Integrated Monitoring Plan

City of La Habra Heights

Submitted to:
Los Angeles Regional Water Quality Control Board
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1.0 Municipal Separate Storm Sewer System Permit

On November 8, 2012 the Los Angeles Regional Water Quality Control Board adopted *"Order R4-2012-0175 Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges within Coastal Watersheds of Los Angeles County, Except Those Discharges Originating from the City of Long Beach MS4"*. Order R4-2012-0175 became effective 50 days later on December 28, 2013. Order R4-2012-0175 serves as the National Pollution Discharge Elimination System (NPDES) permit for Coastal Watershed storm water and non-storm water discharges originating from the Los Angeles County Region, excluding the City of Long Beach. The permit covers the land areas of the Los Angeles County Flood Control, unincorporated areas of Los Angeles County and 84 Cities within the County of Los Angeles. Permittees are subject to the requirements set forth in the MS4 permit for all storm water and non-storm water discharges into the MS4. The City of La Habra Heights is located in the Los Angeles Region and is identified in the MS4 Permit as a permittee under Order R4-2012-0175.

The MS4 permit regulates municipal discharges of storm water and non-storm water from the MS4s of the Permittees. Storm water and non-storm water discharges have been identified as a transport mechanism for pollutants into the receiving waters of the Los Angeles Region. Pollutants originating from various land uses are mobilized by surface flow of water which is then directed into the MS4 and eventually deposited into receiving water bodies. In many cases pollutant deposition into receiving water bodies has a noticeable impact on the local ecological system of the water body and recreational uses. It is the intent of the MS4 Permit to protect water quality and mitigate existing and potential sources of pollutants that are cause for impairment of receiving water bodies.

Conditions of the MS4 Permit require that all Permittees develop a monitoring plan on an individual or joint basis that will address water quality issues with in the Permittee's jurisdictional area. The monitoring program option selected will be utilized in conjunction with the City's watershed management plan to provide real water quality data for use in the assessment of program effectiveness and compliance with applicable water quality standards.

Attachment E of the MS4 Permit is the Monitoring and Reporting Program (MRP) which outlines the requirements that shall be included in a Permittee's MRP. The MRP is a critical portion of the City of La Habra Heights' overall approach for maintaining water quality and/or mitigating water quality issues

1.1 Integrated Monitoring Plan

The objectives of the Integrated Monitoring Plan (IMP) are to assess the water quality of

receiving water and discharges from the municipal separate storm water sewer system (MS4). The MRP allows Permittees flexibility in how a monitoring program is implemented. The customizable monitoring programs allow the permittee to devote resources to areas that will result in the most effective use of available funds. The City of La Habra Heights is very different from most of the other Permittees. The City has a single "commercial" site, no industrial sites, no formal storm drain system and doesn't own most of the roadways or waterways within the jurisdiction. Due to how the City was originally parceled, most private properties own at least half of the streets and waterways adjacent their properties. Due to the configuration of the City of La Habra Heights' "MS4" and topography of the City, there is limited comingling of storm water prior to its discharge into receiving water bodies. The City is at the top of the watershed. As a result, the City of La Habra Heights has selected the individual IMP option for compliance with the MRP section of the MS4 Permit. The City's IMP will be synchronized with its Watershed Management Plan (WMP) to provide an effective NPDES program in compliance with Order R4-2012-0175.

1.2 Purpose and Scope

The IMP is structured to support the WMP's adaptive management process. Changes and annual data resulting from the monitoring program are intended to assist in evaluating the effectiveness of management actions and to regularly re-evaluate the monitoring plan to better identify sources of contaminants. This plan was developed to address five primary objectives listed in Part II.A.1 of the MRP, are as follows:

- Assess the chemical, physical, and biological impacts of discharges from the MS4s on receiving waters;
- Assess compliance with receiving water limitations and water quality-based effluent limitations (WQBELs) established to implement TMDL wet and dry weather load allocations;
- Characterize pollutant loads in MS4 discharges;
- Identify sources of pollutants in MS4 discharges; and
- Measure and improve the effectiveness of pollutant controls implemented under the new MS4 permits.

Preparation of the IMP is intended to allow for development and utilization of alternative approaches as well as providing for coordination of monitoring activities to more cost effectively address the pollutants of concern.

The IMP is organized into five subsections. Each of the sub sections focuses on an individual monitoring requirement set forth in the MS4 Permit.

- Receiving water monitoring
- Storm water outfall monitoring

- Non-storm water outfall monitoring
- New development/re-development effectiveness tracking
- Regional studies

1.3 City of La Habra Heights

La Habra Heights is a unique community in the greater Southern California metropolitan area because of its rural community character. This community character is not an accident, but reflects the intentional efforts and commitment of residents over the past 75 years. La Habra Heights is bounded on the north (but other side of ridgeline) by the unincorporated communities of Rowland Heights and Hacienda Heights, on the east by unincorporated Los Angeles County, on the south by the City of La Habra, and on the west by the City of Whittier.

1.4 Watershed Location

The City is located at the headwaters of the Coyote Creek Watershed (CCW) and also the San Jose Creek Watershed (SJC). CCW is also classified as the Lower San Gabriel River-Coyote Creek Watershed. This watershed comprises an area that drains approximately 165 square miles of densely populated urbanized areas of residential, commercial, and industrial development as well as some areas of open space and natural land (see Figure 1 Watershed Map). The open and natural lands of this watershed exist mostly in the Puente Hills, Chino Hills, Coyote Hills, and Los Cerritos Wetlands. The CCW is located primarily within Orange and Los Angeles counties, with a small portion in San Bernardino County. The City is 2.8 % of the entire CCW subwatershed.

View of La Habra Heights (circa 1920)

Table 1.1: Proportion of La Habra Heights within the Coyote Creek Subwatershed

Coyote Creek Watershed	185.0 square miles[1]
City of La Habra Heights	5.1 square miles
City Percent of Watershed	2.8%

Source: LACDPW 2014a

San Jose Creek drains approximately 83 square miles of urbanized residential, commercial, and industrial development and open space and natural lands. The Creek is concrete lined in its eastern portion (Reach 1) and soft bottomed just before it joins the San Gabriel River. The City, at only 1.3% of the entire watershed, has very minimal impacts to this waterbody.

Table 1.2: Proportion of La Habra Heights within the San Jose Creek Subwatershed

San Jose Creek Watershed	83.4 square miles[1]
City of La Habra Heights	1.1 square miles
City Percent of Watershed	1.3%

Source: LACDPW 2014b

1.4.1 Watershed Characteristics

Surface water features within the CCW and SJC include, respectively, Coyote Creek-North Fork, Coyote Creek and upper San Jose Creek as are presented in Figure 1 Watershed Map. Surface water bodies within the City are seasonal drainage channels and include La Mirada Creek (draining to Coyote Creek), Coyote Creek –North Fork and upper San Jose Creek. The general pattern of drainage flow in the City, located from the ridgeline south, is from the north to the south and towards the west and center of the City until it reaches the developed channels which collect and transport the surface water flows in westerly and southwesterly directions through the City of La Habra to the Los Angeles County line. The portion of the City located from the ridgeline north, discharges to the north via unnamed creeks, which are part of the headwaters for San Jose Creek (lower Reach 1) and then downslope into Hacienda Heights. As presented in the RAA (URS 2014), Figure 2 shows the local sub-watersheds.

La Mirada Creek and Coyote Creek are the two major southern drainage channels that collect and convey surface water from the City. These facilities' locations and directional flows are described as follows.

La Mirada Creek

La Mirada Creek (OCFCD Facility No. A08) is an earthen channel and flows southwest from the City, just west of Hacienda Road to the City limits of La Habra and Whittier, just south of La Habra Boulevard and north of Stanton Avenue. La Mirada Creek, within the City limits, is a combination of both natural soft-bottom drainages and short culvert (under the roadways. Most of La Mirada Creek is within private residential properties.

Coyote Creek

Coyote Creek (OCFCD Facility No. A01) has three forks—north, central, and southern—with only the north fork impacted by the City of La Habra Heights. This creek generally flows west and south through La Habra to the Los Angeles County line. Each fork of Coyote Creek combines sections of concrete lined channels, earthen channels, and underground pipelines. Coyote Creek's north fork leaves the City of La Habra Heights at Idaho Street as an earthen channel and generally flows south paralleling Idaho Street to the west. It then transitions into a concrete channel, then an underground pipeline, back to an earthen channel, and continues to transition between the three types of channels crossing under La Habra Boulevard and the Union Pacific Railroad until it converges north-easterly of Beach Boulevard and Imperial Highway with Coyote Creek's central and southern forks. Coyote Creek then flows as a pipeline under Beach Boulevard and continues as a concrete lined channel southwesterly adjacent to Beach Boulevard, exiting into the City of La Mirada.

