemented control measures subwatershed-by-subwatershed. Through adaptive management the sequencing of BMPs will be refined with additional data provided by the CIMP and other lessons learned. Prescribing sequencing is challenging because BMP implementation over space will also be driven by other factors, including already-scheduled capital improvement projects (e.g., street improvements), public perception issues, and political needs. Continuous simulation and optimization were used to evaluate the pollutant removal effectiveness of the proposed BMPs in each subwatershed. The variables that influence BMP effectiveness include the combination of pollutant generating land uses in the watershed, proximity to receiving waters, imperviousness, and BMP infiltration capacity. The metric that was used to "rank" subwatersheds for each jurisdiction was model-predicted BMP construction cost per pound of pollutant load removed, which can be used as a planning-level approximation of "BMP efficiency". This type of sequencing is intended to promote significant early improvements in water quality.

As shown in **Figure 5-23**, the prioritization process involved grouping the subwatersheds into three tiers for each jurisdiction:

- **Tier 1:** Represents the watershed runoff volumes necessary to meet the 35 percent interim milestone in 2020, based on the highest-ranked subwatersheds
- **Tier 2:** Represents the watershed runoff volumes necessary to meet the 65 percent interim milestone in 2023, based on the next highest-ranked subwatersheds
- **Tier 3:** Represents the watershed runoff volumes necessary to meet the 100 percent interim milestone in 2026, based on the lowest-ranked subwatersheds.

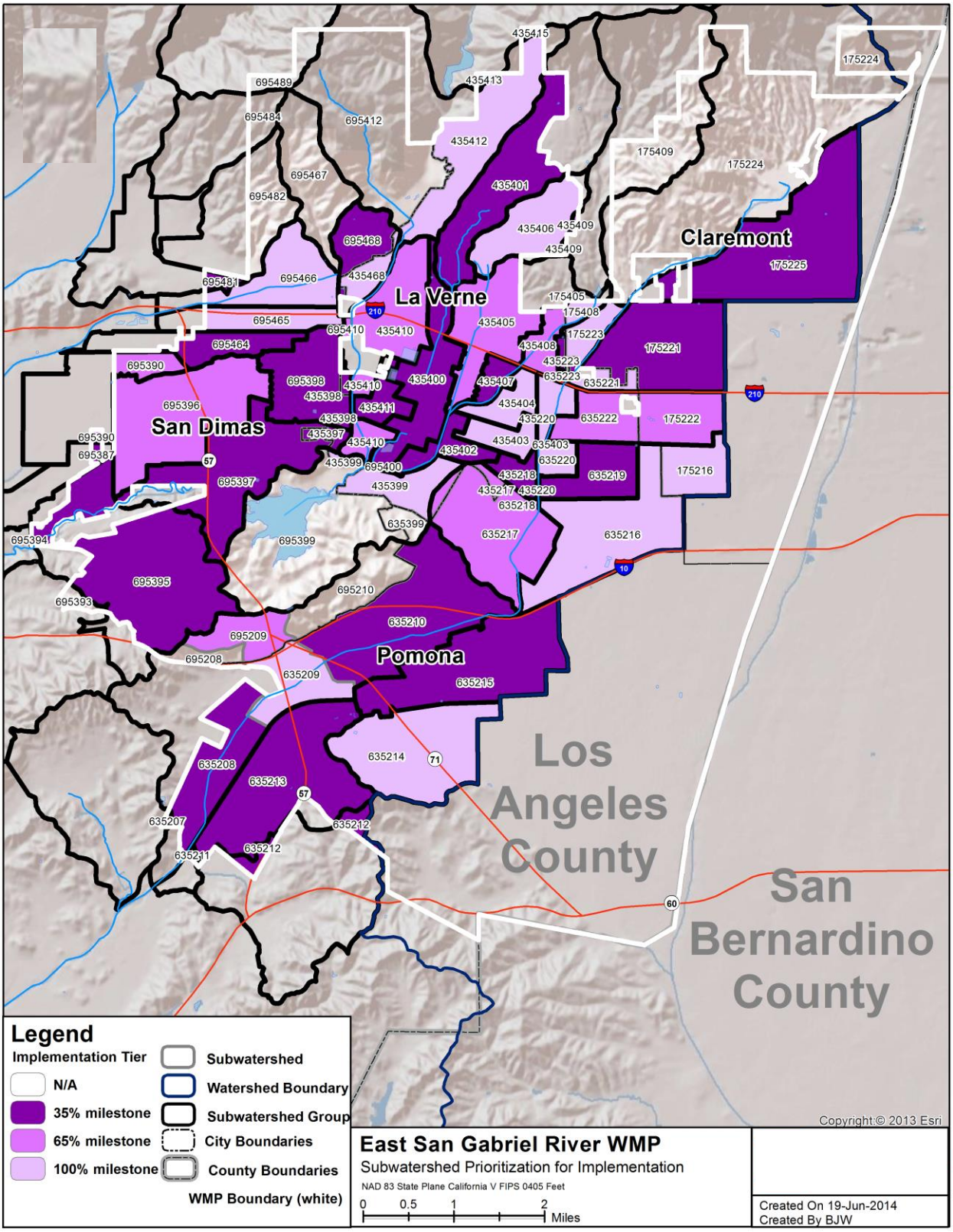
These tiers were developed to help individual jurisdictions focus on areas with the highest likelihood of BMP performance success. Detailed maps and tables of each subwatershed for individual jurisdictions are provided in **Appendix B**. It should be noted that watersheds with runoff that largely originated from open space were excluded from the efficiency analysis and are labeled as "N/A" on these maps and tables, as BMP implementation for open space runoff is not a goal of this WMP.

Although this efficiency analysis provides a planning-level framework to guide implementation to meet the Permit deadlines, a more detailed retention strategy will be necessary for each jurisdiction to successfully manage and document the WMP implementation process. A comprehensive retention plan might include the following elements:

- Standard BMP design templates and/or guidance
- Detailed identification of high priority areas (i.e., cross streets) for green street retrofits
- Detailed evaluation of public parcels available for regional BMPs implementation
- Process for linking BMP retrofits to planned capital improvement projects
- Tracking tools for BMP locations, size, type, and drainage area

Ultimately, by tracking the progress of the program, adaptive management strategies can be employed to refine the assumptions of this analysis and hopefully be used to streamline the implementation process and reduce the overall burden of compliance.

Figure 5-23
Prioritization of BMP Implementation by Subwatershed



6 Implementation Process

The WMP describes the level and types of BMP implementation that will result in attainment of the RWLs and WQBELs of the Permit. The 85th percentile, 24-hour "design storm" volume was used by the RAA to calculate the necessary BMP capacities in each subwatershed in the WMP area. The design storm analysis provides an integrated approach to address all pollutants and all TMDLs regulated by the Permit. Based on this analysis, the networks of BMPs needed to attain the RWLs and WQBELs is extensive. Even if all available and suitable ROWs in the WMP area are retrofitted with bioretention / green streets, that capacity is insufficient to meet the design storm targets. The additional BMP capacity would be achieved with BMPs outside of the ROW (non-ROW BMPs), with options including both regional BMPs (infiltration basins) and distributed BMPs (green infrastructure on private parcels through the LID ordinances, green infrastructure on public parcels, downspout disconnection programs, etc.). The WMP describes how the BMPs may be implemented spatially in a more cost-effective manner to achieve the largest improvements in water quality as early as possible in the implementation schedule (i.e., which subwatersheds should be targeted first).

Over the course of WMP implementation, and through BMP pilot programs, many lessons will be learned and used to increase the efficiency of the BMP implementation effort. Through adaptive management, it may be possible to achieve the RWLs and WQBELs of the Permit with BMP networks that are not as extensive as prescribed in this WMP.

An early step for WMP implementation is the evaluation of city-wide stormwater retention strategies that identify standard BMP designs, select capital improvement projects that may be coupled to stormwater retrofits and target specific parcels and neighborhoods for BMP implementation.

6.1 ESTIMATED COST OF IMPLEMENTATION

The level of effort and funding needed to implement the BMPs identified in this WMP will represent a monumental challenge in stormwater management by the Group. Throughout the Los Angeles region, communities will need to support funding measures for stormwater capital improvements. The projected levels of expenditure to implement the WMP represent factor of 20 fold increases in annual budgets for stormwater management. Additional funding sources will be needed to maintain required budget levels now and decades into the future. Without widespread political and public support, these budget increases will not be possible.

The Cities of Claremont, La Verne, Pomona, and San Dimas plan to work closely with the Regional Board staff to identify the best course of action for achieving successes early in the WMP schedule and starting the process on a positive note. This WMP may provide the technical information needed to motivate regulatory efforts to increase the practicability of the stormwater regulations, including extensions to TMDL implementation schedules and amendments to applicable water quality standards.

An order-of-magnitude cost estimate was developed, based on required capacity to achieve full compliance through implementation of structural and non-structural BMPs. The order-of-magnitude cost estimate for implementation of the WMP is shown in **Table 6-1**. It is important to note that these estimates are provided as order-of-magnitude cost estimates for planning level purposes. Actual expenditures will vary depending on the nature of implementation of the WMP.

6.1.1 Assumptions for Cost Estimate

For planning purposes, cost estimates for implementation of control measures within the WMP area have been developed. There are a variety factors that cause uncertainty in these cost estimates, including:

- The paucity of existing water quality monitoring data in the WMP area, the extent to which control measures will need to be implemented for permit compliance is uncertain.
- Site-specific information on costs of various control measures is not available. Costs have been estimated based on projects in other areas.
- Information regarding long-term operation and maintenance costs of various control measures is sparse.

Cost estimates provided herein will be updated during the adaptive management process as more information becomes available. Notwithstanding the uncertainties listed above, the cost estimates presented here are considered to be accurate on an order of magnitude scale, based on assumptions described below:

1. The low estimate assumes regional BMPs on public land only and a suite of lower cost LID BMPs. The high estimate assumes land acquisition is required to construct regional BMPs and a suite of higher cost LID BMPs.
2. The cost of administering a downspout disconnection program is based on data provided by the City of Portland's Downspout Disconnection Program website (Portland, 2014). The cost estimate of the program used a $53 per household rebate. The estimate uses an assumption of 10% of all households in the ESGV Group Cities to participate in the program over the next 5 years.
3. The cost estimate to administer a LID Ordinance of New/Redevelopment is based on reported "development planning" costs from the ESGV Group's 2012 Annual Reports (Attachment U-4).
4. Regional BMP cost estimates are based on planning-level cost estimates provided in the 2010 "Multi-Pollutant TMDL Implementation Plan for the Unincorporated County Area of Los Angeles River Watershed" (Los Angeles, 2010). Actual costs of regional BMPs will vary depending of number of BMPs constructed, cost of land acquisition, BMP type, and constructability factors.
5. The estimated costs of LID on public parcels are based on data provided from The Journal for Surface Water Quality Professionals (Grey, 2013).

Table 6-1
Order-of-Magnitude Cost Estimate of WMP Implementation

Low Estimate

Implementation Activity	Estimated Cumulative Expenditure by WMP Milestone			
	2017 (10% milestone)	2020 (35% milestone)	2023 (65% milestone)	2026 (100% milestone)
Administrative Costs - Total	**$24,000,000**	**$48,130,000**	**$72,280,000**	**$96,470,000**
Program Management	$1,650,000	$3,300,000	$4,950,000	$6,600,000
Minimum Control Measures	$22,270,000	$44,540,000	$66,800,000	$89,070,000
Downspout Disconnection Program (Administrative Cost)	$50,000	$180,000	$330,000	$500,000
LID Ordinance of New/Redevelopment (Administrative Cost)	$30,000	$110,000	$200,000	$300,000
CIMP Monitoring - Total	**$1,091,000**	**$2,423,000**	**$3,566,000**	**$4,709,000**
Structural BMPs - Total	**$ -**	**$88,000,000**	**$163,400,000**	**$251,400,000**
Regional BMPs	$ -	$36,300,000	$67,300,000	$103,600,000
Right-of-Way BMPs	$ -	$44,900,000	$83,500,000	$128,400,000
LID on Public Parcels	$ -	$6,800,000	$12,600,000	$19,400,000
Total	**$25,091,000**	**$138,553,000**	**$239,246,000**	**$352,579,000**

High Estimate

Implementation Activity	Estimated Cumulative Expenditure by WMP Milestone			
	2017 (10% milestone)	2020 (35% milestone)	2023 (65% milestone)	2026 (100% milestone)
Administrative Costs - Total	**$24,000,000**	**$48,130,000**	**$72,280,000**	**$96,470,000**
Program Management	$1,650,000	$3,300,000	$4,950,000	$6,600,000
Minimum Control Measures	$22,270,000	$44,540,000	$66,800,000	$89,070,000
Downspout Disconnection Program (Administrative Cost)	$50,000	$180,000	$330,000	$500,000
LID Ordinance of New/Redevelopment (Administrative Cost)	$30,000	$110,000	$200,000	$300,000
CIMP Monitoring - Total	**$1,091,000**	**$2,423,000**	**$3,566,000**	**$4,709,000**
Structural BMPs - Total	**$ -**	**$190,800,000**	**$354,500,000**	**$545,300,000**
Regional BMPs	$ -	$116,300,000	$216,000,000	$332,300,000
Right-of-Way BMPs	$ -	$44,900,000	$83,500,000	$128,400,000
LID on Public Parcels	$ -	$29,600,000	$55,000,000	$84,600,000
Total	**$25,091,000**	**$241,353,000**	**$430,346,000**	**$646,479,000**

6.2 ADAPTIVE MANAGEMENT PROCESS

As new program elements are implemented and information is gathered over time, the WMP will undergo modifications to reflect the most current understanding of the watershed and present a sound approach to address changing conditions. The adaptive management process includes a re-evaluation of water quality priorities, an updated source assessment, an effectiveness assessment of watershed control measures, and a RAA. The CIMP will gather additional data on receiving water conditions and stormwater/non-stormwater quality to inform these analyses. This process will be repeated every two years as part of the adaptive management process.

6.2.1 Re-characterization of Water Quality Priorities

Water quality within the WMP area will be re-characterized using data collected as a result of the CIMP implementation to include the most recent data available. WBPCs may be updated as a result of changing water quality. These classifications will be important for refocusing improvement efforts and informing the selection of future watershed control measures.

6.2.2 Source Assessment Re-evaluation

The assessment of possible sources of water quality constituents will be re-evaluated based on new information from the CIMP implementation efforts. The identification of non-MS4 and MS4 pollutant sources is an essential component of the WMP because it determines whether the source can be controlled by watershed control measures. As further monitoring is conducted and potential sources are better understood, the assessment becomes more accurate and informed.

6.2.3 Effectiveness Assessment of Watershed Control Measures

The evaluation of BMP effectiveness is an important part of the adaptive management process and the overall WMP. Implementation of the CIMP can provide a quantitative assessment of structural BMP effectiveness as it relates to actual pollutant load reduction to determine how selected BMPs have performed at addressing established water quality priorities. In addition, the adaptive management process is a required step for the customization of MCMs as detailed in Section 4. Effectiveness assessment becomes important for the selection of future control measures to be considered.

6.2.4 Update of Reasonable Assurance Analysis

The data gathered as a result of the CIMP will support adaptive management at multiple levels, including (1) generating data not previously available to support model updates and (2) tracking improvements in water quality over the course of WMP implementation. As described in Section 5, the RAA is an iterative process that depends on the continuous refinement and calibration of the watershed models used.

6.3 REPORTING

Annual reporting will be completed each year as part of the CIMP. In additional to assessing the overall progress of the WMP, the CIMP reporting will detail the implemented BMPs and demonstrate the cumulative BMP capacities achieve the interim targets. Data obtained through CIMP monitoring will be used to determine the overall effectiveness of the WMP and will the next phases of WMP implementation during the adaptive management process.

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Appendix A

Details on BMP Modeling for Retention of the Design Storm Runoff Volumes

A-1 BMP CAPACITIES TO RETAIN THE 85TH PERCENTILE STORM

The required design storm retention volumes for each subwatershed were calculated using the WMMS model. This appendix provides details on the modeling approach to quantify the volume reductions by BMPs included in the initial WMP implementation scenario.

A-2 DATA USED

To evaluate BMP opportunities and available implementation areas, several key data sets were processed and formatted. **Table 0-1** outlines the data set names, formats, descriptions, and sources.

Table 0-1
Summary of Data

Data Set	Format	Description	Source
Parcels	GIS Shapefile	Outlines property boundaries and sizes	Los Angeles County (LAC) Assessor
Roads	GIS Shapefile	Shows street centerline network & classification by Topologically Integrated Geographic Encoding and Referencing (TIGER)	LAC GIS Portal
Land Use	GIS Shapefile	Subdivides the region into predefined land use categories with similar runoff properties. Each individual land use feature identifies the associated percent impervious coverage.	LAC WMMS Model
Subwatersheds	GIS Shapefile	Defines drainage areas to selected outlet points	LAC WMMS Model
Slopes	GIS Shapefile	Classifies regions by the slope category	LAC WMMS Model
Soils	GIS Shapefile	Outlines spatial extents of dominant soil types	LAC GIS Portal
Jurisdictions	GIS Shapefile	Establishes city and county boundaries	LAC GIS Portal
Drainage Network	GIS Shapefile	Identifies stormwater structure layout and conveyance methods	LAC GIS Portal
Groundwater Contours	GIS Shapefile	Illustrates groundwater depth as measured from the surface	LAC BOS
Soil Runoff Coefficient Curves	PDF File	Curves characterize effect of rainfall intensity on runoff coefficient per soil type	Hydrology Manual Appendix C (LADPW 2006)
Aerial Imagery	Layer File	Orthoimage of entire region	ESRI Maps & Data Imagery
Runoff Rates	Time Series	Hourly runoff for land uses for the design storm distribution and continuous simulation	LAC WMMS Model

A-3 NON-MS4 FACILITY RUNOFF

Each jurisdiction in the Group's WMP area is subject to stormwater runoff from non-MS4 facilities. In particular, Caltrans roads and facilities regulated by nontraditional or general industrial permits contribute to the design storm volume for each subwatershed. It will be important for these entities to retain their runoff and/or eliminate their cause/contribution to receiving water exceedances. The runoff from these non-MS4 facilities was therefore estimated and subtracted from the 85th percentile design storm volume target, as described below.

A-3.1 NON-MS4 PERMITTED AREAS

Non-MS4 permitted areas were identified based on the address list of permittees on the State Water Resources Control Board (SWRCB) website. Using the address information, corresponding parcel areas were selected using the LA County Assessor Parcel Viewer and the associated GIS Shapefile. The percentage of permitted land use area relative to the total land use area was calculated and the associated non-MS4 permitted area runoff as extracted from the WMMS runoff response output.

A-3.2 CALTRANS

The design storm runoff generated by Caltrans facilities was estimated using WMMS land use data. Areas labeled as Transportation consist of freeways and other extensive transportation facilities that tend to fall under Caltrans jurisdiction (versus areas labeled as Secondary Roads, which are managed by local transportation departments); these areas were assumed to be Caltrans facilities. Runoff from Transportation land uses, less runoff from any overlapping non-MS4 permitted areas identified above, was extracted from the WMMS model output for each subwatershed.

A-3.3 SUMMARY OF NON-MS4 FACILITY RUNOFF

Runoff volumes estimated for non-MS4 permitted areas and Caltrans were subtracted from the design storm volume to generate the required MS4 treatment capacity in **Table 0-2**.

Table 0-2
Design Storm Volume from Non-MS4 Facilities

Jurisdiction	Total Design Storm Runoff, ac-ft	Estimated Design Storm Runoff Volume from non-MS4 Permitted Facilities, ac-ft	Estimated Design Storm Runoff Volume from Caltrans, ac-ft	Required MS4 Treatment Capacity, ac-ft
Claremont	89.5	0.0	4.3	85.2
La Verne	157.5	26.0	4.6	126.9
Pomona	273.6	41.0	27.6	204.9
San Dimas	144.5	1.6	16.0	126.9
Total	**665.1**	**68.7**	**52.6**	**543.9**

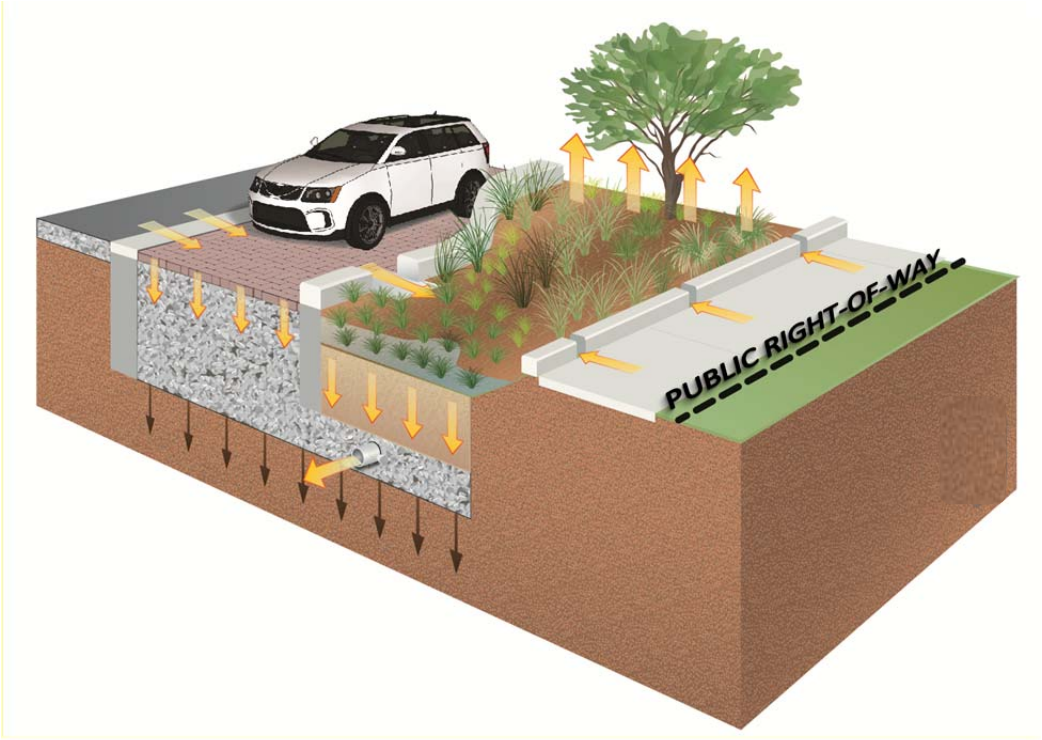
A-3.4 RIGHT-OF-WAY BMP CAPACITY ANALYSIS

In order to highlight the potential structural BMP implementation approaches to retain the 85th percentile storm volumes, a BMP opportunity analysis was conducted. In this section, the right-

of-ways were evaluated for opportunities to locate BMPs. The BMP opportunity analysis described in this subsection evaluates the key components that affect the ability of ROW BMP networks to be effective: space available in the ROW, types of BMPs to site in the ROW, drainage areas that could potentially be treated by ROW BMPs, and estimated BMP infiltration rates.

Stormwater BMPs in the ROW are treatment systems arranged linearly within the street ROW and are designed to reduce runoff volumes and improve runoff water quality from the roadway and adjacent parcels. Implementing BMPs in the ROW provides an opportunity to meet water quality goals by locating BMPs in areas owned or controlled by a municipality to avoid the cost of land acquisition or establishing an easement. Implementing BMPs in the ROW allows for direct control of construction, maintenance, and monitoring activities by the responsible jurisdiction. Bioretention and permeable pavement are typically best suited for implementation in the ROW (**Figure 0-1**).

Figure 0-1
Conceptual schematic of ROW BMPs with an underdrain (Arrows indicate water path ways)



Not all roads are suited for ROW BMP retrofits; therefore, screening is required to eliminate roads where ROW BMP retrofits are impractical or infeasible due to physical constraints. While ROW BMP retrofits can be implemented in a variety of settings, the physical characteristics of the road itself such as the road type, local topography, and depth to groundwater can significantly influence the practicality of designing and constructing these features. A screening protocol was established to identify realistic opportunities for retrofits based on the best available GIS data. The opportunities identified during this process provide the foundation for the engineering analysis to determine the volume of stormwater that can be treated by ROW BMP

retrofits in the subject watersheds. This section describes the data and the screening process used to identify the best available roads for ROW BMP retrofits.

A-3.4.1 ROW BMP Screening

High traffic volumes, speed limits, slopes, and groundwater tables, impact the feasibility of ROW BMP implementation. Road classification data contains information typically useful for determining if the street is subject to high traffic volumes and speeds, and Census TIGER road data provides the best available road classification information for the study area. **Table 0-3** shows the Master Address File (MAF)/TIGER Feature Classification Codes (MTFCC) deemed appropriate for ROW BMP retrofit opportunities. Only roads with the MTFCCs listed in **Table 0-3** can be considered for ROW BMP retrofits in this screening analysis. All other roads are screened out.

Table 0-3
ROW BMP MTFCC

MTFCC	Description
S1400	Local neighborhood road, rural road, city street
S1730	Alley
S1780	Parking lot road

In addition to the screening of road types, opportunities were further screened to remove segments that have steep slopes. BMP implementation on streets with grades greater than 10 percent present engineering challenges that substantially reduce the cost effectiveness of the retrofit opportunity. From the available slope information, roads were considered as retrofit opportunities if the slope was less than 10 percent.

The final screen applied to the roads is the depth to groundwater. Implementing ROW BMPs in areas where the groundwater table is high is not recommended due to the fact that the BMPs are rendered ineffective due to their storage capacity being seriously diminished with groundwater inflow. From the groundwater contours provided, roads were eliminated as opportunities if the depth to groundwater was less than 10 feet. Appendix B, Figure B-1 highlights the areas identified with groundwater depths of 10 feet or less. The highlighted areas provide a starting point for elimination, however it should be noted that further evaluation may be necessary based on local knowledge of areas with high groundwater tables or daylighting of perched groundwater layers as identified by the jurisdictions.

The results of the ROW BMP screening are presented in Appendix B. Appendix B shows the roads available for retrofit (highlighted in green) versus all of the roads within the study area. An overall watershed map and individual jurisdictional maps for each watershed show all the identified retrofit opportunities. The maps indicate that a majority of the roads within each jurisdiction pass through the screening as potential retrofits. It should be noted that due to the coarse nature of the road classification data, only freeways, highways, and major roads were eliminated in the classification screening process. In practice, retrofitting every street that passed through the screening will likely not be feasible and adaptive management strategies will be

necessary in the future to further refine the road classification data layer to more accurately identify road types suitable for ROW BMP retrofits.

The screened opportunities were used as the basis to evaluate the potential runoff volume reduction provided by ROW BMP implementations. In the following section, an engineering assessment is presented that determines the ROW BMP contributing drainage areas and the overall volume reductions achieved through ROW BMP implementation.

A-3.4.2 ROW BMP Configuration

The three most important assumptions necessary to evaluate BMP volume reduction performance are (1) the physical BMP configuration assumptions, (2) the contributing drainage area characteristics, and (3) the in-situ soil infiltration rates. By understanding the area draining to the BMPs and the volume capacity and function of the BMPs, an assessment can be performed to evaluate the potential of ROW retrofit BMPs to capture the required runoff volume in each subwatershed. This section summarizes the information and processes used to establish BMP configuration assumptions to be used for the runoff analysis presented in the following section.

A-3.4.3 BMP Assumptions Based on Green Streets

ROW BMPs consists of multiple types and combinations of stormwater treatment options. A well-established and often utilized ROW BMP is green streets. Green streets provide multiple benefits for pollutant and volume reduction and have been implemented in locations throughout the nation In the future and as updates are made to the WMP, other ROW BMPs may be incorporated to achieve the required volume reductions.

Green streets typically consist of bioretention areas between the curb and sidewalk (herein referred to as the parkway) and/or permeable pavement within the parking lane. Prior to evaluating green street BMP treatment capacity, it is imperative to establish a configuration that can be assumed for typical implementation watershed-wide. This establishes the parkway space needed for the BMPs (plan view) and also determines the hydraulic function and storage capacity of the subsurface systems.

Bioretention systems are surface and subsurface water filtration systems, which use vegetation and underlying soils to store, filter, and reduce runoff volume while removing pollutants. **Figure 0-2** represents a typical bioretention system incorporated into a green street design. Bioretention systems consist of a ponding depth and engineered soil media depth to treat runoff. **Table 0-4** outlines typical widths, depths, and soil parameters associated with green street bioretention cells. Green streets were assumed to have no underdrains because the WMP emphasizes low impact development and stormwater volume reduction to achieve pollutant load reductions.

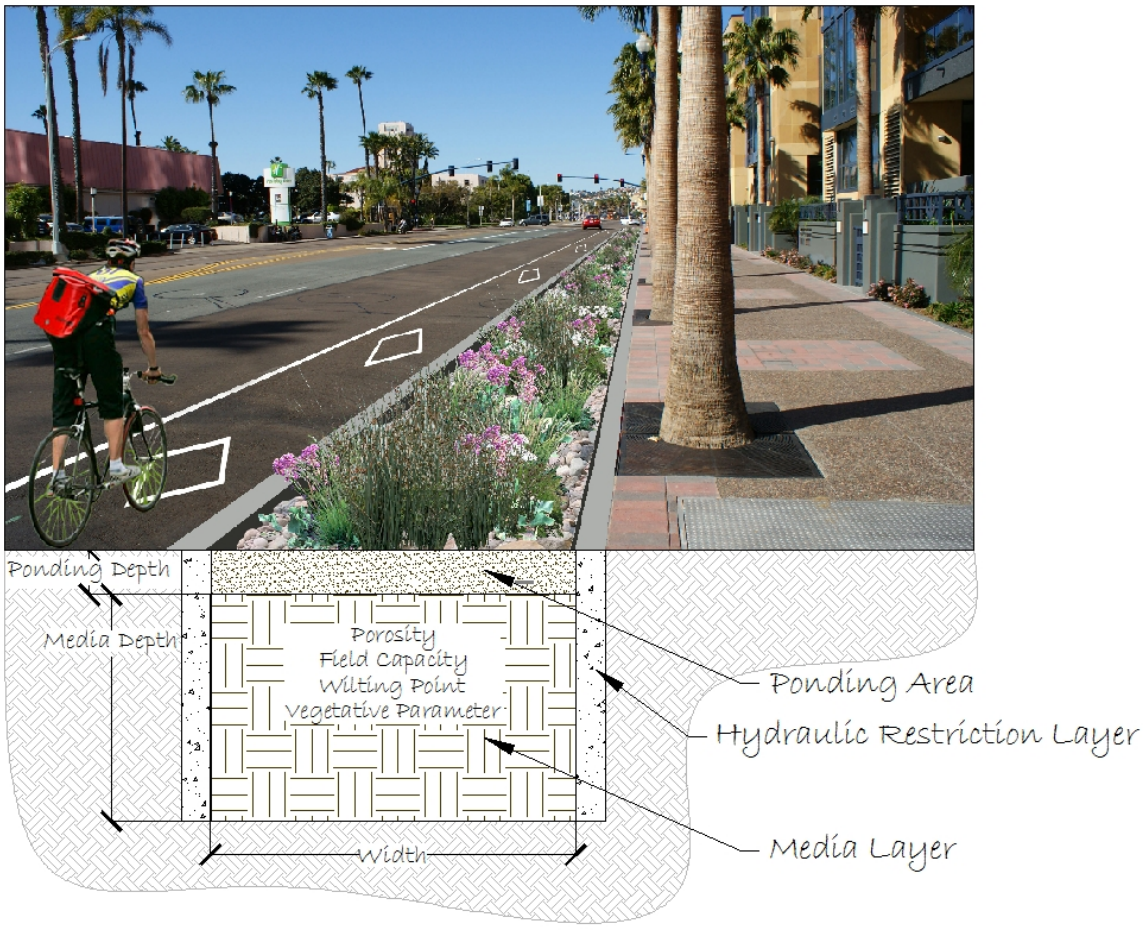
Driveways and utilities limit the road length that can be converted into a green street. From past experience and aerial imagery review in the local watersheds, it was determined that 30 percent of the road length could be considered as the maximum possibility for conversion into bioretention area. This factor was used to limit the total length of potential green street bioretention areas. The parameters outlined above and in the table below were assumed to be the typical green street BMP implementation configuration for the screening analysis and the BMP treatment capacity evaluation described in the next section.

Table 0-4
BMP Design and Modeling Parameters for Subsequent Analyses

Component	Design Parameter	Value
Ponding Area	Depth	0.8 feet
	Width	4.0 feet
Media Layer	Depth	3.0 feet
	Porosity	0.4
Overall Profile	Effective Depth[1]	2.0 feet

[1] Effective depth is the maximum equivalent depth of water stored within the bioretention area less the depth displaced by soil media (vertical summation of surface ponding depth and void storage depth)

Figure 0-2
Typical Bioretention Section View (City of San Diego 2011)

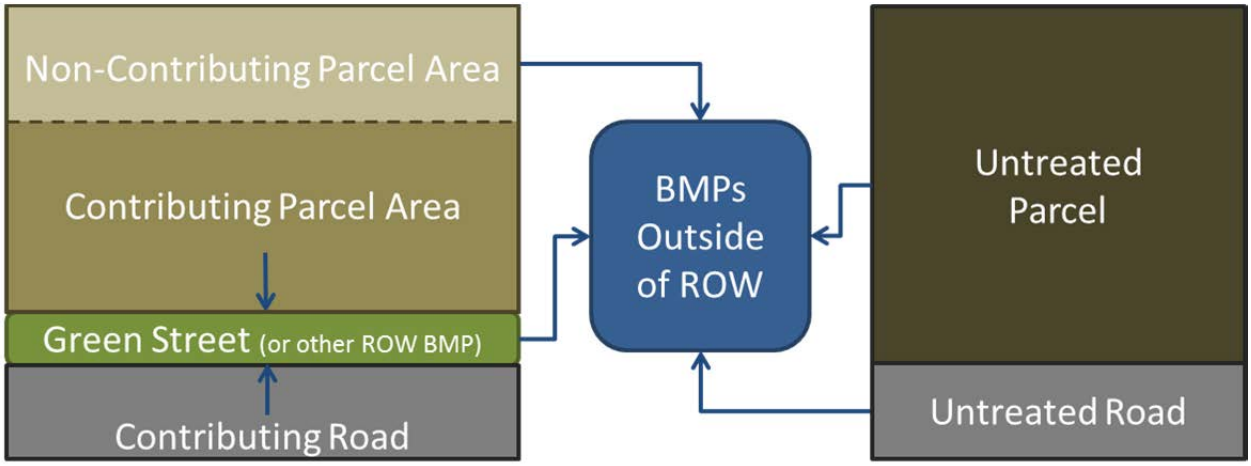


A-3.4.3.1 Contributing Drainage Area Analysis

The purpose of this analysis was to realistically represent the area, type, and impervious coverage of land draining to potential green streets throughout the entire watershed. This is a critical step in WMP development because it predicts what volume of runoff can be assumed treated by green streets and what remaining (untreated) runoff must be routed to regional BMPs

or addressed in other ways. The following engineering analyses were performed at a subwatershed-scale within the limits of available data and resources to estimate the maximum potential green street treatment capacity; given more detailed street-by-street drainage area data, the assumptions and results presented herein could be refined in future efforts to optimize green street treatment capacity. **Figure 0-3** illustrates a simplified routing schematic used to represent the available runoff flow pathways to green street and regional BMPs throughout the watershed. The following subsections explain how each representative drainage area illustrated in **Figure 0-3** was characterized.

