Los Angeles River

Jurisdiction Group 1 Metals TMDL

October 11, 2010

Willow Street Bridge

Implementation Plan

Metals TMDL Implementation Plan

Reach 1 of the Los Angeles River and Compton Creek

for the cities of:

Carson
Compton
Huntington Park
Lakewood
Long Beach
Lynwood
Signal Hill
South Gate

and the

California Department of Transportation (Caltrans)

October 11, 2010

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Cover: Willow Street Bridge
Margaret Livingston
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Executive Summary

This Implementation Plan describes the implementation measures to be undertaken by the participating Jurisdictional Group 1 municipal agencies and the California Department of Transportation (Caltrans) for its facilities that are tributary to Compton Creek and Reach 1 of the Los Angeles River. The Metals Total Maximum Daily Loads (TMDL) for the Los Angeles River and Tributaries was adopted by the Los Angeles Regional Quality Control Board on September 6, 2007, approved by the State Water Resources Control Board on June 17, 2008, by the Office of Administrative Law on October 14, 2008, and by US EPA on October 29, 2008. The agencies participating in the development of this Plan are Caltrans and the Cities of Carson, Compton, Huntington Park, Lakewood, Long Beach, Lynwood, South Gate, and Signal Hill (hereafter referred to as the JG1 Agencies). The City and County of Los Angeles have chosen to prepare separate plans for their portions of the Jurisdictional Group 1 watershed and are not a part of this Plan.

The Los Angeles River Metals TMDLs are to be applied to the entire urbanized area of the Los Angeles River and its tributaries and contain waste load allocations (WLAs) for certain metal pollutants in urban/stormwater runoff discharge. Agencies discharging to the Los Angeles River have been divided into jurisdictional groups based on geographical areas that generally coincide with already designated reaches of the River. Each jurisdictional group will be independently responsible for implementing BMPs for its jurisdictional area, although individual agencies may, at their discretion, pursue individual BMPs. JG1 comprises the lower Los Angeles River and Compton Creek Watersheds, and consists of the nine Agencies identified above.

The TMDLs do not become applicable or enforceable until incorporated into the cities' MS4 permits. The MS4 permits to be modified or re-issued are to include terms consistent with the assumptions and requirements of the WLAs, but need not include numeric effluent limits as the means of implementing the WLAs.[1] This Plan sets forth an adaptive, performance-based management approach utilizing best management practices (BMPs) as the means of complying with the assumptions and requirements of the WLAs contained in the TMDLs for Metals for the Los Angeles River.

In preparing this Implementation Plan, the Agencies reviewed past monitoring data from samples collected in both Compton Creek and the Los Angeles River in order to establish a baseline of current conditions. Using this data, the participating agencies developed a series of options for (a) utilizing true source control BMPs to reduce pollution at the source; (b) implementing institutional and operational source control BMPs to limit metals and intercept pollutants before they enter the storm drain system;

[1] According to a US EPA Guidance Memorandum for MS4 Permits dated November 22, 2002, numeric effluent limits are to be used only in "rare instances" to implement WLAs.

and (c) limited treatment control BMPs, where necessary and reasonably feasible, to remove metal pollutants once they have entered the storm drain system.

The Agencies propose a performance-based adaptive management approach for complying with the assumptions and requirements of the WLAs. If the proposed BMPs are implemented in a timely manner, consistent with this Implementation Plan, the JG1 Agencies would then be deemed in compliance with the assumptions and targets of the WLAs, and that this adaptive management approach utilizing BMPs be incorporated into the relevant MS4 Permits as the JG1 Agencies' water quality based effluent limits (WQBELs). If this performance-based approach were followed, as noted above, these Agencies would be deemed in compliance with the WLAs, and thus in compliance with any modifications to the MS4 Permits or any re-issued MS4 Permits in this regard.

This Implementation Plan was submitted as a draft to the California Regional Water Quality Control Board, Los Angeles Region on January 11, 2010. This revised Implementation Plan represents an attempt to respond to the comments in the June 14, 2010 letter from Samuel Unger, Executive Officer of the Regional Water Board, as well as to clarify the implementation approach and measures that will be used to ensure consistency with the assumptions and requirements of the WLAs.

An analysis of the sampling results from Compton Creek and Reach 1 of the Los Angeles River collected between January 2001 and June 2010 has indicated that JG1 has already reached a point equivalent to the WLA targets for dry weather discharges. In fact, during the 2009-2010 monitoring period, all dry-weather samples met the numeric water quality targets for cadmium, copper, lead, and zinc

Wet weather discharges are more problematic although at current BMP implementation levels, sample exceedance frequencies are less than 75 percent (considered equivalent to achieving the 25% target of 2012). In Compton Creek, one metal pollutant, copper, is predicted to have a high likelihood of not achieving targets by 2012, as derived from the WLAs in the Metals TMDLs if additional BMPs are not implemented.

As Regional Water Board staff and USEPA Region 9 staff have noted, the sources for metals in the region are diverse.[2] Yet, in their discussion of atmospheric deposition related to work by Sabin, et al, Regional Board staff acknowledged the significance of atmospheric deposition as a primary source of metals in the Region's watersheds. The Metals TMDLs adopted by the Regional Board attempt to account for atmospheric deposition of metals largely by allocating atmospheric deposition loads to MS4 Permittees. This approach for addressing atmospheric deposition presents the Agencies with the difficult problem of solving the primary source of metals, even though such a source is more properly classified as a non-point source, and even though atmospheric deposition is clearly beyond the scope of these Agencies' regulatory authority. Because of this challenge, the Agencies are focusing on true source control as a top priority, and are proposing a series of performance-based BMPs with this Plan, which, if complied

[2] Staff Report for *Total Maximum Daily Loads for Metals, Los Angeles River and Tributaries*, June 2, 2005

with, is to result in the participating Agencies being deemed in compliance with the Metals TMDL for the lower Los Angeles River and Compton Creek watersheds. This adaptive management approach will, as noted by the Regional Board in its June 14, 2010 comment letter, accommodate uncertainty and allow time to coordinate with other responsible agencies.

This Implementation Plan stresses long-term true source control BMPs as the most effective means of compliance. Two important recent pieces of legislation, SB 346 and SB 757, foster true source control and will greatly assist in significantly reducing the presence of metals in the watershed. SB 346, which regulates copper content in vehicle brake pads, passed in fall of 2010 and will be effective January 1, 2011. Support and advocacy efforts by many of the JG1 Agencies were very instrumental in the passage of SB 346. SB 757, which prohibits the use of lead wheel weights in automobiles in California, passed in 2009 and became effective January 1, 2010. The emerging green chemistry movement is another form of true source control that should help reduce the presence of toxic metals in the environment, which could then be transported to receiving waters and impair water quality.

This Implementation Plan also emphasizes the use of additional institutional and operational source control BMPs for pollution prevention, runoff reduction, and sediment control in the near-term and long-term, and targets select sub-watersheds for application of these enhanced short-term efforts. These near term efforts include:

Enhanced street sweeping,
Enhanced control of construction and vacant sites,
Installation of ¼ inch screens in all catch basins,
Enhanced inspections at metals handling facilities,
Modifications to operation procedures at existing detention basins,
Emphasis on infiltration and Low Impact Development at new development sites & redevelopment, and
Pursuit of grants for regional and sub-regional BMPs.

The JG1 Agencies have worked collaboratively to prepare this Implementation Plan in advance of modifications to be made to their MS4 permits, as needed, to ensure consistency with the assumptions and requirements of the WLAs in the Metals TMDL. While not a part of this plan, both the City of Los Angeles and unincorporated areas of Los Angeles County have significant tributary areas to Compton Creek and Reach 1 of the Los Angeles River and their contributions towards compliance with the implementation measures set forth in this Plan, if any, are uncertain at this time. The JG1 agencies agree to work diligently to implement these or equally effective BMPs to achieve the targets and goals of the TMDL.

1.0 Introduction and Background

This Implementation Plan (IP) has been prepared by the JG1 Agencies which are those tributary to Reach 1 of the Los Angeles River and Compton Creek. Participating agencies are the cities of: Carson, Compton, Huntington Park, Lakewood, Long Beach, Lynwood, Signal Hill, and South Gate and the California Department of Transportation (Caltrans).[3] Not participating in this IP are the City of Los Angeles and the unincorporated areas of the County of Los Angeles which submitted separate IPs. For the purpose of this Implementation Plan, the term JG1 watershed refers solely to those areas under the jurisdictional control of the participating agencies unless specifically stated otherwise.

Reach 1 is the main channel of the Los Angeles River and extends from the estuary, at the Willow Street Bridge, northwards to the confluence of Compton Creek (Figure 1-1). Compton Creek is the major tributary to Reach 1. This IP outlines the steps of how the JG1 Agencies intend to work towards the Waste Load Allocations (WLAs) contained within the TMDL. The approach of this IP is to:

- Define the sub-watershed areas,
- Establish the existing baseline of metals in urban and stormwater runoff,
- Assign each of the individual agencies therein, the responsibility of achieving the specified reductions with the understanding that agencies will work together on regional BMPs where applicable.
- Provide recommended implementation methods, including BMPs for true source control, operational source controls or treatment BMPs,
- Establish an implementation schedule and proposed milestones,
- Review the TMDL effectiveness Monitoring Plan,
- Review the effectiveness of the BMPs implemented, and
- Each individual agency agrees to implement BMPs consistent with or equivalent to those set forth in this IP.

An iterative adaptive approach will be followed whereby BMPs will be implemented, their effectiveness monitored and modifications to this IP will be made as needed to maintain consistency with the assumptions and requirements of the WLAs.

[3] The City of Vernon is listed in the TMDL as a part of this Jurisdictional group, but detailed review indicates that runoff from the City of Vernon is solely discharged to Reach 2 of the Los Angeles River and the City is therefore not included herein.

1.1 TMDL Development

Both Reach 1 of the Los Angeles River and Compton Creek have been included on the 1998 and subsequent California 303d lists as impaired waterbodies due to a variety of metal pollutants. These metal pollutants include: cadmium, copper, lead and zinc. The federal Clean Water Act (CWA) requires that states develop TMDLs for all such impaired waterbodies.

This TMDL establishes the total allowable amounts of metal pollutants from all sources that receiving waters can assimilate and includes allotments for natural background loading and a safety margin[4]. Point source dischargers are assigned Waste Load Allocations (WLAs), and non-point source dischargers are assigned Load Allocations (LAs). The TMDL includes separate WLAs for: Non-Stormwater NPDES permits, POTWs, General Industrial Storm Water Permits and General Construction Storm Water Permits, Municipal Stormwater Permittees and Caltrans.

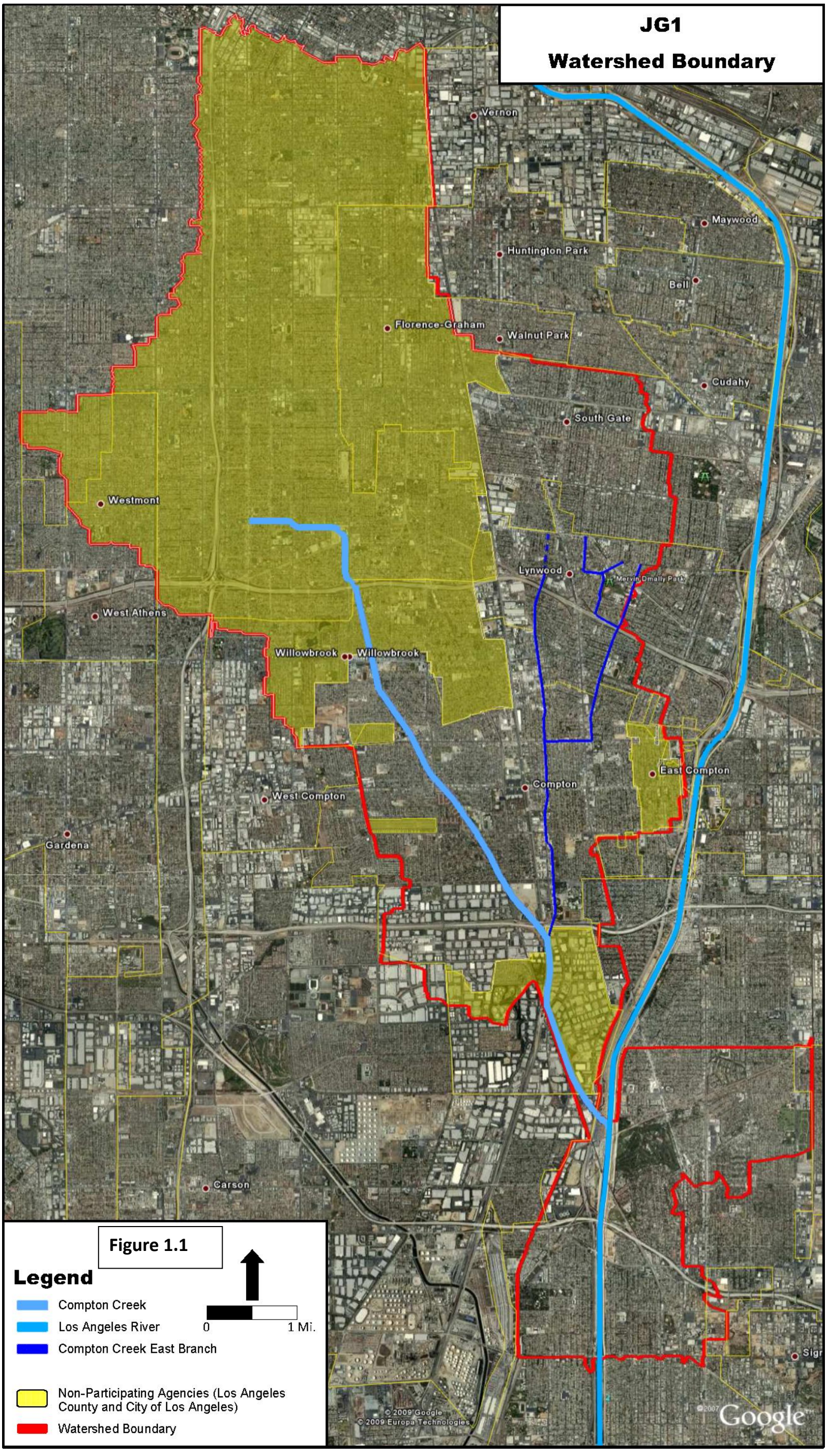
Reportedly in part due to a 1999 consent decree[5], the Regional Board first issued a draft metals TMDL for the Los Angeles River in 2004, eventually incorporating this TMDL into the Water Quality Control Plan for the Los Angeles Region (Basin Plan) on June 2, 2005. On September 6, 2007, the Regional Board reissued the Basin Plan with the adoption of Resolution 2007-014, which included revisions in order to comply with a court order issued after the initially adopted metals TMDL was successfully challenged in court. The second metals TMDL was again approved by the State Board, the Office of Administrative Law and ultimately became effective on October 29, 2008 with the issuance of an approval letter by the USEPA.

The TMDL identifies the beneficial uses (Table 1-1) of Reach 1 and Compton Creek that may have been impaired by the metal pollutants.

[4] California Regional Water Quality Control Board, Staff report, June 2, 2005, page 9
[5] Heal the Bay Inc., et al v. Browner

TABLE 1-1 **Beneficial Uses**	**Reach 1 Los Angeles River**	**Compton Creek**
Municipal	P*	P*
GWR	E	E
REC1	E[1]	E[1]
REC2	E[1]	E[1]
Wild	E	E
Warm	E	E
SHELL	P[1]	
Rare	E	
Migr	P	
Spwn	P	
Wet		E
Mar	E	
Ind	P	
Proc	P	

*Conditional E - Existing
[1]Restricted Use P-Potential


JG1
Watershed Boundary
Vernon
Maywood
Huntington Park
Bell
Florence-Graham
Walnut Park
Cudahy
South Gate
Westmont
Lynwood
Mervin Dmally Park
West Athens
Willowbrook
Willowbrook
East Compton
Compton
West Compton
Gardena
Carson
Figure 1.1
Legend
Compton Creek
Los Angeles River
Compton Creek East Branch
0
1 Mi.
Non-Participating Agencies (Los Angeles County and City of Los Angeles)
Watershed Boundary
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Google

1.2 Numeric Water Quality Targets and Waste Load Allocations

The TMDL establishes waste load allocations for the Los Angeles River and its tributaries that are purportedly based upon numeric limits derived from the California Toxics Rule (CTR). Several of the CTR metals criteria are dependent upon water hardness and therefore the numeric water quality targets differ for wet and dry weather. Mass-based waste load allocations (WLAs) were subsequently developed in the TMDL and assigned to point sources discharging into the water bodies. The numeric water quality targets and waste load allocations for Reach 1 and Compton Creek are[6]:

TABLE 1-2 Dry Weather Numeric Water Quality Targets	**Copper**	**Lead**
Reach 1	23 ug/l	12 ug/l
Compton Creek	19 ug/l	8.9 ug/l

Dry-weather waste load allocations for storm water are equal to storm drain flows (critical flows minus median POTW flows minus median open space flows) multiplied by reach-specific numeric targets, minus the contribution from direct air deposition.

TABLE 1-3 Dry Weather Waste Load Allocations	**Critical Flow (cfs)**	**Cu (kg/day)**	**Pb (kg/day)**
LA River Reach 1	2.58	0.14	0.07
Compton Creek	0.90	0.04	0.02

Wet weather days are when the maximum daily flow at Wardlow is equal to or greater than 500 cfs.

TABLE 1-4 Wet Weather Numeric Water Quality Targets	**Copper**	**Lead**	**Zinc**	**Cadmium**
Reach 1 and Compton Creek	17 ug/l	62 ug/l	159 ug/l	3.1 ug/l

[6] Attachment A to Resolution No. R2007-014, Numeric Targets

TABLE 1-5 Wet Weather Waste Load Allocations (kg/day)	MS4 Permittees	Caltrans
Cadmium	$2.8x10^{-9}$ x daily volume(L) – 1.8	$5.3x10^{-11}$ x daily volume(L) – 0.03
Copper	$1.5x10^{-8}$ x daily volume (L) – 9.5	$2.9x10^{-10}$ x daily volume (L) – 0.2
Lead	$5.6x10^{-8}$ x daily volume (L) – 3.85	$1.06x10^{-9}$ x daily volume (L) – 0.07
Zinc	$1.4x10^{-7}$ x daily volume (L) – 83	$2.7x10^{-9}$ x daily volume (L) – 1.6

1.3 TMDL Implementation Schedule

The TMDL establishes a phased implementation schedule. The first task was the submittal of a Coordinated Monitoring Plan for the entire Los Angeles River system by April 11, 2007. This plan has been prepared and submitted to the Regional Board[7]. Monitoring began in October 2008 and is to continue through January 11, 2012 as an ambient monitoring program. This monitoring will, in part, provide background data for participating agencies in preparation for a scheduled January 11, 2011 reopener[8] and future BMP implementation efforts. This CMP is tentatively scheduled to convert to an Effectiveness Monitoring Plan in January 2012. The timeline in the TMDL is as follows:

TABLE 1-6	TMDL Target Deadlines
January 11, 2012	Demonstrate that 50% of the total drainage area is effectively meeting dry weather WLAs and 25% of the total drainage area is effectively meeting wet weather WLAs.
January 11, 2020	Demonstrate that 75% of the total drainage area is effectively meeting dry weather WLAs.
January 11, 2024	Demonstrate that 100% of the total drainage area is effectively meeting dry weather WLAs and 50% of the total drainage area is effectively meeting wet weather WLAs.
January 11, 2028	Demonstrate that 100% of the total drainage area is effectively meeting both dry and wet weather TMDL WLAs.

[7] Coordinated Monitoring Plan for the Los Angeles River
[8] Basin Plan amendment, Implementation Section, pg 11

1.4 TMDLs and MS4 Permits

TMDLs are not self-implementing, and even though the basin plan is revised to incorporate a state developed TMDL, the TMDL is not enforceable until applicable NPDES permits have been amended to be consistent with the assumptions and requirements of the WLAs in the TMDL.

Water Boards have flexibility in issuing permit terms consistent with the assumptions and requirements of any applicable WLA. Federal regulations and policy allow WLAs to be incorporated into permits as either BMPs reasonably expected to achieve WLAs when implemented and properly maintained, or as numeric effluent limits. Since this IP is based on implementing and maintaining a combination of non-structural source control measures, operational control measures and structural control measures, the JG1 agencies propose to work with the Regional Board staff to develop appropriate language for incorporation into amended or re-issued MS4 permits that would clarify that, with respect to the JG1 portion of the Los Angeles River Watershed, implementation of the TMDLs will be through the implementation and maintenance of a combination of non-structural and structural BMPs. The language in such permits would further provide that the JG1 agencies complying with this Implementation Plan would be deemed in compliance with the assumptions and requirements of the WLAs, and thus the applicable implementing terms of the NPDES Permit.

1.5 Watershed and Agency Boundaries

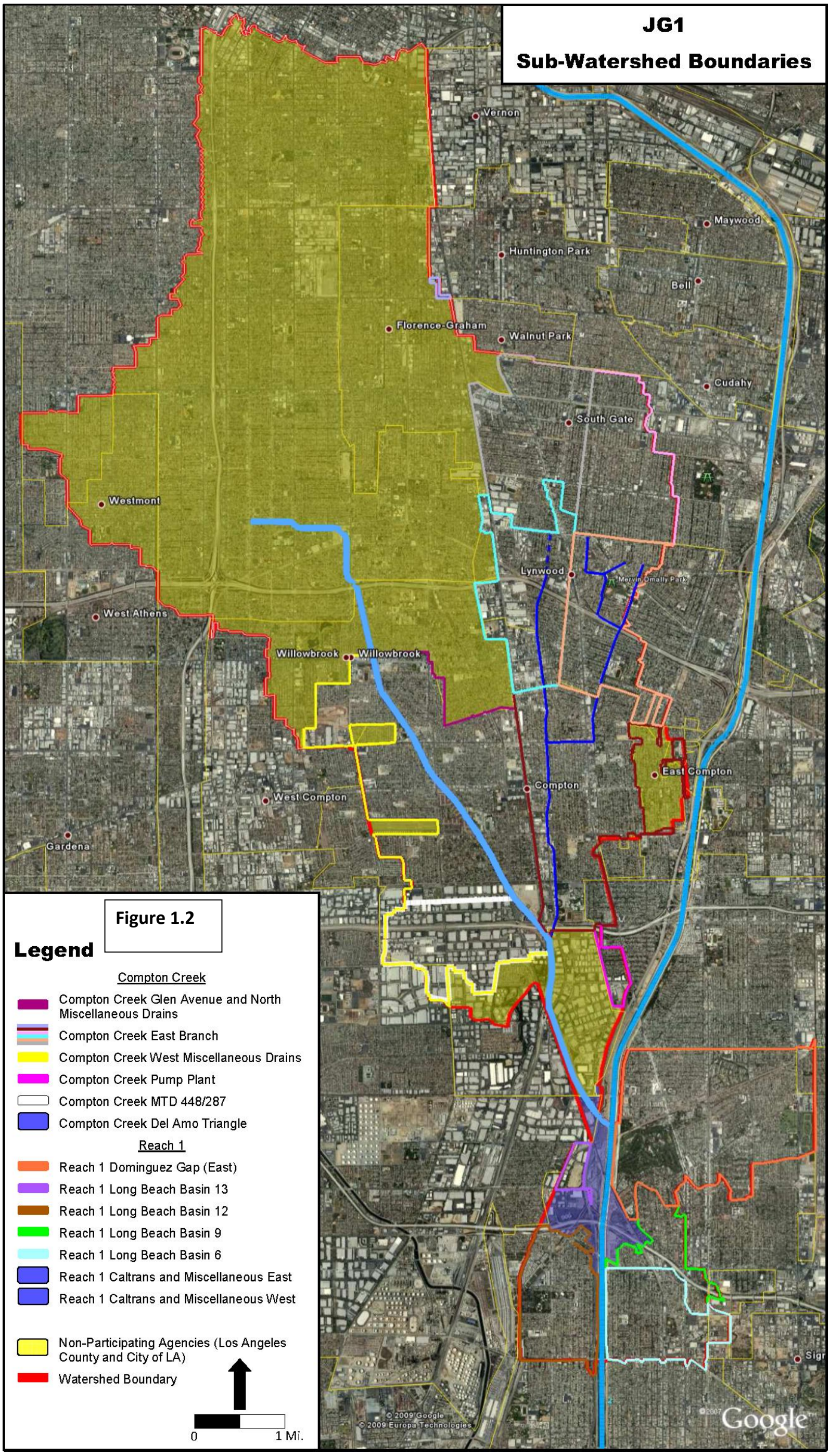
The Los Angeles River Watershed covers a land area of over 834 square miles from the eastern portions of the Santa Monica Mountains, Simi Hills, and Santa Susana Mountains to the San Gabriel Mountains in the north and the San Gabriel River watershed to the east. The watershed encompasses and is shaped by the path of the Los Angeles River, which flows from its headwaters in the mountains eastward to the northern corner of Griffith Park where the channel turns southward through the Glendale Narrows before it flows across the coastal plain and into San Pedro Bay near Long Beach.

The Los Angeles River Watershed has diverse land use patterns. The upper portion of the watershed is covered by forest or open space, while the remaining watershed is highly developed with commercial, industrial, or residential uses. There are eight major tributaries to the Los Angeles River as it flows from its headwaters to the Pacific Ocean. The major tributaries of the Los Angeles River include Burbank Western Channel, Pacoima Wash, Tujunga Wash, Verdugo Wash, Arroyo Seco, Rio Hondo, and Compton Creek. The JG1 watershed is the lower portions of the Los Angeles River system.

Jurisdictional Group 1

JG 1 agencies cover approximately 16,253 acres (see Figure 1-2) and includes the watersheds of the Los Angeles River Reach 1 and Compton Creek. The land area of individual agencies in each major drainage area is approximately:

TABLE 1-7 Land Areas In acres	**Los Angeles River Reach 1**	**Compton Creek**	**TOTAL**
Caltrans	397	222	619
Carson	0	125	125
Compton	0	6,060	6,060
Huntington Park	0	12	12
Lakewood	54	0	54
Long Beach	4,436	212	4,648
Lynwood	0	2,104	2,104
Signal Hill	52	0	52
South Gate	0	2,579	2,579
Totals	**4,939**	**11,314**	**16,253**


JG1
Sub-Watershed Boundaries
Vernon
Maywood
Huntington Park
Bell
Florence-Graham
Walnut Park
Cudahy
South Gate
Westmont
Lynwood
Melvin Dmally Park
West Athens
Willowbrook
Willowbrook
East Compton
Compton
West Compton
Gardena
Figure 1.2
Legend
Compton Creek
Compton Creek Glen Avenue and North Miscellaneous Drains
Compton Creek East Branch
Compton Creek West Miscellaneous Drains
Compton Creek Pump Plant
Compton Creek MTD 448/287
Compton Creek Del Amo Triangle
Reach 1
Reach 1 Dominguez Gap (East)
Reach 1 Long Beach Basin 13
Reach 1 Long Beach Basin 12
Reach 1 Long Beach Basin 9
Reach 1 Long Beach Basin 6
Reach 1 Caltrans and Miscellaneous East
Reach 1 Caltrans and Miscellaneous West
Non-Participating Agencies (Los Angeles County and City of LA)
Watershed Boundary
0
1 Mi.
© 2009 Google
© 2009 Europa Technologies
Google

1.6 Geophysical Setting

The JG1 watershed mostly slopes south with elevations of approximately 145 feet above mean sea level (AMSL) to the north, 185 feet AMSL to the west, 50 feet AMSL to the east, and 20 feet AMSL to the south.

JG1 is located within the northerly end of the Peninsular Ranges geomorphic province which extends from the Los Angeles Basin south of the Santa Monica Mountains to the tip of Baja California. This geomorphic province is characterized by elongated northwest trending mountain ranges separated by straight-sided sediment floored valleys (Yerkes et al. 1965). The northwest trend is further reflected in the direction of the dominant geologic structural features of the province, which are northwest trending faults and folds. These include the Newport-Inglewood fault zone, the Paramount syncline, the Dominguez anticline, the Gardena syncline, the Wilmington anticline, and the Wilmington syncline. Geologic units of the northern Peninsula Ranges province consist of Jurassic and Cretaceous age basement rocks overlain by as much as 32,000 feet of marine and non-marine sedimentary strata ranging in age from the late Cretaceous to Holocene epochs.

JG1 can be characterized as having seven soil types. Figure 1-3 shows the various soil types underlying the watershed. Soils range from sandy loam to clay loam, having a varying range of saturated hydraulic conductivity. Depth to groundwater within the JG1 ranges from 11 feet below ground surface to over 40 feet. The potential for liquefaction within the area exists due to shallow ground water levels; however a detailed analysis for JG1 was not performed as part of this report.

JG1 averages fifteen (15) inches of precipitation annually, which mainly occurs during the winter months (October through April). These rainfall patterns are quite varied with an average of 0.01 inches of rainfall in July to 3.68 inches of rainfall in February. With the highly developed conditions within JG1, most of storm flows generated by the rainfall is routed out to the ocean through the curb and gutters along the streets, catch basins, storm drains into Compton creek and the Los Angeles River. The velocity of the storm flows within this section of JG1 ranges up to 20 feet per second within the waterways.

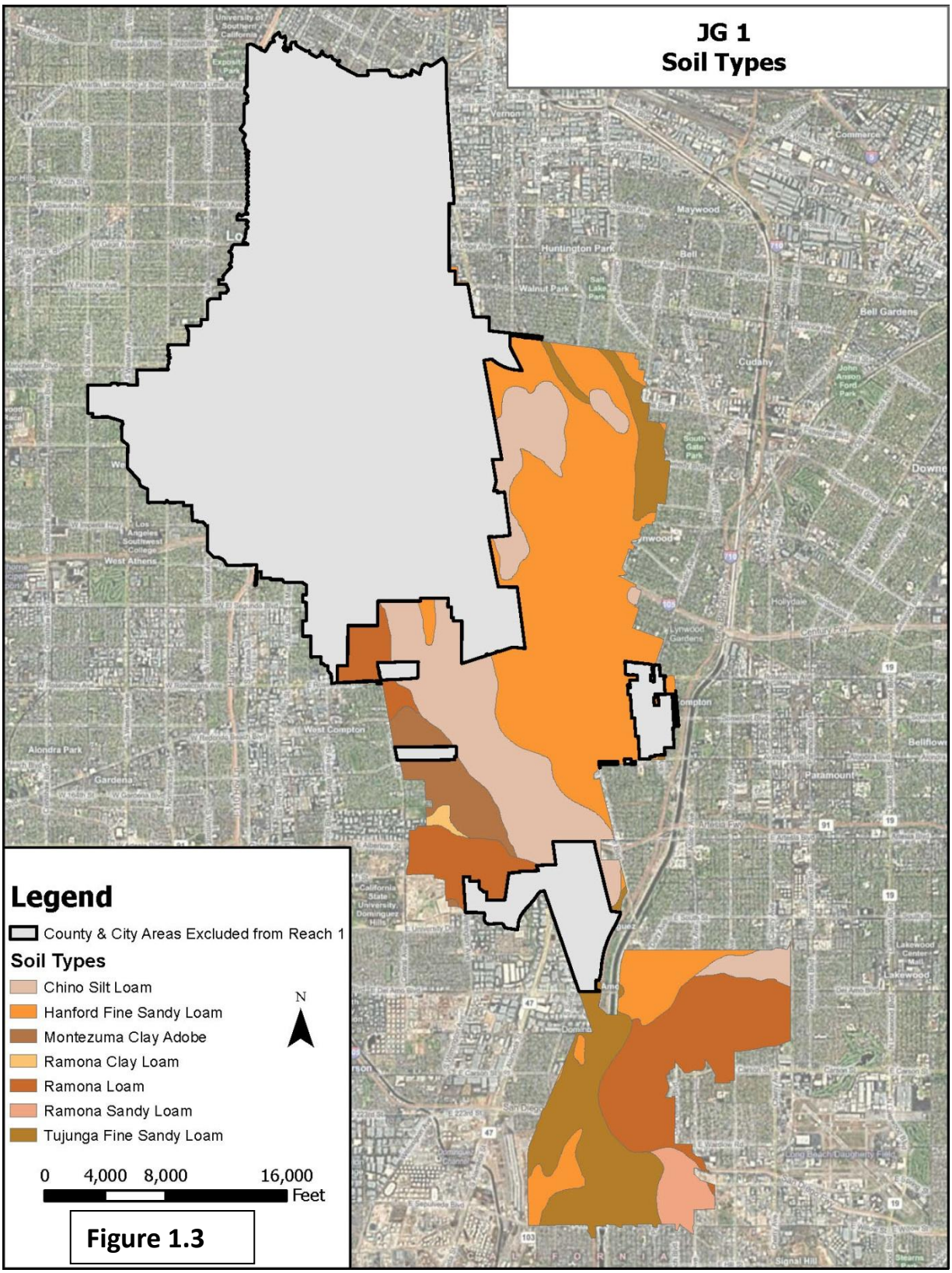

JG 1
Soil Types
Legend
County & City Areas Excluded from Reach 1
Soil Types
Chino Silt Loam
Hanford Fine Sandy Loam
Montezuma Clay Adobe
Ramona Clay Loam
Ramona Loam
Ramona Sandy Loam
Tujunga Fine Sandy Loam
N
0 4,000 8,000 16,000
Feet

Figure 1.3

1.7 Hydrologic Analysis

A planning level hydrologic analysis was conducted to develop solutions that might be important to meet the Los Angeles River and Tributaries Metals TMDL. There are several rain gauges within the Los Angeles Basin that are maintained by several jurisdictions, including the USGS, County, various Cities, water companies etc. for various purposes. Three rain gauges, namely Los Angeles 96th and Central, Carson - County Sanitation, and Dominguez Water Company, are in close proximity to JG1. Historical data from each of these locations were evaluated for developing the 85th percentile data set.

TABLE 1-8
85th Percentile using Local Rain Gauges

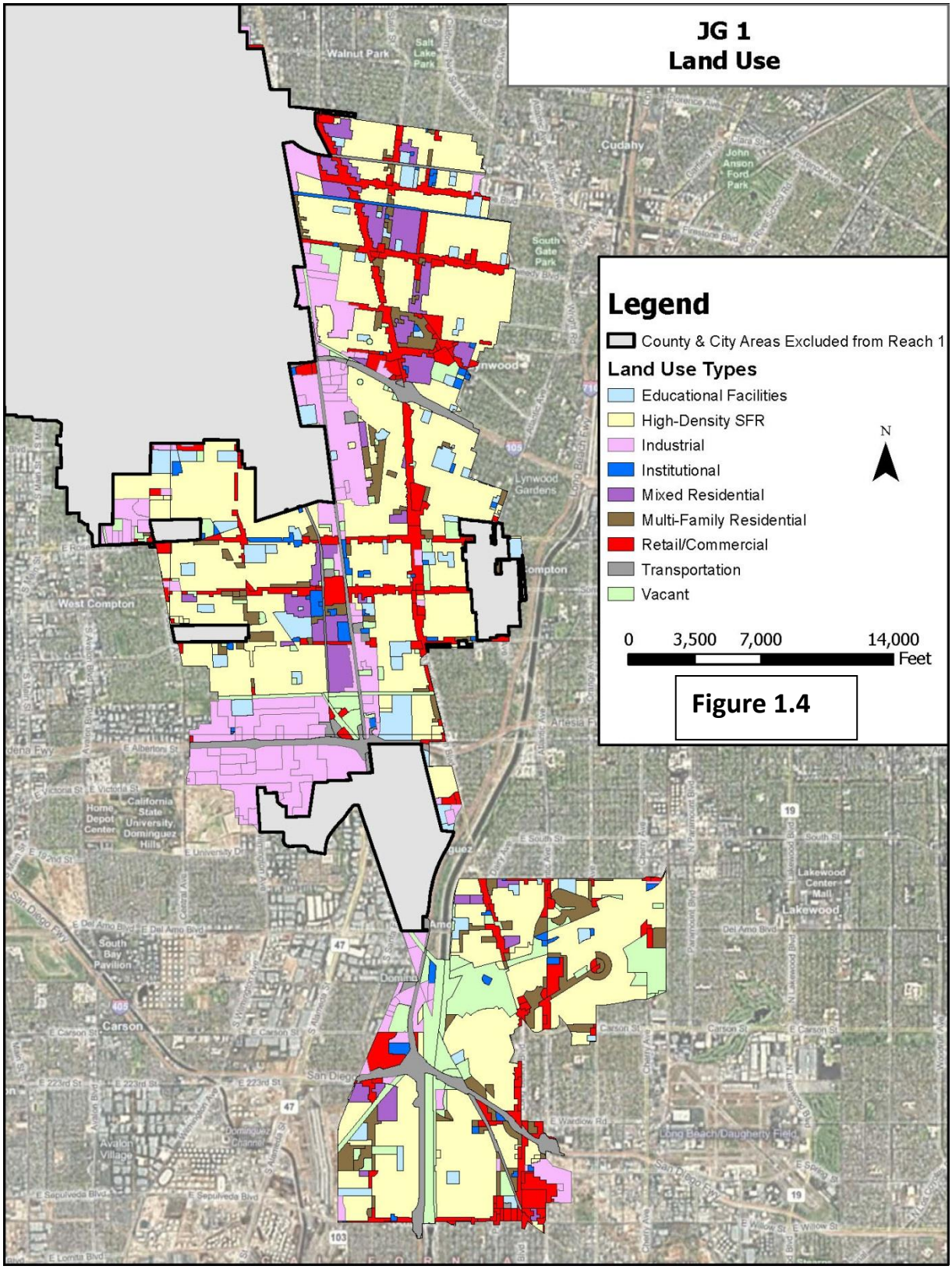
Rainfall Gauge Name	85th Percentile (inches)
Los Angeles 96th and Central	0.92
Carson - County Sanitation	0.89
Dominguez Water Company	0.73

1.8 Land Use

The watershed is highly developed with limited open space (Figure 4). There are sparsely located parks within the watershed with progress being made towards providing connectivity along Compton Creek and Los Angeles River.