Coyote Creek–North Fork

Coyote Creek–North Fork drains south through the City of Whittier and into Coyote Creek in the City of Cerritos. Coyote Creek–North Fork, also called "La Canada Verde Creek" is primarily a concrete-lined, trapezoidal channel. Several tributaries flow into Coyote Creek–North Fork. The dominant tributary is La Mirada Creek, which drains southwest from the west Puente Hills through parts of La Habra Heights, Whittier, and La Mirada before its confluence with Coyote Creek– North Fork in the City of Cerritos. Coyote Creek – North Fork is approximately 8.3 miles long, all of which is downstream from the City of La Habra Heights.

An existing monitoring site in the North Fork of Coyote Creek (NFC1) will be used to monitor trends in trace metals subject to the TMDL and responses to implementation of control measures. As has been documented, this monitoring site was installed in the North Fork of Coyote Creek as part of an early action measure designed to obtain initial data specifically to address the San Gabriel River Metals TMDL.

San Jose Creek

Draining the most undeveloped, smaller portion of the City, San Jose Creek is impacted by unnamed creeks along the northern portion of the jurisdiction. These creeks discharge to the north into San Jose Creek Reach 1 which consists of the portion of the waterbody from the San Gabriel River confluence to Temple Boulevard in Pomona. San Jose Creek drains a large urbanized watershed and includes waterwater treatment plant discharges, all of which are downstream of La Habra Heights.

It is noted that most of the City jurisdictional area draining to San Jose Creek is the land owned by the Puente Hills Landfill Native Habitat Preservation Authority (approximately

70%). The Authority's property in La Habra Heights is part of a wildlife corridor that extends from the San Gabriel River to the Cleveland National Forest. This corridor will persist if dedicated links of regional open space can continue to be acquired for natural conservation purposes. The balance of jurisdictional area (approximately 30%) draining to this waterbody is residential.

1.5 City of La Habra Heights MS4 System

Due to both the City's General Plan's rural emphasis and the topography, the City's storm drain system is not highly developed. Based on this rural character, runoff is controlled within the street right of way primarily by open channels and short pipe culverts crossing the roadway or property access driveways. As part of a city-wide inventory, the "system" was inventoried and structures defined as follows:

- Standard curb opening catch basin discharging into channels or short pipes
- Open channel inlet discharging into short underground pipes
- Vertical drop inlet
- Culverts under the roadway
- Driveway culverts

Unlike other Los Angeles County area MS4 systems, this system is considered a very basic rural system. There are 573 culvert/structures within the City jurisdiction. Most are located within private streets or on private property, located at known historical points of flooding concentration. Almost all of the structures are isolated, meaning that they are not connected to an overall system. The structures listed are primarily used for directing water flow away from a building structure, roadway or hillside. Catch basins are connected only in as much as they take water from a private driveway or property to a v-ditch or rural drainage channel. Open channels are connected through culverts at roadways. Vertical drop inlets are located where historical slope erosion had occurred as part of an emergency landslide repair project. Where there are no structures the water flows are managed as sheet flow. Most of the City is managed as sheet flow.

It is noted that there are no catch basins in the area of the City Hall, Fire Department and Water District.

Another key issue is that the City is underlain by a geologic formation that is historically highly susceptible to landslides. Currently, mudslides and significant landslides still occur during larger rain events within the City jurisdiction. Future capital improvement projects are expected to be focused on managing flows where flood property damage is most likely to occur.

2.0 City Specific Water Quality Targets

It is the intent of the IMP to provide assessable water quality monitoring data for use in determining the effectiveness of the WMP and for determining compliance with effluent limitations, WQBELS or other numeric targets as established by Total Maximum Daily Loads (TMDLs) or the Los Angeles Region Basin Plan.

The IMP was developed to focus on existing water quality conditions. Based on 10 years of monitoring, data from 2002 to 2012 in Coyote Creek and in upper portions of the San Gabriel River (LA County Flood Control District (LACFCD) mass emission sites S13 and S14) most of the constituents listed in Table E-2 of the MRP have never been detected. Other, non-listed, constituents have been detected, but then, found to not have not exceeded the Receiving Water Limitations (RWLs). It is understood that the IMP approach is designed to target constituents that have been identified as constituents of concern in the receiving waters. Available data from historical monitoring were used to classify segments of the affected, City–specific watershed and establish water body-pollutant combinations into one of the following three categories:

- **Category 1 (Highest Priority):** Water body-pollutant combinations for which water quality-based effluent limitations and/or receiving water limitations are established in Part VI.E, TMDL Provisions, and Attachments L through R of the Municipal Separate Stormwater Sewer System (MS4) Permit.

- **Category 2 (High Priority):** Pollutants for which data indicate water quality impairment in the receiving water according to the State Water Resources Control Board's Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List (State's Listing Policy) and for which MS4 discharges may be causing or contributing to the impairment.

- **Category 3 (Medium Priority):** Pollutants for which there are insufficient data to indicate water quality impairment in the receiving water according to the State's Listing Policy, but which exceed applicable water limitations contained in Order R4-2012-0175 and for which MS4 discharges may be causing or contributing to the exceedance.

Three water bodies were considered while reviewing data potential impairment of the receiving waters (Table 2-1). These included the San Jose Creek Reach 1 (SJC1), Coyote Creek (CC) and the North Fork of Coyote Creek (NFC). Table 2-1 identifies selected applicable water bodies and their respective pollutant water quality targets that have been

established. These pollutants will be the central focus of the monitoring program in addition to the standard base line water quality related parameters required under the MS4 Permit and the first year monitoring program required pollutants identified in Table E-2 of Attachment E in the MS4 Permit (See Appenidx A).

Table 2-1: City Specific Applicable Waterbodies, Associated Pollutants and Categories

City Specific Pollutants: Categorized Priority			
	Category 1	**Category 2**	**Category 3**
Water Body	**TMDL**	**303(d) List**	**Other Pollutants of Concern**
North Fork Coyote Creek	Metals -Lead (W) -Copper[1] (W,D) -Zinc (W,D)	Indicator Bacteria (W,D) Cyanide (W,D)[3] Selenium (W,D)[2]	Mercury (W,D)[3] pH (D)
Coyote Creek	Metals -Lead (W) -Copper[1] (W,D) -Zinc (W,D)	Indicator Bacteria (W, D) Diazinon (W,D)[4]	pH (W,D) MBAS (W) Nickel (D)[3]
San Jose Creek Reach 1	Selenium (D)[2]	Coliform Bacteria (W,D) pH (W,D) Total Dissolved Solids (D)	Lead (W) Zinc (W,D) Copper (W,D) PAH (W,D)[3] Chloride (D) Cyanide (W)[3] Dissolved Oxygen (W)

[1] - Dissolved Copper
[2] - No typical source land uses within jurisdiction
[3] - Likely source - vehicles on County-owned roads
[4] - Diazinon has been banned for use since 2004
W and D = Wet (W) and Dry (D) Weather Flows respectively

The City of La Habra Heights is subject to the following Category 1 (Highest Priority) pollutants as established in Part VI.E TMDL Provisions and Attachment P of the MS4 Permit. The San Gabriel River Metals TMDL was established by USEPA (March 26, 2007) that includes Waste Load Application (WLAs) for MS4 and other dischargers to the San Gabriel River and Coyote Creek. This TMDL includes a dry weather WLA for selenium in San Jose Creek. Attachment P lists both Coyote Creek and San Jose Creek as impaired with waste load allocations for a combination of wet weather and dry weather critical conditions as outlined in Table 2.2 below.

Table 2-2: TMDLs in San Gabriel River Watershed Management Area

Name	Pollutant	Waste Load Allocations[1]		Source
		Wet[3]	Dry	
Coyote Creek	Copper	24.71 µg/L x daily storm volume (L)	0.941 kg/day	Vehicle brake pads, atmospheric deposition, soil erosion
	Lead	96.99 µg/L x daily storm volume (L)	N/A	Automobile operation, industry, legacy pollutant
	Zinc	144.57 µg/L x daily storm volume (L)	N/A	Vehicle tires, galvanized metal, atmospheric deposition
San Jose Creek (Reach 1 and 2)	Selenium	N/A	0.232 kg/day 5 µg/L[2]	Soil erosion

Notes:

[1] In Coyote Creek, wet weather Total Maximum Daily Loads apply when the maximum daily flow in the creek is equal to or greater than 156 cubic feet per second (as measured at Los Angeles County Department of Public Works flow gage station F354-R; Dry weather waste load allocations apply when flow at F354-R are below 156 cfs (LARWQCB 2006).

[2] Dry weather Total Maximum Daily Loads apply in San Jose Creek when flow at Los Angeles County Department of Public Works flow gage station F312B is below or equal to the median flow of 19 cubic feet per second (LARWQCB 2006).

3- For wet weather, as per Attachment P a flow rate of 0.25 inches per day were used per conversation with the Water Board staff (Ridgeway, email) was applied. There was a data gap from October 1, 2002 to September 30, 2003.

The San Gabriel River and impaired Tributaries Metals and Selenium TMDL, as established by the USEPA, does not include a timeline for compliance with the WLAs nor does it have any interim milestones established. The City of La Habra Heights proposed BMP implementation schedule and compliance criteria, as is applicable to the pollutant sources/land uses in the City, are identified in the WMP.