Figure 0-3
Green Streets Model Schematic (arrows denote direction of runoff routing; figure not to scale)



A-3.4.3.2 Typical Parcel Size & Street Frontage Analysis

The nature of the green street analysis requires an understanding of typical parcel sizes and how much of the parcel drains to the ROW. Much of the runoff from parcels and the road drains to the ROW and is conveyed downstream through curb, gutter, and pipes. By identifying the typical parcel size, frontage length, and associated road area that drains to a candidate right-of-way area (**Figure 0-4**) the total area draining to potential green street retrofit opportunities was extrapolated throughout the watershed. For purposes of this study, only the high-density residential, multifamily residential, commercial, institutional, and industrial land uses were considered as contributing substantial runoff to the ROW (all other land uses contain minimal impervious area and thus contribute insubstantial runoff to the ROW).

The typical parcel size for each land use was determined by identifying all parcels for each land use. Once all the parcels were selected, the median parcel size for each land use was calculated and tabulated. This method evaluated thousands of parcels throughout the entire watershed and provided the most accurate depiction of the typical parcel size for each land use based on available data. Results are shown in **Table 0-5**.

Each parcel is adjacent to a portion of the ROW where the green street would be implemented. A subset of parcels approximate to the median parcel size for each land use was selected to determine the average frontage length. The portion of the selected parcels that was in contact with the ROW was measured using desktop analysis tools and averaged between all parcels of the same land use. Results are shown in **Table 0-5**.

Road area draining to green streets constitutes a substantial component of the total impervious drainage area. To establish road drainage areas, typical road widths were defined by sampling representative road segments located in each land use. Widths were measured from curb-to-curb using aerial orthoimagery and reported to the nearest even integer. The median sampled road width for each land use was calculated and compared with the City of Los Angeles Standard Street Dimensions (City of Los Angeles Bureau of Engineering 1999) for validation. To predict the resulting contributing road areas, the previously measured frontage length was multiplied by half the road width. Roads were assumed to be crowned; therefore, only half of the width would drain to one side of the road. Results are shown in **Table 0-5**.

As discussed in Section A-3.4.3, only 30 percent of the frontage length could be converted into bioretention area. This factor was multiplied by the frontage length and used in limiting the total length of bioretention available within the model, as presented in **Table 0-5**.

Figure 0-4
Typical Parcel Area, Road Width, Road Area, and Frontage Length Schematic (figure not to scale)

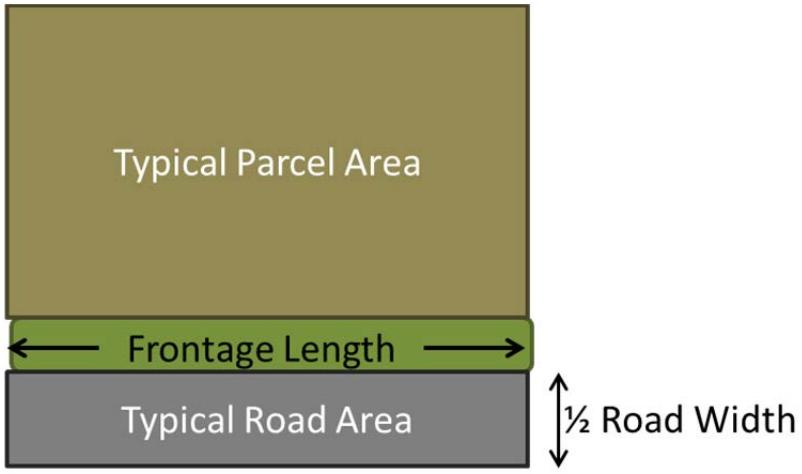


Table 0-5
Typical parcel area, road area, and frontage length

Land Use	Typical Parcel Area, ft^2	Frontage Length, ft	Typical Road Width, ft	Typical Road Area, ft^2	BMP Length, ft
High-density Residential	6,528	57	38	1,083	17
Multifamily Residential	13,526	60	30	900	18
Commercial	12,429	100	63	3,150	30
Institutional	38,215	143	37	2,646	43
Industrial	26,467	117	46	2,691	35
Other Land Use (Open Space, Vacant, etc.)	n/a[1]	100	40	2,000	30

[1] assumed not draining to ROW

A-3.4.3.3 Contributing Parcel Area Analysis

Many parcels will not always entirely drain to the ROW because portions can be retained on-site or flow onto an adjacent property. The actual volume of water that can be treated by a green street BMP was determined by identifying the typical proportion of the parcel that drains to the ROW (as shown in context of the model schematic in **Figure 0-5**). This step also determines the area, and associated runoff, that is *not* expected to drain to green streets and is routed directly to downstream regional facilities or other practices (herein referred to as non-contributing parcel area).

The contributing areas to the green street BMPs were found using random sampling and identifying the surrounding parcel drainage patterns. Parcels were selected using a random number generator and drainage areas were determined on a desktop analysis using topography, aerial imagery, and drainage infrastructure features. The average contributing percentage was identified by evaluating multiple sites. **Table 0-6** shows the percent contributing areas by land use that were determined from this analysis.

The impervious coverage of contributing parcel areas was also characterized during this step so that runoff could be simulated and routed to green streets in each land use. This was performed by tabulating the imperviousness data from the WMMS Model for each individual land use feature. The area-weighted mean impervious coverage was then calculated for each land use type. Results are tabulated for each land use in **Table 0-6**.

Figure 0-5
Parcel Contributing Area to ROW (impervious varies by land use; arrows denote direction of runoff routing; figure not to scale)

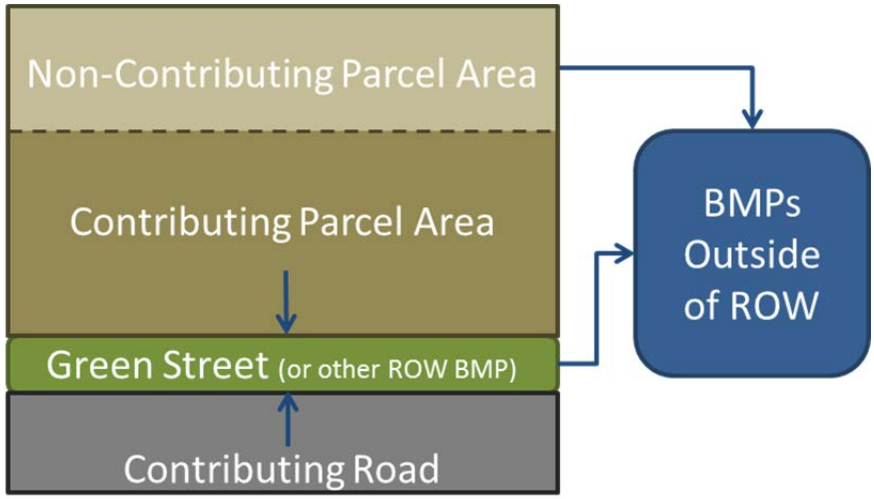


Table 0-6
Contributing area percentage by land use

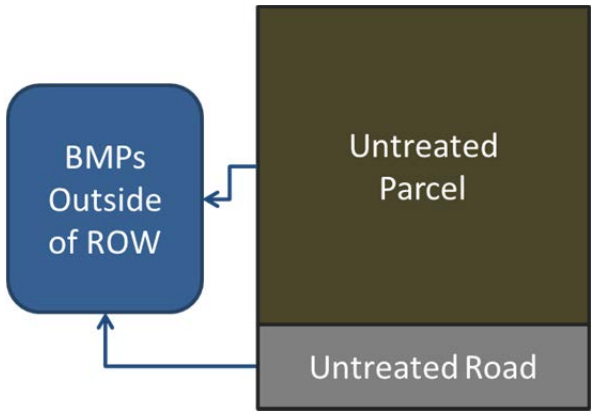
Land Use	Contributing to ROW	Non-contributing to ROW	Percent Impervious
High-density Residential	80%	20%	36%
Multifamily Residential	80%	20%	60%
Commercial	80%	20%	90%
Institutional	80%	20%	72%
Industrial	35%	65%	66%
Other Land Use (Open Space, Vacant, etc.)	0%	100%	n/a

A-3.4.3.4 Untreated Roads Tabulation

Untreated roads consist of roadways with steep slopes, classifications not suited for green street implementation, or adjacent to open space or vacant parcels. Untreated road and associated adjacent parcel area that will ultimately drain to other BMPs was tabulated using available GIS data and screening results from Section A-3.4.1 (conceptually illustrated in **Figure 0-6**).

Because green streets are implemented in the linear environment of the transportation corridor, it was assumed that the percentage of parcel area draining to green streets would be proportional to the percentage of suitable roads for green streets (as identified in Section A-3.4.1) in each subwatershed. In other words, parcels associated with unsuitable roads were assumed to bypass green street treatment and routed directly to other facilities (these areas are defined herein as *untreated parcels*). The total treated and untreated parcel areas were reconciled with the total areas of each land use (per subwatershed) in the WMMS Model for validation and consistency.

Figure 0-6
Schematic Depicting Untreated Parcel and Untreated Road Runoff Routing (arrows denote direction of runoff routing; figure not to scale)



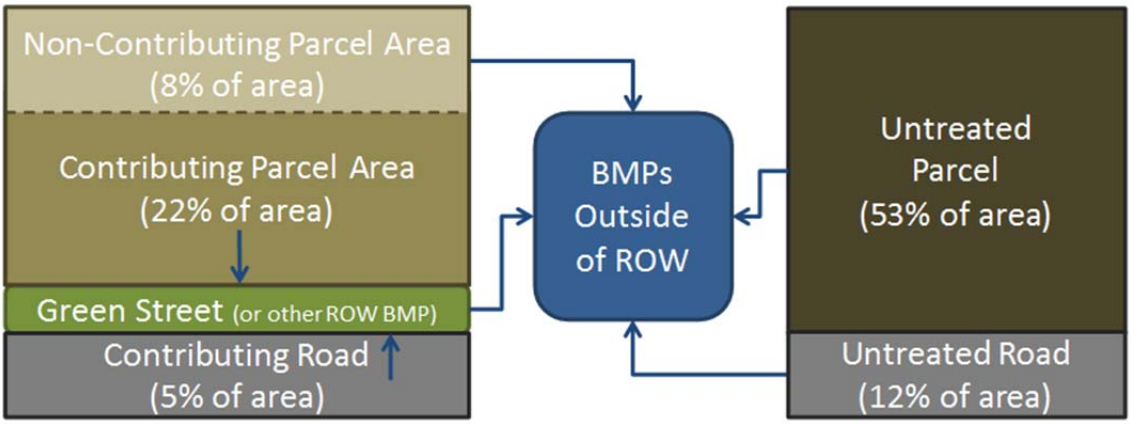
A-3.4.3.5 Summary of Contributing Drainage Areas

Results of the preceding analyses are presented in **Figure 0-7**. Areas that were assumed *un*treated by green streets include unsuitable roads and adjacent parcels, portions of suitable parcels that do not drain to the ROW, and predominantly pervious parcels (Open Space, Vacant, etc.), as discussed in preceding subsections; runoff from these untreated areas is assumed routed

directly to regional facilities. Note that contributing areas are not necessarily proportional to contributing runoff due to variation in impervious coverage; runoff routing resulting from the preceding analyses is presented in the following section.

Given more detailed street-by-street engineering analyses, the potential area treated by green streets could be optimized, but the results below represent realistic estimates based on sound engineering judgment and currently available data and resources. Adaptive management strategies could target specific land uses that tend to bypass green street treatment (e.g. runoff, and associated treatment capacity, generated by industrial areas could be addressed through relevant industrial permits or onsite BMPs). Additional discussion on adaptive management strategies is provided in Section A-4.

Figure 0-7
Schematic Depicting Contributing Area Routing as Percentages of the Total Watershed Area (arrows denote direction of flow; figure not to scale)



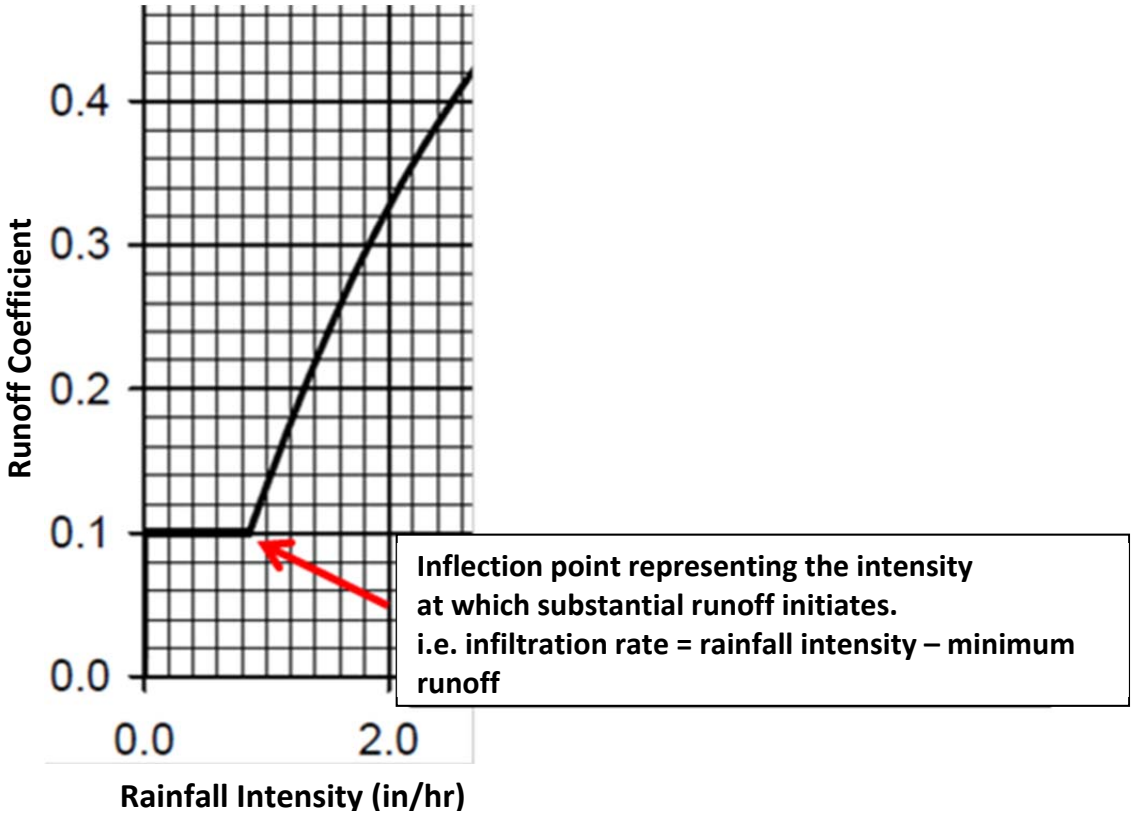
A-3.4.3.6 BMP Infiltration Rates By Subwatershed

The purpose of performing the subwatershed infiltration rate analysis was to assign an average green street BMP infiltration rate to each subwatershed using soils data. Infiltration rates were assigned at the subwatershed level, which is the finest resolution at which the model performs hydrologic and water quality computations.

Soil data coverage provided through the LACDPW categorized soil unit areas into soil types. Runoff coefficient curves reported in the Hydrology Manual were developed by LACDPW for each soil type using double ring infiltrometer tests performed on areas of homogeneous runoff characteristics (LACDPW 2006). LADPW employed a sprinkling-type infiltrometer to perform the tests in each homogeneous area.

Runoff coefficient curves represent the response of the runoff coefficient (defined as the ratio of runoff to rainfall from a land area) to varying rainfall intensities. Each curve displays an inflection point representing the rainfall intensity at which substantial runoff initiates. According to LADPW (2006), each curve was assigned a minimum runoff coefficient of 0.1, “indicating that there is some runoff even at the smallest rainfall intensities.” If it is assumed that substantial runoff initiates when the intensity of rainfall is greater than the soil’s inherent infiltration rate, then the infiltration rate can be assumed equal to the rainfall intensity at the inflection point (less the assumed minimum runoff).

Figure 0-8
Example Determination of Runoff Coefficient Inflection Point for an Arbitrary Soil Type in Appendix C of LACDPW (2006)

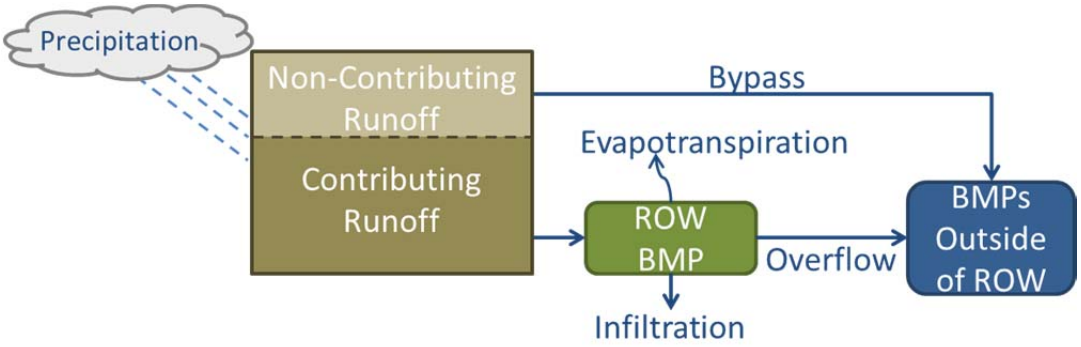


The inflection point, and subsequently calculated infiltration rate, for each unique soil type in the ESGV WMP area were identified using the runoff coefficient curves in Appendix C of the *Hydrology Manual* (LADPW 2006). Subwatershed areas were then intersected with the soil type coverage to calculate an area-weighted infiltration rate. Appendix B shows the distribution of the infiltration rates.

A-3.4.4 Summary of Planning-Level ROW BMP Capacities

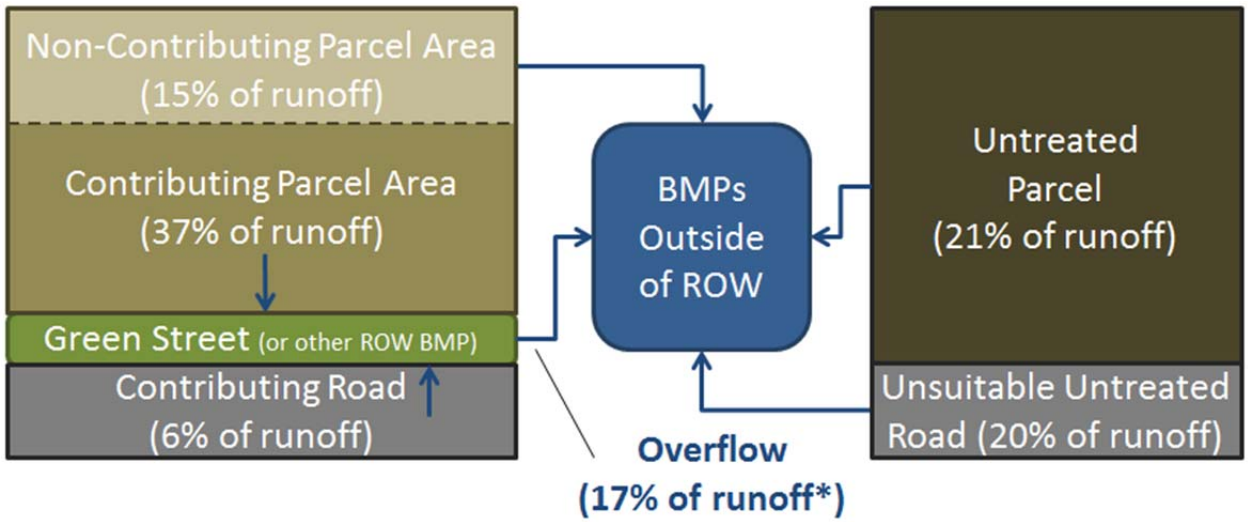
To accurately predict the runoff reduction provided by green streets, BMP models were set up using the BMP tools in WMMS. The contributing drainage area properties, BMP configuration, and infiltration rates for each subwatershed as described in the previous section were used as input into the analysis. The BMP tool in WMMS represents the hydrologic conditions of each subwatershed from runoff to BMP performance to bypass. It is best understood by following the runoff flow path through a typical watershed. Each land use is assigned a runoff time series which is routed to either a BMP or as bypass. The runoff routed to the BMP serves as the inflow and fills up the available ponding depth and the soil media void space. While the storage area fills, the BMP outflows through infiltration and evapotranspiration. Once the storage area is full, the water overflows, which is then routed downstream to another BMP. **Figure 0-9** shows the simple BMP runoff flow paths.

Figure 0-9
Green Streets Runoff Routing Model Schematic (arrows denote water pathways)



Based on the routing configuration findings outlined in A-3.4.2 and the BMP modeling analysis, up to 43 percent of the watershed runoff drains to the identified green street retrofit locations (with 26 percent being captured by the BMPs and 17 percent overflowing downstream). The remainder of the watershed runoff (57 percent of the total) must be managed through other volume reduction strategies.

Figure 0-10
Summary of Runoff Routing by Area (arrows denote direction of runoff routing; figure not to scale)



*Note: Overflow from green streets is the difference between the contributing parcel and roadway runoff less the green street volume reduction of 26%.

A-3.5 NON-ROW BMP CAPACITY ASSESSMENT

Excess volume that does not drain to the ROW or is unable to be captured by ROW BMPs (due to overflowing) must be retained through non-ROW BMPs. These non-ROW BMPs potentially include the following:

- Low impact development retrofit projects to retain runoff from public parcels (e.g., permeable pavement in parking lots of municipal buildings, bioretention areas or green roofs to prevent runoff from municipal facilities, etc.)
- Retention of runoff from new and redeveloped private parcels subject to LID ordinances.

- Programs on private parcels to promote infiltration or retention of rooftop runoff, including downspout disconnection or rain barrel incentive programs.
- Regional BMPs to capture and retain runoff from large upstream areas prior to discharge to receiving waters.

The following non-ROW BMP capacity assessment was performed as a planning-level exercise to help guide strategies for retaining the 85th percentile storm volume in each subwatershed. The resulting capacities can be used as a baseline goal for meeting numeric targets, but adaptive management should be used to refine these strategies over time.

A-3.5.1 LID on Public Parcels

Retrofitting public parcels with LID can be an efficient strategy for reducing stormwater runoff. This method allows municipalities the flexibility to prioritize and schedule stormwater projects to coincide with improvements that are already on the books (such as scheduled parking lot resurfacing, utility work, and public park improvements). Implementing LID on public parcels also allows municipalities the freedom to construct, inspect, and maintain BMPs without the need to purchase private property or to create stormwater easements.

The spatial extent of public parcels in each subwatershed was identified by selecting all parcels labeled as public by their assessors identification number (AIN). A total of 7,320 acres of public land was identified during this process (35% of the total WMP area). Runoff generated by each specific public parcel during the 85th-percentile, 24-hour storm was then extracted from the WMMS model output, and the runoff from any Caltrans or permitted non-MS4 land that overlapped public parcels was subtracted to avoid double-counting. The remaining runoff volume represented the maximum potential design storm runoff to be retained on public parcels.

LID retrofits are not feasible in all locations due to steep slopes, soil contamination hazards, and other constrains. The total runoff to be retained on public parcels was therefore discounted by 30% in order to provide a more realistic goal; this estimate was made in the lack of more detailed data, based on past LID screening exercises performed in Los Angeles County. The discount factor should be refined as actual public project sites are screened and prioritized.

A-3.5.2 LID on Private Parcels from (Re)Development

The Permit requires initiation of LID ordinances that require implementation of LID BMPs during new development and redevelopment. LID practices constructed during *new* development will likely have a net zero impact on runoff volumes because predevelopment conditions will theoretically be restored to the site via construction of new BMPs; however, LID incorporated into *re*development projects will reduce existing runoff volumes discharged by the MS4 because existing impervious surfaces will be retrofit with BMPs.

To estimate the impact of redevelopment on meeting the design storm runoff target, redevelopment data were submitted by the jurisdictions. Typical parcel sizes and redevelopment rates (in terms of parcels per year) were evaluated based on at least two years of submitted data to estimate the total private parcel area to be redeveloped (and subsequently retrofit with BMPs) per year. Public parcels were not considered in this analysis because they were previously considered in Section A-3.5.1.

The redevelopment rates were applied regionally to multi-family residential, commercial, and institutional land use areas throughout each subwatershed, and it was assumed that all runoff from the redeveloped area would be retained at the end of the compliance schedule (2026). High-density single-family land uses were not considered because the area threshold that triggers a redevelopment project (5,000 square feet of new/replaced impervious area) would not commonly be surpassed on single family parcels. Industrial land uses were also not considered because these analyses could potentially overlap with areas already regulated under non-MS4 stormwater permits.

Table 0-7
Estimated redevelopment rates reported by jurisdiction

Jurisdiction	Typical Redeveloped Parcel Size (ac)	Mean Land Area Redevelopment Rate (ac/year)
Claremont	1.25	8.125
La Verne	2	2
Pomona	8	90
San Dimas	4.8	4.176

A-3.5.3 Downspout Disconnection Program

Impervious surfaces are considered *directly connected* when runoff is routed to the storm drain system without providing opportunities for infiltration. The rate and volume of runoff entering the MS4 can be reduced by disconnecting impervious surfaces, (such as rooftops with downspouts plumbed to the gutter or storm drain) such that runoff is afforded the chance to be stored, infiltrated, and/or evapotranspired.

To simulate a downspout disconnection program, it was assumed that disconnections would be performed on high-density single-family residential, multi-family residential, and institutional land uses because structures in these land uses tend to be surrounded by open space such as lawns, open space, and playgrounds (vis-à-vis commercial and industrial land uses that tend to have pavement and sidewalks abutting the buildings). Next, it was assumed that 10%, 50%, and 50% of high-density single-family residential, multi-family residential, and institutional land uses are directly connected, respectively. This was a planning-level estimate that was made in the lack of more detailed data and is considered conservative considering many currently disconnected downspouts are in fact routed to driveways, curbside drains, and compacted urban lawns.

Downspout disconnection was simulated by modeling the unit hydrology of downspout disconnection for each combination of considered land use and underlying soil infiltration rate. Only private parcels were considered for this analysis because runoff reduction on public parcels was already considered in Section A-3.5.1. Typical dimensions and drainage area ratios of rooftop to open space for each considered land use were defined using aerial orthoimagery and it was assumed that runoff exiting a disconnected downspout would disperse at a 45˚-angle until encountering the parcel boundary. Depressional storage for open space to which runoff was routed was assumed to be 0.1 inches per ASCE (1992). The unit hydrologic response of

disconnected parcels was then extrapolated for each private parcel - land use – infiltration rate combination within each subwatershed.

As mentioned above, it is important to note that the effective directly connected area eligible for a disconnection program may be much larger than the considered area because many "disconnected" downspouts are routed to driveways or compacted urban lawns. Downspout disconnection programs should offer incentives for property owners who truly disconnect their rooftop by incorporating stormwater harvesting and retention practices such as rain barrels, rain gardens, and/or soil amendments.

A-3.5.4 Summary of Planning-Level Non-ROW BMP Capacities

The following table (**Table 0-8**) summarizes the percent reduction in design storm runoff (excluding non-MS4 runoff) that could potentially be achieved by BMPs outside of the ROW.

Table 0-8
Overall Jurisdictional Requirements to Retain the Design Storm Volume

Jurisdiction	Potential Reduction in MS4 Design Storm Runoff From Non-ROW BMPs, ac-ft (percentage of MS4 treatment capacity)			
	LID on Public Parcels	LID on Private Parcels	Downspout Disconnection	Total per Jurisdiction
Claremont	5.05 (6%)	4.31 (5%)	3.30 (4%)	12.66 (15%)
La Verne	6.91 (5%)	1.08 (1%)	5.35 (4%)	13.34 (11%)
Pomona	17.41 (8%)	29.06 (14%)	6.71 (3%)	53.18 (26%)
San Dimas	8.44 (7%)	1.78 (1%)	4.50 (4%)	14.72 (12%)
Total per BMP (ESGV-wide)	**37.82 (7%)**	**36.23 (7%)**	**19.86 (4%)**	**Grand Total = 93.91 (17%)**

A-4 Adaptive Management Strategy for Achieving BMP Capacities

Expansive networks of BMPs that will be required to retain the design storm volumes for each jurisdiction. As BMPs are implemented, the experience gained can and should be used to improve the reduction strategy approach and associated analyses. This section summarizes potential methods to either [1] increase the effectiveness/capacity of ROW BMPs or [2] reduce the total runoff that is not retained by ROW BMPs.

A-4.1 OVERFLOW FROM ROW BMPS

The RAA highlighted only bioretention as a BMP option for green streets. Permeable pavement could also be implemented within the ROW to increase the storage capacity and reduce the BMP overflow. Preliminary findings indicate that inclusion of permeable pavement with all modeled green street opportunities could result in full retention of the design storm runoff from the contributing areas, which would eliminate green street overflows and increase the total green street reduction from 37 percent to 52 percent.

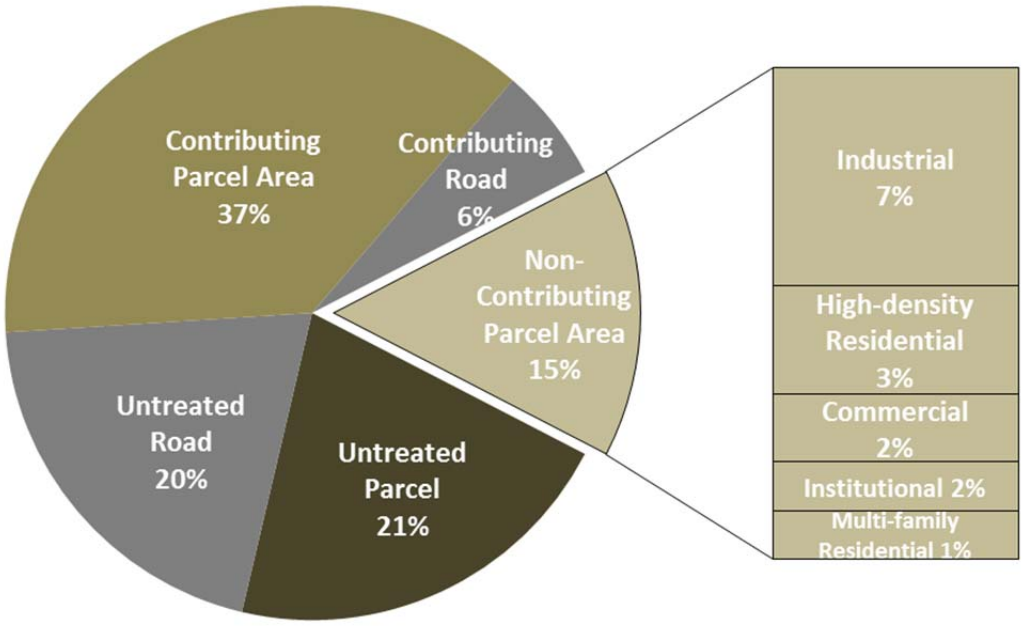
In the course of the RAA, the available area for ROW BMP implementation was limited to 30 percent of the road length (see Section A-3.4.3). This assumption limits the area for implementation and results in overflow when green streets reach their maximum capacity. To limit the overflow, the maximum extent of ROW BMP implementation along streets could be increased; however, this percentage should only be adjusted on a street-by-street basis upon more detailed investigation of the watershed.

A-4.2 PARCEL AREAS THAT DO NOT DRAIN TO ROW WHERE ROW BMPS ARE SUITABLE

As described in Section A-3.4.3, many parcels include areas that do not contribute runoff to adjacent streets that are candidates for green street retrofits. Based on the current assumptions, approximately 15 percent of the excess runoff comes from the non-contributing parcel area (**Figure 0-11**). To decrease this excess runoff, the assumed contributing percentages can be adjusted based on a deeper understanding of the watershed and local observations.

Typical industrial and large commercial parcels include on-site collection systems that are directly connected to the storm sewer system and thus bypass any opportunity for treatment through green streets. Programs may be possible to promote on-site capture of commercial/industrial stormwater runoff that would reduce the overall runoff and decrease the total volume required for treatment with regional BMPs. For example, a low-impact development retrofit program that targeted the directly connected areas of industrial parcels might be one way to address the 7 percent of untreated runoff generated from this land use (**Figure 0-11**).