The Wet Weather modeling data from the USEPA (prepared by Tetra Tech in May 2004) designates the land uses for the entire Los Angeles River watershed. Regional Board staff reports[9] show the predicted contribution of each land use group. For the entire Los Angeles Watershed: 71.5 % of copper, 71.1% lead, and 59.3% zinc was modeled to come from residential land uses. Residential land use comprises 36.5% of total land use. 13.4% of copper, 18.6% of lead, and 18.2% of zinc was modeled to come from commercial land uses. Commercial land use comprises 7.68% of the total land use.

[9] LA Regional Board Metals TMDL Staff Report, June 2, 2005, Table 7-3 pg 64


JG 1
Land Use
Legend
County & City Areas Excluded from Reach 1
Land Use Types
Educational Facilities
High-Density SFR
Industrial
Institutional
Mixed Residential
Multi-Family Residential
Retail/Commercial
Transportation
Vacant
N
0 3,500 7,000 14,000
Feet
Figure 1.4

1.9 Sub-watersheds

JG1 has been divided into 13 sub-watersheds (Figure 2). The criteria used to develop the sub-watershed areas were:

1. Discharge into existing detention basins within the City of Long Beach,
2. Major storm drain systems discharging into Compton Creek and
3. Smaller miscellaneous and Caltrans drains.

The sub-watersheds and contribution of each JG1 agency is:

TABLE 1-9 **Sub-Watershed Drainage Areas** **Further subdivided into individual agencies** **and(acreages) when applicable**	**Area** (acres)
Compton Creek North miscellaneous drains (RDD111, Glen Avenue, 2601) Compton	1,519
Compton Creek East Branch (Discharge point at Santa Fe Avenue) South Gate Bullis (1,169 acres) Santa Fe (1,410) Lynwood Bullis (1,042) Santa Fe (1,062) Compton Bullis (557) Santa Fe (1,384) Huntington Park (12) Long Beach (91) CalTrans (222)	6,997
Compton Creek West miscellaneous drains (2650,422,2602,422, etc,) Compton	1,652
Compton Creek Pump Plant Long Beach	121
Compton Creek MTD448/287 Carson (92 acres) Compton (900)	992
Compton Creek Del Amo triangle Carson	33
Compton Creek subtotal→	**11,314**

Reach 1 Dominguez Gap (east) Long Beach (2,311 acres) Lakewood (54)	2,365
Reach 1 Long Beach Basin 13 Long Beach	93
Reach 1 Long Beach Basin 12 Long Beach	868
Reach 1 Long Beach Basin 9 Long Beach	438
Reach 1 Long Beach Basin 6 Long Beach (643 acres) Signal Hill (52)	695
Reach 1 Caltrans and misc east Caltrans (134) Long Beach (11)	145
Reach 1 Caltrans and misc west Caltrans (263) Long Beach (72)	335
Reach 1 (Los Angeles River) subtotal→	**4,939**
JG1 totals	**16,253 acres**

2.0 Water Quality Baseline Characterization

2.1 Background

Regular monitoring of the Los Angeles River for metal pollutants began when the Los Angeles County Department of Public Works constructed a mass emission monitoring station at their existing flow monitoring station just south of Wardlow Avenue in the City of Long Beach. The establishment of the mass emission station was a result of the requirements of the MS4 permit in force at that time (1996). This station was the primary sampling location for the whole Los Angeles River and collected approximately 5 wet weather and 2 dry weather samples each year. Additional and more comprehensive monitoring began in 2001 with the City of Los Angeles' Trends and Status program, which established a monitoring point at Willow Street in 2001 and subsequently included a monitoring point at Compton Creek beginning in 2005. The Trends and Status program was subsequently superseded by the Coordinated Monitoring Plan (CMP) in October 2008. The Willow Street monitoring location was moved to Wardlow at that time.

The data obtained by these programs has been reviewed in establishing a baseline for this IP. The programs are:

Mass Emission Monitoring — Los Angeles County (1996 to June 30, 2009) at the Wardlow station. This program was established well before the advent of the metals TMDL and the sampling trigger point and other parameters differ considerably from the current TMDL requirements. These differences include: the number of annual dry weather samples, the specific storm sampled in any particular month and the duration of sampling (compositing) of each storm. Due to these differences, this data although reviewed, has not been used in establishing the baselines of this IP.

Trends and Status — Los Angeles City at Willow (2001-2008) and Compton Creek Del Amo (2005-2008) Stations. The majority of samples were collected before the metals TMDL was in place and sample collection personnel were not aware of the 500 cfs criteria at Wardlow that would eventually be used as the defining line between wet and dry weather. Therefore this baseline relies on the subjective notations supplied by the samplers. Any sample noted as "wet" or "raining", was counted as a wet weather sample whether the flow at Wardlow exceeded 500 cfs or not.

The wet weather samples collected at Willow under this program were grab samples, and although able to provide historical reference information, are not directly comparable to the composite samples currently (since October 2008) being collected at Wardlow.

Coordinated Monitoring

The City of Los Angeles has been under contract with all of the Los Angeles River tributary agencies since October 2008. Monitoring is now conducted at the Wardlow (wet and dry weather) and Compton Creek Del Amo (dry weather only) stations.

Dry Weather Critical Flow

The Regional Board determined that dry-weather flows are influenced significantly by the effluent discharge (from POTWs) and the presence of dams on the tributaries. "Critical flows"[10] (without POTW influence) were listed in the TMDL staff report for both Reach 1 and Compton Creek.

Reach 1 (main channel) 2.58 cfs
Compton Creek 0.90 cfs

The critical dry-weather flow established for Reach 1 by the TMDL is approximately 2.9 times greater than the critical flow for Compton Creek. Analysis is complicated by the variable contribution of metals being discharged into the main channel from the upper Reaches.

2.2 Sample Collection Locations (current)

The locations of the sampling points are shown in Figure 2.1.[11]

[10] Ibid, pg 48 in general, the median flow measured at each gage from 1988 - 2000 was selected as the critical flow
[11] Aerials views courtesy of City of Los Angeles

FIGURE 2.1

Compton Creek sampling point

Compton Creek at Del Amo sampling point

Reach 1 sampling point

Reach 1 at Wardlow sampling point

2.3 Historic Dry Weather Monitoring

For the development of the original metals TMDL in 2005, the Regional Board reviewed available historical sampling data that included data supplied by the City of Los Angeles' Watershed Monitoring. Seventeen samples were reportedly collected through May 2003 and the Regional Board summarized the dry-weather metals criteria exceedances for Reach 1 (main channel only) as:

Copper: 2 out of 17 samples exceeding CTR chronic criteria
Lead: 3 out of 17 samples exceeding CTR chronic criteria

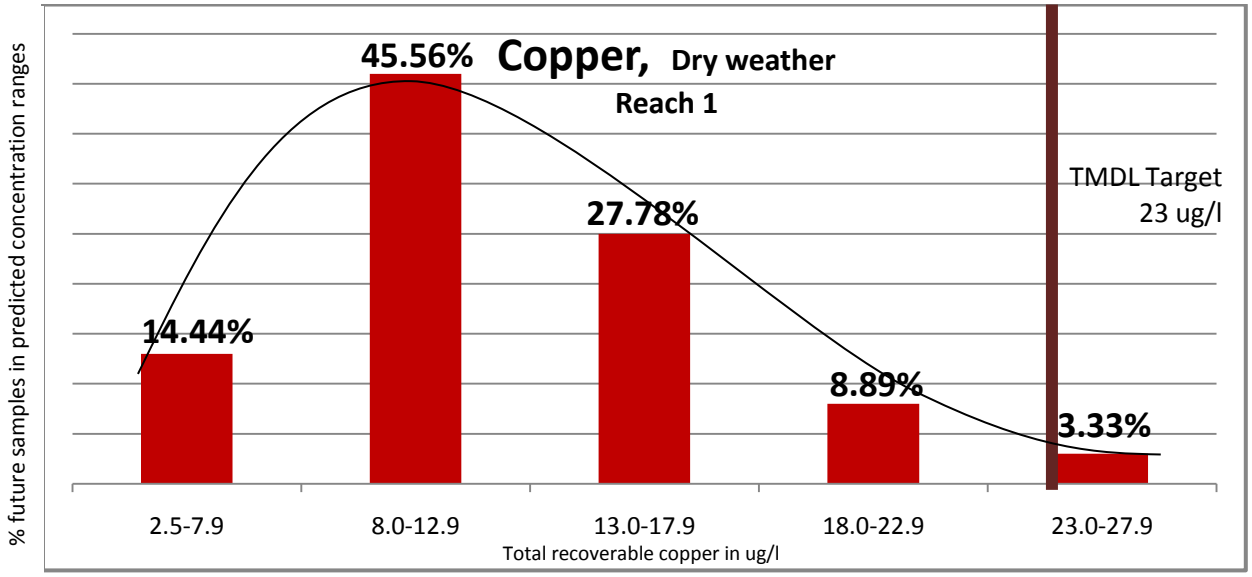
The TMDL does not list Cadmium or Zinc as dry weather impairments.

2.4 *Dry Weather Baseline (January 2001 to June 2009)*

The results of both the Trends and Status monitoring and the CMP have provided considerably more sample data than was available to the Regional Board when the TMDL was originally developed. Based on the sampling results beginning in 2001 and continuing through June 30, 2009, the projected future distributions of metal concentrations in dry-weather samples (assuming no additional BMP implementation occurs and future hydrologic conditions remain constant) can be expected to be as described below.

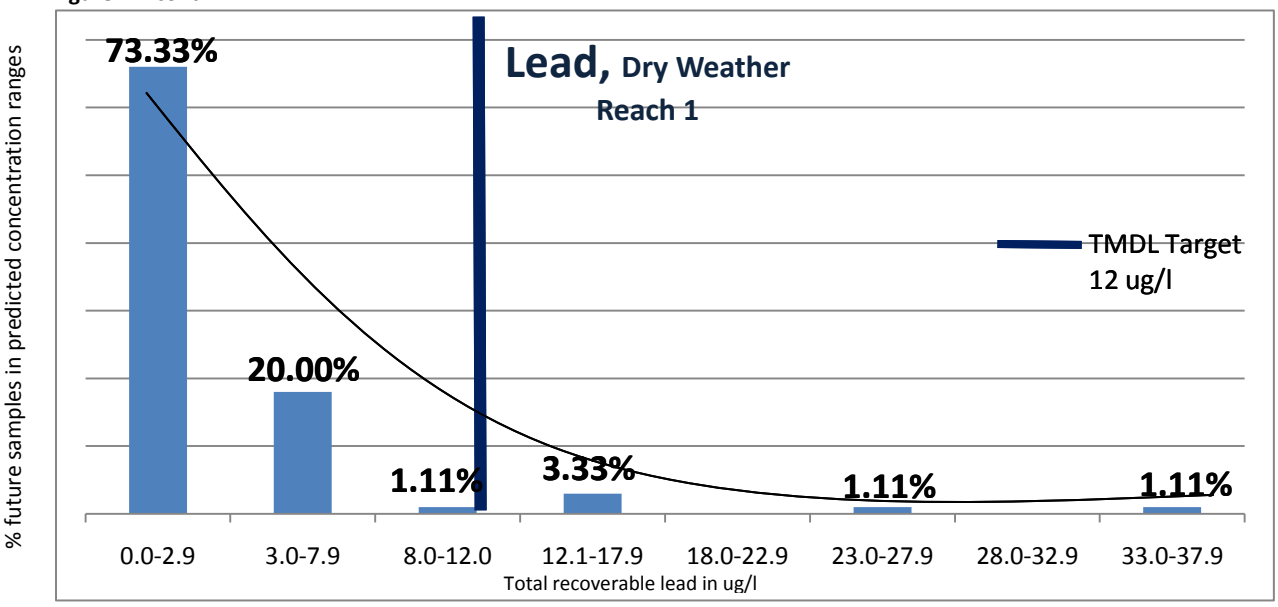
For dry weather in both Compton Creek and Reach 1, only copper and lead are listed as impairments. Therefore the following charts are only for these two metals in each water body.

FIGURE 2.2 Probability of Dry Weather Exceedances

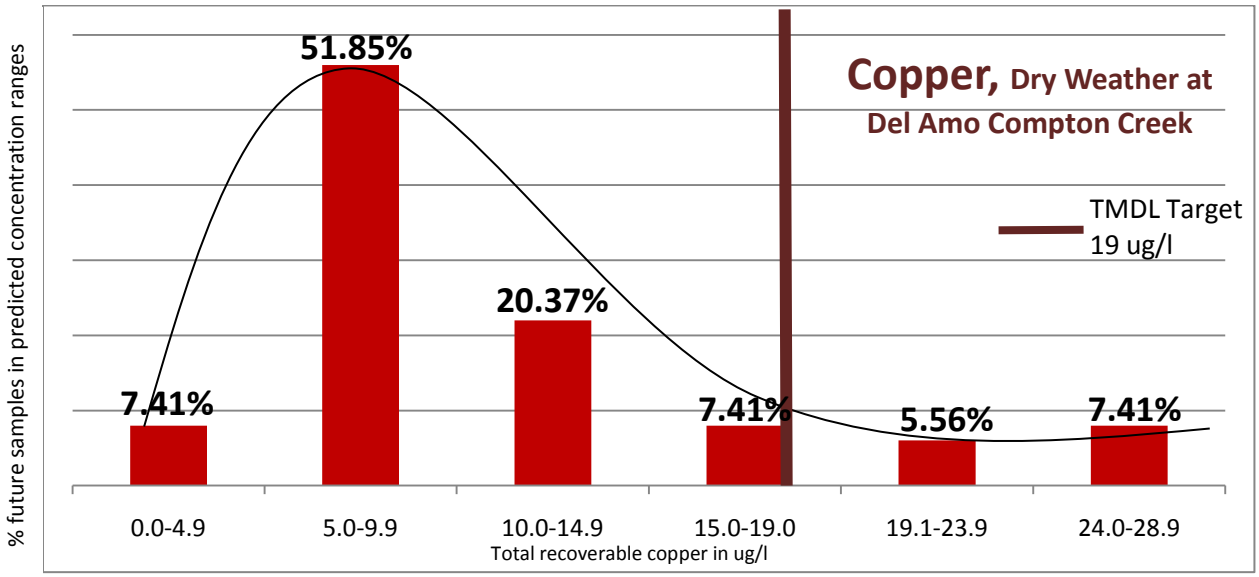


At current BMP implementation levels, future levels of copper measured at the Wardlow monitoring station can be expected to exceed the dry-weather numeric water quality targets (guidance only) in 3.33% of the samples. Levels reported as total recoverable copper in ug/l.

Figure 2.2 cont'

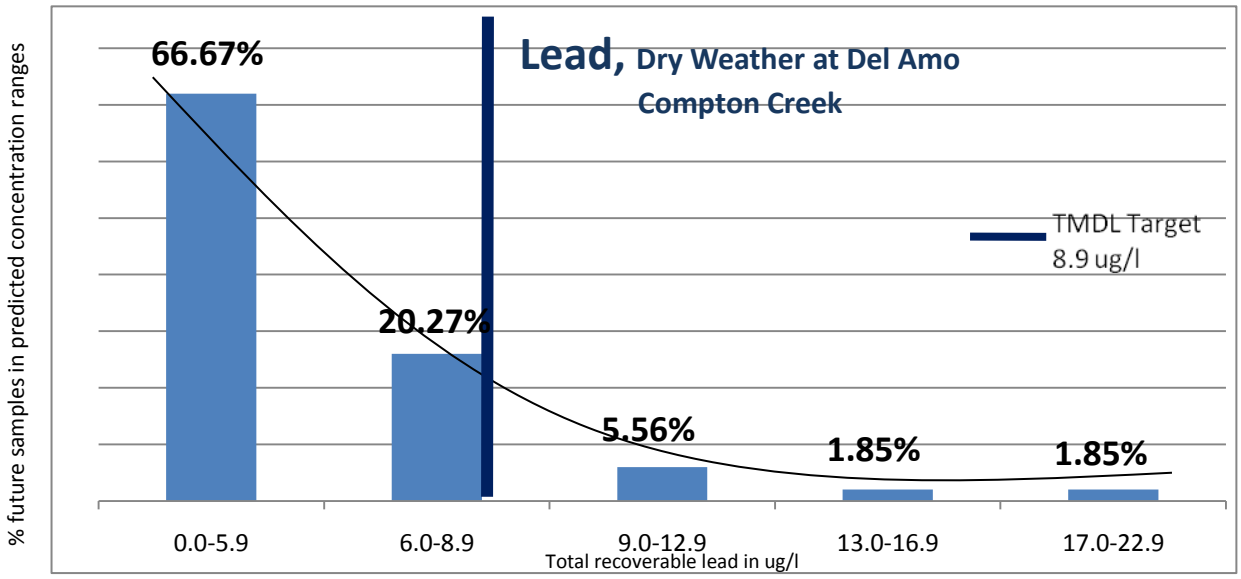


At current BMP implementation levels, future levels of lead measured at the Wardlow monitoring station can be expected to exceed the dry-weather numeric water quality targets (guidance only) in 5.55% of the samples.



At current BMP implementation levels, future levels of copper measured at the Del Amo Compton Creek monitoring station can be expected to exceed the dry-weather numeric water quality targets (guidance only) in 12.97% of the samples.

Figure 2.2 cont'

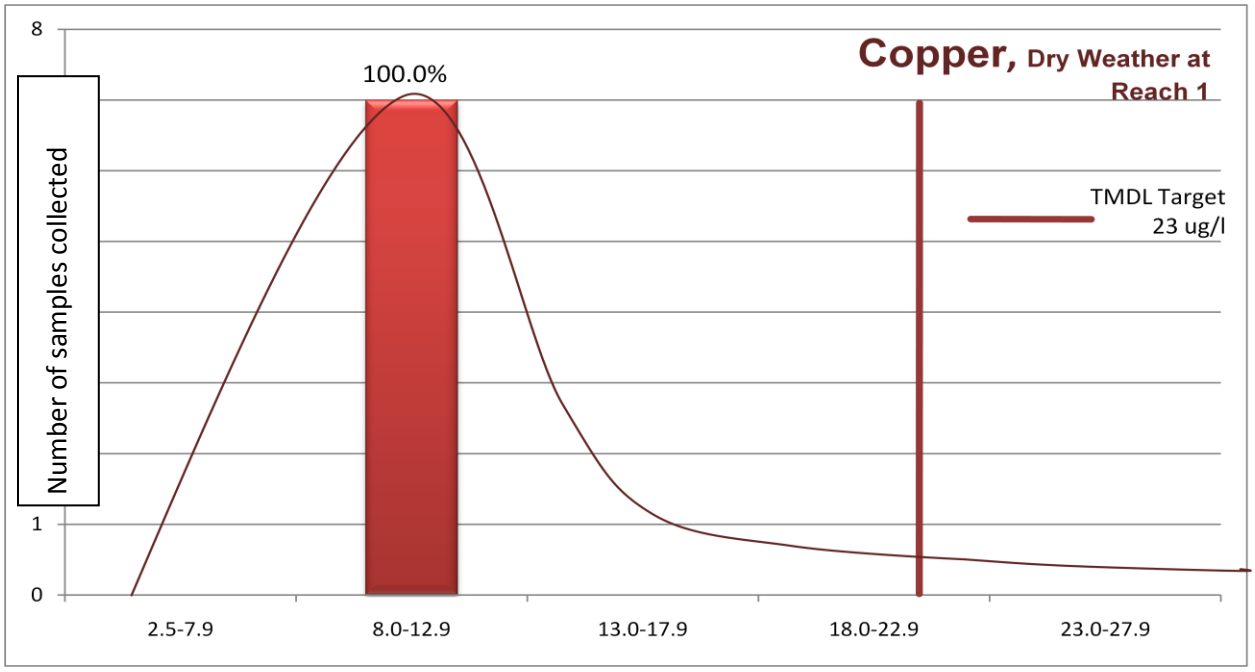


At current BMP implementation levels, future levels of lead measured at the Del Amo Compton Creek monitoring station can be expected to exceed the dry-weather numeric water quality targets (guidance only) in 9.26% of the samples. Levels reported as total recoverable lead in ug/l.

2.5 Recent Dry Weather Monitoring (July 2009 to June 2010)

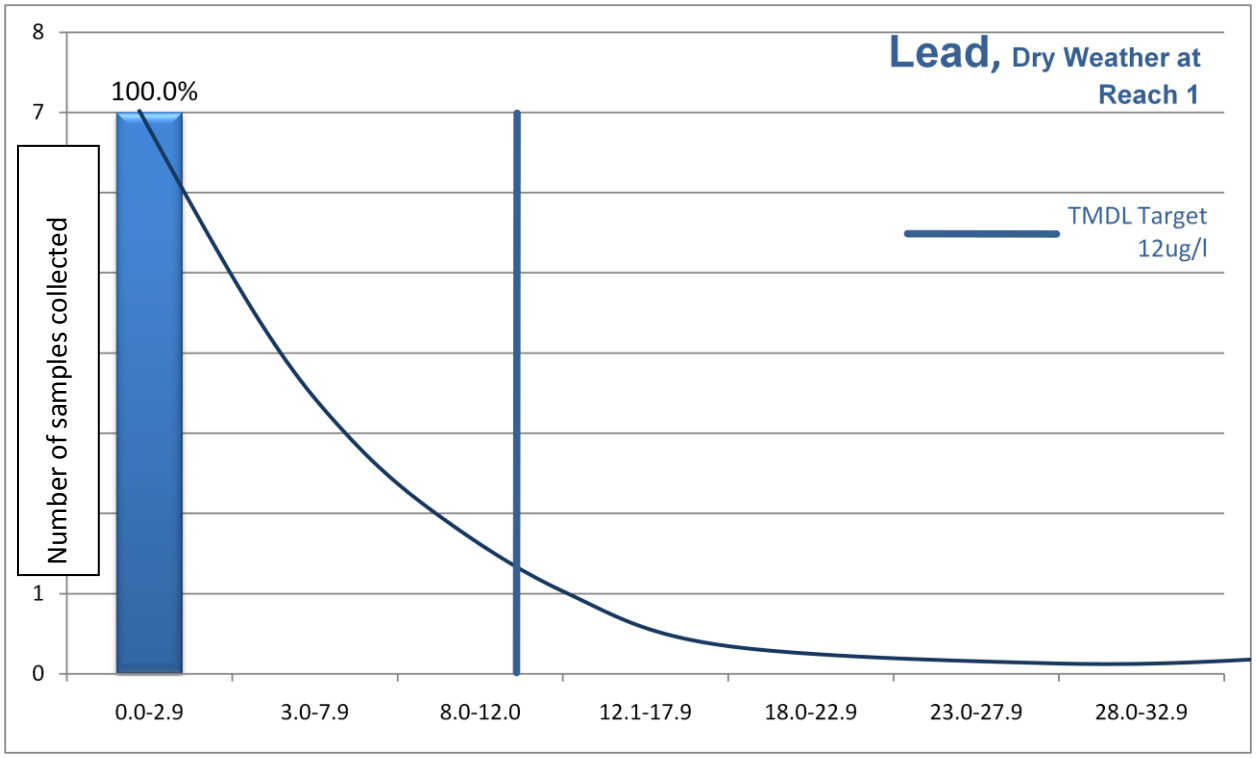
Between July 2009 and June 2010, seven samples were collected during dry weather at both the Wardlow and Del Amo/Compton Creek sampling locations as part of the ongoing CMP. These recent sample results are:

Figure 2.3 Recent Dry Weather CMP results



Copper Concentrations in ug/l

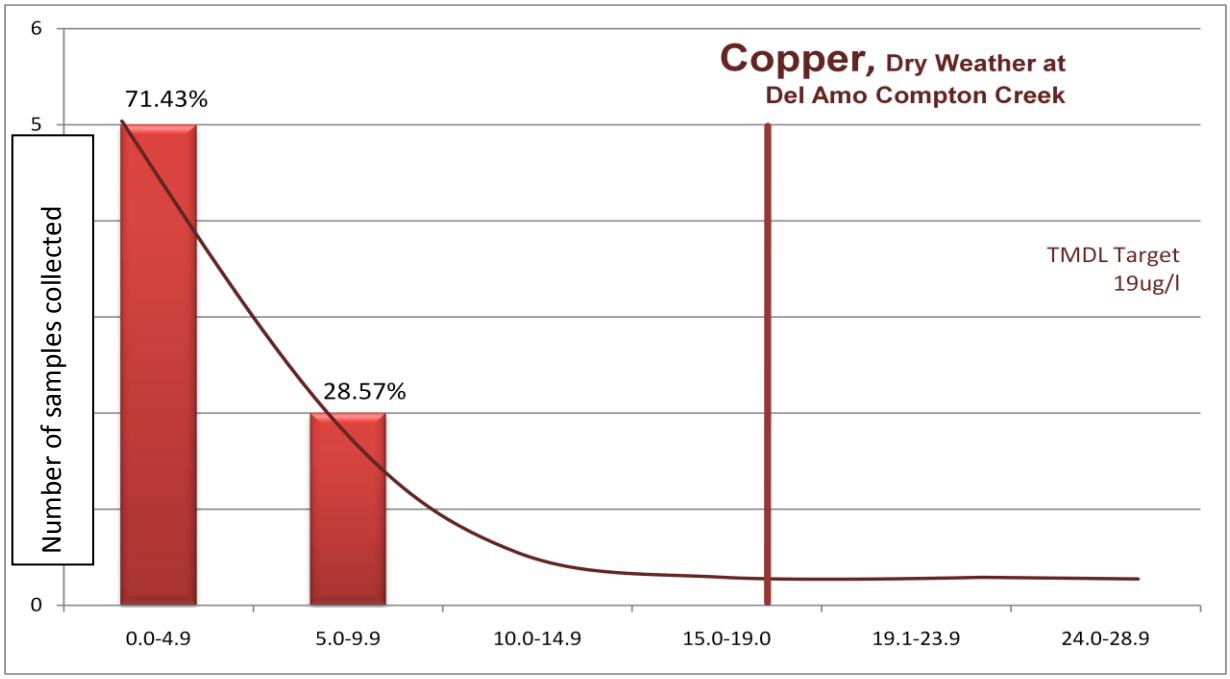
TMDL Water Quality Targets are shown for guidance purposes only



Lead concentrations in ug/l.

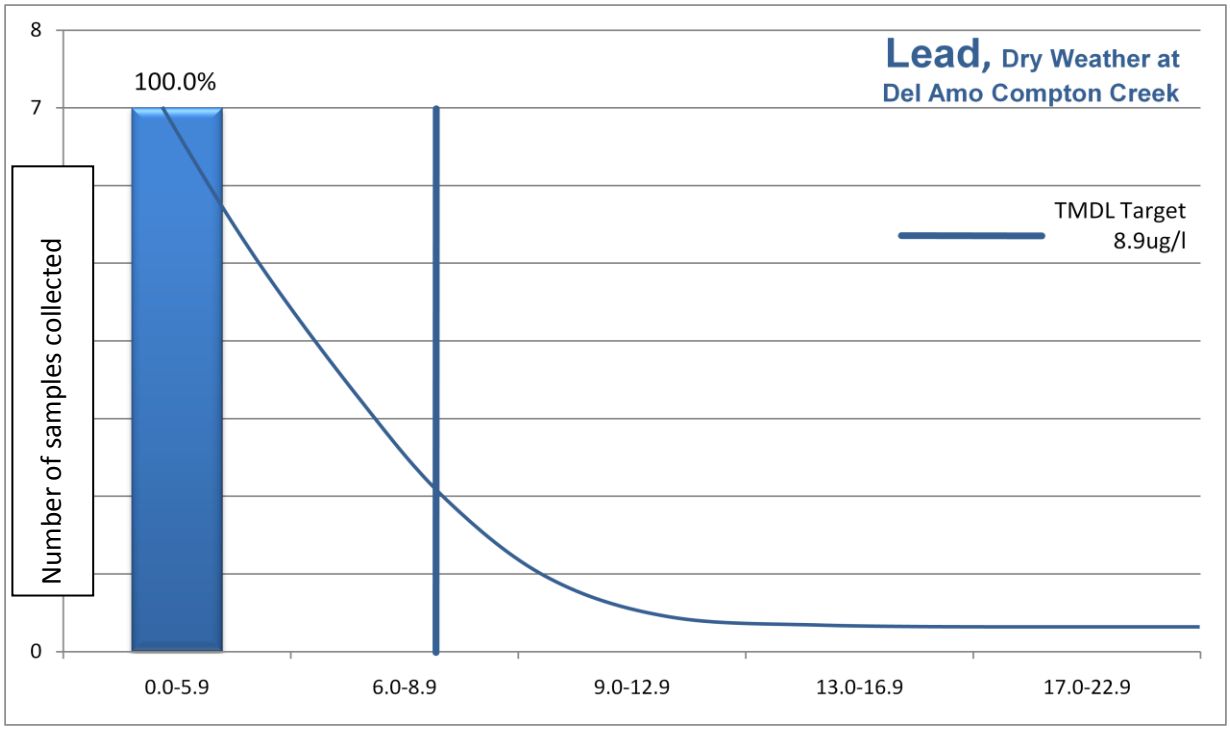
TMDL Water Quality Targets are shown for guidance.

Figure 2.3 cont'



Copper concentrations in ug/l

TMDL Water Quality Targets are shown for guidance purposes only



Lead concentrations in ug/l

TMDL Water Quality Targets are shown for guidance purposes only

2.6 Dry Weather Conclusion

The baseline analysis predicted that dry weather exceedence frequency would range between 3 and 12 percent for Copper and 5 to 9 percent for lead. However, no samples collected from July 2009 to June 2010 exceeded the numerical water quality targets. This evidence that the BMPs currently in place may alone be sufficient to achieve the goals for dry weather

2.7 Historic Wet Weather Monitoring

According to the Regional Board, "Most of the annual metals loadings to the Los Angeles River are associated with wet weather."[12] On an average year, loadings to the entire River are as follows:

Copper -	15,312 pounds	(80% due to wet weather water runoff)
Lead -	5,068 pounds	(95% ")
Zinc -	93,453 pounds	(90% ")
Cadmium -	136 pounds	(40% ")

Relying on information provided by the Los Angeles County's mass emission station located at Wardlow (located within Reach 1, but providing data for the entire Los Angeles River Watershed) the wet-weather acute and chronic metals criteria exceedances were reported by the Regional Board as:[13]

TABLE 2-1 Pre 2005 exceedances and number of samples collected	Number exceeding CTR Chronic Criteria	Number exceeding CTR Acute Criteria
Cadmium (42)	3	3
Copper (42)	32	13
Lead (42)	11	4
Zinc (42)	18	6

[12] June 2, 2005 Staff Report, Table 4-5 pg 38
[13] Regional Water Quality Control Board, Staff Report, June 2, 2005, pg 20

The TMDL establishes wet weather water quality targets based on the acute CTR criteria and the 50th percentile hardness values for storm water collected at the Wardlow station. These targets are for total recoverable metals:

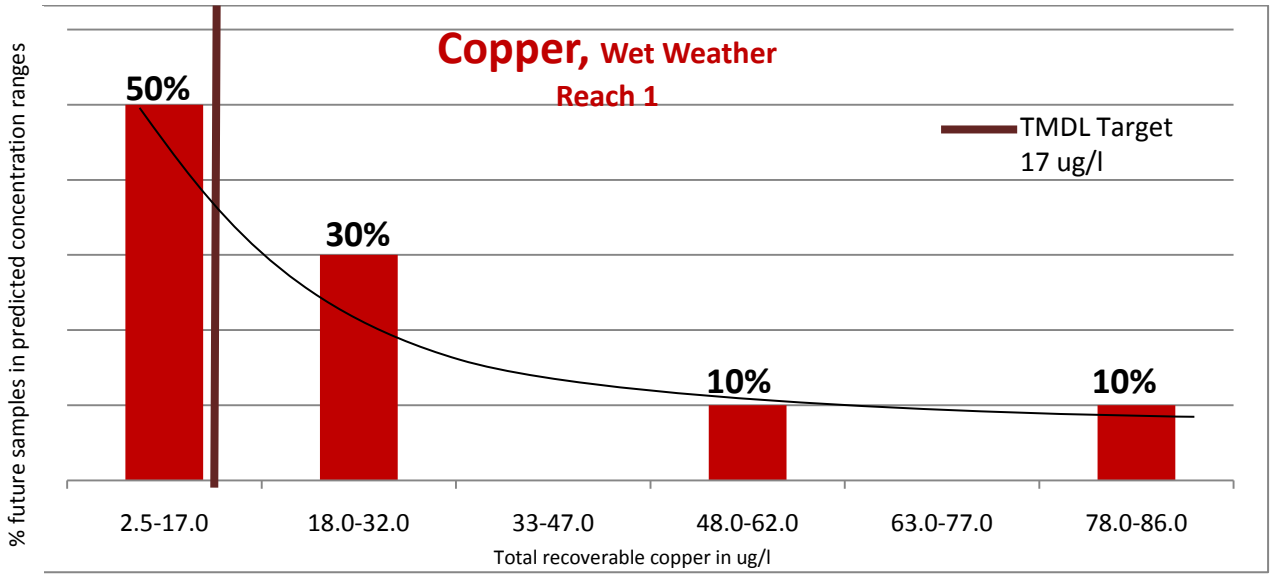
Cadmium:	3.1	ug/l
Copper:	17	ug/l
Lead:	62	ug/l
Zinc:	159	ug/l

The definition of wet-weather flow is based on a 90th percentile storm which is equivalent to 500 cfs at the Wardlow mass emission station[14].