The Category 2 pollutants are founded on the 303 (d) listing constituents. The 303(d) listed pollutants numerical criteria are as follows:

Table 2-3: Category 2 – 303(d) Listing

Water Body	**303(d) List**	**Basin Plan or Numerical Criteria**
North Fork Coyote Creek	Indicator Bacteria (W,D)	4000/100ml Not more than 10% allowed to exceed in 30 Days
	Cyanide (W,D)	CTR Freshwater (1 hr. avg.) = 22 ug/L
		CTR Freshwater (4 day avg.) = 5.2 ug/L
	Selenium (W,D)	CTR Freshwater (1 hr. avg.) = 20 ug/L
		CTR Freshwater (4 day avg.) = 5.0 ug/L
Coyote Creek	Diazinon (W,D)	California Dept. of Fish and Game Freshwater (4-day avg.) = 0.05 ug/L
		California Dept. of Fish and Game Freshwater (1-hr. avg.) = 0.08 ug/L
	Indicator Bacteria (W, D)	4000/100ml Not more than 10% allowed to exceed in 30 Days
San Jose Creek Reach 1	Coliform Bacteria (W,D)	Bacteria WQBEL: 4000/100ml Not more than 10% allowed to exceed in 30 days
	pH (W,D)	6 to 8.5
	Total Dissolved Solids (D)	500 mg/L
	Toxicity (W,D)	See Section XIII of MS4 Permit Attachment E

It is noted that Ammonia has been determined to be from a known point sources, Municipal Wastewater. Toxicity will be managed through regional SCCWRP efforts. No additional monitoring is required. Only Indicator Bacteria, Coliform Bacteria, Selenium, Lead, Zinc and Copper were modeled in the RAA. (URS,2014)

Other potential pollutants of concern have not been identified due to a lack of conclusive monitoring data. It is anticipated that if other pollutants of concern exist, the inclusion of

Table E-2 of Attachment E in the MS4 permit with first year monitoring requirements will serve as an adequate process for screening and identifying the other unidentified pollutants of concern should they exist in MS4 discharges from the City of La Habra Heights.

3.0 Receiving Water Monitoring

The primary goal of receiving water monitoring is to determine whether the applicable receiving water quality goals are being achieved. MS4 discharges can impact the receiving water quality and potentially contribute pollutants mobilized by storm water or non-storm water flows captured the MS4. Over time, results of the monitoring will be analyzed for trends in pollutant concentrations in the receiving water body. As a result of MS4 discharges exceeding allowable pollutant limits, beneficial uses identified in the Los Angeles Region Basin Plan may be impacted. Results from the receiving water monitoring program will also be used to determine if beneficial uses are fully supported as determined by water chemistry as well as aquatic toxicity and bio-assessment monitoring.

The City of La Habra Heights is located in the San Gabriel River Watershed Management Area. The City drains to Coyote Creek, North Fork Coyote Creek and a small portion to Reach 1 of the San Jose Creek. San Jose Creek and Coyote Creek are both tributary to Reach 3 of the San Gabriel River which eventually flows into the Pacific Ocean.

Permittees have been directed to utilize previously designated mass emission stations for receiving water sampling. The closest station with respect to the City is located in Reach 2 of the San Gabriel River. Los Angeles County monitoring station S14 is located below San Gabriel River Parkway in Pico Rivera. The upstream tributary area is 450 square miles at this location. The City is directly tributary to San Jose Creek Reach 1 which is located upstream of monitoring station S14. Monitoring Station S13, located on Coyote Creek, is also to be used by the City as supplemental data. . Figure 3 notes the approximate location of stations S14 and S13 on a map of the San Gabriel River Watershed Map developed by Los Angeles County. Receiving water monitoring data from these stations ill be utilized in this IMP, however due to vast size of area that drains to the station, all data will be supplemental to results of outfall monitoring from the City. The City reserves the right to change the receiving water monitoring location should a more representative alternative location be identified at a later date. Changes to the proposed receiving water monitoring location will be at the discretion of the City.

3.1 TMDL Monitoring

TMDL monitoring and tracking is a critical component of the IMP. The City is named in Table K-6 of the MS4 Permit as being subject to the San Gabriel River and Impaired

Tributaries Metals and Selenium TMDL. The San Gabriel River Metals TMDL is a USEPA established TMDL and does not have an implementation schedule for complying with the recommended Waste Load Allocations. Table 2-2 highlights the applicable TMDL Waste Load Allocations (WLAs) established for the City. TMDL WLAs have been established for San Jose Creek Reach 1. As previously mentioned, the City plans to utilize the monitoring data from mass emissions stations S14 and S13 identified in Figure 3 as a supplement to the data that is gathered directly from the City's major outfalls. It is also noted that for both the Coyote Creek and San Jose Creek watersheds the City of La Habra Heights is at the top of the watershed, meaning they have no comingled flows into the jurisdiction. This arrangement will allow the City to better establish its direct contribution to water quality in the watershed.

3.2 Wet Weather Receiving Water Monitoring Requirements

Minimum required receiving water monitoring frequencies are defined in section VI.C of Attachment E in the MS4 Permit. Wet weather is defined as when the flow with the receiving water is at least 20% greater that the base flow or as defined in an approved IMP, CIMP or TMDL. In an effort to simplify the wet weather definition the City will utilize the definition in Attachment A of the MS4 Permit, which defines the wet season as the time period between October 1st and April 15th unless a storm event that is qualified to be targeted as the first event of the year is forecasted within a reasonable amount of time prior to October 1st.

Wet weather monitoring will occur at least three times per year for all applicable parameters with the exception for aquatic toxicity. As a constituent, aquatic toxicity monitoring is not currently scheduled for implementation. If aquatic toxicity monitoring is found necessary, the implementation schedule and approach will be developed based on the regional programs.

Receiving water monitoring shall be coordinated to start as soon as possible following storm water outfall monitoring to better reflect the potential impact from MS4 discharges.

3.3 Dry weather Receiving Water Monitoring Requirements

Dry weather monitoring requirements are defined in section VI.D of Attachment E in the MS4 Permit. Monitoring shall take place a minimum of two times per year for all parameters, or more if required by a TMDL monitoring plan. At least one of the monitoring events shall take place during the historically driest month of the year. Typically the driest month of the year is in August, which will be utilized for the time period of which at least one of the monitoring events occurs. The City is also photographing four key locations

along La Mirada Creek on a daily (Monday through Friday) basis to document the frequency and volume of dry weather flows.

3.4 Outfall Monitoring

Outfall monitoring will play a key role in determining the water quality of both storm water and non-storm water discharges from the City's MS4. Similarly to the receiving water monitoring program, the outfall monitoring program will be utilized to determine whether the applicable water quality goals are being achieved. MS4 discharges can impact the receiving water quality and potentially contribute pollutants mobilized by storm water or non-storm water flows deposited to the receiving water body. Over time, results of the monitoring will be analyzed for trends in pollutant concentrations. The program will also be utilized in the elimination of prohibited non –storm water discharges.

The City has conducted an inventory of its MS4 outfalls based on storm drain as-built records from the City's files, the Los Angeles County Storm Drain Records and a physical field reconnaissance. The findings from the MS4 outfall inventory process are outlined in Table 3-1.

Table 3-1 Stormwater Outfall Locations

Outfall	Receiving Water Body	Location/Description	Longitude/Latitude	Condition
LHH-1	Coyote Creek-North Fork	Behind Fire Station	117°57'54.14" W 33°56'50.73" N	Soft bottom; adjacent private property
LHH-2	San Jose Creek	Off of Hacienda Blvd.; roadside drainage	117°58'03.45" W 33°58'28.24" N (approximate)	Soft bottom; adjacent private property
LHH-3	Coyote Creek-North Fork	West of Le Flore Drive; approximately 1700 feet south west of roadway	117°58'57.06" W 33°57'32.79" N (approximate)	Private property; resource management land use

3.5 Storm Water Outfall Based Monitoring

Storm water outfall monitoring will be utilized to determine compliance with wet weather TMDL and WQBEL requirements. The outfall chosen for monitoring has a representative drainage area for the land uses found within the City.

3.5.1 Outfall Monitoring Site Selection

Outfall locations selected for storm water monitoring were considered based on a number of criteria. Per the MRP section of the MS4 Permit, the City must monitor at least one location per sub watershed drainage area (HUC-12). Within the jurisdictional boundaries of the City there are ten HUC-12 areas as shown in Figure 2. The County of Los Angeles developed HUC-12 equivalent areas which are based on more detailed information of the existing topography and storm drain systems. When comparing both sub-watershed boundaries it is apparent that some differences exist, however in regards to the monitoring requirement of one outfall per sub-watershed, there effectively is no difference in the number of HUC-12 boundaries in the City's jurisdiction. To simplify the outfall location selection, the RAA utilized HUC-12 equivalent boundaries per the requirements of the MS4 Permit for determining locations.