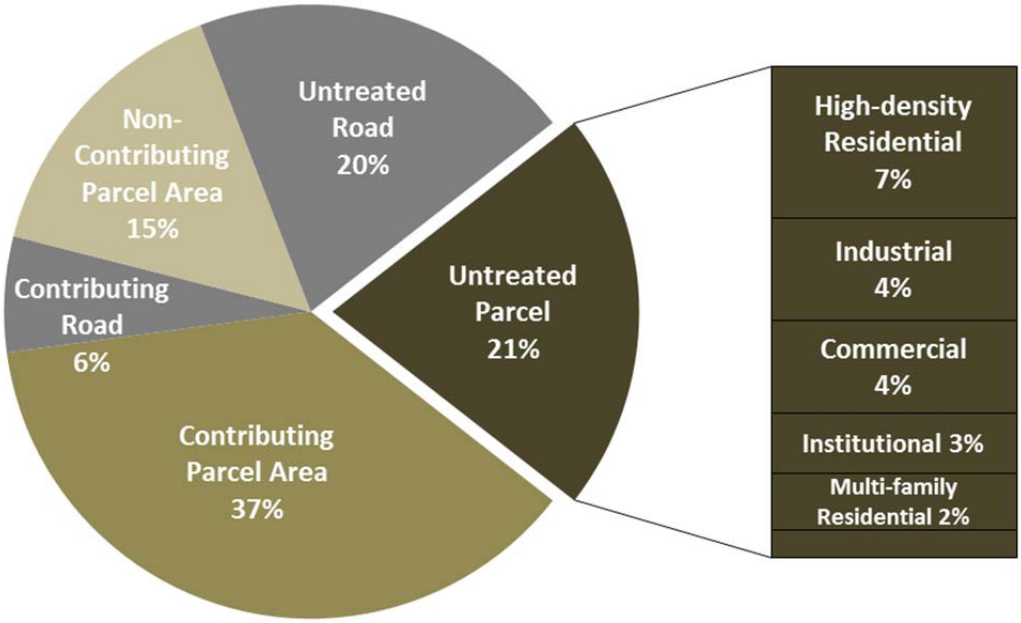
Figure 0-11
Runoff Distribution and Routing Emphasizing Runoff from Areas that do not Drain to the ROW



A-4.3 UNTREATED PARCELS

The majority of land area (53 percent) analyzed in this study were classified as "untreated parcels" (**Figure 0-7**). Untreated parcels include open space and parcels that are adjacent to roads deemed unsuitable for green street retrofit (see Section A-3.4.3). While open space comprises much of the land in this area, the runoff generated from open space parcels during the design storm scenario is small compared to urbanized areas. The majority of the untreated runoff is generated from the developed parcels that drain to roads deemed unsuitable for green street retrofits (**Figure 0-12**). Since this area contributes 21 percent of all runoff for the design storm, it is likely that non-ROW capture strategies will need to be considered. Similar to the example provided under Non-Draining Parcel Area subheading above, low-impact development retrofit incentive programs could be explored as non-ROW BMPs (however, it should be noted that low-impact development may be difficult in some of these areas because unsuitable roads were often eliminated due to high slopes). Other non-ROW BMPs that may also be considered includes regional BMPs.

Figure 0-12
Runoff Distribution and Routing Emphasizing Runoff from Untreated Parcels



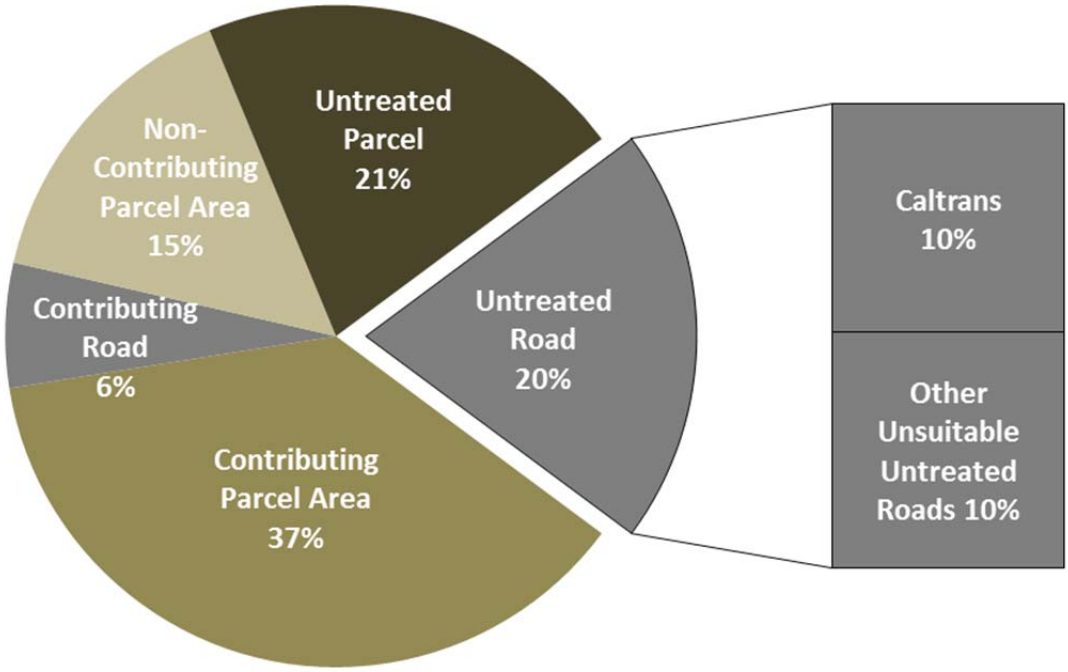
A-4.4 UNTREATED ROADS

Untreated roads consist of roadways with steep slopes, classifications not suited for green street implementation, or open space or vacant parcels adjacent. The majority of the roads identified were freeways and highways. The freeways and highways contribute 10 percent of the total runoff to the storm sewer system (**Figure 0-13**). As discussed in Section A-3, the excess runoff

from freeways and highways fall under the jurisdiction of Caltrans and are not under the charge of the MS4.

Other unsuitable, untreatable roads contribute 10 percent of the total runoff. Other unsuitable, untreatable roads with appropriate slopes can implement green streets to solely treat *roadway* runoff in situations where the adjacent parcels are expected to contribute insignificant runoff or where runoff is conveyed away from the ROW. For instance, green streets sited along predominantly pervious parcels (those classified as Open Space, Vacant, etc.) would primarily capture and treat runoff only from the road surface. This procedure can identify the additional potential road drainage area that can be treated through ROW BMPs.

Figure 0-13
Runoff Distribution and Routing Emphasizing Runoff from Untreated Roads



Appendix B

Additional Details and Supporting Information on BMP Modeling

Figure B-1
Potential High Groundwater Areas

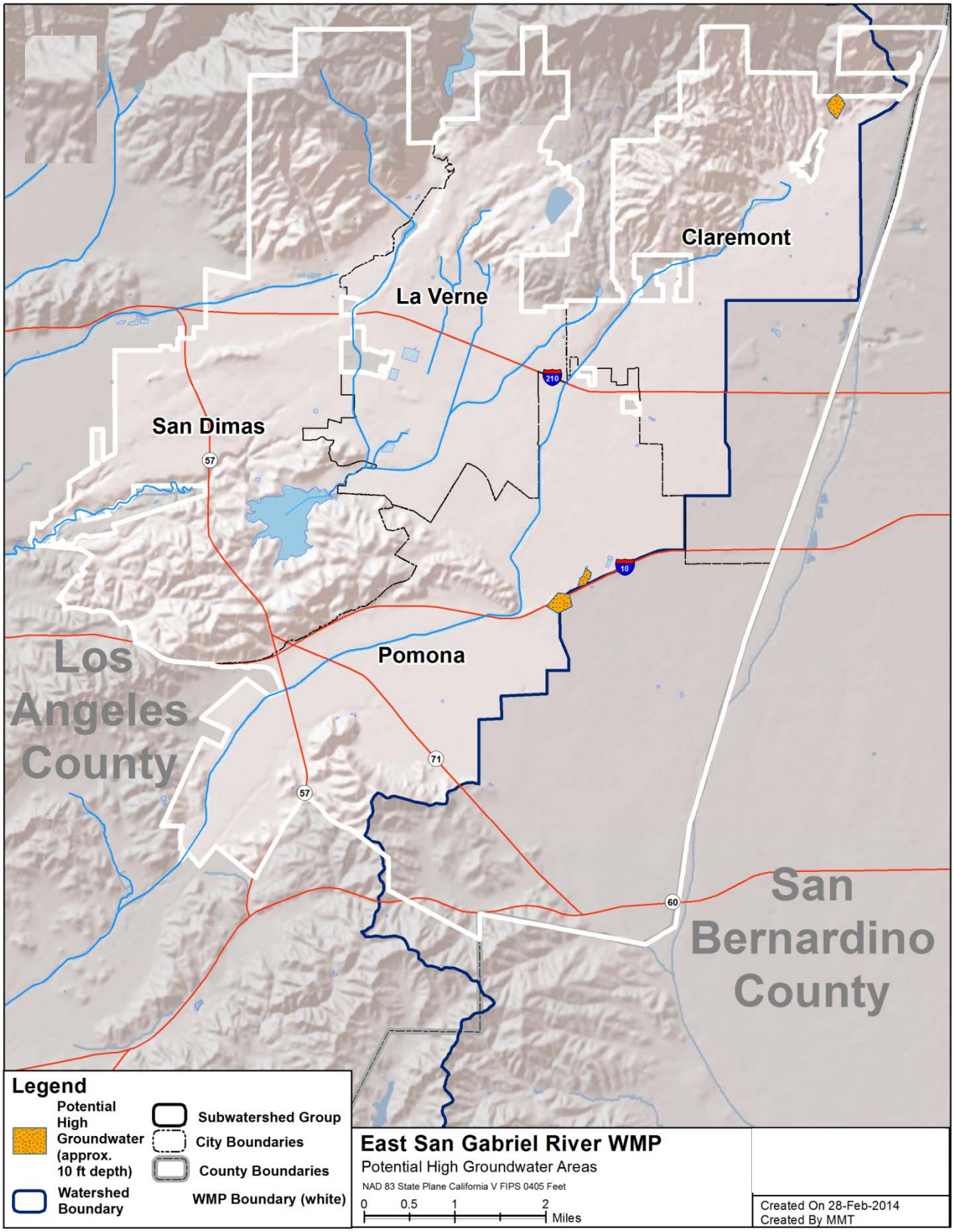


Figure B-2
ROW BMP Potential Opportunities

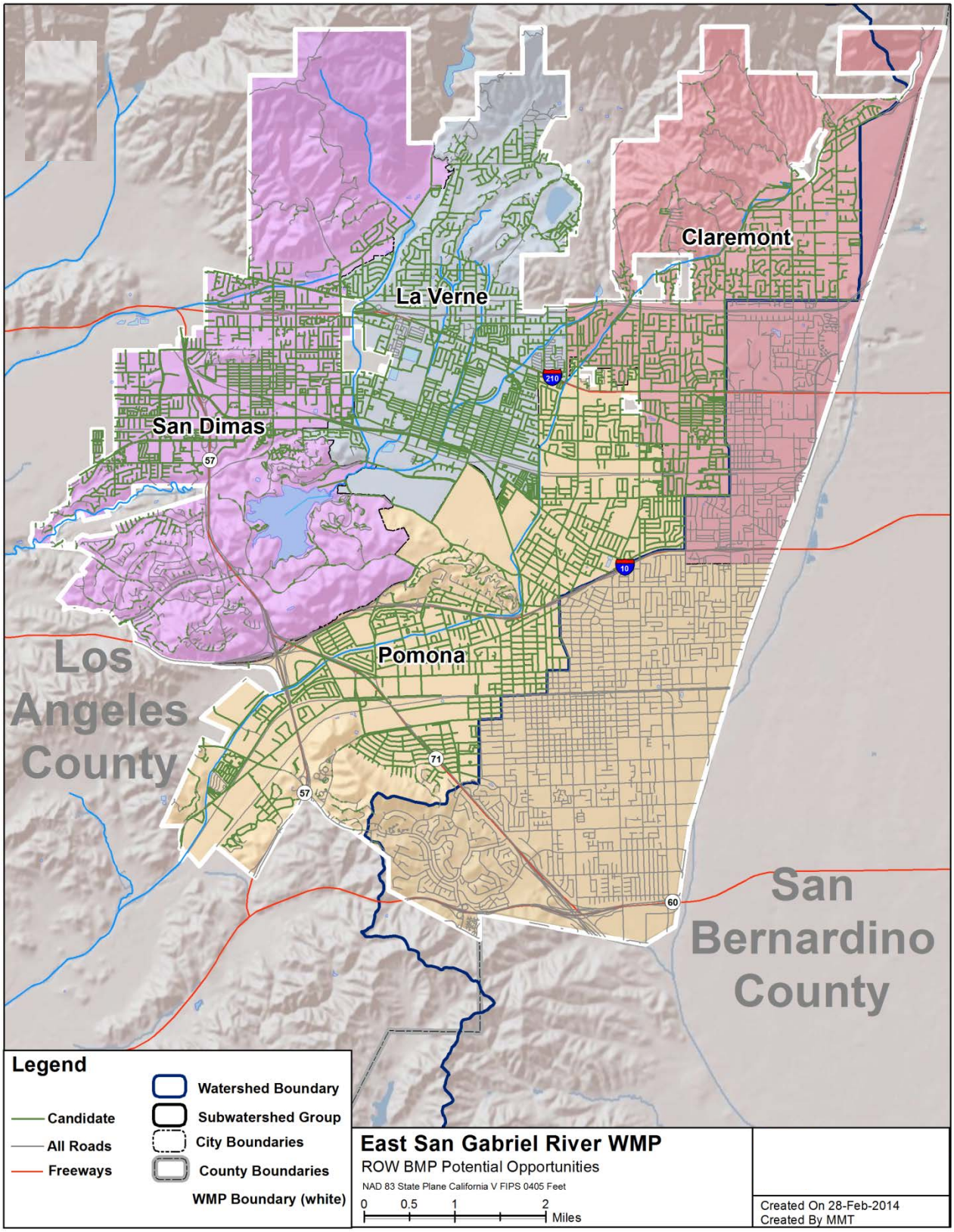


Figure B-3
ROW BMP Potential Opportunities – City of Claremont

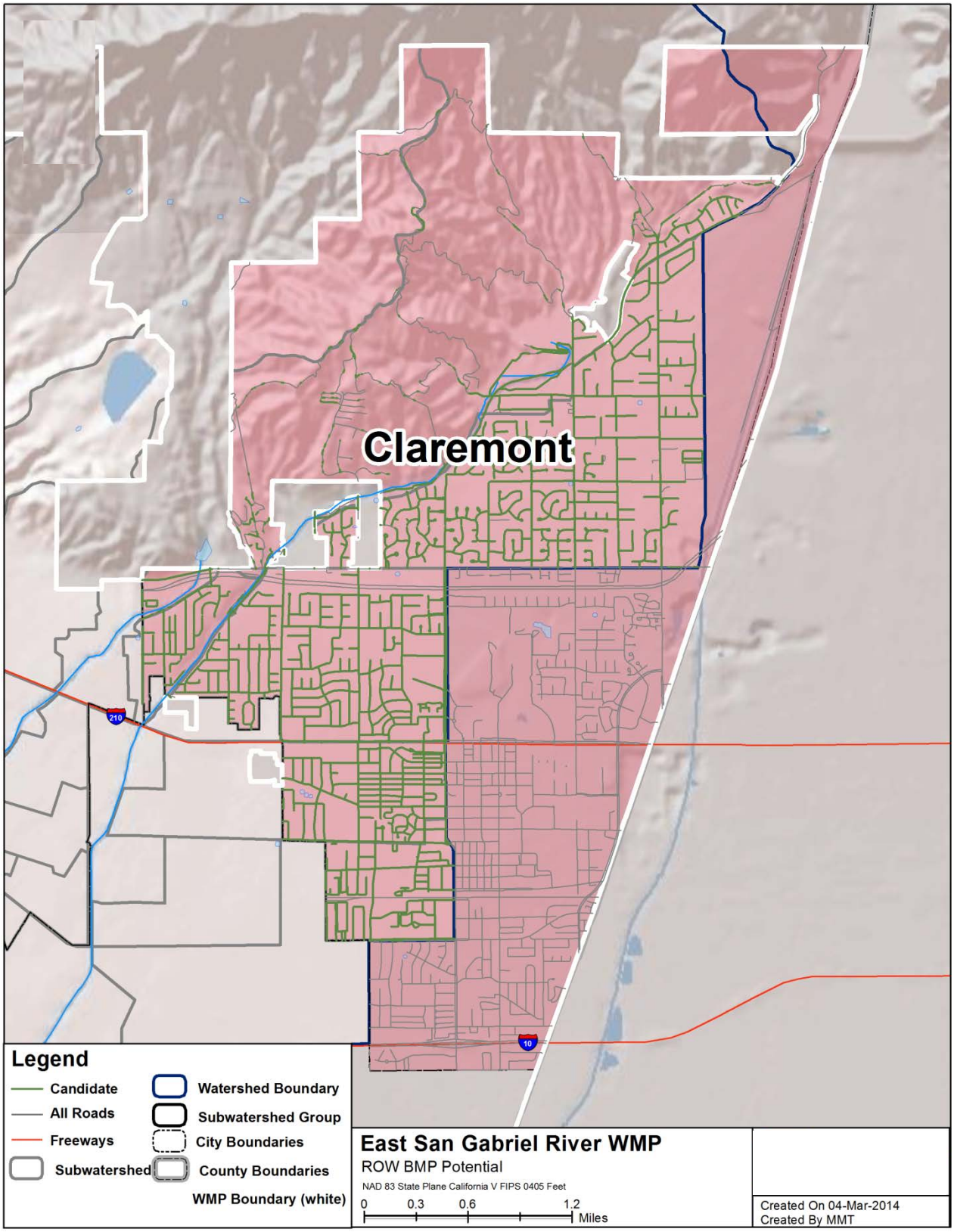


Figure B-4
ROW BMP Potential Opportunities – City of La Verne

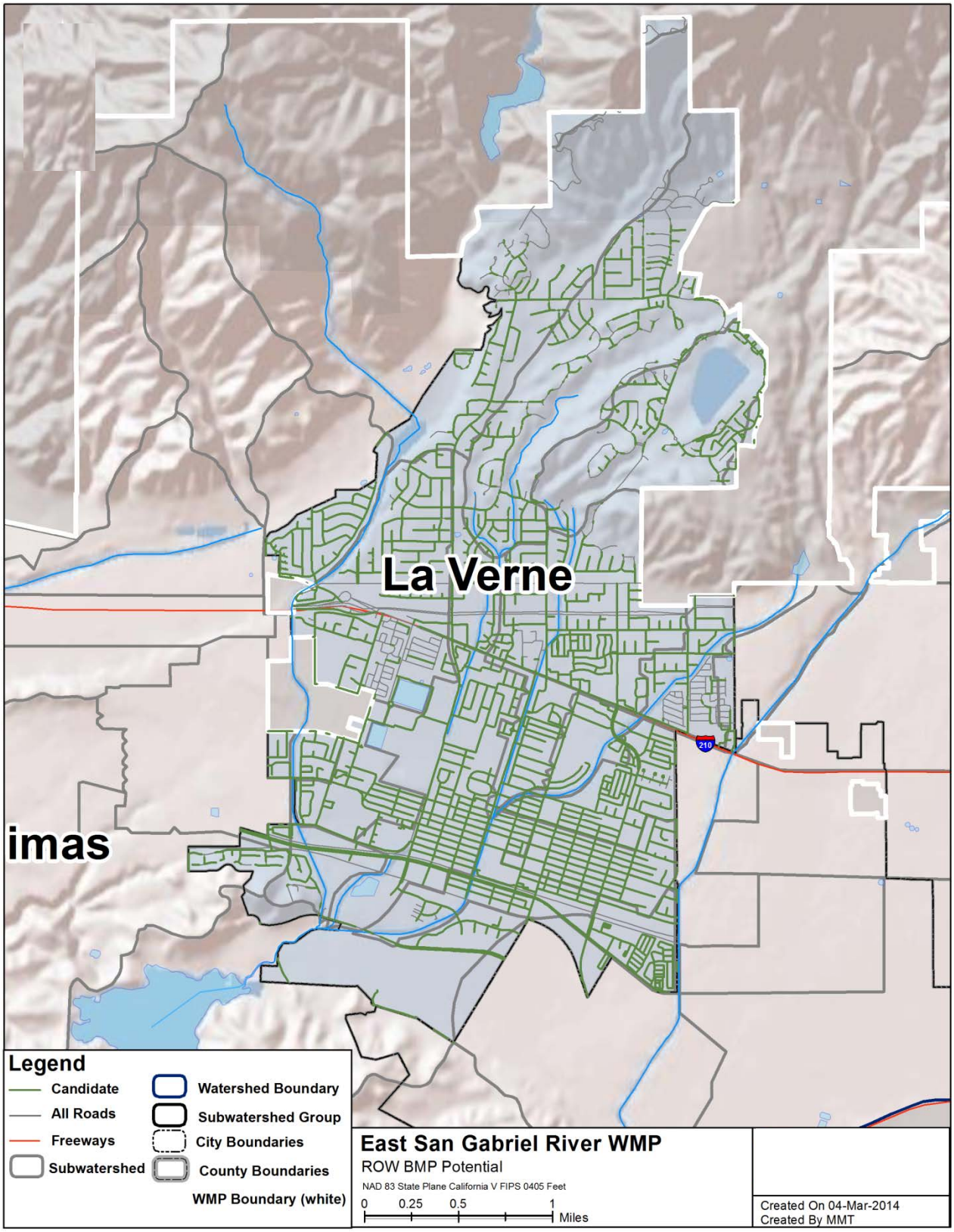


Figure B-5
ROW BMP Potential Opportunities – City of Pomona

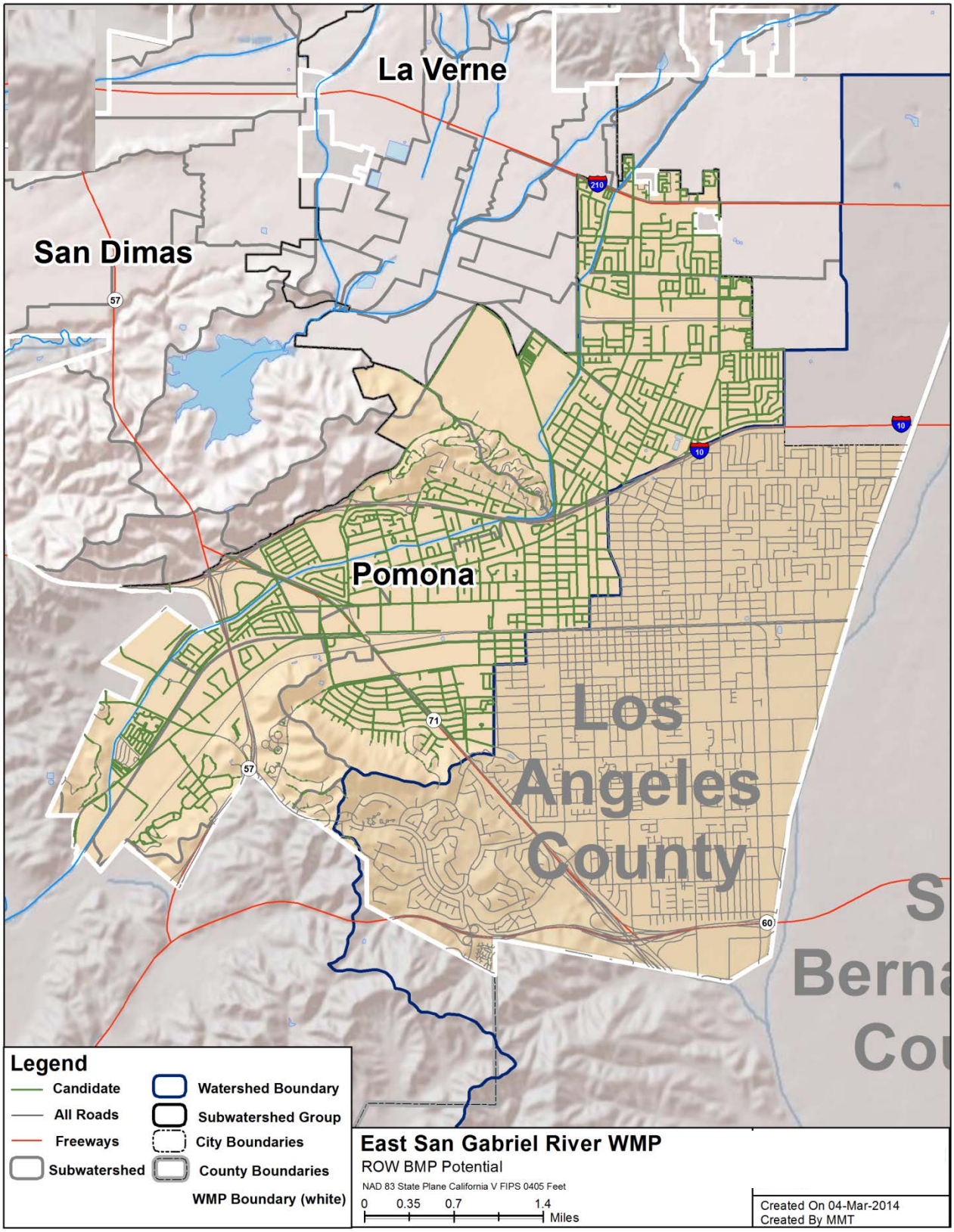


Figure B-6
ROW BMP Potential Opportunities – City of San Dimas

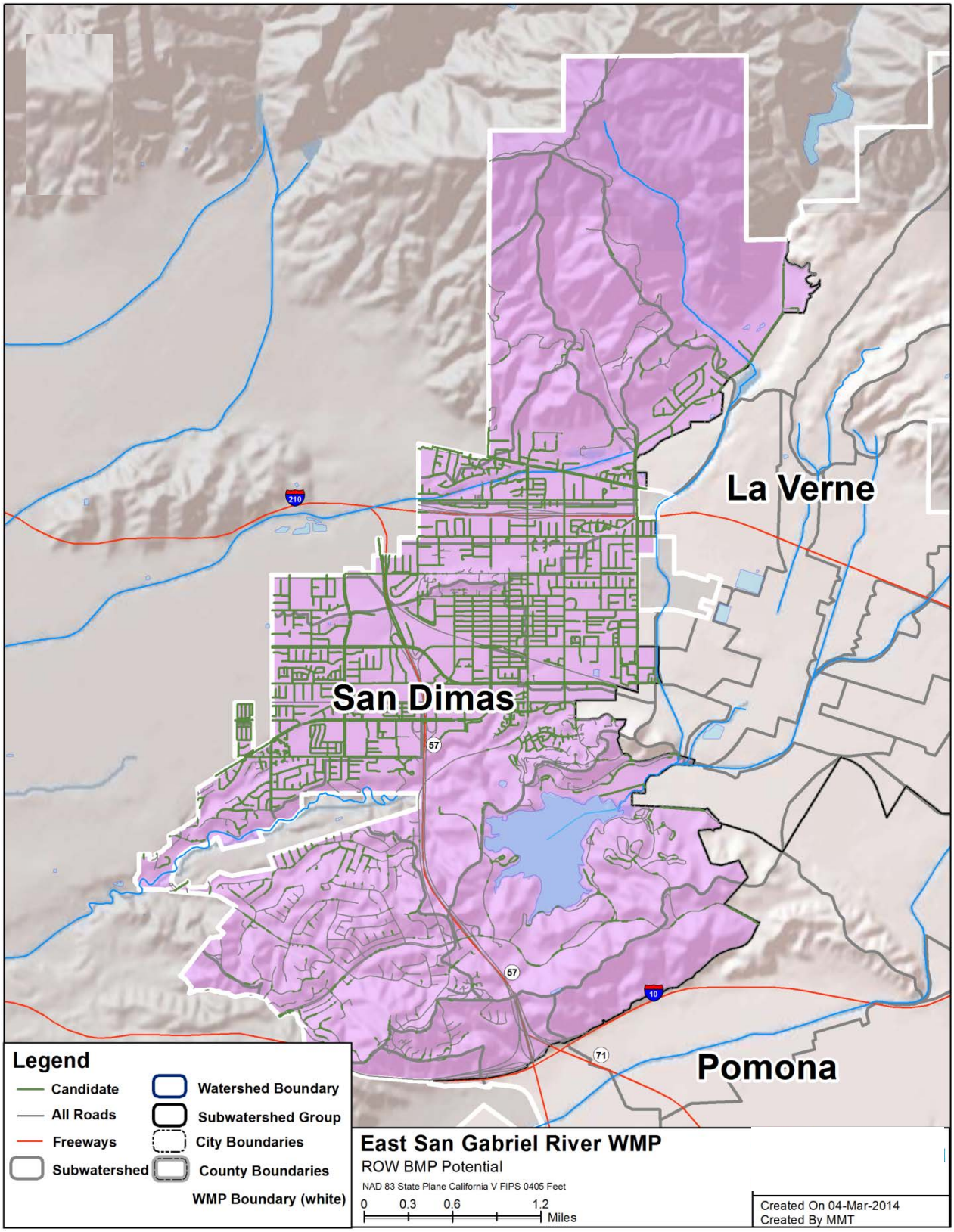


Figure B-7
Subwatershed Infiltration Rates

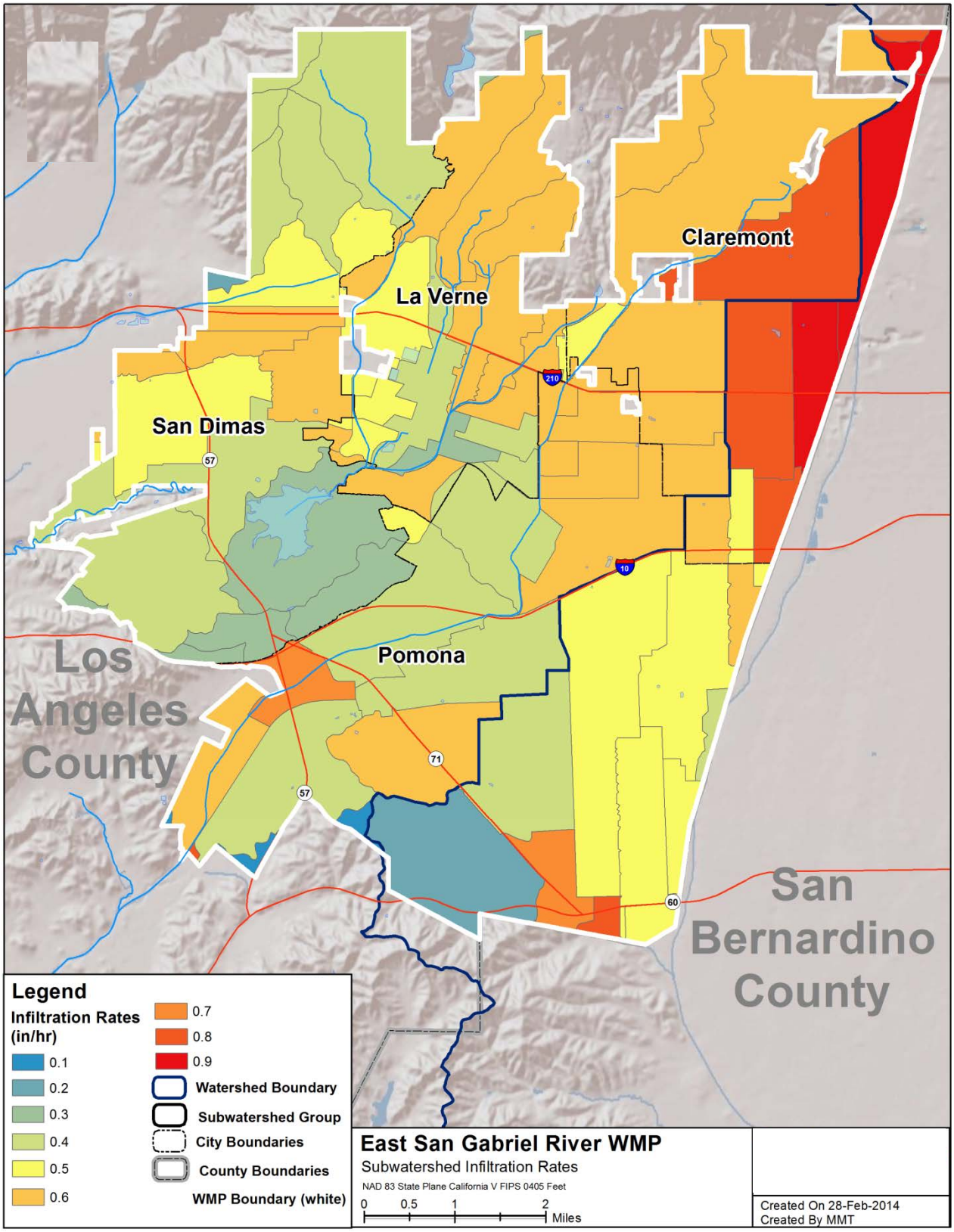


Table B-1
Jurisdictional Ranking Tables for Scheduling, Prioritizing & Implementing BMPs

Claremont

Subwatershed	Rank	Tier
175225	1	1
175221	2	1
175222	3	2
175405	4	3
175223	5	3
175216	6	3
175408	7	3
175224	8	N/A
175409	9	N/A

La Verne

Subwatershed	Rank	Tier
435397	1	1
435398	2	1
435223	3	1
435218	4	1
435221	5	1
435407	6	1
435401	7	1
435411	8	1
435220	9	1
435402	10	1
435400	11	1
435217	12	2
435409	13	2
435408	14	2
435405	15	2
435410	16	2
435404	17	3
435406	18	3
435403	19	3
435412	20	3
435399	21	3
435468	22	3
435413	23	N/A
435415	24	N/A

Pomona

Subwatershed	Rank	Tier
635208	1	1
635210	2	1
635213	3	1
635212	4	1
635223	5	1
635219	6	1
635215	7	1
635222	8	2
635217	9	2
635209	10	3
635214	11	3
635216	12	3
635220	13	3
635221	14	3
635403	15	3
635218	16	3
635408	17	3
635211	18	N/A
635207	19	N/A
635399	20	N/A

San Dimas

Subwatershed	Rank	Tier
695400	1	1
695387	2	1
695481	3	1
695468	4	1
695464	5	1
695397	6	1
695398	7	1
695395	8	1
695394	9	2
695390	10	2
695410	11	2
695411	12	2
695209	13	2
695396	14	2
695465	15	3
695466	16	3
695484	17	N/A
695393	18	N/A
695482	19	N/A
695208	20	N/A
695489	21	N/A
695412	22	N/A
695210	23	N/A
695467	24	N/A
695399	25	N/A