2.8 Wet Weather Baseline

Based on the Trends and Status and the Coordinated Monitoring Programs through June 30, 2009, the projected future distribution of metals concentrations in wet-weather samples (assuming no additional BMP implementation occurs and future hydrologic conditions remain constant) can be expected to be as follows:

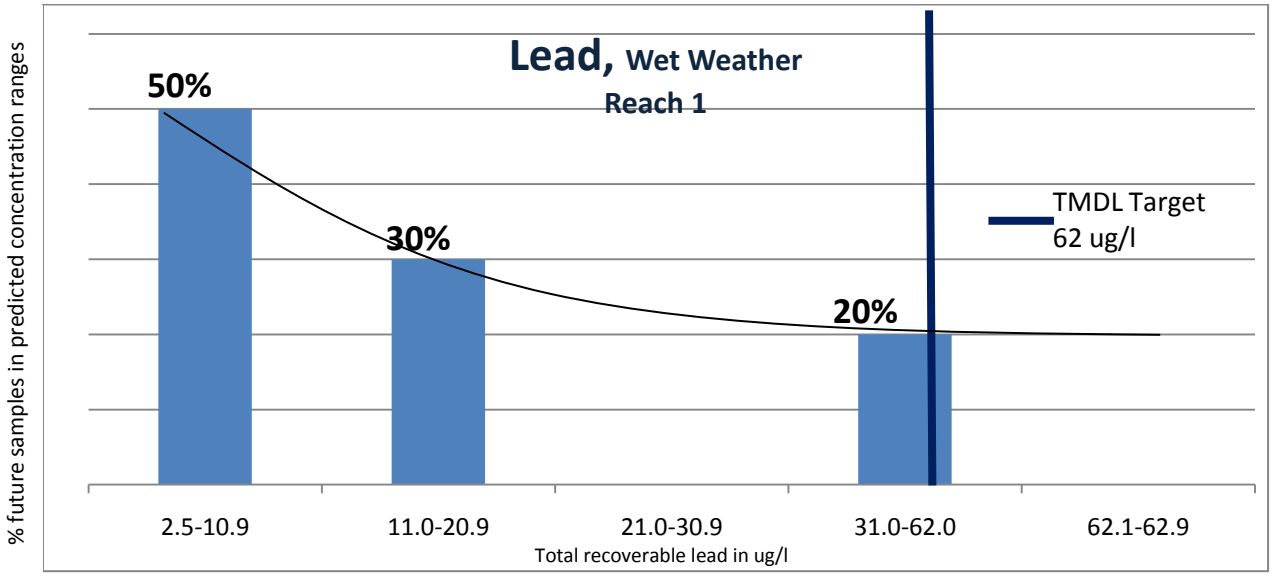
FIGURE 2.4 Probability of Wet Weather Exceedances



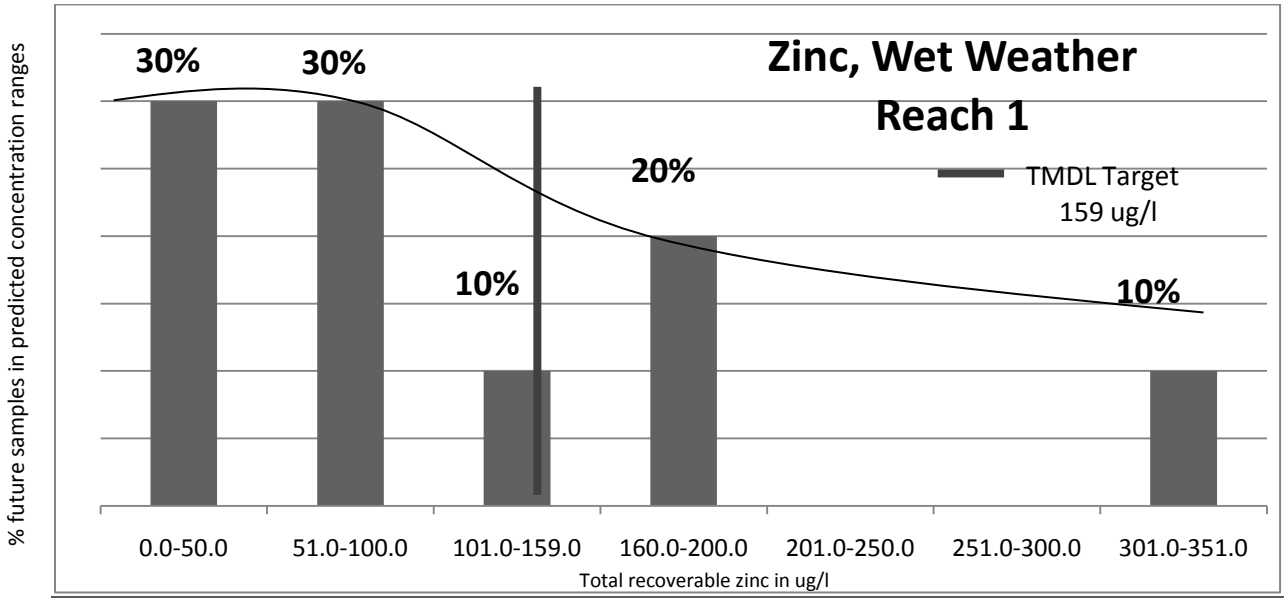
At current BMP implementation levels, future levels of copper measured at the Wardlow monitoring station can be expected to exceed the wet-weather numeric water quality targets (guidance only) in 50% of the samples. Levels reported as total recoverable copper in ug/l.

[14] Regional Water Quality Control Board, Staff Report, June 2, 2005, pg 54

Figure 2.4 cont'

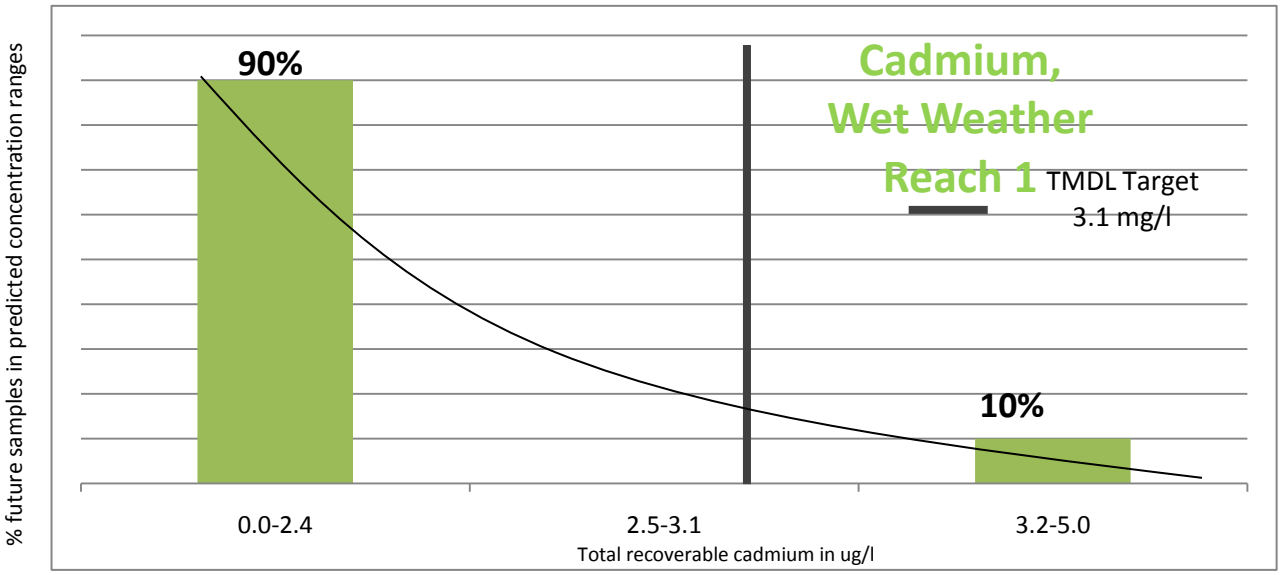


At current BMP implementation levels, less than 20% of future levels of lead measured at the Wardlow monitoring station can be expected to exceed the wet-weather numeric water quality targets (guidance only).

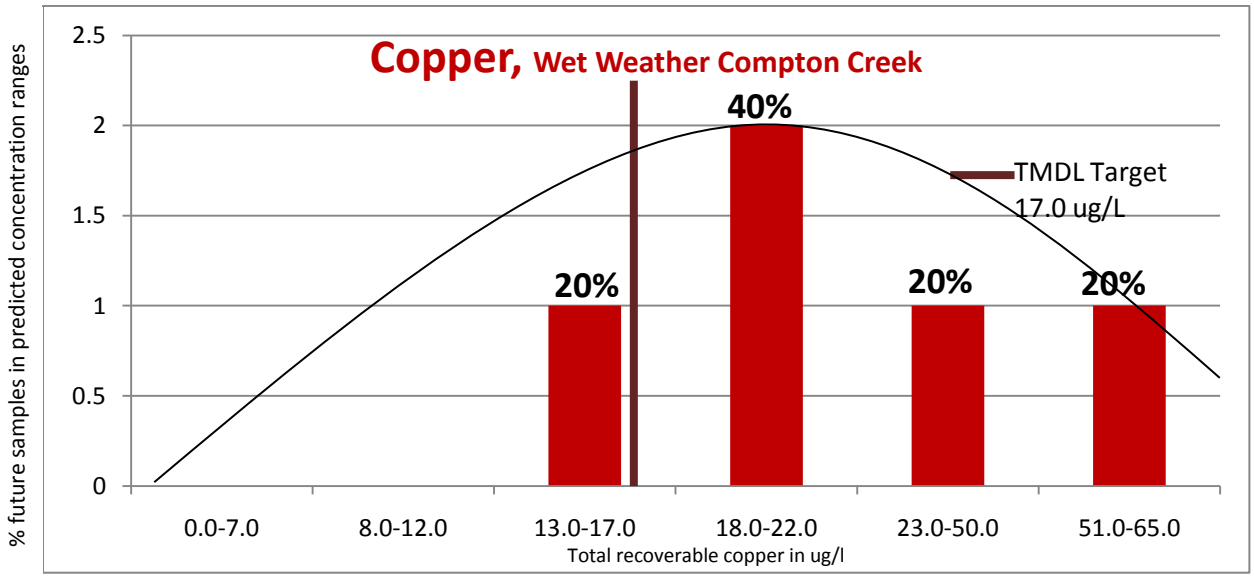


At current BMP implementation levels, future levels of zinc measured at the Wardlow monitoring station can be expected to exceed the wet-weather numeric water quality targets (guidance only) in 30% of the samples.

Figure 2.4 cont'

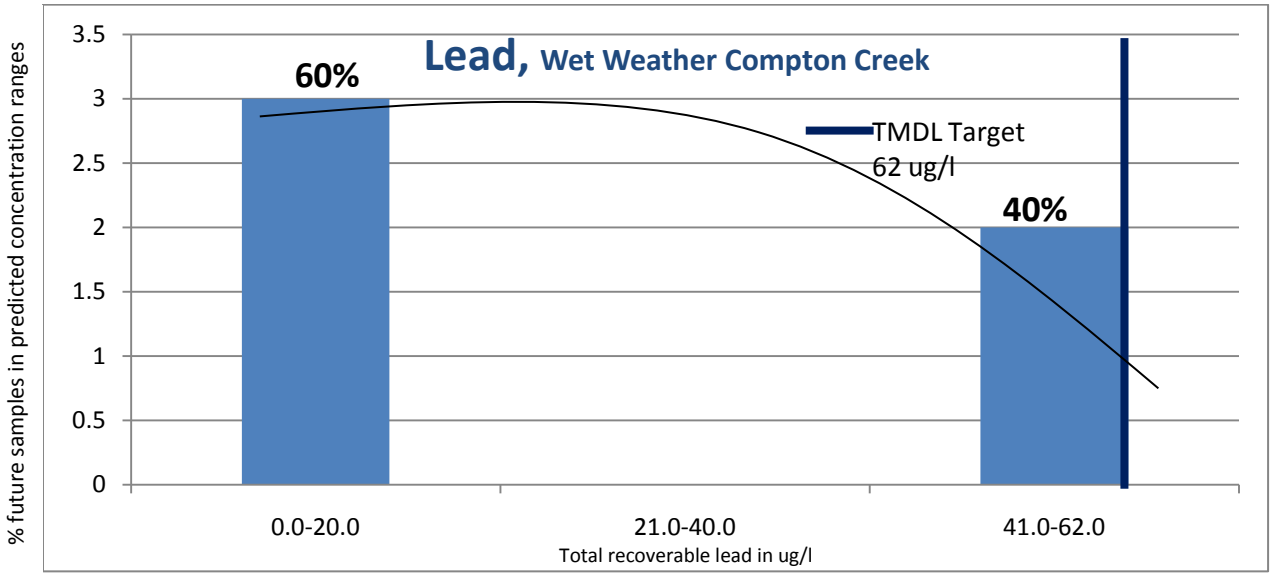


At current BMP implementation levels, future levels of cadmium measured at the Wardlow monitoring station can be expected to exceed the wet-weather numeric water quality targets (guidance only) in 10% of the samples.

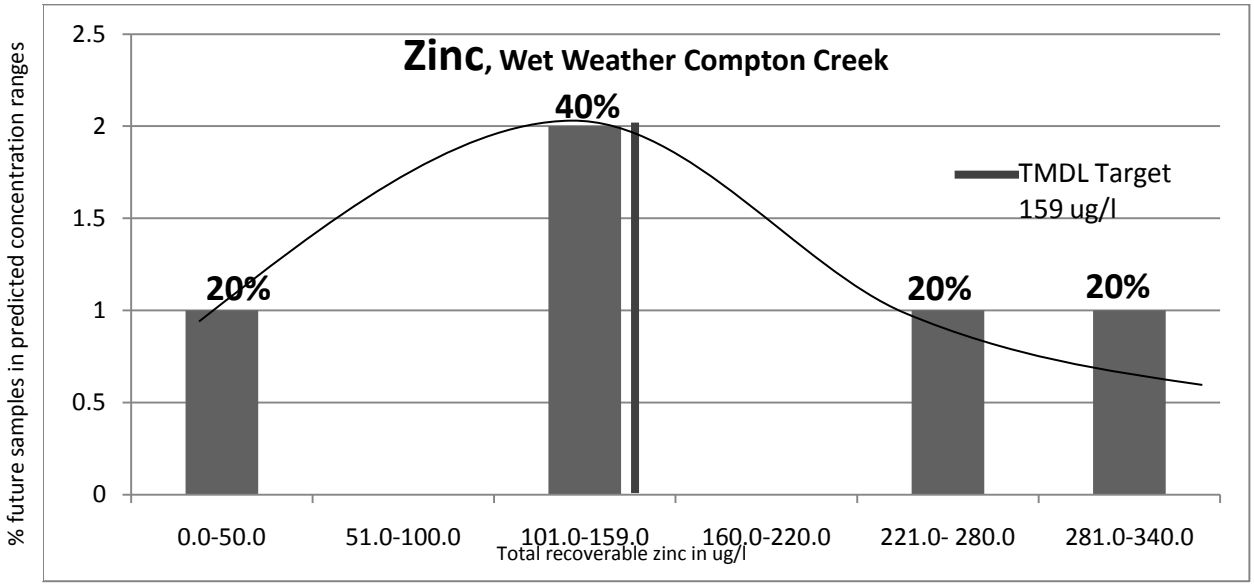


At current BMP implementation levels, future levels of copper measured at the Del Amo Compton Creek monitoring station can be expected to exceed the wet-weather numeric water quality targets (guidance only) in 80% of the samples.

Figure 2.4 cont'

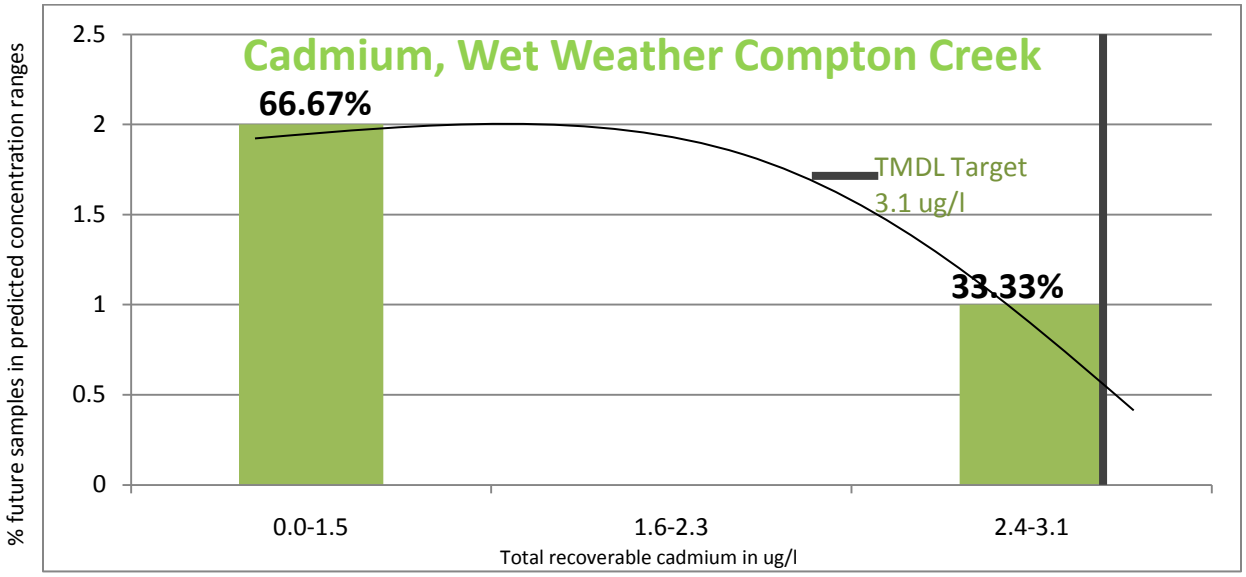


At current BMP implementation levels, future levels of lead measured at the Del Amo Compton Creek monitoring station are not likely to exceed the wet-weather numeric water quality targets (guidance only).



At current BMP implementation levels, future levels of zinc measured at the Del Amo Compton Creek monitoring station can be expected to exceed the wet-weather numeric water quality targets (guidance only) in 40% of the samples.

Figure 2.4 cont'



At current BMP implementation levels, future levels of cadmium measured at the Del Amo Compton Creek monitoring station are not likely to exceed the wet-weather numeric water quality targets (guidance only).

2.9 Recent Wet Weather Monitoring (July 2009 to June 2010)

Between July 2009 and June 2010, six samples were collected during wet weather at the Wardlow and Del Amo sampling locations as part of the ongoing Coordinating Monitoring Program. The sampling result distribution is shown in Figure 2.5:

FIGURE 2.5

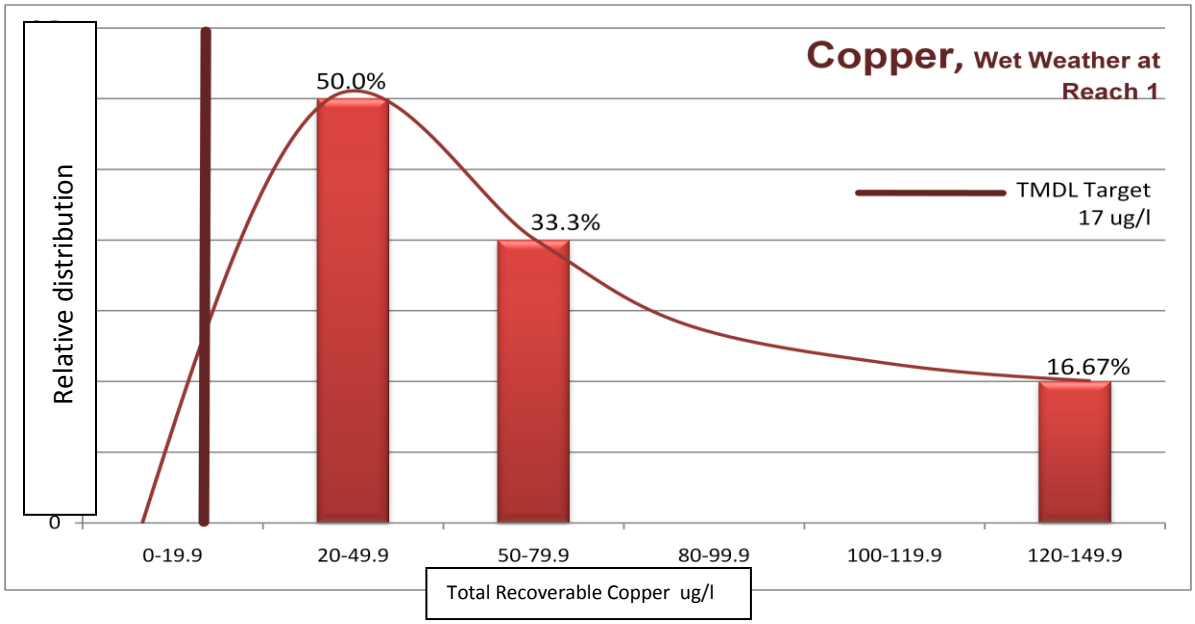
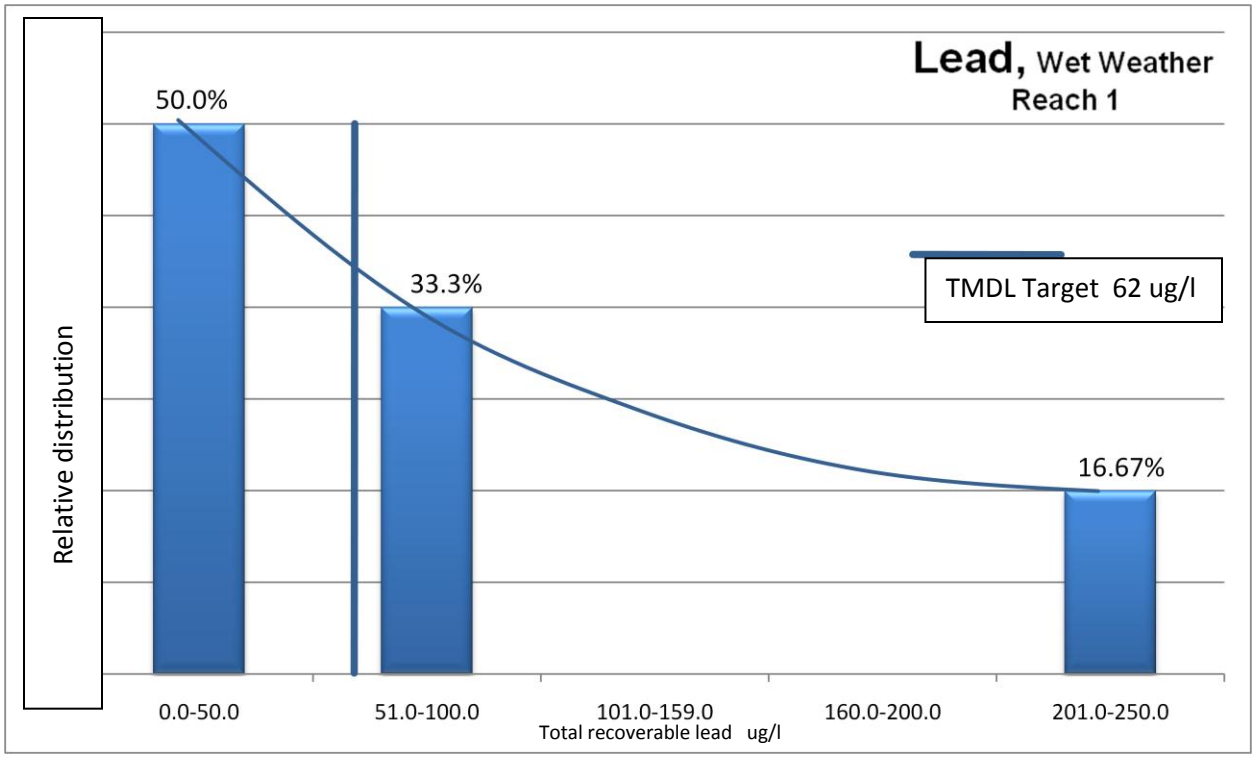


Figure 2.5 cont'



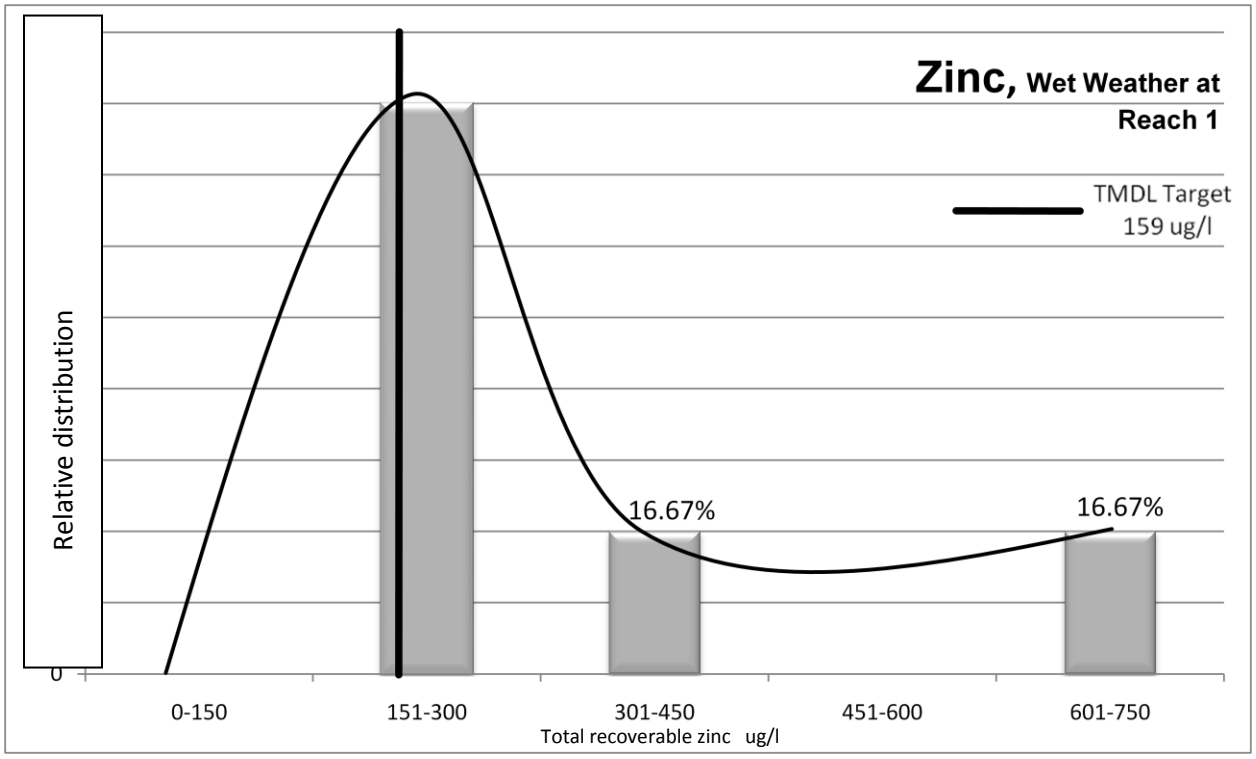
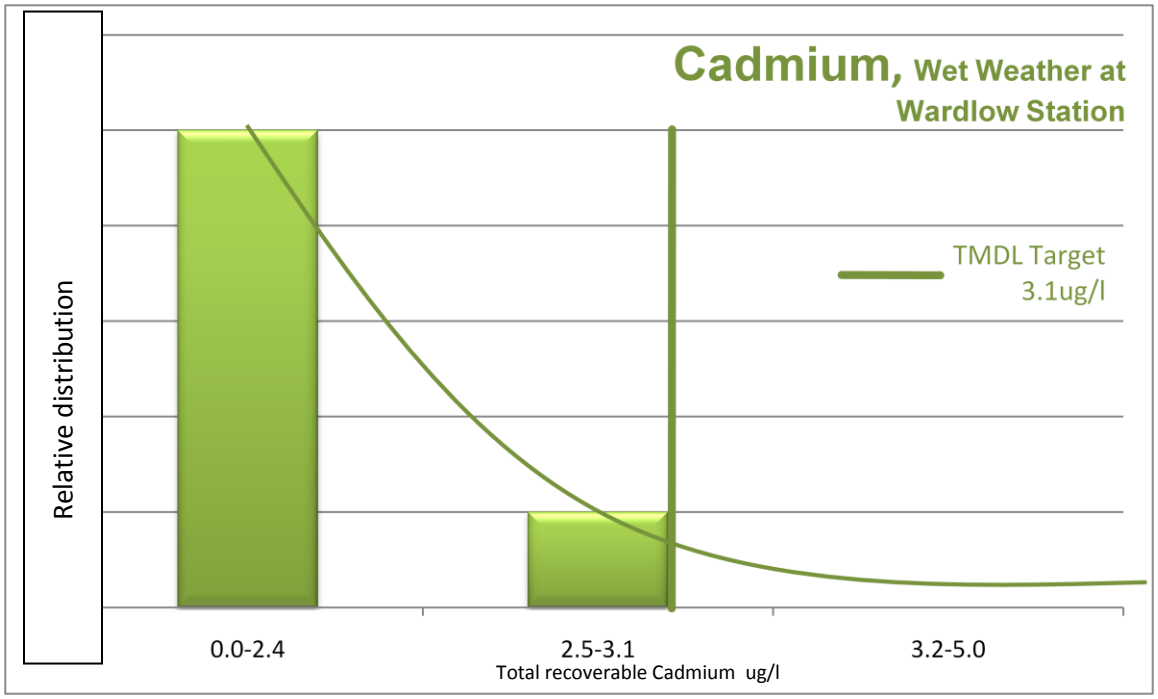


Figure 2.5 cont'



During wet weather, Coordinated Monitoring Program samples do not include the Del Amo/Compton Creek location.

2.10 Wet Weather Conclusion

Due to the variability inherent in wet weather flows, there is no flow value analogous to the critical dry weather flow discussed in Section 2.5 above. The reference wet weather flow is 500 cfs measured at Wardlow, which represent the 90th percentile average daily storm flow[15], although flows have been reported at this station as high as 7,000 cfs.[16]

Based on historical monitoring, it can be expected that wet weather flows will routinely exceed numerical water quality targets for copper and zinc and to a lesser degree lead and cadmium without additional BMP implementation beyond the BMPs currently in place. Due to the variability of rainfall, the variability of flows at Wardlow and potential impacts of incoming metal loads from Reach 2 through 6; the actual loading cannot presently be accurately determined. Future modeling will be needed to more accurately define wet weather flow rates in the Compton Creek and Reach 1 watersheds, and to account for incoming pollutant loads for Reach 2 through 6. Los Angeles County is in the process of developing a model that JG1 may seek to utilize as a part of this IP.

[15] Regional Water Quality Control Board, Staff Report, June 2, 2005, page 24.
[16] USEPA/Tetra Tech, May 2004, Model Development for Simulation of Wet Weather Metals Loading from the Los Angeles River Watershed, Page 15

3.0 *Overview of Source Control*

The JG1 Agencies have concluded that source control, especially true source control, is the keystone to controlling metals within the jurisdictional. As noted by Regional Board staff and USEPA Region 9 staff in the June 2, 2005 staff report for the Total Maximum Daily Loads for Metals, Los Angeles River and Tributaries, the sources of metals within the area are diverse. Although the source assessment in the TMDL staff report focuses on permitted sources, the most telling portion of the source assessment is the brief discussion of atmospheric deposition. Based on work by Sabin et al, Regional Board staff acknowledged that for the Los Angeles River Watershed as a whole, annual indirect atmospheric deposition of copper has been estimated to be approximately five times the copper in wet-weather runoff. For lead, annual indirect atmospheric deposition is estimated to be approximately eleven times the amount of lead in wet-weather runoff. For zinc, indirect atmospheric deposition is approximately four and one-half times the amount of zinc found in wet-weather discharges.

The estimates of stormwater loadings in the TMDLs are inclusive of indirect atmospheric deposition of metals i.e. of a significant non-point source of metals. This presents a challenge to the JG1 Agencies. Although some copper, lead, and zinc is discharged directly to streets, highways, freeways, parking lots, and driveways from cars and trucks, and although some industries within the area have metals discharges, the vast majority of all three metals deposited in the area is from atmospheric deposition. Therefore, the challenge is how to control atmospheric deposition of metals in the long-term and how to interrupt the discharge of these metals in the short-term.

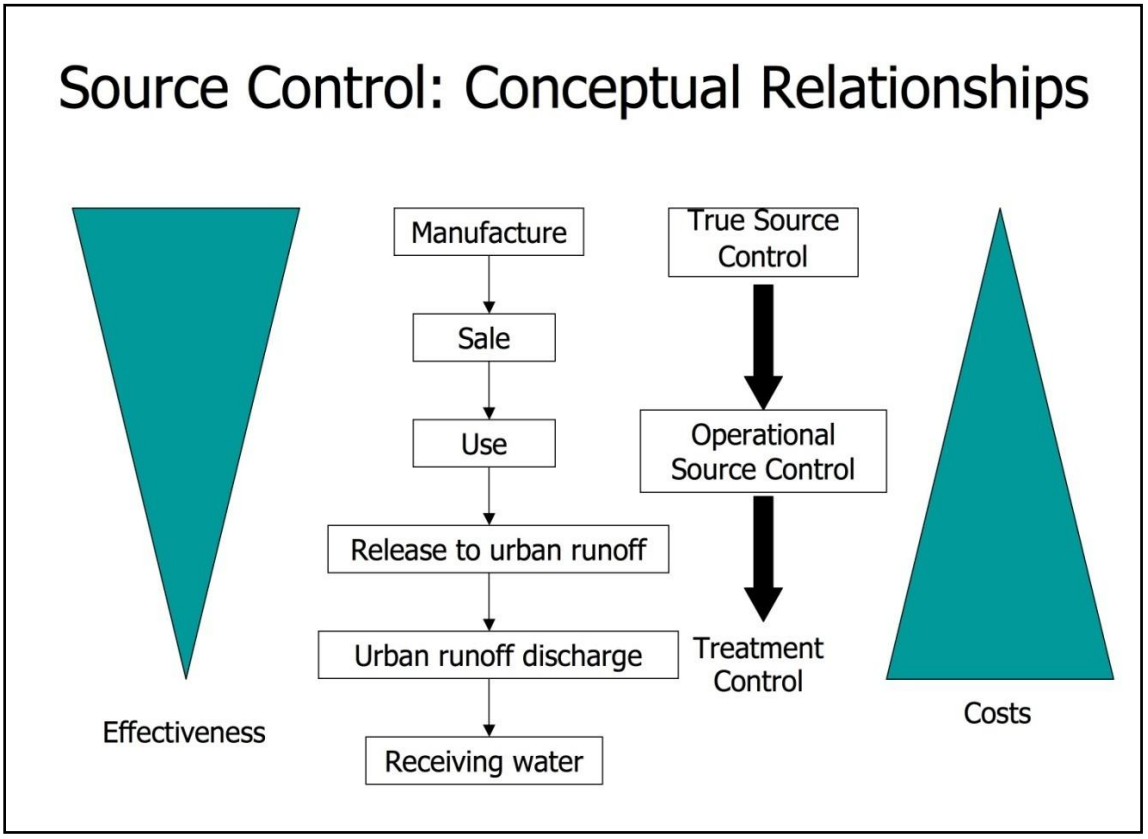
3.1 Long-Term Source Control

The JG1 Agencies long-term answer to controlling metals in the environment is true source control. True source control focuses on the original source of the potential pollutant in issue and is an approach which envisions the implementation of measures to eliminate or significantly reduce the potential pollutant or the runoff, thereby eliminating the need to physically prevent contact between the two or to treat pollutant-containing runoff.

The two most prominent current examples of true source control are the efforts to control copper and lead through Senate Bill 346 (SB 346) and Senate Bill 757 (SB 757). SB 346, which dictates a phased approach to copper reduction in automobile brake pads, was approved by the legislature and signed by the Governor as Chapter 307 in September 2010 and will become effective January 1, 2011. SB 757 was approved by the legislature and signed by the Governor as Chapter 614 of the statutes of 2009 to prohibit lead wheel weights in California and became effective January 2010.

The JG1 Agencies agree with the California Stormwater Quality Association (CASQA) that "source control of constituents of concern that are highly soluble and widely responsible for impairment of receiving waters is the only currently available option to comply with receiving water standards without widespread and substantial economic impact."[17] CASQA has expressed concern that life cycle costs for traditional operational source and treatment control implementation to meet water quality standards are unaffordable in the long run. Hence, CASQA has begun a Source Control Initiative centered on building coalitions with other organizations for the purpose of supporting legislation to ban or greatly reduce the use of products or ingredients in products that are causing water quality impairments.