Other parameters that were taken into account when selecting the storm water outfall monitoring locations includes correlation between the outfall drainage area land use and the land uses within the City's jurisdiction. The majority of the City is devoted to signal family residential development and open space. Figure 4 is a map of the land uses with in the City as developed for the RAA (URS, 2014). Establishing an outfall that accurately reflects the City's land use limits the available monitoring sites to a few key points. Land uses within individual HUC-12 sub watersheds with in the City's boundaries do not reflect the City's land use in all cases. Due to the limited municipal, public and recreational land uses in the City and the centralized concentration of open space, not all of the potential HUC-12 based outfall monitoring locations will reflect the City's overall land use.

Prospective storm water monitoring outfall locations were first selected based on HUC-12 boundaries. The list of outfalls was further refined on the basis of having a similar representative land use in the drainage area as the land use in the city. The best available outfall of each HUC-12 area was then selected for further investigation.

The final parameters reviewed in selecting the proposed storm water outfall location were the location conditions and potential safety concerns. Ideal outfall monitoring sites would allow for safe access and accurate sampling practices with little impact to surrounding communities and traffic.

Outfall monitoring locations selected to be included in this portion of the IMP are at manmade structures, and are relatively accessible. None of the selected monitoring

locations are in the path of traffic, however to allow for safe access, adequate safety practices and traffic control measures must be utilized when field crews are conducting sampling or maintenance. The proposed storm water outfall monitoring locations are listed in Table 3-2 below. Figure 5 illustrates the geographical locations on a map of the City.

Table 3-2 Proposed Stormwater Outfall Monitoring Locations

Outfall	Receiving Water Body	Location/Description	Longitude/Latitude	Condition
LHH-1	Coyote Creek- North Fork	Behind Fire Station	117°57'54.14" W 33°56'50.73" N	Soft bottom; adjacent private property
LHH-2	San Jose Creek	Off of Hacienda Blvd.; roadside drainage	117°58'03.45" W 33°58'28.24" N (approximate)	Soft bottom; adjacent private property

Storm water outfall monitoring site LHH-1 will serve as a primary monitoring location for a majority of the City. LHH-1 is at the bottom of a drainage area calculated at approximately 1,921.5 Acres (49% of the City). LHH-1 is located west of Hacienda Boulevard behind the Fire Station. The point where monitoring will take place is within the natural bottom creekbed. The point of monitoring is located approximately 1,000' north of the City limits. Further upstream of the selected location is the continuation of La Mirada Creek and related unnamed tributaries. Further downstream from the monitoring location, the channel merges with Coyote Creek within the City of La Mirada. This location was chosen as it is the most representative of all landuses in the City and is also one of the only locations with public access.

Storm water outfall location LHH-2 will serve as the storm water monitoring location for the northerly portion of the City. This portion of the City is the drainage area that flows to San Jose Creek. The approximate drainage area for LHH-2 is 156 Acres (.04% of the City). The scale of storm water flow that is transported at this location is very low, however this site is proposed because it is the only location where flow is draining from the City to the San Jose Creek watershed. The monitoring site is located along the east side of Hacienda Boulevard within the drainage. The location is at the City of Hacienda Heights city limit. The outfall is a natural creekbed.

The City proposes to monitor one outfall location for each of the sub watersheds that it is tributary to instead of the HUC-12 based requirement. The locations proposed to be

monitored by the City only include LHH-1. It is anticipated that the results from LHH-1 would be similar to those found at LHH-2 however more conservative as there are more flows at the LHH-1 location. Monitoring site LHH-1 offers a better representation of land use and larger drainage area than other locations. The City may consider monitoring at both wet weather outfall monitoring locations at a later date during the permit term, however for the first year and foreseeable future of the monitoring program the City will only monitor outfall LHH-1for storm water flows as an attempt to maximize available funds for monitoring an minimize redundant data collection.

3.5.2 Monitoring Requirements for Storm Water Outfall Monitoring

Section VIII.B of Attachment E in the MS4 Permit outlines the minimum requirements for Storm water outfall monitoring. Storm water discharges shall be monitored a minimum of three times per year for all parameters except for aquatic toxicity. Storm water monitoring shall take place during wet weather conditions. Wet weather conditions are defined as when the receiving water is flowing at least 20% greater than the base flow or as otherwise defined by a TMDL monitoring plan or this document. Monitoring events shall target the first qualifying wet weather event of the season and at least two additional events in the same season. The first wet weather event to be targeted shall be forecasted at least 24 hours in advance with 70% probability of rainfall of at least .25 inches. The two additional events to be monitored shall be separated by a minimum of three dry condition days between events. Monitoring Parameters are identified in Table 3-6.

Table 3-6: Outfall Monitoring Parameters

Outfall Monitoring Parameters	
Parameter	**Monitoring Regulatory Basis**
Flow	Minimum Characteristic
pH	Minimum Characteristic
Total Suspended Solids	Minimum Characteristic
Hardness	Minimum Characteristic
Dissolved Oxygen	Minimum Characteristic
Temperature	Minimum Characteristic
Specific Conductivity	Minimum Characteristic
Lead	TMDL
Copper	TMDL
Zinc	TMDL
Selenium	TMDL
Coliform Bacteria	303(d)
Indicator Bacteria	303(d)
Cyanide	303(d)

3.5.3 Storm Water Outfall Monitoring Sampling Methods

Sampling of storm water at outfalls will take place during the first 24 hours of an event or before the event ends if less than 24 hours. A minimum of three grab samples separated by 15 minutes of each hour for a 24 hour event or for the duration of the storm if less than 24 hours, will be taken to create a flow weighted composite sample of the discharge from an outfall. Continuous sampler equipment may be selected for use in this monitoring plan. Grab samples may be utilized for specific pollutants at the discretion of the sampling lab/consultant.

Sampling and analysis will be conducted by a contracted water sampling consultant. Tasks conducted by the consultant will conform to the following requirements which will be verified by the City:

- Consulting Laboratory shall demonstrate that required pollution detection limits can be met with reasonable accuracy and precision.
- All equipment utilized in gathering and analyzing samples shall be cleaned and maintained in a manner that prevents sample contamination.
- Sample analysis shall be conducted in accordance with EPA established or Regional Board accepted methods and procedures applicable to pollutant(s) being analyzed.
- An adequate QA/QC program shall be in place to ensure precise and accurate results.

3.4 Non-Storm Water Outfall Based Monitoring

Non-storm water outfall monitoring will be utilized to determine compliance with dry weather TMDL and WQBEL requirements. Outfalls will be screened to determine the presence of dry weather flows. Dry weather monitoring will also be utilized to aid in the elimination of illicit discharges. Outfalls determined to have dry weather flows will be prioritized and investigated to determine the source of the flows and if the flows are categorized as a prohibited discharge.

3.4.1 Outfall Screening Procedure

Upon approval of the IMP, the City will commence the screening process of outfalls for dry weather flows. Outfalls found to have consistent significant dry weather flows will be prioritized based on the receiving water, observed dry weather flow volume, observed water quality and the size of the outfall.

The initial stage of screening will be comprised of a visual assessment of all outfalls. This will take place during the first dry season that this IMP is in effect. Each outfall will be visited and inspected on a daily basis for flow during dry weather conditions. If flow is present, pictures and general notes will be taken of the flow characteristics. Outfalls where dry weather flow is considered to be substantial will be visited at least two additional times to confirm initially observed flow characteristics are consistent. If no flows are found, photographs will be taken and weather characteristics documented.

Each outfall found to have significant dry weather flows shall be recorded and tracked over the duration of the MS4 Permit. Field inspection reports shall be kept on file in an electronic format for future reference. Field reports shall include the following information at a minimum.

- Date and Time of Visual inspection
- Outfall ID Number (Reference Outfall inventory)
- Outfall Structure Description Receiving Water Description at Discharge Point
- Latitude/Longitude or Nearest Street Address
- Property Ownership, Access, and Safety Considerations
- Photographs of Outfall
- Photographs of Non-storm Water Discharge
- Estimated Discharge Rate
- Observed Characteristics of Discharge
    - Recent weather

Following the initial visual screening process, the field reports of outfalls with non-storm water discharges will be compiled and reviewed for the purpose of prioritizing source investigations. The MS4 Permit requires that prioritization be determined by the classification parameters below. The prioritization levels have been classified in to tiers in ascending numeric values with Tier 1 being the first outfalls to be monitored.

Tier 1 Prioritization – Outfalls discharging directly to receiving waters with WQBELS or receiving water limitations in the TMDL provisions for which final compliance has passed.

Tier 2 Prioritization – All major outfalls and other outfalls that discharge to a receiving water subject to a TMDL shall be prioritized according to TMDL compliance schedules.

Tier 3 Prioritization – Outfalls to which monitoring data exists and indicate recurring exceedances of one or more of the Action Levels identified in Attachment G of the MS4 permit.

Tier 4 Prioritization - All other major outfalls identified to have significant non-storm water discharges.

Prioritization of outfall investigations within each Tier will be based on best professional judgment with flow volume, outfall drainage area, and observed discharge water quality among other parameters taken into account.