Figure B-8
Subwatershed Implementation Prioritization – City of Claremont

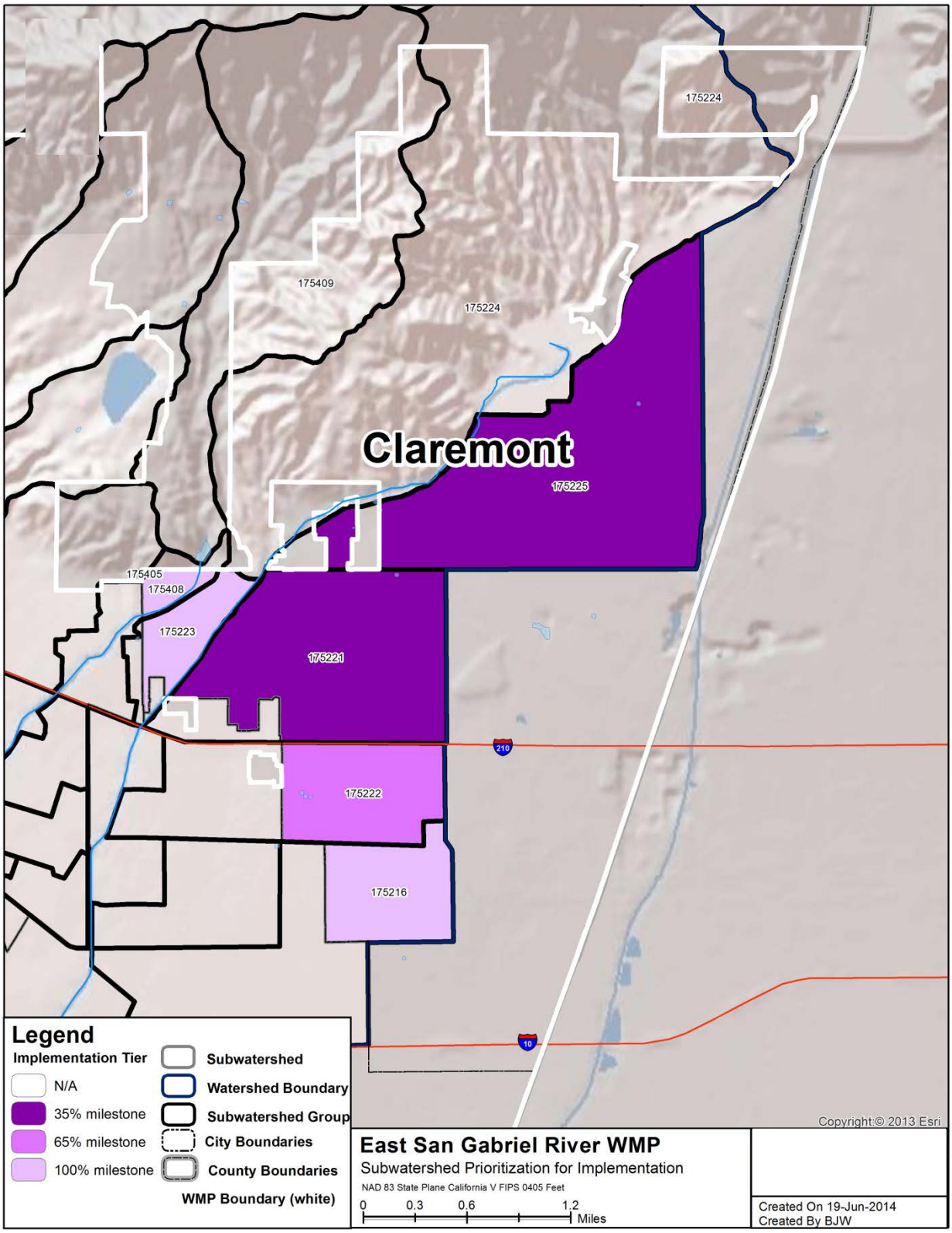


Figure B-9
Subwatershed Implementation Prioritization – City of La Verne

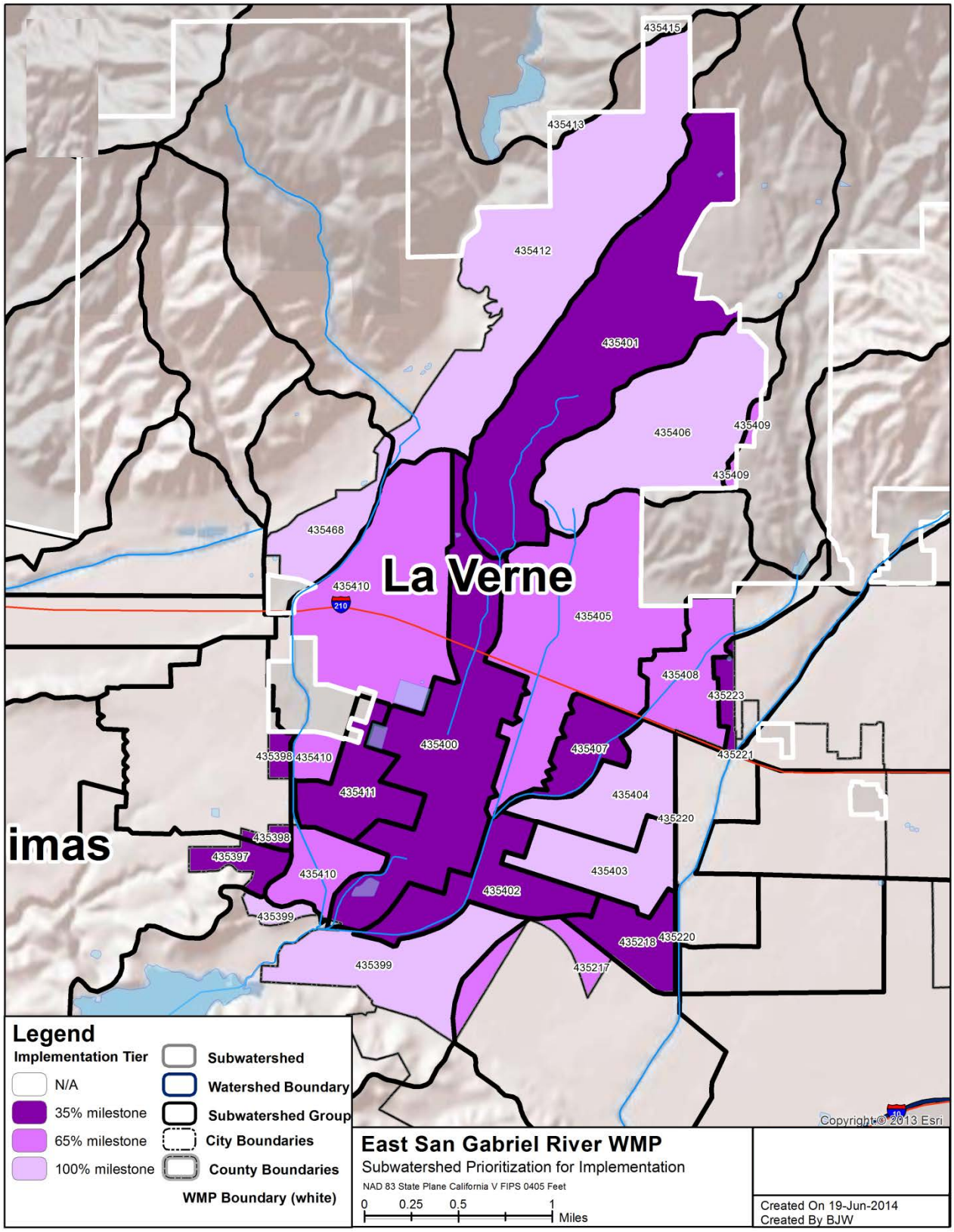


Figure B-10
Subwatershed Implementation Prioritization – City of Pomona

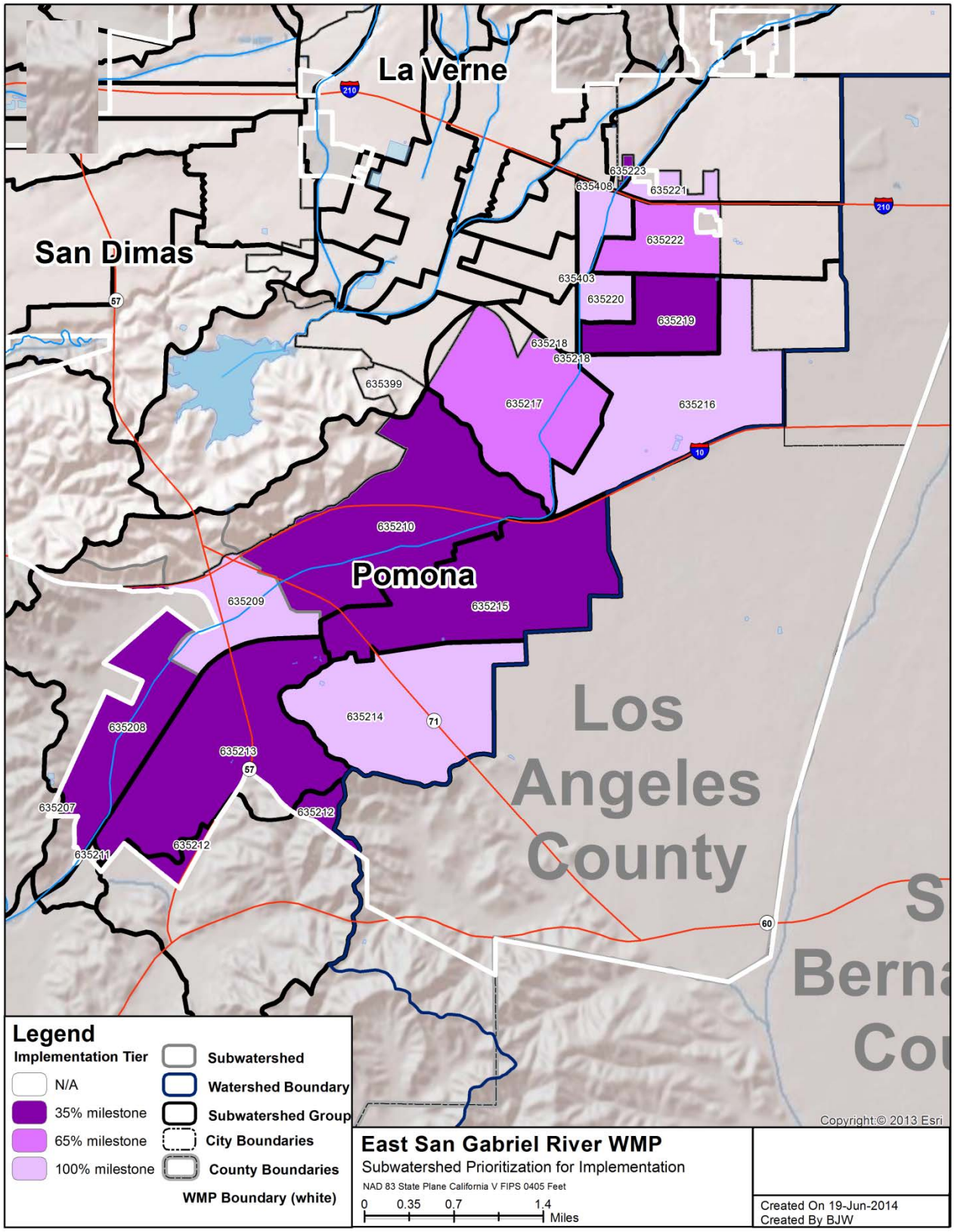
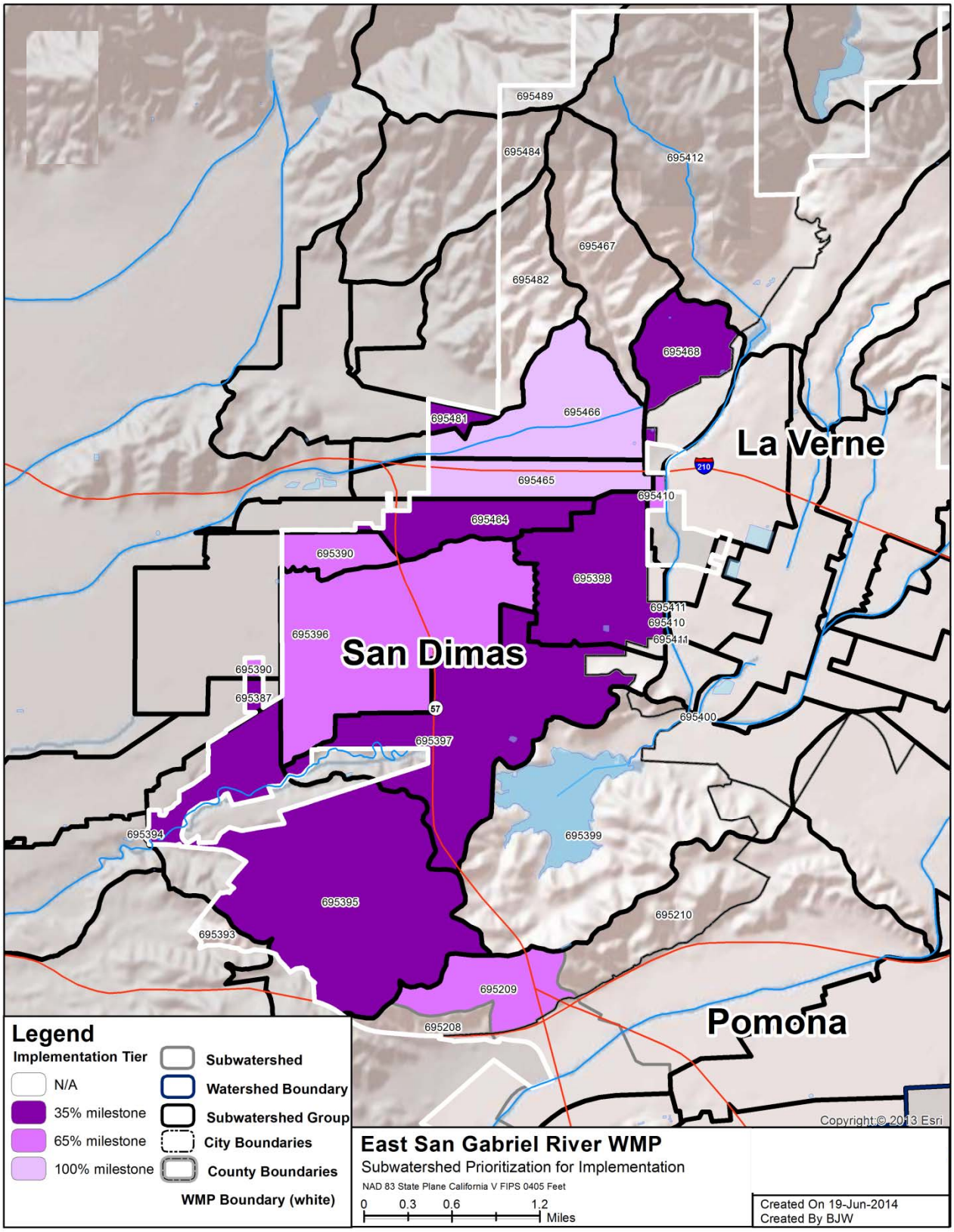


Figure B-11
Subwatershed Implementation Prioritization – City of San Dimas



Appendix C

Green Streets Policies and LID Ordinances for the East San Gabriel Valley Watershed Management Group Members

RESOLUTION NO. 2014-53

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CLAREMONT, CALIFORNIA, ADOPTING THE CITY OF CLAREMONT GREEN STREETS POLICY

WHEREAS, the new Municipal Separate Storm Sewer System (MS4) Permit (Order No. R-2012-0175) was adopted by the California Regional Water Quality Control Board, Los Angeles Region, on November 8, 2012; and

WHEREAS, at the July 23, 2013 meeting, the City Council directed staff to move forward in the preparation of a Group Watershed Management Plan with the cities of Pomona, La Verne and San Dimas; and

WHEREAS, Municipalities electing to prepare a Watershed Management Plan (WMP) or an Enhanced Watershed Management Plan (EWMP) under this Permit are required to demonstrate that Green Street policies are in place that specify the use of green street strategies for transportation corridors; and

WHEREAS, Green Streets are enhancements to street and road projects to improve the quality of storm water and reduce urban runoff through the implementation of infiltration measures such as bioretention, infiltration trenches and dry wells; bio-treatment/infiltration measures such as flow-through planters and vegetated swales; treatment Best Management Practices (BMPs) such as catch basin filters and screens; and implementing and maintaining xeriscaped parkways and tree lined streets; and

WHEREAS, Green Streets are also an amenity that provide many benefits including groundwater replenishment, creation of attractive streetscapes, and pedestrian and bicycle accessibility.

NOW THEREFORE, THE CLAREMONT CITY COUNCIL DOES HEREBY RESOLVE:

SECTION 1. That the City Council of the City of Claremont, California, hereby directs the Director of Community Development and the Director of Community Services to implement Green Streets for transportation corridors as described in the City of Claremont Green Streets Policy, attached hereto.

SECTION 2. Routine maintenance of roadways and activities including, but not limited to, (a) application of seal coats, slurry seals, grind and overlays; and (b) reconstruction to maintain original line and grade, are excluded from the Green Streets Policy.

SECTION 3. At its regular meeting of June 24, 2014, the City Council determined that the adoption of the Green Streets Policy is necessary to support compliance with the new MS4 Permit.

SECTION 4. The Community Development Department and the Community Service Department shall incorporate aspects of Green Streets into annual staff trainings to help ensure proper implementation of such measures for transportation corridors.

SECTION 5. The City Council finds that the adoption of the Green Streets Policy is exempt from the requirements of the California Environmental Quality Act (CEQA) on the basis that (1) State CEQA Guidelines sections 15308 and 15309 each categorically exempt the proposed adoption of the Green Streets Policy since it is an action taken to protect natural resources and the environment (specifically, water quality within the watershed under the jurisdiction of the Los Angeles Regional Water Quality Control Board), and environmental considerations have been accounted for insofar as the Green Streets Policy is environmentally beneficial and would have no indirect adverse environmental effects; and (2) the Green Streets Policy would result in future unknown construction activities that would be exempt as replacement or reconstruction projects pursuant to State CEQA Guidelines section 15302. City staff is directed to file a Notice of Exemption with the County Clerk within five (5) working days of the adoption of this Resolution.

SECTION 6. The Mayor shall sign this Resolution and the City Clerk shall attest and certify to the passage and adoption thereof.

PASSED, APPROVED, AND ADOPTED this 24th day of June 2014.

Joseph M Lyons
_____
Mayor, City of Claremont

ATTEST:

_____
City Clerk, City of Claremont

APPROVED AS TO FORM:

_____
City Attorney, City of Claremont

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES)ss.
CITY OF CLAREMONT)

I, Shelley Desautels, City Clerk of the City of Claremont, County of Los Angeles, State of California, hereby certify that the foregoing Resolution No. 2014-53 was regularly adopted by the City Council of said City of Claremont at a regular meeting of said Council held on the 24th day of June, 2014, by the following vote:

AYES:	COUNCILMEMBERS:	CALAYCAY, LYONS, NASIALI, PEDROZA, SCHROEDER
NOES:	COUNCILMEMBERS:	NONE
ABSTENSIONS:	COUNCILMEMBERS:	NONE
ABSENT:	COUNCILMEMBERS:	NONE

City Clerk of the City of Claremont

ORDINANCE NO.2014-

AN ORDINANCE OF THE CITY OF CLAREMONT, CALIFORNIA, AMENDING CHAPTER 8.28 OF TITLE 8 (STORMWATER AND RUNOFF POLLUTION CONTROL) OF THE CLAREMONT MUNICIPAL CODE ESTABLISHING LOW IMPACT DEVELOPMENT REQUIREMENTS FOR NEW AND REDEVELOPED PROPERTIES, AND UPDATING SAID CHAPTER TO INCORPORATE NEW MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) PERMIT REQUIREMENTS ASSOCIATED WITH DISCHARGE AND CONNECTION INTO THE STORM DRAIN SYSTEM, AND CONTROL OF STORMWATER AND NON-STORMWATER RUNOFF.

WHEREAS, the City of Claremont is authorized by Article XI, Section 5 and Section 7 of the State Constitution to exercise the police power of the State by adopting regulations to promote public health, public safety and general prosperity; and

WHEREAS, the City of Claremont has authority under the California Water Code to adopt and enforce ordinances imposing conditions, restrictions and limitations with respect to any activity which might degrade the quality of waters of the State; and

WHEREAS, the City is a permittee under the "Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, Except those Discharges Originating from the City of Long Beach MS4," issued by the California Regional Water Quality Control Board – Los Angeles Region," (Order No. R4-2012-0175), which also serves as an NPDES Permit under the Federal Clean Water Act (NPDES No. CAS004001), as well as Waste Discharge Requirements under California law (the "Municipal NPDES permit").

WHEREAS, the MS4 Permit requires those permittees submitting a Watershed Management Plan, or an Enhanced Watershed Management Plan to develop and implement a Low Impact Development (LID) Ordinance; and

WHEREAS, the new MS4 Permit establishes new requirements regulating discharge and connection into the City's storm drain facilities, and control of stormwater and non-stormwater runoff; and

WHEREAS, the City of Claremont is committed to a stormwater management program that protects water quality and water supply by employing watershed-based approaches that balance environmental, social and economic considerations; and

WHEREAS, LID is widely recognized as a sensible approach to managing the quantity and quality of stormwater and non-stormwater runoff by setting standards and practices to maintain or restore the natural hydrologic character of a development site, reduce off-site runoff, improve water quality, and provide groundwater recharge.

WHEREAS, it is the intent of the City of Claremont to replace the existing Standard

Urban Stormwater Mitigation Plan (SUSMP) requirements by providing stormwater and rainwater LID strategies for Development and Redevelopment projects as defined under Section 8.28.050(C) "Applicability". Where there are conflicts between this Ordinance and previously adopted SUSMP or LID Manuals, the standards in this Ordinance shall prevail.

NOW THEREFORE, THE CITY COUNCIL OF THE CITY OF CLAREMONT DOES ORDAIN AS FOLLOWS:

SECTION 1. Chapter 8.28 (Stormwater and Runoff Pollution Control) of Title 8 of the Municipal Code (Public Health and Safety) is hereby deleted and replaced in its entirety, as follows:

Chapter 8.28
STORMWATER AND RUNOFF POLLUTION CONTROL

Sections:

8.28.010 Definitions.

The following words, phrases and terms as used in this chapter shall have the meanings ascribed to them in this Section 8.28.010.

Act or **Clean Water Act (CWA)** means the Federal Water Pollution Control Act, also known as the Clean Water Act, as amended, 33 U.S.C. 1251, et seq.

Adverse Impact means a detrimental effect upon water quality or beneficial uses caused by a discharge or loading of a pollutant or pollutants to the storm drain system or to receiving waters.

Automotive Service Facility means a facility that is categorized in any one of the following Standard Industrial Classification (SIC) and North American Industry Classification System (NAICS) codes: SIC 5013, 5014, 5511, 5541, 7532-7534 and 7536-7539.

Basin Plan means the Water Quality Control Plan, Los Angeles Region, Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties, adopted by the Regional

Water Board on June 13, 1994 and subsequent amendments.

Beneficial Uses means existing or potential uses of receiving waters in the permit area as designated by the Regional Board in the Basin Plan.

Best Management Practice (BMPs) means practices or physical devices or systems designed to prevent or reduce pollutant loading from storm water or non-storm water discharges to receiving waters, or designed to reduce the volume of storm water or non-storm water discharged to the receiving water.

Biofiltration means a LID BMP that reduces stormwater pollutant discharges by intercepting rainfall on vegetative canopy, and through incidental infiltration and/or evapotranspiration, and filtration. Incidental infiltration is an important factor in achieving the required pollutant load reduction. Therefore, the term “biofiltration” as used in this Ordinance is defined to include only systems designed to facilitate incidental infiltration or achieve the equivalent pollutant reduction as biofiltration BMPs with an underdrain (subject to approval by the Regional Board’s Executive Officer). Biofiltration BMPs include bioretention systems with an underdrain and bioswales.

Bioretention means a LID BMP that reduces stormwater runoff by intercepting rainfall on vegetative canopy, and through evapotranspiration and infiltration. The bioretention system typically includes a minimum 2-foot top layer of a specified soil and compost mixture underlain by a gravel-filled temporary storage pit dug into the in-situ soil. As defined in the Municipal NPDES permit, a bioretention BMP may be designed with an overflow drain, but may not include an underdrain. When a bioretention BMP is designed or constructed with an underdrain it is regulated by the Municipal NPDES permit as biofiltration (Modified from: Order No. R4-2012-0175).

Bioswale means a LID BMP consisting of a shallow channel lined with grass or other dense, low-growing vegetation. Bioswales are designed to collect stormwater runoff and to achieve a uniform sheet flow through the dense vegetation for a period of several minutes.

City means the City of Claremont, California.

Code of Federal Regulations (CFR) means the codification of the general and permanent rules and regulations published in the Federal Register by the executive departments and agencies of the federal government of the United States.

Commercial Development means any public or private activity not defined as an industrial activity in 40 CFR 122.26(b)(14), involved in the storage, transportation, distribution, exchange or sale of goods and/or commodities or providing professional and/or nonprofessional services. The category includes, but is not limited to: hospitals, laboratories and other medical facilities, educational institutions, recreational facilities, plant nurseries, car wash facilities; mini-malls and other business complexes, shopping malls, hotels, office buildings, public warehouses and other light industrial complexes.

Commercial Malls means any development on private land comprised of one or more buildings forming a complex of stores which sells various merchandise, with interconnecting walkways enabling visitors to easily walk from store to store, along with parking area(s). A commercial mall includes, but is not limited to: mini-malls, strip malls, other retail complexes, and enclosed shopping malls or shopping centers .

Construction Activity means any construction or demolition activity, clearing, grading, grubbing, or excavation or any other activity that results in land disturbance. Construction does not include emergency construction activities required to immediately protect public health and safety or routine maintenance activities required to maintain the integrity of structures by performing minor repair and restoration work, maintain the original line and grade, hydraulic capacity, or original purposes of the facility. See "Routine Maintenance" definition for further explanation. Where clearing, grading or excavating of underlying soil takes place during a repaving operation, State General Construction Permit coverage is required if more than one acre is disturbed or the activities are part of a larger plan..

Control means to minimize, reduce or eliminate by technological, legal, contractual, or other means, the discharge of pollutants from an activity or activities.

Council means the City Council of the City of Claremont.

Dechlorinated/Debrominated Swimming Pool/Spa Discharges means discharges from swimming pools/spas and do not include swimming pool/spa filter backwash or swimming pool/spa water containing bacteria, detergents, wastes, or algaecides, or any other chemicals including salts from salt water pools.

Department means the Community Development Department of the City of Claremont.

Development means construction, rehabilitation, redevelopment or reconstruction of any public or private residential project (whether single-family, multi-unit or planned unit development); industrial, commercial, retail, and other non-residential projects, including public agency projects; or mass grading for future construction. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety.

Directly Adjacent means situated within 200 feet of the contiguous zone required for the continued maintenance, function, and structural stability of the environmentally sensitive area.

Director means the Director of Community Development, or his/her authorized deputy, agent, representative or inspector.

Discharge means any addition, release, spill, leak, pumping, flow, escape, dumping, or disposal of any pollutant to the storm drain system or to receiving waters from any conveyance or source regulated under the Clean Water Act or its regulations.

Disturbed Area means an area that is altered as a result of clearing, grading, and/or excavation.

Drinking Water Supplier Distribution System Releases means sources of flows from drinking water storage, supply and distribution line testing, and flushing and dewatering of pipes, reservoirs, and vaults, minor non-invasive well maintenance not involving chemical addition(s) where otherwise regulated by NPDES Permit No CAG674001, NPDES Permit No. CAG994005, or another separate NPDES permit.

Essential Non-Emergency Fire Fighting Activities means fire fighting activities, which simulate emergency responses, and routine maintenance and testing activities necessary for the protection of life and property, including building fire suppression

system maintenance and testing (e.g. sprinkler line flushing) and fire hydrant testing and maintenance. Discharges from vehicle washing are not considered essential and as such are not conditionally exempt.

Flow-through BMPs means modular, vault type "high flow biotreatment" devices contained within an impervious vault with an underdrain or designed with an impervious liner and an underdrain.

General Construction Activities Storm Water Permit (GCASP) means the general NPDES permit adopted by the State Board which authorizes the discharge of stormwater from construction activities under certain conditions.

General Industrial Activities Storm Water Permit (GIASP) means the general NPDES permit adopted by the State Board which authorizes the discharge of stormwater from certain industrial activities under certain conditions.

Green Roof means a LID BMP using planter boxes and vegetation to intercept rainfall on the roof surface. Rainfall is intercepted by vegetation leaves and through evapotranspiration. Green roofs may be designed as either a bioretention BMP or as a biofiltration BMP. To receive credit as a bioretention BMP, the green roof system planting medium shall be of sufficient depth to provide capacity within the pore space volume to contain the design storm depth and may not be designed or constructed with an underdrain**.**

Good Housekeeping Practice means a best management practice related to the transfer, storage, use, or cleanup of materials which when performed in a regular manner minimizes the discharge or potential discharge of pollutants to the storm drain system and/or receiving waters.

Hazardous Material means any material defined as hazardous by Chapter 6.95 of the California Health and Safety Code or any substance designated pursuant to 40 CFR 302. This also includes any unlisted hazardous substance which is a solid waste, as defined in 40 CFR 261.2, which is not excluded from regulation as a hazardous waste under 40 CFR 261.4(b), or is a hazardous substance under Section 101(14) of the Act, if it exhibits any of the characteristics identified in 40 CFR 261.20 through 261.24.

Hazardous Waste means a hazardous material which is to be discharged, discarded, recycled, and/or reprocessed.

Hillside means a property located in an area with known erosive soil conditions, where the development contemplates grading on any natural slope that is 25% or greater and where grading contemplates cut or fill slopes.

Illicit Connection means either of the following:

1. Any drain or conveyance whether on the surface or subsurface, which allows an illegal discharge to enter the storm drain system including but not limited to any conveyances which allow any non-stormwater discharge including sewage, process wastewater, and wash water to enter the storm drain system and any connections to the storm drain system from indoor drains and sinks, regardless of whether said drain or connection had been previously allowed, permitted, or approved by a government agency; or

2. Any drain or conveyance connected from a commercial or industrial land use

to the storm drain system which has not been documented in plans, maps or equivalent records and approved by the City.

Illicit Discharge means any discharge to the storm drain system or receiving waters that is prohibited under local, state, or federal statutes, ordinances, codes, or regulations. Illicit discharge includes all non-stormwater discharges except discharges pursuant to a NPDES permit or discharges that are exempted or conditionally exempted by such permit.

Impervious Surface means any man-made or modified surface that prevents or significantly reduces the entry of water into the underlying soil, resulting in runoff from the surface in greater quantities and/or at an increased rate, when compared to natural conditions prior to development. Examples of places that commonly exhibit impervious surfaces include parking lots, driveways, roadways, storage areas, and rooftops. The imperviousness of these areas commonly results from paving, compacted gravel, compacted earth, and oiled earth.

Industrial Activity means any public or private activity as defined in 40 CFR 122.26(b)(14) required to obtain a NPDES permit.

Industrial/Commercial Facility means any public or private facility involved and/or used in the production, manufacture, storage, transportation, distribution, exchange or sale of goods and/or commodities, or any facility involved and/or used in providing professional and nonprofessional services. This category of facility includes, but is not limited to, any facility defined by a Standard Industrial Classification (SIC).

Industrial Park means land development that is set aside for industrial development. Industrial parks are usually located close to transport facilities, especially where more than one transport modalities coincide: highways, railroads, airports, and navigable rivers. It includes office parks, which have offices and light industry.

Infiltration BMP means a LID BMP that reduces stormwater runoff by capturing and infiltrating the runoff into in-situ soils or amended onsite soils. Examples of infiltration BMPs include infiltration basins, dry wells, and pervious pavement.

LID means Low Impact Development. LID consists of building and landscape features designed to retain or filter stormwater runoff.

MS4 means Municipal Separate Storm Sewer System (MS4). The MS4 is a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains):

(i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States;

(ii) Designed or used for collecting or conveying stormwater;

(iii) Which is not a combined sewer; and
(iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR §122.2.

National Pollutant Discharge Elimination System (NPDES) permit means a general, group, or industrial permit issued by the United States Environmental Protection Agency, the State Water Resources Control Board or a California Regional Water Quality Control Board pursuant to the Act, that authorizes discharges to waters of the United States.

New Development means land disturbing activities; structural development, including construction or installation of a building or structure, creation of impervious surfaces; and land subdivision.

Non-Stormwater Discharge means any discharge to the storm drain system and/or receiving waters that is not composed entirely of stormwater.

Parking Lot means land area or facility for the parking or storage of motor vehicles used for businesses, commerce, industry, or personal use, with a lot size of 5,000 square feet or more of surface area, or with 25 or more parking spaces

Permit means the Waste Discharge Requirements for Municipal Separate Storm Sewer Systems within the Coastal Watersheds of Los Angeles County (Order No. R4-2012-0175) and the National Pollutant Discharge Elimination System Permit No. CAS004001, including any amendments, reissuance, renewal, or successor permit issued by the Regional Board.

Person means any natural person, firm, association, club, organization, corporation, partnership, business, trust, public agency, company or other entity which is recognized by law as the subject of rights and duties.

Planning Priority Projects means development projects subject to Permittee conditioning and approval for the design and implementation of post-construction controls to mitigate stormwater pollution, prior to completion of the project(s).

Pollutant shall have the same meaning as set forth in Section 502(6) of the Act and as incorporated into the California Water Code Section 13373. Pollutants include, but are not limited to the following:

1. Commercial and industrial waste (such as fuels, solvents, chemicals, detergents, plastic pellets,
hazardous materials or substances, hazardous wastes, fertilizers, pesticides, soot, slag, ash, and sludge);
2. Metals (such as cadmium, lead, zinc, copper, silver, nickel, chromium and arsenic) and nonmetals (such as carbon, chlorine, fluorine, phosphorous and sulfur);
3. Petroleum hydrocarbons (such as fuels, oils, lubricants, surfactants, waste oils, solvents, coolants, and grease);
4. Eroded soils, sediment, and particulate materials in amounts which may adversely affect any beneficial use of the receiving waters, flora, or fauna of the state;
5. Animal wastes (such as discharges from confinement facilities, kennels, pens,

recreational facilities, stables, and show facilities);
6. Substances having acidic or corrosive characteristics such as a pH of less than six or greater than nine;
7. Substances having unusual coloration or turbidity, levels of fecal coliform, fecal streptococcus, or enterococcus, which may adversely affect the beneficial use of the receiving waters, flora, or fauna of the state; and
8. Anything which causes the deterioration of water quality such that it impairs subsequent and/or competing uses of the water.

Project means all development, redevelopment, and land disturbing activities. The term is not limited to "Project" as defined under CEQA (Pub. Resources Code §21065).

Rainfall Harvest and Use means a LID BMP system designed to capture runoff, typically from a roof but can also include runoff capture from elsewhere within the site, and to provide for temporary storage until the harvested water can be used for irrigation or non-potable uses. The harvested water may also be used for potable water uses if the system includes disinfection treatment and is approved for such use by the local building department.

Receiving Waters means all waters of the United States into which a pollutant is or may be discharged. "Waters of the United States" means surface watercourses and water bodies as defined at 40 CFR 122.2, including all natural waterways and definite channels and depressions in the earth that may carry water, even though such waterways may only carry water during rains and storms and may not carry stormwater at and during all times and seasons.