FIGURE 3.1



Source: California Stormwater Quality Association (CASQA)

CASQA selected copper as the constituent on which to pilot its Source Control Initiative for several reasons, including the existence of an entity with which to partner, i.e the Brake Pad Partnership, and the realization that, other than controlling the amount of copper in brake pads, there are few, if any, viable options for the attainment of numeric copper targets in TMDLs.

[17] CASQA's True Source Control Initiative

TABLE 3-1

Urban Runoff Copper Sources

Estimates from Highly Urbanized SF Bay Area Watersheds

Copper Source	Estimated Contribution
Vehicle brake pads	51-63%
Architectural copper	3-13%
Pool, spa & fountain algaecides	7-10%
Industrial copper use (NOI facility runoff)	1-7%
Landscape pesticides	3-?%
Other sources (Domestic water discharges, treated wood, fertilizers)	3-4%
Soil erosion	*
Copper-using industry with outdoor emissions	<1%

*Depends on copper content, slope & other site-specific factors estimated in a manner not consistent with the other values in this table.

Values are watershed specific – local sources and their relative importance may be different.

Source: Percentages from the Brake Pad Partnership (2008). "Anthropogenic Sources of Copper in Wash-Off in the San Francisco Bay Area Sub-Watersheds." Data summarized for four urbanized SF Bay Area watershed. Pesticide value adjusted based on analysis by TDC Environmental for UP3 Project.

3.1.1 SB 346

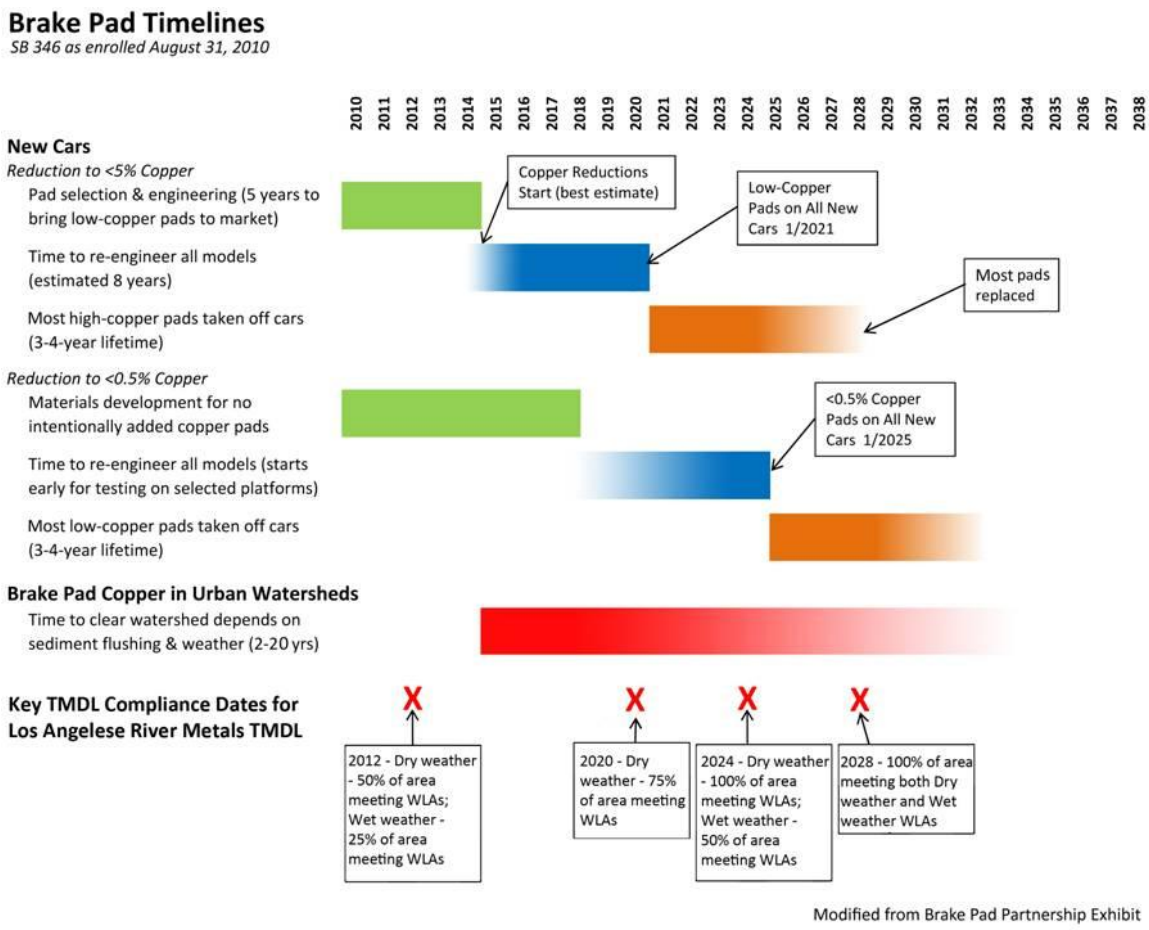
Since 1996, the Brake Pad Partnership (BPP) has been working to address water quality impairments caused by copper. Started in the San Francisco Bay area, the BPP brought together stormwater management agencies, regulators, brake pad manufacturers, and non-governmental agencies to collaborate on determining the contribution of airborne copper from vehicle brake pads to water quality problems and to work toward an effective solution. The BPP has been staffed by the non-profit organization Sustainable Conservation, managed by a stakeholder Steering Committee, and funded primarily through stakeholder contributions, member donations, and foundation grants. JG1 Agencies are among the agencies that have contributed financially to the efforts of the Brake Pad Partnership to foster true source control.

Initially, the BPP focused on supporting scientific studies to determine the connection between brake pad copper and water quality. These studies concluded that brake pads are the largest source of copper releases in highly urbanized watersheds. Once that connection was clearly established, and BPP efforts gained the support of brake pad manufacturers, efforts shifted to moving forward to translate the results of technical studies into a control measure on brake pad composition. The BPP crafted SB 346 and State Senator Sheila Kehoe authored the bill.

SB 346 requires incremental reductions in the amount of copper in vehicle brake pads. Most brake pads sold in California will now be required to contain less than 5% copper by weight after January 1, 2021, and to contain less than 0.5% copper by weight after January 1, 2025. SB 346 passed the Senate in June 2009. SB 346 was approved by the legislature in August 2010, and signed by the Governor on September 25, 2010, as Chapter 307 of the Statutes of 2010.

The passage of SB 346 is a milestone that will significantly reduce the level of copper in the State's waters and particularly in the Los Angeles region. Municipalities and other jurisdictions do not have the authority on their own to regulate brake pads, and removal of copper from runoff is difficult and extremely costly because the copper is generally dissolved or in extremely fine particles that stormwater treatment systems cannot effectively remove. True source control, in the form of phased reduction in copper content in vehicle brake pads, is the only actual cost-effective method of addressing the problem of copper in our waterbodies. The phased reduction of copper in automobile brake pads is a critical component to those efforts.

FIGURE 3.2



3.1.2 SB 757

During 2009, the California legislature took action on true source control legislation to control lead in wheel weights. SB 757, sponsored by Senator Fran Pavley, was signed by Governor Schwarzenegger on October 11, 2009 as Chapter 614 of the Statutes of 2009. It became effective January 1, 2010. It codifies an earlier settlement agreement between the Oakland-based Center for Environmental Health, Chrysler Corporation, and three major lead wheel weight manufacturers. SB 757 specified that, "no person shall manufacture, sell, or install a wheel weight in California that contains more than 0.1 percent lead by weight." The bill also specified that if the Department of Toxic Substances Control identifies an alternative to lead contained in the wheel weights as a chemical of concern, the lead alternative would remain subject to the evaluation process imposed by Section 25253 of the Health and Safety Code. This source control legislation is important because lead wheel weights constitute a significant

current source of lead entering the waters of California. Most lead polluting surface waters in California is legacy lead remaining in the soil from leaded gasoline.

3.1.3 Green Chemistry Initiative

The emerging green chemistry movement presents another opportunity to improve water quality through true source control. The past several years have seen a shift in awareness about the environmental effects of consumer and business products. In September 2007, Governor Arnold Schwarzenegger called for the establishment of a Green Chemistry Initiative to begin to rethink and redesign materials, processes, and products in order to reduce adverse impacts on human health and the environment. The advancement of green chemistry should benefit water quailty by reducing the presence of toxic chemicals in the environment that could be transported to receiving waters and impair water quality.

The Governor signed AB 1879 (Feuer) and SB 509 (Simitian) into law in September 2008. This legislative suite requires creation of a new, science-based framework for the management of chemicals to determine appropriate regulatory actions to control chemicals of concern in consumer products. The intent is to position California in the forefront of transitioning to an economy that manufactures and uses consumer products that are "benign by design." This framework should be instrumental in moving California forward towards true source control.

In a memorandum dated September 30, 2009, the Acting Director of The Department of Toxic Substances Control (DTSC) noted that the Department is "moving forward to implement six recommendations from the California Green Chemistry Initiative."

- Broadening pollution prevention and reducing toxic chemical use;
- Building knowledge and research capacity for a greener California;
- Disclosing chemical ingredients in products sold in the state;
- Creating an online clearinghouse of information about chemical toxicity;
- Accelerating the transition to more sustainable, safer products; and,
- Moving toward a "cradle to cradle" economy by 2050.

By signing AB 1879 and SB 509 into law, Governor Schwarzenegger enacted two of the six recommendations. The combination of AB 1879 and SB 509 gives DTSC broad authority to regulate pollutants in consumer products. Assembly Bill 1879 will require the DTSC to adopt regulations by January 1, 2011 "to establish a process by which chemicals or chemical ingredients in products may be identified and prioritized for consideration as being chemicals of concern." Two key components of the bill's required procedure for adoption of regulations include: 1) to prepare a multimedia life cycle evaluation, and 2) to establish a process by which chemicals of concern in products, and their potential alternatives, are evaluated to determine

how best to limit exposure or reduce the level of hazard. The regulations also would specify actions that the DTSC must take following completion of the analysis, including requiring labeling, controlling access or limiting exposure to a chemical of concern, managing the product at the end of its useful life, funding green chemistry challenge grants, and restricting or prohibiting use of the chemical of concern in a product.

The multimedia lifecycle evaluation component is required to "be based on the best available scientific data, written comments submitted by interested persons, and information collected by the department in preparation for adopting the regulations" and must address, among other things, the impacts associated with emissions of air pollutants, and contamination of surface water, groundwater, and soil.

Section 25253 (a)(2) of AB 1879 specifies factors to be considered in evaluating alternatives to chemicals of concern, including water quality impacts, air emissions, waste and end-of-life disposal, and environmental impacts. A later subsection of the legislation lists regulatory responses that may be taken by the DTSC, including: imposing a restriction of the use of the chemical of concern in the consumer product, and prohibiting the use of the chemical of concern in the consumer product.

JG1 Agencies will work with the DTSC to identify zinc as a chemical of concern, in order to begin to evaluate alternatives through Section 23253(a)(2). Zinc is ubiquitous in urban watersheds such as JG1, as it is used in a variety of industrial processes. Nationally, the largest anthropogenic sources of zinc to atmospheric deposition are activities related to metal production. Common sources include waste incineration, fossil fuel use, phosphate fertilizer, and cement production. Zinc is most commonly used as an anti-corrosion agent and is used as the coating to "galvanize" metal. Once lead or steel is coated with zinc to protect it from corrosion, the zinc can then oxidize and become entrained in stormwater that discharges to waterbodies. Galvanization is used extensively on chain-link fences, guardrails, bridges, light posts, metal roofs, heat exchangers, and car bodies.

Zinc is also used in the vulcanization of tire rubber. There is an average of ½ pound of zinc in every automobile tire. The quantity of zinc released into the environment from tread wear has not been well characterized; however, it is expected to be substantial in the Los Angeles River Watershed with its extensive network of freeways and public streets and roads.

The JG1 Agencies will work through various means to promote the identification of zinc as a chemical of concern based on water quality impacts. This effort will subject proposed alternatives to zinc to the alternatives analysis requirements of Section 25253.

On June 23, 2010, DTSC released the Green Chemistry Draft Regulations for Safer Consumer Products for review and comment, based on a previously released Conceptual Flowchart and Outline for Draft Regulation. The draft regulation proposes a process for DTSC to scientifically

and systematically identify and prioritize chemicals and consumer products, for manufacturers to conduct alternative assessments, and for DTSC to develop regulatory responses for alternatives selected by manufacturers. Comments on the draft were accepted until July 15, 2010, and a revised draft is expected to be released in the near future.

The June 2010 draft regulations emphasize human health endpoints and do not allow the Green Chemistry Initiative to address many of the pollutants causing water quality impairments. CASQA submitted suggested edits that would correct this deficiency in the draft regulations.

Senate Bill 509 requires the DTSC "to establish a Toxics Information Clearinghouse for the collection, maintenance, and distribution of specific chemical hazard traits and environmental and toxicological end-point data. The Office of Environmental Health Hazard Assessment is required, by January 1, 2011, to evaluate and specify the hazard traits and environmental and toxicological end-points and any other relevant data that are to be included in the clearinghouse."

The Office of Environmental Health Hazard Assessment (OEHHA) on August 11, 2010 published the Pre-Regulatory Draft Regulation for Hazard Traits and Environmental and Toxicological Endpoints "to specify the hazard traits, environmental and toxicological end-points, and other relevant data that are to be included in the state's Toxic Information Clearinghouse," pursuant to Health & Safety Code section 25256.1. This draft language will identify and define hazard traits, list general categories of endpoints and other relevant data for each toxicological and environmental hazard trait provide general methods for determining whether or not a chemical has a toxicological hazard trait, and provide specific methods for determining whether or not a chemical has carcinogenicity, developmental toxicity or reproductive toxicity hazard traits. Information in the Toxic Information Clearinghouse will be used by DTSC to help identify chemicals of concern in consumer products, pursuant to Health & Safety Code section 25252. These identified chemicals of concern are the basis for DTSC's regulations regarding toxicity.

3.1.4 Product Stewardship

One important contributor to water quality impairment that is not often addressed through traditional stormwater management programs is the cross-media pollution associated with product waste. An evolving approach to addressing toxicity in waste is known as product stewardship. Product stewardship is a strategy for consumers, government agencies, and product manufacturers to share the responsibility of reducing the impact of product waste on the environment. One component of product stewardship that is especially important for controlling the source of water pollutants is the analysis of a product's lifecycle and its long-term effect on the environment, including water quality. The California Product Stewardship Council (CPSC) is a coalition of local governments that formed in 2006 to promote extended producer responsibility (EPR) for products that end up in the waste stream. The mission of the CPSC is:

> "*To shift California's product waste management system from one focused on government funded and ratepayer financed waste diversion to one that relies on producer responsibility in order to reduce public costs and drive improvements in product design that promote environmental sustainability*."

Although the CPSC was formed to address the problems and costs of handling toxic waste in landfills and managing waste diversion problems, the benefits to water quality are potentially significant. It is a form of true source control in that it can create incentives to substitute less toxic materials in the manufacture of products and to take back products containing toxic materials at the end of the useful life of the product. Both of these measures will reduce the presence of toxic materials in the environment that could be transported to receiving waters and impair the beneficial uses of those waters.

Many commonly used products contain toxic ingredients that, when not properly managed at end-of-life, can become water pollutants. Consumer electronics contain lead, cadmium, and other heavy metals. Fluorescent lamps and thermostats sold before 2006 contain mercury. Rechargeable batteries contain heavy metals and alkaline batteries contain corrosive acids. When disposed of improperly as litter or in local landfills, these toxic substances can become entrained in surface runoff, leach into the water table, or disperse into the air. For example, broken fluorescent lamps or thermostats, crushed by compactor transfer trucks, can leak mercury. During rain events, water leaches through the trucks or garbage bins onto hard surfaces. The stormwater then transports the metal with it across the watershed and into receiving waters.

In February 2006, a statewide ban on "Universal Waste" went into effect in California, making it illegal for households and small businesses to dispose of products such as batteries, fluorescent lights, and many electronic products in the regular trash. Local governments then were charged both with enforcing the ban and with providing collection services for the Universal Waste, also called "U-Waste."

The CPSC's message is that managing hazardous products should not be the responsibility of local governments that have no control over product design. Manufacturers responsible for product design and composition should be ihnvolved in end-of-life product management. EPR for waste management creates market-based incentives to address the problem of hazardous household wastes at the source by rewarding improved product design. The shift to extended producer responsibility has been implemented in Europe and parts of Asia and is now being adopted by a growing number of jurisdictions in North America.

CPSC seeks to encourage product design changes that minimize a negative impact on human health and the environment and move responsibility for end-of-life product management to the producers and other entities in the product chain, rather than exclusively on the general public

and local municipalities. The hope is that an increased emphasis on product stewardship will lead to increased market awareness of the ultimate environmental impacts of a product.

The California Product Stewardship Council views the State's Universal Waste Ban has been characterized as a "perfect storm,"[18] creating the environment for local governments to come together to seek a statewide EPR solution to banned hazardous products. Stormwater quality programs can and should join the effort to drive manufacturers to take responsibility for the lifespan of their products, from production to disposal. The potential benefits are both financial and environmental, and manufacturers responsible for waste disposal would likely become increasingly motivated to reformulate products using less toxic ingredients.

To implement the concept of product stewardship in California, CPSC has sponsored two separate bills designed to establish an EPR framework for the State. In 2009, CPSC sponsored AB 283, a bill introduced by Assembly Member Chesbro that became a two-year bill. AB 283 would have created the California Product Stewardship Act of 2010, which would have required the former California Integrated Waste Management Board (CIWMB) to develop, implement, and administer an Extended Producer Responsibility Framework Program. This program was proposed to include a framework for managing individual products that have significant end-of-life waste management impacts as well as impacts on the environment and public health. Although the major sources of metals impairing JG1 water bodies(Compton Creek and the Los Angeles River) are related to use of products (e.g. brake pads, tires, and wheel weights), the proper or improper disposal of products containing cadmium, copper, lead, and zinc also contributes to receiving water impairments.

In 2010, in response to interim industry opposition to AB 283, Assembly Member Chesbro abandoned AB 283 and introduced AB 2139, which proposed an EPR framework for a number of toxic products to be banned from disposal in trash. AB 2139 had widespread municipal and environmental support. However, due to continued opposition from industry opposed to an EPR precedent, AB 2139 failed passage in the full Assembly. CPSC and its partners and associates will now have to decide how best to promote EPR and establish an EPR framework in California to share responsibility among those who make, sell, use, and dispose of products, while placing the primary responsibility on producers to reduce a product's lifecycle impacts.

An existing EPR bill that has already started to control the source of toxic metal pollutants is AB 1125, which was authored by Assembly Member Fran Pavley and approved by the Governor as Chapter 572 of the Statutes of 2005. This bill, the Rechargeable Battery Recycling Act, required that by July 1, 2006, retailers (as defined) must have in place, and promote, a system for accepting and collecting rechargeable batteries for reuse, recycling, or proper disposal. A non-profit organization, the Rechargeable Battery Recycling Corporation (RBRC) now provides

[18] Product Policy Institute, "A Perfect Storm for Extended Producer Responsibility (EPR) in California," WWW.calpsc.org/about/index.html

battery collection containers to retailers, free of charge. The RBRC also pays shipping and recycling costs. A commercial collection option, the Big Green Box program, is also available to retailers.

Implementation of the Rechargeable Battery Act is very important for achieving the waste load allocations in the cadmium TMDL. In 2009, 86% of all cadmium use was in batteries, predominantly in rechargeable nickel-cadmium batteries. Additional source reduction would be possible if a bill similar to SB 1100, the Battery Stewardship Act, were to become law. SB 1100 was introduced in 2010 to require all battery manufacturers to create and institute stewardship plans to address end-of-life for these products. This bill included non-rechargeable batteries sold in California, and would have required battery manufacturers to design, fund, and operate a stewardship program to properly manage batteries in order to sell their products in the state. SB 1100 was held in the Assembly Appropriations Committee due to industry opposition. Municipalities will seek to work with CPSC to determine how to implement a comprehensive EPR requirement for batteries sold in California.

AB 283 and AB 2139 each would have required the Extended Producer Responsibility Program to "provide environmentally sound product stewardship protocols that encourage producers to research product alternatives during product design and packaging phases to foster cradle-to-cradle producer responsibility and reduce the end-of-life environmental impacts." Material substitution or product take-back prompted by adoption of AB 283, or a similar bill, would advance true source control of potential water pollutants.

3.1.5 The Need to Reduce Use of Aviation Gasoline (Avgas)

A true source control measure that could assist JG1 Agencies as well as other jurisdictional groups to remove additional lead from watersheds is the reduction of lead in aviation gasoline (avgas). USEPA has issued an Advance Notice of Proposed Rulemaking (ANPR) describing information that will be used by the EPA Administrator to issue a subsequent proposal regarding the emissions of lead from piston-engine aircraft that use avgas. EPA estimates that emissions of lead from such aircraft comprise approximately half the national inventory of lead emitted into the air. Cities within JG1 submitted comments in response to the ANPR because of the significance of atmospheric deposition as a source of metals within the watershed and the existence of the Compton Airport, a general aviation airport owned and operated by the County of Los Angeles, within the Compton Creek Watershed.

3.1.6 Need for Regional Board Assistance in Promoting True Source Control

The JG1 Agencies will approach the State and Regional Water Boards for assistance to bring about true source control for metals in this watershed and elsewhere through the use of their authority under Water Code Sections 13146 and 13247. These Water Code Sections grant Water Boards the authority to require the California Air Resources Board and the South Coast Air Quality Management District to comply with adopted water quality policies and water quality control plans to attain water quality standards (and for the metals TMDL in the Los Angeles

River, as reflected in State Water Resources Control Board Resolution No. 2008-0046). The JG1 Agencies also will ask the Water Boards to give more emphasis to true source control in their strategic plans and implementation plans for TMDLs. In addition, JG1 Agencies will request the Water Boards more actively support source control legislation and to advocate for more consideration of water quality impacts in the implementation of the Green Chemistry Initiative.

3.2 Near-Term Source Control – Multiple Approaches

In the near-term, source control will consist of three components: operational source control, runoff reduction, and sediment control. Initially, implementation of enhanced source control measures will focus on five targeted sub-watersheds: the 34th Street Drain Sub-watershed, the Compton Creek East Branch Sub-watershed, the Dominguez Gap Sub-watershed, and the Long Beach Pump Station 6 Sub-watershed. Particular attention will be given to the Compton Creek East Branch Sub-watershed and the Dominguez Gap Sub-watershed.

3.2.1 Operational Source Control

The operational source control program will initially focus on municipal programs and industries within the drainage areas of the Compton Creek East Branch - Bullis Drain, and the Compton Creek East Branch - Santa Fe Drain. The initial focus on municipal operations and industries in these watersheds will assist in developing a combination of source control and operational BMPs that would allow drainage areas effectively served by these BMPs to be deemed in compliance with the assumptions and requirements of the WLAs in the TMDLs (see schedule in Chapter 7). Currently, 68 industries within JG1 are regulated through the Industrial General Permit (see table 3.2). Twenty-eight of these industries have specific discharge limits for one or more metals and are considered high priority sites. Several others are either trucking companies or sites with large parking lots. Operational source control will continue throughout implementation of the plan, with emphasis varying throughout different plan phases.

TABLE 3.2

Permitted Industries for Jurisdictional Group 1												
Operator Owner Name	**Facility Name**	**Facility Location**	**Facility City_State**	**Facility Size**	**Facility Size Unit**	**SIC1**	**SIC2**	**SIC3**	**Cadmium (Cd)**	**Copper (Cu)**	**Lead (Pb)**	**Zinc (Zn)**
FedEx Ground Package System Inc	FedEx Ground	1725 Charles Williard St	Carson, CA 90746	19.66	Acres	4215						
A To Z Metals	A To Z Metals	400 E Weber Ave	Compton, CA 90222	2	Acres	5093				X	X	X
AAA Plating & Inspection Inc	AAA Plating & Inspection Inc	424 Dixon	Compton, CA 90222	43500	Sq.Feet	3471						X
ABF Freight System, Inc.	ABF Freight System Inc	405 Alondra	Compton, CA 90221	4	Acres	4213						
Accurate Anodizing Inc	Accurate Anodizing Inc	1801 El Segundo	Compton, CA 90222	7000	Sq.Feet	3471						X
Ace Clearwater Ent	Ace Compton Facility	1614 Kona Dr	Compton, CA 90220	28440	Sq.Feet	3728						
American Airport Corp	American Airports Corp - Compton	901 Alondra	Compton, CA 90220			4581						
Appliance Recycling Centers America	Appliance Recycling Centers America	1920 S Acacia Ave	Compton, CA 90220	3	Acres	5093				X	X	X
Iversen, Bruce R	B & B Pallet	439 E Carlin Ave	Compton, CA 90222	152250	Sq.Feet	2448						
Barkens Hardchrome	Barkens Hardchrome	239 Greenleaf	Compton, CA 90220	218000	Sq.Feet	3471						X
Best Auto Wrecking & Recycling	Best Auto Wrecking & Recycling	11455 Santa Fe	Compton, CA 90221	20100	Sq.Feet	5015					X	
Brooks Auto Service Inc	Brooks Auto Service	13233 S Alameda St	Compton, CA 90222	40000	Sq.Feet	5015					X	
Cal State Steel	Cal State Steel Corp	1801 Compton	Compton, CA 90220	380000	Sq.Feet	3441						X
Cassmet	Cassmet	406 E Banning St	Compton, CA 90222	20806	Sq.Feet	5093				X	X	X
Cemex Construction Materials Pacific LLC	Cemex Construction Materials Pacific LLC	2722 Alameda	Compton, CA 90222	2.26	Acres	3273						
Central Transport	Central Transport	550 S Alameda St	Compton, CA 90221	2	Acres	4213						
Century Plastics Inc	Century Plastics Inc	1435 S Santa Fe Ave	Compton, CA 90221	194300	Sq.Feet	3089						
Chem Tainer Industries	Chem Tainer Industries	135 Stanley	Compton, CA 90220	61900	Sq.Feet	3089						
Con Agra Foods	Con Agra Foods	1805 N Santa Fe Ave	Compton, CA 90221	141170	Acres	2041						
Continental Forge Co	Continental Forge Co	512 E Carlin Ave	Compton, CA 90222	119790	Sq.Feet	3463						
Contractors Cargo Co	Contractors Cargo Co	500 S Alameda St	Compton, CA 90221	5	Acres	4231						
Dameron Alloy Foundries Inc	Dameron Alloy Foundries Inc	942 S Santa Fe Ave	Compton, CA 90224	0.9	Acres	3599						
EME Inc	E M E Inc	431 E Oaks St	Compton, CA 90221	20000	Sq.Feet	3471						X
Foster Poultry Farms	Fernandos Foods	1805 N Santa Fe Ave	Compton, CA 90221	326700	Sq.Feet	2038						
Foam Fabricators	Foam Fabricators	1810 S Santa Fe Ave	Compton, CA 90221	1.97	Acres	3086	3089					
Intercontinental Art	Intercontinental Art	525 W Manville St	Compton, CA 90220	540600	Sq.Feet	2499						
Intercontinental Art	Intercontinental Art	550 W Manville St	Compton, CA 90220	54000	Sq.Feet	2499						
Kanaflex Corp	Kanaflex Corp	750 W Manville St	Compton, CA 90220	12000	Sq.Feet	3052						X
Kawabata American Inc	Kawabata American Inc	1950 Santa Fe	Compton, CA 90221	105000	Sq.Feet	5093				X	X	X
Leslie Locke	Leslie Locke	675 W Manville St	Compton, CA 90220	235000	Sq.Feet	3429						X
Lu Mar Industrial Metals Co	Lu Mar Industrial Metals Co	2120 N Alameda St	Compton, CA 90222		Acre	5093				X	X	X
M & B Trucking	M & B Trucking	412 E Weber Ave	Compton, CA 90222		Acre	4214						
Magnesium Alloy Product Co	Magnesium Alloy Prod Co	2420 N Alameda St	Compton, CA 90222	180000	Sq.Feet	3369				X		X
Morrells Electro Plating Inc	Morrells Electro Plating Inc	432 Wuclid Ave PO Box 3085	Compton, CA 90222	40000	Acres	3471						X

Permitted Industries for Jurisdictional Group 1 (Continued)												
Operator Owner Name	Facility Name	Facility Location	Facility City_State	Facility Size	Facility Size Unit	SIC1	SIC2	SIC3	Cadmium (Cd)	Copper (Cu)	Lead (Pb)	Zinc (Zn)
Omega Extruding Corp of CA	Omega Extruding Corp of CA	1860 S Acacia Ave	Compton, CA 90220	60000	Sq.Feet	2821	2893					X
Patricia Conklin	Orion Plastics	700 W Carob St	Compton, CA 90220	50000	Sq.Feet	3089						
Owens Corning	Owens Corning	1501 N Tamarind Ave	Compton, CA 90222	8	Acres	2952	2951					
Performance Composites Inc	Performance Composites Inc	1418 Alameda	Compton, CA 90221	81050	Sq.Feet	2821						X
Ralphs Grocery	Ralphs Grocery Central Facility	2201 S Wilmington Ave	Compton, CA 90220	72	Acres	5141	4222	2026				
S & K Plating Inc	S & K Plating Inc	2727 Compton	Compton, CA 90222	18000	Sq.Feet	3471						X
Southeast Towing	Southeast Auto Salvage	415 Pine	Compton, CA 90222	87000	Sq.Feet	5015					X	
Thorock Metals Co	Thorock Metals Inc	435 Weber Ave	Compton, CA 90222	61000	Sq.Feet	3341						
Tnemec Co Inc	Tnemec Co Inc	417 E Weber Ave	Compton, CA 90222	30000	Sq.Feet	2851						
USF Reddaway Inc Yrc Worldwide Enterprise Services	USF Reddaway Inc 399 LAX	575 E Weber Ave	Compton, CA 90222	10.8	Acres	4213						
VS Pastics LLC	V S Pastics LLC	1860 S Acacia Ave	Compton, CA 90220	71136	Sq.Feet	2752	3089	3081				
Waste Management Inc	Western Waste Industries	407 E El Segundo Blvd	Compton, CA 90222	5	Acres	4212						
Denso Sales	Denso Sales	3900 Via Oro Ave	Long Beach, CA 90810	12	Acres	3714						
Long Beach Unified School Dist	Long Beach Unified Sch Dist Tr	2700 Pine Ave	Long Beach, CA 90806	2	Acres	4173						
SA Recycling LLC dba Alameda Street Metals	Alameda Street Metals	10401 S Alameda St	Lynwood, CA 90002	4	Acres	5093	5015			X	X	X
American Remedial Technologies	American Remedial Technologies	2600 E Imperial Hwy	Lynwood, CA 90262	200000		8999						
Cargill Inc	Cargill Inc	2800 Lynwood Rd	Lynwood, CA 90262	5	Acres	4213						
Cee Bee Manufacturing Inc	Cee Bee Mfg Inc	11511 Bellinger St	Lynwood, CA 90262	62045	Sq.Feet	3732						
Chrome Nickel Plating Co Inc	Chrome Nickel Plating Co Inc	2820 Martin Luther King Jr Blvd	Lynwood, CA 90262	1	Acres	3471						X
Figueroa, Pedro	Cocos Auto Dismantling	11410 Alameda St	Lynwood, CA 90262		Acre	5015					X	
DV Ind Inc	Dv Ind Inc	2605 Industry Way	Lynwood, CA 90262	3	Acres	3471						X
Earle M Jorgensen Co	Earle M Jorgensen Co	10650 Alameda St	Lynwood, CA 90262	13	Acres	4213						
Gravel Masters	Gravel Masters	11700 Alameda St	Lynwood, CA 90262	45900	Sq.Feet	4213						
Jones Lumber Co	Jones Lumber Co	10711 Alameda St	Lynwood, CA 90262	10	Acres	4213						
Lynwood Auto Dismantling	Lynwood Auto Dismantling	11400 Alameda St	Lynwood, CA 90262	78400	Sq.Feet	5015					X	
Michels & Co	Michels & Co	2828 Butler Ave	Lynwood, CA 90262	250000		2599						
Philadelphia Gear Corp	Philadelphia Gear Corp	2600 E Imperial Hwy	Lynwood, CA 90262	8	Acres	3566	3398	3568				
Rangers Die Cast	Rangers Die Cast	10828 Alameda St	Lynwood, CA 90262	85000	Sq.Feet	3363				X		X
Paull, Alan J	Taylor Desk	11020 Santa Fe Ave	Lynwood, CA 90262	71620	Sq.Feet	2522	2542	2531				
Jose Antonio Gallegos	Tjs Metal	10847 Drury Ln	Lynwood, CA 90262	80000	Sq.Feet	3355				X		X
Universal Molding	Universal Molding	10807 Stanford Ave	Lynwood, CA 90262	164491	Sq.Feet	3442	3479					X
EDCO Transport Services	EDCO Recycling & Transfer	2755 California Ave	Signal Hill, CA 90755	3.7	Acres	4953	5093		X	X	X	X
California Trans Ent	California Transport Enterprises Inc	2610 Wisconsin Ave	South Gate, CA 90280	9	Acres	4213						
Hon Co	Hon Co	2323 Firestone Blvd	South Gate, CA 90280	20	Acres	2522						

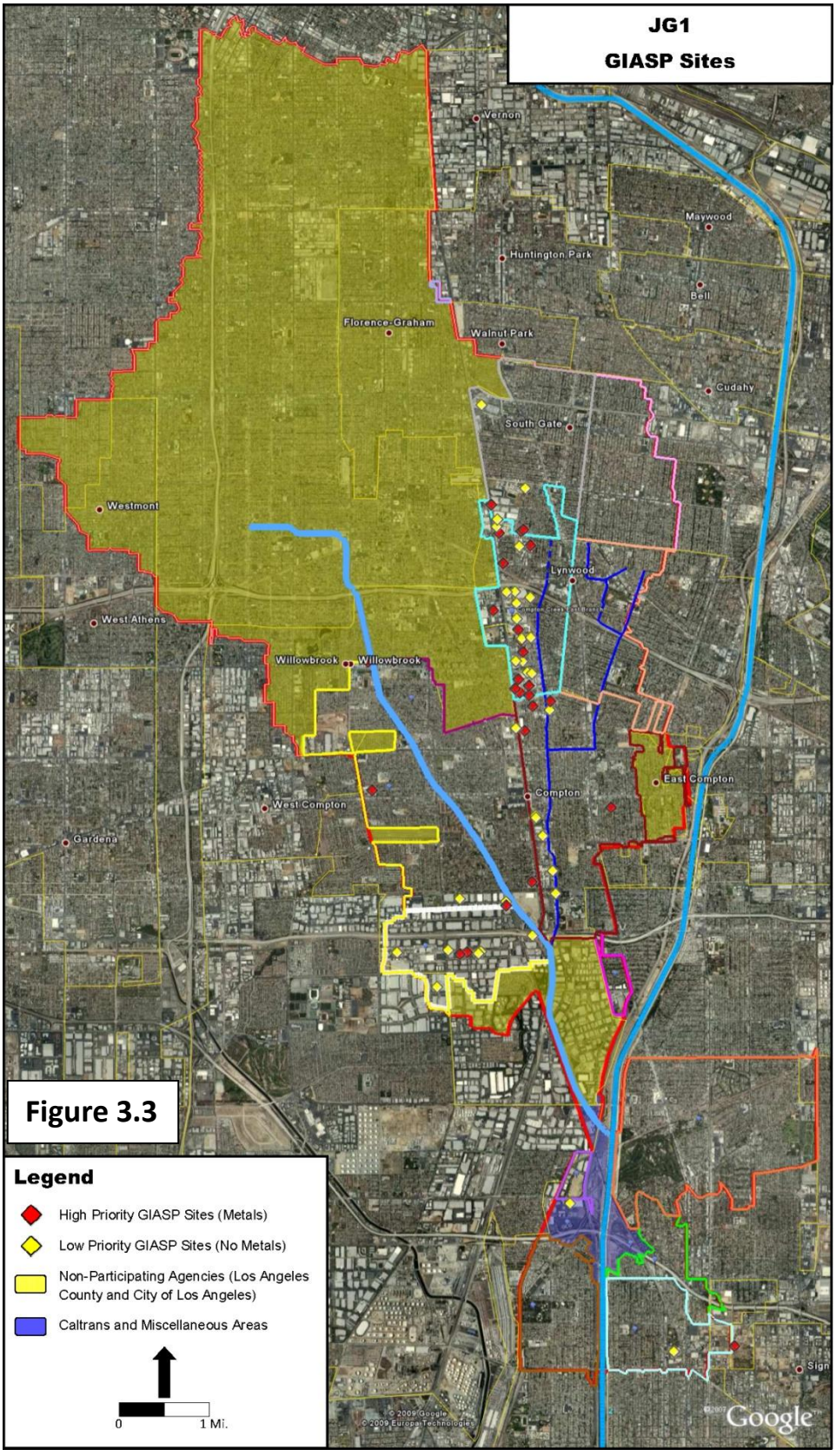

JG1
GIASP Sites
Vernon
Maywood
Huntington Park
Bell
Florence-Graham
Walnut Park
Cudahy
South Gate
Westmont
Lynwood
West Athens
Willowbrook
Willowbrook
East Compton
Compton
West Compton
Gardena
Legend
High Priority GIASP Sites (Metals)
Low Priority GIASP Sites (No Metals)
Non-Participating Agencies (Los Angeles County and City of Los Angeles)
Caltrans and Miscellaneous Areas
0
1 Mi.
Google

Figure 3.3

Priority will be given to the 56 permitted industries concentrated within the Compton Creek East Branch Sub-watershed. Secondary emphasis will be given to the six permitted industries within the Miscellaneous Transfer Drain 448/287 Sub-watershed, which discharges into Compton Creek just north of the discharge point of the Compton Creek East Branch.