3.4.2 Source Investigation

Non-storm water outfall source investigations will be scheduled to ensure that at least 25% of the outfalls with non-storm water discharges will undergo a source investigation within three years of the effective date of the MS4 Permit (Effective Date December 28, 2013), and 100% complete within 5 years of the effective date of the permit.

Source investigations shall include both desktop level analysis of potential sources and field investigations to trace sources of dry weather flows. Based on the source investigation results the City will proceed with actions described in Table 3-7.

Table 3-7 Source Investigation Steps

Source Investigation Steps	
Flow Source	**Action**
Illicit Discharge	The City will enforce its ordinances accordingly to the discharge situation. Actions will be documented and reported in the next Annual Report.
NPDES Permitted Discharges	If the source is determined to be a Permitted Discharge, the City will notify the Regional Water Board and will document the actions in the Annual Report.
Unknown or Conditionally Exempt	If conditionally exempt, the discharge will be documented. If unknown, the characteristics of the discharge will be documented and continued to be investigated.
Multiple Sources	The City will attempt to quantify the proportional source and proceed as an illicit discharge.

Before a source of non-storm water discharge is classified as unknown, it shall be investigated to a reasonable extent. Investigation procedures shall include field inspections and desktop studies. Monitoring for indicator parameters shall be conducted if initial investigations yield no results. Other means determined to be potentially effective in locating the source of unknown flows will also be evaluated. A description of all efforts to identify a source of dry weather flows will be included in the next Annual Report for sources to be classified as unknown. All MS4 outfalls requiring no further action shall be maintained in the Storm Drains, Channels and Outfalls map and associated database.

3.4.3 Monitoring Non-Storm Water Discharges Exceeding Criteria

Within 90 days after completing the source identification or after the Executive Officer of the Regional Water Board approves the IMP, whichever is later, the City will move forward with implementing monitoring activities. Dry weather monitoring activities will be limited to one outfall that has been determined to convey significant discharges comprised of either unknown or conditionally exempt non-storm water discharges, or containing discharges attributed to illicit discharges per dry season. The following parameters shall be monitored:

- Flow
- Pollutants assigned a WQBEL or RWL to implement TMDL Provisions applicable to the receiving water body
- Other Pollutants identified on the CWA 303(d) list for receiving water
- Pollutants identified in a TIE conducted in response to observed aquatic toxicity during dry weather at the nearest downstream receiving water monitoring station during the last sample event or, where the TIE conducted on the receiving water sample was inconclusive, aquatic toxicity. If the discharge exhibits aquatic toxicity, then a TIE shall be conducted.
- Other parameters in Table E-2 identified as exceeding the lowest applicable water quality objective in the nearest downstream receiving water monitoring station per Part VI.D.1.d. of the MS4 Permit.

The frequency of monitoring during the first year shall be at least four times per outfall in the first year for outfalls that have been identified as having non-storm water discharges of unknown origin. Monitoring will then be reduced to at least twice per year for the second year. Dry weather outfall monitoring frequency will continue at a minimum of two sampling events for the remainder of the MS4 Permit cycle. Dry weather monitoring frequency may be increased from two times per year should the City deem it necessary to further trace flow source, BMP effectiveness or any other reason that would aid the City in improving water quality.

The City will evaluate the results of the first year of dry weather monitoring and consider submitting a request to the Executive Officer of the Regional Water Quality Board to eliminate the monitoring requirements for specific pollutants found to not be a threat to the receiving waters.

3.4.4 Sampling Methods

Non storm water discharges shall be monitored during days when precipitation is less than 0.1 –inch and those not less than three days after a rain event of greater than 0.1-inch. A minimum of three grab samples separated by 15 minutes for each hour during a 24 hour period, will be taken to create a flow weighted composite sample of the discharge from an outfall. Continuous sampler equipment may also be selected for use in this monitoring

plan. Samples will then be taken from the site to a City selected lab for analysis.

Sampling and analysis will be conducted by a contracted water sampling consultant. Tasks conducted by the consultant will conform to the following requirements which will be verified by the City:

- Consultant laboratory shall demonstrate that required pollution detection limits can be met with reasonable accuracy and precision.
- All equipment utilized in gathering and analyzing samples shall be cleaned and maintained in a manner that prevents sample contamination.
- Sample analysis shall be conducted in accordance with EPA established or Regional Board accepted methods and procedures applicable to pollutant(s) being analyzed.
- An adequate QA/QC program shall be in place to ensure precise and accurate results.

4.0 New Development/Redevelopment Effectiveness Tracking

The objective of the new development/re-development tracking system is to track BMP effectiveness. This program will be utilized to adjust and hone BMP implementation and design with the intent to improve the effectiveness of BMPs. The City will keep a database of the information outlined below for use in evaluating the effectiveness of the new development and re-development in the City. It is noted that approximately 80% of the City is residential and BMPs will be located on private property.

4.1 New Development Re-development Tracking Parameters

The following elements will be documented and tracked as part of this program:

- Name of project developer and project
- Percent of Design Storm volume to be retained on site
- Project Location & Map
- BMP sizing criteria
- Date of Certificate of Occupancy/Project completion
- Documentation of Owner Maintenance Agreement

As the City's database of new development and re-development effectiveness builds, the City will evaluate the effectiveness of certain BMPs and re-evaluate what BMPs will be allowed for consideration in new development or re-development projects.

It is noted that there will not be off-site BMP opportunities developed within the City.

5.0 Regional Studies

Regional Studies are required to further characterize the impact on beneficial uses of receiving waters from discharges originating at the MS4 outlets. These studies will include the Southern California Storm water Monitoring Coalition (SMC) Regional Watershed Monitoring Program and special studies as specified in approved TMDLs. The City is not named as a member of the SMC, but the County of Los Angeles is. The City will meet the Permit requirement of participating in the SMC via the County of Los Angeles's participation.

The LACFCD will continue to coordinate and assist in implementing the bioassessment monitoring requirement of the MS4 permit on behalf of the permittees in Los Angeles County. Initiated in 2008, the SMC's Regional Bioassessment Program is designed to run over a five-year cycle. Monitoring under the first cycle concluded in 2013, with reporting of findings and additional special studies planned to occur in 2014. The SMC Joint Executive Workgroup is currently working on designing the bioassessment monitoring program for the next five-year cycle, which is scheduled to run from 2015 to 2019.

6.0 Special Studies

Per the MS4 Permit each permittee shall be responsible for conducting special studies required in an effective TDML or an approved TMDL Monitoring Plan. The City is subject to one TMDL which is the San Gabriel River and Impaired Tributaries Metals and Selenium TMDL. No special studies were classified as required in the final TMDL. A number of potential special studies are identified in the TMDL, but at this time no special studies have been considered for further development by the City. In the event that monitoring data would suggest that a special study would benefit the City, further investigation of potential study(ies) will be reviewed pending available budget to do so.

7.0 Annual Reporting

On an annual basis, the City will submit an annual report to the Regional Water Quality Control Board on or before December 15th. The report will document and present key NPDES information that was gathered for previous fiscal year (June 1 to July 30). The report shall include information that will allow the Regional Board to assess the results of the pervious years NPDES program. The report topics discussed shall include:

- Implementation of the Watershed Management Plan
- The Impact of storm water and non-storm water discharges on the receiving water
- Compliance with receiving water limitations, numeric water quality based effluent limitations and non-storm water action levels
- Effectiveness of control measures in reducing discharges of pollutants from the MS4 to receiving waters
- Whether the quality of MS4 discharges and the health of receiving waters is improving, staying the same, or declining as a result of watershed management program efforts, an/or TMDL implementation measures or other minimum control measures
- Whether changes in water quality can be attributed to pollutant controls imposed on new development, re-development or retrofit projects.

Other key information will be presented will provide the Regional Board a clear and representative view of how the Watershed Management Plan and Integrated Monitoring Plan are being implemented. Section XVI through XVIII of Attachment E to the MS4 Permit discusses in detail the required annual reporting requirements.

8.0 Adaptive Management Process

The City will utilize the MS4 Permit required adaptive management process to review and potentially modify the IMP in an effort to improve the effectiveness of the plan. The adaptive management process will take place every two years from the date of approval by the Regional Water Quality Control Board. The review process of the plan will include consideration of the following items:

- Progress toward achieving interim and/or final water quality-based effluent limitations and/or receiving water limitations in Part VI.E and Attachment L through R, according to established compliance schedules.
- Progress toward achieving improved water quality in MS4 discharges and achieving receiving water limitations through implementation of the watershed control measures based on an evaluation of outfall-based monitoring data and receiving water monitoring data.
- Achievement of interim milestones.
- Re-evaluation of water quality priorities identified for the WMA based on more recent water quality data for discharges from the MS4 and the receiving water(s) and a reassessment of sources of pollutants in MS4 discharges.
- Availability of new information and data from sources other than the monitoring program with in the WMA that informs the effectiveness of the actions implemented by the IMP.
- Regional Water Board recommendations.
- Recommendations for modifications to the Watershed Management Program solicited through a public participation process.