Redevelopment means land-disturbing activity that results in the creation, addition, or replacement of 5,000 square feet or more of impervious surface area on an already developed site. Redevelopment includes, but is not limited to: the expansion of a building footprint; addition or replacement of a structure; replacement of impervious surface area that is not part of routine maintenance activity; and land disturbing activity related to structural or impervious surfaces. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety.

Regional Board means a Los Angeles Regional Water Quality Control Board.

Retail Gasoline Outlet means any facility engaged in selling gasoline and lubricating oils.

Routine Maintenance

Routine maintenance projects include, but are not limited to projects conducted to:

1. Maintain the original line and grade, hydraulic capacity, or original purpose of the facility.
2. Perform as needed restoration work to preserve the original design grade, integrity and hydraulic capacity of flood control facilities.
3. Includes road shoulder work, regrading dirt or gravel roadways and shoulders and performing ditch cleanouts.

4. Update existing lines* and facilities to comply with applicable codes, standards, and regulations regardless if such projects result in increased capacity.
5. Repair leaks

Routine maintenance does not include construction of new** lines or facilities resulting from compliance with applicable codes, standards and regulations.

* Update existing lines includes replacing existing lines with new materials or pipes.

** New lines are those that are not associated with existing facilities and are not part of a project to update or replace existing lines (Source: Order No. R4-2012-0175).

Runoff means any stormwater or non-stormwater discharge from any surface and/or drainage area that reaches the storm drain system and/or receiving waters.

Standard Industrial Classification (SIC) means a classification pursuant to the current edition of the Standard Industrial Classification Manual issued by the Executive Office of the President of the United States, Office of Management and Budget, and as the same may be periodically revised.

Significant Ecological Areas (SEAs) means an area that is determined to possess an example of biotic resources that cumulatively represent biological diversity, for the purposes of protecting biotic diversity, as part of the Los Angeles County General Plan. Areas are designated as SEAs, if they possess one or more of the following criteria:

1. The habitat of rare, endangered, and threatened plant and animal species.
2. Biotic communities, vegetative associations, and habitat of plant and animal species that are either one of a kind, or are restricted in distribution on a regional basis.
3. Biotic communities, vegetative associations, and habitat of plant and animal species that are either one of a kind or are restricted in distribution in Los Angeles County.
4. Habitat that at some point in the life cycle of a species or group of species, serves as a concentrated breeding, feeding, resting, migrating grounds and is limited in availability either regionally or within Los Angeles County.
5. Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent an unusual variation in a population or community.
6. Areas important as game species habitat or as fisheries.
7. Areas that would provide for the preservation of relatively undisturbed examples of natural biotic communities in Los Angeles County.
8. Special areas (Source: Order No. R4-2012-0175).

Site means land or water area where any “facility or activity” is physically located or conducted, including adjacent land used in connection with the facility or activity.

State Board means the State Water Resources Control Board.

Storm Drain System means any street, gutter, conduit, natural or artificial drain, curb, inlet, detention and retention basins, channel and watercourse, and/or other facility or any combination thereof, that is owned or operated by the city and used for the purpose of collecting, storing, conveying, transporting, and/or disposing of runoff.

Storm Water or Stormwater means any surface flow, runoff or drainage which

originates from atmospheric moisture (rainfall or snowmelt) and falls onto land, water, and/or other surfaces.

Stormwater Pollution Prevention Plan (SWPPP) means a plan required by and whose contents are specified in a NPDES permit.

Stormwater Runoff means stormwater which travels across any surface to the storm drain system or receiving waters.

Structural BMP means any permanent facility constructed to control, treat, store, divert, neutralize, dispose of, and/or monitor runoff in order to reduce or measure pollutants.

SUSMP means the Los Angeles Countywide Standard Urban Stormwater Mitigation Plan. The SUSMP was required as part of the previous Municipal NPDES Permit (Order No. 01-182, NPDES No. CAS004001) and required plans that designate best management practices (BMPs) that must be used in specified categories of development projects. The requirements of this Chapter replace the SUSMP unless otherwise required by the Director or State or Regional Board.

Uncontrolled Discharge means any discharge, intentional or accidental, occurring in such a manner that the discharger is unable to determine or regulate the quantity, quality or effects of the discharge.

Urban Runoff means surface water flow produced by storm and non-storm events. Non-storm events include flow from residential, commercial, or industrial activities involving the use of potable and non-potable water.

U.S. EPA means the United States Environmental Protection Agency.

8.28.020 General Provisions.

A. Short title. The ordinance codified in this chapter shall be known as the "Stormwater and Runoff Pollution Control Ordinance" and may be referred to as such.

B. Purpose and intent. The purpose of this chapter is to protect the health and safety of the residents of the city by protecting the beneficial uses, marine habitats, and ecosystems of receiving waters from pollutants carried by stormwater and non-stormwater discharges. The intent of this chapter is to enhance and protect the water quality of receiving waters consistent with the Act.

C. Applicability of this chapter. The provisions of this chapter shall apply to the discharge, deposit, addition or disposal of any non-stormwater, stormwater and/or runoff to the storm drain system and/or receiving waters within the City of Claremont.

D. Standards, guidelines and criteria. The director may establish uniform minimum standards, guidelines, and/or criteria for specific discharges, connections and/or BMPs. The provisions of this section shall not prohibit the director from requiring a discharger or permittee from taking additional measures to achieve the objectives of this chapter or any permit. (00-07)

8.28.030 Discharge to the Storm Drain System

A. Except as otherwise conditionally authorized by the Permit or any other NPDES permit, waiver or waste discharge order issued by the U.S. EPA, the state board, or a regional board, provided that the discharger is in full compliance with all requirements of

the permit, waiver or order and other applicable laws and regulations, including the provisions of this chapter, and subject to any requirements specified by the Director, no person shall:

1. discharge non-stormwater to the City's storm drain system or to receiving waters except in compliance with the requirements of this Chapter;
2. cause, allow or facilitate any prohibited discharge;
3. discharge, cause, allow or facilitate any discharge that may cause or threaten to cause a condition of pollution or nuisance as defined in Water Code section 13050, that may cause, threaten to cause or contribute to an exceedance of any water quality standard in any Statewide Water Quality Control Plan, California Toxics Rule, or Basin Plan, or that may cause or contribute to the violation of any receiving water limitation.

B. Pursuant to the Permit, discharges which may be conditionally authorized subject to best management practices and other restrictions or prohibitions determined by the Director include, but are not limited to the following types of discharges:

1. Authorized non-storm water discharges from emergency fire-fighting activities (i.e., flows necessary for the protection of life or property;
2. Natural flows, including natural springs;
3. Flows from riparian habitats and wetlands;
4. Diverted stream flows, authorized by the State or Regional Water Board; Uncontaminated ground water infiltration;
5. Rising ground waters where ground water seepage is not otherwise covered by a NPDES permit;
6. Discharges from drinking water supplier distribution systems where not otherwise regulated by an individual or general NPDES permit;
7. Landscape irrigation;
8. Uncontaminated foundation and footing drains;
9. Uncontaminated water from crawl space pumps;
10. Air conditioning condensation;
11. Uncontaminated non-industrial roof drains;
12. Individual residential and occasional non-commercial car washing;
13. Dechlorinated/debrominated swimming pool/spa discharges; and
14. Street and sidewalk wash waters.

C. The Director may limit or prohibit any discharge which is conditionally authorized by the Permit if the discharge is a source of pollutants or causes or contributes to an exceedance of applicable receiving water limitations or water quality based effluent limitations, including but not limited to imposing conditions on such discharge, requiring control measures and other actions to reduce pollutants, requiring diversion of the discharge to the sanitary sewer, or requiring pretreatment.

D. The Director may require any person to obtain a permit from the City before discharging, or causing, allowing, or facilitating any discharge to the storm drain system. It is unlawful to discharge, cause, allow, or facilitate any discharge to the storm drain system in violation of any permit so required.

E. Littering and other discharge of polluting or damaging substances prohibited.

1. No person shall cause any refuse, rubbish, food waste, garbage, or any other discarded or abandoned objects to be littered, thrown, deposited, left, accumulated, maintained or kept in or upon any street, alley, sidewalk, storm drain, inlet, catch basin, conduit, drainage structure, place of business, or upon any public or private property so that the same may or does become a pollutant which may or does enter the storm drain system or receiving waters, except when such materials are placed in containers, bags, recycling bins, or other lawfully established waste disposal facilities protected from stormwater or runoff.

2. No person shall cause the disposal of hazardous materials or hazardous wastes into trash containers used for municipal trash disposal.

3. No person shall cause to be discharged to the storm drain system or to receiving waters any pesticide, fungicide, or herbicide prohibited by the U.S. EPA or the California Department of Pesticide Regulation.

4. No person shall cause the accumulation of pollutants, leaves, dirt, or other landscape debris into a street, alley, catch basin, culvert, curb, gutter, inlet, ditch, natural watercourse, flood control channel, canal, storm drain, or any fabricated or natural conveyance so that the same may or does become a pollutant which may or does enter the storm drain system or receiving waters.

5. No person shall cause the disposal of sanitary or septic waste or sewage into the storm drain system from any property or residence or any type of recreational vehicle, camper, bus, boat, holding tank, portable toilet, vacuum truck or other mobile source of waste holding tank, container or device.

6. No person shall discharge or cause to be discharged anything that would result in or contribute to a violation of the city's NPDES permit and any amendment, revision or re-issuance, thereof, either separately or when combined with other discharges.

8.28.031 Illicit Connections Prohibited

A. Installation or use of illicit connections prohibited. No person shall install, maintain or use any connection to the storm drain system or act, cause, permit or suffer any non-stormwater to be discharged or conveyed through a connection to the storm drain system unless the connection has been permitted by the director. This prohibition is retroactive and applies to connections made in the past, regardless of whether made under a permit or other authorization, or whether permissible under the laws or practices applicable or prevailing at the time of the connection.

B. Removal of illicit connection from the storm drain system. If any person fails to remove an illicit connection upon notification by the director, or upon revocation of a connection permit, the director may remove such connection from the storm drain system pursuant to Section 8.28.060 of this chapter. The director may pursue the recovery of costs for such removal pursuant to Section 8.28.060 of this chapter.

8.28.032 Best Management Practices Required

A. Any person engaged in activities which will or may result in pollutants entering the City storm drain system shall undertake all control measures and BMPs as the Director may require to reduce such pollutants. Premises with a high potential threat of discharge may be required to implement a monitoring program meeting standards established by the City. Where best management practices guidelines or requirements have been adopted by any Federal, State, regional, and/or City agency, for any activity, operation, or facility which may cause or contribute to stormwater pollution or contamination, illicit discharges, and/or discharges of non-stormwater to the storm drain system, every person undertaking such activity or operation, or owning or operating such facility shall comply with such guidelines or requirements as may be identified by the Director.

B. Installation of structural BMPs. No person shall install a structural BMP for the purpose of treating, neutralizing, disposing of, monitoring or diverting to the sanitary sewer system any runoff without the approval of the director and of the Los Angeles County Sanitation District or any successor thereto. Such facilities may be subject to plan review, application and issuance of operating permits pursuant to this code.

C. BMPs to be consistent with environmental goals. No person shall install or implement a BMP that transfers pollutants to air, groundwater, surface soils and/or other media in a manner inconsistent with applicable environmental laws and regulations.

D. The Director may require any person responsible for any industrial or commercial facility or new or redevelopment project to submit documentation demonstrating coverage by and compliance with any applicable permit, including copies of any notice of intent, storm water pollution prevention plans, inspection reports, monitoring results, and other information deemed necessary to assess compliance with this Chapter or any NPDES permit. Each discharger identified in an individual NPDES permit relating to stormwater discharges shall comply with and undertake all activities required by such permit.

E. The Director may require any person responsible for any industrial or commercial facility or new or redevelopment project to enter into an agreement for the operation and maintenance of any structural control measures and to record such agreement with the County Recorder's office.

F. The following BMPs are required of every owner or occupant of any property:

1. No person shall leave, deposit, discharge, dump, or otherwise expose any chemical, fuel, animal waste, garbage, batteries and/or septic waste in an area where actual or potential discharge to the city streets or the storm drain system may occur. Any spills, discharge, or residues shall be removed as soon as possible and disposed of properly.
2. Runoff from landscape irrigation, air conditioning condensate, water line flushing, foundation/footing drains, individual residential car washing, dechlorinated/debrominated swimming pool/spa discharges and sidewalk washing shall be conducted in a manner which minimizes or eliminates the possibility of pollutant discharges reaching the city storm drain system or

receiving waters.

3. Runoff from washing paved areas, including but not limited to parking lots, on industrial or commercial property is prohibited unless specifically required by federal, state, or local health or safety codes and not in violation of any other provision of this code. Runoff from authorized washing of paved areas shall be minimized to the extent practicable.
4. Objects, such as motor vehicle parts, containing grease, oil, or other hazardous materials, and unsealed receptacles containing hazardous materials, shall not be stored in areas exposed to stormwater or otherwise susceptible to runoff.
5. Any machinery or equipment which is to be repaired or maintained in areas exposed to stormwater or otherwise susceptible to runoff shall be provided with containment areas to control leaks, spills, or discharges.
6. All motor vehicle parking lots with more than 25 parking spaces and located in areas exposed to stormwater or otherwise susceptible to runoff shall have debris removed by regular sweeping or other equally effective measures. Such debris shall be collected and properly disposed of.

8.28.033 Monitoring, Information Collection, and Reporting

A. The Director may require any person discharging or causing, allowing, or facilitating a discharge to the storm drain system or receiving waters to take any or all of the following actions:

1. to submit information necessary to comply with the Permit or to confirm that person's compliance with this Chapter;
2. to monitor discharges and submit reports of discharge activities;
3. to maintain records of monitoring and discharging; and
4. to take any other action necessary to comply with the Permit or this Chapter.

B. Notwithstanding any other requirement of law, any known or suspected release of materials, pollutants or waste, which may result in pollutants or non-stormwater discharges entering storm water, the storm drain system or waters of the state or United States, shall be reported immediately in the following manner by any person in charge of a premises or responsible for the premises' emergency response:

1. The release of a hazardous material shall be immediately reported to emergency services by emergency dispatch services (911).
2. The release of a nonhazardous material shall be reported as follows:
    a. to the Director and to the 24-hour storm water hotline by telephone no later than 5:00 P.M. on the same business day;
    b. if the release occurs after 5:00 P.M. on a weekday, on a weekend or holiday, to the 24-hour storm water hotline on the same day and to the Director by telephone on the next business day;

c. a written notification of the release shall also be made to the Director within ten business days of the release. A copy of the written notice shall be retained at the premises for at least three (3) years. The notification shall include a detailed written report describing the cause of the discharge, corrective action taken and measures to be taken to prevent future occurrences, and measures taken to remediate the effects of the discharge. Such notification shall not relieve the discharger or permittee from liability or fines incurred as a result of the uncontrolled discharge.

3. In addition to the above requirements, the release of any hazardous materials or substances, sewage, oil, or petroleum to any waters of the state, or discharged or deposited where it is or probably will be discharged in or on any waters of the state, shall be reported to the State Office of Emergency Services, as required by Sections 13271 and 13272 of California Water Code.

8.28.034 Control of Runoff Required – Industrial and Commercial Facilities

A. Prohibited discharges from industrial or commercial activity. Any person subject to an industrial or construction activity NPDES stormwater discharge permit shall comply with all provisions of such permit. The following discharges from industrial or commercial activities are prohibited unless the discharge is in compliance with a NPDES permit:

1. Discharge of wash waters to the storm drain system from the cleaning of gas stations, auto repair garages, or other types of auto repair facilities;

2. Discharge of wastewater to the storm drain system from mobile auto washing, steam cleaning, mobile carpet cleaning, or other such mobile commercial and industrial operations;

3. Discharge to the storm drain system from areas where repair of machinery and equipment, including motor vehicles, which are visibly leaking oil, fluids or coolants is undertaken;

4. Discharge to the storm drain system from storage areas for materials containing grease, oil, or
hazardous materials, or from uncovered receptacles containing hazardous materials, grease, or oil;

5. Discharge of commercial/public swimming pool filter backwash to the storm drain system;

6. Discharge from the washing of toxic materials from paved or unpaved areas to the storm drain system;

7. Discharge from the washing out of concrete trucks to the storm drain system; and

8. Discharge from the washing or rinsing of restaurant mats, equipment or garbage bins or cans in such a manner that causes non-stormwater to enter the storm drain system.

B. Industrial/commercial facility sources required to obtain a NPDES permit. Any industrial or commercial facility required to have a NPDES permit shall retain on-site and, upon request, make immediately available to the director the following documents as evidence of compliance with permit requirements, as applicable:

1. A copy of a NPDES permit or notice of intent to comply with a general permit to discharge stormwater associated with industrial or construction activity as submitted to the state board or report of waste discharge as submitted to a regional board of jurisdiction;
2. A waste discharge identification number issued by the state board or copy of the NPDES permit issued by a regional board;
3. A SWPPP and a monitoring program plan or group monitoring plan;
4. Stormwater quality data; and
5. Evidence of facility self-inspection.

C. Best management practices for industrial and commercial facilities. All industrial and commercial facilities shall implement BMPs which will effectively prevent the direct or indirect discharge of pollutants to the storm drain system or receiving waters to the maximum extent practicable. Minimum BMPs applicable to all industrial and commercial facilities include, but are not limited to:

1. Termination of all non-stormwater discharge to the storm drain system that is not specifically authorized by a NPDES permit;
2. Exercising general good housekeeping practices;
3. Incorporating regular scheduled preventative maintenance into operations;
4. Maintaining spill prevention and control procedures;
5. Implementing soil erosion control;
6. Posting on-site private storm drains to indicate that they are not to receive liquid, solid wastes or pollutants;
7. Implementing regular cleaning of the on-site private storm drain system; and
8. Insuring that stormwater runoff is directed away from operating, processing, fueling, cleaning and storage areas.

8.28.035 Control of Runoff Required – Municipal Facilities

A. Public facility sources required to obtain a NPDES permit. Any public facility required to have a NPDES permit shall retain on-site and, upon request, make immediately available to the director the following documents as evidence of compliance with permit requirements, as applicable:

1. A copy of a NPDES permit or notice of intent to comply with a general permit to discharge stormwater associated with industrial or construction activity as submitted to the state board or report of waste discharge as submitted to a regional board of jurisdiction;
2. A waste discharge identification number issued by the state board or copy of the NPDES permit issued by a regional board;
3. A SWPPP and a monitoring program plan or group monitoring plan;
4. Stormwater quality data; and
5. Evidence of facility self-inspection.

8.28.040 Control of Runoff Required – Construction Activity

A. Stormwater and runoff pollution mitigation for construction activity. No person shall commence any construction activity for which a permit is required by this Chapter or any

law or regulation without implementing all stormwater and runoff pollution mitigation measures required by such permit(s), law, regulation or this Chapter. In addition to any other requirements set forth in this Chapter, prior to obtaining a grading or building permit, each operator of any construction activity shall submit evidence to the Director that all applicable permits have been obtained, including but not limited to the General Construction Activities Storm Water Permit and State Water Board 401 Water Quality Certification.

B. No grading permit shall be issued for any development with a disturbed area of one (1) acre or greater or which is part of a larger common plan of development unless the applicant can show that (i) a Notice of Intent to comply with the State Construction Activity Storm Water Permit has been filed and (ii) a Storm Water Pollution Prevention Plan has been prepared. The City may adopt regulations establishing controls on the volume and rate of stormwater runoff from new developments and redevelopments of less than one (1) acre as may be appropriate to minimize the discharge and transport of pollutants.

C. Prior to obtaining a grading or building permit, each operator of any construction site of less than one (1) acre shall cause to be prepared and submitted to the City an erosion and sediment control plan which satisfies the requirements of the Permit, to ensure that discharges of pollutants are effectively prohibited and will not cause or contribute to an exceedance of water quality standards. A SWPPP prepared in accordance with the General Construction Permit may be substituted for an erosion and sediment control plan. No operator of any construction activity shall commence any construction activity prior to receiving written approval of the erosion and sediment control plan from the Director.

D. Best management practices for construction activity. All BMPs required as a condition of any NPDES permit for construction activity granted by U.S. EPA, the State Water Resources Control Board, or a regional board or pursuant to this code shall be maintained in full force and effect during the term of the project, unless authorized by the director.

8.28.041 Control of Runoff Required – New Development and Redevelopment

A. Prior to construction of a development, redevelopment or new development project, such project shall be evaluated by the City for its potential to discharge pollutants to the storm drain system or to receiving waters based on its intended land use. Such evaluation shall be conducted in accordance with development planning requirements established by the Regional Board or its Executive Officer, pursuant to the Municipal NPDES Permit. No discretionary permit may be issued for any new development or redevelopment project until the Director finds that the project plans comply with the LID /SUSMP requirements set forth in the Permit and in this Chapter.

B. Once a development, redevelopment or new development project has been evaluated for its potential to discharge pollutants to the storm drain system or receiving waters, the City shall require appropriate BMPs to be implemented during construction

and following project completion. The prescription of BMPs shall be in keeping with Standard Urban Storm Water Mitigation Plan requirements established by the regional board or its executive officer, pursuant to the municipal NPDES permit and with this Chapter.

8.28.050 Stormwater Pollution Control Measures for Development Planning and Construction Activities

(A) Objective. The provisions of this section contain requirements for construction activities and facility operations of Development and Redevelopment projects to comply with the current "Municipal NPDES permit," lessen the water quality impacts of development by using smart growth practices, and integrate LID design principles to mimic predevelopment hydrology through infiltration, evapotranspiration and rainfall harvest and use. LID shall be inclusive of SUSMP requirements.

(B) Scope. This Section contains requirements for stormwater pollution control measures in Development and Redevelopment projects and authorizes the City of Claremont to further define and adopt stormwater pollution control measures, develop LID principles and requirements, including but not limited to the objectives and specifications for integration of LID strategies, alternative compliance for technical infeasibility from the requirements of the onsite retention requirements, and collect funds for projects that are granted alternative compliance for technical infeasibility. Except as otherwise provided herein, the City of Claremont shall administer, implement and enforce the provisions of this Section.

(C) Applicability. The following Development and Redevelopment projects, termed "Planning Priority Projects," shall comply with the requirements of Section 8.28.050:

(1) All development projects equal to 1 acre or greater of disturbed area that adds more than 10,000 square feet of impervious surface area.
(2) Industrial parks 10,000 square feet or more of surface area.
(3) Commercial malls 10,000 square feet or more of surface area.
(4) Retail gasoline outlets with 5,000 square feet or more of surface area.
(5) Restaurants (Standard Industrial Classification (SIC) of 5812) with 5,000 square feet or more of surface area.
(6) Parking lots with 5,000 square feet or more of impervious surface area, or with 25 or more parking spaces.
(7) Streets and roads construction of 10,000 square feet or more of impervious surface area.
(8) Automotive service facilities of 5,000 square feet or more of surface area.
(9) Projects located in or directly adjacent to, or discharging directly to an Environmentally Sensitive Area (ESA), where the development will:
    a. Discharge stormwater runoff that is likely to impact a sensitive biological species or habitat; and

b. Create 2,500 square feet or more of impervious surface area

(10) Single-family hillside homes.

(11) Redevelopment Projects

a. Land disturbing activity that results in the creation or addition or replacement of 5,000 square feet or more of impervious surface area on an already developed site on Planning Priority Project categories.

b. Where Redevelopment results in an alteration to more than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction stormwater quality control requirements, the entire project must be mitigated.

c. Where Redevelopment results in an alteration of less than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction stormwater quality control requirements, only the alteration must be mitigated, and not the entire development.

d. Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of facility or emergency redevelopment activity required to protect public health and safety. Impervious surface replacement, such as the reconstruction of parking lots and roadways which does not disturb additional area and maintains the original grade and alignment, is considered a routine maintenance activity. Redevelopment does not include the repaving of existing roads to maintain original line and grade.

e. Existing single-family dwelling and accessory structures are exempt from the Redevelopment requirements unless such projects create, add, or replace 10,000 square feet of impervious surface area.

(D) Effective Date. The Planning and Land Development requirements contained in Section 7 of Order No. R4-2012-0175 became effective 90 days from the adoption of the Order (February 6, 2013). This includes Planning Priority Projects that are discretionary permit projects or project phases that have not been deemed complete for processing, or discretionary permit projects without vesting tentative maps that have not requested and received an extension of previously granted approvals within 90 days of adoption of the Order. Projects that have been deemed complete within 90 days of adoption of the Order are not subject to the requirements Section 7.

(E) Stormwater Pollution Control Requirements. The Site for every Planning Priority Project shall be designed to control pollutants, pollutant loads, and runoff volume to the maximum extent feasible by minimizing impervious surface area and controlling runoff from impervious surfaces through infiltration, evapotranspiration, bioretention and/or rainfall harvest and use.

(1) A new single-family hillside home development shall include mitigation measures to:

a. Conserve natural areas;

b. Protect slopes and channels;

c. Provide storm drain system stenciling and signage;
d. Divert roof runoff to vegetated areas before discharge unless the diversion would result in slope instability; and
e. Direct surface flow to vegetated areas before discharge, unless the diversion would result in slope instability.

(2) Street and road construction of 10,000 square feet or more of impervious surface shall be in accordance with the City of Claremont's Green Street Policy and the USEPA guidance regarding Managing Wet Weather with Green Infrastructure: Green Streets (December 2008 EPA-833-F-08-009) to the maximum extent practicable.

(3) The remainder of Planning Priority Projects shall prepare a LID Plan to comply with the following:

a. Retain stormwater runoff onsite for the Stormwater Quality Design Volume (SWQDv) defined as the runoff from:
   i. The 85th percentile 24-hour runoff event as determined from the Los Angeles County 85th percentile precipitation isohyetal map; or
   ii. The volume of runoff produced from a 0.75 inch, 24-hour rain event, whichever is greater.

b. When, as determined by the City of Claremont, 100 percent onsite retention of the SWQDv is technically infeasible, partially or fully, the infeasibility shall be demonstrated in the submitted LID Plan. The technical infeasibility may result from conditions that may include, but are not limited to:

   i. The infiltration rate of saturated in-situ soils is less than 0.3 inch per hour and it is not technically feasible to amend the in-situ soils to attain an infiltration rate necessary to achieve reliable performance of infiltration or bioretention BMPs in retaining the SWQDv onsite.
   ii. Locations where seasonal high groundwater is within five (5) to ten (10) feet of surface grade;
   iii. Locations within 100 feet of a groundwater well used for drinking water;
   iv. Brownfield development sites or other locations where pollutant mobilization is a documented concern;
   v. Locations with potential geotechnical hazards;
   vi. Smart growth and infill or redevelopment locations where the density and/ or nature of the project would create significant difficulty for compliance with the onsite volume retention requirement.

c. If partial or complete onsite retention is technically infeasible, the project Site may biofiltrate 1.5 times the portion of the remaining SWQDv that is not reliably retained onsite. Biofiltration BMPs must adhere to the design specifications and requirements specified in the Los Angeles County Municipal NPDES Permit.

i. Additional alternative compliance options such as offsite infiltration may be available to the project Site. The project Site should contact the City of Claremont to determine eligibility.

d. The remaining SWQDv that cannot be retained or biofiltered onsite must be treated onsite to reduce pollutant loading. BMPs must be selected and designed to meet pollutant-specific benchmarks as required per the Municipal NPDES Permit. Flow-through BMPs may be used to treat the remaining SWQDv and must be sized based on a rainfall intensity of:

i. 0.2 inches per hour, or

ii. The one-year, one-hour rainfall intensity as determined from the most recent Los Angeles County isohyetal map, whichever is greater.

e. A Multi-Phased Project may comply with the standards and requirements of this section for all of its phases by: (a) designing a system acceptable to the City of Claremont to satisfy these standards and requirements for the entire Site during the first phase, and (b) implementing these standards and requirements for each phase of Development or Redevelopment of the Site during the first phase or prior to commencement of construction of a later phase, to the extent necessary to treat the stormwater from such later phase. For purposes of this section, "Multi-Phased Project" shall mean any Planning Priority Project implemented over more than one phase and the Site of a Multi-Phased Project shall include any land and water area designed and used to store, treat or manage stormwater runoff in connection with the Development or Redevelopment, including any tracts, lots, or parcels of real property, whether Developed or not, associated with, functionally connected to, or under common ownership or control with such Development or Redevelopment.

(F) Non-Planning Priority Projects. For new development or redevelopment projects not meeting the "Planning Priority Projects" thresholds, but which may potentially have adverse impacts on post-development storm water quality, a site-specific plan including post-construction design, source and/or treatment control to mitigate storm water pollution shall be required where one or more of the following project characteristics exist:

a. Vehicle or equipment fueling areas;
b. Vehicle or equipment maintenance areas, including washing and repair;
c. Commercial or industrial waste handling or storage;
d. Outdoor handling or storage of hazardous materials;
e. Outdoor manufacturing areas;
f. Outdoor food handling or processing;
g. Outdoor animal car, confinement, or slaughter; or
h. Outdoor horticultural activities.

(G) Other Agencies of the City of Claremont. All City of Claremont departments, offices, entities and agencies, shall establish administrative procedures necessary to implement the provisions of this Article on their Development and

Redevelopment projects and report their activities annually to the Director of Community Development.

(H) Certification. As a condition for issuing a certificate of occupancy for a new development or redevelopment project the Director, shall require the applicant, facility operators and/or owners, as appropriate, to construct and/or employ all stormwater control BMPs identified in the approved development planning documents and submit a signed certification stating that the project site and all BMPs will be employed and maintained in compliance with the City's LID/SUSMP ordinance and other applicable regulatory requirements until the responsibility for such maintenance is legally transferred.

(I) Fees. City Council may establish fees for services provided under this Chapter, as authorized under Sections 66016 and 66018 of the California Government Code.

8.28.060 Violations and Enforcement

A. Enforcement - Director's powers and duties. The director shall have primary responsibility for the enforcement of the regulations in this chapter. The director may enter into agreements with other departments for the purpose of implementing this chapter.

B. Identification for inspectors and maintenance personnel. The director shall provide means of identification to inspectors and storm drain system maintenance personnel which shall identify them as such. Inspectors and storm drain system maintenance personnel shall identify themselves upon request in the performance of their duties under this chapter.

C. Obstructing access to facilities prohibited. No object, whether a permanent structure, a temporary structure, or any object which is difficult to remove, shall be located on any storm drain easement or placed in such a position as to interfere with the ready and easy access to any facility conveying stormwater or runoff as described in this chapter unless authority is granted by the director. Upon notification by the director, any such obstruction shall be immediately removed by the responsible party at no expense to the city, and shall not be replaced.

D. Inspection to ascertain compliance - Access required.

1. The director may inspect in a manner authorized by law, as often as he/she deems necessary, any publicly or privately owned storm drain, storm drain connection, street, gutter, yard, plant, storage facility, building, BMP, NPDES permit, SWPPP, stormwater management plan, construction activity or other facility to ascertain whether such facilities, plans, or protective measures are in place, maintained and operated in accordance with the provisions of this chapter.

2. In the course of such inspection, the director may:

a. Inspect, sample, make flow measurements of any runoff, discharge or threatened discharge;

b. Place on the premises devices for runoff or discharge sampling, monitoring, flow

measuring or metering;
c. Inspect, copy, or examine any records, reports, plans, test results or other information required to carry out the provisions of this chapter, to the extent allowed by law; and
d. Photography any materials, storage areas, waste, waste containers, BMP, vehicle, connection, discharge, runoff and/or violation discovered during an inspection.

E. Interference with inspector prohibited. No person shall, during reasonable hours, refuse, restrict, resist or attempt to resist the entrance of the director into any building, factory, plant, yard, construction project or other place or portions thereof in the performance of his/her duty within the powers conferred upon him/her by law.

F. Notice to correct violations - Director may take action. The director may issue a notice of violation and order to comply to achieve compliance with the provisions of this chapter. Failure to comply with the terms and conditions of a notice of violation and order to comply shall constitute a violation of this chapter. If a person fails to comply with an order issued under this section to remove an illicit connection, obstruction or other encroachment to the storm drain system, the director may perform the work as provided in Section 8.28.060 H. of this chapter. The person responsible for installing or operating such a facility shall be liable to the city for the cost of such work, including reasonable attorneys' fees and other costs of enforcement, to be recovered in a civil action in any court of competent jurisdiction.

G. Violation a public nuisance. Any discharge in violation of this chapter, any illicit connection, and/or any violation of runoff management requirements shall constitute a threat to public health and safety and is declared and deemed a public nuisance.

H. Nuisance abatement - Costs. Whenever a nuisance shall be found to exist on any premises, the director may summarily abate such nuisance upon determination that the nuisance constitutes an immediate threat to public health or safety, or the director may notify in writing the person(s) having control of or acting as agent for such premises to abate or remove such nuisance within such time as is stated on the notice. Upon the failure or refusal of such person(s) to comply with the notice, the director may abate such nuisance in the manner provided by law. The person(s) having control of such premises, in addition to the penalties provided by this chapter, shall be liable to the city for any costs incurred by the city fur such abatement, including reasonable attorneys' fees and other costs of enforcement, to be recovered in a civil action in any court of competent jurisdiction.

I. Violation - Penalty. Any person violating any provision of this chapter shall be guilty of a misdemeanor. Such violation shall be punishable by a fine of not more than $1,000.00 or by imprisonment in the county jail for a period not to exceed six months. Each day during any portion of which such violation is committed, continued or permitted shall constitute a separate offense and shall be punishable as such.

J. Penalties not exclusive. Penalties under this chapter are in addition to, and do not supercede or limit, any and all other penalties or remedies provided by law.

K. Conflicts with other code sections. The provisions of this chapter shall control over any inconsistent or conflicting provisions of this code.

L. Severability. If any portion of this chapter or the application thereof to any person or

circumstance is held invalid, the remainder of this chapter, and the application of such provisions to other persons or circumstances, shall not be affected thereby. (00-07).38.28

SECTION 2. The City Council finds that the adoption of this Ordinance amending the Municipal Code is exempt from the requirements of the California Environmental Quality Act (CEQA) on the basis that (1) State CEQA Guidelines sections 15308 and 15309 each categorically exempt the proposed adoption of the Ordinance since it is an action taken to protect natural resources and the environment (specifically, water quality within the watershed under the jurisdiction of the Los Angeles Regional Water Quality Control Board), and environmental considerations have been accounted for insofar as the entirety of the proposed Ordinance is environmentally beneficial and would have no indirect adverse environmental effects; and (2) the proposed Ordinance is not a "project" pursuant to CEQA since it can be seen with certainty that no adverse effect on the physical environment would occur pursuant to the proposed Ordinance since the only effects on the environment would be to improve water quality in stormwater channel discharges, and these effects are beneficial, and not adverse (see State CEQA Guidelines section 15061(b)(3)). City staff is directed to file a Notice of Exemption with the County Clerk within five (5) working days of the adoption of this Ordinance.