City staff from Compton, Lynwood, and South Gate are prepared to review the annual reports for these industrial facilities and visit each site to assess its potential as a source of metals in stormwater discharges. Facility operators will be informed of the requirements of the Metals TMDLs and provided with advice on operational source controls. The need for cover and containment will be emphasized. Appropriate BMPs from the CASQA *Stormwater Best Management Practices Handbook for Industrial and Commercial* will be reviewed with facility operators. City staff will also educate facility operators about the importance of sediment control and runoff reduction to reduce the transport of metals to Compton Creek and the Los Angeles River. Follow up visits will be conducted as needed. Operators of GIASP trucking facilities and others with large parking lots will be advised of the necessity for frequent sweeping and the possible need for on-site treatment controls to avoid enforcement actions. A similar effort may be made by staffs from other cities during the implementation process.

3.2.2 Run-off Reduction

Runoff Reduction – Dry Weather

The JG1 Agencies will give long-term emphasis to dry-weather runoff reduction in order to reduce or eliminate runoff as a mechanism to transport metals from industrial facilities, roads, parking lots, and driveways to Compton Creek and the Los Angeles River. Water conservation measures will be considered in order to reduce the potential for dry-weather runoff.

Water conservation and improved irrigation practices will be supplemented by the diversion of dry-weather discharges to facilities designed to store and infiltrate water (see Chapter 6) and a reduction in directly connected imperious surfaces over time.

Runoff Reduction – Wet Weather

Reducing runoff during wet weather is a challenging and potentially costly undertaking. The JG1 Agencies are essentially built-out and will be primarily dependent on redevelopment to create opportunities for wet-weather runoff reduction. However, they will endeavor to incorporate green infrastructure into redevelopment projects and to reduce directly connected impervious areas to the extent reasonably feasible. They may also seek grants to implement rainwater capture and reuse or capture and infiltrate projects on publicly owned property.

Wet-weather runoff reduction is a long-term measure that will be addressed in phases two, three, and four of this implementation plan as grant funds become available. Areas tributary to well-maintained BMPs designed to capture and infiltrate or capture and use the runoff from an 85th percentile storm should be deemed to be in compliance with the assumptions and requirements of the WLAs.

Use of Water Conservation and Landscape Irrigation Requirements

JG1 Agencies propose to collaborate with water purveyors and their planning departments to use local water conservation requirements and implementation of AB 1881 to reduce both dry-weather and wet weather runoff.

The majority of JG1 cities have already adopted water conservation ordinances that require the immediate conservation of water, usually as a progressive scale based on drought levels. These cities have also adopted landscape irrigation efficiency ordinances.

The Caltrans Stormwater Management Plan (SWMP) specifies requirements for the implementation of BMPs for static transportation projects (Caltrans 2003). The SWMP was updated in 2003 as required by its 1994 MS4 permit. When a Caltrans project results in stormwater runoff to receiving waters or a storm drain system owned by another permittee, approved treatment systems (referred) to as Category III BMPs) are considered and, where feasible, installed. Approved treatment systems vary, but Caltrans maximizes the use of biofilters or bioswales to reduce runoff and pollutant loads. Other approved treatment systems include infiltration basins, detention devices, traction sand traps, and dry weather flow diversions. Continued implementation of these requirements will provide water quality benefits over the long term. It may be possible to further increase the use of structural BMPs to maximize infiltration onsite.

AB 1881, the Water Conservation in Landscaping Act, was approved in the fall of 2006 with a requirement that the Department of Water Resources (DWR) update the model local water efficient landscape ordinance adopted by the Department in the early 1990s pursuant to Chapter 1145 of the Statutes of 1990. The updated model ordinance was promulgated by the Department on September 10, 2009. The Act requires that not later than January 1, 2010, local agencies either adopt the updated model ordinance or another water efficient landscape ordinance at least as effective in conserving water as the updated model ordinance. By January 31, 2010, each local agency was required to notify the DWR whether it had adopted its own water efficient landscape ordinance or the updated model ordinance.

AB 1881 encourages the capture and retention of stormwater onsite to improve water use efficiency and water quality. It includes a requirement for a landscape water budget that establishes the maximum amount of water to be applied through the irrigation system. The model ordinance applies to new construction and rehabilitated landscapes for public agency projects and private development projects with a landscape area equal to or greater than 2,500 square feet, as well as developer-installed new construction and rehabilitated landscapes in single family and multi-family projects requiring a building or landscape permit, plan check, or design review. Since the JG1 Agencies are largely built-out, the requirements will generally be limited to public projects and redevelopment projects, but every reduction in landscape irrigation should assist in reducing metal loads.

3.3 Soil Stabilization/Sediment Control

The JG1 Agencies plan a major, multi-faceted program to control sediment since metals are ubiquitous within the area due to atmospheric deposition. These metals adhere to sediment and are transported to receiving waters by rainfall and urban runoff. The approaches to sediment control proposed for use in the area include enhanced erosion and sediment control at construction sites, stabilization of exposed soil not associated with construction sites, and street and parking lot sweeping.

Since the area is built out, there is limited construction at any given time. However, enhanced erosion and sediment control at all construction sites involving disturbed soil of one-acre or more is mandated by the new State Construction General Permit that became effective on July 1, 2010. In addition, the cities will consider requiring enhanced erosion and sediment control for certain projects disturbing less than one acre of soil. JG1 Agencies may also consider targeting vacant lots and other areas of exposed soil for stabilization. They also will employ erosion and sediment control on publicly owned areas with exposed soil, and will consider encouraging private property owners to stabilize exposed soil on vacant lots and other privately owned sites. These practices will first be employed in the Phase I sub-watersheds.

Caltrans will consider stabilizing exposed soil within its rights-of-way in order to reduce the transport of metals in runoff from its facilities and to sequester legacy lead that can be transported by wind as well as water. In the future, a few meters of exposed soil outside the Caltrans right-of-way between I-710 and the Los Angeles River may require stabilization to both reduce erosion and transport of sediment to the river and to sequester the legacy lead in the soil

Enhanced street sweeping will be especially important until the sources of metals in atmospheric deposition are controlled. Metals are deposited on streets and highways directly from cars and trucks and also by atmospheric deposition. Much of the critical sediment for transporting metals to receiving waters is very fine and not picked up by traditional broom sweepers.

Street Sweeping

Street sweeping is getting renewed attention as an operational best management practice to reduce the discharge of sediment and metals. New vacuum sweepers and regenerative sweepers are quite effective at removing fine particles from streets and parking lots. The U.S. Navy is one of the agencies examining the use of high-efficiency sweepers to remove metals from its facilities. In May 2008, the Navy's SPAWAR Systems Center in San Diego made a presentation entitled, "Metals Load Reduction in Storm Water Using High-Efficiency Sweepers" to a Joint Services Environmental Management Conference. The Navy observed that there are numerous widespread sources of metals, some of which are not easily controlled. The Navy is responsible for large areas with many discharge points. The Navy was concerned that stormwater metals concentrations, particularly copper and zinc, commonly exceed storm or process water discharge compliance requirements, since metals accumulate in sediments and receiving water impacts occur at low concentrations.

The Navy focused on street sweeping as a potentially effective BMP for reducing the adverse impact of metals on receiving waters because: 1) it can be applied to large areas, 2) particles on the ground are a source of stormwater copper and zinc, and 3) new sweeper technologies may be capable of removing significant amounts of particles, and, therefore, metals. The Navy's early tests showed that some particles swept off the ground were relatively high in copper and zinc and that these particles were a source of dissolved metals. The SPAWAR Systems Center concluded that high efficiency sweepers could remove significant amounts of metals before they become entrained in stormwater and that sweeping provides a potentially useful wide-area BMP.

The use of high-efficiency sweepers as an area-wide BMP for metals appears to be particularly applicable for the JG1 drainage area because indirect atmospheric deposition and direct deposition from motor vehicles are primary sources of metals in the watershed. As noted in the 2005 staff report for this Metals TMDL, estimates of metals deposited on land are much higher than loadings to the River.

As a result of the Navy's research and other recent research into the effectiveness of high-efficiency vacuum and regenerative sweepers, the JG1 Agencies have concluded that the timely use of well-maintained, high-efficiency sweepers should constitute a deemed compliant BMP for metals in the same way that the use of certified full-capture devices does for trash. Therefore, the JG1 Agencies propose to implement an enhanced street and public parking lot sweeping program within the Compton Creek East Branch Sub-watershed during the first phase of implementation of this plan. Initial emphasis will be given to the drainage area of the Bullis Drain, with secondary emphasis on the drainage area of the Santa Fe Drain. The proposed enhanced sweeping will use a combination of regenerative and vacuum sweepers. Major arterials, major intersections, median curbs, commercial and industrial areas will be swept more frequently in the months preceding the rainy season. In addition, owners of private parking lots will be encouraged to enhance their sweeping programs. Several JG1 Agencies have already begun using regenerative and vacuum sweepers that are better able to capture fine particles (see Table 3-3).

Caltrans conducts roadway and roadside cleanup operations to provide safe highway conditions and to maintain a neat and clean appearance. Sweeping operations are scheduled at the discretion of the Maintenance Supervisor based on the accumulation of trash and debris. Depending on traffic, weather and available resources, sweeping frequencies are based on collecting a minimum of 1/2 cubic yard and a maximum of 1 cubic yard of material per mile swept. Debris on the roadway that may constitute a traffic hazard is removed immediately upon discovery or notification. Caltrans uses mechanical broom sweepers that meet the specifications needed to sweep in the highly traveled freeway environment and to pick up the variety of materials found on a the freeway shoulder or median. Caltrans in cooperation with the other JG1 Agencies will reevaluate its sweeping policy with the goal of improving the efficiency of metals removal.

TABLE 3-3 JURISDICTIONAL GROUP 1 MUNICIPAL STREET SWEEPING (2010)

City	Type of Sweeper Mechanical Vacuum Regenerative	Frequency			Ordinance restricting parking on a sweeping day	Sweep expanded areas at major intersections
		Residential	Commercial	Industrial		
Carson	Regenerative	Weekly	Weekly	Weekly	Yes	No, but planned
Compton	Broom (contract sweepers)	Weekly	Weekly	Weekly	Yes	No
Huntington Park	Mechanical and Regenerative	Weekly	Every other day	Weekly	Yes	No
Lakewood	Regenerative (PM10 certified)	Weekly	Weekly	Weekly	Yes	No, but raised medians are swept weekly
Long Beach	Mechanical and Vacuum	Weekly	Weekly	Weekly	Yes	No
Lynwood	Regenerative	Weekly	Three times a week	Weekly	Yes	Yes
Signal Hill	Regenerative	Weekly	Weekly	Weekly	Yes	No
South Gate	Vacuum (Broomsweepers are used for areas of heavy dirt and debris where they are more effective)	Weekly	Weekly - Three times a week in priority areas	Varies, but averages twice weekly	Yes	Only the curb line unless there is debris due to an accident or something falling off vehicles

3.4 Commercial/Industrial Outreach

An important component of both near-term and long-term source control is the development and implementation of an enhanced commercial/industrial outreach program. Initial emphasis will be given to outreach to industries within phase I and phase 2 targeted sub-watersheds that are identified as having a high probability of generating cadmium, copper, lead, or zinc that could be transported to receiving waters. In addition, automotive repair facilities and facilities with large parking lots will also be visited and receive written information about the need to reduce or eliminate the discharge or metals. Commercial and industrial outreach will continue throughout implementation of this plan.

Commercial and industrial outreach to businesses within targeted watersheds will continue as needed to reduce cadmium, copper, lead, and zinc levels in the River.

3.5 Expected Results of Source Control

The JG1 Agencies are not aware of a modeling technique designed to model the expected results of source control. However, they believe that a combination of true source control and properly implemented operational source controls will be highly effective in reducing metals in runoff. In fact, in the long-term, true source control alone should bring the area into compliance with the WLAs targets themselves and as such should be deemed to be measures that are considered full compliance measures under the TMDL. If cadmium, copper, lead, and zinc are not introduced into the environment, they will not cause water quality impairments.

Lead, for instance, has already been greatly reduced in the environment due to the virtual elimination of leaded gasoline, and lead transported to receiving waters has been likewise reduced. Recent elimination of the sale of lead wheel weights in California and the anticipated reduction of lead in aviation gasoline will eliminate the major remaining sources of lead in stormwater runoff.

In the near-term, mid-term, and long-term, iterative implementation of operational source controls should all be deemed in compliance with the assumptions and requirements of the WLAs. The various operational source control measures specified in Section 3.2, as they are implemented through an iterative process, will increasingly prevent cadmium, copper, lead, and zinc from being discharged in stormwater runoff.

In addition, implementation of the Caltrans Statewide Variance for the Reuse of Lead Contaminated Soils issued by the California Department of Toxic Substance Control is an operational source control measure that has already resulted in sequestering substantial quantities of legacy lead in soils adjacent to freeways. As further improvements are made to I-105, I-710, and SR 91, additional lead will be sequestered.

The JG1 Agencies anticipate that enhanced street sweeping using regenerative and vacuum sweepers (and selective use of broom sweepers which are often more effective in areas of extremely heavy dirt and sediment buildup) will be a particularly effective operational source control measure. These sweepers are much more effective than traditional brush sweepers, because they pick up the very fine sediment particles to which metals adhere.

A program of continual effectiveness evaluation and monitoring of BMPs is an integral component of this IP.

4.0 Structural BMP Strategies

To comply with the TMDL an effective combination of onsite, regional, and sub-regional structural BMP strategies may need to be implemented at key locations in the JG1 watershed. Chapters 3 and 6 of this Implementation Plan respectively include an array of specific non-structural and structural BMP recommendations to achieve the necessary pollutant load reductions to constitute deemed compliance with the assumptions and requirements of the dry and wet-weather WLAs established for the participating agencies. The purpose of this analysis is to identify structural BMP strategies that help reduce runoff and also effectively remove most of the metals in urban and stormwater runoff.

4.1 Onsite BMP Strategies

Several strategies discussed in Chapter 3 will have to be employed to reduce runoff from reaching the waterways. In addition to strategies discussed in Chapter 3, additional onsite strategies including management practices that capture, treat, and infiltrate urban and stormwater runoff close to its source and onsite may be developed. This approach will utilize Low Impact Development strategies that reduce the total volume and flow rate leaving a property which may eliminate a significant portion of pollutants of concern from entering the storm drain system. Some onsite BMP strategies may require pre-treatment systems to reduce operational problems and long-term maintenance costs.

4.1.1 Stormwater Storage Options

These types of structural BMPs capture rainfall from impervious surfaces to reduce the volume of runoff entering the storm drain system. They can be constructed in various sizes to contain all or a portion of the impervious surfaces. Reusing the captured runoff will reduce onsite water usage and the amount of pollutants that may potentially be carried offsite. The location of stormwater storage BMPs will primarily be based on the location of the structure's rooftop downspouts.

<u>Onsite Storage and Reuse</u>

Impervious surfaces such as rooftops, driveways, parking lots, streets, and walkways generate a significant amount of runoff during storm events. Over time, pollutants of concern, such as metals, collect on the surface of these impervious surfaces and may be washed into the MS4 untreated by surface water runoff. To maximize the capture and treatment of these pollutants of concern, onsite storage BMPs can collect the first flush or a considerable portion of the runoff generated from a storm event, sometimes up to the 85th percentile. Large onsite storage BMPs

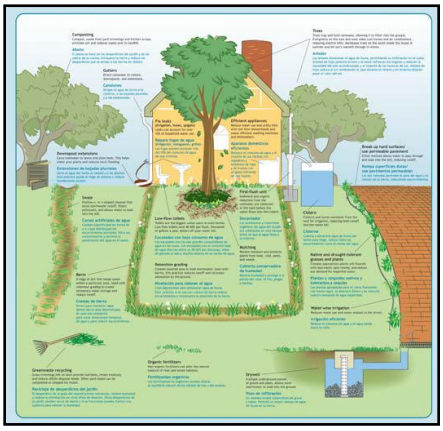


Figure 4.1

typically require pre-treatment systems to remove trash, sediment, and debris to reduce overall operation and maintenance costs and allow effective infiltration of collected runoff. This BMP can be used for onsite infiltration or reuse.

Onsite storage BMPs are generally subsurface structures and located under parking lots and/or other open areas that facilitate access for inspection and maintenance. Subsurface storage BMPs require a large area to store the collected runoff volume. Opportunity sites for this type of structural BMP include public parks, government facilities, schools, and relatively vacant areas such as utility corridors. With the use of a pump, stored stormwater runoff can be reused for onsite irrigation. However, precautions must be taken to prevent the aerial spray of reused water to avoid direct contact with humans. The use of these systems will have to be consistent with guidelines developed by Los Angeles County Department of Health Services. Additionally AB 1842 will provide guidance on the use of stormwater for irrigation purposes.

Cisterns

Stormwater runoff cisterns are devices that provide a retention storage volume in above or underground storage tanks. Cistern systems typically consist of a storage tank, a pipe network diverting rooftop runoff to the cistern, an overflow bypass for when the cistern is full, and a distribution network to deliver water to its intended use, which in some instances may require a pump. Runoff collected in the cistern tank can be used for onsite landscape irrigation since outdoor residential irrigation normally accounts for up to 40% of domestic water consumption in the hot summer months. Cisterns can be constructed of nearly any impervious, water retaining material and are distinguishable from rain barrels only by their larger sizes and different shapes. Cisterns are an effective onsite retrofit option for treating rooftop runoff from selected residential, commercial, industrial, institutional, and municipal sites.

Figure 4.2

The first flush of runoff is known to wash off and carry a significant portion of pollutants to the MS4. By using cisterns, a quantifiable amount of stormwater runoff from impervious surfaces such as rooftops, parking structures, and elevated walkways can be captured and stored onsite to reduce the runoff volume and peak runoff flow rates. For smaller storm events, this captured runoff will reduce pollutant loads to the MS4 by preventing constituents from ever leaving the respective property. Stored rainwater also provides an opportunity to conserve water and reduce water utility bills.

Rain Barrels

Rain barrels serve and act in a similar manner to cisterns but on a much smaller scale. Rooftop runoff can be collected from the downspout and stored for later use. Screen installations at the downspout inlets prevent sediment, leaves, and other debris from entering the rain barrel. Additionally, a mosquito screen can be included at entry points to control unwanted vectors. Rain barrels can be easily constructed for aesthetic purposes to compliment the structure that it is adjacent to. Overall, maintenance requirements are minimal and include visual inspections twice a year, with a greater frequency during the wet season, and the removal of any accumulated sediment or vegetative debris. When effectively designed to capture and contain the runoff from a rooftop structure, a rain barrel can prevent runoff from small frequency storm events from ever leaving the property. This will reduce onsite water usage and the amount of pollutants that may potentially be carried offsite.

Figure 4.3

4.1.2 Small Scale Infiltration Options

There are many structural BMP options that have been tested and accepted as viable means to infiltrate captured stormwater and improve water quality and reduce flow rates. The siting and location of infiltration BMPs will vary based on many factors including the soil type, depth to groundwater, presence of contaminated soils or groundwater, foundation and structures, and long-term maintenance costs.

Porous/Pervious Pavements

Pervious pavement allows rainfall to flow through its pores and into an aggregate bed or a structural stormwater detention/retention storage unit where the runoff is stored until it can be recharged into the aquifer or reused for landscape irrigation. There are many types of pervious pavements that can be used for infiltration including porous concrete, plastic grid system, interlocking paving stones, brick, grass pavers, gravel pavers, and pervious crushed stones. Pervious materials allow for onsite infiltration that naturally filter out pollutants such as nutrients, metals and oil

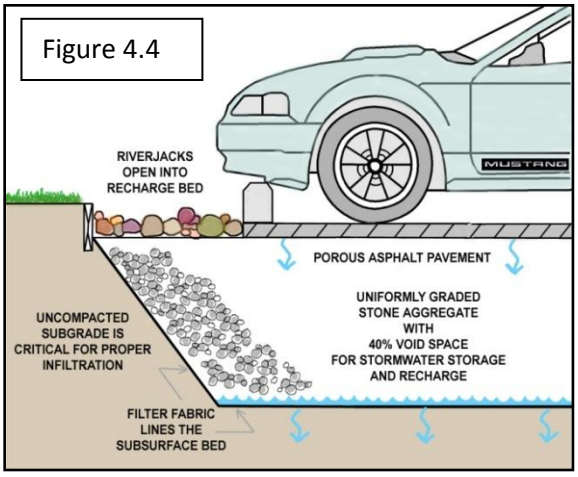


Figure 4.4

and grease with great efficiency. Infiltration rates of the native soil will be a key element to the overall design. Pervious pavements can also be designed with a perforated underdrain system to redirect stormwater to a storm drain in areas where infiltration is not feasible. Using an underdrain collection system will still result in improved water quality since stormwater will have passed through the BMP and undergone natural filtration and treatment processes. This type of BMP can also be used to disconnect directly connected impervious areas such as rooftops and parking lots. Vegetated runoff should not drain onto the pervious pavement as it may clog the system and require more frequent maintenance.

Permeable pavements may be used in many locations where conventional pavements are used, such as parking lots, driveways, and walkways. Areas with the potential for spills, such as gas stations, should be avoided. Using proper maintenance techniques, pervious pavement can remove a significant portion of pollutants in surface water runoff and reduce pavement ponding.

Retention Grading/Rain Garden

Retention grading holds runoff in, what is often known as, a "rain garden" until it can be infiltrated onsite. This BMP approach requires the sloping of an area to create a local depression to retain and absorb stormwater runoff. On the surface, a rain garden looks like an attractive garden. However, the garden is a small bioretention cell in which stormwater is cleaned and reduced in volume once it enters the rain garden. It can be constructed with or without the use of berms for containment depending on the slope of the area or the anticipated precipitation rate. Infiltration rates can be maximized with the use of a highly permeable soil mix. Including drought tolerant plants also gives the surrounding area an aesthetically pleasing look without the constant need for maintenance during the dry season. In areas where the soil is less permeable, the depressed area can be laid above gravel to add storage capacity for the stormwater to slowly infiltrate. Application of this structural BMP is best suited in areas such as the perimeter of government facilities and residential properties.

Figure 4.5

Infiltration Pits

Infiltration pits are typically used in combination with vegetated slopes to create a pre-treatment system prior to infiltrating into the aquifer. They are constructed similarly to infiltration trenches but much deeper. Construction begins with digging a pit of variable size, lined with geotextile filter fabric, and filled with small uniform aggregates. Larger stones will be used to overlay the pit to reduce the velocity of the incoming runoff thus increasing the likelihood of it being captured by the infiltration pit. When properly designed and maintained, an infiltration pit can recharge groundwater, supplement low flows, and preserve the base flow in streams.

Dry Wells

Dry wells share operational similarities with sumps, french drains, drain fields, and shallow injection wells. They are simple underground systems that typically hold rooftop runoff (or other small impervious areas) in their void space for gradual percolation. Runoff will enter the system through a surface inlet where it will be redirected to the dry well. Pretreatment techniques are recommended to prevent clogging and guarantee long-term reliability of the infiltration rate. These techniques may consist of grass filter strips, a sand layer, clean aggregates, or a small settling chamber. It is recommended that dry well installation have a minimum clearance of 10 feet from the surface, seasonal high water table, and any building foundation. Dry wells are encased by clean graded aggregates and then wrapped with a geotextile filter fabric, filtering the runoff while recharging the groundwater aquifer.

When designed properly, a dry well can serve small impervious areas such as residential rooftops. They help to disconnect impervious areas and reduce the amount of runoff entering the MS4. Dry wells are typically shallow disposal systems designed to infiltrate stormwater runoff below the ground surface. If a dry well is bored, drilled, or driven shaft, or a dug hole that is deeper than its widest surface dimension, it is classified as a Class V injection well and requires permitting through the U.S. Environmental Protection Agency. This BMP has a high pollutant removal efficiency for the following pollutants of concern: sediments, nutrients, trash, metals, bacteria, oil, grease, and organics.

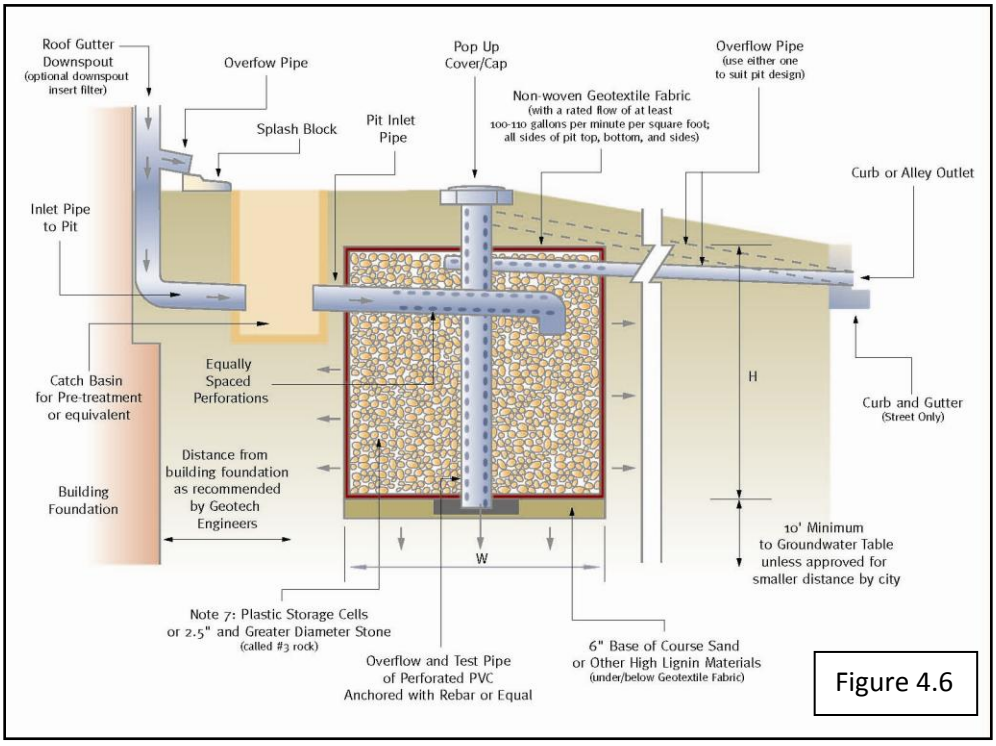


Figure 4.6

Bioretention Areas

Bioretention areas function similarly to retention basins but on a much smaller scale. This BMP retains runoff in a vegetated depression and goes through variety of physical, biological, and chemical treatment processes while undergoing infiltration, evaporation, transpiration, and evapotranspiration. Runoff may enter through inlets, curb cuts, or roof downspouts and the entering velocity must be non-erosive, typically resulting in the use of energy dissipaters. Runoff is gradually filtered through plants and an engineered soil mix to promote the adsorption of pollutants. The surface mulch layer serves as the first line of treatment and will stop and trap larger sediments. Selected plants can absorb some pollutants while the engineered soil mix can degrade others. For areas with less permeable native soils, a perforated underdrain system can be used to maximize infiltration rates and redirect the filtered stormwater runoff into the local storm drain system or stored in a cistern for later use. The underdrain system should be encased by at least six inches of aggregate and wrapped with a geotextile woven filter fabric. Ultimately, bioretention systems should be designed so that the surface ponding depth is between six to twelve inches and will infiltrate within two days.

Figure 4.7

Bioretention can be designed as a landscape feature while also reducing runoff and improving water quality. There are various forms of bioretention including rain gardens, planter boxes, and sophisticated manufactured components such as the ones sold through BMP vendors. Suitable plant selection is crucial in determining the effectiveness of the bioretention system. Plants native to the area are highly recommended and will require the least amount of maintenance. This type of BMP could potentially be implemented at parking lot islands, parking lot edges, road medians, cul-de-sacs, courtyards, residential lots, and any other unused pervious areas.

Green Roofs

Green roofs are vegetated roof systems that capture and retain rainfall. There are two types of green roofs: extensive and intensive systems. Intensive systems have large depths and cover much of the roof while extensive systems features minimal planting mediums and require little maintenance. Green roofs not only enhance water quality and reduce the amount of runoff entering the storm drain system, but they are visually appealing and can be used as a recreational/park

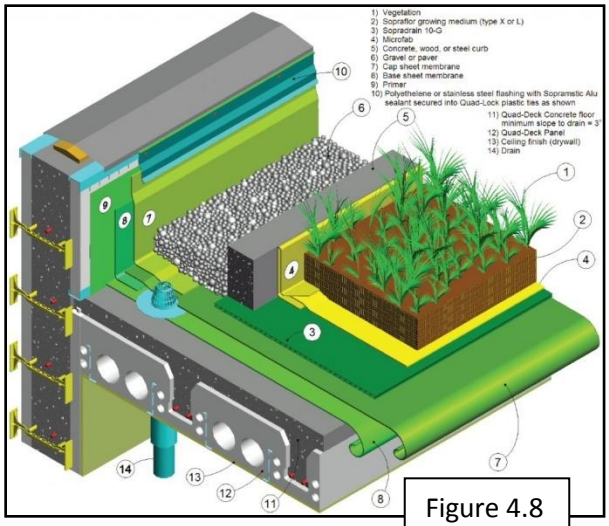


Figure 4.8

space above office buildings. Depending on the design and plant selection, intensive systems may require heavy maintenance during the dry season.

The amount of stormwater that a green roof can contain is proportional to the area of coverage, types of plants, slope, and many other factors. This BMP system is used to mitigate peak flow and reduce runoff volume to pre-development conditions. Rainfall is returned to the atmosphere through evaporation and plant transpiration. Green roofs can be constructed during the building's construction phase or included as a retrofit. When retrofitting, it must be noted that the building needs to support the weight of the green roof under fully saturated conditions. A waterproof membrane should be laid over the building to protect it from structural damage and overflow needs to be addressed through the use of a drainage layer. When the soil media becomes saturated it should begin percolating into the perforated drain pipe and redirected to the rooftop downspouts. Green roofs also provide insulation, help reduce building temperatures during summer months, and counter the heat island effect. This form of BMP could potentially be utilized on residential homes as extra greenery and buildings for gardens, or parks if space permits.

4.2 Regional and Sub-Regional Structural BMP Strategies

Storm drain systems are designed to capture and retain runoff to be redirected to locations where it can be safely discharged into a larger water body. Typically the runoff can carry pollutants of concern and debris especially during the first flush when the impervious surfaces are most polluted. Runoff entering a storm drain system is captured by a catch basin designed to remove large debris from the runoff. Periodically, catch basins require expensive removal of trash collected in the catch basin to reduce the risk of unwanted polluted discharges.

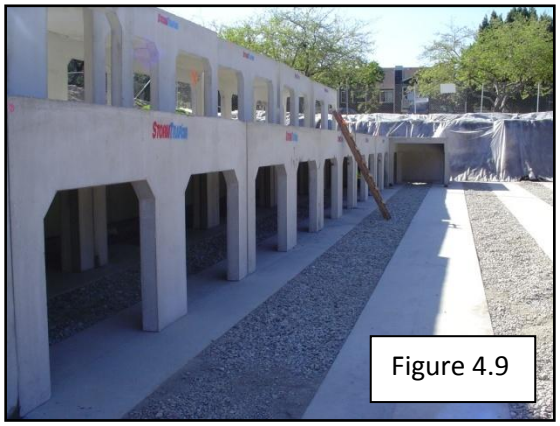


Figure 4.9

There are three potential regional and sub-regional options. After capturing and storing runoff, it can be treated and discharged, reused for non-potable usage, or treated and infiltrated into the soil. Pervious pavements with onsite storage offer the opportunity to treat water without using additional space. Stormwater runoff stored in underground storage can then be used as a source of irrigation water, which can reduce potable water use in an area and increase water quality. There are several strategies that can be included in the regional and sub-regional solutions for a given area including:

- At-grade Infiltration Basins
- Green Street Medians
- Infiltration Trenches
- Large Underground Cisterns
- Sub-surface Infiltration Basins
- Sub-surface Flow Wetlands

- Street Concave of Center-Medians
- Surface Flow Wetlands, and
- Proprietary BMPs

4.3 Structural BMP Pollutant Load Removal Efficiencies

The table below summarizes the effectiveness of structural BMPs strategies discussed above. Different pre-treatment options may be associated with each BMP option, which will result in the greater removal of multiple pollutants. Most pre-treatment BMPs will address, at a minimum, the removal of gross solids and sediments through the use of screens and detention, respectively.

Table 4- 1 Structural BMP Summary

Structural BMPs	Treatment Effectiveness							Integrated Resources		
	Bacteria	Nutrients	Metals	Organics	Trash	Sediment	Oil & Grease	Reuse	Conservation	Recharge
Onsite BMP Strategies										
Stormwater Storage Options										
Cisterns	H	H	H	H	H	H	H	X	X	
Rain Barrels	H	H	H	H	H	H	H	X	X	
Onsite Storage and Reuse	H	H	H	H	H	H	H	X	X	
Small Scale Infiltration Options										
Porous/Pervious Pavement	L	H	H	L	H	L	H			X
Retention Grading/Rain Garden	H	H	H	H	H	H	H	X	X	X
Infiltration Pits	H	H	H	H	H	H	H	X	X	X
Dry Wells	H	H	H	H	H	H	H	X	X	
Bioretention Areas	H	H	H	H	H	H	H	X	X	X
Green Roofs	H	M	H	H	H	H	H		X	
Regional and Sub-Regional Structural BMP Strategies										
Capture, Store, Treat, and Discharge	H	H	H	H	H	H	H			
Capture, Store, Treat, and Reuse	H	H	H	H	H	H	H	X	X	
Capture, Store, Treat, and Recharge	H	H	H	H	H	H	H			X

Notes: L = low effectiveness, M = medium effectiveness, H = high effectiveness, U = unknown effectiveness

4.4 Structural Treatment Control- CPS

One structural treatment control measure currently being implemented by the JG1 Agencies for trash control is expected to also assist in reducing the transport of metals to Compton Creek and Reach 1 of the Los Angeles River. This measure is the installation of connector pipe screens (CPS) in all City-owned and County owned catch basins throughout the JG1 Agencies. These full capture systems are being installed pursuant to a grant received by the Los Angeles Gateway IRWM. Installation is scheduled to be completed by June 2011. The JG1 jurisdictions expect the trash trapped by the CPS units to trap sediment and particulate matter in runoff including sediment from construction sites and vacant lots as well as metal laden dust from aerial deposition of roofs and streets. This trapped sediment will be removed each time the catch basins are cleaned. Since the CPS units are being installed this year, the optimum cleaning frequency and the amounts of metals removed is yet to be determined.