The findings of the adaptive management review process can result in modifications to the IMP including changes to compliance deadlines, interim milestones necessary to improve the effectiveness of the program. Modifications to compliance deadlines established by TMDLs will not be allowed through the adaptive management process. Proposed modifications to the IMP shall be reported by the City in the Annual Report. Proposed modifications identified through the adaptive management process shall be implemented upon approval by the Regional Board Executive Officer within 60 days of their submittal if the Regional Board Executive has not expressed any objections to the modifications.

9.0 References

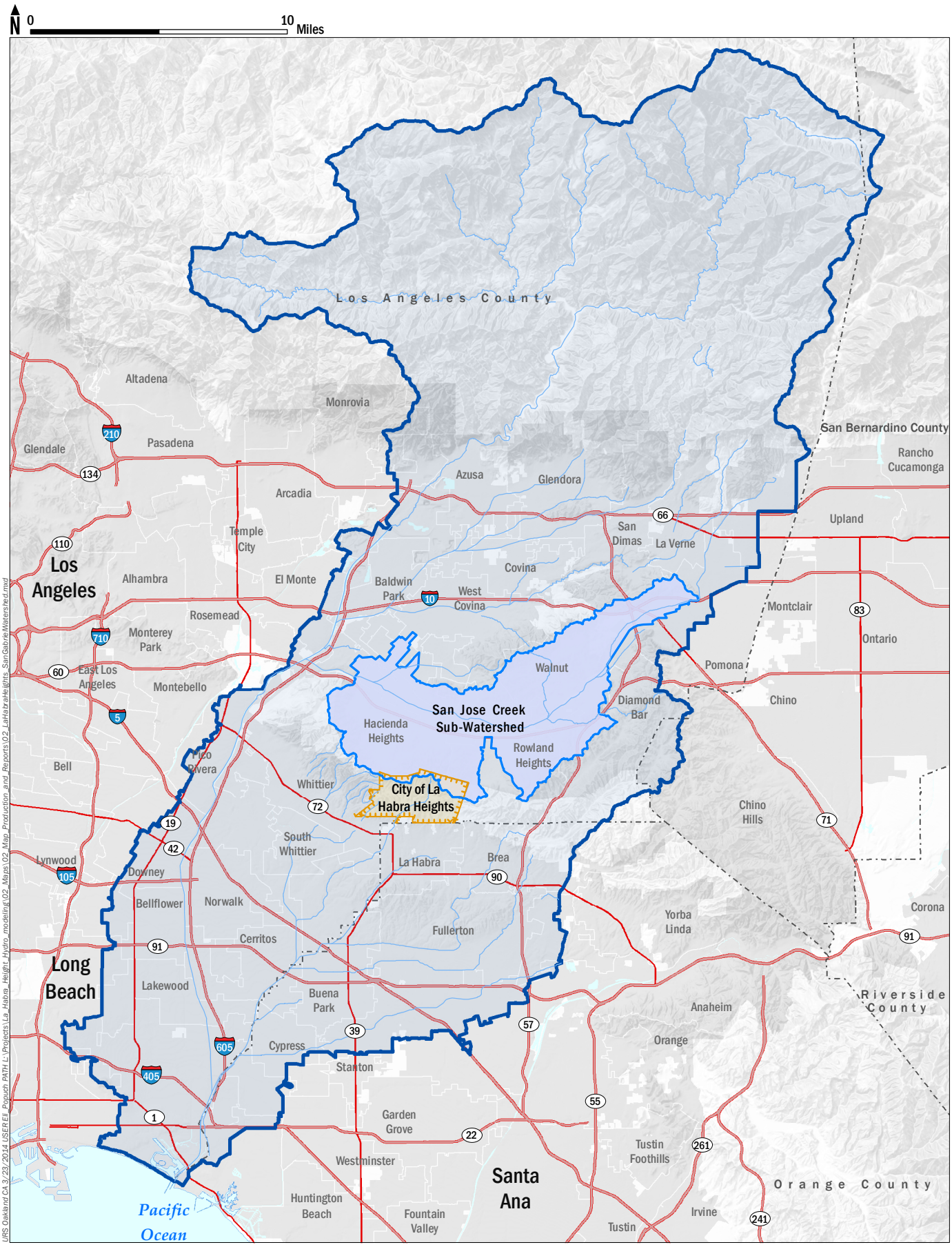
Los Angeles Regional Water Quality Control Board (Regional Board), 2012. Order No. R4-2012-0175 NPDES Permit No. CAS004001 Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, except those Discharges Originating from the City of Long Beach MS4. November 8. http://www.waterboards.ca.gov/losangeles/water_issues/programs/stormwater/municipal/la_ms4/2012/Order%20R4-2012-0175%20%20A%20Final%20Order%20revised.pdf

Los Angeles Regional Water Quality Control Board (Regional Board), 1994. "Water Quality Control Plan Los Angeles Region." June. http://www.waterboards.ca.gov/losangeles/water_issues/programs/basin_plan/electronics_documents/bp1_introduction.pdf

Los Angeles Regional Water Quality Control Board (Regional Board), 2007. "Total Maximum Daily Loads for Metals and Selenium San Gabriel River and Impaired Tributaries." March. http://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/Established/San%20Gabriel%20River%20Metals%20TM DL/final_sangabriel_metalstmdl_3-27-07.pdf

Los Angeles County Department of Public Works, 2014. "San Gabriel River Watershed." June. http://ladpw. org/wmd/watershed/sg/