SECTION 3. The Mayor shall sign this ordinance and the City Clerk shall attest and certify to the passage and adoption of it, and within fifteen (15) days, publish in the Claremont Courier, a semi-weekly newspaper of general circulation, printed, published and circulated in the City of Claremont, and thirty (30) days thereafter it shall take effect and be in force.

PASSED, APPROVED and ADOPTED this _____ day of _____, 2014.

_____
Mayor, City of Claremont

ATTEST:

_____
City Clerk, City of Claremont

APPROVED AS TO FORM:

_____
City Attorney, City of Claremont

CLAREMONT CITY COUNCIL
Certificate of Action

I, Jamie Costanza, Deputy City Clerk of the City of Claremont, California, hereby certify, under penalty of perjury, that the following is a true and correct copy of action taken by the City Council of the City of Claremont at a regular meeting of said Council held June 24, 2014:

Municipal Separate Storm Sewer System (MS4) Permit; Authorization to Submit Draft Watershed Management Plan (WMP) and Coordinated Integrated Monitoring Plan (CIMP) to the Los Angeles Regional Water Quality Control Board; Amendment to Chapter 8.28 (Stormwater and Runoff Pollution Control of the Claremont Municipal Code; Adoption of the City of Claremont Green Streets Policy

Councilmember Calaycay moved to authorize the submittal of the Draft WMP and CIMP with the Los Angeles Regional Water Quality Control Board, introduced AN ORDINANCE OF THE CITY OF CLAREMONT, CALIFORNIA, AMENDING CHAPTER 8.28 OF TITLE 8 (STORMWATER AND RUNOFF POLLUTION CONTROL) OF THE CLAREMONT MUNICIPAL CODE ESTABLSIHING LOW IMPACT DEVELOPMENT REQUIREMENTS FOR NEW AND REDEVELOPED PROPERTIES, AND UPDATING SAID CHAPTER TO INCORPORATE NEW MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) PERMIT REQUIREMENTS ASSOCIATED WITH DISCHARGE AND CONNECTION INTO THE STORM DRAIN SYSTEM, AND CONTROL OF STORMWATER AND NON-STORMWATER RUNOFF; waived further reading, placed the Ordinance on first reading, referred the Ordinance to the City Attorney for not less than five days, and direct staff to publish a summary of the Ordinance in the local newspaper; adopted Resolution No. 2014-53, A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CLAREMONT, CALIFORNIA, ADOPTING THE CITY OF CLAREMONT GREEN STREETS POLICY; and allowed the City of Claremont logo to be affixed to the letter presented by the League of California Cities and California Contract Cities, thereby supporting the use of California Water Bond funding for stormwater and urban runoff projects, seconded by Councilmember Pedroza, and carried on a roll call vote as follows:

AYES: ***Councilmember – Calaycay, Lyons, Nasiali, Pedroza, Schroeder***
NOES: ***Councilmember – None***
ABSENT: ***Councilmember – None***

Executed this 26th day of June, 2014, at Claremont, California.

Jamie Costanza
Deputy City Clerk
City of Claremont

City of La Verne Green Streets Policy-Draft

Purpose

The City of La Verne shall consider implementing green street BMPs for transportation corridors associated with new and redevelopment street and roadway projects. This policy is enacted to demonstrate compliance with the NPDES MS4 Permit for the Los Angeles Region (Order No. R4-2012-0175).

Green streets are an amenity that can provide water quality improvement by preventing stormwater runoff through the use of vegetated facilities. Through the use of infiltration, biofiltration and storage mechanisms, a green street can provide water quality benefits, replenish groundwater, create attractive streetscapes, connect neighborhoods, create parks and wildlife habitats, and provide pedestrian and bicycle access.

Policy

A. Application. The City of La Verne shall require that new public and private construction of 10,000 sq. ft. or more of impervious surface area and road development that results in the creation or addition or replacement of 5,000 sq. ft. or more of impervious surface area on an already developed site consider green street implementation. Routine maintenance or repair and linear utility projects are excluded from these requirements. Routine maintenance includes slurry seals, repaving and reconstruction of the road or street where the original line and grade are maintained.

B. Amenities. The City of La Verne shall consider opportunities to replenish groundwater, create attractive streetscapes, create parks and wildlife habitats, and provide pedestrian and bicycle accessibility through new development and redevelopment of streets and roadway projects and CIPs for both private and public projects.

C. Best Management Practices (BMPs). The City of La Verne shall use the City of Los Angeles Green Streets guidance, USEPA's *Managing Wet Weather with Green Infrastructure Municipal Handbook: Green Streets*[1], or equivalent guidance developed by the City of La Verne for use in public and private developments.

D. Retrofit Scope. The City of La Verne shall use the City's Watershed Management Program or Enhanced Watershed Management Program to identify opportunities for green street BMP retrofits. Final decisions regarding implementation will be determined by the Director of Public Works based on the availability of adequate funding.

E. Training. The City of La Verne shall incorporate aspects of green streets into internal annual staff trainings.

Exhibit A – Ordinance No. XXXX
City of La Verne Zoning Amendment Case No. XXX-XXZA
Amending Title 13 to add Chapter 13.60

Low Impact Development

Title 13 of the La Verne is hereby amended to add the following Chapter:

Chapter 13.60 Low Impact Development

13.60.010 Title

This Chapter shall be known as the "City of La Verne Low Impact Development (LID) Ordinance" and may be so cited.

13.60.020 Purpose

It is the purpose of this chapter to establish minimum stormwater management requirements and controls to accomplish, among others, the following objectives:

A. Lessen the water quality impacts of development by using smart growth practices such as compact development, directing development toward existing communities via infill or redevelopment, and safeguarding of environmentally sensitive areas.

B. Minimize the adverse impacts for stormwater runoff on the biological integrity of Natural Drainage Systems and the Beneficial uses of waterbodies.

C. Minimize the percentage of impervious surfaces on land developments by minimizing soil compaction during construction, designing projects to minimize the impervious area footprint, and employing Low Impact Development (LID) design principles to mimic predevelopment hydrology through infiltration, evapotranspiration and rainfall harvest and use.

D. Maintain existing riparian buffers and enhance riparian buffers when possible.

E. Minimize pollutant loadings from impervious surfaces such as roof tops, parking lots, and roadways through the use of properly designed, technically appropriate Best Management Practices (BMP's), (including Source Control BMP's such as good housekeeping practices), LID Strategies, and Treatment Control BMP's.

F. Properly select, design and maintain LID and Hydromodification Control BMP's to address pollutants that are likely to be generated, reduce changes to pre-development hydrology, assure long-term function, and avoid the breeding of vectors.

G. Prioritize the selection of BMP's to remove stormwater pollutants, reduce stormwater runoff volume, and beneficially use stormwater to support an integrated approach to protecting water quality and managing water resources in the following order of preference:

    1. On-site infiltration bioretention and/or rainfall harvest and use.

    2. On-site biofiltration, off-site ground water replenishment, and/or off-site retrofit.

13.60.030 Findings

The City of La Verne hereinafter referred to as "City" finds that:

A. Waterbodies, roadways, structures, and other property within and downstream of the City are at times subject to flooding.

B. Land development alters the hydrologic response of watersheds, resulting in increased stormwater runoff rates and volumes, increased flooding, increased stream channel erosion, increased sediment transport and deposition, and increased nonpoint source pollutant loading to the receiving waterbodies and the beaches.

C. Stormwater runoff produced by land development contributes to increased quantities of water-borne pollutants.

D. Increases of stormwater runoff, soil erosion, and non-point source pollution have occurred as a result of land development, and have impacted the water resources of the San Gabriel River Watershed.

E. Increased stormwater runoff rates and volumes and the sediments and pollutants associated with stormwater runoff from future development projects within the City have the potential, absent proper regulation and control, adversely affect the City's waterbodies and water resources, and those of downstream municipalities.

F. Stromwater runoff, soil erosion, and non-point source pollution can be controlled and minimized by the regulation of stormwater runoff from development.

G. Adopting the standards, criteria, and procedures contained in this chapter and implementing the same will address many of the deleterious effects of stormwater runoff.

13.60.040 Definitions

Except as specifically provided herein, any term used in this Chapter shall be defined as that term in the current Municipal NPDES permit, or if it is not specifically defined in either the Municipal NPDES permit, then as such term is defined in the Federal Clean Water Act, as amended, and/or the regulations promulgated thereunder. If the definition of any term contained in this Chapter conflicts with the definition of the same term in the current Municipal NPDES permit, then the definition contained in the Municipal NPDES permit shall govern. The following words and phrases shall have the following meanings when used in this Chapter.

"Automotive Service Facility" means a facility that is categorized in any one of the following Standard Industrial Classification (SIC) and North American Industry Classification System (NAICS) codes. For inspection purposes, Permittees need not inspect facilities with SIC codes 5013, 5014, 5541, 5511, provided that these facilities have no outside activities or materials that may be exposed to stormwater.

"Basin Plan" means the Water Quality Control Plan, Los Angeles Region, Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties, adopted by the Regional Water Board on June 13, 1994 and subsequent amendments.

"Best Management Practice (BMP)" means practices or physical devices or systems designed to prevent or reduce pollutant loading from stormwater or non-stormwater discharges to receiving waters, or designed to reduce the volume of stormwater or non-stormwater discharged t the receiving water.

"Biofiltration" means a LID BMP that reduces stormwater pollutant discharges by intercepting rainfall on vegetative canopy, and through incidental infiltration and/or evapotranspiration, and filtration. Incidental infiltration is an important factor in achieving the required pollutant load reduction. Therefore, the term "biofiltration" as

used in this Chapter is defined to include only systems designed to facilitate incidental infiltration or achieve the equivalent pollutant reduction as biofiltration BMP's with an underdrain (subject to approval by the Regional Board's Executive Officer). Biofiltration BMP's include bioretention systems with an underdrain and bioswales.

"Bioretention" means a LID BMP that reduces stormwater runoff by intercepting rainfall on vegetative canopy, and through evapotranspiration and infiltration. The bioretention system typically includes a minimum two (2) foot top layer of a specified soil and compost mixture underlain by a gravel-filled temporary storage pit dug into the in-situ soil. As defined in the Municipal NPDES permit, a bioretention BMP may be designed with as overflow drain, but may not include an underdrain. When a bioretention BMP is designed or constructed with an underdrain it is regulated by the Municipal NPDES permit as biofiltration.

"Bioswale" means a LID BMP consisting of a shallow channel lined with grass or other dense, low-growing vegetation. Bioswales are designed to collect stormwater runoff and to achieve a uniform sheet flow through the dense vegetation for a period of several minutes.

"City" means the City of La Verne.

"City Engineer" means the City Engineer for the City of La Verne.

"Clean Water Act (CWA)" means the Federal Water Pollution Control Act enacted in 1972, by Public Law 92-500, and amended by the Water Quality Act of 1987. The Clean Water Act prohibits the discharge of pollutants to Waters of the United States unless the discharge is in accordance with an NPDES permit.

"Commercial Malls" means any development on private land comprised of one or more buildings forming a complex of stores which sells various merchandise, with interconnecting walkways enabling visitors to easily walk from store to store, along with parking area(s). A commercial mall includes, but is not limited to: mini-malls, strip malls, other retail complexes, and enclosed shopping malls or shopping centers.

"Construction Activity" means any construction or demolition activity, clearing, grading, grubbing, or excavation or any other activity that results in land disturbance. Construction does not include emergency construction activities required to immediately protect public health and safety or routine maintenance activities required to maintain the integrity of structures by performing minor repair and restoration work, maintain the original line of grade, hydraulic capacity, or original purposes of the facility. See "Routine Maintenance" definition for further explanation. Where clearing, grading, or excavating of underlying soil takes place during a repaving operation, State General Construction Permit coverage by the State of California General Permit for Storm Water Discharges Associated with Industrial Activities or for Stormwater Discharges Associated with Construction Activities is required if more than one acre is disturbed or the activities are part of a larger plan.

"Control" means to minimize, reduce or eliminate by technological, legal, contractual, or other means, the discharge of pollutants from an activity or activities.

"Conveyance Facility" means a storm drain, pipe, swale, or channel used to collect and direct stormwater.

"Design Engineer" means the registered professional engineer responsible for the design of the stormwater management plan.

"Detention System" means a system, which is designed to capture stormwater and release it over a given period of time through an outlet structure at a controlled rate.

"Development" means construction, rehabilitation, redevelopment or reconstruction of any public or private residential project (whether single-family, multi-unit, or planned unit development); industrial, commercial, retail, and other non-residential projects, including public agency projects; or mass grading for future construction. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately project public health and safety.

"Directly Adjacent" means situated within 200 feet of the contiguous zone required for the continued maintenance, function, and structural stability of the environmentally sensitive area.

"Director" means the Director of Public Works for the City of La Verne.

"Discharge" means any release, spill, leak, pump, flow, escape, dumping, or disposal of any liquid, semi-solid, or solid substance.

"Disturbed Area" means an area that is altered as a result of clearing, grading, and/or excavation.

"Engineered Site Grading Plan" means a scaled drawing or plan and accompanying text prepared by a registered engineer or landscape architect which shows alteration of topography, alterations of watercourses, flow directions of stormwater runoff, and proposed stormwater management and measures which are prepared to ensure that the objectives of this Chapter are met.

"Flow-through BMP's" means modular, vault type "high flow biotreatment" devices contained within an impervious vault with an underdrain or designed with an impervious liner and an underdrain.

"General Construction Activities Storm Water Permit (GCASP)" means the general NPDES permit adopted by the State Board, which authorizes the discharge of stormwater from construction activities under certain conditions.

"General Industrial Activities Storm Water Permit (GIASP)" means the general NPDES permit adopted by the State Board which authorizes the discharge of stormwater from certain industrial activities under certain conditions.

"Grading" means any stripping, excavation, filling, and stockpiling of soil or any combination thereof and the land in its excavated or filled condition.

"Green Roof" means a LID BMP using planter boxes and vegetation to intercept rainfall on the roof surface. Rainfall that is intercepted by vegetation leaves through evapotranspiration. Green roofs may be designed as either a bioretention BMP or as a biofiltration BMP. To receive credit as a bioretention BMP, the green roof systems planting medium shall be of sufficient depth to provide capacity within the pore space volume to contain the design storm depth and may not be designed or constructed with an underdrain.

"Hazardous Material(s)" means any material(s) defined as hazardous by Division 20, Chapter 6.95 of the California Health and Safety Code.

"Hillside" means a property located in an area with known erosive soil conditions, where the development contemplates grading on any natural slope that is 25% or greater and where grading contemplates cut or fill slopes.

"Hydromodification" means the alteration of a natural drainage system through a change in the system's flow characteristics.

"Impervious Surface" means any man-made or modified surface that prevents or significantly reduces the entry of water into the underlying soil, resulting in runoff from the surface in greater quantities and/or at an increased rate, when compared to natural conditions prior to development. Examples of places that commonly exhibit impervious surfaces include parking lots, driveways, roadways, storage areas, and rooftops. The imperviousness of these areas commonly results from paving, compacted gravel, compacted earth, and oiled earth.

"Industrial Park" means land development that is set aside for industrial development. Industrial parks are usually located close to transport facilities, especially where more than one transport modalities coincide: highways, railroads, airports, and navigable rivers. It includes office parks, which have offices and light industry uses.

"Infiltration BMP" means a LID BMP that reduces stormwater runoff by capturing and infiltrating the runoff into in-situ soils or amended onsite soils. Examples of infiltration BMP's include infiltration basins, dry wells, and pervious pavement.

"LID" means Low Impact Development. LID consists of building and landscape features designed to retain or filter stormwater runoff.

"Maximum Extent Practicable or MEP" means the extent, which the City can reduce, the discharge of pollutants in stormwater runoff. MEP requires selecting and implementing effective BMP's, and rejecting applicable BMP's only where: other effective BMP's will serve the same purpose, the BMP's would not be technically feasible; or the cost would be prohibitive. Factors considered include, but are not limited to:

A. Effectiveness: Whether the BMP addresses a pollutant of concern.

B. Regulatory Compliance: Whether the BMP complies with storm water regulation, as well as other environmental regulations.

C. Public Acceptance: Whether the BMP has public support.

D. Cost: Whether the cost of implementing the BMP has a reasonable relationship to the pollution control benefits achieved.

E. Technical Feasibility: Whether the BMP is technically feasible, considering soils, geography, and water resources.

"MS4" means Municipal separate Storm Drain Sewer System (MS4). The MS4 is a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains):

A. Owned or operated by a State, City, Town, Borough, County, Parish, District, Association, or other public body (created by to pursuant to State Law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State Law such as sewer districts, flood control district or drainage districts, or similar entity, or an Indian Tribe or an authorized Indian Tribal Organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States;

B. Designed or used for collecting stormwater;

C. Which is not a combined sewer; and

D. Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR Section 122.2.

"National Pollutant Discharge Elimination System (NPDES)" means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under CWA Sections 307, 402, 318, and 405. The term includes an "approved program".

"Natural Drainage System" means a drainage system that has not been improved (e.g., channelized or armored). The clearing or dredging of a natural drainage system does not cause the system to be classified as an improved drainage system.

"New Development" means land disturbing activities, structural development, including construction or installation of a building or structure, creation of impervious surfaces, and land subdivision.

"Non-stormwater Discharge" means any discharge to a municipal storm drain system that is not composed entirely of stormwater.

"Parking Lot" means land area or facility for the parking or storage of motor vehicles used for business, commerce, industry, or personal use, with a lot size of 5,000 square feet or more of surface area, or with 25 or more parking spaces.

"Planning Priority Projects" means development projects subject to permittee conditioning and approval for the design and implementation of post-construction controls to mitigate stormwater pollution prior to completion of the project(s).

"Pollutant" means any "pollutant" defined in Section 502(6) of the Federal Clean Water Act or incorporated into the California Water Code Sec. 13373. Pollutants may include, but are not limited to the following:

1. Commercial and industrial waste such as: fuels, solvents, detergents, plastic pellets, hazardous substances, fertilizers, pesticides, slag, ash, and sludge.

2. Metals such as: cadmium, lead, zinc, copper, silver, nickel, chromium, and non-metals such as phosphorus and arsenic.

3. Petroleum hydrocarbons such as fuels, lubricants, surfactants, waste oils, solvents, coolants, and grease.

4. Excessive eroded soil, sediment, and particulate materials in amounts that may adversely affect the beneficial use of the receiving waters, flora, or fauna of the State.

5. Animal wastes such as discharge from confinement facilities, kennels, pens, recreational facilities, stables, and show facilities.

6. Substances having characteristics such as pH less than 6 or greater than 9, or unusual coloration or turbidity, or excessive levels of fecal coliform, or fecal streptococcus, or enterococcus.

"Public Works Department" means the City of La Verne Public Works Department.

"Project" means all development, redevelopment, and land disturbing activities. The term is not limited to "Project" as defined under CEQA.

"Rainfall Harvest and Use" means a LID BMP system designed to capture runoff, typically from a roof but can also include runoff capture from elsewhere within the site, and to provide for temporary storage until the harvested water can be used for irrigation or non-potable uses.

"Receiving Water" means "water of the United States" into which waste and/or pollutants are or may be discharged.

"Redevelopment" means land-disturbing activity that results in the creation, addition, or replacement of 5,000 square feet or more of impervious surface area on an already developed site. Redevelopment includes, but is not limited to: the expansion of a building footprint; addition or replacement of a structure; replacement of impervious surface area that is not part of routine maintenance activity; and land disturbing activity related to structural or impervious surfaces. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of a facility, nor does it include emergency construction activities required to immediately protect public health and safety.

"Regional Board" means the California Regional Water Quality Control Board, Los Angeles Region.

"Retail Gasoline Outlet" means any facility engaged in selling gasoline and lubricating oils.

"Retention" means a holding system for stormwater, either natural or man-made, which does not have an outlet to adjoining watercourses or wetlands, and in which water is removed through infiltration and/or evaporation processes.

"Routine Maintenance" routine maintenance projects include, but are not limited to projects conducted to:

1. Maintain the original line and grade, hydraulic capacity, or original purpose of the facility.

2. Perform as needed restoration work to preserve the original design grade, integrity, and hydraulic capacity of flood control facilities.

3. Includes road shoulder work, regarding dirt or gravel roadways and shoulders and performing ditch cleanouts.

4. Update existing lines* and facilities to comply with applicable codes, standards, and regulations regardless if such project results in increased capacity.

5. Repair leaks

Routine maintenance does not include construction of new** lines or facilities resulting from compliance with applicable codes, standards and regulations.
*Update existing lines includes replacing existing lines with new materials or pipes.
**New lines are those that are not associated with existing facilities and are not part of a project to update or replace existing lines.

"Sediment" means mineral or organic matter that has been removed from its site of origin by the process of soil erosion, is in suspension in water, or is being transported.

"Significant Ecological Areas (SEA's)" means an area that is determined to possess an example of biotic resources that cumulatively represent biological diversity, for the purposes of protecting biotic diversity. Areas are designated as SEA's, if they possess one or more of the following criteria:

A. The habitiat of rare, endangered, and threatened plant and animal species.

B. Biotic communities, vegetative associations, and habitat of plant and animal species that are either one of a kind, or are restricted in distribution on a regional basis.

C. Biotic communities, vegetative associations, and habitat of plant and animal species that are wither one of a kind or are restricted in distribution in Los Angeles County.

D. Habitat that at some point in the life cycle of a species or group of species, serves as a concentrated breeding, feeding, resting, migrating grounds and is limited in availability either regionally or within Los Angeles County.

E. Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent an unusual variation in population or community.

F. Areas important as game species habitat or as fisheries.

G. Areas that would provide for preservation of relatively undisturbed examples of natural biotic communities in Los Angeles County.

H. Special Areas.

"Site" means land or water area where any "facility or activity" is physically located or conducted, including adjacent land used in connection with the facility or activity.

"Storm Drain System" means any facilities or any part of those facilities, including streets, gutters, conduits, natural or artificial drains, channels, and watercourses that are used for the purpose to collecting, storing, transporting, or disposing of stormwater and are located within the City of La Verne.

"Storm Water or Stormwater" means water that originates from atmospheric moisture (rain or snow) and that falls onto land, water, or other surfaces. Without any change in it's meaning, this term may be spelled or written as one word or two separate words.

"Stormwater Runoff" means that part of precipitation (rainfall or snowmelt) which travels across a surface to the storm drain system or receiving waters.

"SUSMP" means the Los Angeles Countywide Standard Urban Stormwater Mitigation Plan. The SUSMP was required as part of the previous Municipal NPDES permit Order No. 01-183, NPDES No. CAS004001, and required plans that designate best management practices (BMP's) that must be used in specified categories of development projects.

"Urban Runoff" means surface water flow produced by storm and non-storm events. Non-storm events include flow from residential, commercial, or industrial activities involving the use of potable and non-potable water.

"Water Quality Design Storm Event" means any of the volumetric or flow rate based design storm events for water quality BMP's identified in the National Pollutant Discharge Elimination System Municipal Stormwater Permit for the County of Los Angeles.

13.60.050 Construction of Language

For purposes of this Chapter, the following rules of construction apply:

A. Terms not specifically defined in this Chapter shall have the meaning customarily assigned to them.

B. Considering that stormwater management in many cases requires sophisticated engineering design and improvements, some of the terms of this chapter are complex in nature. Effort has been made to simplify terms the extent the subject matter permits.

13.60.060 New Development and Redevelopment Project Provisions Applicability

These procedures and standards set forth in this Chapter and the BMP design information found in the Los Angeles County Municipal Storm Water Permit Order No.

R4-2012-0175, and any amendment, revision, or reissuance thereof provide minimum standards to be complied with by developers and in no way limit the authority of the City to adopt or publish and/or enforce higher standards as a condition of approval of developments.

A. New Development Projects

Development projects subject to City conditioning and approval for the design and implementation of post-construction controls to mitigate stormwater pollution prior to completion of the project(s) include:

1. All development projects equal to 1 acre or greater of disturbed area and adding more than 10,000 square feet of impervious surface area.

2. Industrial parks 10,000 square feet or more of surface area.

3. Commercial malls 10,000 square feet or more of surface area.

4. Retail gasoline outlets 5,000 square feet or more of surface area.

5. Restaurants 5,000 square feet or more of surface area.

6. Parking lots 5,000 square feet or more of impervious surface area, or with 25 or more parking spaces.

7. Street and road construction of 10,000 square feet or more of impervious surface area shall follow the City's Green Streets Policy to the maximum extent practicable. Street and road construction applies to streets, roads, highways, and freeway projects, and also applies to streets within larger projects.

8. Automotive service facilities (as referenced by standard industrial classifications in the Los Angeles County Municipal Storm Water Permit Order No. R4-2012-0175, and any amendment, revision, or reissuance thereof) 5,000 square feet or more of surface area.

9. Redevelopment projects in subject categories that meet Redevelopment thresholds identified in Part B (Redevelopment Projects) below.

10. Projects located in or within 200 feet of, or discharge directly to a Significant Ecological Area (SEA), where the development will:

    i. Discharge stormwater runoff that is likely to impact a sensitive biological species or habitat; and

    ii. Create 2,500 square feet of impervious surface area.

11. Single-family hillside homes. During the construction of a single-family hillside home, the following measures shall be considered to the maximum extent practicable:

    i. Conserve natural areas.

    ii. Protect slopes and channels.

    iii. Provide storm drain system stenciling and signage.

    iv. Divert roof runoff to vegetated areas before discharge unless the diversion would result in slope instability.

    v. Direct surface flow to vegetated areas before discharge unless the diversion would result in slope instability.

B. Redevelopment Projects

Redevelopment projects subject to conditioning and approval requirements outlined in this Chapter for the design and implementation of post-construction controls to mitigate stormwater pollution prior to completion of the project(s) include:

1. Land-disturbing activity that results in the creation or addition or replacement of 5,000 square feet or more of impervious surface area on an already developed site.

2. Redevelopment projects that result in an alteration to more than fifty (50) percent of impervious surfaces of an existing development which had not been subject to post-construction stormwater quality control requirements at the time of the previous development shall be required to mitigate the entire project site.

3. Redevelopment projects that result in an alteration of less than fifty (50) percent of impervious surfaces of an existing development, which had not been subject to post-construction stormwater quality control requirements at the time of the previous development shall be required to mitigate only the alteration and shall not be required to mitigate the entire development.

4. Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of facility or emergency redevelopment activity required to protect public health and safety. Impervious surface replacement, such as the reconstruction of parking lots and roadways, which does not disturb additional area and maintains the original grade and alignment, is considered a routine

maintenance activity. Redevelopment does not include the repaving of existing roads to maintain original line and grade.

5. Existing single-family dwellings and accessory structures are exempt from the Redevelopment requirements unless such projects create, add, or replace 10,000 square feet of impervious surface area.

13.60.070 Project Performance Criteria

A. All development projects that fit the project criteria listed in Section 13.60.060 of this Chapter shall control pollutants, pollutant loads, and runoff volume by retaining the Stormwater Quality Design Volume (SWQDv) on-site through:

    1. Minimizing the impervious surface area; and

    2. Controlling runoff form impervious surfaces through infiltration, bioretention and/or rainfall harvest and use.

13.60.080 Alternative Compliance for Technical Infeasibility

To demonstrate technical infeasibility, the project applicant shall demonstrate to the City Engineer that the project cannot reliably retain 100 percent of the SWQDv on-site, even with the maximum application of green roofs and rainwater harvesting and use, and that compliance with the applicable post-construction requirements would be technically infeasible. This shall be demonstrated by submitting a site-specific hydrologic and/or design analysis conducted and endorsed by a registered professional engineer and shall be subject to review and approval by the City Engineer.

When evaluating the potential for on-site retention, each applicant shall consider the maximum potential for evapotranspiration from green roofs and rainfall harvest and use.

Alternative compliance measures include the following:

A. On-site Biofiltration – Biofiltrantion systems shall meet the design specifications provided in Attachment H of the Los Angeles County Municipal Storm Water Permit Order No. R4-2012-0175, and any amendment, revision, or reissuance thereof. If using biofiltration sue to demonstrated technical infeasibility, then the new project must biofiltrate 1.5 times the portion of the SWQDv that is not reliably retained on-site, as calculated by Equation 1 below:

    Equation 1:
    Bv= 1.5 * [SWQDv - Rv]

    Where:

    Bv = Biofiltration volume

SWQDv = The stormwater runoff from a 0.75 inch, 24-hour storm or the 85th percentile storm, whichever is greater

Rv = Volume reliably retained on-site

B. Offsite infiltration – Use Infiltration or bioretention BMPs to intercept a volume of stormwater runoff equal to the SWQDv, less the volume of stormwater runoff reliably retained on-site, at an approved offsite project. The required offsite mitigation volume shall be calculated by Equation 2 below:

Equation 2:

Mv = 1.0 * [SWQDv - Rv]

Where:

Mv = Mitigation volume

SWQDv = The volume of stormwater runoff reliably retained on-site.

C. Offsite Projects – Retrofit existing Development – Use infiltration, bioretention, rainfall harvesting and use and/or biofiltration BMPs to retrofit an existing development, with similar and uses as the new development or land uses associated with comparable or higher stormwater runoff event mean concentrations (EMCs) than the new development. The retrofit plan shall be designed and constructed as described in the Los Angeles County Municipal Storm Water Permit Order No. R4-2012-0175, and any amendment, revision, or reissuance thereof.

D. Other alternative compliance requirements are detailed in the Los Angeles County Municipal Storm Water Permit Order No. R4-2012-0175.

E. Applicants and/or designers may select any combination of stromwater BMPs which meet the performance standards provided in this selection and identified in the Los Angeles County Municipal Storm Water Permit Order No. R4-2012-0175 and any amendment, revision, or reissuance thereof.

13.60.090 Plan Review Procedures

A. All Stormwater Plans shall be subject to review and approval by the City Engineer.

1. If the proposed plan is not sufficient as originally submitted, the City Engineer, or his/her designee, will notify the applicant in writing, setting

forth the reasons for withholding and will state the changes necessary to obtain approval.

2. If the City Engineer determines that all of the required information has not been received, the applicant may request that the matter be tabled to allow for the submittal of the required information.

3. If all of the required information has been received, the City Engineer shall approve, approve with conditions, or recommend denial of the Stormwater Plan, including waiver submissions. Recommendations for action on the Stormwater Plan can be part of the recommendation for action on the site plan or subdivision plat.

B. If the plan is approved, the City will require the following:

1. The applicant shall provide copies of all necessary State, Federal, or local permits relating to stormwater management to the City.

2. A satisfactory maintenance covenant agreement that assures long-term maintenance of all drainage improvements shall be submitted as part of the final plan. The maintenance covenant shall include a listing of the BMP's and their location and required maintenance frequency. The property owner shall be required to document proper maintenance and operations and maintain such records for a period of two (2) years. Maintenance agreements and records shall be provided upon request by the City inspector at any time for compliance verification. Failure to do so will result in enforcement actions per the City Code. The approved covenant shall be recorded with the Los Angeles County Recorder prior to issuance of occupancy.

3. A satisfactory maintenance covenant shall at a minimum include the developer's signed statement accepting responsibility for maintenance until the responsibility is legally transferred: and either:

    i. A signed statement from the pubic entity assuming responsibility for BMP maintenance; or

    ii. Written conditions in the sales or lease agreement, which require the property owner or tenant to assume responsibility for BMP maintenance and conduct an maintenance inspection at least once a year; or

    iii. Written text in project covenants, conditions, and restrictions (CC&R's) for residential properties assigning BMP maintenance responsibilities to the Home Owners Association.

4. The applicant shall post cash or a letter of credit in an amount determined by the City Engineer up to 100 percent of the cost of the stormwater facilities. This deposit shall be held for two (2) years after the date of completion of construction and final inspection of the stormwater facilities, until accepted by the City. The percentage cost for cash or letter of credit may be reduced to 10 percent for projects longer than two (2) years.

5. This deposit shall be returned to the applicant (in case of cash) or allowed to expire (in the case of a letter of credit), as provided above, provided all stormwater facilities are clean, unobstructed, and in good working order, as determined by the City Engineer.

6. Reproducible mylars and electronic files (in AutoCAD format) of the as-built storm and stormwater BMP's shall be submitted by the applicant or his/her engineer to the City along with the final plan, or upon completion of system construction. The mylars are to be of quality material and three mils in thickness. Complete development agreements (including deed restrictions) must be submitted for the City's review and approval prior to recording.

13.60.100 Plan Review Fees

The City Council from time to time shall establish by resolution filing fees for applications, which shall be paid to the City at the time of filing. No application shall be considered filed until the established fees have been paid to the City. No fee will be required in the case of proceedings initiated by either the Council or Planning Commission.

13.60.110 Maintenance Agreement

A. Maintenance Agreement Required – A Maintenance Agreement shall be submitted to the City for review by the City Engineer and his/her designee, and if necessary, City Attorney. The Designers may select any combination of stormwater BMP's which meet the performance standards provided in the this section and identified in the Los Angeles County Municipal Storm Water Permit No. R4-2012-0175 and any amendment, revision, or reissuance thereof. A formal Maintenance Plan shall be included in the Maintenance Agreement.

B. Purpose of the Maintenance Agreement is to provide the means and assurance that maintenance of stormwater BMP's shall be undertaken.

C. Maintenance Agreement Provisions shall include:

1. The Maintenance Agreement shall include a plan for routine, emergency, and long-term maintenance of all stormwater BMP's, with a detailed annual estimated budget for the initial two (2) years, and a clear statement

that only future maintenance activities in accordance with the Maintenance Agreement shall be permitted without the necessity of securing new permits. Written notice of the intent to proceed with maintenance not within the scope of the Maintenance Agreement shall be provided by the party responsible for maintenance to the City at least 14 days in advance of commencing work.

2. The Maintenance Agreement and all its covenants shall be binding on all subsequent owners of land served by the stormwater BMP's.

3. If it has been found by the City, following notice and an opportunity to be heard by the property owner, that there has been a material failure or refusal to undertake maintenance as required under this Chapter and/or as required in the approved Maintenance Agreement as required hereunder, the City shall abate such violation, as a public nuisance, pursuant to the procedures set forth in Chapter 1.04.120 of the La Verne Municipal Code.