Chapter 5 Monitoring Considerations and Strategies

5.1 Introduction and Background

This Implementation Plan is designed to ensure consistency with the assumptions and requirements of the WLAs. The Los Angeles River Metals TMDL Coordinated Monitoring Plan (CMP) was designed to provide the data necessary to document the effectiveness of BMP implementation. The CMP is currently conducting ambient monitoring. The ambient monitoring program was designed to "evaluate the uncertainties and assumptions made during development of the TMDL." In January, 2012, the ambient monitoring program is expected to convert into an effectiveness monitoring program. The stated goal of the effectiveness monitoring program is to "collect data to assess compliance with the waste load allocations." It is anticipated that sites currently monitored as part of the ambient monitoring program will likely continue to be monitored as part of the effectiveness monitoring program.

The CMP proposed a three tiered strategy for conducting effectiveness monitoring. Tier I effectiveness monitoring is expected to consist of a monthly monitoring at the 13 sites that currently comprise the ambient monitoring program. Nine of these sites are located along the main stem of the Los Angeles River. The remaining four sites are located in main tributaries to the River. The CMP currently includes water quality monitoring at three Tier I monitoring sites (LAR1-11, LAR1-12, and LAR1-13) relevant to Los Angeles River and Tributaries Metals TMDL Jurisdiction Group 1 (JG1).

Dry weather flows are monitored at all three locations and wet weather flows at two of the locations. The wet weather monitoring sites are both located along the main stem of the Los Angeles River. One site (LAR1-11) is located at Del Amo which marks the boundary between Jurisdiction Groups 1 and 2 while the second (LAR1-13) is located at Wardlow which serves as the downstream site for assessing effectiveness of BMP implementation for JG1.

The CMP proposed the implementation of Tier II effectiveness monitoring in response to exceedances TMDL established WLAs at the appropriate downstream Tier 1 monitoring site. The trigger for implementation of Tier II sampling was established in the CMP as two successive exceedances of Waste Load Allocations (WLAs) at a downstream Tier I site. Tier II monitoring would involve additional monitoring to provide data to assess dry and wet weather BMP effectiveness. Tier III investigatory monitoring is intended to be triggered if continued exceedances of WLAs occur at the Tier II sites. Investigatory monitoring is expected to focus on source identification and be implemented by responsible agencies at the jurisdictional or sub-jurisdictional group levels. In addition, Tier III monitoring is designed to focus on the specific analytes identified as causing the numeric water quality limit exceedances and ancillary parameters necessary to assist in source identification and control.

If Tier III investigatory monitoring is triggered, a monitoring program will need to be designed and submitted to the Executive Officer for approval. As such, a generalized work plan consistent with CMP methods has been developed to allow Tier III monitoring to be efficiently implemented if data from the CMP confirms a need for further testing. Any monitoring to be conducted will be coordinated with other entities in the targeted subwatershed that have the potential to contribute to exceedances of the WLA derived numeric water quality limits for the metals in issue.

5.2 Monitoring Approach and Sampling Methods

Effectiveness monitoring for assessing the wet and dry season targets will require different strategies. Based upon the strategy outlined in the CMP, Tier III sampling may be implemented selectively for wet or dry weather periods and for the specific analytes of concern. An iterative and adaptive strategy is recommended where monitoring would be adjusted when deemed necessary to assure that adequate documentation is provided to identify sources or source areas, and to assess progress in reducing pollutant loads. Monitoring required to assess wet weather BMP effectiveness is expected to require use of automated flow and water sampling equipment although manual sampling methods may be employed to augment the sampling effort. Dry weather monitoring is expected to utilize manual methods to obtain instantaneous measures of flow rates and grab samples to measure concentrations of contaminants of concern. An initial survey of candidate sites has been conducted to facilitate effective implementation of Tier III monitoring that may need to be initiated within JG1.

If wet weather monitoring is required, a total of up to four storm events would be monitored each year. At a minimum, measurements at each site would include flow, hardness and TSS. Sampling would also include any of the total and dissolved metals (cadmium, copper, lead and zinc) that are identified as pollutants of concern in the targeted waterbody. Data would be used to assess mass loading during each monitored events and to estimate discharge volumes and metals loading for all events.

If Tier III dry weather investigatory monitoring is necessary, all sampling will be performed manually with grab samples. Similar to the CMP, dry weather sampling would be conducted monthly. If flow is observed at a site, flow rates will be determined and samples taken for analysis of the appropriate total and dissolved metals (copper and/or lead), hardness and TSS. In addition, field measurements of conductivity, temperature, pH measurements will be recorded to assist in source water identification.

5.2.1 Sampling Frequency

Up to four storm events will be sampled at any sites requiring Tier III investigatory sampling during wet weather periods. In order to be considered appropriate for monitoring, storms should meet the following minimum criteria.

- The storm event should be preceded by a minimum of 72-hours without precipitation. Preferably, monitored storm events should be preceded by at least 7 days with a total of less than 0.1 inches of rain.
- The quantitative precipitation forecast (QPF) for a predicted storm event should exceed 0.25 inches with a probability equal to or greater than 70%.
- If possible, sampling should be conducted in association with the first and second major storm events of the season (October through April).
- The remaining two events should be spaced at least a month apart.

Dry weather monitoring will be conducted on a monthly basis and, where practical, be coordinated with CMP/Los Angeles City Status and Trends sampling at the associated Tier II site.

Tier III sampling will terminate when the sampling at the associated Tier II site is terminated. The CMP provides for deactivation of Tier II monitoring sites after two consecutive monitoring events where the analyte of concern is less than the WLA.

5.2.2 Wet Weather Sampling Methods

Automated flow and sampling equipment will be installed at sites requiring Tier III monitoring for wet weather sampling. Equipment will consist of an acoustic Doppler flow meter or a pressure transducer, a datalogger/controller module, cellular or landline telecommunications equipment, a rain gauge (where appropriate), and a peristaltic sampler. Any monitoring equipment installed at pump stations will incorporate sensors to monitor individual pump activity and head pressures.

The equipment will be installed with intakes and sensors securely mounted, tubing and wires in conduits, and all above ground instruments protected within a security enclosure. All materials used in the collection of stormwater samples and in contact with the samples will constructed of high-grade stainless steel, Teflon® or borosilicate glass. Composite bottles used in the autosamplers will be 20-L borosilicate glass media bottles with Teflon® stoppers. All intake hoses will be constructed of Teflon® which provides both rigidity against collapse at high head differentials and is non-contaminating for both organics and inorganics.

Stormwater runoff will be collected using flow-weighted composite samples over the full duration of the storm event. The objective will be to effectively capture 100 percent of the runoff associated with a rainfall event. Separate criteria will be established at each site for initiation and termination of sampling. For pump stations, stormwater monitoring will be initiated when the first pump turns on. Sampling is terminated when no rainfall has occurred for 4-6 hours and water levels in the sump have stabilized below the trigger levels for the pumps or are otherwise dropping due to infiltration. For open channel sites, sampling would be

initiated based on water level. Sampling will start as soon as measurable flow is detected. For a typical Doppler area velocity sensor, flow can be effectively measured once water levels exceed 0.1 feet. Sampling will be terminated when rainfall has ceased and water levels have dropped below the level of the intake. Sampling may also be terminated if flow has dropped to the point where the next aliquot is predicted to occur in four or more hours.

Sampling rates will be established based upon the size of the watershed, predicted rainfall depths, required sample volumes and the goal of obtaining a minimum of 15 aliquots over the course of the storm event. Analyses listed in Table 5-1 require roughly 2.5 liters of water and the composite bottles will have a 20 liter capacity. The capacity provided by the composite bottles will allow representative samples to be collected for storms ranging from just 0.25 inches to nearly 1.75 inches without the need to change bottles.

Table 5-1. Analytes, Methods, Holding Times and Reporting Limits for Laboratory Analyses Conducted during Wet and Dry Weather Water Quality Surveys.

Analyte and Reporting Unit	EPA Method Number	Holding Time	Target Reporting Limit or ML
CONVENTIONAL PARAMETERS			
Total Suspended Solids (mg/L)	160.2	7 days	1.0
Total Hardness (mg/L)	130.2	180 days	1.0
TOTAL AND DISSOLVED METALS (µg/L)[1]			
Cadmium[2]	200.8	180 days	0.25
Copper	200.8	180 days	0.5
Lead	200.8	180 days	0.5
Zinc[2]	200.8	180 days	1.0

1. Samples to be analyzed for dissolved metals are to be filtered within 48 hours.
2. Cadmium and zinc analyses only conducted with wet weather compliance monitoring.

5.2.3 Dry Weather Sampling Methods

Dry weather monitoring will initially use a grab sampling strategy. Samples will be analyzed for TSS, total hardness, and metals (copper and/or lead) identified as constituents of concern at the CMP Tier II monitoring sites (Table 5-1). Dry weather monitoring will be supplemented with field measurements of dissolved oxygen, temperature, pH, specific conductivity, and turbidity. Flow will measured at each site to allow loading rates to be estimated for each target constituent.

Methods used to measure dry weather flows will vary depending upon specific conditions at each site. If sufficient water depths are present at a site, flow will be assessed using a portable velocity meter with cross-sectional area measurements. If flows are very low, alternative methods will be used to estimate flow rates. In such cases, flow will be estimated from either cross-sectional areas and transit time

measurements or measurement of the time necessary to fill a container to a fixed volume. Method selection will depend upon the type of flow and specific conditions at each site.

Routine water quality parameters (Table 5-2) will be measured in the field with a Hydrolab Quanta Water Quality Monitoring System, YSI Multiparameter Sonde or equivalent. The sonde will be equipped with sensors for temperature, specific conductivity, pH, dissolved oxygen, and turbidity. These types of systems are designed to be used *in situ* but due to the low flows and shallow depths associated with typical dry weather flow, it may be necessary to use a secondary container to collect sufficient volume to obtain measurements.

Table 5-2. Routine Water Quality Parameters for Dry Weather Surveys

Analyte and Reporting Unit	Range	Accuracy	Resolution
Dissolved Oxygen (mg/L)	0 to 50 mg/L	±0.2 mg/L ≤ 20 mg/L ±0.6 mg/L > 20 mg/L	0.01 mg/L
Temperature	-5° to 50°C	±0.2°C	0.01°C
pH	2 to 12 units	±0.2 units	0.01 units
Specific Conductance	0-100 mS/cm	±1 % of reading	4 digits
Turbidity	0 to 1000 NTU	±5% of reading	0.1 NTU < 100 NTU 1 NTU ≥ 100 NTU

5.2.4 Quality Assurance/ Quality Control (QAQC) Procedures

Quality Assurance/ Quality Control for monitoring will include a system of procedures conducted both in the field and the laboratory to assure that the monitoring data are free from bias due to contamination and are both accurate and precise. The first element of this program will address contamination through a thorough system of blanking designed assure that no contaminates are introduced during the sampling process. All sampling equipment will be precleaned with laboratory detergent, mineral acids, and reagent water according to Standard Operating Procedures. All equipment will be cleaned in batches according to EPA Method 1669 protocols[19]. A minimum of 5% of each cleaning batch will be subject to blanking procedures to assure that they are free of metal contamination at the project reporting limits. This applies to Teflon® intake hoses installed at each site, 20 L sample composite bottles, subsampling hoses, and laboratory sample containers. Precleaned and certified QC-grade HDPE sample containers used for trace metal samples will be purchased and tracked in lots. A two percent subsample of these containers will also be subject to the blanking procedures. Once certified clean,

[19] U.S. EPA (1996). Method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels. July 1996. U.S. Environmental Protection Agency, Office of Water, Engineering and Analysis Division.

these system components are tracked to document locations where each component is deployed or utilized.

The representativeness of the composite sample will be assessed by the number of aliquots comprising the composite sample, the percentage of the total runoff (percent storm capture) effectively sampled, and whether the period of peak flow was effectively captured. The objectives are to effectively sample 100% of the flow including the period of peak flow with a minimum of 12-15 aliquots over the course of the event. More than 20 aliquots are preferred in order to assure that concentration changes over the course of the storm event are well represented in the composite. Composite samples representing less than 80% storm capture will not be analyzed.

The timing of aliquots will be reviewed to assure that sampling bias due to "stacking" has not occurred. Stacking can occur when sampling rates are set too high and the sampler cannot effectively complete a cycle before the next sample is to be taken. When the sampling instructions get backed up in the autosampler que, samples are taken as fast as the system can recycle until flow rates drop and allow the autosampler to catch up. This results in under sampling high flows and over sampling subsequent low flows.

In the laboratory, key elements of the QA/QC program will include method blanks, laboratory duplicates, matrix spike/spike duplicates and analysis of a Standard Reference Material (SRM) or Laboratory Control Sample (LCS) (Table 5-3). The results of these analyses will be compared against data quality objectives (DQOs) established for this program (Table 5-4). Data will be validated against these DQOs and qualified, if necessary, using USEPA Functional Guidelines for Inorganic Data Review[20] and Guidance on the Documentation and Evaluation of Trace Metals Data Collected for the Clean Water Act Compliance Monitoring[21].

All reports will provide a discussion of both the field and laboratory QA/QC measures and any impacts that these measures may have had on the use of the results for their intended purpose.

[20] USEPA. 2002. USEPA Functional Guidelines for Inorganic Data Review. EPA 540-R-01-008.
[21] USEPA. 1995. Guidance on the Documentation and Evaluation of Trace Metals Data Collected for Clean Water Act Compliance Monitoring. USEPA Office of Water. EPA821-B-95-002. April 1995.

Table 5-3 Laboratory Quality Control Samples by Analyte.

Analyte	Blanks	Duplicates	MS/MSDs	LCS	SRMs
Hardness	✓	✓	—	—	✓
TSS	—	✓	—	—	—
Metals	✓	✓	✓	✓	✓

Table 5-4 Laboratory Data Quality Objectives

Analyte	Project Detection Limit	Holding Times	Accuracy		Precision		Completeness
			Spike Recovery	SRM[2] Recovery	Matrix Spike RPDs	Laboratory Duplicate RPDs	
Conventionals							
Hardness	2 mg/L	6 months	—	80-120%	—	±20%	95%
TSS	1 mg/L	7 days	—	—	—	±20%	95%
Metals (Total and Dissolved)							
Cadmium	0.2 µg/L	6 months[3]	75-125%	80-120%	±25%	±20%	95%
Copper	0.5 µg/L	6 months[3]	75-125%	80-120%	±25%	±20%	95%
Lead	0.5 µg/L	6 months[3]	75-125%	80-120%	±25%	±20%	95%
Zinc	2 µg/L	6 months[3]	75-125%	80-120%	±25%	±20%	95%

1. Performed in field if possible
2. SRM recovery values based upon values provided with each specific SRM
3. Filter for dissolved metals within 48 hours

5.2.5 Data Analysis and Reporting

When Tier III investigations are being conducted, an annual report will be developed for the JG1 Agencies and upon request, submission to the Executive Officer. This report will include:

- Summaries of validated water quality results for wet and/or dry effectiveness monitoring
- Load calculations for target constituents within each monitored subwatershed
- If sampling extends beyond one year, annual reports will include comparisons with monitoring data from previous years
- Comparisons with the WLA derived numeric water quality limits.
- An assessment of all quality control/quality assurance measures and potential impacts on the compliance monitoring data.
- Recommendations for program modifications or enhancements based on the monitoring results.

6.0 Potential Structural BMP Implementation by Sub-watershed

As discussed in Chapter 3, the JG1 Agencies have concluded that source control is the most effective method to control metals impairments to the receiving waters. The most effective source control in the long-term will come from true source control measures that involve material substitution and product take-back. In the near-term, JG1 will focus on various operational source control measures, runoff reduction, and sediment control.

Implementation of these measures will vary by sub-watershed. Hence, the need for any structural controls will also vary by sub-watershed. The permittees will continually evaluate the current and expected effectiveness of source control measures and make decisions regarding the construction of structural control measures based on this evaluation and monitoring results. As noted below, many sub-watersheds have several opportunity sites for installation of structural BMPs. These will be addressed in accordance with the targeted sub-watershed phasing schedule presented in Chapter 7.

Each sub-watershed is described below along with recommended source control and structural BMP strategies.

6.1 Compton Creek East Branch Sub-watershed

Compton Creek East Branch is a 6,997 acre sub-watershed that drains to Compton Creek. The sub-watershed is located towards the northeast portion of the Compton Creek Watershed and contributes runoff from the Cities of Compton, Long Beach, Lynwood, and South Gate and California Department of Transportation (Caltrans) right-of-way. The predominant land use type found within this sub-watershed is High Density Single Family Residential. Additional land use types include Industrial, Commercial, Mixed Residential, Multi-Family Residential, Educational, Vacant/Open Space, Transportation, and Institutional. Soils underlying the sub-watershed are classified as Chino Silt Loam, Hanford Fine Sandy Loam, and Tujunga Fine Sandy Loam which are characterized as moderate to well draining.

County Bond Issue Project N. 6 serves the sub-watershed with major tributaries along Santa Fe Avenue and Bullis Road. Based on runoff data and the hydrologic analysis, the sub-watershed generates a dry weather runoff volume of approximately 1.25 acre-feet, and during wet weather will generate a runoff volume of approximately 367 acre-feet. To effectively reduce the metals pollutant load for the dry weather and wet weather in the 85th percentile storm event (0.9 inches over a 24 hour period), this runoff volume will need to be reduced through retrofitting and low impact development (LID) measures in the sub-watershed over time and treat using a combination of source control and structural BMP strategies.

Structural Strategies

Several opportunities (11 potential sites) have been identified within this sub-watershed for further investigation of suitability for structural BMPs including Vacant/Open Space parcels, Utility Corridors, and other areas for placing on-site BMPs. Each of these parcels could potentially be retrofitted to include a subsurface detention/retention type BMP.

For private land holdings, small scale BMP options that can be incorporated throughout the sub-watershed, with willing property owners, include:

- Placement of water quality catch basins upstream of the existing catch basins in public right-of-way;
- On-site storage and reuse where runoff can be used for irrigation and other non-potable uses;
- Cisterns adjacent to buildings with sizable rooftops; and
- Porous/pervious pavement in parking lots.

Two specific locations that are currently being evaluated for grant funding and implementation that will assist in meeting compliance with discharges from this subwatershed include Lueders Park and South Park in the City of Compton.

Lueders Park is located along the Bullis Drain storm system at the intersection of Rosecrans Avenue and Bullis Road. The drainage area tributary to Lueders Park is approximately 1,800 acres and generates approximately 0.32 acre-feet of daily dry-weather runoff. Lueders Park would be used as one of the sites for implementation of structural strategies to comply with the dry and wet weather runoff WLAs. The structural strategies at Lueders Park would include use of underground detention, retention, infiltration, and use of stormwater for irrigation purposes. The underground retention capacity proposed at the proposed site is approximately 20 acre-feet.

South Park is located on the east side along East Compton Creek Branch between Greenleaf Boulevard and Alondra Boulevard. The drainage area tributary to South Park is approximately 6,400 acres and generates approximately 1.14 acre-feet of daily dry-weather runoff. The runoff draining to South Park includes the drainage area tributary to Lueders Park and therefore the dry-weather runoff at the proposed project site is 0.82 acre-feet. The structural strategies used at South Park would be similar to those used at Lueders Park. The underground retention capacity proposed at South Park would be approximately 20 acre-feet.

The two projects will have a combined capacity to retain 40 acre-feet of runoff from the Compton Creek East Branch sub-watershed. Once implemented, the projects would provide compliance with the Metals' numeric targets for the JG1 watershed as follows:

TABLE 6-1	Effective area within East Compton Creek subwatershed (%)	Effective area within JG1 watershed (%)
Dry-Weather	100	39.3
Wet-Weather	10.9	5.4

6.2 Compton Creek Miscellaneous Northeast Sub-watershed

Compton Creek Miscellaneous Northeast Sub-watershed is a 1,519 acre sub-watershed that drains to Compton Creek. The sub-watershed is located on the east side of Compton Creek and contributes runoff from the City of Compton. The dominant land use type found within this sub-watershed is High Density Single Family Residential and Mixed Residential. Additional land use types include Educational, Commercial, Institutional, Multi-Family Residential, Industrial, Vacant/Open Space, and associated Transportation. Soils underlying the sub-watershed are classified as Chino Silt Loam and Hanford Fine Sandy Loam which are characterized as moderate to well draining.

Based on the hydrologic analysis, the sub-watershed will generate approximately 71 acre-feet of runoff. To effectively reduce the metals pollutant load in the 85th percentile storm event (0.86 inches over a 24 hour period), this runoff volume will need to be treated using a combination of source control and structural BMP strategies

Structural Strategies

Some opportunities (6 potential sites) were identified within this sub-watershed. In some locations storm drain inverts were identified as being over ten feet below grade.
Additional runoff treatment strategies may be required at the source and could include the following small scale BMPs on private property by cooperating landowners:

- Water quality catch basins located upstream of existing catch basins in public right-of-way;
- On-site storage and reuse at residential parcels;
- Construction of green street medians to remove particulate associated with the roadways;
- Rain barrels for storing roof runoff and disconnecting impervious areas; and
- Cisterns adjacent to buildings with sizable rooftops.

6.3 Compton Creek Miscellaneous Northwest Sub-watershed

Compton Creek Miscellaneous Northwest Sub-watershed is a 1,652 acre sub-watershed that drains to Compton Creek. The sub-watershed is located along the western boundary of the Compton Creek Watershed and contributes runoff from the Cities of Carson and Compton. The dominant land use type found within this area is High Density Single Family Residential. Additional land use types include Industrial, Educational, Commercial, Multi-Family Residential, Vacant/Open Space, Institutional, Mixed Residential, Utility Corridor, and associated Transportation. Soils underlying the sub-watershed are classified as Chino Silt Loam, Montezuma Clay Adobe, and Ramona Loam which are characterized as moderate to well draining.

Based on the hydrologic analysis, the sub-watershed will generate approximately 65 acre-feet of runoff. To effectively reduce the metals pollutant load in the 85th percentile storm event (0.86 inches over a 24 hour period), this runoff volume will need to be treated using a combination of source control and structural BMP strategies.

Structural Strategies

A few opportunities (4 potential sites) have been identified as potential candidates for structural BMPs within this sub-watershed including several Vacant/Open Space parcels, Utility Corridor, and other areas for placing on-site BMPs

Additional runoff treatment strategies may be required at the source and could include the following small scale BMPs on private property by cooperating landowners:

- Use available vacant parcels for multiuse projects using surface or subsurface wetlands;
- Water quality catch basins located upstream of existing catch basins in public right-of-way;
- On-site storage and reuse at residential locations similar to the Tree People's Hall House Demonstration Project in the City of Los Angeles;
- Construction of green street medians to remove particulate associated with the roadways; and
- Rain barrels for storing roof runoff and disconnecting impervious areas.

6.4 Compton Creek Pump Plant Sub-watershed

The Compton Creek Pump Plant Sub-watershed is approximately 121 acres and drains to Compton Creek via a pump station operated by the Los Angeles County Flood Control District. The sub-watershed is located along the southeastern edge of the Compton Creek Watershed and contributes runoff from the City of Long Beach. Land use within the sub-watershed is primarily High Density Single Family Residential with an associated Transportation Corridor. Soils underlying the sub-watershed are classified as Chino Silt Loam, Hanford Fine Sandy Loam, and Tujunga Fine Sandy Loam which are characterized as moderate to well draining.

Based on the hydrologic analysis, the sub-watershed will generate approximately 4 acre-feet of runoff. To effectively reduce the metals pollutant load in the 85th percentile storm event (0.81 inches over a 24 hour period), this runoff volume will need to be treated using a combination of source control and structural BMP strategies.

Structural Strategies

There are no public open space/vacant opportunity sites and limited opportunities in the public right-of-way of this sub-watershed. Within this sub-watershed structural BMP strategies will need to be utilized on private property by cooperating landowners. A combination of structural strategies for this sub-watershed include:

- Construction of green street medians to remove particulate associated with the roadways;
- Retrofit streets center median with concave median to reduce and infiltrate runoff;
- On-site storage and reuse where runoff can be used for irrigation and other non-potable uses;
- Placement of water quality catch basins upstream of the existing catch basins in public right-of-way; and
- Rain barrels for storing roof runoff and disconnecting impervious areas.

6.5 MTD 448/287 Sub-watershed

Miscellaneous Transfer Drain (MTD) 448/287 Sub-watershed is a 992 acre sub-watershed that drains along State Route 91 (Artesia Freeway) to Compton Creek. The sub-watershed is located in the southwest portion of the Compton Creek Watershed and contributes runoff from the Cities of Carson and Compton, and Caltrans right-of-way. Land use within this sub-watershed is primarily industrial. Additional land use types include Transportation and Educational. Soils underlying the sub-watershed are classified as Chino Silt Loam, Montezuma Clay Adobe, Ramona Clay Loam, and Ramona Loam which are characterized as poor to well draining.

Based on the hydrologic analysis, the sub-watershed will generate approximately 64 acre-feet of runoff. To effectively reduce the metals pollutant load in the 85th percentile storm event (0.82 inches over a 24 hour period), this runoff volume will need to be treated using a combination of source control and structural BMP strategies.

Structural Strategies

There are no public open space/vacant opportunity sites and limited opportunities in the public right-of-way of this sub-watershed. Within this sub-watershed structural BMP strategies will need to be utilized on private property by cooperating landowners. For private land holdings, small scale BMP options that can be incorporated throughout the sub-watershed, with willing property owners, include:

- Two undeveloped parcels located west of the Artesia Freeway and Alameda Street intersection. These areas have a combined surface detention/retention capacity of 10 acre-feet;
- Sub-surface infiltration basins located underneath parking lots, where soils are well draining;
- Construction of green street medians to remove particulate associated with the roadways;
- Retrofit streets center median with concave median to reduce and infiltrate runoff;
- On-site storage and reuse where runoff can be used for irrigation and other non-potable uses; and
- Porous/pervious pavement in parking lots.

6.6 *Del Amo Triangle Sub-watershed*

Del Amo Triangle is a 37 acre sub-watershed that also drains to Compton Creek. The sub-watershed is wedged between Interstate 710 (Long Beach Freeway) to the east, Metrorail Blue Line to the west, and Del Amo Boulevard to the north. Runoff generated in this sub-watershed is primarily from the City of Carson, with minor amounts from Caltrans right-of-way and the City of Long Beach. Land use within this sub-watershed is primarily industrial with an associated Transportation Corridor. Soils underlying the sub-watershed are classified as Tujunga Fine Sandy Loam which is characterized as well draining.

Based on the hydrologic analysis, the sub-watershed will generate approximately 1 acre-feet of runoff. To effectively reduce the metals pollutant load in the 85th percentile storm event (0.8 inches over a 24 hour period), this runoff volume will need to be treated using a combination of source control and structural BMP strategies.

Structural Strategies

There are no public open space/vacant opportunity sites and limited opportunities in the public right-of-way of this sub-watershed. Within this sub-watershed structural BMP strategies will need to be utilized on private property by cooperating landowners. For private land holdings, small scale BMP options that can be incorporated throughout the sub-watershed, with willing property owners, include:

- On-site surface infiltration areas to reduce any flows discharged to Compton Creek; and
- Placement of water quality catch basins upstream of the existing catch basins in the public right-of-way.

6.7 *Dominguez Gap Sub-watershed*

Dominguez Gap Sub-watershed is a 2,365 acre sub-watershed that drains to the Los Angeles River. The sub-watershed is primarily located south of Market Street and east of the Los Angeles River. The area drains directly to the Los Angeles River and contributes runoff from the Cities of Lakewood and Long

Beach, and Caltrans right-of-way. The dominant land use types found within this sub-watershed are High Density Single Family Residential and Vacant/Open Space. Additional land use types include Multi-Family Residential, Commercial, Educational, Institutional, Industrial, and associated Transportation. Soils underlying the sub-watershed are classified as Chino Silt Loam, Hanford Fine Sandy Loam, Ramona Loam and Tujunga Fine Sandy Loam which are characterized as moderate to well draining.

Based on the hydrologic analysis, the sub-watershed could generate approximately 71 acre-feet of runoff that could require treatment. This sub-watershed drains to the Dominguez Gap Wetlands which was constructed in 2008 by the Los Angeles County Flood Control District. The wetlands are designed to treat for various pollutants including trash, nutrients, and metals. These wetlands provide sufficient capacity to store and treat stormwater runoff generated from this sub-watershed before any of these flows are pumped out to the Los Angeles River. The bottom of these wetlands are 1.5 feet above mean sea level (AMSL), and the main pumps do not start operating until the water elevation reaches 11 feet AMSL, which then draws the water down to 10 feet AMSL.

Structural Strategies

The Dominguez Gap Wetlands provides the necessary treatment for this area and therefore no additional structural strategies are needed for this sub-watershed.

6.8 Caltrans and Miscellaneous Northeast Sub-watershed

Caltrans and Miscellaneous Northeast Sub-watershed are 145 acres that drains to the Los Angeles River. The sub-watershed is located along Interstate 405 (San Diego Freeway), east of the Los Angeles River. Runoff generated in this sub-watershed is from the City of Long Beach and Caltrans right-of-way. Land use within this sub-watershed is primarily Vacant/Open Space and Transportation, with additional land use types that include Industrial and Multi-Family Residential. Soils underlying the sub-watershed are classified as Ramona Loam and Tujunga Fine Sandy Loam which are characterized as well draining.

Based on the hydrologic analysis, the sub-watershed will generate approximately 3 acre-feet of runoff. To effectively reduce the metals pollutant load in the 85th percentile storm event 0.65 inches over a 24 hour period), this runoff volume will need to be treated using a combination of source control and structural BMP strategies.

Structural Strategies

A few opportunities (2 potential sites) have been preliminarily identified within this sub-watershed including Vacant/Open Space parcels, Transportation Corridors, and other areas for placing on-site BMPs. Each of these parcels could potentially be retrofitted to include a subsurface detention/retention type BMP.

Additional structural BMP strategies will need to be utilized on private property by cooperating landowners. For private land holdings, small scale BMP options that can be incorporated throughout the sub-watershed, with willing property owners, include:

- Sub-surface infiltration basins located underneath parking lots;
- Construction of green street medians to remove particulate associated with the roadways;
- Retrofit streets center median with concave median to reduce and infiltrate runoff;
- On-site storage and reuse where runoff can be used for irrigation and other non-potable uses; and
- Porous/pervious pavement in parking lots.

6.9 Caltrans and Miscellaneous Northwest Sub-watershed

Caltrans and Miscellaneous Northeast Sub-watershed is 335 acres that drains to the Los Angeles River. The sub-watershed is located north of the San Diego Freeway and along Long Beach Freeway, west of the Los Angeles River. Runoff generated in this sub-watershed is from the City of Long Beach and Caltrans right-of-way. Land use within this sub-watershed is primarily Industrial and Transportation. Additional land use types include Commercial, Institutional and Vacant/Open Space. Soils underlying the sub-watershed are classified as Tujunga Fine Sandy Loam which is characterized as well draining.

Based on the hydrologic analysis, the sub-watershed will generate approximately 17 acre-feet of runoff. To effectively reduce the metals pollutant load in the 85th percentile storm event (0.65 inches over a 24 hour period), this runoff volume will need to be treated using a combination of source control and structural BMP strategies.

Structural Strategies

A portion of the area drains into the Dominguez Gap West Basin, a Los Angeles County Flood Control District spreading ground facility to recharge the local groundwater basin. The Dominguez Gap West Basin does not discharge to the Los Angeles River and runoff captured by the basin percolates to the local groundwater basin. Additional BMPs recommended for this sub-watershed include the use of green areas within the Caltrans On/Off Ramp areas.

Additional structural BMP strategies that can be utilized on private property by cooperating landowners include:

- Sub-surface infiltration basins located underneath parking lots;
- On-site storage and reuse where runoff can be used for irrigation and other non-potable uses; and
- Porous/pervious pavement in parking lots.

6.10 Long Beach Basin 13 Sub-watershed

Long Beach Basin 13 Sub-watershed is 93 acre sub-watershed that drains to a City of Long Beach Pump Station along the Los Angeles River. The sub-watershed is located between the Union Pacific Railroad (UPRR) to the west, Long Beach Freeway to the east and Carson Street to the south. Runoff generated in this sub-watershed is primarily from the City of Long Beach and Caltrans right-of-way. Land use within this sub-watershed is Industrial, Transportation and Vacant/Open Space. Soils underlying the sub-watershed are classified as Hanford Fine Sandy Loam and Tujunga Fine Sandy Loam which are characterized as moderate to well draining.

Based on the hydrologic analysis, the sub-watershed will generate approximately 3 acre-feet of runoff. This sub-watershed drains to a pump station operated by the City of Long Beach. The forebay of the pump station has a capacity of over 25 acre-feet. Existing pumps do not start operations for the treatment flow rates and these flows are allowed to percolate to the groundwater and/or evaporate.

Structural Strategies

The required treatment flows are not discharged to the Los Angeles River; therefore, no additional structural BMPs are required for this sub-watershed.

6.11 Long Beach Basin 9 Sub-watershed

Long Beach Basin 9 Sub-watershed is a 438 acre sub-watershed tributary to Bond Issue Project No. 5103 that drains into the Los Angeles River. The sub-watershed is located in the southeast portion of the Los Angeles River Watershed and contributes runoff from the Cities of Long Beach and Signal Hill, and Caltrans right-of-way. Land use within this sub-watershed is primarily High Density Single Family Residential. Additional land use types include Commercial, Multi-Family Residential, Transportation and Institutional. Soils underlying the sub-watershed are classified as Ramona Loam, Ramona Sandy Loam, and Tujunga Fine Sandy Loam which are characterized as well draining.

Based on the hydrologic analysis, the sub-watershed will generate approximately 17 acre-feet of runoff. To effectively reduce the metals pollutant load in the 85th percentile storm event (0.6 inches over a 24 hour period), this runoff volume will need to be treated using a combination of source control and structural BMP strategies.

Structural Strategies

A few opportunities (2 potential sites) have been preliminarily identified within this sub-watershed for potential public open space/vacant sites. Structural BMPs will need to focus on opportunities sites within the public right-of-way.

Additional structural BMP strategies will need to be utilized on private property by cooperating landowners. For private land holdings, small scale BMP options that can be incorporated throughout the sub-watershed, with willing property owners, include:

- Construction of green street medians to remove particulate associated with the roadways;
- Retrofit streets center median with concave median to reduce and infiltrate runoff;
- On-site storage and reuse where runoff can be used for irrigation and other non-potable uses;
- Placement of water quality catch basins upstream of the existing catch basins in public right-of-way; and
- Rain barrels for storing roof runoff and disconnecting impervious areas.

6.12 Long Beach Basin 6 Sub-watershed

Long Beach Basin 6 Sub-watershed is a 695 acre sub-watershed that drains through a City of Long Beach Pump Station into the Los Angeles River. The sub-watershed is located on the southeast edge of the Los Angeles River JG1Watershed and contributes runoff from the Cities of Long Beach and Signal Hill. Land use within this sub-watershed is primarily High Density Single Family Residential. Additional land use types include Commercial, Vacant/Open Space, Multi-Family Residential, Transportation, Educational and Institutional. Soils underlying the sub-watershed are classified as Ramona Sandy Loam, and Tujunga Fine Sandy Loam which are characterized as well draining.

Based on the hydrologic analysis, the sub-watershed will generate approximately 23 acre-feet of runoff. To effectively reduce the metals pollutant load in the 85th percentile storm event (0.6 inches over a 24 hour period), this runoff volume will need to be treated using a combination of source control and structural BMP strategies.

Structural Strategies

An opportunity (1 potential site) has been located in this sub-watershed. The potential public open space/vacant site is suitable for further investigation Structural BMPs will need to focus on opportunities within the public right-of-way.
Additional structural BMP strategies will need to be utilized on private property by cooperating landowners. For private land holdings, small scale BMP options that can be incorporated throughout the sub-watershed, with willing property owners, include:

- Subsurface infiltration at large commercial properties like the one located at Willow Street and Long Beach Boulevard.
- Construction of green street medians to remove particulate associated with the roadways;
- Retrofit streets center median with concave median to reduce and infiltrate runoff;
- On-site storage and reuse where runoff can be used for irrigation and other non-potable uses;
- Placement of water quality catch basins upstream of the existing catch basins in public right-of-way; and
- Rain barrels for storing roof runoff and disconnecting impervious areas.