Figures



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URS

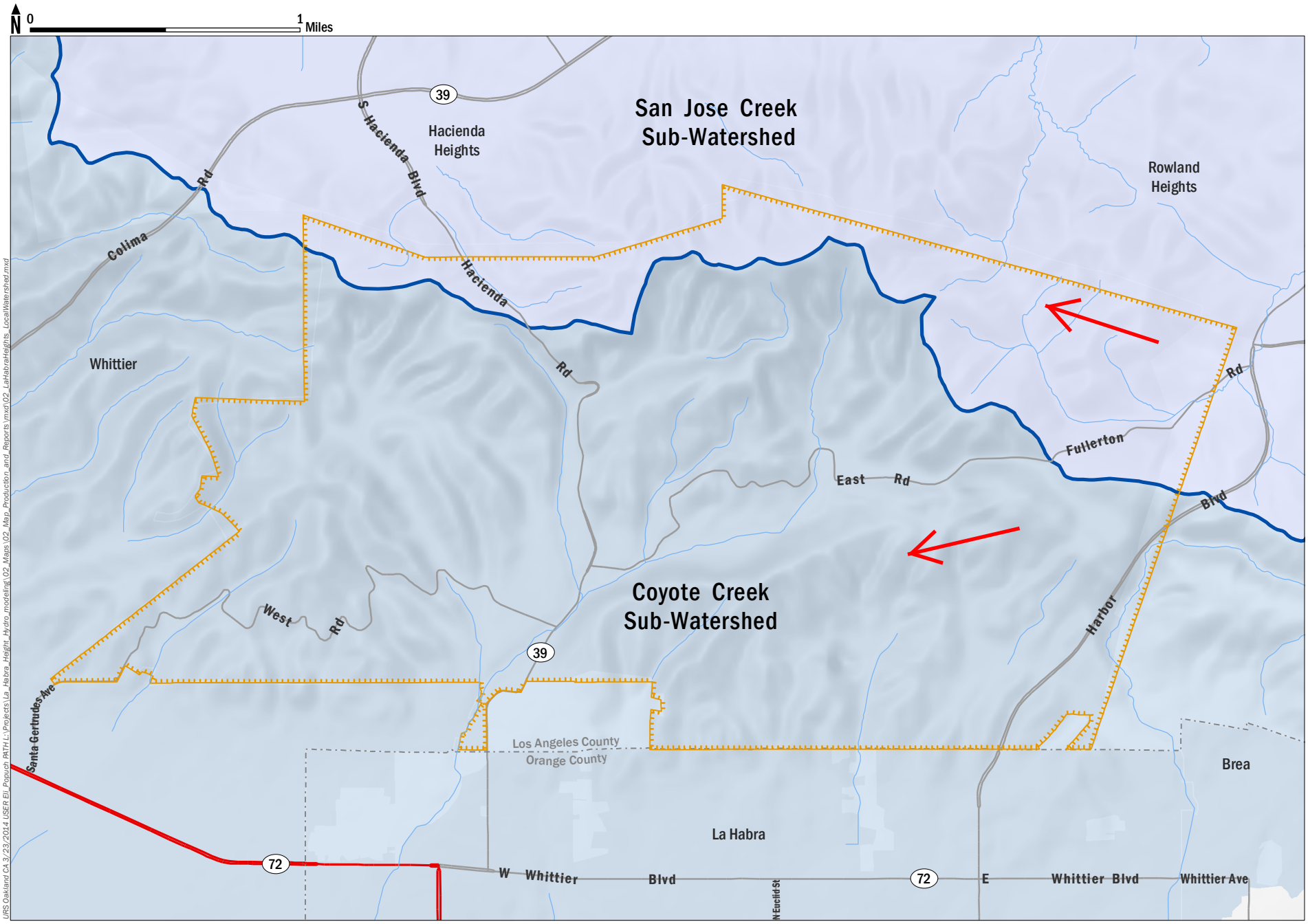
City of La Habra Heights

City of La Habra Heights Reasonable Assurance Analysis

Source: USGS National Hydrography Dataset, 2013

FIGURE 1

San Gabriel Watershed



URS

City of La Habra Heights Water Department

City of La Habra Heights Reasonable Assurance Analysis

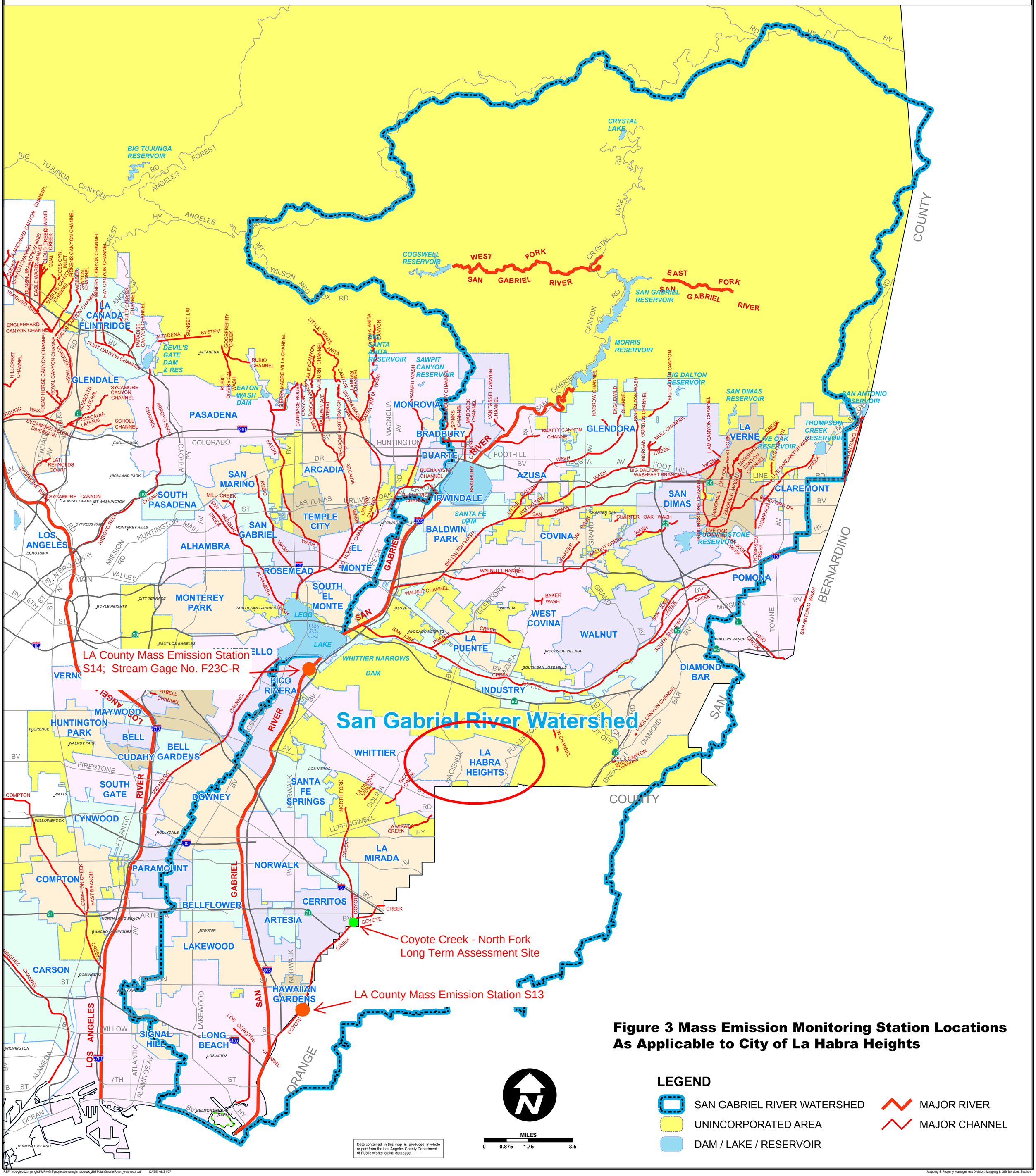
Source: USGS National Hydrography Dataset, 2013

FIGURE 2

La Habra Heights Local Subwatersheds

COUNTY OF LOS ANGELES

SAN GABRIEL RIVER WATERSHED



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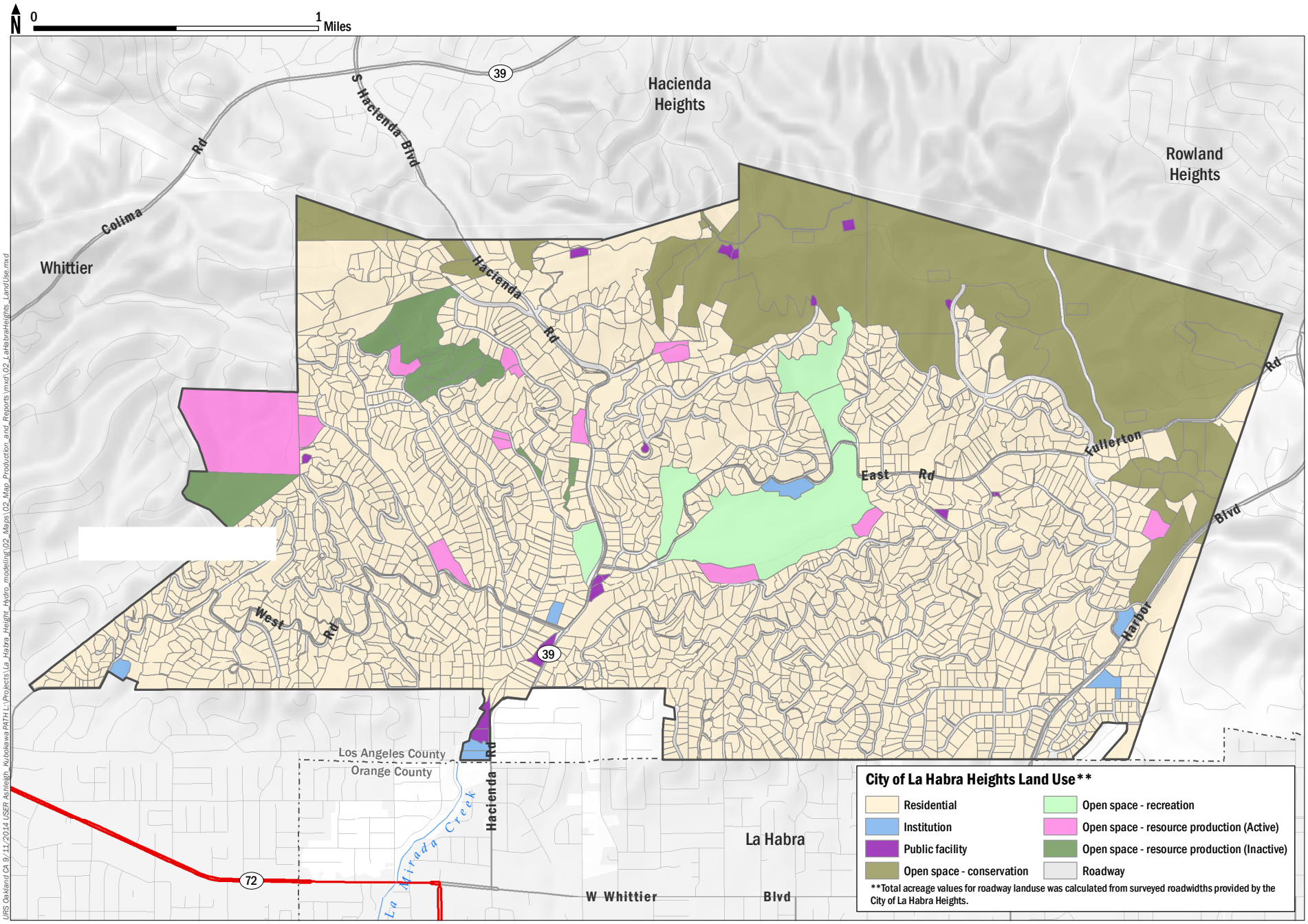
Mapping & Property Management Division, Mapping & GIS Services Section