D. A fully executed "Maintenance Covenant for Permanent BMP's Requirements" shall be recorded with the Los Angeles County Clerk and be submitted to the Public Works Department prior to the Certificate of Occupancy. Covenant document shall be required to include exhibits that detail all of the installed treatment control devices as well as any site design or source control BMP's for post construction. The information to be provided for this exhibit shall include but not be limited to:

1. 81/2" x 11" exhibits with recorded property owner information.

2. Types of BMP's (i.e. site design, source control, and/or treatment control) to ensure modifications to the site are not conducted without property owner being aware of the ramifications to BMP implementation.

3. A plan that clearly depicts location of BMP's, especially those located below grade.

4. A matrix depicting the types of BMP's, frequency of inspection, type of maintenance required, and if proprietary BMP's, the company information to perform the necessary maintenance.

5. Agreement to retain documentation of proper maintenance records for a period of two (2) years plus current year.

6. Understanding the documentation of proper maintenance must be presented to the City upon request.

13.60.120 Enforcement

Any person violating any provision of this Chapter shall be responsible for a municipal civil infraction and subject to the City's enforcement policy as set forth in the provision of Chapter 1.24 of the La Verne Municipal Code.

13.60.130 Stop Work Order

Where there is work in progress that causes or constitutes in whole or in part, a violation of any provision of this Chapter, the City is authorized to issue a Stop Work Order so as to prevent further or continuing violations or adverse effects. All persons to whom the stop work order is directed, or who are involved in any way with the work or matter described in the stop work order shall fully and promptly comply therewith. The City may also undertake or cause to be undertaken, any necessary or advisable protective measures so as to prevent violations of this chapter or to avoid or reduce the effects of noncompliance herewith. The cost of any such protective measures shall be the responsibility of the owner of the property upon which the work is being done and the responsibility of any person carrying out or participation in the work.

13.60.140 Failure to Comply; Completion

In addition to any other remedies, should any property owner fail to comply with the provisions of this Chapter, the City may, after the giving of reasonable notice and opportunity for compliance, have the necessary work done, and the owner shall be obligated to promptly reimburse the City for all costs of such work.

13.60.150 Emergency Measures

When emergency measures are necessary to moderate a nuisance, to protect public safety, heath and welfare, and/or prevent loss of life, injury or damage to property, the City is authorized to carry out or arrange for all such emergency measures. Property owners shall be responsible for the cost of such measures made necessary as a result of a violation of this Chapter, and shall promptly reimburse the City for all such costs.

13.60.160 Cost Recovery for Damage to Storm Drain System

A discharger shall be liable for all costs incurred by the City as the result of causing a discharge that produces a deposit or obstruction, or causes damage to, or impairs a storm drain, or violates any of the provisions of this chapter. Costs include, but are not limited to, those penalties levied by the Environmental Protection Agency or Los Angeles Regional Water Quality Control Board for violation of an NPDES permit, attorney fees, and other costs and expenses.

City of Pomona
Green Streets Policy

Purpose

The City of Pomona shall implement green street Best Management Practice (BMPs) for transportation corridors associated with new and redevelopment street and roadway projects, including Capital Improvement Projects (CIPs). This policy is enacted to demonstrate compliance with the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit for the Los Angeles Region (Order No. R4-2012-0175).

Green streets are an amenity that provides many benefits including water quality improvement, groundwater replenishment, creation of attractive streetscapes, creation of parks and wildlife habitats, and pedestrian and bicycle accessibility. Green streets are defined as right-of-way areas that incorporate infiltration, biofiltration, and/or storage and use BMPs to collect, retain, or detain stormwater runoff while also providing design elements that creates attractive streetscapes. Green Streets can foster unique and attractive streetscapes that protect and enhance neighborhood livability and integrate, rather than separate, the built and natural environments. Green Streets encourage the planning of landscapes and vegetation. City landscapes and trees contribute environmental benefits such as reduced summer air temperatures, reductions in global warming through carbon sequestration, air pollution screening, and wildlife habitat corridors, in addition to stormwater surface runoff reduction.

Policy

A. Application. The City of Pomona shall require new development and/or redevelopment streets and roadway projects and CIP projects conducted within the right-of-way of transportation corridors to incorporate green street BMPs. Transportation corridors projects are major arterials as defined in the City's General Plan which add at least 10,000 square feet of impervious surface. Routine maintenance or repair and linear utility projects are excluded from these requirements. Routine maintenance includes slurry seals, repaving, and reconstruction of the road or street where the original line and grade are substantially maintained.

B. Amenities. The City of Pomona shall consider opportunities to replenish groundwater, create attractive streetscapes, create parks and wildlife habitats, and provide pedestrian and bicycle accessibility through new development and redevelopment of streets and roadway projects and CIPs.

C. Guidance. The City of Pomona shall use the City of Los Angeles Green Streets Guidance, USEPAs *Managing Wet Weather with Green Infrastructure Municipal Handbook: Green Street* or equivalent guidance developed by the City of Pomona for use in public and private developments.

D. Retrofit Scope. The City of Pomona shall use the City's Watershed Management Program to identify opportunities for Green Street BMP retrofits. Final decisions regarding

implementation will be determined by the Public Works Director and/or designee based on the availability of adequate funding.

E. Outreach. The City of Pomona shall educate citizens, businesses, and the development community/industry about Green Streets and how they can serve as urban gateways to enhance, improve, and connect neighborhoods to encourage support, demand and funding for these projects.

F. Training. The City of Pomona shall incorporate aspects of green streets into internal annual staff trainings.

ORDINANCE NO. 4185

AN ORDINANCE OF THE CITY COUNCIL OF THE OF POMONA, CALIFORNIA, AMENDING ORDINANCE NO. 4006, ALSO KNOWN AS THE POMONA CITY CODE, WITH THE ADDITION OF ARTICLE VI, "LOW IMPACT DEVELOPMENT" TO CHAPTER 74, "BUILDINGS AND BUILDING REGULATIONS"

WHEREAS, the City is authorized by Article XI, Section 5 and Section 7 of the State Constitution to exercise the police power of the State by adopting regulations to promote public health, public safety and general prosperity;

WHEREAS, the City is a permittee under the California Regional Water Quality Control Board, Los Angeles Region Order No. R4-2012-0175 ("MS4 Permit"), issued on November 08, 2012 which establishes Waste Discharge Requirements for Municipal Separate Storm Sewer Systems (MS4) Discharges within the Coastal Watersheds of Los Angeles County, except those discharges originating from the City of Pomona; and

WHEREAS, to comply with the mandates of the MS4 Permit, the City shall adopt a Low Impact Development (LID) ordinances.

NOW, THEREFORE, BE IT ORDAINED by the Council of the City of Pomona, California, as follows:

SECTION 1. That Ordinance No. 4006, also known as the Pomona City Code, is hereby amended to include the addition of Article VI, "Low Impact Development" to Chapter 74, "Buildings and Building Regulations" as follows:

ARTICLE VI. LOW IMPACT DEVELOPMENT

DIVISION 1. GENERALLY

Sec. 74-310. Title.

This Ordinance shall be known as the "City of Pomona Low Impact Development (LID) Ordinance" and may be so cited.

Sec. 74-311. Findings.

The City of Pomona finds that:

(1) Waterbodies, roadways, structures, and other property within and downstream of the City are at times subject to flooding.

(2) Land development alters the hydrologic response of watersheds, resulting in increased stormwater runoff rates and volumes, increased flooding, increased stream channel erosion, increased sediment transport and deposition, and increased non-point source pollutant loading to the receiving waterbodies and the beaches.

(3) Stormwater runoff produced by land development contributes to increased quantities of waterborne pollutants.

(4) Increases of stormwater runoff, soil erosion, and non-point source pollution have occurred as a result of land development, and have impacted the water resources of the San Gabriel River Watershed and the Santa Ana River Watershed.

(5) Increase stormwater runoff rates and volumes and the sediments and pollutants associated with stormwater runoff from future development projects within the City will, absent proper regulation and control, adversely affect the City's waterbodies and water resources, and those of downstream municipalities.

(6) Stormwater runoff, soil erosion, and non-point source pollution can be controlled and minimized by the regulation of stormwater runoff from development.

(7) Adopting the standards, criteria, and procedures contained in this Article and implementing the same will address many of the deleterious effects of stormwater runoff.

Sec. 74-312. Purpose.

The provisions of this Article are adopted pursuant to the Federal Water Pollution Control Act, also known as the "Clean Water Act," codified and amended at 33 U.S.C. 1251 *et seq*. The intent of this Article is to enhance and protect the water quality of the receiving waters of the United States in a manner that is consistent with the Clean Water Act (and acts amendatory thereof or supplementary thereto), applicable implementing regulations, and the Municipal NPDES permit (as defined below, and any amendment, revision, or re-issuance thereof). It is the purpose of this Article to establish minimum stormwater management requirements and controls to accomplish, among others, the following objectives:

(1) Lessen the water quality impacts of development by using smart growth practices such as compact development, directing development towards existing communities via infill or redevelopment, and safeguarding of environmentally sensitive areas.

(2) Minimize the adverse impacts from stormwater runoff on the biological integrity of natural drainage systems and the beneficial uses of waterbodies.

(3) Minimize the percentage of impervious surfaces on land developments by minimizing soil compaction during construction, designing projects to minimize the impervious area footprint, and employing Low Impact Development (LID) design principles to mimic predevelopment hydrology through infiltration, evapotranspiration, and rainfall harvest and use.

(4) Maintain existing riparian buffers and enhance riparian buffers when possible.

(5) Minimize pollutant loadings from impervious surfaces such as roof tops, parking lots, and roadways through the use of properly designed, technically appropriate Best Management Practices (BMPs, defined below) including Source Control BMPs such as good housekeeping practices, LID strategies, and Treatment Control BMPs.

(6) Properly select, design and maintain LID and Hydromodification Control BMPs to address pollutants that are likely to be generated, reduce changes to pre-development hydrology, assure long-term function, and avoid the breeding of vectors.

(7) Prioritize the selection of BMPs to remove stormwater pollutants, reduce stormwater runoff volume, and beneficially use stormwater to support an integrated approach to protecting water quality and managing water resources in the following order of preference:

(a) On-site infiltration, bioretention and/or rainfall harvest and use.

(b) On-site biofiltration, off-site ground water replenishment, and/or off-site retrofit.

Sec. 74-313. Definitions.

The following terms, phrases, words, and derivatives shall have the meaning defined below:

Basin Plan means the Water Quality Control Plan, Los Angeles Region, Basin Plan for Coastal Watersheds of Los Angeles and Ventura Counties, adopted by the Regional Water Board on June 13, 1994 and any subsequent amendments.

Beneficial Use means the existing or potential use of receiving waters as designated by the Los Angeles or Santa Ana Regional Water Quality Control Boards in their respective basin plans for the County.

Best Management Practices or BMPs are practices or physical devices or systems designed to prevent or reduce pollutant loading from stormwater or non-stormwater discharges to receiving waters, or designed to reduce the volume of stormwater or non-stormwater discharged to the receiving water.

City means the City of Pomona.

City Engineer means the City Engineer for the City of Pomona.

Conveyance Facility means a storm drain, pipe, swale, or channel used to collect and direct stormwater.

Design Engineer means the registered professional engineer responsible for the design of the stormwater management plan.

Detention System means a system which is designed to capture stormwater and release it over a given period of time through an outlet structure at a controlled rate.

Development means any construction, rehabilitation, redevelopment or reconstruction of any public or private residential project (whether single-family, multi-unit or planned unit development); industrial, commercial, retail and other non-residential projects, including public agency projects; or mass grading for future construction. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety.

Director means the Director of Public Works for City of Pomona.

Discharge means any release, spill, leak, pump, flow, escape, dumping, or disposal of any liquid, semi-solid, or solid substance.

Disturbed Area means an area that is altered as a result of clearing, grading, or excavation.

Engineered Site Grading Plan means a scaled drawing or plan and accompanying text prepared by a registered engineer or landscape architect which shows alteration of topography, alterations of watercourses, flow directions of stormwater runoff, and propose stormwater management and measures which are prepared to ensure that the objectives of this Article are met.

Grading means any stripping, excavating, filling, and stockpiling of soil or any combination thereof and the land in its excavated or filled condition.

Hardscape means any durable, pervious or impervious surface material, including paving for pedestrians and vehicles.

Hydromodification means the alteration of a natural drainage system through a change in the system's flow characteristics.

Impervious Surface means a surface that does not allow stormwater runoff to slowly perchlorate into the ground.

Low Impact Development or LID means technologies and practices that are part of a sustainable stormwater management strategy that controls, retains or filters stormwater and urban runoff on site.

Maximum Extent Practicable or *MEP* means the extent to which the City can reduce the discharge of pollutants in stormwater runoff. MEP requires selecting and implementing effective BMPs, and rejecting applicable BMPs only where: (i) other effective BMPs will serve the same purpose; (ii) the BMPs would not be technically feasible; or (iii) the cost would be prohibitive. Factors considered include, but are not limited to:

(1) Effectiveness: Whether the BMP addresses a pollutant of concern

(2) Regulatory Compliance: Whether the BMP complies with storm water regulations, as well as other environmental regulations

(3) Public acceptance: Whether the BMP has public support

(4) Cost: Whether the cost of implementing the BMP has a reasonable relationship to the pollution control benefits achieved

(5) Technical Feasibility: Whether the BMP is technically feasible, considering soils, geography, and water resources

Municipal NPDES Permit means California Regional Water Quality Control Board, Los Angeles Region, Order No. R4-2012-0175, NPDES Permit No. CAS004001 Waste Discharge Requirements For Municipal Separate Storm Sewer System (MS4) Discharge Within the Coastal Watersheds of Los Angeles County, Except Those Discharges Originating From the City of Long Beach MS4, and any amendment thereto or re-issuance thereof.

Municipal Separate Storm Sewer System (referred to herein as "MS4"), means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains):

(1) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved

management agency under section 208 of the CWA that discharges to waters of the United States;

(2) Designed or used for collecting or conveying stormwater;

(3) Which is not a combined sewer; and

(4) Which is not part of a Publicly Owned Treatment Works (POTW) as defined in 40 CFR Section 122.2.(40 CFR Section 122.26(b)(8)).

Natural Drainage System means any unlined or unimproved (not engineered) creek, stream, river, or similar waterway.

Non-storm Water Discharge means any fluid discharge to the storm drain system and/or receiving waters that is not composed entirely of storm water but may not necessarily be an illicit discharge.

NPDES or *National Pollutant Discharge Elimination System* means the national permitting program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Clean Water Act (CWA) §307, 402, 318, and 405. The term includes an "approved program."

Mandated by Congress under the Clean Water Act, the NPDES Stormwater Program is a comprehensive two-phased national program for addressing the non-agricultural sources of stormwater discharges which adversely affect the quality of our nation's waters. The program uses the National Pollutant Discharge Elimination System (NPDES) permitting mechanism to require the implementation of controls designed to prevent harmful pollutants from being washed by stormwater runoff into local water bodies.

Pollutants of Concern means chemical, physical, or biological components of stormwater that impair the beneficial uses of receiving waters, including those defined in Section 502(6) of the Federal Water Pollution Control Act ("Clean Water Act," 33 U.S.C. Section 1362(6)), and incorporated by reference into California Water Code Section 13373.

Public Works Department means the City of Pomona Public Works Department.

Receiving Water means a "water of the United States" (as defined in 33 C.F.R. section 328.3(a)(7)) into which waste and/or pollutants are or may be discharged.

Retention means a holding system for stormwater, either natural or man-made, which does not have an outlet to adjoining watercourses or wetlands and in which water is removed through infiltration and/or evaporation processes.

Runoff means any runoff including stormwater and dry weather flows from a drainage area that reaches a receiving water body or subsurface. During dry weather it is typically comprised of base flow (either contaminated with pollutants or uncontaminated) and nuisance flows.

Sediment means mineral or organic particulate matter that has been removed from its site of origin by the processes of soil erosion, is in suspension in water, or is being transported.

Standard Industrial Classification (SIC) means a classification pursuant to the current edition of the Standard Industrial Classification Manual issued by the Executive Office of the President of the United States, Office of Management and Budget, and as the same may be periodically revised.

Storm Drain means a conduit, pipe, swale, natural channel, or man-made structure which serves to transport stormwater runoff. Storm drains may be either enclosed or open.

Stormwater means runoff that occurs as the result of rainfall.

Stormwater Quality Design Volume (SWQDv) means the runoff generated by the greater of either:

(1) The 0.75-inch, 24-hour rain event; or

(2) The 85th percentile, 24-hour rain event, as determined from the *Los Angeles County Department of Public Works 85th Percentile Precipitation Isohyetal Map*.

Urban Runoff means surface flows, other than stormwater, emanating from development.

Water Quality Design Storm Event means any of the volumetric or flow rate based design storm events for water quality BMP's identified in the National Pollutant Discharge Elimination System Municipal Stormwater Permit for the County of Los Angeles.

DIVISION 2. NEW DEVELOPMENTS AND REDEVELOPMENT PROJECTS PROVISIONS

Sec. 74-314. Applicability.

These procedures and standards set forth in this Article, the BMP design information found in the Los Angeles County Municipal Storm Water Permit, and the County of Los Angeles Department of Public Works Low Impact Development Standards Manual (February 2014), and any amendment, revision, or reissuance thereof provide minimum standards to be complied with by developers and in no way limit the City of Pomona's authority to adopt and publish or enforce higher standards as a condition of approval of developments.

A. New Development Projects

Development projects subject to City conditioning and approval for the design and implementation of post-construction controls to mitigate stormwater pollution prior to completion of the project(s) include:

(1) All development projects equal to one (1) acre or greater of disturbed area and adding more than ten thousand (10,000) square feet of impervious surface area;

(2) Industrial parks ten thousand (10,000) square feet or more of surface area;

(3) Commercial malls ten thousand (10,000) square feet or more of surface area;

(4) Retail gasoline outlets five thousand (5,000) square feet or more of surface area.

(5) Restaurants (SIC 5812) five thousand (5,000) square feet or more of surface area;

(6) Parking lots five thousand (5,000) square feet or more of impervious surface area, or with twenty-five (25) or more parking spaces;

(7) Street and road construction of ten thousand (10,000) square feet or more of surface area shall follow the City of Pomona Green Street Policy to the maximum extent practicable. Street and road construction applies to standalone streets, roads, highways, and freeway projects, and also applies to streets within larger projects;

(8) Automotive service facilities (SIC 5013, 5014, 5511, 5541, 7532-7534 and 7536-7539) with five thousand (5,000) square feet or more of surface area;

(9) New development projects located in or directly adjacent to, or discharging directly to the proposed Significant Ecological Area ("SEA") which will:

(a) discharge stormwater runoff that is likely to impact a sensitive biological species or habitat; and

(b) create two thousand five hundred (2,500) square feet or more of impervious surface area; and

(10) Redevelopment Projects in subject categories that meet Redevelopment thresholds identified in Part B (Redevelopment Projects) below;

(11) Redevelopment projects located in or within 200 ft. of, or discharging directly to a Significant Ecological Area (SEA) where the development will:

(a) Discharge stormwater runoff that is likely to impact a sensitive biological species or habitat; and

(b) Create 2,500 square feet or more of impervious surface area.

(12) Single-family hillside homes. During the construction of a single-family hillside home, the following measures shall be considered to the maximum extent practicable:

(a) Conserve natural areas.

(b) Protect slopes and channels.

(c) Provide storm drain system stenciling and signage.

(d) Divert roof runoff to vegetated areas before discharge unless the diversion would result in slope instability.

(e) Direct surface flow to vegetated areas before discharge unless the diversion would result in slope instability.

B. Redevelopment Projects

Redevelopment projects subject to conditioning and approval requirements outlined in this Article for the design and implementation of post-construction controls to mitigate stormwater pollution prior to completion of the project(s) include:

(1) Land disturbing activity that results in the creation or addition or replacement of five thousand (5,000) square feet or more of impervious surface area on an already developed site.

(2) Redevelopment project that result in an alteration to more than fifty perfect (50%) of impervious surfaces of an existing development which had not been subject to post-construction stormwater quality control requirements at the time of the previous development shall be required to mitigate the entire project site.

(3) Redevelopment project that result in an alteration of less than fifty perfect (50%) of impervious surfaces of an existing development which had not been subject to post-construction stormwater quality control requirements at the time of the previous development shall be required to mitigate only the alteration and shall not be required to mitigate the entire project site.

(4) Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of facility or emergency redevelopment activity required to protect public health and safety. Impervious surface replacement, such as the reconstruction of parking lots and roadways which does not disturb additional area and maintains the original grade and alignment, is considered a routine maintenance activity. Redevelopment does not include the repaving of existing roads to maintain original line and grade.

(5) Existing single-family dwelling and accessory structures are exempt from the Redevelopment requirements unless such projects create, add, or replace Ten Thousand (10,000) square feet of impervious surface area.

Sec. 74-315. Project Performance Criteria.

All development projects that fit the project criteria listed above in Section 74-331 of this Article shall control pollutants, pollutant loads, and runoff volume by retaining the Stormwater Quality Design Volume (SWQDv) (as defined in definitions) on-site through:

(1) Minimizing the impervious surface area; and

(2) Controlling runoff from impervious surfaces through infiltration, bioretention and/or rainfall harvest and use.

Sec 74-316. Alternative Compliance for Technical Infeasibility.

(a) To demonstrate technical infeasibility, the project applicant shall demonstrate to the City Engineer that the project cannot reliably retain one hundred percent (100%) of the SWQDv on-site, even with the maximum application of green roofs and rainwater harvest and use, and the compliance with the applicable post-construction requirements would be technically infeasible. This shall be demonstrated by submitting a site-specific hydrologic and/or design analysis conducted and endorsed by a registered professional engineer and shall be subject to review and approval by the City Engineer.

(b) When evaluating the potential for on-site retention, each applicant shall consider the maximum potential for evapotranspiration from green roofs and rainfall harvest and use. Alternative compliance measures include the following:

(1) On-Site Biofiltration. Biofiltration systems shall meet the design specifications provided in Attachment H of the Los Angeles County Municipal Storm Water Permit Order N. R4-2012-0175, and any amendment, revision, or reissuance thereof. If using biofiltration due to demonstrated technical infeasibility, then the new project must biofiltrate 1.5 times the

portion of the SWQDv that is not reliably retained on site, as calculated by Equation 1 below:

Equation 1:
Bv=1.5* [SWQDv-Rv)
Where:
Bv = Biofiltraton volume
SWQDv= the stormwater runoff from a 0.75 inch, 24-hour storm or the 85th percentile storm, whichever is greater
Rv=volume reliably retained on-site

(2) Off-site Infiltration. Use infiltration or bioretention BMPs to intercept a volume of stormwater runoff equal to the SWQDv, less the volume or stormwater runoff reliably retained on-site, at an approved offsite project. The required off-site mitigation volume shall be calculated by Equation 2 below:

Equation 2:
Mv=1.0*[SWQDv-Rv]
Where:
Mv=Mitigation Volume
SWQDv=Runoff from the 0.75 inch, 24-hour storm event or the 85th percentile storm, whichever is greater
Rv=the volume of stormwater runoff reliably retained on-site

(3) Offsite Project. Retrofit existing Development. Use infiltration, bioretention, rainfall harvest and use and/or biofiltration BMPs to retrofit an existing development, with similar land uses as the new development or land uses associated with comparable of higher stormwater runoff event mean concentrations (EMCs) than the new development. The retrofit plan shall be designed and constructed as described in the Los Angeles County Municipal Storm Water Permit Order N. R4-2012-0175, and any amendment, revision, or reissuance thereof.

(4) Other alternative compliance requirements are detailed in the Los Angeles County Municipal Stormwater Permit Order No. R4-2012-0175.

(c) Applicants and/or designers may select any combination of stormwater BMPs which meet the performance standards provided in this section and identified in the Los Angeles Municipal Storm Water Permit Order N. R4-2012-0175, and the County of Los Angeles Department of Public Works Low Impact Development Standards Manual (February 2014), and any amendment, revision, or reissuance thereof.

Secs. 74-317 – 74-330. Reserved.

DIVISION 4. PLAN REVIEW REQUIREMENTS, FEES, AND MAINTENANCE

Sec. 74-331. Review Procedures.

(a) All stormwater plans shall be subject to review and approval by the City Engineer.

(1) If the proposed plan is not sufficient as originally submitted, the City Engineer, or his/her designee, will notify the applicant in writing, setting forth the reasons for withholding a recommendation or approval, and will state the changes necessary to obtain approval.

(2) If Staff determines that all of the required information has not been received, the proprietor may request additional time to allow for the submittal of the required information.

(3) If all of the required information has been received, Staff shall recommend approval, recommend approval with conditions, or recommend denial of the Stormwater Plan.

(a) If the Plan is approved, the City will require the following:

(1) The applicant will provide copies of all necessary state, federal, or local permits relating to the Project for Stormwater Management to the City.

(2) A satisfactory Maintenance Covenant Agreement that assures long-term maintenance of all drainage improvements shall be submitted as part of the final plan. The Maintenance Covenant shall include a listing of the BMPs, locations, and required maintenance frequency. The property owner shall be required to document proper maintenance and operations and maintain records for a period of two (2) years. Maintenance Agreements and records shall be provided upon request to the City inspector at any time for compliance verification. Failure to do so will result in enforcement actions per the City Code. The approved covenant shall be recorded with the Los Angeles County Registrar-Recorder/County Clerk prior to issuance of occupancy.

(3) A satisfactory Maintenance Covenant shall at a minimum include the developer's signed statement accepting responsibility for maintenance until the responsibility is legally transferred, and either:

- A signed statement from the public entity assuming responsibility for BMP maintenance; or
- Written conditions in the sales or lease agreement, which require the property owner or tenant to assume responsibility for BMP maintenance and conduct a maintenance inspection at least once a year; or
- Written text in project covenants, conditions, and restrictions (CCRs) for residential properties assigning BMP maintenance responsibilities to the Home Owners Association (HOA). Residential development with HOAs shall include a Stormwater Pollution Prevention Plan and compliance elements in the CCRs.

Sec. 74-332. Review Fees.

Fees and escrow account payments shall be sufficient to cover administrative and technical review costs anticipated to be incurred by the City of Pomona including the costs of on-site inspections.

Sec. 74-333. Maintenance Agreement Required.

(a) Maintenance Agreement Required. A Maintenance Agreement shall be submitted to the City for review by the City Engineer and his/her designee, and if necessary, City Attorney. The Designers may select any combination of stormwater BMPs which meet the performance standards provided in this section and identified in the Los Angeles County Municipal Storm Water Permit No. R-2012-0175 and any amendment, revision, or reissuance thereof. A formal Maintenance Plan shall be included in the Maintenance Agreement.

(b) Purpose of the Maintenance Agreement is to provide the means and assurance that maintenance of stormwater BMPs shall be undertaken.

(c) Maintenance Agreement Provisions:

(1) The Maintenance Agreement shall include a plan for routine, emergency, and long-term maintenance of all stormwater BMPS, with a detailed annual estimated budget for the initial two (2) years, and a clear statement that only future maintenance activities in accordance with the Maintenance Agreement Plan shall be permitted without the necessity of securing new permits. Written notice of the intent to proceed with maintenance not within the scope of the Maintenance Agreement Plan shall be provided by the party responsible for maintenance to the City of Pomona at least 14 days in advance of commencing work.

(2) The Maintenance Agreement and all its covenants shall be binding on all subsequent owners of land served by the stormwater BMPs.

(3) If it has been found by the City, following notice and an opportunity to be heard by the property owner, that there has been a material failure or refusal to undertake maintenance as required under this Article and/or as required in the approved Maintenance Agreement as required hereunder, the City shall abate such violations, as a public nuisance, pursuant to the procedures set forth in Chapter 18 of the Municipal Code.

(d) A fully executed “Maintenance Covenant for Permanent BMPs Requirements” shall be recorded with the Los Angeles County Registrar-Recorder/County Clerk and submitted to the Public Works Department prior to the Certificate of Occupancy. Covenant documents shall be required to include exhibits that detail all of the installed treatment control devices as well as any site design or source control BMPs

for post construction. The information to be provided on this exhibit shall include, but not be limited to:

- 8 ½"x11" exhibits with record property owner information.
- Types of BMPs (i.e., site design, source control, and/or treatment control) to ensure modifications to the site are not conducted without the property owner being aware of the ramifications to BMP implementation.
- Clear depicting of location of BMPs, especially those located below ground.
- A matrix depicting the types of BMPs, frequency of inspection, type of maintenance required, and if proprietary BMPs, the company information to perform the necessary maintenance.
- Agreement to retain documentation of proper maintenance records for a period of two (2) years plus current year.
- Understanding the documentation of proper maintenance must be presented to the City upon request.

Secs. 74-334 – 74.340. Reserved.

DIVISION 5. ENFORCEMENT

Sec. 74-341. Violations.

Any person violating any provisions of this Article shall be responsible for a municipal civil infraction and subject to the City's progressive enforcement policy as detailed in the City Code.

Sec. 74-342. Stop Work Order.

Where there is work in progress that causes or contributes in whole or in part, a violation of any provision of this Article, the City is authorized to issue a Stop Work Order so as to prevent further or continuing violations or adverse effects. All persons to whom the stop work order is directed, or who are involved in any way with the work or matter described in the stop work order shall fully and promptly comply therewith. The City may also undertake or cause to be undertaken, any necessary or advisable protective measures so as to prevent violations of this Article or to avoid or reduce the effects of non-compliance herewith. The cost of any such protective measures shall be the responsibility of the owner of the property upon which the work is being done and the responsibility of any person carrying out or participating in the work.

Sec. 74-343. Failure to Comply.

In addition to any other remedies, should any owner fail to comply with the provisions of this Article, the City may, after the giving of reasonable notice and opportunity for compliance, have the necessary work done, and the owner shall be obligated to promptly reimburse the City for all costs of such work.

Sec. 74-344. Emergency Measures.

When emergency measures are necessary to moderate a nuisance, to protect public safety, health, and welfare, and/or to prevent loss of life, injury or damage to property, the City is authorized to carry out or arrange for all such emergency measures. Property owners shall be responsible for the cost of such measures made necessary as a result of a violation of this Article, and shall promptly reimburse the City for all such costs.

Sec.74-345. Cost Recovery for Damage to Storm Drain System.

A discharger shall be liable for all costs incurred by the City as a result of causing a discharge that produces a deposit or obstruction, or causes damage to or impairs a storm drain, or water quality violation, or violates any of the provisions of this Article. Costs include, but are not limited to, those penalties levied by the Environmental Protection Agency or Los Angeles and Santa Ana Regional Water Quality Control Boards for violation of an NPDES Permit, attorney fees, and other costs and expenses.

Secs. 74-346 – 74-360. Reserved.

SECTION 2. Any provision of the Pomona City Code that is inconsistent with the provisions of this Ordinance, to the extent of such inconsistencies and no further, are modified to the extent necessary to affect the provisions of this Ordinance.

SECTION 3. If any section, subsection, sentence, clause, phrase, or portion of this Ordinance is for any reason held to be invalid or unconstitutional by the decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of this ordinance. The City Council of the City of Pomona hereby declares that it would have adopted this Ordinance and each section, subsection, sentence, clause, phrase or portion thereof irrespective of the fact that any one or more sections, subsections, sentences, clauses, phrases, or portions be declared invalid or unconstitutional.

SECTION 4. The City Clerk shall certify to the passage and adoption of this ordinance, causing it to be posted as required by law, and it shall be effective thirty (30) days after its adoption.

APPROVED, PASSED AND ADOPTED this 2nd day of June, 2014.