6.13 Long Beach Basin 12 Sub-watershed

Long Beach Basin 12 Sub-watershed is a 868 acre sub-watershed that drains through a City of Long Beach Pump Station into the Los Angeles River. The sub-watershed is located on the southwest edge of the Los Angeles River JG1Watershed and contributes runoff from the City of Long Beach and Caltrans right-of-way. Land use within this sub-watershed is also primarily High Density Single Family Residential. Additional land use types include Mixed Residential, Multi-Family Residential, Transportation, Commercial, Educational, Vacant/Open Space, Industrial and Institutional. Soils underlying the sub-watershed are classified as Hanford Fine Sandy Loam, and Tujunga Fine Sandy Loam which are characterized as moderate to well draining.

Based on the hydrologic analysis, the sub-watershed will generate approximately 31 acre-feet of runoff. To effectively reduce the metals pollutant load in the 85th percentile storm event (0.65 inches over a 24 hour period), this runoff volume will need to be treated using a combination of source control and structural BMP strategies.

Structural Strategies

Public open space/vacant opportunity sites at appropriate locations are also limited within this sub-watershed. Three locations have been preliminarily identified for further investigation of suitability. Structural BMPs will need to focus on opportunities sites within the public right-of-way.

Additional structural BMP strategies will need to be utilized on private property by cooperating landowners. For private land holdings, small scale BMP options that can be incorporated throughout the sub-watershed, with willing property owners, include:

- Construction of green street medians to remove particulate associated with the roadways;
- Retrofit streets center median with concave median to reduce and infiltrate runoff;
- On-site storage and reuse where runoff can be used for irrigation and other non-potable uses;
- Placement of water quality catch basins upstream of the existing catch basins in public right-of-way; and
- Rain barrels for storing roof runoff and disconnecting impervious areas.

7.0 Implementation Schedule

The JG1 Agencies have already taken actions toward implementation of this plan. They have begun laying the groundwork for the use of true source control as the principal tool for meeting long-term waste load allocations. The focus of this effort has related to the work of the Brake Pad Partnership in understanding the role of brake pad dust as a major contributor to copper impairments in California's waterways and support for SB 346, the Brake Pad Partnership bill designed to reduce and ultimately remove most copper from brake pads sold in California. Caltrans, a participating agency in JG1, contributed $200,000 over a two-year period to help the Brake Pad Partnership complete the modeling necessary to accurately estimate the role of brake pad dust in copper impairments in the San Francisco Bay Region. This work was necessary to demonstrate to brake friction materials manufacturers and others that copper in brake pads constitutes the single greatest contributor of copper in urban watersheds. Several of the cities in JG1 then contributed financially to the effort to get SB 346 adopted as law in California. These cities also provided political support through letter writing and contacting members of the legislature as well as significant staff support to encourage its passage.

Agencies in the Jurisdictional Group also have started to explore extended producer responsibility (EPR) as a true source control tool and learn more about the activities of the California Product Stewardship Council (CPSC) to promote EPR and reduce pollutants at the source through take back requirements and product substitution. Agency staffs are beginning to generate community support for the CPSC and EPR. Support for true source control will continue and expand throughout implementation of this plan.

As the Regional Water Board noted in a June 14, 2010 letter to the JG1 Agencies, the CMP results suggest deferral of quantifying the expected metals reduction. In addition, the CMP results from 2009-2010 finding no dry weather exceedances of water quality targets, the JG1 agencies are focusing initial implementation efforts on wet-weather best management practices.

The JG1 Agencies has also been working with County staff to analyze and improve the operation of the Dominguez Gap Wetland to ensure that it operates to effectively treat wet-weather discharges, as well as dry-weather discharges, from the sub-watershed discharging to the wetlands. The wetlands provide sufficient capacity to store and treat stormwater from this sub-watershed before any of the flows are pumped out to Reach 1 of the Los Angeles River. The objective of the operations review is to develop a procedure that will include closing the intake from the River in sufficient time before a forecast rain event to ensure that there is capacity in the wetlands for stormwater discharges from the sub-watershed. This will ensure that the main pumps do not start operating until the stormwater has been sufficiently treated to reduce sediment and metals from the discharge. The JG1 Agencies began work early to improve the operations of the wetlands because the sub-watershed discharging to the wetlands constitutes almost 15% of the Jurisdictional Group's total drainage area served by the storm drain system.

With respect to implementation of operational source controls, runoff reduction, and sediment control, the JG1 agencies have focused initially on the two major drainages of the Compton Creek East Branch Sub-watershed. The drainage area the County Bond Issue No. 6 drain along Bullis Road (Bullis Drain) includes 2,857 acres, or 17.6% of the Jurisdictional Group's total drainage area served by the storm drain system. The drainage area of the County Bond Issue No. 6 drain along Santa Fe Avenue (Santa Fe Drain) covers 4,140 acres, not including the drainage area of the Bullis Drain, which is tributary to the Santa Fe Drain. The Technical Advisory Committee has concluded that, given the short time before the 2012 milestone date and the financial difficulties currently facing the JG1 agencies, it is unlikely that major additional structural treatment controls can be completed in time to demonstrate that 25% of the group's total drainage area served by the storm drain system is effectively meeting wet-weather WLAs. Therefore, it has focused on a combination of enhanced operational source controls, runoff reduction, and sediment control within the drainage area of the Bullis Drain and the existing structural treatment controls serving the Dominguez Gap Sub-watershed and the Long Beach Basin 13 Sub-watershed to demonstrate that 25% of the group's total drainage area served by the storm drain system are properly to be deemed in compliance with the assumptions and requirements of the wet-weather WLAs by January 11, 2012.

In addition, the jurisdictions within JG1 will develop and implement an enhanced commercial/industrial outreach program to automotive repair shops, facilities with large parking lots, and industries having a high probability of generating cadmium, copper, lead, or zinc.

Tables 7-1 though 7-4 show the order in which the responsible jurisdictions within the JG1 propose to emphasize the sub-watersheds described in Chapter 6. Implementation will be a continuous iterative process and the schedule is subject to modification.

Summary descriptions of how the implementation tasks (True Source Control, Runoff Reduction, Operational Source Controls, Sediment Controls, and Treatment Controls) will be implemented in the targeted watershed are provided in Tables 7-5 through 7-7. Separate tables are provided for dry weather and wet weather for Phases IA, IB, II, and III. As noted in Table 7-4, Phase IV is reserved for components not able to be completed earlier.

The emphasis given to each task will vary among the sub-watersheds and through the implementation process for each sub-watershed. Initially, the JG1 jurisdictions will focus on putting long-term true source control measures, such as SB 346, in place, and implementing a range of measures that would allow 25% of JG1 to be deemed to be in compliance with the assumptions and requirements of the wet-weather WLAs by January of 2012. The strategy in the short-term is to focus on operational source controls and sediment controls, as well as existing structural treatment controls, and to allow time for true source control and runoff reduction work in the long-term. The initial focus is on wet-weather compliance; analysis of previous monitoring data indicated that JG1 has already reached a point of compliance with the initial dry-weather WLAs and 2009-2010 monitoring showed all dry-weather samples taken met water quality standards.

Since current modeling procedures are not designed to accurately model either true source control or operational source controls, modeling of expected wet-weather load reductions during Phase I will be limited to the reductions resulting from the existing treatment controls for the Dominguez Gap Sub-watershed and the Long Beach 13 Sub-watershed.

The JG1 Agencies propose to work with Regional Water Board staff to develop lists of both structural and non-structural BMPs that, if implemented efficiently and in a timely manner within a sub-watershed or drainage area would result in the sub-watershed of the drainage area being deemed in compliance with the WLAs.

For structural BMPs, the concept is that sub-watersheds tributary to two types of structural BMPs are to be deemed in compliance with the assumptions and requirements of the WLAs. The first such category is one designed with sufficient capacity to capture runoff from the 85th percentile storm event and remove metals before releasing the treated water to the storm drain or receiving water. The second category is a structural BMP designed to capture and infiltrate or capture and use runoff from the 85th percentile storm. In both cases, the BMPs would require appropriate operation and maintenance in order for the tributary area of the BMP to be deemed in compliance with the assumptions and requirements of the WLAs.

For non-structural BMPs, the concept is that sub-watersheds or portions of sub-watersheds served by an approved enhanced street sweeping program designed and implemented to effectively remove particulate metals from streets and public parking lots as described in Section 3.3 of this implementation plan (possibly supplemented by other non-structural measures) would be deemed in compliance with the assumptions and requirements of the WLAs for those areas served by the program. In addition, in the future, other BMPs may be proposed for consideration by the Regional Board Executive Officer to be performance based compliant BMPs.

Targeted Sub-watersheds by Implementation Phase*

Based upon the 2009-2010 CMP results, the JG1 Agencies have already effectively reached the dry-weather numeric targets. This schedule is to show performance based compliance with the wet-weather targets.

TABLE 7-1(a) Phase 1A: 2010-2012

Priority Implementation Targets	Acreage	% of JG1 Area
Compton Creek East Brach, Bullis Drain	2,857	17.6%
Dominguez Gap	2,365	14.5%
Long Beach Basin 13	93	0.6%
Subtotal Phase 1A:	**5,315**	**32.7%**

TABLE 7-1(b) Phase 1B: 2010-2015

Priority Implementation Targets	Acreage	% of JG1 Area
Compton Creek, East Branch, Santa Fe Drain	4,140	25.5%
Long Beach Basin 6	695	4.3%
Long Beach Basin 9	438	2.7%
Subtotal Phase 1B:	**5,273**	**31.8%**

*Implementation will be an iterative process and schedules are subject to modification.

TABLE 7-2 Phase II: 2015-2020

Priority Implementation Targets[22]	Acreage	% of JG1 Area
Caltrans & Miscellaneous Areas E	145	0.9%
Caltrans & Miscellaneous Areas W	335	2.1%
Compton Creek North Miscellaneous	1,519	9.3%
Long Beach Basin 12	868	5.3%
Subtotal Phase II:	**2,867**	**17.6%**

[22] Subject to review after TMDL reopener

TABLE 7-3 Phase III: 2020-2024

Priority Implementation Targets[23]	Acreage	% of JG1 Area
Compton Creek Del Amo Triangle	37	0.2%
Compton Creek Pump Plant	121	0.7%
Compton Creek West Misc.	1,652	10.2%
Miscellaneous Transfer Drain 448/287	992	6.1%
Subtotal Phase III:	**2,798**	**17.2%**

[23] To be determined after TMDL reopener and will include components not able to be completed earlier

TABLE 7-4 Phase IV: 2024-2028

Priority Implementation Targets[24]	Acreage	% of JG1 Area
TBD	TBD	TBD

[24] To be determined after TMDL reopener and will include components not able to be completed earlier

Table 7-5(a)

Phase 1A
(2010 – 2012)
Dry Weather Measures

Target Subwatershed	Acreage	True Source Control BMPs	Runoff Reduction	Operational Source Ctrl BMPs	Sediment Control	Treatment Ctrl BMPs
Compton Creek East Branch, Bullis Drain	2,857 ac (17.6% of JG1 area)	Lead reduction through implementation of SB 757	Reduction of landscape irrigation runoff through implementation of AB 1881 Seek grant for construction of low flow capture and infiltration/reuse structural BMPs	Outreach to priority industries identified as having high probability of generating metals, trucking companies, facilities with large parking lots, and automotive repair facilities to encourage implementation of cover and containment BMPs	- Enhanced street sweeping with vacuum and regenerative sweepers - Soil binder on exposed soils - Installation, operation and maintenance of connector pipe screens in catch basins	Installation of water capture, infiltration and/or reuse structural BMPs, if feasible and grant funding available

Dominguez Gap Subwatershed	2,365 ac (14.6% of JG1 area)	Lead reduction through implementation of SB 757	Reduction of landscape irrigation runoff through implementation of AB 1881	Infiltration, biofiltration, and sedimentation through operation of Dominguez Wetlands	- Sedimentation through operation of Dominguez Wetlands - Installation, operation and maintenance of connector pipe screens in catch basins	Infiltration, biofiltration and sedimentation through operation of Dominguez Wetlands
Long Beach Basin 13 Subwatershed	93 ac (0.6% of JG1 area)	Lead reduction through implementation of SB 757	Reduction of landscape irrigation runoff through implementation of AB 1881	Evaporation and infiltration through operation of pump station forebay	- Sedimentation through operation of pump station forebay - Installation, operation and maintenance of connector pipe screens in catch basins	Evaporation and infiltration through operation of pump station forebay

Table 7-5(a) cont'

Phase 1A
(2010 – 2012)

Wet Weather Measures

Target Subwatershed	Acreage	True Source Control BMPs	Runoff Reduction	Operational Source Ctrl BMPs	Sediment Control	Treatment Ctrl BMPs
Compton Creek East Branch, Bullis Drain	2,857 ac (17.6% of JG1 area)	Lead reduction through implementation of SB 757	Seek grant for construction of partial flow capture and infiltration/reuse structural BMPs Promote use of porous pavement and distributed capture and infiltration structural BMPs	Outreach to priority industries identified as having high probability of generating cadmium, copper, lead, or zinc, trucking companies, facilities with large parking lots, and automotive repair facilities to encourage implementation of cover and containment BMPs	- Enhanced street sweeping with vacuum and regenerative sweepers - Soil binder on exposed soils - Installation, operation and maintenance of connector pipe screens in catch basins	Installation of water capture, infiltration, and/or reuse structural BMPs, if feasible and grant funding available
Dominguez Gap Subwatershed	2,365 ac (14.6% of JG1	Lead reduction through implementation of	NA	Infiltration, biofiltration, and sedimentation through operation of	- Sedimentation through operation of Dominguez Wetlands	Infiltration, biofiltration and sedimentation through

	area)	SB 757		Dominguez Wetlands	- Installation, operation and maintenance of connector pipe screens in catch basins	operation of Dominguez Wetlands
Long Beach Basin 13 Subwatershed	93 ac (0.6% of JG1 area)	Lead reduction through implementation of SB 757	NA	Evaporation and infiltration through operation of pump station forebay	- Sedimentation through operation of pump station forebay - Installation, operation and maintenance of connector pipe screens in catch basins	Evaporation and infiltration through operation of pump station forebay

Table 7-5(b) cont'

Phase 1B
(2010 – 2015)
Dry Weather Measures

Target Subwatershed	Acreage	True Source Control BMPs	Runoff Reduction	Operational Source Ctrl BMPs	Sediment Control	Treatment Ctrl BMPs
Compton Creek East Branch, Santa Fe Drain	4,140 ac (25% of JG1)	Lead reduction through implementation of SB 757	Reduction of landscape irrigation runoff through implementation of AB 1881 Seek grant for construction of low flow capture and infiltration/reuse structural BMPs	Outreach to priority industries identified as having high probability of generating cadmium, copper, lead, or zinc, trucking companies, facilities with large parking lots, and automotive repair facilities to encourage implementation of cover and containment BMPs	- Enhanced street sweeping with vacuum and regenerative sweepers - Soil binder on exposed soils - Installation, operation and maintenance of connector pipe screens in catch basins	Installation of water capture, infiltration and/or reuse structural BMPs, if feasible and grant funding available
Long Beach Basin 6 Subwatershed	695 ac (4% of JG1)	Lead reduction through implementation of SB 757	Reduction of landscape irrigation runoff through	Outreach to priority industries identified as having high probability of	- Enhanced street sweeping with vacuum and regenerative	Installation of water capture, infiltration and/or reuse structural

			implementation of AB 1881	generating cadmium, copper, lead, or zinc, trucking companies, facilities with large parking lots, and automotive repair facilities to encourage implementation of cover and containment BMPs	sweepers - Soil binder on exposed soils - Installation, operation and maintenance of connector pipe screens in catch basins	BMPs, if feasible and grant funding available

Long Beach Basin 9 Subwatershed	438 ac (3% of JG1)	Lead reduction through implementation of SB 757	Reduction of landscape irrigation runoff through implementation of AB 1881	Outreach to priority industries identified as having high probability of generating cadmium, copper, lead, or zinc, trucking companies, facilities with large parking lots, and automotive repair facilities to encourage implementation of cover and containment BMPs	- Enhanced street sweeping with vacuum and regenerative sweepers - Soil binder on exposed soils - Installation, operation and maintenance of connector pipe screens in catch basins	Installation of water capture, infiltration and/or reuse structural BMPs, if feasible and grant funding available

Table 7-5(b) cont'

Phase 1B
(2010 – 2015)
Wet Weather Measures

Target Subwatershed	Acreage	True Source Control BMPs	Runoff Reduction	Operational Source Ctrl BMPs	Sediment Control	Treatment Ctrl BMPs
Compton Creek East Branch, Santa Fe Drain	4,140 ac (25% of JG1)	Lead reduction through implementation of SB 757	Seek grant for construction of low flow capture and infiltration/reuse structural BMPs Promote use of porous pavement and distributed capture and infiltration structural BMPs	Outreach to priority industries identified as having high probability of generating cadmium, copper, lead, or zinc, trucking companies, facilities with large parking lots, and automotive repair facilities to encourage implementation of cover and containment BMPs	- Enhanced street sweeping with vacuum and regenerative sweepers - Soil binder on exposed soils - Installation, operation and maintenance of connector pipe screens in catch basins	Installation of water capture, infiltration and/or reuse structural BMPs, if feasible and grant funding available
Long Beach Basin 6 Subwatershed	695 ac (4% of JG1)	Lead reduction through implementation of SB 757	Seek grant for construction of low flow capture and infiltration/reuse structural BMPs	Outreach to priority industries identified as having high probability of generating cadmium, copper, lead, or zinc, trucking companies, facilities with large	- Enhanced street sweeping with vacuum and regenerative sweepers - Soil binder on exposed soils - Installation, operation and	Installation of water capture, infiltration and/or reuse structural BMPs, if feasible and grant funding available

			Promote use of porous pavement and distributed capture and infiltration structural BMPs	parking lots, and automotive repair facilities to encourage implementation of cover and containment BMPs	maintenance of connector pipe screens in catch basins	
Long Beach Basin 9 Subwatershed	438 ac (3% of JG1)	Lead reduction through implementation of SB 757	Seek grant for construction of low flow capture and infiltration/reuse structural BMPs Promote use of porous pavement and distributed capture and infiltration structural BMPs	Outreach to priority industries identified as having high probability of generating cadmium, copper, lead, or zinc, trucking companies, facilities with large parking lots, and automotive repair facilities to encourage implementation of cover and containment BMPs	- Enhanced street sweeping with vacuum and regenerative sweepers - Soil binder on exposed soils - Installation, operation and maintenance of connector pipe screens in catch basins	Installation of water capture, infiltration and/or reuse structural BMPs, if feasible and grant funding available

Table 7-6

Phase 2
(2015 – 2020)
Dry Weather Measures

Target Subwatershed	Acreage	True Source Control BMPs	Runoff Reduction	Operational Source Ctrl BMPs	Sediment Control	Treatment Ctrl BMPs
Caltrans & Miscellaneous Areas E Subwatershed	145 ac (0.9% of JG1)	Copper reduction through implementation of SB 346 Lead reduction through implementation of SB 757	Reduction of landscape irrigation runoff through implementation of AB 1881 Coordinate with Caltrans District 7 on the development of low flow capture and infiltration/reuse structural BMPs	Outreach to priority industries identified as having high probability of generating cadmium, copper, lead, or zinc, trucking companies, facilities with large parking lots, and automotive repair facilities to encourage implementation of cover and containment BMPs	- Enhanced street sweeping with vacuum and regenerative sweepers - Soil binder on exposed soils - Operation and maintenance of connector pipe screens in catch basins	Installation of water capture, infiltration and/or reuse structural BMPs, if feasible and funding available
Caltrans & Miscellaneous Areas W Subwatershed	335 ac (2.1% of JG1)	Copper reduction through implementation of SB 346 Lead reduction through	Reduction of landscape irrigation runoff through implementation of AB 1881 Coordinate with	Outreach to priority industries identified as having high probability of generating cadmium, copper, lead, or zinc, trucking companies, facilities with large parking lots, and	- Enhanced street sweeping with vacuum and regenerative sweepers - Soil binder on exposed soils - Operation and maintenance of	Installation of water capture, infiltration and/or reuse structural BMPs, if feasible and funding available

		implementation of SB 757	Caltrans District 7 on the development of low flow capture and infiltration/reuse structural BMPs	automotive repair facilities to encourage implementation of cover and containment BMPs	connector pipe screens in catch basins	

Compton Creek North Miscellaneous	1,519 ac (9.3% of JG1)	Copper reduction through implementation of SB 346 Lead reduction through implementation of SB 757	Reduction of landscape irrigation runoff through implementation of AB 1881 Seek grant for construction of low flow capture and infiltration/reuse structural BMPs	Outreach to priority industries identified as having high probability of generating cadmium, copper, lead, or zinc, trucking companies, facilities with large parking lots, and automotive repair facilities to encourage implementation of cover and containment BMPs	- Enhanced street sweeping with vacuum and regenerative sweepers - Soil binder on exposed soils - Operation and maintenance of connector pipe screens in catch basins	Installation of water capture, infiltration and/or reuse structural BMPs, if feasible and grant funding available
Long Beach Basin 12 Subwatershed	868 ac (5.3% of JG1)	Copper reduction through implementation of SB 346 Lead reduction through implementation of SB 757	Reduction of landscape irrigation runoff through implementation of AB 1881	Outreach to priority industries identified as having high probability of generating cadmium, copper, lead, or zinc, trucking companies, facilities with large parking lots, and automotive repair facilities to encourage implementation of cover and containment BMPs	- Enhanced street sweeping with vacuum and regenerative sweepers - Soil binder on exposed soils - Operation and maintenance of connector pipe screens in catch basins	Installation of water capture, infiltration and/or reuse structural BMPs, if feasible and grant funding available

Table 7-6 cont'

Phase 2
(2015 – 2020)
Wet Weather Measures

Target Subwatershed	Acreage	True Source Control BMPs	Runoff Reduction	Operational Source Ctrl BMPs	Sediment Control	Treatment Ctrl BMPs
Caltrans & Miscellaneous Areas E Subwatershed	145 ac (0.9% of JG1)	Copper reduction through implementation of SB 346 Lead reduction through implementation of SB 757	Coordinate with Caltrans District 7 on the development of low flow capture and infiltration/reuse structural BMPs	Outreach to priority industries identified as having high probability of generating cadmium, copper, lead, or zinc, trucking companies, facilities with large parking lots, and automotive repair facilities to encourage implementation of cover and containment BMPs	- Enhanced street sweeping with vacuum and regenerative sweepers - Soil binder on exposed soils - Operation and maintenance of connector pipe screens in catch basins	Installation of water capture, infiltration and/or reuse structural BMPs, if feasible and funding available
Caltrans & Miscellaneous Areas W Subwatershed	335 ac (2.1% of JG1)	Copper reduction through implementation of SB 346 Lead reduction	Coordinate with Caltrans District 7 on the development of low flow capture and infiltration/reuse structural BMPs	Outreach to priority industries identified as having high probability of generating cadmium, copper, lead, or zinc, trucking companies, facilities with large	- Enhanced street sweeping with vacuum and regenerative sweepers - Soil binder on exposed soils - Operation and	Installation of water capture, infiltration and/or reuse structural BMPs, if feasible and funding available

		through implementation of SB 757		parking lots, and automotive repair facilities to encourage implementation of cover and containment BMPs	maintenance of connector pipe screens in catch basins	
Compton Creek North Miscellaneous	1,519 ac (9.3% of JG1)	Copper reduction through implementation of SB 346 Lead reduction through implementation of SB 757	Seek grant for construction of low flow capture and infiltration/reuse structural BMPs	Outreach to priority industries identified as having high probability of generating cadmium, copper, lead, or zinc, trucking companies, facilities with large parking lots, and automotive repair facilities to encourage implementation of cover and containment BMPs	- Enhanced street sweeping with vacuum and regenerative sweepers - Soil binder on exposed soils - Operation and maintenance of connector pipe screens in catch basins	Installation of water capture, infiltration and/or reuse structural BMPs, if feasible and grant funding available
Long Beach Basin 12 Subwatershed	868 ac (5.3% of JG1)	Copper reduction through implementation of SB 346 Lead reduction through implementation of	Coordinate with Caltrans District 7 on the development of low flow capture and infiltration/reuse structural BMPs	Outreach to priority industries identified as having high probability of generating cadmium, copper, lead, or zinc, trucking companies, facilities with large parking lots, and automotive repair	- Enhanced street sweeping with vacuum and regenerative sweepers - Soil binder on exposed soils - Operation and maintenance of connector pipe screens in catch	Installation of water capture, infiltration and/or reuse structural BMPs, if feasible and grant funding available

		SB 757		facilities to encourage implementation of cover and containment BMPs	basins	

Table 7-7

Phase 3
(2020 – 2024)
Dry Weather Measures

Target Subwatershed	Acreage	True Source Control BMPs	Runoff Reduction	Operational Source Ctrl BMPs	Sediment Control	Treatment Ctrl BMPs
Compton Creek Del Amo Triangle Subwatershed	33 ac (0.2% of JG1)	Copper reduction through implementation of SB 346 Lead reduction through implementation of SB 757	Reduction of landscape irrigation runoff through implementation of AB 1881	Outreach to priority industries identified as having high probability of generating cadmium, copper, lead, or zinc, trucking companies, facilities with large parking lots, and automotive repair facilities to encourage implementation of cover and containment BMPs	- Enhanced street sweeping with vacuum and regenerative sweepers - Soil binder on exposed soils - Operation and maintenance of connector pipe screens in catch basins	Installation of water capture, infiltration and/or reuse structural BMPs, if feasible and grant funding available
Compton Creek Pump Plant	121 ac (0.7% of JG1)	Copper reduction through implementation of SB 346 Lead reduction	Reduction of landscape irrigation runoff through implementation of AB 1881	Outreach to priority industries identified as having high probability of generating cadmium, copper, lead, or zinc, trucking companies, facilities with large parking lots, and	- Enhanced street sweeping with vacuum and regenerative sweepers - Soil binder on exposed soils - Operation and maintenance of	Installation of water capture, infiltration and/or reuse structural BMPs, if feasible and grant funding available

		through implementation of SB 757		automotive repair facilities to encourage implementation of cover and containment BMPs	connector pipe screens in catch basins	

Compton Creek West Misc. Subwatershed	1,652 ac (10.2% of JG1)	Copper reduction through implementation of SB 346 Lead reduction through implementation of SB 757	Reduction of landscape irrigation runoff through implementation of AB 1881 Seek grant for construction of low flow capture and infiltration/reuse structural BMPs	Outreach to priority industries identified as having high probability of generating cadmium, copper, lead, or zinc, trucking companies, facilities with large parking lots, and automotive repair facilities to encourage implementation of cover and containment BMPs	- Enhanced street sweeping with vacuum and regenerative sweepers - Soil binder on exposed soils - Operation and maintenance of connector pipe screens in catch basins	Installation of water capture, infiltration and/or reuse structural BMPs, if feasible and grant funding available
Miscellaneous Transfer Drain 448/287 Subwatershed	992 ac (6.1% of JG1)	Copper reduction through implementation of SB 346 Lead reduction through implementation of SB 757	Reduction of landscape irrigation runoff through implementation of AB 1881 Seek grant for construction of low flow capture and infiltration/reuse structural BMPs	Outreach to priority industries identified as having high probability of generating cadmium, copper, lead, or zinc, trucking companies, facilities with large parking lots, and automotive repair facilities to encourage implementation of cover and containment BMPs	- Enhanced street sweeping with vacuum and regenerative sweepers - Soil binder on exposed soils - Operation and maintenance of connector pipe screens in catch basins	Installation of water capture, infiltration and/or reuse structural BMPs, if feasible and grant funding available

Table 7-7 cont'

Phase 3
(2020 – 2024)
Wet Weather Measures

Target Subwatershed	Acreage	True Source Control BMPs	Runoff Reduction	Operational Source Ctrl BMPs	Sediment Control	Treatment Ctrl BMPs
Compton Creek Del Amo Triangle Subwatershed	33 ac (0.2% of JG1)	Copper reduction through implementation of SB 346 Lead reduction through implementation of SB 757	Seek grant for construction of low flow capture and infiltration/reuse structural BMPs	Outreach to priority industries identified as having high probability of generating cadmium, copper, lead, or zinc, trucking companies, facilities with large parking lots, and automotive repair facilities to encourage implementation of cover and containment BMPs	- Enhanced street sweeping with vacuum and regenerative sweepers - Soil binder on exposed soils - Operation and maintenance of connector pipe screens in catch basins	Installation of water capture, infiltration and/or reuse structural BMPs, if feasible and grant funding available
Compton Creek Pump Plant	121 ac (0.7% of JG1)	Copper reduction through implementation of SB 346 Lead reduction through	Seek grant for construction of low flow capture and infiltration/reuse structural BMPs	Outreach to priority industries identified as having high probability of generating cadmium, copper, lead, or zinc, trucking companies, facilities with large parking lots, and	- Enhanced street sweeping with vacuum and regenerative sweepers - Soil binder on exposed soils - Operation and maintenance of connector pipe	Installation of water capture, infiltration and/or reuse structural BMPs, if feasible and grant funding available

		implementation of SB 757		automotive repair facilities to encourage implementation of cover and containment BMPs	screens in catch basins	
Compton Creek West Misc. Subwatershed	1,652 ac (10.2% of JG1)	Copper reduction through implementation of SB 346 Lead reduction through implementation of SB 757	Seek grant for construction of low flow capture and infiltration/reuse structural BMPs	Outreach to priority industries identified as having high probability of generating cadmium, copper, lead, or zinc, trucking companies, facilities with large parking lots, and automotive repair facilities to encourage implementation of cover and containment BMPs	- Enhanced street sweeping with vacuum and regenerative sweepers - Soil binder on exposed soils - Operation and maintenance of connector pipe screens in catch basins	Installation of water capture, infiltration and/or reuse structural BMPs, if feasible and grant funding available
Miscellaneous Transfer Drain 448/287 Subwatershed	992 ac (6.1% of JG1)	Copper reduction through implementation of SB 346 Lead reduction through implementation of SB 757	Seek grant for construction of low flow capture and infiltration/reuse structural BMPs	Outreach to priority industries identified as having high probability of generating cadmium, copper, lead, or zinc, trucking companies, facilities with large parking lots, and automotive repair facilities to encourage implementation of	- Enhanced street sweeping with vacuum and regenerative sweepers - Soil binder on exposed soils - Operation and maintenance of connector pipe screens in catch basins	Installation of water capture, infiltration and/or reuse structural BMPs, if feasible and grant funding available

				cover and containment BMPs		

8.0 References

California Stormwater Quality Association. "California Stormwater BMP Handbooks". September 2004. http://www.cabmphandbooks.com/

International Stormwater BMP Database. "BMPDB." December 2009. http://www.bmpdatabase.org/

Los Angeles County Department of Public Works. "County of Los Angeles Low Impact Development Standards Manual." January 2009. http://dpw.lacounty.gov/wmd/LA_County_LID_Manual.pdf

Los Angeles County Department of Public Works. "Hydrology Manual." 2006.

Los Angeles County Department of Public Works. "Los Angeles County Spatial Information Library." December 2009. http://dpwgis.co.la.ca.us/website/oia/index.cfm?agree=agree

LARWQCB. (2007). *Los Angeles River and Tributaries Metals TMDL – Attachment A to Resolution No. R2007-014 (Final Basin Plan Amendment)*. Los Angeles Regional Water Quality Control Board, Los Angeles, CA.

LARWQCB. "Basin Plan Amendments – TMDLs." http://www.swrcb.ca.gov/rwqcb4/water_issues/programs/tmdl/tmdl_list.shtml

U.S. Geological Survey. "USGS." http://www.usgs.gov/

RSS Weather. "Climate for Los Angeles County." http://www.rssweather.com/climate/California/Los%20Angeles%20County/

Sun Valley Watershed. "Sun Valley Watershed Resources Education." http://www.sunvalleywatershed.org/Resources/education.asp

9.0 Appendices

STATE WATER RESOURCES CONTROL BOARD
RESOLUTION NO. 2008-0046

APPROVING AN AMENDMENT TO THE WATER QUALITY CONTROL PLAN FOR THE LOS ANGELES REGION (BASIN PLAN) TO ESTABLISH A TOTAL MAXIMUM DAILY LOAD FOR METALS IN THE LOS ANGELES RIVER

WHEREAS:

1. On June 2, 2005, the Los Angeles Regional Water Quality Control Board (Los Angeles Water Board) adopted, by Resolution No. R05-006, an amendment to the Basin Plan establishing a metals Total Maximum Daily Load (TMDL) for the Los Angeles River. The TMDL was approved by the State Water Resources Control Board (State Water Board) by Resolution No. 2005-0077 on October 20, 2005 and by the Office of Administrative Law (OAL) on December 9, 2005. The United States Environmental Protection Agency (USEPA) approved the TMDL on December 22, 2005. The effective date of the TMDL was January 11, 2006.
2. On February 16, 2006, the Cities of Bellflower, Carson, Cerritos, Downey, Paramount, Santa Fe Springs, Signal Hill, and Whittier (Cities) filed a petition for a writ of mandate to the Los Angeles County Superior Court (Court) challenging many aspects of the Los Angeles River Metals TMDL and the Ballona Creek Metals TMDL.
3. On May 24, 2007, the Court issued a writ of mandate. The Court rejected all of the challenges to the TMDLs except for one claim under the California Environmental Quality Act (CEQA). Specifically, the Court ruled that the Los Angeles Water Board should have analyzed alternatives to the project, pursuant to Public Resources Code section 21080.5 and section 3777 of Title 23 of the California Code of Regulations. Those sections, which are applicable to the Water Boards' certified regulatory programs, require that an activity will not be approved or adopted as proposed if there are feasible alternatives or feasible mitigation measures available that would substantially lessen a significant adverse effect that the activity may have on the environment. (Public Resources Code section 21080.5(d)(2)(A).) Parties have filed notices of appeal from the determination of the trial Court; the Water Boards have filed a limited appeal on the issue of the Court's direction to rescind the TMDL until it completes the required alternatives analysis. The Los Angeles Water Board nonetheless performed the required analysis, and re-adopted the TMDL.
4. On June 22, 2007, the Los Angeles Water Board circulated an alternatives analysis (Attachment 1) for public comment, in order to comply with the writ of mandate. The alternatives analysis examines the alternatives suggested by the Cities in the litigation, as well as additional alternatives suggested to the Los Angeles Water Board during other TMDL proceedings by these and other stakeholders. The analysis concludes that none of the alternatives are feasible alternatives that would both result in less significant impacts and achieve the project's purposes.
5. On September 6, 2007, the Los Angeles Water Board reviewed that analysis and, in consideration of the entire administrative record, adopted Resolution No. R2007-014 (Attachment 2[1]). Considering the alternatives analysis, the Los Angeles Water Board found that the TMDL as originally proposed and adopted is appropriate. The Los Angeles Water Board further found that nothing in the alternatives analysis, nor any of the evidence generated, presents a basis for the Los Angeles Water Board to conclude that it would have acted differently when it adopted the TMDL had the alternatives analysis been prepared and circulated at that time.

[1] Attachment 2: Resolution No. R2007-014 itself has 2 attachments: Attachment A is the basin plan amendment Language; and Attachment B is Resolution No. R05-006, which this action amends.

6. The Los Angeles Water Board found that re-adopting the TMDL and maintaining the compliance schedule as originally adopted is warranted. The Court's order does not justify providing additional time to dischargers for compliance with the TMDL.

7. The Los Angeles Water Board found that the alternatives analysis generated for the writ of mandate, along with the CEQA checklist dated March 25, 2005; the staff report dated

   June 2, 2005; response to comments on the June 12, 2004, March 2005, and June 22, 2007 draft TMDLs, complies with the requirements of the State Water Board's certified regulatory CEQA process, as set forth in the California Code of Regulations, Title 23, section 3775 et seq.