URS

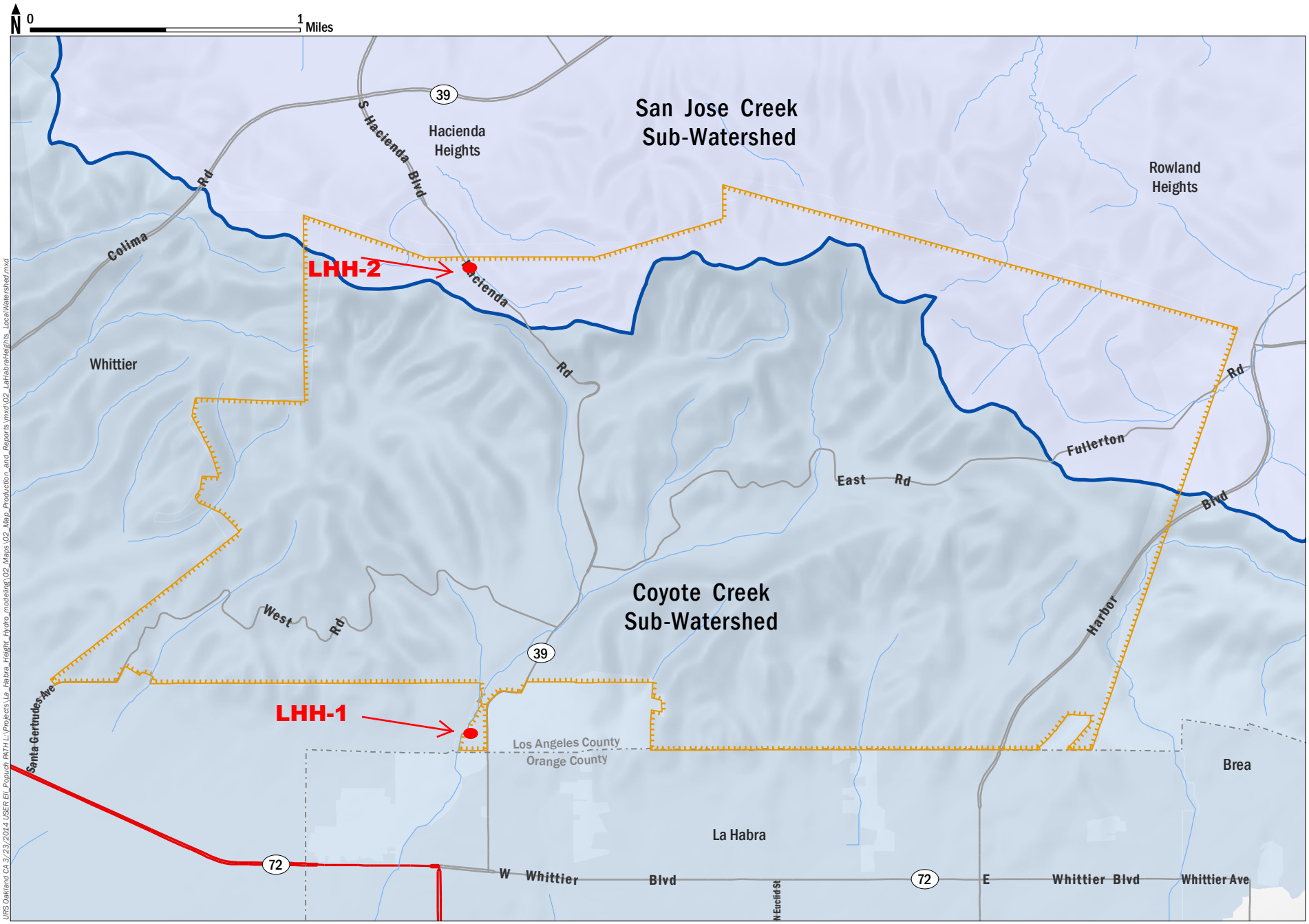
City of La Habra Heights

City of La Habra Heights Reasonable Assurance Analysis

Source: City of La Habra Heights, 2013.

FIGURE 4

City of La Habra Heights Land Use



URS

City of La Habra Heights Water Department

City of La Habra Heights Reasonable Assurance Analysis

Source: USGS National Hydrography Dataset, 2013

FIGURE 5

La Habra Heights Local Subwatersheds

City of La Habra Heights Sampling Locations

Appendix A

MS4 Permit Table E-2

CONSTITUENTS	MLs
CONVENTIONAL POLLUTANTS	**mg/L**
Oil and Grease	5
Total Phenols	0.1
Cyanide	0.005
pH	0 – 14
Temperature	N/A
Dissolved Oxygen	Sensitivity to 5 mg/L
BACTERIA (single sample limits)	MPN/100ml
Total conform (marine waters)	10,000
Enterococcus (marine waters)	104
Fecal coliform (marine & fresh waters)	400
E. coli (fresh waters)	235
GENERAL	**mg/L**
Dissolved Phosphorus	0.05
Total Phosphorus	0.05
Turbidity	0.1 NTU
Total Suspended Solids	2
Total Dissolved Solids	2
Volatile Suspended Solids	2
Total Organic Carbon	1
Total Petroleum Hydrocarbon	5
Biochemical Oxygen Demand	2
Chemical Oxygen Demand	20-900
Total Ammonia Nitrogen	0.1
Total Kjeldahl Nitrogen	0.1
Nitrate-Nitrite	0.1
Alkalinity	2
Specific Conductance	1umho/cm
Total Hardness	2
MBAS	0.5
Chloride	2
Fluoride	0.1
Methyl tertiary butyl ether (MTBE)	1
Perchlorate	4 µg/L
METALS (Dissolved & Total)	**µg/L**
Aluminum	100
Antimony	0.5
Arsenic	1
Beryllium	0.5
Cadmium	0.25
Chromium (total)	0.5
Chromium (Hexavalent)	5
Copper	0.5
Iron	100
Lead	0.5
Mercury	0.5
Nickel	1
Selenium	1
Silver	0.25
Thallium	1
Zinc	1

SEMIVOLATILE ORGANIC COMPOUNDS	
ACIDS	**µg/L**
2-Chlorophenol	2
4-Chloro-3-methylphenol	1
2,4-Dichlorophenol	1
2,4-Dimethylphenol	2
2,4-Dinitrophenol	5
2-Nitrophenol	10
ACIDS	**µg/L**
4-Nitrophenol	5
Pentachlorophenol	2
Phenol	1
2,4,6-Trichlorophenol	10
BASE/NEUTRAL	**µg/L**
Acenaphthene	1
Acenaphthylene	2
Anthracene	2
Benzidine	5
1,2 Benzathracene	5
Benzo(a)pyrene	2
Benzo(g,h,i)perylene	5
3,4 Benzoflouranthene	10
Benzo(k)flouranthene	2
Bis(2-Chloroethoxy) methane	5
Bis(2-Chloroispropyl) ether	2
Bis(2-Chloroethyl) ether	1
Bis(2-Ethylhexl) phthalate	5
4-Bromophenyl phenyl ether	5
Butyl benzyl phthalate	10
2-Chloroethyl vinyl ether	1
2-Chloronaphthalene	10
4-Chlorophenyl phenyl ether	5
Chrysene	5
Dibenzo(a,h)atnthracene	0.1
1,3-Dichlorobenzene	1
1,4-Dichlorobenzene	1
1,2-Dichlorobenzene	1
3,3-Dichlorobenzidine	5
Diethyl phthalate	2
Dimethyl phthalate	2
di-n-Butyl Phthalate	10
2,4-Dinotrotoluene	5
2,6-Dinotrotoluene	5
4,6 Dinitro-2-methylphenol	5
1,2 Diphenylhydrazine	1
di-n-Octyl phthalate	10
Fluoranthene	0.05
Fluorene	0.1
Hexachlorobenzene	1
Hexachlorobutadiene	1
Hexachloro-cyclopentadiene	5
Hexachloroethane	1

Indeno(1,2,3-cd)pyrene	0.05
Isophorone	1
Naphthalene	0.2
Nitrobenzene	1
N-Nitroso-dimethyl amine	5
N-Nitroso-diphenyl amine	1
N-Nitroso-di-n-propyl amine	5
Phenanthrene	0.05
BASE/NUETRAL	**µg/L**
Pyrene	0.05
1,2,4-Trichlorobenzene	1
CHLORINATED PESTICIDES	**µg/L**
Aldrin	0.005
alpha-BHC	0.01
beta-BHC	0.005
delta-BHC	0.005
gamma-BHC (lindane)	0.02
alpha-chlordane	0.1
gamma-chlordane	0.1
4,4'-DDD	0.05
4,4'-DDA	0.05
4,4'-DDT	0.01
Dieldrin	0.01
alpha-Endosulfan	0.02
beta-Endosulfan	0.01
Endosulfan sulfate	0.05
Endrin	0.01
Endrin aldehyde	0.01
Heptachlor	0.01
Heptachlor Epoxide	0.01
Toxaphene	0.05
POLYCHLORINATED BIPHENYLS	**µg/L**
Aroclor-1016	0.5
Aroclor-1221	0.5
Aroclor-1232	0.5
Aroclor-1242	0.5
Aroclor-1248	0.5
Aroclor-1454	0.5
Aroclor-1260	0.5
ORGANOPHOSPHATE PESTICIDES	**µg/L**
Altrazine	2
Chlorpyrifos	0.05
Cyanazine	2
Diazinon	0.01
Malathion	1
Prometryn	2
Simazine	2
HERBICIDES	**µg/L**
2,4-D	10
Glyphosate	5
2,4,5-TP-SILVEX	0.5