ATTEST: CITY OF POMONA

_____ _____

Eva M. Buice, City Clerk Elliott Rothman, Mayor

APPROVED AS TO FORM:

_____
Arnold M. Alvarez-Glasman, City Attorney

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES)
CITY OF POMONA)

I, Eva M. Buice, CITY CLERK of the City of Pomona do hereby certify that the foregoing Ordinance was introduced for first reading on _____, 2014 and adopted at second reading at a regular meeting of the City Council of the City of Pomona held on the ___ of _____, 2014 by the following vote:

AYES: COUNCILMEMBERS:
NOES: COUNCILMEMBERS:
ABSENT: COUNCILMEMBERS:
ABSTAIN: COUNCILMEMBERS:

_____
Eva M. Buice, MMC City Clerk

14. The City Council introduced, at first reading, **Ordinance No. 4185** of the City of Pomona, California, approving a Code Amendment modifying Land Development Ordinances, Buildings and Building Regulations, Chapter 74, adding Article VI-Low Impact Development (LID) Ordinance and adoption of Resolution establishing a Green Street Policy **MOTION BY COUNCILMEMBER ESCOBAR, SECOND BY COUNCILMEMBER CARRIZOSA, CARRIED 6-0 (COUNCILMEMBER MARTIN ABSENT)**

ORDINANCE NO. 4185

AN ORDINANCE OF THE CITY COUNCIL, OF THE CITY OF POMONA, CALIFORNIA, AMENDING ORDINANCE NO. 4006, ALSO KNOWN AS THE POMONA CITY CODE, WITH THE ADDITION OF ARTICLE VI, "LOW IMPACT DEVELOPMENT" TO CHAPTER 74, "BUILDINGS AND BUILDING REGULATIONS

DISCUSSION CALENDAR

15. The City Council approved findings of Public Benefit to the Community at Large for the following expenditures: **MOTION BY COUNCILMEMBER CARRIZOSA, SECOND BY MAYOR ROTHMAN, CARRIED 6-0 (COUNCILMEMBER MARTIN ABSENT)**

A) $2900 to the City of Pomona Community Services Department for rental of the City stage and other costs associated with the annual Relay for Life Event

B) $100 to Garey High School in support of the ROTC Program

C) $200 to the Pomona Police Department in support of the G.R.E.A.T. Program

D) $125 to the Pomona Concert Band in support of program expenses

E) $75 to the Salvation Army in support of the Release Time Education Program

F) Amount to be determined to Saint Madeleine's Church for expenses associated with their Annual Fiesta

G) Amount to be determined to the Pomona Police Department in support of the Annual Campout

H) Amount to be determined for the Holiday Toy Drive

I) Amount to be determined to Pomona Heritage in support of the Home Restoration Workshop

J) Amount to be determined to The Kiwanis Club of Pomona in support of June 8th Car Show event

K) Amount to be determined to the Pomona Youth Orchestra for sound equipment and miscellaneous program expenses

16. The City Council discussed a proposed moratorium and considered creating a Task Force for review of Waste and Recycling facilities Correspondence from Clean & Green Pomona, and Inland Communities Organizing Network was received on May 19th and a copy was provided to each of you on the dais. **MOTION BY COUNCILMEMBER LANTZ, SECOND BY COUNCILMEMBER CARRIZOSA, CARRIED 6-0 (COUNCILMEMBER MARTIN ABSENT) that the item be returned for discussion and directed Staff with recommendations: 2) Prepare an Urgency Ordinance declaring a moratorium on new or the expansion of existing waste and recycling facilities for City Council consideration at an upcoming City Council meeting. 3) Establish a task force to examine the public health, safety, and cost of service issues at waste-related and recycling facilities and provide direction on how to staff the task force; the City Council also noted that other businesses will not be considered and that the two existing businesses will be considered until the moratorium is lifted.**

RESOLUTION NO. 2014-57

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF POMONA, CALIFORNIA, AUTHORIZING SUBMITTAL OF AN APPLICATION TO THE CALIFORNIA STATE DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT FOR FUNDING UNDER THE CALHOME PROGRAM; THE EXECUTION OF A STANDARD AGREEMENT IF SELECTED FOR SUCH FUNDING AND ANY AMENDMENTS THERETO; AND ANY RELATED DOCUMENTS NECESSARY TO PARTICIPATE IN THE CALHOME PROGRAM

RESOLUTION NO. 2014-58

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF POMONA, CALIFORNIA, AUTHORIZING SUBMITTAL OF AN APPLICATION TO THE CALIFORNIA STATE DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT FOR FUNDING UNDER THE CALHOME PROGRAM EXCLUSIVELY FOR MANUFACTURED HOUSING; THE EXECUTION OF A STANDARD AGREEMENT IF SELECTED FOR SUCH FUNDING AND ANY AMENDMENTS THERETO; AND ANY RELATED DOCUMENTS NECESSARY TO PARTICIPATE IN THE CALHOME PROGRAM

5. The City Council adopted, at second reading, Ordinance No. 4185 approving a Code Amendment modifying Land Development Ordinances, Buildings and Building Regulations, Chapter 74, adding Article VI-Low Impact Development (LID). **MOTION BY COUNCILMEMBER ESCOBAR, SECOND BY MAYOR ROTHMAN, CARRIED 7-0.**

ORDINANCE NO. 4185

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF POMONA, CALIFORNIA, AMENDING ORDINANCE NO. 4006, ALSO KNOWN AS THE POMONA CITY CODE, WITH THE ADDITION OF ARTICLE VI, "LOW IMPACT DEVELOPMENT" TO CHAPTER 74, "BUILDINGS AND BUILDING REGULATIONS"

6. The City Council approved an agreement extension with InfoSend, Inc. for a period of up to nine (9) months, in an amount not to exceed $26,000 plus actual postage costs for the printing, posting, mailing, and Electronic Bill Presentment and Payment (EBPP) services for City utility bills. **MOTION BY COUNCILMEMBER ESCOBAR, SECOND BY MAYOR ROTHMAN, CARRIED 7-0.**

DISCUSSION CALENDAR

7. The City Council made a Finding of Public Benefit to the Community at Large for the following expenditures **MOTION BY COUNCILMEMBER CARRIZOSA, SECOND BY VICE MAYOR NOLTE, CARRIED 7-0**:

   A) Amount to be determined to the Learning Centers at the Fairplex in support of the Fair Kids Yellow Bus Program

   B) Amount to be determined to the Pomona Economic Opportunity Center (PEOC) in support of the "Support the Struggle" fundraiser

   C) Amount to be determined to the Pomona Unified Partners in Education (PUPIL) Foundation in support of the Scholarship luncheon

   D) Amount to be determined to Junior Foundation Charities for their fundraiser event

Green Streets Policy

Purpose

The City of San Dimas (City) shall implement green street Best Management Practices (BMPs) for transportation corridors associated with new and redevelopment street and roadway projects, including Capital Improvement Projects (CIPs). This policy is enacted to demonstrate compliance with the NPDES MS4 Permit for the Los Angeles Region (Order No. R4-2012-0175).

Green streets are an amenity that provides many benefits including water quality improvement, groundwater replenishment, creation of attractive streetscapes, creation of parks and wildlife habitats, and pedestrian and bicycle accessibility. Green streets are defined as right-of-way areas that incorporate infiltration, biofiltration, and/or storage and use BMPs to collect, retain, or detain stormwater runoff as well as a design element that creates attractive streetscapes.

Policy

A. Application. The City of San Dimas shall require that new public and private street and road construction of 10,000 square feet or more of impervious surface area and street and road redevelopment that results in the creation or addition or replacement of 5,000 square feet or more of impervious surface area on an already developed site consider green street strategies. Routine maintenance or repair and linear utility projects are excluded from these requirements. Routine maintenance includes slurry seals, repaving, and reconstruction of the road or street where the original line and grade are maintained.

B. Amenities. The City of San Dimas shall consider opportunities to replenish groundwater, create attractive streetscapes, create parks and wildlife habitats, and provide pedestrian and bicycle accessibility through new development and redevelopment of streets and roadway projects and CIPs.

C. Best Management Practices (BMPs). The City of San Dimas shall require projects subject to this policy, to include, but not limited to appropriate BMPs as listed below to the maximum extent practicable:

- Planter/tree boxes
- Tree canopy rain interception
- Implementation of alternative street widths
- Infiltration
- Permeable pavement
- Bioswales
- Vegetated curb extensions
- Recycled Asphalt

Additional BMPs are available in the Los Angeles County Low Impact Development (LID) Standards Manual.

D. Retrofit Scope. The City of San Dimas shall use the City's Watershed Management Program to identify opportunities for green street BMP retrofits. Final decisions regarding implementation will be determined by the Director of Public Works based on the availability of adequate funding.

E. Training. The City of San Dimas shall incorporate aspects of green streets into internal annual staff trainings.

ORDINANCE NO. 1231

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF SAN DIMAS APPROVING LOW IMPACT DEVELOPMENT REQUIREMENTS IN ACCORDANCE WITH THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT

THE CITY COUNCIL OF THE CITY OF SAN DIMAS DOES ORDAIN AS FOLLOWS:

SECTION 1. Chapter 14 of the San Dimas Waters and Sewers Code are hereby amended as set forth in attached Exhibit A.

SECTION 2. This Ordinance shall take effect 30 days after its final passage, and within 15 days after its passage the City Clerk shall cause it to be published in the Inland Valley Daily Bulletin, a newspaper of general circulation in the City of San Dimas hereby designated for that purpose.

PASSED, APPROVED AND ADOPTED THIS 24th DAY OF JUNE, 2014.

Curtis W. Morris, Mayor of the City of San Dimas

ATTEST:

Ken Duran, City Clerk

I, Ken Duran, City Clerk of the City of San Dimas, do hereby certify that **Ordinance No. 1231** was regularly introduced at the regular meeting of the City Council on June 10th, 2014 and was thereafter adopted and passed at the regular meeting of the City Council held on June 24th, 2014 by the following vote:

AYES:	Badar, Bertone, Templeman, Morris
NOES:	None
ABSENT:	Ebiner
ABSTAIN:	None

I, Ken Duran, City Clerk further certify that within 15 days of the date of its passage, I caused a copy of Ordinance No. 1231 to be published in the Inland Valley Daily Bulletin.

Ken Duran

Ken Duran, City Clerk

EXHIBIT A

Chapter 14.13 Low Impact Development Ordinance No. 1231

Sections:

14.13.010 Title

This Chapter shall be known as the "City of San Dimas Low Impact Development (LID) Ordinance" and may be so cited.

14.13.020 Purpose

It is the purpose of this Chapter to establish minimum stormwater management requirements and controls to accomplish, among others, the following objectives:

A. Lessen the water quality impacts of development by using smart growth practices such as compact development, directing development towards existing communities via infill or redevelopment, and safeguarding of environmentally sensitive areas.

B. Minimize the adverse impacts from stormwater runoff on the biological integrity of Natural Drainage Systems and the beneficial uses of waterbodies.

C. Minimize the percentage of impervious surfaces on land developments by minimizing soil compaction during construction, designing projects to minimize the impervious area footprint, and employing Low Impact Development (LID) design principles to mimic predevelopment hydrology through infiltration, evapotranspiration and rainfall harvest and use.

D. Maintain existing riparian buffers and enhance riparian buffers when possible.

E. Minimize pollutant loadings from impervious surfaces such as roof tops, parking

lots, and roadways through the use of properly designed, technically appropriate Best Management Practices (BMPs), (including Source Control BMPs such as good housekeeping practices), LID Strategies, and Treatment Control BMPs.

F. Properly select, design and maintain LID and Hydromodification Control BMPs to address pollutants that are likely to be generated, reduce changes to pre-development hydrology, assure long-term function, and avoid the breeding of vectors.

G. Prioritize the selection of BMPs to remove stormwater pollutants, reduce stormwater runoff volume, and beneficially use stormwater to support an integrated approach to protecting water quality and managing water resources in the following order of preference:

1. On-site infiltration, bioretention and/or rainfall harvest and use.

2. On-site biofiltration, off-site ground water replenishment, and/or off-site retrofit.

14.13.030 Findings

The City of San Dimas (hereinafter referred to as "City" finds that:

A. Waterbodies, roadways, structures, and other property within and downstream of the City are at times subject to flooding.

B. Land development alters the hydrologic response of watersheds, resulting in increased stormwater runoff rates and volumes, increased flooding, increased stream channel erosion, increased sediment transport and deposition, and increased nonpoint source pollutant loading to the receiving waterbodies and the beaches.

C. Stormwater runoff produced by land development contributes to increased quantities of water-borne pollutants.

D. Increases of stormwater runoff, soil erosion, and non-point source pollution have occurred as a result of land development, and have impacted the water resources of the San Gabriel River Watershed.

E. Increased stormwater runoff rates and volumes and the sediments and pollutants associated with stormwater runoff from future development projects within the City will, absent proper regulation and control, adversely affect the City's waterbodies and water resources, and those of downstream municipalities.

F. Stormwater runoff, soil erosion, and non-point source pollution can be controlled and minimized by the regulation of stormwater runoff from development.

G. Adopting the standards, criteria, and procedures contained in this Chapter and implementing the same will address many of the deleterious effects of stormwater runoff.

14.13.040 Construction of Language

For purposes of this Chapter, the following rules of construction apply:

A. Terms not specifically defined in this Chapter shall have the meaning customarily assigned to them.

B. Considering that stormwater management in many cases requires sophisticated engineering design and improvements, some of the terms of this Chapter are complex in nature. Effort has been made to simplify terms to the extent the subject matter permits.

14.13.050 New Development and Redevelopment Project Provisions Applicability

These procedures and standards set forth in this Chapter and the BMP design information found in the Los Angeles County Municipal Storm Water Permit Order No. R4-2012-0175, and any amendment, revision, or reissuance thereof provide minimum standards to be complied with by developers and in no way limit the authority of the City of San Dimas to adopt or publish and/or enforce higher standards as a condition of approval of developments.

A. New Development Projects

Development projects subject to City conditioning and approval for the design and implementation of post-construction controls to mitigate stormwater pollution prior to completion of the project(s) include:

1. All development projects equal to 1 acre or greater of disturbed area and adding more than 10,000 square feet of impervious surface area.

2. Industrial parks 10,000 square feet or more of surface area.

3. Commercial malls 10,000 square feet or more surface area.

4. Retail gasoline outlets 5,000 square feet or more of surface area.

5. Restaurants 5,000 square feet or more of surface area.

6. Parking lots 5,000 square feet or more of impervious surface area, or with 25 or more parking spaces.

7. Street and road construction of 10,000 square feet or more of impervious surface area shall follow the City of San Dimas Green Streets Policy to the maximum extent practicable. Street and road construction applies to streets, roads, highways, and freeway projects, and also applies to streets within larger projects.

8. Automotive service facilities (as referenced by standard industrial classifications in the Los Angeles County Municipal Storm Water Permit Order No. R4-2012-0175, and any amendment, revision, or reissuance thereof) 5,000 square feet or more of surface area.

9. Redevelopment projects in subject categories that meet Redevelopment thresholds identified in Part B (Redevelopment Projects) below.

10. Projects located in or within 200 feet of, or discharging directly to a Significant Ecological Area (SEA), such as: San Dimas Canyon / San Antonio Wash where the development will:

a. Discharge storm water runoff that is likely to impact a sensitive biological species or habitat; and

b. Create 2,500 square feet or more of impervious surface area

11. Single-family hillside homes. During the construction of a single family hillside home, the following measures shall be considered to the maximum extent practicable:

a. Conserve natural areas.

b. Protect slopes and channels.

c. Provide storm drain system stenciling and signage.

d. Divert roof runoff to vegetated areas before discharge unless the diversion would result in slope instability.

e. Direct surface flow to vegetated areas before discharge unless the diversion would result in slope instability.

B. Redevelopment Projects

Redevelopment projects subject to conditioning and approval requirements outlined in this Chapter for the design and implementation of post-construction controls to mitigate stormwater pollution prior to completion of the project(s) include:

1. Land-disturbing activity that results in the creation or addition or replacement of 5,000 square feet or more of impervious surface area on an already developed site

2. Redevelopment projects that result in an alteration to more than fifty (50) percent of impervious surfaces of an existing development which had not been not subject to post-construction stormwater quality control requirements at the time of the previous development shall be required to mitigate the entire project site

3. Redevelopment projects that result in an alteration of less than fifty (50) percent of impervious surfaces of an existing development, which had not been subject to post-construction stormwater quality control requirements at the time of the previous development shall be required to mitigate only the alteration and shall not be required to mitigate the entire development

4. Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of facility or emergency redevelopment activity required to protect public health and safety. Impervious surface replacement, such as the reconstruction of parking lots and roadways which does not disturb additional area and maintains the original grade and alignment, is considered a routine maintenance activity. Redevelopment does not include the repaving of existing roads to maintain original line and grade.

5. Existing single-family dwelling and accessory structures are exempt from the Redevelopment requirements unless such projects create, add, or replace 10,000 square feet of impervious surface area.

14.13.060 Project Performance Criteria

A. All development projects that fit the project criteria listed in Section 14.13.050 of this Chapter shall control pollutants, pollutant loads, and runoff volume by retaining the Stormwater Quality Design Volume ($SWQD_v$) on-site through:

1. Minimizing the impervious surface area; and

2. Controlling runoff from impervious surfaces through infiltration, bioretention and/or rainfall harvest and use.

14.13.070 Alternative Compliance for Technical Infeasibility

To demonstrate technical infeasibility, the project applicant shall demonstrate to the City Engineer that the project cannot reliably retain 100 percent of the $SWQD_v$ on-site, even with the maximum application of green roofs and rainwater harvest and use, and that compliance with the applicable post-construction requirements would be technically infeasible. This shall be demonstrated by submitting a site-specific hydrologic and/or design analysis conducted and endorsed by a registered professional engineer and shall be subject to review and approval by the City Engineer.

When evaluating the potential for on-site retention, each applicant shall consider the maximum potential for evapotranspiration from green roofs and rainfall harvest and use.

Alternative compliance measures include the following:

A. On-site Biofiltration – Biofiltration systems shall meet the design specifications provided in Attachment H of the Los Angeles County Municipal Storm Water Permit Order No. R4-2012-0175, and any amendment, revision, or reissuance thereof. If using biofiltration due to demonstrated technical infeasibility, then the new project must biofiltrate 1.5 times the portion of the $SWQD_v$ that is not reliably retained on-site, as calculated by Equation 1 below:

Equation 1:
$B_v = 1.5 * [SWQD_v - R_v]$

Where:

B_v = biofiltration volume

$SWQD_v$ = the stormwater runoff from a 0.75 inch, 24-hour storm or the 85th percentile storm, whichever is greater.

R_v = volume reliably retained on-site

B. Offsite Infiltration – Use infiltration or bioretention BMPs to intercept a volume of stormwater runoff equal to the $SWQD_v$, less the volume of stormwater runoff reliably retained on-site, at an approved offsite project. The required offsite mitigation volume shall be calculated by Equation 2 below:

Equation 2:
$M_v = 1.0 * [SWQD_v - R_v]$

Where:

M_v = mitigation volume

$SWQD_v$ = runoff from the 0.75 inch, 24-hour storm event or the 85^{th} percentile storm, whichever is greater

R_v = the volume of storm water runoff reliably retained on-site.

C. Offsite Project - Retrofit Existing Development – Use infiltration, bioretention, rainfall harvest and use and/or biofiltration BMPs to retrofit an existing development, with similar land uses as the new development or land uses associated with comparable or higher stormwater runoff event mean concentrations (EMCs) than the new development. The retrofit plan shall be designed and constructed as described in the Los Angeles County Municipal Storm Water Permit Order No. R4-2012-0175, and any amendment, revision, or reissuance thereof.

D. Other alternative compliance requirements are detailed in the Los Angeles County Municipal Storm Water Permit Order No. R4-2012-0175.

E. Applicants and/or designers may select any combination of stormwater BMPs which meet the performance standards provided in this selection and identified in the Los Angeles County Municipal Storm Water Permit Order No. R4-2012-0175 and any amendment, revision, or reissuance thereof.

14.13.080 Plan Review Procedures

A. All Stormwater Plans shall be subject to review and approval by the City Engineer.

1. If the proposed plan is not sufficient as originally submitted, the City Engineer, or his/her designee, will notify the applicant in writing, setting forth the reasons for withholding and will state the changes necessary to obtain approval.

2. If Staff determines that all of the required information has not been received, the applicant may request that the matter be tabled to allow for the submittal of the required information.

3. If all of the required information has been received, Staff shall approve, approve with conditions, or recommend denial of the Stormwater Plan, including waiver submissions. Recommendations for action on the Stormwater Plan can be part of the recommendation for action on the site plan or subdivision plat.

4. If the plan is approved, the City will require the following:

a. The applicant shall provide copies of all necessary state, federal, or local permits relating to stormwater management to the City.

b. A satisfactory maintenance covenant agreement that assures long-term maintenance of all drainage improvements shall be submitted as part of the final plan. The maintenance covenant shall include a listing of the BMP's and their location and required maintenance frequency. The property owner shall be required to document proper maintenance and operations and maintain such records for a period of two (2) years. Maintenance agreements and records shall be provided upon request to the City inspector at any time for compliance verification. Failure to do so will result in enforcement actions per the City Code. The approved covenant shall be recorded with

the Los Angeles County Recorder prior to issuance of occupancy.

c. A satisfactory maintenance covenant shall at a minimum include the developer's signed statement accepting responsibility for maintenance until the responsibility is legally transferred; and either:

i. A signed statement from the public entity assuming responsibility for BMP maintenance; or

ii. Written conditions in the sales or lease agreement, which require the property owner or tenant to assume responsibility for BMP maintenance and conduct a maintenance inspection at least once a year; or

iii. Written text in project covenants, conditions, and restrictions (CCRs) for residential properties assigning BMP maintenance responsibilities to the Home Owners Association; or

d. The applicant shall post cash or a letter of credit in an amount not less than 100 percent of the cost of the stormwater facilities. This deposit shall be held for two (2) years after the date of completion of construction and final inspection of the stormwater facilities, until accepted by the City. The percentage cost for cash or letter of credit may be reduced to 10 percent for projects longer than two (2) years.

e. This deposit shall be returned to the applicant (in the case of cash) or allowed to expire (in the case of a letter of credit), as provided above, provided all stormwater facilities are clean, unobstructed, and in good working order, as determined by the City Engineer.

f. Reproducible mylars and electronic files (in AutoCAD format) of the as-built storm drains and stormwater BMPs shall be submitted by the applicant or his/her engineer to the City along with the final plan, or upon completion of system construction. The mylars are to be of quality material and three mils in thickness. Complete development agreements (including deed restrictions) must be submitted for the City's review and approval prior to recording.

Fees and escrow account payments shall be sufficient to cover administrative and technical review costs anticipated to be incurred by the City of San Dimas including the costs of on-site inspections, as set forth by resolution of the City Council.

14.13.100 Maintenance Agreement

A. Purpose of Maintenance Agreement

The purpose of the maintenance agreement is to provide the means and assurance that maintenance of stormwater BMPs shall be undertaken.

B. Maintenance Agreement Required

1. A maintenance agreement shall be submitted to the City, for review by the City Engineer and his/her designee and, if necessary, City Attorney. The Designers may

select any combination of stormwater BMPs which meet the performance standards provided this selection and identified in the Los Angeles County Municipal Storm Water Permit Order No. R4-2012-0175 and any amendment, revision, or reissuance thereof. A formal maintenance plan shall be included in the maintenance agreement.

C. Maintenance Agreement Provisions

1. The maintenance agreement shall include a plan for routine, emergency, and long-term maintenance of all stormwater BMPs, with a detailed annual estimated budget for the initial two (2) years, and a clear statement that only future maintenance activities in accordance with the maintenance agreement plan shall be permitted without the necessity of securing new permits. Written notice of the intent to proceed with maintenance shall be provided by the party responsible for maintenance to the City of San Dimas at least 14 days in advance of commencing work.

2. The maintenance agreement shall be binding on all subsequent owners of land served by the stormwater BMPs.

3. If it has been found by the City, following notice and an opportunity to be heard by the property owner, that there has been a material failure or refusal to undertake maintenance as required under this Chapter and/or as required in the approved maintenance agreement as required hereunder, the City shall abate such violations, as a public nuisance, pursuant to the procedures set forth in Chapter 8.16 of the San Dimas Municipal Code.

4. A fully executed "Maintenance Covenant for permanent BMP's Requirements" shall be recorded with the L.A. County Registrar/Recorder and submitted to the Public Works Department prior to the Certificate of Occupancy. Covenant documents shall be required to include an exhibit that details the installed treatment control devices as well as any site design or source control Best Management Practices (BMPs) for post construction. The information to be provided on this exhibit shall include, but not be limited to:

a. 8 ½" x 11" exhibits with record property owner information.

b. Types of BMPs (i.e., site design, source control and/or treatment control) to ensure modifications to the site are not conducted without the property owner being aware of the ramifications to BMP implementation.

c. Clear depiction of location of BMPs, especially those located below ground.

d. A matrix depicting the types of BMPs, frequency of inspection, type of maintenance required, and if proprietary BMPs, the company information to perform the necessary maintenance.

e. Agreement to retain documentation of proper maintenance for a period of two (2) years.

f. Understanding that documentation of proper maintenance must be presented to the City upon request.

14.13.110 Enforcement

Any person violating any provision of this Chapter shall be responsible for a municipal civil infraction and subject to the City's enforcement policy as set forth in the provisions of Chapter 1 and/or Chapter 8.16 of the San Dimas Municipal Code.

14.13.120 Stop Work Order

Where there is work in progress that causes or constitutes in whole or in part, a violation of any provision of this Chapter, the City is authorized to issue a Stop Work Order so as to prevent further or continuing violations or adverse effects. All persons to whom the stop work order is directed, or who are involved in any way with the work or matter described in the stop work order shall fully and promptly comply therewith. The City may also undertake or cause to be undertaken, any necessary or advisable protective measures so as to prevent violations of this Chapter or to avoid or reduce the effects of noncompliance herewith. The cost of any such protective measures shall be the responsibility of the owner of the property upon which the work is being done and the responsibility of any person carrying out or participating in the work.

14.13.130 Failure to Comply; Completion

In addition to any other remedies, should any property owner fail to comply with the provisions of this Chapter, the City may, after the giving of reasonable notice and opportunity for compliance, have the necessary work done, and the owner shall be obligated to promptly reimburse the City for all costs of such work.

When emergency measures are necessary to moderate a nuisance, to protect public safety, health and welfare, and/ or to prevent loss of life, injury or damage to property, the City is authorized to carry out or arrange for all such emergency measures. Property owners shall be responsible for the cost of such measures made necessary as a result of a violation of this Chapter, and shall promptly reimburse the City for all of such costs.

14.13.150 Cost Recovery for Damage to Storm Drain System

A discharger shall be liable for all costs incurred by the City as the result of causing a discharge that produces a deposit or obstruction, or causes damage to, or impairs a storm drain, or violates any of the provisions of this Chapter. Costs include, but are not limited to, those penalties levied by the Environmental Protection Agency or Los Angeles Regional Water Quality Control Board for violation of an NPDES permit, attorney fees, and other costs and expenses.

Appendix D

Applicable Water Quality Objectives

Constituent	Units	Basin Plan		CTR			EPA 304(a)
		Min non-MUN	Min MUN	Min non-MUN fresh	Min non-MUN salt	Min MUN fresh	criteria
1,1,1-Trichloroethane	µg/L		200				
1,1,2,2-Tetrachloroethane	µg/L		1	11	11	0.17	
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L		1200				
1,1,2-Trichloroethane	µg/L		5	42	42	0.6	
1,1-Dichloroethane	µg/L		5				
1,1-Dichloroethylene	µg/L		6	3.2	3.2	0.057	
1,2,4-Trichlorobenzene	µg/L		70				
1,2-Dibromo-3-Chloropropane	µg/L		0.2				
1,2-Dichlorobenzene	µg/L		600	17000	17000	2700	
1,2-Dichloroethane	µg/L		0.5	99	99	0.38	
1,2-Dichloropropane	µg/L		5	39	39	0.52	
1,2-Diphenylhydrazine	µg/L			0.54	0.54	0.04	
1,2-Trans-Dichloroethylene	µg/L		10	140000	140000	700	
1,3-Dichlorobenzene	µg/L			2600	2600	400	
1,3-Dichloropropylene	µg/L		0.5	1700	1700	10	
1,4-Dichlorobenzene	µg/L		5	2600	2600	400	
2,3,7,8-TCDD (Dioxin)	pg/L		30	0.014	0.014	0.013	
2,4,5-TP	µg/L		50				
2,4,6-Trichlorophenol	µg/L			6.5	6.5	2.1	
2,4-D	µg/L		70				
2,4-Dichlorophenol	µg/L			790	790	93	
2,4-Dimethylphenol	µg/L			2300	2300	540	
2,4-Dinitrophenol	µg/L			14000	14000	70	
2,4-Dinitrotoluene	µg/L			9.1	9.1	0.11	
2-Chloronaphthalene	µg/L			4300	4300	1700	
2-Chlorophenol	µg/L			400	400	120	
2-Methyl-4,6-Dinitrophenol	µg/L			765	765	13.4	
3,3'-Dichlorobenzidine	µg/L			0.077	0.077	0.04	
4,4'-DDD	µg/L			0.00084	0.00084	0.00083	
4,4'-DDE	µg/L			0.00059	0.00059	0.00059	
4,4'-DDT	µg/L			0.00059	0.00059	0.00059	0.001 G, ii
Acenaphthene	µg/L			2700	2700	1200	
Acrolein	µg/L			780	780	320	3ug/L
Acrylonitrile	µg/L			0.66	0.66	0.059	
Alachlor	µg/L		2				
Aldrin	µg/L			0.00014	0.00014	0.00013	0
alpha-BHC	µg/L			0.013	0.013	0.0039	
alpha-Endosulfan	µg/L			0.056	0.0087	0.056	0.056 G, Y
Aluminum	µg/L		1000				
Ammonia (Total) as N	mg/L	0.035	0.035				
Ammonia as N	mg/L	2.23	2.23				
Anthracene	µg/L			110000	110000	9600	
Antimony	µg/L		6	4300	4300	14	
Aroclors	µg/L	0.00007	0.00007	0.00017	0.00017	0.00017	
Arsenic	µg/L		50	150	36	150	150 A, D
Asbestos	MFL		7	0	0	7	
Atrazine	µg/L		3				
Barium	µg/L		1000				
Bentazon	µg/L		18				
Benzene	µg/L		1	71	71	1.2	
Benzidine	µg/L			0.00054	0.00054	0.00012	
Benzo(a)Anthracene	µg/L			0.049	0.049	0.0044	
Benzo(a)Pyrene	µg/L		0.2	0.049	0.049	0.0044	
Benzo(b)Fluoranthene	µg/L			0.049	0.049	0.0044	
Benzo(k)Fluoranthene	µg/L			0.049	0.049	0.0044	
Beryllium	µg/L		4	0	0	0	
beta-BHC	µg/L			0.046	0.046	0.014	
beta-Endosulfan	µg/L			0.056	0.0087	0.056	0.056 G, Y
Bioaccumulation							
Biostimulatory Substances							
Bis(2-chloroethyl)Ether	µg/L			1.4	1.4	0.031	
Bis(2-chloroisopropyl)Ether	µg/L			170000	170000	1400	
Bis(2-ethylhexyl)Adipate	µg/L		400				
Bis(2-ethylhexyl)Phthalate	µg/L		4	5.9	5.9	1.8	
BOD	mg/L						
Boron	mg/L						0
Bromoform	µg/L			360	360	4.3	
Butylbenzyl Phthalate	µg/L			5200	5200	3000	
Cadmium	µg/L		5	2.2	9.3	2.2	0.25 D, E
Carbofuran	µg/L		18				
Carbon Tetrachloride	µg/L		0.5	4.4	4.4	0.25	

Constituent	Units	Basin Plan		CTR			EPA 304(a)
		Min non-MUN	Min MUN	Min non-MUN fresh	Min non-MUN salt	Min MUN fresh	criteria
Chemical Constituents							
Chlordanes	µg/L		0.1	0.00059	0.00059	0.00057	
Chloride	mg/L						230000
Chlorine (Total Residual)	µg/L		100				
Chlorobenzene	µg/L		70	21000	21000	680	
Chlorodibromomethane	µg/L			34	34	0.41	
Chromium	µg/L		50				
Chromium (III)	µg/L			180		180	74 D, E
Chromium (VI)	µg/L			11	50	11	11 D
Chrysene	µg/L			0.049	0.049	0.0044	
cis-1,2-Dichloroethylene	µg/L		6				
Color							0
Copper	µg/L			9	3.1	9	4.8 D, cc
Cyanide	µg/L		200	5.2	1	5.2	5.2 Q
Dalapon	µg/L		200				
Dibenzo(a,h)Anthracene	µg/L			0.049	0.049	0.0044	
Dichlorobromomethane	µg/L			46	46	0.56	
Dieldrin	µg/L			0.00014	0.00014	0.00014	0.056 O
Diethyl Phthalate	µg/L			120000	120000	23000	
Dimethyl Phthalate	µg/L			2900000	2900000	313000	
Di-n-Butyl Phthalate	µg/L			12000	12000	2700	
Dinoseb	µg/L		7				
Diquat	µg/L		20				
Dissolved Oxygen	mg/L	5	5				
E. Coli	MPN/100mL	126	126				
Endosulfan Sulfate	µg/L			240	240	110	
Endothall	µg/L		100				
Endrin	µg/L		2	0.036	0.0023	0.036	0.036 O
Endrin Aldehyde	µg/L			0.81	0.81	0.76	
Enterococcus	MPN/100mL	35	35				
Ethylbenzene	µg/L		700	29000	29000	3100	
Ethylene Dibromide	µg/L		0.05				
Exotic Vegetation							
Fecal Coliform	MPN/100mL	200	200				
Floating Material							
Fluoranthene	µg/L			370	370	300	
Fluorene	µg/L			14000	14000	1300	
Fluoride	mg/L		2				
gamma-BHC (Lindane)	µg/L		0.2	0.063	0.063	0.019	0
Glyphosate	µg/L		700				
Gross Alpha particle activity	pCi/L		15				
Gross Beta particle activity	pCi/L		50				
Habitat							
Heptachlor	µg/L		0.01	0.00021	0.00021	0.00021	0.0038 G
Heptachlor Epoxide	µg/L		0.01	0.00011	0.00011	0.0001	0.0038 G, V
Hexachlorobenzene	µg/L		1	0.00077	0.00077	0.00075	
Hexachlorobutadiene	µg/L			50	50	0.44	
Hexachlorocyclopentadiene	µg/L		50	17000	17000	240	
Hexachloroethane	µg/L			8.9	8.9	1.9	
Hydrology							
Indeno(1,2,3-cd)Pyrene	µg/L			0.049	0.049	0.0044	
Isophorone	µg/L			600	600	8.4	
Lead	µg/L			2.5	8.1	2.5	2.5 D, E
MBAS	µg/L		500				
Mercury	µg/L		2	0.051	0.051	0.05	0.77 D, hh
Methoxychlor	µg/L		40				0.03 C
Methyl Bromide	µg/L			4000	4000	48	
Methylene Chloride	µg/L		5	1600	1600	4.7	
Molinate	µg/L		20				
Nickel	µg/L		100	52	8.2	52	52 D, E
Nitrate as N	mg/L		10				
Nitrate as NO3	mg/L		45				
Nitrite as N	mg/L		1				
Nitrobenzene	µg/L			1900	1900	17	
Nitrogen (NO3-N+NO2-N)	mg/L		10				
N-Nitrosodimethylamine	µg/L			8.1	8.1	0.00069	
N-Nitrosodi-n-Propylamine	µg/L			1.4	1.4	0.005	
N-Nitrosodiphenylamine	µg/L			16	16	5	
Oil + Grease	mg/L						
Oxamyl	µg/L		200				

Constituent	Units	Basin Plan		CTR			EPA 304(a)
		Min non-MUN	Min MUN	Min non-MUN fresh	Min non-MUN salt	Min MUN fresh	criteria
PCBs	µg/L			0.00017	0.00017	0.00017	
Pentachlorophenol	µg/L		1	8.2	7.9	0.28	15 F
pH	pH Units	6.5	6.5				6.5 – 9 C
Phenol	µg/L			4600000	4600000	21000	
Picloram	µg/L		500				
Pyrene	µg/L			11000	11000	960	
Radioactive Substances	pCi/L						
Radium-226 + Radium-228	pCi/L		5				
Ratio Fecal/Total Coliform							
Selenium	µg/L		50	5	71	5	5.0 R
Silver	µg/L			3.4	1.9	3.4	0
Simazine	µg/L		4				
Strontium-90	pCi/L		8				
Styrene	µg/L		100				
Sulfate	mg/L						
Taste and Odor							
TDS	mg/L						
Temperature	°C	26.7	26.7				0
Tetrachloroethylene	µg/L		5	8.85	8.85	0.8	
Thallium	µg/L		2	6.3	6.3	1.7	
Thiobencarb	µg/L		70				
Toluene	µg/L		150	200000	200000	6800	
Total Coliform	MPN/100mL	70	70				
Total Settleable Solids							
Toxaphene	µg/L		3	0.0002	0.0002	0.0002	0.0002
Toxicity							
Trichloroethylene	µg/L		5	81	81	2.7	
Trichlorofluoromethane	µg/L		150				
Tritium	pCi/L		20000				
TSS	mg/L						
Turbidity	NTU						
Uranium	pCi/L		20				
Vinyl Chloride	µg/L		0.5	525	525	2	
Xylenes (Total)	µg/L		1750				
Zinc	µg/L			120	81	120	120 D, E