8. The State Water Board reaffirms the finding made on October 20, 2005 that, in amending the Basin Plan to establish this TMDL, the Los Angeles Water Board complied with the requirements set forth in sections 13240, 13242, and 13269 of the California Water Code. The State Water Board also reaffirms that the TMDL is consistent with the requirements of federal Clean Water Act (CWA) section 303(d).

9. The Los Angeles Water Board reaffirmed its findings made in adopting Resolution No. R05-006 that the amendment is consistent with the State Antidegradation Policy (State Water Board Resolution No. 68-16), in that the changes to water quality objectives (i) consider maximum benefits to the people of the state, (ii) will not unreasonably affect present and anticipated beneficial use of waters, and (iii) will not result in water quality less than that prescribed in policies.

10. To the extent that pollutant loadings from indirect atmospheric deposition over land are being conveyed to stormwater discharges, these loadings are included in the stormwater waste load allocations. One study has shown that atmospheric deposition of particulates containing trace metals in the urban areas of the Los Angeles Region is an important source of metals contaminants on land surfaces. (Sabin et al., 2005)[2]. The Los Angeles Water Board met with the South Coast Air Quality Management District (SCAQMD) and the California Air Resources Board (CARB) to discuss the findings of the study. It appears that larger particulates are responsible for the highest loadings of metals in atmospheric deposition, and therefore pose the greatest risk to water quality. The two agencies have identified the need to (1) expand monitoring of larger particulates in atmospheric deposition to better gauge the impact to water quality, and (2) investigate the sources of these metals in order to design a control strategy. The Los Angeles Water Board and the State Water Board will continue to meet with the SCAQMD and CARB to pursue further studies and to assist in developing appropriate controls.

11. The State Water Board encourages local municipalities within the urban watersheds in the Los Angeles Region and Los Angeles County also to work with SCAQMD and CARB to further identify and control sources of trace metals in atmospheric deposition. If necessary, the State Water Board and Los Angeles Water Board shall enforce compliance with the adopted plans by the SCAQMD and CARB as appropriate under Water Code sections 13146 and 13247, and all other relevant statutes and regulations.

12. The Los Angeles Water Board will work with municipalities and Los Angeles County to encourage building designs and best management practices that will retain pollutants on site. This will help prevent the conveyance of pollutants from atmospheric deposition and other sources from being washed into stormwater and discharged to the Los Angeles River, Ballona Creek, and other urban watersheds.

[2] Sabin et al. "Contribution of trace metals from atmospheric deposition to stormwater runoff in small impervious urban catchment." Water Research 39 (2005) 3939-3937.

13. Nothing in this resolution shall be interpreted as suggesting that the municipal dischargers are not responsible under the CWA for the pollutants discharged from their municipal separate storm sewer systems, which is a point source subject to regulation under CWA section 402(p).

14. Los Angeles Water Board staff determined that minor, non-substantive changes to the language adopting the Basin Plan amendment were necessary to correct minor clerical errors, to improve clarity, and to ensure that the amendment is consistent with the Basin Plan update adopted under Resolution No. R2007-014. The Los Angeles Water Board's Executive Officer made these minor changes in a memorandum dated September 21, 2007 (Attachment 3).

15. A Basin Plan amendment does not become effective until approved by the State Water Board and until the regulatory provisions are approved by OAL. The TMDL must also be approved by USEPA.

THEREFORE BE IT RESOLVED THAT:

The State Water Board:

1. Approves the amendment to the Basin Plan adopted under Los Angeles Water Board Resolution No. R2007-014.

2. The Los Angeles Water Board shall consider the data generated from the TMDL special studies or any other appropriate data, and determine whether and to what extent measures by the CARB and SCAQMD are necessary or appropriate to attain Water Quality Standards and the TMDL. If such measures are appropriate, the Los Angeles Water Board shall adopt a Basin Plan amendment consistent with the atmospheric deposition findings in Whereas 10, 11, and 12 above, and take appropriate action to pursue compliance with such requirements.

3. Authorizes the Executive Director or designee to submit the amendment adopted under Los Angeles Water Board Resolution No. R2007-014 to OAL for approval of the regulatory provisions and to USEPA for approval of the TMDL.

CERTIFICATION

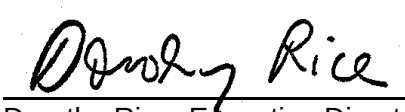
The undersigned Clerk to the Board does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the State Water Resources Control Board held on June 17, 2008.

AYE: Vice Chair Gary Wolff, P.E., Ph.D.
Charles R. Hoppin
Frances Spivy-Weber

NAY: None

ABSENT: Chair Tam M. Doduc
Arthur G. Baggett, Jr.

ABSTAIN: None



Dorothy Rice, Executive Director for
Jeanine Townsend, Clerk to the Board

CASQA Constituent Source Control Initiative

Background

NPDES permit holders are faced with increasingly complex and prescriptive requirements driven by regulatory and environmental NGO pressure to improve runoff and receiving water quality and ultimately meet receiving water quality standards. Use of treatment controls as a partial solution to achieving water quality standards in receiving waters is routinely advocated. In addition, TMDL implementation plans are under development for most urbanized watersheds across California. The implementation plans are generally based on a phased approach using a combination of source and treatment controls. Use of treatment controls for TMDLs will likely require implementation at multiple locations in the watershed. Life cycle costs for traditional source and treatment control implementation to meet receiving water quality standards have been shown to be unaffordable according to USEPA guidelines and (Taylor, 1999).

There are few viable treatment control options for many of the constituents listed as impairing California's receiving waters. There are currently 2237 pollutant water body combinations listed in CA as impaired, the top five leading causes of impairments are:

1. Bacteria
2. Sediment/siltation/turbidity/TSS
3. Pesticides
4. Nutrients
5. Metals

Source control of constituents of concern that are highly soluble and widely responsible for impairment of receiving waters is the only currently available option to comply with receiving water standards without widespread and substantial economic impact.

Initiative Proposal

CASQA will pursue alliances with other organizations with the purpose of supporting legislation to ban or greatly restrict the use of products that are causing receiving water impairments and subsequent listing of water bodies on the State 303(d) list. The initiative proposal consists of the following phased components:

1. ***Build a Coalition***. The CASQA Executive Director will work to build a coalition in support of this initiative with the goal of identifying member entities and a lead entity to sponsor legislation. CASQA will initially commit 5-10% of the Executive Directors time

for the completion of this task.

2. ***Participate in the Coalition.*** The CASQA Executive Director and Board Members will participate in the coalition activities that will include the identification of commercial products that contain constituents of concern, and the development of draft legislation or model ordinances to control such products. CASQA will commit 10% of the Executive Directors time for work on this task.

3. ***Support the Coalition Activities.*** CASQA will support the Coalition activities through research programs, public education programs and use of CASQA's public relations and legal consultants. The Board of Directors will determine the level of support for various activities on a fiscal year basis.

Potential Source Control Target Constituents:

- Copper – brake pads
- Lead – tire weights
- Litter/Trash – Enhanced and proper disposal working with "sources" (e.g., food service facilities)
- Mercury – Enhanced and proper disposal of fluorescent tubes and CFLs
- Plastics bags – Recycling and use of cloth working with "sources" (e.g., retailers)
- Pyrethroids – pesticide products

Recommended Constituent: Copper – brake pads

Of the potential constituents above, copper is recommended as the constituent on which to pilot test the proposed source control initiative for the following reasons:

- 303(d) listings for copper or metals affect many of the most urbanized areas of the state (San Francisco Bay Area, Los Angeles area, San Diego area)
- Extensive technical work on copper over a number of years has identified a product (i.e., brake pads) as a primary source
- A partnership (the Brake Pad Partnership) exists with the product manufacturers that has produced significant technical information on sources and the manufacturers accept that their product impairs receiving water quality
- The Brake Pad Partnership is prepared to develop a control measure (i.e., legislation) that would ensure reductions in copper from brake pads entering stormwater runoff
- Other than addressing copper in brake pads, there are few, if any options for attainment of the Waste Load Allocations in the approved TMDLs
- The compliance timelines in the TMDLs are more aggressive than the estimated time necessary to effect a change in copper composition in brake pads so time is of the essence in implementing a control measure on this primary source

References

Taylor, Scott M., "Watershed BMP Retrofit Evaluation, An Analysis of Cost and Benefit," in Proceedings of ASCE 1999 International Water Resource Engineering Conference: Water Resources into the New Millennium: Past Accomplishments New Challenges, Seattle, WA, August 1999.

Senate Bill No. 346

CHAPTER 307

An act to add Article 13.5 (commencing with Section 25250.50) to Chapter 6.5 of Division 20 of, and to repeal Section 25250.65 of, the Health and Safety Code, relating to hazardous materials.

[Approved by Governor September 25, 2010. Filed with Secretary of State September 27, 2010.]

LEGISLATIVE COUNSEL'S DIGEST

SB 346, Kehoe. Hazardous materials: motor vehicle brake friction materials.

(1) Existing law establishes the Department of Toxic Substances Control in the California Environmental Protection Agency, with powers and duties regarding the management of hazardous waste. Existing law, administered by the department, prohibits the management of hazardous waste except in accordance with the hazardous waste control laws, including laws governing the removal of any mercury-containing vehicle light switch from a vehicle, and the regulations adopted by the department. A violation of the hazardous waste control laws is a crime.

The bill, commencing on January 1, 2014, would prohibit the sale of any motor vehicle brake friction materials containing specified constituents in amounts that exceed certain concentrations. The bill would allow, until December 31, 2023, motor vehicle manufacturers and distributors, wholesalers, or retailers of replacement brake friction materials to deplete their inventory of noncompliant materials. The bill, commencing on January 1, 2021, would prohibit motor vehicle brake friction materials containing more than 5% copper by weight from being sold in the state, and, commencing on January 1, 2025, would prohibit motor vehicle brake friction materials exceeding 0.5% copper by weight from being sold in the state.

A violation of these provisions by certain manufacturers would be subject to a civil fine of up to $10,000 per violation. The bill would create the Brake Friction Materials Water Pollution Fund in the State Treasury, and would require those fines to be deposited in the fund. The moneys in the fund would be available, upon appropriation in the annual Budget Act, to implement the bill's requirements. Because a violation of these provisions also would be a crime pursuant to the hazardous waste control laws, the bill would impose a state-mandated local program.

The bill would establish a process by which a manufacturer may apply to the department for an extension of the prohibition against selling motor vehicle brake friction materials containing more than 0.5% copper by weight, including providing for the establishment of an advisory committee to be involved in that process. The bill would require the Secretary for

Environmental Protection to issue a decision regarding the extension. In making the determination whether to approve or disapprove the extension, the bill would require the secretary to rely upon certain recommendations made by the advisory committee. The bill would require the department to assess a fee for each extension application, and the department would be authorized to expend those fees, upon appropriation by the Legislature, for reimbursement for the costs incurred in implementing this process.

The bill would exempt brake friction materials used for certain motor vehicle classes from its requirements and would exempt from certain prohibitions the sale of vehicles or brake friction materials manufactured prior to certain dates.

The bill would require a vehicle brake friction material manufacturer to screen potential alternatives to copper using the existing Toxics Information Clearinghouse and to use an open source alternatives assessment or this screening analysis to select alternatives to copper that pose less potential hazard to public health and the environment. The vehicle brake friction material manufacturer or importer of record would be required to provide the department with a demonstration, upon request, of the manner in which the selection of alternatives is informed.

The bill would require all new motor vehicles offered for sale, on and after the specified compliance dates, to be equipped with brake friction materials meeting the requirements of this bill and would require all vehicle brake friction material manufacturers, on or after those compliance dates, to certify compliance with those requirements and mark proof of certification on all brake friction materials. The bill would require a vehicle brake friction materials manufacturer to file a copy of the certification with a testing certification agency.

The bill would require the department and the State Water Resources Control Board, by January 1, 2023, to submit a report to the Governor and the Legislature, on the implementation of the bill's requirements toward meeting the copper total maximum daily load (TMDL) allocations in the state. The bill would repeal this report requirement on January 1, 2027.

(2) The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement.

This bill would provide that no reimbursement is required by this act for a specified reason.

The people of the State of California do enact as follows:

SECTION 1. The Legislature finds and declares all of the following:

(a) Friction materials are an essential component of motor vehicle brake systems and of critical importance to transportation safety and the public safety in general.

(b) Debris from friction materials containing copper in all of its forms, including, but not limited to, elemental copper and all of its alloys and

Senate Bill No. 346

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The bill, commencing on January 1, 2014, would prohibit the sale of any motor vehicle brake friction materials containing specified constituents in amounts that exceed certain concentrations. The bill would allow, until December 31, 2023, motor vehicle manufacturers and distributors, wholesalers, or retailers of replacement brake friction materials to deplete their inventory of noncompliant materials. The bill, commencing on January 1, 2021, would prohibit motor vehicle brake friction materials containing more than 5% copper by weight from being sold in the state, and, commencing on January 1, 2025, would prohibit motor vehicle brake friction materials exceeding 0.5% copper by weight from being sold in the state.

A violation of these provisions by certain manufacturers would be subject to a civil fine of up to $10,000 per violation. The bill would create the Brake Friction Materials Water Pollution Fund in the State Treasury, and would require those fines to be deposited in the fund. The moneys in the fund would be available, upon appropriation in the annual Budget Act, to implement the bill's requirements. Because a violation of these provisions also would be a crime pursuant to the hazardous waste control laws, the bill would impose a state-mandated local program.

The bill would establish a process by which a manufacturer may apply to the department for an extension of the prohibition against selling motor vehicle brake friction materials containing more than 0.5% copper by weight, including providing for the establishment of an advisory committee to be involved in that process. The bill would require the Secretary for

compounds, are generated and released to the surrounding environment in the course of normal brake system operation.

(c) Tens of thousands of pounds of copper and other substances released from brake friction materials enter California's streams, rivers, and marine environment every year.

(d) Copper is toxic to many aquatic organisms, including salmon.

(e) Limits on the copper content of brake friction materials are essential for California cities, counties, and industries to comply with federal Clean Water Act (33 U.S.C. Sec. 1251 et seq.) mandates, including copper water quality standards and copper total maximum daily loads in California's urban watersheds.

(f) Without limits on the copper content of brake friction materials, California taxpayers face billions of dollars in federal Clean Water Act compliance costs.

(g) Changes in the composition of brake friction materials made to comply with copper water quality standards and successfully implement copper total maximum daily loads in California's urban watersheds should meet all applicable safety standards.

SEC. 2. Article 13.5 (commencing with Section 25250.50) is added to Chapter 6.5 of Division 20 of the Health and Safety Code, to read:

Article 13.5. Motor Vehicle Brake Friction Materials

25250.50. For purposes of this article, the following definitions shall apply:

(a) (1) "Advisory committee" means a committee of nine members appointed by the secretary on or before January 1, 2019, to consider and recommend approval or denial of an application for an extension of the requirements imposed pursuant to Section 25250.53.

(2) A person considered for appointment to the advisory committee shall disclose any financial interests the person may have in any aspect of the vehicle or vehicle parts manufacturing industry prior to appointment by the secretary or, in the case of subparagraph (C) of paragraph (3), prior to nomination.

(3) The advisory committee shall be composed of the following members:

(A) (i) One-third of the members shall be representatives of the manufacturers of brake friction materials and motor vehicles, to be appointed by the secretary in consultation with the chair of the board and the director of the department.

(ii) If the application for an extension of the requirements imposed pursuant to Section 25250.53 pertains solely to brake friction materials to be used on heavy-duty motor vehicles, the members appointed pursuant to this subparagraph shall represent the manufacturers of heavy-duty brake friction materials and heavy-duty motor vehicles.

(B) One-third of the members shall be representatives of municipal storm water quality agencies and nongovernmental environmental organizations,

to be appointed by the secretary in consultation with the chair of the board and the director of the department.

(C) One-third of the members shall be experts in vehicle and braking safety, economics, and other relevant technical areas, to be appointed by the secretary, upon nomination by a majority of the members specified in subparagraph (A) concurrently with a majority of the members specified in subparagraph (B).

(4) For purposes of this subdivision, a "financial interest" shall have the same meaning as a financial interest described in Section 87103 of the Government Code, except only with regard to business entities, real property, or sources of income that are related to the vehicle or vehicle parts manufacturing industry.

(b) "Board" means the State Water Resources Control Board.

(c) "Department" means the Department of Toxic Substances Control.

(d) "Heavy-duty motor vehicle" means a motor vehicle of over 26,000 pounds gross weight.

(e) (1) "Manufacturer," except where otherwise specified, means both of the following:

(A) A manufacturer or assembler of motor vehicles or motor vehicle equipment.

(B) An importer of motor vehicles or motor vehicle equipment for resale.

(2) A manufacturer includes a vehicle brake friction materials manufacturer.

(f) "Motor vehicle" and "vehicle" has the same meaning as the definition of "vehicle" in Section 670 of the Vehicle Code.

(g) "Testing certification agency" means a third-party testing certification agency that is utilized by a vehicle brake friction materials manufacturer and that has an accredited laboratory program that provides testing in accordance with the certification agency requirements that are approved by the department.

25250.51. (a) On and after January 1, 2014, any motor vehicle brake friction materials containing any of the following constituents in an amount that exceeds the following concentrations shall not be sold in this state:

(1) Cadmium and its compounds: 0.01 percent by weight.

(2) Chromium (VI)-salts: 0.1 percent by weight.

(3) Lead and its compounds: 0.1 percent by weight.

(4) Mercury and its compounds: 0.1 percent by weight.

(5) Asbestiform fibers: 0.1 percent by weight.

(b) Motor vehicle manufacturers and distributors, wholesalers, or retailers of replacement brake friction materials may continue to offer for sale brake friction materials not certified as compliant with subdivision (a) solely for the purpose of depletion of inventories until December 31, 2023.

25250.52. On and after January 1, 2021, any motor vehicle brake friction materials exceeding 5 percent copper by weight shall not be sold in this state, except as otherwise provided in this article.

25250.53. On and after January 1, 2025, any motor vehicle brake friction materials exceeding 0.5 percent copper by weight shall not be sold in this state, except as otherwise provided in this article.

25250.54. (a) (1) On and after January 1, 2019, a manufacturer may apply to the department for a one-year, two-year, or three-year extension of the January 1, 2025, deadline established in Section 25250.53, except as provided in subdivision (h).

(2) An extension application submitted pursuant to this section shall be submitted based on vehicle model, class, platform, or other vehicle-based category, and not on the basis of the brake friction material formulation.

(3) The application shall be accompanied by documentation that will allow the advisory committee to make a recommendation pursuant to subdivisions (e) and (f).

(4) The documentation shall include a scientifically sound quantitative estimate of the quantity of copper that would be emitted if the extension is granted, including a description of the assumptions used in arriving at that estimate.

(b) No more than 30 days after receipt of an application for an extension pursuant to subdivision (a), the department shall do all of the following:

(1) Post a notice of receipt on the department's Internet Web site that includes the vehicle model, class, platform, or other vehicle-based category, whether the brake friction material is intended for use in original equipment or replacement parts, and the quantity of copper that would be emitted if the extension is granted.

(2) Consult with the board and the State Air Resources Board.

(3) Solicit comment from the public and from scientific and vehicle engineering experts on the availability of generally affordable compliant brake friction materials, their safety and performance characteristics, and the feasibility of brake pad copper emissions reduction through means other than friction material reformulation.

(c) (1) In consultation with the board, the department shall determine if sufficient documentation has been presented upon which to base a decision. If the department determines that further documentation is needed, it shall deliver a detailed request for further documentation to the applicant.

(2) Not later than 30 days after receipt of the application for an extension pursuant to subdivision (a), the department shall forward the application to the advisory committee for the purpose of the advisory committee making a recommendation pursuant to subdivisions (e) and (f).

(d) (1) In considering any application for an extension, the advisory committee shall consider all of the documentation supplied by the applicant pursuant to subdivision (a).

(2) The advisory committee may request, no later than 75 days after receipt of the application from the department pursuant to subdivision (c), further documentation from the applicant.

(3) The advisory committee shall hold at least one public hearing at which it shall accept and consider comments from the public on each category of application. The advisory committee meetings shall be open to the public

and are subject to the Bagley-Keene Open Meeting Act (Article 9 (commencing with Section 11120) of Chapter 1 of Part 1 of Division 3 of Title 2 of the Government Code).

(e) (1) The advisory committee shall recommend to the secretary that the extension be approved if the advisory committee determines that there are no brake friction materials that are safe and available for individual or multiple vehicle models, classes, platforms, or other vehicle-based categories identified in the application.

(2) The advisory committee shall recommend to the secretary that the extension not be approved if the advisory committee determines that alternative brake friction materials are safe and available for individual or multiple vehicle models, classes, platforms, or other vehicle-based categories identified in the application.

(3) For purposes of this section, "safe and available" shall mean all of the following:

(A) The brake system for which the alternative brake friction material is manufactured meets applicable federal safety standards, or if no federal standard exists, a widely accepted safety standard.

(B) Acceptable alternative brake friction materials are commercially available for the individual or multiple vehicles, classes, platforms, or vehicle-based categories identified in the application.

(C) Adequate industry testing and production capacity exists to supply the alternative brake friction materials for use on the individual or multiple vehicles, classes, platforms, or vehicle-based categories identified in the application.

(D) The alternative brake friction material is technically feasible for use on the individual or multiple vehicles, classes, platforms, or vehicle-based categories identified in the application.

(E) The alternative brake friction materials meet customer performance expectations, including noise, wear, vibration, and durability for the individual or multiple vehicle classes, platforms, or vehicle-based categories identified in the application.

(F) The alternative acceptable brake friction material is economically feasible with respect to the industry and the cost to the consumer for the individual or multiple vehicles, classes, platforms, or vehicle-based categories identified in the application.

(4) The advisory committee shall provide relevant data to the department and the board concerning the potential impacts of the extension on California watersheds for purposes of the report required pursuant to Section 25250.65.

(f) (1) No sooner than 60 days and no later than 120 days after the department solicits comments pursuant to paragraph (3) of subdivision (b), the advisory committee shall make a recommendation to the secretary in accordance with subdivisions (d) and (e) as to whether the application for extension should be approved or not approved.

(2) The recommendation of the advisory committee that the secretary approve or not approve the application for extension shall be accompanied by documentation of the basis for the recommendation.

(g) (1) The secretary shall make available the recommendation of the advisory committee and the accompanying documentation for public review and comment for 60 days following receipt of the recommendation from the advisory committee.

(2) The secretary shall consider public comments on the advisory committee's recommendation and issue a final decision on the application for extension no later than 45 days after the conclusion of the 60-day comment period.

(3) In making the determination whether to approve or disapprove the extension, the secretary shall rely upon the recommendations made by the advisory committee pursuant to subdivision (f).

(4) If the secretary does not follow the recommendation of the advisory committee made pursuant to subdivision (f), he or she shall explain in writing the basis of his or her decision.

(h) (1) On or before December 31, 2029, a manufacturer with an approved extension of the January 1, 2025, deadline established in Section 25250.53, may reapply to the department for additional two-year extensions from the deadline in accordance with a schedule that may be established by the department.

(2) Except as provided in subdivision (i), a manufacturer may not apply on or after January 1, 2030, for an extension of the January 1, 2025, deadline established in Section 25250.53.

(3) The department shall comply with all of the requirements of this section when granting an additional extension of the January 1, 2025, deadline pursuant to this subdivision.

(i) (1) On and after January 1, 2030, a manufacturer of vehicle brake friction materials to be used on heavy-duty vehicles with an approved extension of the January 1, 2025, deadline established in Section 25250.53, may reapply to the department for additional two-year extensions from the deadline established in Section 25250.53, that results in an extension of that deadline to a date on and after January 1, 2032.

(2) The department shall comply with all of the requirements of this section when granting an additional extension of the January 1, 2025, deadline pursuant to this subdivision.

(j) The department shall assess a fee for each application for an extension sufficient to cover actual costs incurred in implementing this section. The department may expend the fees collected pursuant to this subdivision, upon appropriation by the Legislature, for reimbursement for the costs incurred in implementing this section.

(k) When granting an extension pursuant to this section, the department, board, advisory committee, and secretary shall comply with the requirements of Section 25358.2, to ensure the protection of trade secrets, as defined in Section 25358.2.

25250.55. Brake friction materials for the following motor vehicle classes are exempt from this article:

(a) Military tactical support vehicles.

(b) Vehicles employing internal closed oil immersed brakes, or a similar brake system that is fully contained and emits no copper, other debris, or fluids under normal operating conditions.

(c) Brakes designed for the primary purpose of holding the vehicle stationary and not designed to be used while the vehicle is in motion.

(d) Motorcycles.

(e) Motor vehicles subject to voluntary or mandatory recalls of brake friction materials or systems due to safety concerns. This exemption shall expire upon the lifting of the recall and provision of new brake friction materials that comply with this article.

(f) Motor vehicles manufactured by small volume manufacturers, as defined in Section 1900 of Title 13 of the California Code of Regulations.

(g) Vehicles manufactured prior to January 1, 2021, and brake friction materials for use on vehicles manufactured prior to January 1, 2021, from the requirements of Section 25250.52.

(h) Vehicles manufactured prior to January 1, 2025, and brake friction materials for use on vehicles manufactured prior to January 1, 2025, from the requirements of Section 25250.53.

(i) Vehicles for which an extension from the requirements of Section 25250.53 was approved pursuant to Section 25250.54.

25250.56. (a) In developing new formulations to comply with Sections 25250.52 and 25250.53, a manufacturer of vehicle brake friction materials shall screen potential alternatives to the use of copper by using the Toxic Information Clearinghouse developed by the department and the Office of Environmental Health Hazard Assessment pursuant to Section 25256, for the purpose of identifying potential impacts of these potential alternatives on public health and the environment.

(b) In conducting the screening analysis required by subdivision (a), a manufacturer of vehicle brake friction materials shall, using information available to the manufacturer at the time of the analysis, including information from the department and other sources, consider the environmental fate of brake friction materials and their emissions through all phases of the brake friction material life cycle.

(c) A manufacturer of vehicle brake friction materials shall use the screening analysis required by subdivision (a) or an open source alternatives assessment to select alternatives to copper that pose less potential hazard to public health and the environment.

(d) Upon request by the department, a manufacturer of vehicle brake friction materials or importer of record shall provide a summary demonstrating how the screening analysis conducted pursuant to this section or an open source alternatives assessment is used to inform the selection of alternatives to copper that pose less potential hazard to public health and the environment, as required by subdivision (c).

25250.60. (a) The department shall consult with the brake friction materials manufacturing industry in the development of all criteria for testing and marking brake friction materials and adopting certification procedures for brake friction materials, as required pursuant to this article. The mark

of proof of certification on brake friction materials shall identify the brake friction material manufacturer, be easily applied, be easily legible, and not impose unreasonable additional costs on manufacturers due to the use of additional equipment or other factors.

(b) On and after January 1, 2014, any new motor vehicle offered for sale in the state shall be equipped with brake friction materials that comply with of Section 25250.51.

(c) (1) On and after January 1, 2014, a manufacturer of vehicle brake friction materials used in brakes on new motor vehicles or as replacement parts that are sold in the state shall certify compliance declaring that its formulation for brake friction materials complies with Section 25250.51.

(2) A vehicle brake friction material manufacturer shall mark proof of certification pursuant to this subdivision on all brake friction materials.

(d) On and after January 1, 2021, any new motor vehicle offered for sale in the state shall be equipped with brake friction materials that comply with Section 25250.52.

(e) (1) On and after January 1, 2021, a manufacturer of vehicle brake friction materials used in brakes on new motor vehicles or as replacement parts for those vehicles that are sold in the state shall certify compliance declaring that its formulation for brake friction materials complies with Section 25250.52.

(2) A vehicle brake friction material manufacturer shall mark proof of certification with this subdivision on all brake friction materials.

(f) On and after January 1, 2025, any new motor vehicle offered for sale in the state shall be equipped with brake friction materials that comply with Section 25250.53.

(g) (1) On and after January 1, 2025, a manufacturer of vehicle brake friction materials used in brakes on new motor vehicles or as replacement parts for those vehicles that are sold in the state shall certify compliance declaring that its formulation for brake friction materials complies with Section 25250.53.

(2) A vehicle brake friction material manufacturer shall mark proof of certification with this subdivision on all brake friction materials.

(h) Prior to offering brake friction materials for sale in this state, a manufacturer of vehicle brake friction materials shall file a copy of the certification for each of its brake friction materials formulations with a testing certification agency. Each certification shall be made available within a reasonable period of time on the testing certification agency's Internet Web site at no cost to the department and to the public, and shall serve as official registration of certification for compliance with this section.

(i) A manufacturer of vehicle brake friction materials may obtain from a testing certification agency a certification of compliance with the requirements of Section 25250.51, 25250.52, or 25250.53 at any time prior to the dates specified in those sections.

(j) The certification and mark of proof required pursuant to this section shall show a consistent date format, designation, and labeling to facilitate

acceptance in all 50 states and United States territories for purposes of demonstrating compliance with all applicable requirements.

25250.62. (a) A violation of this article by a vehicle manufacturer, a vehicle brake friction materials manufacturer, a distributor, or a retailer, shall be subject to a civil fine of up to ten thousand dollars ($10,000) per violation.

(b) The department shall enforce this article. The department shall remove from sale in this state any replacement brake friction materials determined to be not in compliance with this article.

(c) If the department determines that a distributor, wholesaler, or retailer of replacement brake friction materials has been offering noncompliant brake friction materials for sale in the state, it shall allow the distributor, wholesaler, or retailer of replacement brake friction materials to establish that it obtained the noncompliant brake friction materials in good faith and after exercising due diligence in verifying that the material complied with this article prior to assessing fines and penalties pursuant to subdivision (a).

(d) In determining the amount of the civil fine to be assessed for a violation of this article, the department shall consider the particular circumstances of the violation, including, but not limited to, the amount of noncompliant brake friction material offered for sale in California and whether previous violations have occurred.

(e) The department may waive the imposition of a fine and issue a letter of warning if it determines, based on criteria, including, but not limited to, the amount of brake friction material offered for sale, the presence or absence of prior violations, and whether due diligence was exercised in determining that the brake friction materials offered for sale complied with this article, and that the violation of this article does not merit the imposition of a fine.

(f) A distributor, wholesaler, or retailer found by the department to have offered for sale noncompliant replacement brake materials shall cooperate with the department in the removal of the noncompliant brake friction materials from sale, inform the department of measures being implemented to avoid repeat violations, and provide the department with information that will assist in the identification and location of the source or sources of the noncompliant brake friction materials.

(g) In enforcing this article, the department shall not recall automobiles fitted with brake friction materials that do not comply with this article.

(h) A motor vehicle manufacturer that violates this article shall notify the registered owner of the vehicle within six months of knowledge of the violation and shall replace, at no cost to the owner, the noncompliant brake friction material with brake friction material that complies with this article. A motor vehicle manufacturer that fails to provide the required notification to registered owners of the affected vehicles within six months of knowledge of the violation is subject to fines and penalties authorized pursuant to subdivision (a).

25250.64. (a) The Brake Friction Materials Water Pollution Fund is hereby established in the State Treasury. Notwithstanding Section 25192,

all fines and penalties collected by the department pursuant to this article shall be deposited in the fund.

(b) The moneys in the fund shall be expended, upon appropriation by the Legislature in the annual Budget Act, solely for the full implementation of this article by the department.

25250.65. (a) On or before January 1, 2023, the department and the board shall submit to the Governor and the Legislature, in compliance with Section 9795 of the Government Code, a report on the implementation of vehicle brake copper reduction efforts and the progress of this article toward meeting the copper total maximum daily load (TMDL) allocations in the state. The report shall make recommendations on actions necessary to address any deficiencies in meeting these copper TMDL allocations, including, but not limited to:

(1) Imposing additional restrictions on the extensions granted to manufacturers pursuant to Section 25250.54.

(2) Imposing additional restrictions on the exemptions from this article provided by Section 25250.55.

(3) Allowances for permitting a manufacturer to sell existing inventory, if the additional restrictions described in paragraphs (1) and (2) are implemented.

(b) Pursuant to Section 10231.5 of the Government Code, this section is repealed on January 1, 2027.

SEC. 3. No reimbursement is required by this act pursuant to Section 6 of Article XIII B of the California Constitution because the only costs that may be incurred by a local agency or school district will be incurred because this act creates a new crime or infraction, eliminates a crime or infraction, or changes the penalty for a crime or infraction, within the meaning of Section 17556 of the Government Code, or changes the definition of a crime within the meaning of Section 6 of Article XIII B of the California Constitution.

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Senate Bill No. 757

CHAPTER 614

An act to add Article 10.5.1 (commencing with Section 25215.6) to Chapter 6.5 of Division 20 of the Health and Safety Code, relating to lead.

[Approved by Governor October 11, 2009. Filed with Secretary of State October 11, 2009.]

LEGISLATIVE COUNSEL'S DIGEST

SB 757, Pavley. Lead wheel weights.

Under existing law, the Department of Toxic Substances Control is responsible for administering various programs to control the release of toxic substances into the soil and groundwater. Existing law requires, on or before January 1, 2011, the department to adopt regulations to establish a process to identify and prioritize chemicals or chemical ingredients in consumer products that may be considered as being a chemical of concern, as prescribed, and to establish a process for evaluating chemicals of concern in consumer products, and their potential alternatives, to determine how best to limit exposure or to reduce the level of hazard posed by a chemical of concern. Existing law also establishes the Hazardous Waste Control Account to be used as specified by the department, upon appropriation by the Legislature.

This bill would prohibit the manufacture, sale, or installation in California of a wheel weight that contains more than 0.1% lead. The bill would provide for injunctive relief, as well as civil and administrative penalties for violation of that provision, as specified. The bill requires all civil and administrative fines collected to be deposited in the Hazardous Waste Control Account for expenditure by the department, upon appropriation by the Legislature, to implement and enforce the act.

This bill would also specify that if the department identifies an alternative to lead contained in wheel weights as a chemical of concern, then the lead alternative would remain subject to the evaluation process, as prescribed, to determine how best to limit exposure or to reduce the level of hazard posed by the lead alternative.

The people of the State of California do enact as follows:

SECTION 1. Article 10.5.1 (commencing with Section 25215.6) is added to Chapter 6.5 of Division 20 of the Health and Safety Code, to read:

Article 10.5.1. Lead Wheel Weights

25215.6. (a) No person shall manufacture, sell, or install a wheel weight in California that contains more than 0.1 percent lead by weight.

(b) If the department identifies an alternative to lead contained in wheel weights as a chemical of concern pursuant to Section 25252, then the lead alternative shall remain subject to the evaluation process imposed pursuant to Section 25253 to determine how best to limit exposure or to reduce the level of hazard posed by the lead alternative.

(c) Nothing in this section shall be construed to restrict the authority of the department pursuant to Sections 25252 and 25253 relating to a chemical or chemical ingredient contained in wheel weights, including, but not limited to, an alternative to lead.

25215.7. (a) Any person who violates or threatens to violate the provisions of this article may be enjoined in any court of competent jurisdiction.

(b) Notwithstanding any other law, a person who violates this article shall not be subject to criminal penalties and shall only be subject to the administrative or civil penalties specified in subdivision (c).

(c) (1) A person who violates this article shall be liable for an administrative or a civil penalty not to exceed two thousand five hundred dollars ($2,500) per day for each violation. That administrative or civil penalty may be assessed and recovered in an administrative action filed with the Office of Administrative Hearings or in a civil action brought in any court of competent jurisdiction.

(2) In assessing the amount of an administrative or a civil penalty for a violation of this article, the presiding officer or the court shall consider all of the following:

(A) The nature and extent of the violation.

(B) The number and severity of the violations.

(C) The economic effect of the penalty on the violator.

(D) Whether the violator took good faith measures to comply with this article and the time these measures were taken.

(E) The willfulness of the violator’s misconduct.

(F) The deterrent effect that the imposition of the penalty would have on both the violator and the regulated community as a whole.

(G) Any other factor that justice may require.

(d) Administrative and civil penalties collected pursuant to this article shall be deposited in the Hazardous Waste Control Account, for expenditure by the Department of Toxic Substances Control, upon appropriation by the Legislature, to implement and enforce this article.

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